TEXTO PARA DISCUSSÃO

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German reparations and the Brazilian debt crisis: a comparative study of International lending and adjustment*

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I. Introduction

> "It is clear from the discussion that the net results of the process (...) have been: (1) a constant increase, rather than decrease, of international indebtedness; (2) a steady growth in the volume of annual foreign payments to be made by this country and the other net debtor countries; and (3) a continuous disguising of the difficulties inherent in the situation by new international loans".

Moulton and Pasvolsky (1932, p. 301) were, of course, referring to Germany and the inter-war debt problem, but their statement seems to apply to the current situation as well. In 1931, under pressure from the depression, President Herbert Hoover of the United States declared a moratorium on war debts and reparations, including almost all German payments. In the end of 1982, when payments of reparations would have still been made, Brazil was rescued from a collapse of its balance of payments by a package that once again included the U.S. government, this time together with the IMF, private banks and other institutions. This paper asks whether there is anything to be learned from comparing these two crises separated by fifty-one years.

Before describing how the comparative analysis will be performed, some brief methodological remarks are in order. The standard method of economic research can be described as a never-ending interaction of theories and tests, in the Popperian spirit. The economist finds himself in the presence of an event that seems puzzling or cannot be explained by existing theories (e.g., inflation, collusion, etc.), devises a new explanation, and submits it to a number of different tests. Not all theories are tested directly, and not always, indeed rarely, is the whole Circuit covered by the same economist. Nevertheless, this seems to be how the overall discipline evolves.

The classical view of testing requires that the test be performed through the use of the model in prediction, but the profession seems to be persuaded by less than that, for good reasons. For example, some theories[1] may not be amenable to statistical refutation, because the necessary data may not exist, because there exist observationally equivalent models, and so on. The case at hand, a debt crisis, is one in which the use of standard techniques may be hard.

One could analyse, to almost any level of detail, the events leading to a debt crisis in one country. Such a time-series examination would not take us very far, however, because we would be dealing with only one observation of the event. The obvious way out would then be to examine a cross-section of similar events. The dynamic nature of debt crises is such, however, that in order to assess something, a cross-section-time-series analysis would be called forth. Data and specification problems would probably be unsurmountable. I have therefore chosen to approach the problem using the method of historical economics, the term which Kindleberger (1978, p. 7) uses to distinguish it

[1] Note that I use the term 'theory' without necessarily requiring an immediate testable implication. For an interesting discussion on methodology, not necessarily supportive of my views, see McCloskey (1983).

from conventional economic history. Thus, the emphasis will be placed on the analysis of economic processes and structures, and not on the development of new details of fact.

Two debt crises will be examined in some detail, under the light of old and new theories of adjustment to shocks, and of optimal borrowing. No formal statistical testing will be performed, but instead a careful discussion of each case will be provided. Such an exercise in small sample analysis is necessarily rich in qualifiers, allowing a lot of room for 'dangerous' rhetorical persuasion, and judgment. Still, it is hoped that the reader will become persuaded by the comparison, and the lessons drawn from it, as well as interested in the research topics that are uncovered.

The paper is structured in the simplest possible way. Sections II and III present brief reviews of the German and Brazilian experiences, focusing mainly on the interaction of external shocks, domestic policies, and foreign lending. Section IV compares the shocks that hit each economy, and the behaviour of some important economic variables. Section V looks critically at the behaviour of countries (as borrowers), and banks (as lenders). The main conclusion that emerges is that, in both cases, some under-adjustment and over-borrowing took place, leading to an increase in vulnerability to further external shocks. When these eventually carne, the collapse was unavoidable. The last section draws some of the lessons.

II. A Review of the German Experience, 1924-1931

The end of World War I marked the beginning of one of the most complex periods of Germany's history. From the Treaty of Versailles to the Nazi seizure of power, Germany provided the stage for a rich set of events that are still the object of scholarly research in many fields[2]. In the economic sphere, the interaction of reparations, government deficits, labour agreements, and much more, led to internal and external imbalances of considerable magnitude. What follows is a brief review of the main economic events of the Weimar period. The focus will be mainly on external factors and their relation to developments on the domestic side. No new primary evidence will be used, so that the reader can find most of what will be presented below in standard references, to be cited as we go along.

