

External financial fragility and the 1998–1999 Brazilian currency crisis

Experience with stabilization programs involving some kind of exchange anchor shows that, generally speaking, such plans at first generate an abrupt drop in the rate of inflation, accompanied by marked appreciation in the rate of exchange.¹ The local currency appreciates as a result of differential evolution by domestic and foreign prices in a context where the nominal rate of exchange remains stable, causing the balance of payments current account to contract substantially, due principally to the increase in the value of imports. Normally, the resulting deficit is accompanied by a large capital account surplus, thus not only enabling the former to be financed, but allowing the volume of the country's international reserves to grow. The latter increase occurs as a result of the surge of foreign capital entering the country drawn by the stabilization plan's initial success, combined generally with liberal structural reforms.

Higher domestic interest rates—an added attraction to external financing—are normally used to reinforce these factors still further. The introduction of tight monetary policies and greater freedom for foreign investors create an interest rate differential sufficiently large to attract arbitrage capital inflows. The increasing influx of foreign capital, however, can lead to a still greater real appreciation of the exchange rate, leading to a further increase in imports and also a downturn in exports.

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¹ Dependence on foreign capital flows causes, among other problems, the real rate of exchange to appreciate, nontradables to expand at the cost of tradables, and trade deficits to increase, which can leave the country's economy increasingly vulnerable to external factors. In this connection, see Gavin et al. (1995) and Corbo and Hernandez (1996).

On the other hand, the need to maintain high interest rates in order to attract foreign capital and efforts to sterilize the inflow of foreign capital (also requiring high interest rates) lead to increasing public internal debt and also a deteriorating fiscal balance.

In this context, a larger and growing current account deficit will only be sustainable if equivalent levels of long-term external funding are available, associated with productive investment capable of generating a future flow of exchange revenues sufficient to pay off outstanding debt. The precise nature of capital inflow is fundamentally very important, since one of the great perils of stabilization plans with exchange anchors is that a reversal in the flow of foreign capital can lead to a balance of payments disequilibrium of such a magnitude that it becomes unfeasible for the government to maintain the existing exchange rate. Expectations for exchange devaluation are generated among international investors, leading in turn to further shrinkage in inflows of foreign capital and, consequently, a fall in levels of reserves, leaving the government no option but a substantial devaluation in the nominal exchange rate. This in turn may have a prejudicial effect on domestic prices and on the behavior of nonresident investors, thus jeopardizing the stabilization effort.

Therefore, balance of payments disequilibrium results from the fact that, in a world of globally mobile financial and productive capital investments, domestic stabilization policies are inherently destabilizing. This is because, under these conditions, the initially successful application of an internal stabilization policy comes to generate an endogenous process of deteriorating economic conditions (a growing public deficit, a growing deficit in its balance of payments current account, dependence on foreign capital, etc.), which may leave a country vulnerable to speculative attacks on its currency and thus subject to currency crises (Kregel, 1999).

Many of the criticisms leveled at the stabilization program implemented in Brazil in 1994—known as the Real Plan²—related to the consequences of the pattern of financing for current account deficits and financial commitments assumed in the recent past. In particular,

² The Real Plan was conceived on the same basis as stabilization programs with exchange anchor that have been applied in Latin America since the late 80s, using a fixed or semifixed rate of exchange in combination with more open trade policy as a price anchor. It differs from Argentina's Convertibility Plan by adopting a more flexible exchange anchor; that is, a typical currency board system, rather than pegging the domestic currency at one-to-one parity with the U.S. dollar. At the outset of the Brazilian program, in July 1994, the government's commitment was to maintain an exchange rate ceiling of one-to-one parity with the dollar. Moreover, the relationship between changes in monetary base and foreign reserve movements was not explicitly

the argument goes, holding interest rates at high levels since the plan came into operation has attracted short-term foreign capital in volumes many times greater than the needs indicated by the balance of payments, thus raising the level of reserves and fostering real appreciation of the exchange rate, which has had two effects. First, as trade arrangements were being liberalized, the exchange appreciation resulted in significant balance of trade deficits, a consequence of increasing importation. Second, this capital inflow entails foreign exchange commitments concentrated largely in the short term, which was alleged to have sparked off an incessant pursuit of funds to refinance them. The effects of this liberal economic policy arrangement were claimed to have aggravated Brazil's external financial fragility, due to its increasing dependence on obtaining foreign financing to sustain current account deficits.

Before the 1998–1999 currency crisis, the Brazilian government took the view that the growth in imports that could be observed was a consequence of the restructuring of industrial production activities that had been ongoing in Brazil in recent years—as a result of the interaction of the processes of globalization, stabilization, and privatization (Barros and Goldenstein, 1997)—and that the resulting productivity gains would contribute to generating trade surpluses sufficient, in due course, to restore stability to the balance of payments. In addition, it was argued that short-term debt was being supplanted by long-term debt and foreign direct investment, bringing the restructuring strategy into line with financial time frames. Besides, the high level of foreign reserves was considered a “shelter” that the government could use to defend the domestic currency against any speculative attack. This view predominated as the normal macroeconomic framework that influenced agents' expectations during the Real Plan.³

The aim of this article is to assess Brazil's external financial fragility in the context of the Real Plan,⁴ and to show that—contrary to government

stated, allowing some discretionary leeway. After the effects of the Mexican crisis, the exchange rate policy was reviewed and in a context of a crawling exchange rate band the nominal rate began to undergo gradual devaluation. In early 1999, however, after six months of speculative pressure, the *real* was devalued and, some days later, the Brazilian government adopted a floating exchange rate. For a general analysis of the origins and development of the Real Plan, see Silva and Andrade (1996).

³ See, in this connection, the next section.

⁴ For the purpose of this article, we are considering that the Real Plan began in July 1994 with the monetary reform that introduced a new domestic currency, the *real*, in Brazil and that it ended in January 1999 with the change in the exchange rate regime,

precrisis discourse—the trend toward increasing fragility left the country quite vulnerable to changes at the international level, as shown by the sequence of crises that began in October 1997 and ended in January 1999 with the devaluation of the real. It also seeks to explain the 1998–1999 Brazilian crisis as a result of agents' declining confidence in the government's capacity to sustain the prevalent economic policy and the weakening of the IMF's capacity to deal with international financial crises. To begin with, Section 2 briefly presents the Brazilian government's official pre-crisis view, as formulated particularly by Gustavo Franco, former Director for International Affairs and President of Brazil's Central Bank, for whom the situation prior to October 1997 represented no risk of crisis in the external sector, there thus being no need for any major realignment of exchange policy or more thoroughgoing change in the institutional rules on capital movements. Section 3 describes an external financial fragility index, which is built on the concept of financial fragility developed by Hyman Minsky, expanding his financial fragility hypothesis at a country level, as if it were a large firm. So, the index is applied to the Brazilian economy in the years prior to and following the Real Plan in an attempt to evaluate particularly the degree of external vulnerability during the Real Plan. This section focuses particularly on the speculative attack on Brazil's currency in the light of the country's external financial fragility. By way of conclusion, Section 4 offers some final, comparative remarks on the text.

External fragility and exchange policy: the official precrisis view

One of the most striking features of the recent stabilization process in Brazil was the strong real appreciation in the exchange rate that occurred when the Real Plan came into force. This resulted fundamentally from the combination of intensive inflows of capital, attracted by high domestic interest rates, and adoption of a floating exchange rate during the first months of the program. Critics of the exchange policy adopted by Gustavo Franco pointed out that one of the main problems of the stabilization plan was the existence of an "exchange lag,"⁵

when a floating exchange regime was adopted. That the Plan can be said to have ended at this point is justified because, until then, the semifixed rate of exchange was considered the main anchor of the stabilization program.

