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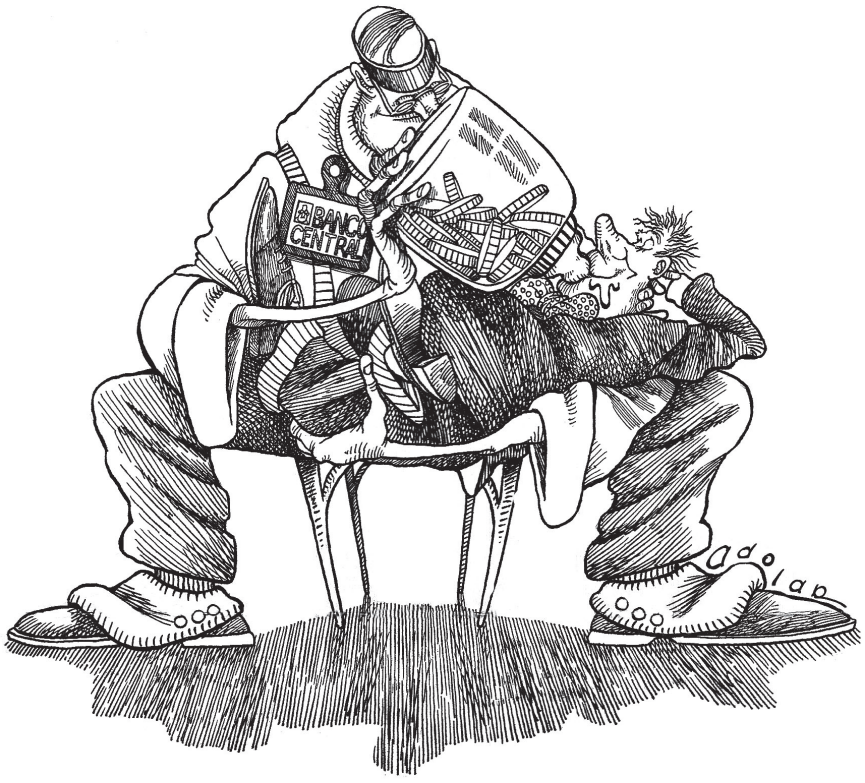
The Brazilian concept of money

Celso L. Martone



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1. The Brazilian Concept of Money

Celso L. Martone

In the annals of world inflation, no nation has been so successful as Brazil in avoiding economic collapse while juggling monthly price rises of 20% or more for so long. This has gone on since October 1991. Monthly inflation now exceeds 35%. Leading citizens tell each other that hyperinflation still is far away. Brazil is different from the rest of the world.

In August 1993, Brazil changed the name of its money once more. The cruzeiro became something different called the cruzeiro real. For the fourth time in seven years, three zeros vanished from all monetary and accounting denominations. The central bank in Brasilia fretted at first over whether pre-dated checks should be honored if written in the old currency, causing a minor tempest inside the government that led to the resignation of the central bank president, the 13th time the job changed hands since 1980 and the fourth time in 10 months. However, the "currency reform" was seen as routine and necessary. People took the change calmly. Gustavo Franco, a new director of the central bank, explained with rare humor and a trace of cynicism: "It's like changing a baby's diapers." The diapers have been changed four times in the past seven years and the inflation rate keeps rising.

To appreciate Brazil's unique achievement, we must study the numbers. From 1960 through 1992, world prices multiplied 17 times, the worst global inflation ever recorded for a similar period. However, inflation in Latin America became such a chronic disease that its consumer prices by 1992 had multiplied not 17 times but 14 million times their 1960 level. Inflation in Brazil distorted this horrendous Latin American average, as prices multiplied 22 billion times since 1960, while in Argentina they rose 1.2 trillion times. The scale and duration of chronic inflation in Latin America are without precedent in human experience, threatening a kind of adaptive failure that also is unfamiliar to us. Fear of such failure moved the people and elected governments of Argentina, Bolivia and Peru in recent years to carry out courageous stabilization programs to end episodes of hyperinflation. Brazil has been so successful so far in avoiding economic collapse that its leaders still find stabilization inconvenient and unnecessary.

Brazil is different from other nations experiencing very high inflation. The government still manages to capture 24% of the gross domestic product (GDP) by conventional taxation in a system ridden with injustice and inequality. The central bank holds record reserves of foreign exchange. Private domestic financial assets remain at 25-30% of GDP, despite financial instability and long-term erosion of the value assets linked to the public debt. In past high inflations elsewhere, tax collection fell to ridiculous levels, to below 5% of GDP, and domestic financial holdings almost disappeared, replaced by real assets and foreign currency.

Brazil suffers from collapse of public services, frightening levels of civil violence, endemic corruption and paralysis in reaching political decisions. Frequent changes of currency denominations, with cascading elimination of zeros, is one more sign of erosion of the country's institutions. On the fiscal side, chronic inflation has bred collective irresponsibility, in which the public sector generates as large a deficit as it can finance by borrowing or printing money. Swelling public debts neutralize the effect of any fiscal reform that seeks to balance the flows of government revenue and current spending.

On the monetary side, a robust accounting and payments system emerged to use less and less conventional currency. Seeking always to protect its share of the inflation tax, and to keep the public debt market afloat, the government eased the basic legal restrictions in financial markets. The magic wand invented for this purpose is the extension of conversion privileges to an ever growing range of financial assets, with central bank guarantees of automatic repurchase of the portfolios of banks and brokers. As inflation escalated, much of the public debt was borrowed on a 24-hour rollover basis in an "overnight" market that became the core of the Brazilian financial system.

This process began in the early 1970s, when the central bank began to issue public debt paper, beginning its torrid love affair with the Treasury. The affair then blossomed into an orgy with growth of the open market in government paper. "Temporary" incentives given to financial institutions, such as the automatic repurchase of public debt, became permanent. The promiscuity grew with extension of buyback privileges to a plethora of financial assets: from indexed, interest-bearing personal bank accounts to the central bank's own paper.

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The central bank thus lost control of the monetary base, left in the hands of bank depositors and by financial groups cashing in their automatic repurchase guarantees. The economy lost its nominal anchor, entering an inertial process of interaction between the amount of currency and price levels. The value of goods and services fluctuates erratically under the impact of periodic shocks.

Chronic inflation breeds institutional adaptations in the economy that feed on themselves, simultaneously changing nominal prices and escalating their rate of change. Cause-effect relationships disappear. For this reason, any policy aimed at ending chronic inflation must be systemic, focused on institutional restrictions that block a return to a stable system of prices and money.

In an environment of chronic inflation, there is a permanent incentive for transaction technologies to develop that minimize the use of conventional means of exchange (government money), replacing it with other assets with smaller carrying and transaction costs. The limits of this substitution are shaped by the government's ability to impose legal restrictions. A striking feature of the Brazilian experience is the way these restrictions have been continually relaxed.