II.1. From Versailles to the Hyperinflation[3]

After the unprecedented devastation of World War I, Germany was in the hands of the victorious allied powers. The Treaty of Versailles was signed on June 28, 1919, sealing the destiny

[2] See Abraham (1981), Meier (1975), and Sargent (1983), to name only a few.
[3] The main sources for this section are *The Economist* (1932), Aldcroft (1977), and Moulton and Pasvolsky (1932).

of Germany for some time. It was agreed that Germany would pay for a large share of the war burden, though an exact amount was not specified; "a vast blank check" was signed (Angell, 1932, p. 11). A reparations commission was created to study the problem, and it took almost two years before the size of the payments was determined.

In the meantime, the debate over the magnitude of reparations was becoming very heated. In a famous speech Sir Eric Geddes supported the extraction of a larger indemnity: "…I have personally no doubt we will get everything out of her that you can squeeze out of a lemon and a bit more..."[4]. On the other side the main figure was Keynes, who had dropped out of the British delegation at Versailles when he felt things were moving towards diaster[5]. He quickly wrote "The Economic Consequences of the Peace", arguing forcefully that the initial reparation magnitudes discussed at Versailles were too high, and that the peace was in fact a Carthaginian Peace: "Clemenceau's aim was to weaken and destroy Germany in every possible way..." (Keynes, 1919, p. 150). In addition to a reduction in reparations, Keynes (1919, p. 270) also advocated a "cancellation of Inter-Ally indebtedness incurred for the purposes of the war", in order to restore growth.

The final figure of 50 billion gold marks (more than a year's GNP at that point) was reached in April 1921, and was made official in the London conference in early May. The 'London Schedule of payments'[6] called for annual payments of 2 billion gold marks plus 26 percent of the value of Germany's exports. This second item showed some flexibility by tying up payments to revenues, but it was not flexible enough. After numerous delays, the reparations commission agreed on August 31, 1922 on a six-month moratorium on all German obligations. In January 1923, in spite of British opposition, Germany was declared to be in default, and French and Belgium troops marched into the Ruhr.

The following months rank amongst the most intensively studied periods in the economics literature. Germany implemented a policy of passive resistance to the invasion; running very large fiscal deficits as many revenue sources were lost, expenditures increased with subsidies and unemployment compensation, and other taxes were not increased. The stage was set for a hyperinflation and depreciation of the mark that has been the object of many studies, including Bresciani-Turroni (1937), Graham (1930), Nurkse (1946), Cagan (1956), Sargent (1983), and many others.[6] This is no place to enter into the controversy of whether the inflation was caused primarily by the budget deficit or by reparations. It suffices for my purposes to quote directly from Lewis (1949, pp. 23-24):

[4] Quoted in Mayer (1967, p. 157).
[5] See Keynes (1919, pp. 4, 8).
[6] See Moulton and Pasvolsky (1932, pp. 151-160).

"A runaway inflation may derive from three sources. First it may be due to upward adjustments of wages, e.g. under trade union pressure. As wages rise, prices rise. The advantage of the increased money wage is thus largely offset, and a further wage increase is demanded. This leads to a further rise in prices, and the cycle may continue unchecked. Secondly, it may be set in motion by the depreciation of the foreign exchange value of the currency, e.g. because of an adverse balance of payments. This raises the cost of imports, and therefore the cost of living. Wages then rise, if linked to the cost of living, prices rise further, and the foreign exchange value falls still more, setting the cycle in motion. Thirdly it may be due to a budget deficit financed by increasing the amount of money in circulation. If money increases faster than the volume of goods (and this is inevitable after full employment is reached), prices rise. This makes the government need more money, the issue of which causes prices to rise still more. It also causes trade unions to press for higher wages, and the foreign exchange value of the currency to fall, each of which enforces the inflationary trend. The German inflation had some of all these elements".