⁵ "Lag," according to Franco (1998, p. 131), means "off balance," or more specifically that "the domestic currency is too expensive in relation to the foreign currency, or is set higher than what is considered correct, reasonable or consistent with equilibrium, whatever the latter may mean."

which was claimed to be causing ever larger balance of payments current account deficits, which it would be impossible to sustain in the long term.⁶

Franco (1996, 1998) questioned the existence of any exchange lag during the Real Plan and argued that the exchange appreciation was a product of the new macroeconomic context of price stabilization and globalization in which Brazil now finds itself. He held that the liberalization of trade and capital flows, as well as the present exchange policy (crawling exchange rate band), were all elements fundamental to stabilizing prices and returning to economic growth, free of the drawbacks entailed by the import substitution-oriented growth model.

According to Franco, inherent to the notion of *delay* or *lag* is an allusion to time past, associated with arrangements typical of a context of high inflation and capital flight—conditions quite different from those of the Real Plan. After all, rising exchange rates are to be seen with almost all successful stabilization programs, particularly as a result of increases in the prices of nontradables, which contaminate the price index and exaggerate the real appreciation in the exchange rate. Franco (1998, p. 134) argued then that the essential thing was “to know whether current levels are appropriate; that is, whether the appreciation of the *real* is correct or merited” and he believes that the *correct, prudent level* for Brazil’s current account deficit, as observed in other emerging economies, should be of the order of 3 percent of GDP.⁷

Franco also believed that, in the case of Brazil, the external deficit—albeit high—was being properly financed, with increasing participation by long-term foreign capital (mainly direct investments), and had constituted a contribution by foreign savings to Brazil’s development, since the imports were largely capital goods that contribute to improving the competitiveness of Brazilian industry.⁸ Meanwhile, according to Franco, it had to be borne in mind that labor productivity in Brazil had been growing at average rates in excess of 7 percent since 1991, evidence of the changes under way in the structure of production since the economy opened up to the outside, and were progressively modifying the nature of the country’s competitiveness. Following this same line of reasoning,

⁶ See, for example, Batista (1996) and Dornbusch (1997).

⁷ Franco’s paper (Franco, 1998), originally written in June 1996 when he was Director for International Affairs of Brazil’s Central Bank, had wide repercussion in the Brazilian press.

⁸ In this regard, see the interviews with Gustavo Franco in the following newspapers: *Gazeta Mercantil*, November 18, 1996, and *O Globo*, January 20, 1997.

Francisco Lopes, ex-Monetary Policy Director of the Central Bank, said: "I think that the process of stability and openness tends to generate productivity gains that will make Brazil more competitive—encouraging exports and reducing imports. That is our wager. But it is something that does not need to be planned. The market system itself will manage it better than us."⁹

To summarize, as seen by the government's policymakers before the currency crisis, the features of the production restructuring process in Brazil were as follows: (i) domestic investment, due to privatizations and the influx of direct foreign investment, would increase the formation of fixed capital at a magnitude sufficient to make it possible to provide the underpinning for a new cycle of development; (ii) this restructuring would produce significant, persistent productivity gains sufficient to offset the appreciation in the exchange rate and stimulate a vigorous reaction by exporters in the medium and long terms;¹⁰ and also, (iii) would reverse the sizeable expansion of coefficients of penetration by imports in the production chain in Brazil.

Government economic authorities thus seemed to be counting on a gradual, spontaneous adjustment of the balance of trade in which production of tradables would expand as a result of the restructuring of the industrial sector and of the Brazilian economy's improved competitiveness due to greater openness to the outside. In time, this should lead to an increase in exports and a slowing in the pace of imports, resulting in balance of trade surpluses in the future. Consequently, according to this view, the situation in Brazil did not represent major risk of a currency crisis.

The external financial fragility of the real

A measure of external financial fragility¹¹

Financial Fragility

Minsky (1982, 1986) developed the concept of financial fragility as a measure of an economy's ability (or inability) to deal with shocks to its conditions of financing (e.g., a sudden hike in interest rates) without

⁹ Interview in *Jornal do Brasil*, July 6, 1997.

¹⁰ Exports would also be encouraged by nonexchange, export promotion measures adopted by the government by way of lines of credit from the National Economic and Social Development Bank (BNDES).

¹¹ This section is a modified and expanded version of Paula and Alves (1999, section 3).

there resulting any generalized disorganization in flows of payments among economic agents.¹² He felt that the decision to invest, to choose assets, runs hand-in-hand with the choice of the means of financing. Both decisions, taken in combination, define the extent of the economy's vulnerability to adverse change in the economic situation. An economy will be—macroeconomically—more or less fragile according to the preponderance of financial hedge or speculative units. Financial structures, defined as the relationship between the expected future flows of profits from an economic unit and its financial commitments, can be classified into *hedge*, *speculative*, or *Ponzi*.

Units classified as *hedge* adopt financially conservative attitudes, i.e., they are those where the safety margins between profits and financial commitments are sufficient to ensure that, in all future periods, profits will exceed interest expense and amortization payments. (Here, expected gross revenue affords some margin over debt payment commitments.) A rise in interest rates will not jeopardize these units' ability to meet their payment commitments—or at least not directly.

Speculative units maintain smaller safety margins than hedge units, as they speculate that financial costs will not increase to the point where their plans become unworkable. Here, in general, expected gross capital income obtained in initial periods are insufficient to pay off the first debt amortizations in full; but the expectation is that in subsequent years agents will obtain a revenue surplus sufficient to offset the initial situation of deficit. For this reason, such units need to refinance their liabilities. Under these conditions, if interest rates rise, so will related financial expenses, thus directly altering the current value of their enterprises.

Economic agents that take financing with shorter maturities than the project being financed are generally assuming a speculative stance, given that they know beforehand that they will have to resort to new financing to fulfill their financial contracts. According to Minsky, this pattern of financing is typical of economies in a state of euphoria.

Ponzi units may be considered an extreme case of units with a speculative financial attitude. In the immediate future, their gross capital income will not be sufficient even to cover the value of outstanding interest payments, making it necessary for them to take out additional loans so that the unit can meet its financial commitments. Their indebtedness

¹² According to the *financial fragility hypothesis*, an accelerating product growth rate leads firms to become increasingly indebted in order to expand production, while the banking sector accommodates the demand for credit. The cyclic fluctuations in the economy result from the way the firms finance their portfolios, with financial fragility increasing in periods of growth due to the increasing activity of speculative agents.

grows even when interest rates do not rise and their vulnerability to rising interest rates is even greater than in the previous case.

One of the analytical consequences of using the concept of financial fragility is that the success of tight monetary policy in controlling aggregate demand without producing instability depends on the degree of financial fragility of the economy as a whole. The effect of a rise in interest rates on a robust economy dominated by agents with a hedge attitude will be to reduce expenses and profits. In the case of a fragile economy—that is, where a majority of agents adopt a speculative attitude—a rise in interest rates will directly affect the value of their financial commitments, which may make it widely unfeasible for them to pay their debts, thus triggering a financial crisis.