Two recent trends dramatize the process of institutional destruction. First, there is a growing and generalized "dollarization" of economic relations, despite legal restrictions and the existence of a domestic "indexed currency." The dollar's functions have broadened into use as an accounting mechanism, a valued reserve, and an alternate means of exchange because the domestic accounting system gets its basic measure from a stock of government bonds that pose a risk of large capital losses.

The second trend is the erosion of the government's conventional tax base by concealment of assets and tax evasion. Trying to maintain the tax share of national income, the government resorts more and more to exotic taxes that further distort the fiscal structure. These taxes usually are short lived and replaced by other transient taxes. However, the three financial pillars of the public sector are contracting: conventional money (the base of the inflation tax), so-called "indexed money" (the base for short-term public debt), and the formal economy (the conventional tax base).

The escalation toward hyperinflation moves much more slowly in Brazil than in previous historical experiences. However, there are signs of a coming hyperinflation which, if it happens, will be the culmination of decades of chronic inflation. To avoid this disaster and its unpredictable consequences, the country faces two basic options: either the national monetary system must be rebuilt, or we must recognize that the system has failed and that we no longer can manage it, forcing us to adopt instead an international currency, as our Argentine neighbors have done. I am one of those who still believe in monetary reconstruction.

2. The uses and abuses of money

In Latin American countries with long histories of inflation, the degree of "dollarization" of economies has varied greatly. This suggests that legal restrictions have influenced the kind of transaction technologies used to replace fiat money. These legal restrictions can be divided into two groups: those limiting the powers of the banking system to create substitutes for domestic currencies, and those that restrict their citizens' access to foreign currencies.

In Brazil, a tradition arose in the 1930s of government control of exchange operations, culminating in the central bank's monopoly over foreign currency transactions legislated in 1965. Those restrictions are supported by laws, decrees and regulations prohibiting adoption of

foreign currencies as indexing indicators or as means of contract payments. Restrictions imposed on the use of internal bank currencies are less severe and have evolved to accommodate or sanction financial innovations created by the banking system.

This regulatory pattern, using legal devices for indexation of contracts, helps to explain why the degree of "dollarization" in Brazil has been lower than in other countries suffering chronic inflation. It also explains why the Brazilian financial system has resisted the destruction usually wrought by inflation and has even expanded its share of national income. In Argentina, for example, the sum of financial assets as a proportion of GDP was never above 20% after 1985, falling to a low of 3% in 1990, during the worst phase of hyperinflation. In Brazil, gross financial assets remained around 35% of GDP during the 1980s, falling to a low of 17% in 1990, after the seizure of assets decreed under a stabilization plan announced when President Fernando Collor took office in March 1990. This stock of financial assets since has returned to normal levels of around 30% of GDP.

In Brazil's experience, financial innovation meant progressive replacement of the means of conventional exchange (paper currency and demand deposits) by an electronic payments accounting system created by the banks. This system is based on computerized debits and credits against portfolios of financial assets (mostly government paper) maintained by depositors in the banking system. It radically reduced the need for a physical means of exchange. This is a worldwide trend, carried to extremes in Brazil by open-ended convertibility of financial assets by the central bank.

Falling into this category are the management of the Financial Application Funds (FAF) and other common funds held in custody by banks for their depositors, under guarantees of automatic repurchase of government paper when current legal restrictions are obeyed. For example, when agent A makes a payment to agent B against the portfolio of bonds administered by his bank, A's bank sells part of A's stock of debt paper or credits. B's bank executes an inverse operation, acquiring paper in B's name, according to B's preferences. These transfers can be made by check, credit card, a telephone call to a bank employee or any other previously arranged method. Transactions conducted in this way, dispensing with the use of traditional money, require a large degree of confidence in the system.

Conceptually, money is any good or asset commonly accepted as a medium of exchange or for unrestricted and immediate conversion at negligible cost to its owner. The definition of money must be empirical, settled by experience in specific cases with the technologies of transfer in use under pending legal and regulatory restrictions.

The electronic payments system developed recently in Brazil eliminates the need for fiat money for all but the smallest transactions, such as paying a bus fare or buying a newspaper. The Brazilian custom, unique in the world, of using personal checks even for paying taxi drivers clearly reflects how far this substitution of fiat money by bank money has gone. Growth of a decentralized goods-bartering economy is blocked by transactional costs that are greater than the potential benefits of barter. Nevertheless, communication and digital technologies available today allow an important segment of economic transactions to be made without currency, through exchanges of assets with the bank system, which is transformed into an enormous electronic cash register.

In many nations, computerized payments and accounting systems coexist with fiat money issued by government monopoly through a central bank. The accounting unit that determines the price levels of that monetary economy is the government currency, whose role in the payments system is determined by its usefulness in making transactions, by its transaction cost relative to other available alternatives, and by the legal and regulatory structure governing the monetary system. Development of electronic banking technology in Brazil has driven the circulation of money to velocities never before imagined, as if technology had eliminated the need for a conventional money supply. However, this spectacular velocity abbreviates the attention span of all people, especially investors, in a way that disables the society from focusing on longer-term economic objectives.

In most fiduciary systems, there are two basic legal restrictions which, on one hand, guarantee a unique role for government money and, on the other, distinguish banks from other financial intermediaries as participants in the payments system: (a) required reserves for bank deposits; (b) conversion privileges between fiat money (paper currency and coinage), bank reserves and demand deposits.

The reserves for deposits required of banks by the central bank acts as a tax on deposits and, indirectly, on the revenue from portfolios of financial assets maintained by banks against their clients' deposits. More importantly, reserve requirements create a demand for a special currency called "bank reserves" which otherwise would not exist. Bank reserves in the central bank, offering no utility or service for their holder, are not a

well-defined economic good like money. Instead, they are a creature of regulations, derived from the economic demand for deposits, which expands the unit of account to include not only money, but also bank reserves, giving rise to the concept of a monetary base.

Bans on interest payments for demand deposits, in competitive banking systems, lead banks to trade the explicit return on deposits in the form of interest for implicit returns to their clients in the form of services rendered, supplied below production costs. This legal restriction distinguishes banks from other financial intermediaries.

Convertibility given by the banks to the public between currency and its deposits is matched by the equal convertibility, guaranteed by central banks, between money and bank reserves. This convertibility expands the monetary base (currency plus bank reserves). Equivalently, it expands the means of payment (currency plus demand deposits), which is the unit of account denominating prices.

The determination of price levels, as well as their long term stability, relies therefore on the ability of the central bank to nominally stabilize the monetary base or the means of payment (M1), allowing its composition, between currency and bank reserves and between currency and deposits, to be shaped by demand. With these legal restrictions, typical of contemporary fiat money systems, the central bank does not control the amount of reserves or the quantity of currency. It controls the monetary base, which is enough to determine nominal prices.

3. The horizons of privilege

Expanding conversion privileges in financial markets raises issues of economic efficiency and ethics by nurturing both fiscal irresponsibility and illusions of "capitalism without risk." In Brazil, many fortunes were made under protection from risk provided by central bank privileges that bred loss of control of the money supply as chronic inflation escalated. Political loans with no social or economic benefit, except for those who got them, are made by official banks, knowing that the central bank will not let them default. Those with access to these privileges benefit from chronic inflation, despite the economic and institutional destruction that it produces.