It had indeed!

On October 15, 1923 a new currency, the Rentenmark, was introduced, and soon the inflation ended. The spectacular success of the disinflation plan has been attributed by most authors to the fiscal reform, and its impact on the public's confidence in the new currency. With a better system of taxes, the fear of monetary accommodation of budget deficits disappeared, and hence the relatively low costs of the stabilization[7]. Shortly after, a comprehensive plan aimed at completing the stabilization of the German economy and reviving the flow of reparations was implemented.

II.2. The Dawes Plan[8]

The Dawes Plan was made public in April 1924. As mentioned above, it was part of a stabilization effort, whose "essential aim was to restore confidence in Germany and permit the rehabilitation of her currency while at the same time securing reparation for her creditors" (The Economist, 1932, p. 2).

The plan recognized the need for a second moratorium on reparations, and arranged for an initial loan of 800 million Reichmark[9]. The proceeds from this loan were to be deposited at the newly created Reichsbank, in order to provide the necessary basis for the new currency. As Kindleberger (1984, p. 303) points out, the Dawes loan was not intended "to recycle the entirety of German reparation, as the French sought, but merely to prime the pump". As we will see in the next section, it did ignite a substantial inflow of foreign funds.

In addition to the initial loan, the Plan made the explicit distinction between the collection of

[7] Kindleberger (1984, ch. 17) provides a good discussion and more references.
[8] But see Garber (1982) for an interesting analysis of the efficiency and reallocation costs of the stabilization, which should be contrasted with Sargent's (1983).
[9] See Moulton (1924), Moulton and Pasvolsky (1932), and Kindleberger (1984).

funds within Germany, and the transfer of these funds to foreign creditors. For the former, the following schedule was devised:

Table 1: Schedule of Sums to be Raised within Germany (In millions of RM)

Year Period	1924-25	1925-26	1926-27	1927-28	1928-29
Budget Surplus	none	none	110	500	1250
Transport tax[a]	none	250	290	290	290
Railroad Securities[b]	200	845	550	660	660
Industrial Bonds[b]	none	125	250	300	300
Total	1000[c]	1220	1200	1750	2500

[a]An off-budget item.

[b]Interest payments and amortization.

[c]Includes the Dawes loan.

Source: Moulton (1924, p. 31).

The first two periods were 'budget moratorium periods', as no government budget surplus was required. The next two periods were 'transition periods', as the budget was to show a positive balance and the other payments would also increase. In the 1926-27 period an additional payment of 300 g. m. was imposed. The final period was the "standard year", representing the expected steady-state. These revenues were to be deposited in a reparation account with the Reichsbank.

The second step in the payment of reparations, the transfer, was to be controlled by a transfer committee which would, with the cooperation of German authorities, look after the actual transfer of payments. Except for an agreement to be "cooperative", Germany's responsibility ended with the deposit of payments in home currency. The committee, on the other hand, "set up no schedule covering the transfer of funds to the allies" (Moulton, 1924, p. 39), taking the view that the export surplus of Germany was largely unpredictable, and that therefore payments were to be made only when conditions in the foreign exchange market were favourable. Because of this, if the amounts on the domestic reparations account went over 2 billion RM, due to transfer difficulties, the committee would invest the excess funds in Germany. A ceiling of 5 billion RM was imposed, beyond which contributions to the account were to be reduced, until the foreign exchange situation improved[10]. Following the spirit of classical transfer theory, no specific provision to promote trade surpluses was designed. As it turned out this was never a problem, because capital inflows more than covered the payment of reparations and the trade deficit.

[10] Again, see Moulton (1924) for all the details. In addition to these provisions, arrangements were made to correct for fluctuations in the price of gold, and also to increase the standard annuity in periods of prosperity.

II.3. From the Dawes Plan to the Young Plan, 1924-1928

The first five years of the Dawes Plan marked a period of spectacular recovery for Germany[11]. Industrial production more than doubled between January 1924 and March 1928, and the balance of payments was in surplus in every year (see Table 2). There was no transfer problem; much to the contrary, Germany ran trade deficits in every year except 1926. This meant that, in fact, a smooth transfer was being made *towards* Germany, as many authors have pointed out.