Financial fragility in open economies

In an open economy, there is an added dimension to the concept of financial fragility, as compared with closed economies. When considering the contractual relationship between residents and nonresidents, the future exchange rate and the determination as to who incurs the exchange risk are key elements in the composition of financial structures. In order to gauge revenue flows and compare them with outstanding financial commitments and thus assess the financial fragility of agents resident in an open economy, it is necessary to forecast the exchange rate that will be current on future payment dates.

The rate of exchange may influence the financial structure in two ways. One of these has to do with operational activities. Depending on the currency in which receipts and spending occur, the direct impact of an exchange fluctuation may be positive, negative, or neutral. The other way exchange variation affects companies' health is via the financial route. In this case, the impact will depend on the currency in which their financial commitments are to be discharged. The possible combinations among revenue and expenditure flows and financial commitments in domestic and foreign currencies make for a great variety of agents, reflecting the greater complexity of an open economy.

In order to determine exchange risk, a distinction has to be drawn among units according to the currency (dollar or real) in which they incur their costs and collect operating revenues. Table 1 summarizes four types of unit.

Units in groups *A* and *D* will only be affected indirectly by exchange variations, in the case their sales increase or decrease. For them, nonetheless, the proportion of revenues to expenditures should remain relatively constant. In groups *B* and *C*, however, an exchange variation—e.g.,

Table 1
Types of unit by currency in which revenues and expenditures occur

	A	B	C	D
Revenues	US\$	US\$	R\$	R\$
Costs	US\$	R\$	US\$	R\$

a devaluation—will have a direct effect on the ratio of revenues to expenditures. Units of type *B*, which are exporters, will be affected favorably. Supposing that the quantities sold remain constant, they will enjoy an immediate increase in revenues proportional to the devaluation, while their costs will remain constant. Units of type *C*—importers, for example—will suffer the direct impact of an exchange devaluation on their costs, which will increase. Should they be unable to alter their selling prices or manage to pass on only part of the devaluation—at least in the short term—their profits will be reduced. It can therefore be said that, in terms of operational activities, only units of types *B* and *C* run exchange risk. At this stage, where relations of indebtedness have not yet been taken into account, units of types *A* and *D* may be considered *hedge* from the exchange point of view.

Transposing to the context of an open economy the table drawn up by Minsky for a closed economy thus generates a far more complex taxonomy of types of unit. In this case, when one considers the *economic units' sensitivity to exchange variations*—in addition to variations in interest rates—the macroeconomic impact of a tight monetary policy and/or of an exchange devaluation becomes quite diversified, and its overall effect on the total economy will depend on the relative weight of units, with speculative postures among agents as a whole.

For purposes of analysis, it is useful to separate the components of the degree of fragility in open economies according to the impact that a rise in interest rates or an exchange variation can cause on the economy. Initially, then, *external financial fragility* may be defined as the degree to which an economy is vulnerable to changes in conditions of financing originating from alterations in external interest rates or in exchange rates.¹³ This fragility may manifest itself in operational terms, which, from the macroeconomic viewpoint, would entail balance of trade deficits. In terms of financing, however, if there are units with financing in

¹³ An economy's external fragility may also be defined, as in Lopez (1997, p. 13), "as a situation in which there is a high risk of holding insufficient foreign reserves to face an important conversion of liquid saving in national currency into foreign currency."

foreign currency at shorter-term maturities than the activity financed and/or whose revenues are in domestic currency, they may be vulnerable to changes in exchange rates, at the same time as the country is subject to external shocks deriving from alterations in international financing conditions.

In other words, the macroeconomic result of agents' financial attitudes, in foreign currency, will be a fragile economy if the set of resident agents involved in transactions with the outside world is of such an order that maturing financial commitments—or at least the most immediate of them—cannot be met by using available foreign exchange, unless this is complemented by refinancing the short-term obligations.

In an economy where trade and financing are very open, the exchange rate depends strongly on the actual and expected behavior of the balance of payments, which is an unplanned result of the action of autonomous agents. It is thus useful to assess to what point the exchange rate can be sustained in terms of available reserves and inflows and outflows of foreign currency—represented here by the U.S. dollar—in the economy as a whole. This is why it is important to calculate the degree of a country's external fragility: an evaluation of its dependence on refinancing in order to sustain the stability of its balance of payments and any given exchange rate.

External financial fragility

Given information about a country's balance of payments, it is possible to determine its degree of external financial fragility in the light of how great (or small) its economy's need to resort to the international capitals market in order to renegotiate outstanding financial positions (that is, that cannot be settled immediately). As the degree of fragility is related to the country's ability to pay its exchange commitments, as well as to the profile of the latter, an *external financial fragility index* (EFI) was developed to reflect the evolution of an economy's external fragility by comparing its actual and potential foreign currency liabilities with its respective payment capacity, that is:

$$\text{EFI} = \frac{(M + D_i + D_{OS} + A + \text{STC}_{-1} + \text{NIP}_{-1})}{(X + R_i + R_{OS} + \text{RE}_{-1} + \text{FDI} + L_m)}$$

where: M = imports
 X = exports
 D = expenditures on interest "i" and other services (OS)
 R = revenues from interest "i" and other services (OS)
 A = loan amortizations

- STC_{-1} = short-term capital stock, with a quarter-year lag
 NIP_{-1} = stock of net investment in portfolio, with a quarter-year lag
 RE_{-1} = aggregate official reserves at prior quarter-year end
 FDI = foreign exchange inflows corresponding to direct investments
 L_{ml} = medium- and long-term loans

The *actual* payment obligations comprise expenditure with imports and services plus loan amortizations. *Potential* obligations are short-term capital stocks and investments in portfolio—aggregated up to the first quarter of 1991, according to their value in the balance of payments—and with a quarter-year lag.¹⁴ These variables represent the country's most important liabilities—actual and potential—in a given quarter. These liabilities can be “met” by way of reserves, revenues from exports and other services (interest and other services), medium- and long-term loans, and direct investment.

The higher the value of the index, the more liable the country is to be affected by changes in the international situation (e.g., changes in foreign interest rates) and the poorer its ability to meet more immediate financial commitments, leaving it more dependent on external refinancing or its own foreign exchange reserves. Alternatively, the higher the value of the index, the greater the country's capacity to meet its more immediate commitments without needing to resort to refinancing or to its stock of reserves. In other words, to the extent that the index decreases, actual and potential liabilities are being covered by current revenues and by sources of longer-term financing. This interpretation makes it possible to classify countries' financial postures in a manner analogous to the concept of financial fragility developed by Minsky.

In this case, an open economy is classified as *hedge* if it is able to meet fully its actual and potential foreign exchange liabilities (relating to the flow of goods and services), independently of permanent refinancing. This implies that current expenses and financial commitments—both in foreign currency—are compatible with current revenues and the degree of liquidity (in foreign currency) of its assets. On the other hand, an

¹⁴ Aggregate short-term capital and net investment in portfolio were set back by one year because, for the purposes of this study, it was decided that liabilities could mature only in the quarter subsequent to inflow. The same was done with reserves, as it was understood that liabilities of any given quarter may be met with exchange revenues from the same quarter in addition to aggregate reserves up to the previous quarter.

economy may be classified as *speculative* if, in order to meet expenditures on current transactions and financial liabilities by nonresidents, recurrent use of refinancing (and/or loss of reserves) is required.

For example, an increase in short-term financing will add to the country's financial fragility if, in the following year, potential liabilities increase in relation to financial revenues obtained during the year, to current revenues, and to reserves. In this case, keeping the balance of payments steady will come to depend more and more on economic policies designed to attract short-term, speculative capital.