In Brazil, stability of prices is still a dream, because the monetary base is endogenous, self-creating, a force unto itself that is beyond the control of the central bank. The quantity of money is determined instead by the public's demand for currency and by portfolio management in a financial system that enjoys the cushion of open-ended buyback guarantees liberally granted by the central bank. For their holders, possession of these non-currency assets is an entitlement enforcing claims for instant expansion of the monetary base.

Argentina and the United States expanded conversion privileges to a broad range of financial assets, leading to disasters like the 1980-82 banking crisis in Argentina, which was a prelude to hyperinflation, and the collapse of hundreds of savings banks in the United States in recent years. Brazil has dangerously extended its official guarantees to an even larger range of financial assets. Table 1 presents a simplified balance sheet of Brazil's central bank and shows how these privileges have distorted public finances and the structure of the financial system.

TABLE 1
SUMMARY BALANCE SHEET OF THE CENTRAL BANK OF BRAZIL
(in Millions of US$, Nov. 30/92)

ASSETS	**119,261**
Foreign Assets	25,997
Public Sector Securities	85,203
Financial Aid to Public Sector	2,132
Other Accounts	1,475
Permanent Assets	4,454
LIABILITIES	**119,261**
Foreign Liabilities	50,834
Bank Reserves	1,497
Currency	2,776
SBPE Deposits	2,476
Special Remunerated Collections	1,471
Federal Government Deposits	10,699
Securities Issued by the Central Bank	28,072
Other Accounts	5,491
LIQUID ASSETS	**15,945**

The conventional monetary base (currency plus bank reserves) is very small, valued at US$4.3 billion, only 3.6% of all liabilities of the central bank, against more than 80% for the United States and Japan. Both assets

and liabilities are swollen by accounting for the foreign debt. If we remove the US$51 billion in foreign debt, and reduce assets by this amount, we get total liabilities of US$68 billion, of which the monetary base forms 6.2%.

The strange array of liabilities of the central bank includes deposits of the Brazilian System of Savings and Loans (SBPE), the Financial Application Funds (FAF), Special Remunerated Deposits (DER) and the central bank's own debt (BBC). The also include deposits of the Treasury, reflecting the federal government's cash flow. These funds together are more than 10 times larger than the monetary base and represent instant claims on bank reserves, which amount to less than 5% of these commitments. Any adjustment of portfolios in the private sector and/or the banking industry, or any imbalance in public finance, generally leads to holders of financial assets exercising their conversion privileges. These conversions change the levels of bank reserves that, under the rules of the game, are supported by the central bank.

As financial assets are formally and informally indexed to the current rate of inflation, maintenance of stable portfolios in real terms creates a demand for money to replace the erosion by inflation of the value of cash balances. Even in the absence of portfolio shifts, the monetary base will expand at roughly the rate of current inflation, a kind of "passive money" common to most chronic inflations.

Conversion and control

Two examples help us understand the problem. First, suppose that the public seeks to keep a fixed proportion of its wealth in government money, let's say 2% of current income. Suppose further that consumer prices and, thus, the nominal level of national income are expanding at 30% a month. The public will have to increase its nominal money stock by 30% a month just to meet its out-of-pocket currency needs.

In a classic fiat money system, with the monetary base controlled by central bank, the only way for the public to expand its currency holdings by 30% is by the sale of other assets, such as securities or foreign currency. Demand for a nominal increase of the money supply would be curtailed if interest rates were to rise, reducing aggregate demand and causing prices in general to fall. That decline in price levels is the way by which the relationship between money and income is stabilized, with a constant money supply, with the central bank refusing to sanction growth in the nominal demand for money by expanding the monetary base.

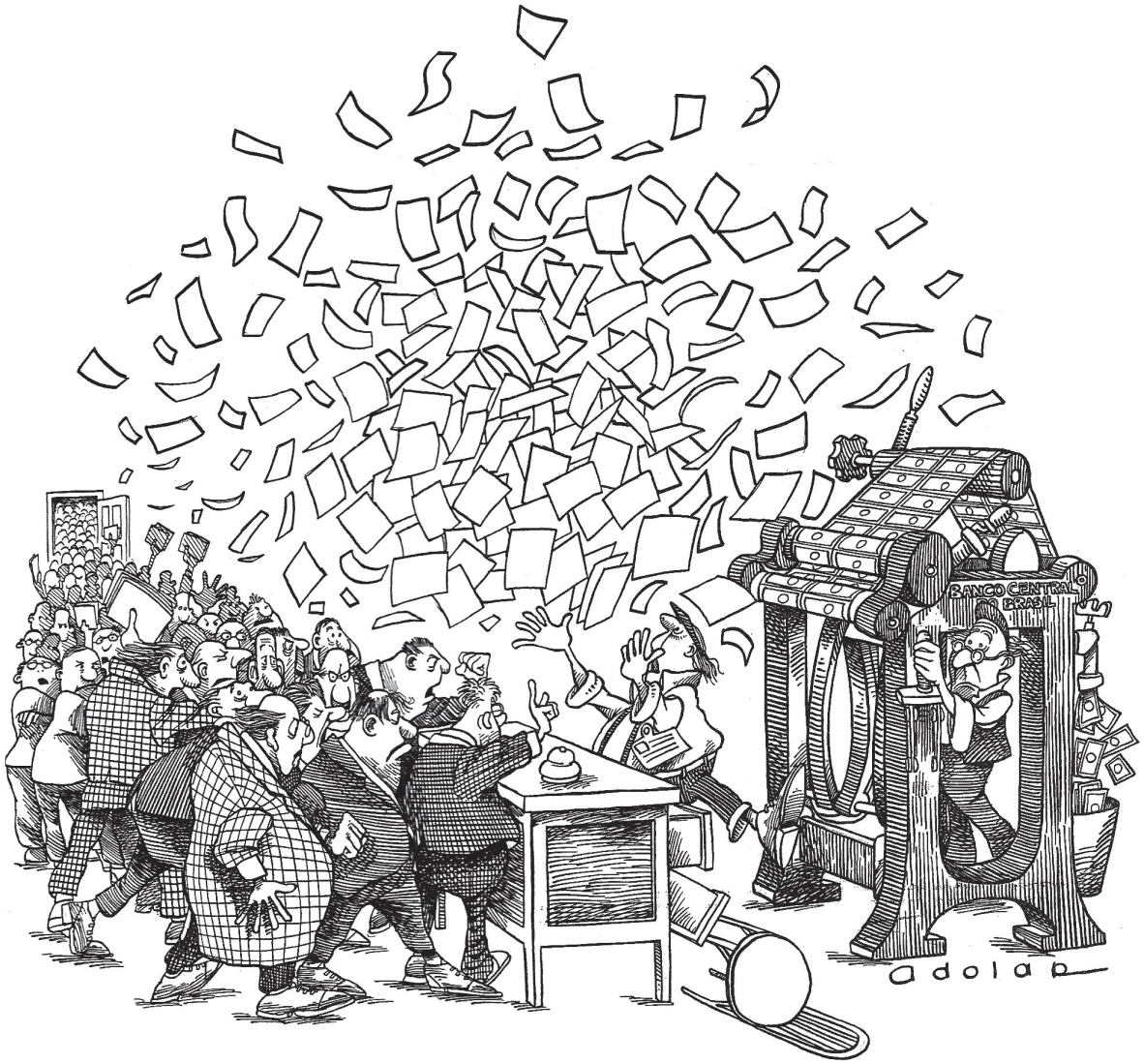
However, in Brazil, the public increases the nominal quantity of money, by itself or through financial institutions, through conversion privileges at the central bank. Brazil's financial system is unique in that holders of assets, including the government, sell directly and without restriction to the central bank. In this way, the money supply increases. Real money balances are churned in the financial system as prices and interest rates move along a constant time path. In this sense, Brazil has no monetary policy. The central bank cannot affect price movements over time.