What made all this possible were the massive capital inflows triggered by the Dawes Loan. These capital flows took mainly two forms: long-term bonds, which were sold to the public in many countries, but mainly in the U.S.; and short-term bank credits (acceptances, cash advances). This injection of resources was crucial because, as Falkus (1975, p. 452) points out,

> "industry was short of capital, the financial markets were disorganized, the savings of countless Germans had been obliterated during the hyperinflation, there was a chronic balance-of-payments [trade balance] deficit at any level of economic activity short of a depression...".

A combination of tight domestic monetary policy (with some fine-tuning) and a high level of demand for working capital led to high interest rates. This helps explain the inflow of capital that look place between 1924 and 1928; in spite of the warnings of Keynes (1919), Moulton (1924), and others, that Germany would have trouble repaying her debts and reparations. We will address the determinants of the flow of foreign capital in section V ahead, so for the moment let us simply note that the availability of capital was perhaps the key element in the explanation of German business cycles in the period, as argued by Bresciani-Turroni (1937, pp. 412-413) and Schmidt (1933), and more recently by Landes (1969) and Falkus (1975). We can therefore conclude that, throughout the 1924-28 period, capital flows were playing the important double role of providing the impetus for the recovery and financing the trade deficits that arose[12].

As Figure 1 indicates, in early 1928, the Dawes Plan has apparently succeeded: the recovery was strong, and reparations were being paid on schedule. As it was shortly found out, however, this impression was misleading in more than one respect.

[11] See Angell's (1932). *The Recovery of Germany*.
[12] Angell (1932, p. 81).

Table 2 – Germany's Balance of Payments, 1924-1932 (In Million of RM)

Year	Export	Imports	Trade Balance	Reparations	Interest and dividends	Other Services	Current balance	Capital flow	Flow of gold* and foreign exchange
1924	7,816	9,664	-1,848	- 281	159	269	-1,701	2,913	1,212
1925	9,572	11,934	-2,362	-1,057	6	421	-3,004	3,240	236
1926	10,700	9,883	817	-1 ,191	- 173	449	-98	679	581
1927	11,126	14,016	-2,890	-1,584	- 345	566	-4,253	4,777	524
1928	12,644	13,868	-1,224	-1,999	- 563	676	-3,110	3,172	62
1929	13,655	13,624	31	-2,501	- 800	871	-2,399	2,307	- 92
1930	12,192	10,548	1,644	-1,694	-1,000	521	- 529	494	- 35
1931	9,637	6,779	2,858	- 988	-1,200	445	1,115	-2,722	-1,607
1932	5,778	4,724	1 ,054	- 160	- 900	258	252	-489	- 237

Source: League of Nations (1944).
* Outlflow (-).

Table 3 - German Foreign Borrowing, 1924-1930 (in billions of RM)

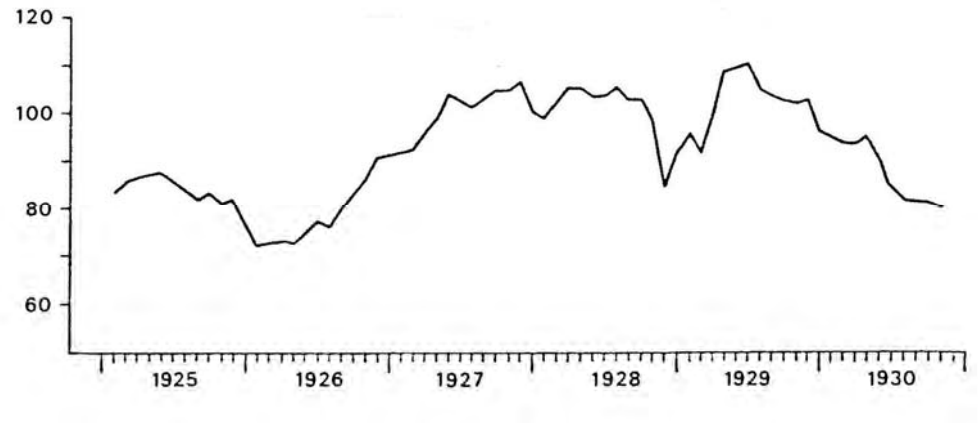
Year	Long Term	Short Term	Unclassifiable	Total
1924	1.0	1.5	0.4	2.9
1925	1.1	0.3	1.7	3.1
1926	1.4	0.1	-0.9	0.6
1927	1.7	1.8	0.4	3.9
1928	1.7	1.4	1.2	4.3
1929	0.6	1.1	1.0	2.7
1930	1.6	-	-0.9	0.7