A note on potential liabilities

One of the properties of this index is that, if the value of the stock of portfolio investment increases, so the degree of external fragility will increase, indicating that short-term foreign exchange liabilities are increasing in relation to long-term assets. Nonetheless, this entire stock of assets cannot be considered as liquid. The assets' degree of liquidity is a measure of how possible it is to sell them quickly without their losing value.¹⁵

Even though there may be organized markets for the assets that make up the stock of investment in portfolio, their liquidity depends on there being a balance between sale and purchase orders, in such a way that transactions may be carried out without there being abrupt oscillations in the assets' prices. In any case, if all holders of a given asset wished to sell at the same time it would not be possible to carry through the transactions without major price reductions. Any massive liquidation of shares or other securities would lead to significant capital losses. In consequence, the value of portfolio stock that could be sent out of the country in the short run is smaller than the value included in the index.

In spite of this problem in determining the stock of investment in portfolio, the way the index evolves will evidence a country's tendency to greater or lesser external fragility, in that it shows the proportion between an economy's most immediate real and potential foreign liabilities and the funds available to meet them without precipitating a currency crisis. It is thus to be considered as merely a trend indicator, designed to

¹⁵ According to Davidson (1992, p. 46), "The degree of liquidity depends on the degree of organisation and orderliness of the relevant spot market. Depending on social practices and institutions, the degree of liquidity of any asset can change from time to time as the rules under which the spot market for any asset changes. Differences in degree of liquidity among assets are reflected in differences in the transaction costs and the stickiness of the money spot price over time, the smaller the transactions costs and/or the greater the stickiness, the greater the degree of liquidity of any asset."

evaluate the greater or lesser importance of subjective evaluations by economic agents holding foreign exchange assets or liabilities in determining the international situation of the economy.

A note on EFI in conditions of normality and instability

In spite of using the Wicksellian concept of *natural equilibrium*, a state or point determined by current *objective* conditions like preferences and technology, where the economy, sooner or later, will settle, Post Keynesian economics suggests that *normal equilibrium* is a more relevant concept that reconciles uncertainty and agents' subjective evaluations of economic futures and economic stability. So, what really matters in explaining the actual path taken by the economy is the "state of long-term expectations" rather than "objective" long-term period conditions.¹⁶

The concept of *normality*, as derived from Keynes, relates to the existence of rules, conventions, and institutions that guarantee continuity in economic activity, despite the fluctuations and interruptions that are also typical of capitalism.¹⁷ Normality is associated with repetitive facts and events that can be observed frequently, and may thus be foreseen. In a state of economic normality, average behavior prevails in the economy. Providing that the behavioral parameters are stable, the macroeconomic context can be predicted with some confidence. Continuity is guaranteed by "exogenous" factors, such as psychological factors and those relating to the environment.¹⁸ These factors are responsible for the fact that the capitalist economy shows a remarkable degree of stability. On the other hand, normal conditions may also be disrupted by "exogenous" factors, which cause a break with current rules, conventions, and institutions, producing a deterioration in agents' state of confidence and a change in their behavior. In conditions of instability, there are neither regular and repetitive behavioral trajectories nor normal behavior that can be foreseen by the agents.

In the context of a country's external economic relations, the concept of *normality* relates to agents' state of confidence in the maintenance of

¹⁶ In this connection, see Carvalho (1992, ch. 2).

¹⁷ According to Keynes (1964, p. 249), "it is the outstanding characteristic of the economic system in which we live that, whilst it is subject to severe fluctuations in respect of output and employment, it is not violently unstable."

¹⁸ "As important as the 'right' psychology are the features of the environment that strengthen continuity. Foremost among these features are institutions created to reduce or socialize uncertainty, coordinating plans and activities. The most important of them is the emergence of forward contracts denominated in money connecting the present to the future" (Carvalho, 1992, pp. 27–28).

certain practices (for instance, in the government's ability to maintain the existing exchange regime or to control the economic fundamentals) and also to resident and nonresident agents' belief in the long-term sustainability of the balance of payments (for instance, a country's ability to finance its current account deficit, an increase in the relative share of long-term capital in overall capital inflows, or an expected improvement in the balance of trade). Agents will take this picture as their frame of reference when forming their expectations. Under normal conditions, therefore, the EFI shows, against a standard of normality, the risks associated with the likelihood that a currency crisis will occur as a result of an increase in the country's external vulnerability, normally associated with worsening conditions for financing its balance of payments. As an indicator of safety margins, the EFI is thus an appropriate measure of risk for a context of normal behavior.

However, during periods of instability and crisis, a decrease in the EFI, which in a context of normality could mean a reduction in external fragility, means only that the country has been pitched into an external crisis as a direct result of the strong increase in capital outflows. In this context, a sharp, continuous fall in the level of foreign reserves, which normally serves as a hedge against speculative attacks, is an indicator that an external crisis prevails. So, in a context of deteriorating expectations and low levels of reserves, the same EFI value that in conditions of normality could mean low external vulnerability now means a critical external situation.

A currency crisis can be caused by deterioration in agents' expectations due to a change in external factors (differentials between domestic and foreign interest rates, an external shock, a weakness in the exchange rate, etc.) and/or by a break with conventions that leads agents to lose faith in the government's ability to sustain a certain exchange regime.¹⁹ Immediately after the crisis, the new behavior by agents can lead to expectations that external financial shocks may occur with greater intensity and frequency, indicating that postures previously classified as *hedge*, according to the Minsky taxonomy, are now excessively daring. In these conditions, the economic agents "require" that the country offer a broader spread in interest rates to attract capital or to avoid further capital outflows, but this does not guarantee that a currency crisis will be avoided.

¹⁹ Our theoretical analysis of currency crises can be seen in Alves, Ferrari, and Paula (1999–2000).

Applying the external fragility index to Brazil's economy

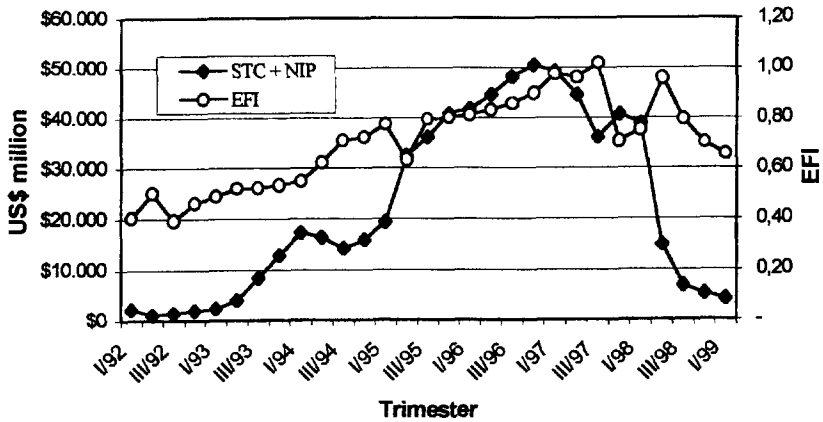
In this section, an EFI series for the Brazilian economy, from the second quarter of 1992 to the second quarter of 1999, was constructed on the basis of balance of payments data obtained from the Monthly Bulletin of Brazil's Central Bank (*Boletim Mensal do Banco Central do Brasil*). The graph below shows the behavior of the EFI in this period, as well as Brazil's short-term and portfolio capitals stock (values in US\$ millions), which appears along the right-hand axis (see Figure 1).²⁰ Short-term and portfolio capitals increased from the beginning of 1993 onward as a result of different factors, such as the removal of capital account controls, the differential between domestic and foreign interest rates, and increasing diversification among international institutional investors. It is interesting to note how the behavior of external financial fragility—which shows an upward trend as of the introduction of the Real Plan in the third quarter of 1994—correlates directly with short-term and portfolio capital stock.