The open market policy of the central bank provides a second example. Between the end of 1991 and 1992, the Brazilian government, to reduce inflation rates and avoid financial instability, attempted to carry out an active monetary policy. To accomplish this, the central bank launched an aggressive open market sale of federal government debt as well as its own to reduce rates of monetary expansion. The result was that real interest rates were kept at around ten times the equivalent international rates for one year, causing a strong recession in the economy. Inflation rates, meanwhile, remained stable at about 23% a month, while the average rate of expansion of the monetary base (and the means of payment) was 22%. Currently, with astronomical real interest rates, the rate of increase of the monetary base remains roughly equal to the current rate of inflation.

The lesson of this experience is important. Even though the central bank can, within certain limits, determine real interest rates in the economy, it cannot control the growth rates of the monetary base and prices. Bank depositors and financial institutions, through their conversion privileges, undo any attempt at monetary control.

In these two examples, the internal monetary impacts of foreign exchange operations were overlooked to simplify our analysis. Those effects were very important in Brazil last year, when government policy fixed the real exchange rate, a form of exchange indexation under high inflation that was in effect, with few interruptions, since the "crawling peg" system of minidevaluations was launched in 1968. This additional conversion privilege for investors, implicitly guaranteeing real exchange rate stability, sucked in a huge inflow of short-term foreign capital, lured by high interest on the public debt. The accumulation of foreign currency reserves was the biggest factor driving expansion of the monetary base in 1992.

Affonso C. Pastore, a former central bank president, shows rare insight in seeing one conversion privilege — repurchase by the central bank of its own debt, or



"automatic zeroing" of brokers' accounts — as having a devastating effect on monetary policy. Pastore argues that "automatic zeroing" permits the banking system to transfer conversion privileges to other private assets. As resources move among sectors of the financial market, repurchase of Bank Deposit Certificates (CDBs) by issuing banks and their clients is made easy. The banks know that if they have liquidity problems, the central bank always will convert their government securities into bank reserves.

The extension of conversion privileges does not stop there. It also extends, through the network of federal and state government banks, to state debt and the paper of those public sector banks. The unlimited access of those banks to the monetary base gives rise to the sad joke that more than twenty central banks are issuing currency in Brazil (one for every official state or federal bank), one more sign of the destruction of the nation's monetary and fiscal systems in the process of chronic inflation. All banks issue money, sometimes in spectacular quantities, as in the United States in the 19th Century and in Brazil and Russia today. But history tells us that these spectacular episodes usually end quickly, making Brazil such a strange exception.

In most financial systems, the central bank conducts monetary policy by buying and selling assets (open market and foreign exchange operations and rediscounts). In Brazil, those transactions reveal little about movements of the monetary base. The causes of variations in the monetary base are mainly "passive," that is, dictated mainly by conversion between bank reserves and unconventional liabilities of the central bank, according to demands of the government, the public and the banking system. The monetary system does not provide a nominal anchor for prices. Nominal variations follow an inertial process, with periodic shocks produced by the real sector, by the political economy, or by shifts in private sector expectations. The origins of the oft-cited inflationary inertia lie precisely in the monetary dynamic of a system that extended the privilege of conversion to such a point that it destroyed whatever nominal anchor existed in the economy.

Why did the central bank and the government relax more and more of the basic legal restrictions of the

financial system, surrendering control over the monetary base and creating a regime of "passive money"? There are at least three possible answers.

One is that the government recognizes its inability to end inflation and finds that it is better to allow the economy to function, albeit precariously, with inflation. Conventional money (M1) today is less than 2% of GDP (in other countries, it reaches more than 10% of GDP). If, by maintaining rigid legal restrictions, conventional money were the only medium available to conduct transactions, GDP probably would have contracted to one fifth of its value. The Brazilian economy would have been destroyed.

The second motive is the search for financing for the chronic public sector deficit, which obliges the government to broaden the markets for its debt by providing the features desired by the private sector.

The third is the fear of "dollarization." The government prefers to expand the payments system, providing liquidity and guarantees, than to run the political risk of having foreign exchange perform these functions.

Monetary stabilization in Brazil demands reform of the monetary system and, in particular, cancellation of conversion privileges as they exist today. Brazil does not have inflation in coffee, refrigerators, CDBs or any another good or asset. We have inflation in cruzeiros (now "real cruzeiros"). While the cruzeiro remains the "currency" by which prices are defined, the end of chronic inflation will mean nominal stability of the quantity of cruzeiros in circulation, which demands in turn a clear and firm definition of the rules and of responsibility for the administration of the national currency.

There are two alternatives for a solution. In the first, stabilization would occur under a system of flexible exchange rates. The nominal anchor for the economy would be the monetary base (currency plus bank reserves) under rigid, fixed limits. In that case, only conversion between currency and reserves would remain, while all other privileges would end.

The second solution would provide stability under fixed exchange rates, as was done in Argentina. The nominal anchor would be a fixed parity between the national currency and a foreign currency of reference. There would be two, and only two, conversion privileges: domestic currency to reserves and monetary base to foreign currency. The central bank would renounce control of the monetary base, which would be determined by balance of payments flows. Its buying and selling of foreign currency at a fixed exchange rate would secure the stability of domestic prices. However, speed of stabilization with a fixed exchange rate depends on the degree of openness of an economy. In Brazil, a much more closed economy than Argentina, stabilization would move more slowly and at a higher economic cost.

In the first case (a flexible exchange rate), the basic rule of creating and destroying cruzeiros would be defined by society, which would fix the limits of discretionary power available to the central bank in the administration of national currency, as well as its autonomy in relation to the three powers of the Republic. In the second case (a fixed exchange rate), the basic rule behind the creation and destruction of cruzeiros would be determined by the central bank's obligation of immediate public convertibility, at a fixed nominal rate, of national currency with a previously designated foreign currency.