Source: The Economist (1932, p. 10).

First, even though the Dawes Plan transfers were being made, the internal collection of funds was not taking place. As Table 4 indicates, Germany ran budget deficits in every year between 1924 and 1930, except the first, when it was expected to. According to Moulton and Pasvolsky (1932, p. 283), on March 31, 1931 the German public debt, federal and local, totalled 24.2 billion RM, of which 18.2 billion had been contracted during the 1924-31 period. Thus, the figures for the federal deficits under-estimate the overall deficits, and we can safely State that the planned Dawes Plan surpluses never materialized. The classical transfer theory that was behind the Plan never had a chance to operate, because there was never any deflationary pressure coming from the budget.

Figure 1

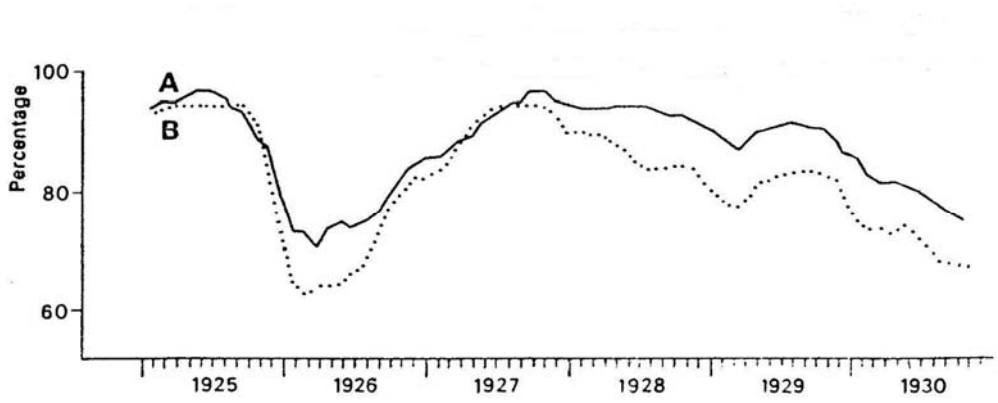
Index of German Industrial Production, 1925-30 (1928 = 100)



Note: The sharp contraction in the last quarter of 1928 reflects the effects of the lock-out in the iron industry.

Fully Employed as a Percentage of Trade Union Membership, 1925-30

A = Producer-goods industries / B = Consumer-goods industries



Source: Falkus (1975, p. 458).

Table 4: Economic Indicators: Germany, 1920-32

Year	Industrial Production	Wholesale Prices	Real Wages I[a]	Real Wages II[b]	Budget Deficit[c]	Gross Fixed Investment[d]
1913	100	100	100	100		
1920	61	1,486	78			
1921	73	1,911	89			
1922	78	34,208	70			
1923	52	16,620 bil.	70			
1924	77	136		70	-537	
1925	92	139		87	110	10.3
1926	87	129		90	853	10.7
1927	110	135		97	355	13.0
1928	113	136		108	1237	13.8
1929	114	131		110	930	12.8
1930	99	114		105	943	10.4
1931	82	98		100		6.5
1932	66	86		94		4.2

[a]Weekly earnings of Ruhr miners.

[b]Weekly earnings, twelve or more industries.

[c]Federal Government only, in millions of RM. Surplus (-). Fiscal year ending in March of the following year.