On the other hand, note that balance of trade trends changed considerably with the introduction of the Real Plan, becoming closely linked to the real appreciation of the exchange rate that occurred in the period, as well as the lifting of trade barriers, as shown in Figure 2. This result is expected, since the evolution of the balance of trade has been the main factor responsible for the deteriorating current account, its behavior having been predominantly cyclic due to the fact that it is the component most sensitive to changes in the economic policy adopted by the government.²¹

At first sight, this strengthens the argument that, during the first four years of the stabilization program, the rate of exchange was inappropriate to the characteristics of the Brazilian economy and its pattern of foreign financing. It was held to be unsuitable in the light of ever larger current account deficits and because, contrary to what was suggested by the former President of Brazil's Central Bank, Gustavo Franco, long-term financing for these deficits was not sufficient to prevent increasing external financial fragility. On the contrary, as the evolution of the index suggests, the volume of long-maturity capital proved to be insufficient to bring Brazil's financial liabilities into line with its capacity to

²⁰ The data that make up the external financial fragility index can be seen in Table 2 in annex.

²¹ According to the Current Affairs Bulletin (*Boletim de Conjuntura*), July 1997, published by Rio de Janeiro Federal University's Institute of Economics, in the first three years of the Real Plan the balance of trade was responsible for roughly two-thirds of the increase in the current account deficit.

Figure 1 Short-term and portfolio capital stock and EFI

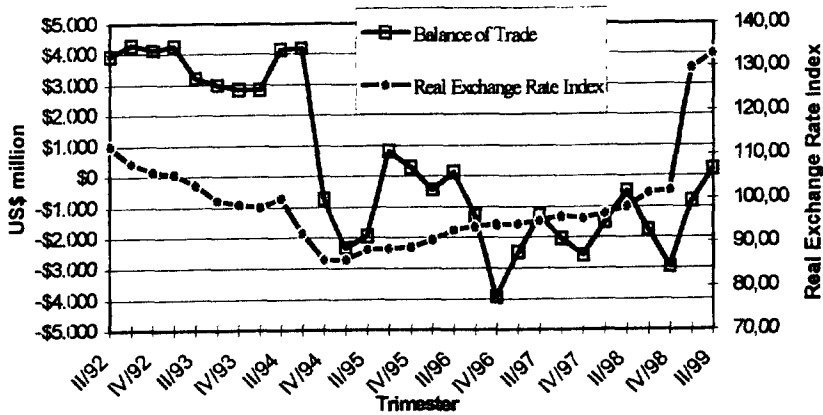
Source: *Monthly Bulletin of Brazil's Central Bank*, various issues.

Note: Real exchange rate: nominal exchange rate deflated by wholesale price index.

generate foreign exchange by way of current transactions. As a result, it was necessary to resort to short-term financing, which left the country vulnerable to changes in the short-term expectations formulated by international speculators.

This situation was the result of a deliberate policy of attracting short-term capital—currency loans and investments in portfolio—in the course of the 1990s,²² designed to eliminate external constraints imposed by the debt crisis of the previous decade by exploiting the growing supply of funds in the international financial system in a context of financial globalization. This brought about a significant increase in the volume of short-term capital and, concomitantly, in the levels of Brazil's reserves. In the period prior to the Real Plan, the financial fragility index increased very slightly and this behavior may be attributed mainly to balance of trade surpluses, in addition to the increases in reserves. It was thus during the Real Plan, with the increase in the influx of short-term capital and the explosive growth in imports, that Brazil's external fragility rose to a higher plateau and the upward tendency became more marked.

²² Annex IV to Resolution 1.289 of the National Monetary Council (Conselho Monetário Nacional, CMN, set up on May 31, 1991) disciplined investment in Brazil in bonds and securities portfolios maintained by foreign institutional investors, permitting considerable leeway in allocating funds to assets and to the operations which were admitted, and dispensing with the need to meet the minimum percentage requirements of the other Annexes (I, II, and III).

Figure 2 Real exchange rate and balance of trade

Source: *Monthly Bulletin of Brazil's Central Bank*, various issues.

Note: Real exchange rate: nominal exchange rate deflated by wholesale price index.

However, after the Asian crisis, the behavior of the index became unstable, even though the overall movement of the EFI indicates a downward trend, as a result of the sharp and rapid outflow of capital from Brazil. As seen in the previous section, as an index that shows a country's tendency to higher or lower external fragility, the EFI is appropriate to a context of normality, as defined earlier. In the case of Brazil, the normality as regards the external context during the Real Plan was closed associated with the strong belief among resident and nonresident agents in the stability and maintenance of the exchange rate regime (the "crawling exchange rate band"), including the government's ability to maintain this regime, and also in the sustainability of the balance of payments.²³ This belief created a macroeconomic context in which a sort of "convention of stability" prevailed, so that economic agents believed in the macroeconomic sustainability of the price stabilization policies. On the other hand, the currency crisis was associated with the dissolution of the context of normality and deteriorating expectations among agents as regards this context, as they lost confidence in the government's ability to maintain this regime and to sustain the balance of payments. In this new context, the EFI has to be analyzed differently, meaning that during a currency crisis a downward trend evidences a

²³ Sustainability of the balance of payments of a country relates to its capacity in the long run to properly finance the current account deficit, in order that the country will be able not only to "meet" its external commitments but also to improve the performance of its balance of trade in the long run.

critical external situation caused by increasing capital outflows and by the depletion of foreign reserves.

The evolution of foreign variables and their effects on the country's external vulnerability can be accompanied in detail by way of the index's behavior, which seems to point to five important periods in the evolution of the Brazilian economy's external financial fragility: (1) the period running from the second quarter of 1992 until the end of the second quarter of 1994, where one can observe a certain stability to external fragility, as well as the existence of trade surpluses; (2) the period from the third quarter of 1994 until the first quarter of 1995, running from introduction of the new currency and the substantial liberalization of imports and ending with the Mexican crisis and the resulting *Tequila effect*; (3) the brief period in which external fragility went into decline, ending in the third quarter of 1995, when the balance of trade made a rapid and short-lived recovery; (4) the period from the last quarter of 1995 to the fourth quarter of 1997, marked by large balance of trade and services deficits and by steadily greater external financial fragility and, at the end of the period, by the effects of the Asian crisis on Brazil; and (5) a final period from the first quarter of 1998 until the second quarter of 1999, characterized by macroeconomic instability in which Brazil—after a short and apparent recovery from the Asian crisis—was affected by the Russian crisis, resulting in a sharp outflow of short term capitals that led the crawling exchange rate band to be abandoned early in 1999.