In either of these two cases, the public using national currency would be confident that the purchasing power of their currency in terms of goods and services would remain reasonably stable over time. Meanwhile, we should not forget that a fixed exchange rate leaves the economy at the mercy of international monetary and financial fluctuations, while a flexible exchange rate

TABLE 2
EVOLUTION OF DOMESTIC FINANCIAL ASSETS IN BRAZIL
(US$ Billion, year-end)

ASSETS	1975	1980	1985	1990	1993 (Ago)
Monetary Base	8.2	10.7	7.3	10.5	3.2
Money Supply - M1	19.8	21.8	18.0	16.2	6.0
Federal Securities	8.8	9.4	41.5	12.6	25.2
State & Municipal Securities	1.5	2.3	5.4	5.8	12.2
Time Deposits	6.0	9.0	23.9	17.2	38.3
Saving Deposits	7.1	15.1	34.9	15.3	22.6
Bills of Exchange	6.2	4.2	5.3	-	-
Money Market Fund (FAF)	-	-	-	-	8.1
Special Interest Bearing Deposits (DER)	-	-	-	-	3.7
Frozen Deposits at Central Bank (*)	-	-	-	31.0	-
Total (2 through 10)	49.4	61.8	129.0	98.1	116.1
GDP	124.9	237.7	296.7	391.8	417.4
Finacial Assets / GDP Ratio (%)	39.6	26.0	43.5	25.0	27.8

(*) Refers to the freeze on the domestic finacial assets decreed by the "Collor Plan" in March, 1990.
The Monetary base (government money) fell from 6.6% to 0.8% of GDP between 1975 and 1993. The money supply (currency plus demand deposits fell from 15.9% to 1.4% of GDP in the same period.

isolates the economy from those external fluctuations, demanding more monetary responsibility from the central bank.

The end of today's conversion privileges will force the banking system to adapt its portfolio operations to a new restrictive legal framework. This would reduce the liquidity of financial assets that make up the private sector portfolio. With the national money supply under control, the banking system will be able to undergo a radical deregulation, ending legal restrictions on the composition of funds, the types and terms of credit instruments and the ban on interest payments on deposits.

4. The stocks and flows of fiscal confusion

The root of long-term inflation lies in the fiscal question. Until now, we saw the problem of chronic inflation solely in terms of Brazil's monetary system. Changes in the financial system over time — breeding adaptations that gradually mutilated it — came mainly from fiscal causes, especially from the need to finance chronic public sector deficits.

Now we ask: Is monetary reform, like the one we suggest, sufficient to guarantee price stability? Is fiscal reform that permanently balances public finances a pre-condition for monetary reform and stabilization?

TABLE 3
LIQUID PUBLIC SECTOR DEBT(*)
(*in Billions of US$*)

Federal Government and Central Bank	**45.2**
Total Debt to Public	35.1
Monetary Base	4.0
Liquid Bank Debt	(7.1)
Liquid Foreign Debt	44.5
Central Bank Loans for Foreign Debt Service	(25.2)
Other Itens	(6.1)
Governos Estaduais e Municipais	**32.0**
Total Debt to Public	10.8
Liquid Bank Debt	13.3
Central Bank Loans for Foreign Debt Service	4.3
Foreign Debt	4.3
Other Itens	(0.7)
State Enterprises	**69.4**
Bank Debt	16.4
Central Bank Loans for Foreign Debt Service	20.9
Foreign Debt	30.6
Other Itens	1.5
Liquid Public Sector	**146.6**

(*) Figures are from September 1992. Source: Central Bank of Brazil

Until now, our analysis imposed no fiscal conditions for price stability. If we eliminate conversion privileges, keeping only those that fit the changed system, it theoretically would be possible to stabilize prices. This argument is implicit in proposals for creation of an independent central bank in Brazil. If the central bank stabilized the currency and cut the umbilical cord that ties it to the government, the fiscal deficit would be limited by internal and external financial capacity, which could be restricted so as to force a fiscal reform.

We must recognize, however, that this is just a theoretical argument. It fails to take into account the political-institutional context of stabilization. Since chronic inflation has weakened most of Brazil's institutions, attempting to reconstruct just one of them, by creating an independent central bank as part of a monetary reform, cannot alone guarantee enough autonomy and persistence to resist political pressures always opposing stabilization.

For this reason, fiscal reform must precede or at least come simultaneously with monetary reform. The end of chronic inflation must involve overall institutional reconstruction, creating a new fiscal regime and a sound monetary system.

From a macroeconomic point of view, fiscal reform is not only a balancing of current flows of government receipts and spending. It is also a problem of stocks. The stocks are both the announced and hidden debts of the public sector: the rights to future rent that society is incapable of producing and/or transferring to the government. A fiscal reform that balances the current public sector account may be insufficient to enable the government to honor all claims on future tax income that have been inherited from the past.

Between 1990 and 1992 the federal government sharply reduced the current public sector deficit, initially through a partial confiscation of the internal public debt and then through "fiscal repression." This meant a pay squeeze on government employees, reduction of social

welfare and health programs, prolonging arrears in paying suppliers and contraction of public investment.

Public budgets in Brazil have been merely symbolic exercises. Fiscal repression operates through control of the purse, as the public sector runs on a cash basis under the rule of "spend only what is received." Debt confiscation cannot be easily repeated, while fiscal repression ends when public salaries fall to starvation levels and ministries no longer can buy paper and clips. Neither is capable of generating confidence that the fiscal problem has ended.

A chronic public deficit is an accumulation of obligations over time. Current fiscal flows are important mainly in signaling a future course that may or may not be sustainable. Stated another way, markets continuously evaluate the difference between the present value of the flow of public spending and future revenues to form expectations on the value of the public debt and the inflation rate. We can see this concept in this equation:

PV spending - PV receipts =
PV public debt + PV inflation tax

PV is the present value, discounted at a relevant interest rate, of expected future flows (over, say, the next ten years) of expenditures, receipts, debt and the inflation tax. An evaluation of recent trends in the spending and income of government (federal, state, and municipal) reveals that the potential, or virtual, public deficit is around 8 to 10% of GDP on a operational basis. The nominal deficit, by which most countries' public finances are measured, is shaped by the rate of inflation. In 1992, for example, when inflation reached 1,150%, Brazil's nominal government deficit was 46% of GDP. By the same measure the United States, with a serious fiscal problem, had a nominal government deficit of 3.4% of GDP and inflation of 4.2%. Incidentally, dollarization of other national economies has helped the United States expand its monetary base without aggravating inflation.

The stock of obligations aggravates future deficits. In past years, for example, the government subsidized debtors to the Housing Financial System by letting the real value of mortgage payments be eroded by inflation, telling creditors that the Treasury would cover the real shortfall at the end of the contract. That subsidy did not produce current deficits, but it gave financial institutions a claim on future government receipts. As these debts mature, future deficits grow. Financial markets include such data in predictions of inflation and government debt.

Imagine that Congress increases social security benefits. The new law gives beneficiaries claims on public sector receipts for at least one generation, while its short term budgetary effect was negligible. That new government "debt" is incorporated into the above equation, while markets gauge its effect on their projections of future inflation. This equation also works in the United States, where the government has adopted the Latin American practice of borrowing from social security funds, which hold a large share of the $1 trillion in federal debt now in the hands of government agencies.

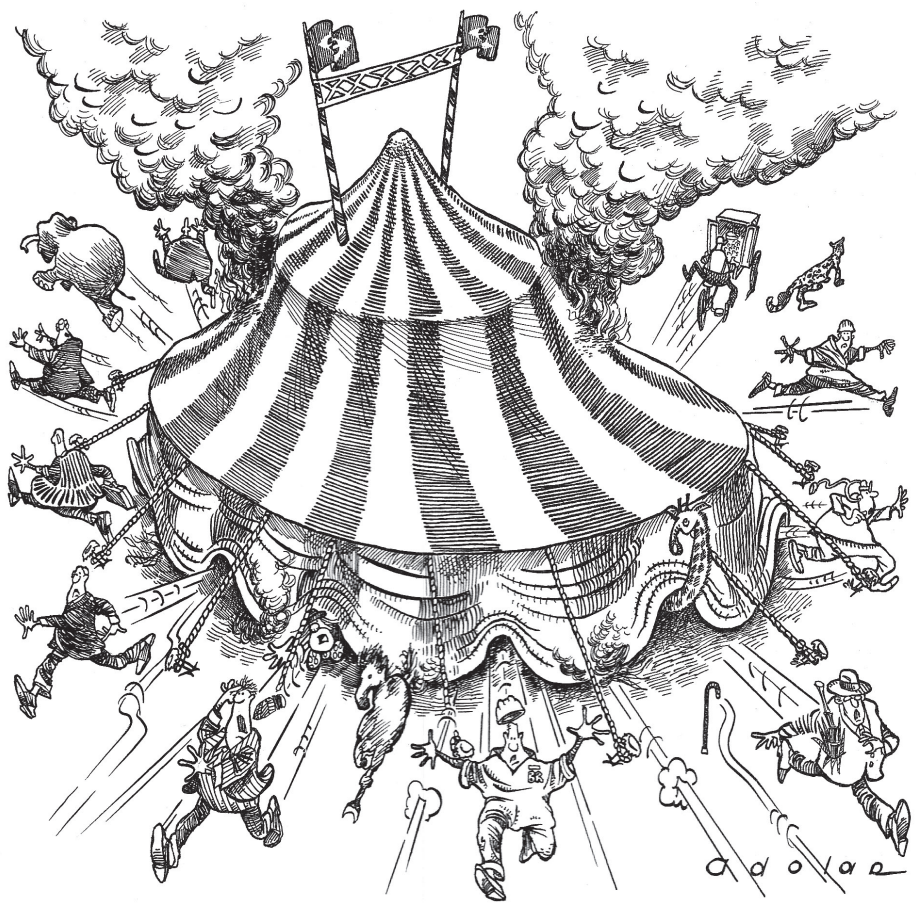
The liquid public sector debt, as measured by the central bank (Table 3), is roughly 37% of GDP. But this represents only the explicit debts assessed by the market. To this hidden public sector debts should be added. These are claims accumulated by different portions of the private sector through so-called "social funds." Of estimated debts totaling 20% of GDP in Table 4, most are pensions owed by the National Social Security Institute (INSS), estimated conservatively. State and municipal governments owe $11 billion to the FGTS (Guarantee Fund for Time of Service), the central forced savings plan fed by payroll deductions. Total legal claims granted by Congress to the population through the social welfare system, particularly by the Constitution of 1988, reach absurd levels.

If we accept these conservative estimates, we get a total public sector debt of roughly US$226 billion (57% of GDP and 2.3 times the gross tax burden). This public debt is not very high by international standards. Measured against GDP, Brazil's government debt is about the same size as in the United States and Japan and half those of Belgium and Italy (115-140% of GDP). However, three characteristics of the Brazilian fiscal and financial systems aggravate chronic public sector deficits.

First, the Brazilian government pays astronomical rates of interest that make it very difficult to service its debts. The fragility of the financial system and of public finances forces the government currently to pay annual real interest of 35% on debts of $150 billion, which are far below its potential liabilities, against interest of less than 4% above inflation paid on U.S. government debt. Even though Brazil pays interest on debts amounting to only 35% of GDP, its interest burden is nearly 7% of GDP, or twice as much as the interest paid by the United States (3.4% of GDP) on a liquid public debt twice as large.

Second, as in most democracies today, it is hard for Brazil's government to increase taxes, not so much because of its increasing disorganization as from private

sector resistance to paying taxes. That resistance reflects a rational, maximizing behavior by taxpayers, as they evaluate the marginal benefits of government programs (increases in public spending) against their marginal production costs (increases in tax burdens). They prefer to avoid taxes and to increase private consumption rather than to pay taxes and increase consumption of goods supplied by the government. In Brazil, high tax rates and complex and cascading levies make the benefits of evasion high, while low enforcement capacity by the tax authority minimizes the probability of punishment and the cost of evasion.



The difficulty in increasing the tax burden is aggravated by redistributive effects, sectoral and regional, of government taxes and spending. Those who pay taxes are not those who, directly or indirectly, reap the benefits of public spending. This is a key feature of the federal crisis in Brazil. States and municipalities collecting a bigger share of federal taxes, because of their higher income level and/or their better taxation system, are less and less tolerant of massive federal transfers to other states and municipalities that contribute little or nothing.

Similarly, employees see social insurance contributions (INSS, FGTS, and other funds) not as capitalization for enjoyment of future benefits, but as a tax without any return. At least half the labor force, working in the "informal" sector, does not contribute to the social welfare system. Finally, businesses with a high public profile are subject to audits and must pay taxes. They end up feeling penalized and damaged by competitors, including the "informal" sectors, that escape taxation.

A third feature of our fiscal system, perhaps unique, is the legal rigidity of budgetary prescription for public spending, covering 90% of federal revenues. This rigidity embraces transfers to states and municipalities, mandated by the 1988 Constitution, social security, education, health, regional development funds, government salaries and employment guarantees. The legal rigidity of public spending, combined with debt service, creates preferential claims on future revenues that make it very hard for the government to reduce outlays. With prior constitutional commitments for 90% of tax receipts, any $10 rise in tax collection will result in a $9 increase in disbursements.