During the first period, the balance of trade was always positive, reflecting competitiveness in production of the nation's tradables, due largely to the depreciated real exchange rate in relation to the present day, as a result of the rule of mini-devaluations adopted at the time (see Figure 2). Investments in portfolio were already quite significant in this period, probably attracted by the possibility of carrying out "box operations," which made it possible, by using the derivatives market, to simulate the environment of fixed income applications—which offered international investors significant real interest rates.²⁴

At the same time, offsetting the effects of portfolio investment on the index's behavior, one can observe significant growth in medium- and long-term loans and foreign direct investment. As a result of the major influx of foreign capital into Brazil during the period, the volumes of reserves grew considerably, jumping from US\$13.7 billion in the first

²⁴ The nominal interest rate divided by the exchange devaluation in the period gives the foreign investor's return in terms of the foreign currency. "Box operations," in turn, by way of a mixture of operations on the spot and derivatives markets, allow international investors in Brazil to obtain returns on the variable income market

quarter of 1992 to the region of US\$40 billion in the second quarter of 1994. Meanwhile, short-term capital movement oscillated, with sizeable net outflows until the end of the fourth quarter of 1993 and accelerating growth in net inflows from then until the end of the second quarter of 1994. There was practically no increase in the stock of this short-term capital in the period, however, which contributed to holding the index steady.

With the introduction of the new currency—the *real*, which rapidly appreciated over levels of the previous period due to the combination of a policy of high primary interest rates with an “asymmetrical exchange band”²⁵—and with the freeing up of imports as of September 1994, the tendency towards balance of trade surpluses was abruptly inverted. At the same time, the balance of services showed larger deficits, mainly as concerns nonfinancial services, with special mentions for international travel, insurance and freight. On the other hand, in the first quarter of 1995, portfolio investment, medium- and long-term loans and direct investment fell sharply by around US\$11 billion as compared with the previous quarter, with the onset of the Mexican crisis, probably because of its effects on nonresidents’ expectations as to the liquidity and profitability of their investments. Net inflows of short-term capital behaved erratically in the period, holding to a high plateau at first, falling sharply at the end of 1994 under the *Tequila effect* and then continuing to grow in the first quarter of 1995, which indicates that this type of capital is more sensitive to changes in government monetary policy and to expectations of a currency crisis.

One of the final results of these movements in this period was a major reduction in Brazil’s reserves, which shrank to 75 percent of their initial volume between the beginning of the Real Plan and the end of the first quarter of 1995. At this point, the index of Brazil’s external vulnerability made a significant jump, peaking during the first quarter of 1995. As of March of that year, under the impacts of the Mexican crisis and Brazil’s deteriorating balance of trade, a new stage began in terms of economic policy characterized by greater flexibility in exchange and trade policy, with the introduction of a system of mini exchange bands

similar to those of the fixed income market by exploiting the tax advantages granted to foreign investment under the provisions of Annex IV.

²⁵ According to Bacha (1997, p. 181), in the terms of the “asymmetrical exchange band,” the Central Bank undertook to intervene should the *real* tend to devalue against the dollar beyond its 1:1 parity, but would leave the market free should the tendency be for the *real* to appreciate against the dollar.

and the raising of import taxes to 70 percent on 109 product items, including automobiles and household electrical appliances.²⁶ At the same time, the government increased the primary interest rate sharply, which was fundamental in securing a significant volume of foreign funds by stimulating absorption of short-term capital.

In the third period, beginning in the second quarter of 1995, as a result of the change in exchange and trade policy and the adoption of strong “containment” economic policy measures (higher interest rates and limitations on credit), the balance of trade steadied: exports—which had fallen off considerably in the first quarter of 1995, probably because of expectations of an exchange devaluation—began to grow, while imports began to level off. The fundamental fact, however, is that direct investment, medium- and long-term loans and portfolio investment increased substantially, as did short-term capital, the net inflow of which exceeded US\$11 billion in the period, demonstrating the government’s success in confronting the *Tequila effect* and regaining agents’ confidence in the Real Plan. With this, reserves recovered rapidly, jumping from US\$31.5 billion in the second quarter of 1995 to US\$46.6 billion in the third quarter. The rapid replenishment of reserves and the influx of direct investment and medium- and long-term loans were decisive in reducing the index of the Brazilian economy’s external financial fragility at that point.

In the fourth period, beginning with the fourth quarter of 1995, the behavior of the balance of trade did not repeat the surpluses of the previous phase, but held steady or declined slightly until the second quarter of 1996, then decreased rapidly to reach its lowest value in the last quarter of 1996 (a deficit of around US\$3 billion), as a result of a combination of a relative stagnation of exports with a sharp increase in imports, which began to grow again vigorously. This behavior resulted from renewed economic growth in Brazil, in the context of a more expansionist economic policy, and also the ineffective nonexchange measures adopted to bolster exports, in addition to falling prices of some of Brazil’s export commodities on international markets. Consequently, the EFI tended to increase—almost immediately reaching the levels of the period when Brazil was dealing with the *Tequila effect*—until topping out towards the end of 1997.

In this period, in addition to the influence of short-term capital, spending on nonfinancial services also contributed to driving the fragility index

²⁶ As of March 1995, the government changed its exchange policy, carrying out a nominal devaluation of the *real* of about 6 percent and coming to adopt a policy of small monthly devaluations—by a slowly sliding, narrow exchange band—which was maintained until the beginning of 1999.

upwards, especially as a reflex of increased spending on freight and international travel, in the latter case strongly stimulated by the rising exchange rate and credit card facilities for financing purchases. On the other hand, interest and amortization spending, a product of the accumulated stock of medium- and long-term loans, has been growing since early 1996 although, in the case of amortizations, spending oscillated considerably during the period. The variables that performed well and contributed to preventing the index from rising still further from the beginning of 1996 onwards were medium- and long-term loans and direct investment.

Note that just before the speculative onslaught of October 1997, the external fragility index reached its highest levels since introduction of the *real*, evidence of Brazil's extreme external vulnerability at the time of the Asian crisis. The speculative attack on the *real* in October 1997 caused a significant reduction in short-term capital and in the levels of Brazil's foreign reserves, and highlighted the external fragility of the *real*. A currency crisis was prevented only by swift action from the government, which sold off part of its voluminous international reserves (that fell from US\$61.2 billion in September 1997 to US\$51.4 billion in December 1997), raised interest rates sky-high (from 21 percent to 44 percent p.a.) and increased the supply of hedge financing by selling exchange-adjusted government securities, so as to revert the speculative process under way at the time. In addition, the Brazilian government announced a strong fiscal policy package and measures to attract capital inflows. However, disappointment with slippage in fiscal adjustment in 1998 and the continuous growth of the public debt contributed to the sentiment that Brazil remained vulnerable. This sentiment was due to the loss of government capacity to improve the economic fundamentals, in particular the public sector deficit: the Brazilian government had promised a strong fiscal adjustment, but did not fulfill its promise. After the devaluation in mid-August 1998, the crisis in Russia led quickly to pressures on emerging markets and affected particularly Brazil's external capital account.²⁷ Again, as the outflow of capital continued throughout the second semester of 1998, the Brazilian government's response in October and November 1998 was to raise interest rates sharply (to 42.2 percent p.a. in late October), to increase the supply of hedge financing by selling exchange-adjusted government

²⁷ Liquidation of Brazilian Brady bonds to cover losses on Russian securities and, more generally, the build-up of short positions in Brazilian offshore debt instruments, resulted in arbitrage by resident investors seeking the higher return on the "Brazil risk" offered by Brady bonds. Nonresident holdings of Brazilian debt and equity instruments were also significantly reduced, and capital outflows by residents took

securities and to announce a strong, front-loaded fiscal adjustment effort,²⁸ while maintaining the current exchange rate regime. To reinforce these measures—and considering that they did moderate the rate of outflow of reserves, although not halting it altogether—the Brazilian government received a US\$41 billion IMF-led financial assistance package in support of its program of adjustment, considered as being a program of a “preventive nature.”²⁹ Nevertheless, as it was not at all clear how the proposed pre-approval would work in practice, given that the IMF’s conditions were onerous and complex, and considering that the IMF’s image had deteriorated since the failure of its intervention in Asia, the IMF loan package was not able to restore confidence on the financial markets that Brazil would be able to defend its currency.³⁰ So, when it became evident that foreign lenders and investors would not return until the exchange rate had been adjusted, Brazil was forced to allow its currency to float in January 1999.

So, in the fifth and final period of our analysis, beginning with the speculative onslaught of October 1997, movement of the EFI is uneven, determined mainly by capital movements, although the overall trend of the index was to fall. This period was characterized by macroeconomic instability, marked by strong pressures on Brazil’s domestic currency that resulted in a maxi-devaluation of the *real* and the change in the exchange regime, from the crawling exchange rate band to a floating exchange regime in January 1999. This decrease was initially due to a sudden, sharp contraction in short-term capitals and investments in port-

place in other forms. Overall, most of the outflows were by nonresidents. For an analysis of Brazilian crises, see IMF, *World Economic Outlook*, December 1998, particularly Box 1.1.

²⁸ The Brazilian government announced a front-loaded three-year fiscal adjustment program, that included a series of expenditure-saving and revenue-raising measures, with the intention to produce primary surpluses of the consolidated public sector—equivalent to 2.6 percent of GDP in 1999, 2.8 percent in 2000, and 3 percent in 2001—sufficient to stabilize the ratio of the public debt to GDP by the year 2000.

²⁹ Of the total amount, US\$18.1 billion would be provided by the IMF in the form of a three-year Stand-by Arrangement, about US\$14.5 billion from 20 governments channelled through, or provided in collaboration with, the BIS. However, only the first tranche of US\$5.3 billion from the IMF became available after approval of the package by the IMF’s Executive Board on December 2, while the other tranches would be available during 1999, subject to enactment of the key fiscal measures and the completion of a review by the IMF Executive Board.

³⁰ Asian crises were a typical “debt deflation process” and in this circumstance the adoption of conventional policies, treating the currency crises as balance of payment crises, only deteriorated the crises in Asia. See, in this connection, Kregel (1998). For a critical overall assessment of recent IMF policies, see Feldstein (1999).

folio (around US\$8 billion), as well as a decrease in amortization³¹ (around US\$9 billion), that resulted in a US\$9.8 billion reduction in foreign reserves during the fourth quarter of 1997 alone. After its successful defense of the *real*, the Brazilian government partially restored foreign investors' confidence, since capital outflows were stanching during the first semester of 1998. The Brazilian economy regained a sort of "appearance of normality," as was evidenced by the fact that foreign reserves reached the level of US\$70 billion at the end of June 1998 (compared with US\$40 billion at the beginning of the Real Plan in July 1994). As a result of the restatement of capital flows the EFI rose again to the precrises level.

However, during the second half of 1998 and the first quarter of 1999, when the Brazilian economy suffered the knock-on effect of the Russian crisis, there was a sharp capital outflow from Brazil (a net outflow of US\$33.7 billion, including short-term capitals and investments in portfolio), resulting in a drop of around US\$37 billion in foreign reserves during this period, with the stock of reserves reaching the level of US\$32.8 billion in the first quarter of 1999, lower than the level at the beginning of the Real Plan. This fact put an end to the notion that the high level of reserves served as a "shield" for the *real*. Note that in Table 2 medium- and long-term loans virtually ceased in the first quarter of 1999, when foreign banks sharply decreased their loans to Brazilian firms, particularly those destined for international trade. The single factor that offset the capital outflow was foreign direct investment, that remained at high levels throughout the period, mainly as a result of the privatization programs and acquisition of domestic firms by transnational enterprises. During the second quarter of 1999, after the change in the exchange regime, the capital outflow diminished, resulting in a slight improvement in foreign reserves from US\$32.9 billion to US\$40.4 billion. Capital outflow slowed but did not stop, and therefore the EFI tended to fall during this critical period. This behavior, as seen above, is typical of a period of currency and/or external crisis.

Final remarks

The speculative attacks on the *real* that occurred in October 1997 and during the second semester of 1998 seem to have stemmed from a mix of a "contagion crisis" arising from the effects of the Asian and Russian

³¹ The sharp, sudden decrease in the values of loan amortization occurred because during the periods of external crisis short-run financing (mainly trade financing) was not rolled-over by the foreign banks.

Table 2
Data Making Up the External Financial Fragility Index—Brazil, I/92–II/99 (millions of U.S. dollars)

Quarter	X	M	Ri	Di	Ros	Dos	A	STC	RE	NIP	FDI	Lmi
I/92	7.860	4.654	218	2.469	1.130	1.784	(2.656)	567	13.741	1.333	1487	2156
II/92	8.647	4.725	269	1.325	990	1.924	(1.166)	290	18.109	1.947	850	3242
III/92	9.525	5.227	251	3.146	954	2.213	(1.827)	(968)	17.682	2.104	224	1780
IV/92	10.071	5.972	304	1.425	903	2.039	(1.498)	(870)	19.008	2.281	275	2129
I/93	9.454	5.206	280	3.281	1.109	2.495	(2.189)	(1.290)	17.960	3.285	302	1661
II/93	9.246	6.044	257	1.806	996	2.679	(2.262)	(1.647)	18.814	4.007	135	3133
III/93	10.371	7.400	188	1.755	1.070	2.895	(2.467)	(1.368)	20.116	5.366	186	3054
IV/93	9.873	7.050	91	2.427	1.273	3.187	(2.643)	(553)	25.878	8.931	388	3737
I/94	8.877	6.049	286	1.775	1.320	2.883	(2.760)	1.408	32.295	11.455	659	2270
II/94	11.225	7.088	457	2.226	1.223	2.864	(2.509)	4.286	40.131	13.026	670	2396
III/94	12.182	8.023	478	1.329	1.267	3.366	(2.667)	3.002	40.873	13.364	424	2640
IV/94	11.275	12.007	580	2.810	1.246	4.178	(3.051)	(449)	36.471	14.611	488	4304
I/95	9.731	12.065	684	1.789	1.534	4.563	(2.762)	4.966	31.530	10.989	711	918
II/95	11.718	13.651	552	3.652	1.704	4.141	(3.189)	7.176	31.492	12.268	663	4317
III/95	12.729	11.917	534	1.797	1.666	4.252	(2.217)	16.283	46.614	16.121	811	5.264
IV/95	12.328	12.030	715	3.405	1.712	3.864	(2.858)	19.218	50.449	16.905	1.100	4.238