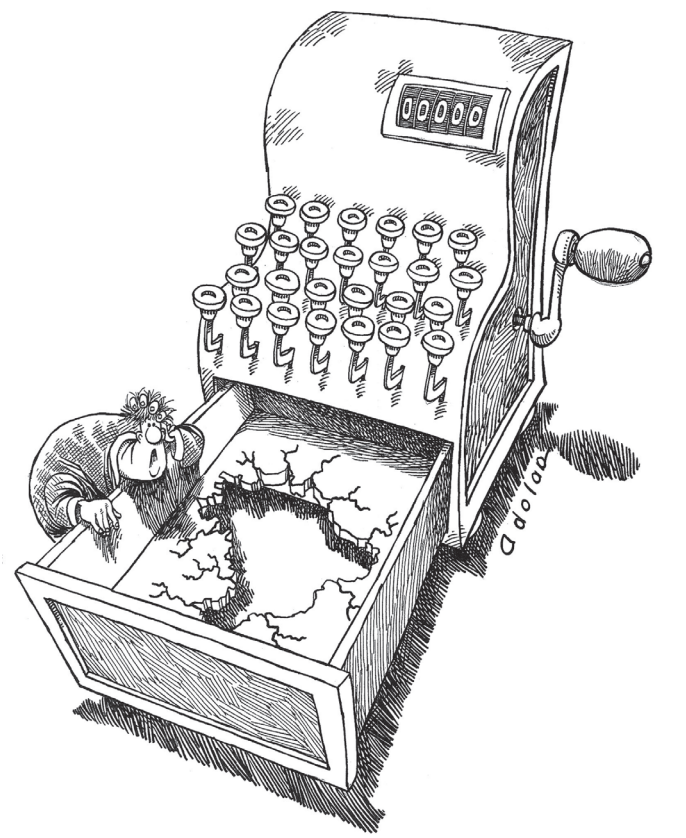
The Brazilian fiscal system thus leads the government always to expand the deficit to the limit of its financing capacity, determined by the inflation tax or by the level of debt. When capacity for financing is reduced, by threatened hyperinflation or by private sector refusal to lend to the government, an adjustment is made through three distinct but not mutually exclusive methods: emergency taxes, fiscal compression and confiscation of the public debt.

TABLE 4
"HIDDEN" PUBLIC SECTOR DEBTS (*)
(*In Billions of US$*)

National Social Security Institute (INSS)	40.0
Time of Service Guarantee Fund (FGTS)	15.0
Salary Variation Compensation Fund (FCVS)	20.0
PIS / PASEP (Social Integration Program / Program for the Formation of Public Worker Assets)	4.0
TOTAL	**79.0**

(*) Estimativas de várias fontes e de P.R. Castro e P. Brito, "Programa de Estabilização com Crescimento", Rio de Janeiro, 1991 (documento preliminar).

Emergency taxation is called "fiscal bleeding" that resorts to exotic devices (cascading levies on bank



transactions and other financial operations) that are not sustainable over the long term because of their distorting effects. Fiscal compression cuts kinds of spending that meet the least short-term political resistance (salaries, social programs, debts government suppliers) and also is not sustainable if government is to function at all. Debt confiscation, under various guises, is a capital levy or a one-time tax on public sector liabilities that provides limited short-term benefits and raises long-term costs.

The unpredictability of the government's actions raises its risk premium and lowers its capacity to borrow. To further complicate the fiscal problem, debts between parts of the public sector, which we may call circular defaults, grow uncontrollably from year to year. The debts of states and municipalities and their enterprises to the federal government are around US$50 billion. Attempts to consolidate or reschedule these debts fail for lack of political and legal mechanisms to guarantee the fulfillment of debt service by debtors to creditors. Such debts are highly varied, making consolidation more difficult.

We have state and municipal governments failing to transfer funds deducted from their employees' salaries to the Social Security Institute, a practice also common in the private sector. We have government electricity companies failing to pay their telephone bills and government telephone companies defaulting on their electricity bills. There are enormous sums in unpaid loans from state and federal banks, and employees' trust funds, to government agencies at all levels. The federal government is creditor of its own corporations and of state and local governments for guarantees on their defaulted foreign debts, some of which were borrowed as a form of back-door financing of the federal deficit. Some state corporations, on the other hand, retain value-added taxes collected locally that should be transferred to the federal treasury. Several federal and state banks are in arrears with the central bank. The financial confusion and the lack of transparency within Brazil's public sector makes for irresponsibility, corruption, and waste of resources.

Fiscal and financial irresponsibility produces an accumulation of debts of all kinds, in paper held by the public sector and in more subtle or hidden forms of legal claims on future revenue that cannot be honored. Politicians favor the trade-off between the present political benefits of creating these claims and the future political punishment from default. This favorable evaluation of the trade-off leads to further expansion of claims.

No fiscal reform can generate enough surpluses to honor all public sector obligations accumulated in the past. Where secondary markets exist for trading public debt instruments, discounts from face value show what investors see as the salvageable value of securities. This is how foreign bank debt is priced, as well as the so-called "rotten money" of devalued public debt used to buy shares in privatized state enterprises. In the case of social funds and intra-governmental debts, however, no credit instruments or secondary markets exist. Those debts must be reduced to sustainable long-term levels.

One possible solution is "securitization" of all explicit and hidden public sector debts through federal government issue of bonds to creditors at face value of those debts. Those bonds would entitle their holders to buy, on a competitive basis, stock in state enterprises, to be sold in a radical program of privatization that would transfer federal share holdings to the private sector and to social funds. The total value of public debts thus would be reduced by capital markets to a level within the net worth of the government. In other words, they would be marked down by markets to sustainable levels.

State and municipal debts to the federal government could be paid through a creative device by which the federal government issues bonds to states and municipalities at the present value of the future flow of financial transfers of tax revenues mandated by the constitution. Preliminary estimates show that this solution offers an almost perfect matching of accounts

between past debts and future claims on revenues within the public sector. This solution would open the way for fiscal reform based on a new concept of federalism and responsibility at all levels of government.

These proposals are more prudent and effective than proposals suggesting a unilateral federal debt moratorium or a "prolongation" of maturities of that part of the federal debt in securities (close to 15% of the total) in circulation for at least ten years. In light of past experience, we can see that a moratorium/ confiscation on a small part of the public debt does not solve the chronic fiscal problem and could lead immediately to hyperinflation and radical economic disorganization. Proposals like these arise from a superficial analysis, guided more by the appearance than by the realities of Brazil's fiscal problem. We cannot afford to repeat the mistakes of the "heterodox" stabilization plans tried since 1986, such as the Cruzado Plan (1986) and the first Collor Plan (1990).

The distortions and the endurance of the Brazilian fiscal system is bizarrely comparable with those of the Mogul Empire of India which, three centuries ago, ruled over one fifth of the world's population and took 17 to 19% of its GDP in taxes, a level reached by modern European governments only in the 20th Century. The Moguls spent the taxes on military protection and transfers for conspicuous consumption by their nobility. Brazil uses its revenues for political transfers, government salaries and servicing its public debt. Both cultures bred highly developed kinds of parasitism. The size of fiscal receipts and the preservation of its financial markets help to sustain an economy threatened so long by hyperinflation and help to explain why the political system so strongly resists structural reforms to reestablish fiscal and monetary systems consistent with stability.