I/96	10.286	10.738	618	2.485	1.945	3.921	(4.120)	22.087	54.331	18.782	1.221	3.946
II/96	12.617	12.477	627	3.550	2.217	4.414	(2.835)	22.017	58.639	19.786	3.256	6.301
III/96	12.955	14.235	762	2.563	2.002	5.545	(3.114)	23.581	57.381	21.031	1.385	3.527
IV/96	11.889	15.837	911	4.160	2.081	6.232	(4.355)	25.304	59.039	22.944	3.718	9.028
I/97	10.656	13.132	1 048	2 017	1 607	5 483	(2.963)	24 623	58.120	25.843	2 752	3 279
II/97	14.130	15.409	933	4 468	2 306	6 190	(8.423)	20 211	56.795	29.126	4 237	8 474
III/97	14.899	16.929	1 118	2 732	2 217	6 717	(4.322)	13 510	61.161	31.012	4 462	8 927
IV/97	13.301	15.888	922	5 192	2 294	6 934	(13.049)	7 788	51.359	28.244	6 413	8 190
I/98	11 901	13 413	981	2 503	2 365	5 507	(3 982)	7 670	67 772	33 031	3 171	14 817
II/98	14 067	14 557	1 010	4 702	2 245	6 329	(6 613)	2 332	70 060	36.495	5 849	10 100
III/98	13 492	15 270	1 107	3 236	2 364	7 613	(10 947)	(12 855)	44 986	27.781	9 337	7 382
IV/98	11 660	14 633	797	5 402	2 353	6 728	(12 045)	(19 546)	43 617	26.392	8 158	9 374
I/99	10 042	10 862	526	3 384	2 267	4 413	(18 212)	(21 333)	32 873	26.544	7 204	2 707
II/99	12 404	12 200	513	5 409	2 031	4 895	(10 953)	(23 407)	40 417	27.554	5 054	10 301

Source: Monthly Bulletin of Brazil's Central Bank, various issues.

Notes: STC and NIP are aggregated since the first quarter of 1991.

X = Exports; M = Imports; Ri = Revenues from interest; Di = Expenditure on interest; Ros = Revenues from other services; Dos = Expenditures on other services; A = Loan amortizations; STC = Short-term capital stock; RE = foreign exchange reserves; NIP = Stock of net investment in portfolio; FDI = Foreign direct investments; Lml = Medium- and long-term loans

crises on Brazil and an outbreak of speculative activity triggered by market operators who perceived clear macroeconomic imbalances in Brazil.³² The contagion effect became evident in the fall in the price of bonds issued by Brazil (and all emerging countries) and traded on international financial markets and also in the losses taken by global players in their applications on Asian and Russian stock markets, both contributing to investors on the Brazilian market selling their positions in *reals* to cover their losses on other markets.

In fact, the Russian moratorium not only produced large losses for major Western financial institutions, but also led them to sell assets in emerging markets to raise funds to cover their losses, thus creating an outflow of capital from those markets. This affected Brazil in particular because the markets for Brazilian equities and Brady bonds are among the largest and most liquid of emerging markets, and play important roles in global arbitrage strategies. On the other hand, the perception on the international financial market was that the Brazilian economy had features in some way similar to that of Russia: a large and growing public sector deficit, an exchange-based stabilization policy, real appreciation and rising foreign deficits sustained by large short-term capital inflows based on interest rate differentials, and vulnerability to commodity price declines.³³

In terms of doubtful economic fundamentals, the unsustainable trend in its foreign accounts placed Brazil at risk of a currency crisis, because of the high degree of external financial fragility of the Brazilian economy, which left it susceptible to short-term changes in the international situation. As shown in this article, there is clear evidence that the degree of Brazil's external financial fragility increased during the Real Plan, principally in 1996 and 1997, basically because exchange liabilities—actual and potential—were not covered by current revenues and sources of longer-term financing, which has left Brazil systematically dependent on external refinancing.

³² In his studies (see, for example, Krugman, 1997), Krugman distinguishes exchange crises and speculative attacks in three cases: (i) those associated with serious inconsistencies in macroeconomic policy, generally relating to a dilemma between expansionist domestic policy and an exchange policy directed to the long-term maintenance of a fixed rate of exchange; (ii) those that result from an expected future deterioration in the *economic fundamentals* or merely a self-fulfilling prophecy, originating in purely speculative processes; and also (iii) contagion crises, which occur when a financial crash in one country precipitates crashes in other countries and may cause the currency crisis to propagate.

³³ See, in this regard, UNCTAD, *Trade and Development Report, 1999*, Chapter III.

The economic authorities seemed to neglect the effects of a possible change in the international situation, while putting across the idea that the *real* was a bulwark. The central idea was that the large trade deficits that could be observed were the result of the process of restructuring industrial production in Brazil, which promised productivity gains sufficient, in the medium-term, to offset exchange appreciation. The exchange risks of this strategy would be minimized by the fact that the deficit was claimed to be soundly financed, with growing participation by long-term foreign capital. In addition, the high level of foreign reserves was considered a “shelter” against any attempted speculative attack again the Brazilian currency, the *real*.

Nonetheless, events in Brazil demonstrated that, in view of the increasing current account deficits, long-term financing for these deficits was insufficient to preclude external financial fragility. Brazil was thus obliged to resort to external refinancing, which contributed to increasing the already voluminous stocks of bonds and credits with short maturities, leaving the Brazilian economy more and more vulnerable to shifts in the short-term expectations formulated by foreign investors. The Brazilian currency crisis was directly associated with the dissolution of the context of normality that had prevailed since the beginning of the Real Plan and agents’ deteriorating expectations in relation to this context, as a result of a loss of confidence in the government’s ability to maintain this regime and in the sustainability of the balance of payments. The IMF-led financial assistance package, shaped to be a program of a “preventive nature,” was not able to restore confidence on the financial markets that Brazil was able to defend its currency, given that not only was it not at all clear how the proposed preapproval would work in practice (the IMF’s conditions were onerous and complex), but also that the IMF’s image had deteriorated since the failure of its intervention in Asia. Repeated financial crises—Asian and Russian—in a very short period of time and the international recession of 1997–1998 also contributed to deteriorating the Brazilian economy.

There are similarities and differences between the Brazilian crisis and the East Asian and Russian crises.³⁴ In all three cases attempts to change the intervention band of the exchange-rate regime quickly led to lost confidence and a collapse of the currency. However, while in East Asia and Russia the crises caused a breakdown of the banking and financial systems as well widespread bankruptcies in the private sector, in Brazil

³⁴ For a comparative analysis of the East Asian, Russian and Brazilian crises, see UNCTAD, *Trade and Development Report, 1999*, Chapter III.

there was only isolated banking insolvency and no major corporate failures. This difference is a consequence of the fact that in Brazil the corporate sector was not highly indebted to the banking system, and also because its banks were healthy, due both to the restructuring of the banking sector following the banking crisis of 1995–1996 and to it being widely accepted that the currency was overvalued; the devaluation was expected by a large number of banks. Consequently, banks had been major holders of dollar-linked government debt, and a number of investment and commercial banks reported record profits as the result of futures positions taken in anticipation of the currency depreciation. This was one of the reasons for the relatively benign character of the Brazilian currency crisis. On the other hand, unlike East Asia, in Brazil it was the Government and the Central Bank which were most exposed in foreign currencies through the issue of dollar-linked debt to both foreigners and residents.

We conclude this article by quoting Kregel (1999), according to whom “the main similarity of recent financial crises is that they appear to have been initiated by a sharp reversal in capital inflows that seems to be generated by an endogenous process of deterioration of economic conditions caused by the capital that has flowed into the country in response to successful application of internal stabilization policies [. . .] so, successful stabilization policy carries the seeds of its own destruction in the form of excessive capital inflows to take advantage of the return differentials” (p. 26). So, “the crisis is not due to unsustainable policies, but with an attempt to introduce sustainable policies in conditions of completely free capital markets. It ends with the impossibility of the success of those policies due to the impact of capital flows” (p. 31). The recent Brazilian crisis is not very different from those of other countries that adopted exchange rate-based stabilization plans, where currency crises resulted from the attempt to introduce sustainable policies in conditions of completely free capital markets.

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