Nevertheless, prolonged acceptance of chronic inflation is bringing Brazil's monetary and fiscal systems into an impasse that raises basic questions of political legitimacy. Extension of conversion privileges to ever-greater varieties of financial assets turned the growth of the monetary base into an endogenous process that now is out of control. The central bank no longer can make monetary policy under today's rules. The economy has no nominal anchor. Any serious attempt at stabilization in Brazil will mean ending these financial privileges.

We need a new fiscal and monetary regime that is coherent to our people and consistent with stability. We need firm and clear rules for the creation and destruction of the national currency. Abolition of legal restrictions on contracts made in foreign currency can stimulate the creation of a new and more disciplined fiscal system that would lead to the end of conversion privileges granted by the central bank. It also can provide a new option for convertibility of Brazilian financial assets based on the realities of the market.

> Contracts in foreign currency would reduce conversion privileges and help to create a new fiscal system

The weakness of Brazilian institutions and the political pressures likely to oppose stabilization efforts mean that, for creation a new fiscal and monetary regime, citizens must be convinced of the need for more stability to conduct their daily lives. Success of any monetary reform must involve a fiscal reform that previously or simultaneously balances government budgets. The end of chronic inflation will never be obtained through monetary magic. It will be costly to those who benefit from inflation. Ending chronic inflation is a process of institutional reconstruction.

5. Letter to Another Brazilian Finance Minister

Thomas J. Sargent

Dear Sir:

Events in Brazil since 1986 have proved again the time-honored arithmetical principles of government finance that I summarized for one of your many predecessors in January 1986. A country's inflation rate at any moment emerges out of the sustained monetary and fiscal policies that it chooses, now and in the future. The phrase "in the future" occurs in this formula because the value of a country's currency is vitally affected by what people think its value will be tomorrow. This "in the future" caveat has frequently played the villain in formulations of half way doomed plans that wished indefinitely to postpone the unspecified painful adjustments that would have been necessary to make the plans fit together.

I prefer not to catalogue the half way plans that your government has started and then dropped. Your government has tried many tricks in vain attempts to avoid confronting the fact that inflation originates in monetary and fiscal policies. You have tried price controls, credit controls, and tight money unaccompanied by fiscal constraint. These experiments were interesting for macroeconomists (they produced results that our models had led us to expect), but they were costly for your country.

The Pure Economics are Simple

Persistent high inflation is always and everywhere a fiscal phenomenon, in which the Central Bank is a monetary accomplice. A government administering a fiat paper currency has an intertemporal budget constraint that forces its Central Bank and fiscal authorities to cooperate, sooner or later, somehow. Persistent inflation is caused by a coordinated monetary and fiscal police regime that calls for the Central Bank persistently to print currency to supply the fiscal authority with revenues via an implicit 'inflation tax.' A Central Bank cannot by itself stop an ongoing inflation against the will of a fiscal policy authority determined to run persistent budget deficits. Indeed, a Central Bank determined to 'go it alone' and to fight inflation with tight money in the face of persistent deficits can achieve only temporary gains in the battle against inflation, and at the cost of making inflation worse in the future. This outcome results because, in the face of a persistent fiscal deficit, a Central Bank can achieve go-it-alone tight money only by forcing the fiscal authority to issue increasing amounts of interest bearing debt: without a fiscal adjustment down the road, the monetary authority will eventually be forced to generate more inflation down the road in order to raise the inflation tax. This arithmetic is unpleasant, but it is also true.

Credibility

Your economic advisors have told you what would be required to arrest inflation in Brazil: a credible switch to a sustained fiscal regime that, by administering a government budget balanced in the present value sense, would permanently relieve the monetary authority of any temptation to print too much Brazilian currency. A credible policy is a course of announced future government policy actions that the public can rely on the government actually to execute.

How is the public to go about deciphering a credible policy? Government policies emerge from political and administrative processes, and are implemented by many public servants and statesmen. A credible public policy has the property that it is in the self interest of each responsible public servant to implement his part of the plan: this is what makes it believable by the public, and 'sustainable' as an ongoing public policy.

Credibility is not something that a small number of people, even Presidents and Ministers, can manipulate. In a democracy, a fiscal policy credible for supporting a stable currency must be arranged so that 'the votes are there' for levying enough explicit taxes to cover whatever expenditures have been voted. Our 'in the future' caveat is all about this reading of the political process.

This description is about as far as your economic advisors can take you. We economists can explain the arithmetic of the government budget constraint (according to which curing inflation is an easy problem, as economic problems go); and we can tell you how important the acquisition of credibility is, and how limited in a democracy your role is in lending credibility to government policy.

Your country has a technically competent Central Bank, and has had some knowledgeable Finance Ministers. Those two things help, but neither the Finance

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Minister nor the Central Bank can 'deliver the votes' at the times and on the measures that will be required to stabilize your currency.

A Delicate Institutional Issue

Is good credible public policy easier to attain under democratic or authoritarian form of government? Bismarck took the authoritarian side of this issue. Bismarck claimed to dislike the British because an election could overturn an understanding he had reached with one Prime Minister. He preferred dealing with an autocrat who could be counted on to have the authority to follow through with his commitments.

The distinguished French Finance Minister Jacques Necker in 1784 took the other side of the argument. Necker pointed out that the same authority that made it easy for the King of France (an 'absolute monarch') to default on government debt made it difficult for the Finance Minister to place the government's debt in the market. Necker pointed out the King's vast power to default implied that one could "... sustain public trust only by giving reassurances on the sovereign's intentions, and by proving that no motive can incite him to fail his obligations". As one of the last Finance Ministers before the Revolution, Necker had good reason to worry about the credibility of the King's government. Necker was one of a large number of statesmen who at the end of the Ancien Regime sought to make it easier for the French government to acquire credibility for good public policies by separating and decentralizing government authority very much along the lines embraced by the British in the Glorious Revolution of 1688.

There is ample historical evidence on Necker's side of this argument, some of it brilliantly summarized in a recent scholarly paper by Nobel prize winner Douglas North and Stanford's Barry Weingast. North and Weingast document how the institutional changes implemented during Britain's Glorious Revolution — changes that included the founding of the Bank of England, the establishment of Parliamentary primacy in matters of borrowing and raising taxes to service government debt — coincided with the British government's acquiring the easy access to domestic and world capital markets that set the stage for an astounding period of political and economic preeminence.

Advice

Despite your limited influence in forming a credible anti-inflation plan, you can help. First, because a plan can be credible only if it is feasible, if you do compose a plan it should fit together and transparently respect the intertemporal budget constraint.

Second, it will probably help if you endorse measures like privatization schemes that promise to alter the constellation of private interests away from favoring government deficits. The public institutions that you help design and administer will affect the credibility of your anti-inflationary intentions. Countries as diverse as contemporary New Zealand and Revolutionary France have consciously designed institutions to alter subsequent political outcomes. In this vein, you can push for arranging your social security and social insurance institutions to be 'fully funded' and less of an open ended 'put' on general revenues.

Finally, you can beware of economists bearing magical schemes for painless solutions of monetary problems that sidestep the arithmetic of your budget constraint, and that ignore how a credible public policy must emerge from Brazil's own political process.