[d]From National Income Accounts, in billions of RM.

Sources: Bry (1960, pp. 326, 327, 362), Moulton and Pasvolsky (1932, p. 281), and Balderston (1983, p. 401).

In addition to the fiscal deficit, real wages rose by more than 50 percent between 1924 and 1928 (see Table 4). This was a consequence of standard business cycle factors plus the 1918 Stinnes-Legien Agreement which, in the social-democrat spirit of the Weimar Republic, gave more power to 12 labour unions[13]. Again, standard transfer theory did not seem to be operating. The belt-tightening process, which called for deflation and real wage losses, was not set in motion in 1924.

Another key issue concerned the behaviour of investment. In terms of magnitudes, it did reach a peak in 1928, remaining otherwise at fairly low levels. Even if we accept the explanation that many loans were taken to finance working capital, and that therefore we should not expect high levels of investment; the question remains as to the productivity of the investments that were actually undertaken. Dr. Schacht, the President of Reichsbank, pointed out at the time that the records indicated that:

[13] See Bry (1960, pp. 40-43) for details on the Agreement.

> "the expenditure upon the construction of stadia, swimming baths, ..., planetaria, aerodromes, theatres, and museums, upon credit concessions to, and participation in, private business, amounts to a total sum not much below the total foreign loans raised by the cities" (cited by Harris (1935, p. 2, f.)).

Finally, the external accounts of Germany were becoming increasingly fragile as foreign liabilities accumulated. In particular, as shown in Table 3, the growth of short-term debt made the situation even more delicate. As pointed out above, most of these credits took the form of bank loans, which by their nature could be withdrawn in a short period of time. Part of this money was appropriately used to finance trade, but part of it was directed towards working capital financing, and government budget financing. German banks were borrowing short and, in effect, lending long:

> "The German banks, their ledgers swelled with foreign balances, financed their various public and private under-takings freely with little thought for the morrow. Beguiled by a deceptive appearance of prosperity they borrowers short and lent long; for though their lending was in the form of short-term loans, the purposes to which many of the loans were devoted were not appropriate for this type of financing, and as the event proved they rapidly became 'frozen'". (Harris, 1935, p. 6).

Summing up, in the period 1924-1928 Germany was able to stage an externally financed recovery. High rates of growth were maintained at the cost of an increase in the vulnerability of the German economy to further shocks. Faced with the challenge of paying reparations and growing debt, Germany would have to deal with higher wages, budget deficits and a relatively large volume of short-term foreign liabilities.

II.4. From the Young Plan to the Hoover Moratorium, 1928-1931

As Table 2 shows, all reparations payments up to the standard year (1929) of the Dawes Plan were made on schedule. For the reasons pointed out above, however, as early as June 1928 some talk about new reparation arrangements was already beginning (Kindleberger, 1984, p. 304).

Economic activity had already been showing some signs of cooling down since mid-1927, as Figure 1 indicates. The turning point came in the summer of 1928, again strongly influenced by a slowdown in capital inflows. As Falkus (1975, p. 461) points out.

> "...from July 1928 the flow of foreign capital, even at higher interest rates, dropped markedly. By the early autumn the Disconto-Gesellschaft was attributing the credit shortage and stagnation in economic activity to the reduced flow of foreign funds. In May and June some RM700 million had been raised abroad: in July. August and September, only some RM30 millions".

In early 1929 a committee of experts led by O. D. Young met in Paris to work on a new schedule of German payments. At that point the flow of credits from the U.S. was sharply reduced as U.S. investors started to place their funds in the booming stock-market at home, and German perspectives seemed at best uncertain[14]. A short revival nevertheless took place, as the U.S., France and other countries experienced a short-lived boom and German exports increased[15]. It did not last very long, however. As the uncertainty regarding the results of the Paris Conference increased, the dollar was driven to the gold export point, forcing the Reichsbank to raise the discount rate from 6.5 to 7.5 percent, and to enforce a rigorous restriction of credit[16]. When the Young Plan was finally put into effect in April 1930 the U.S. stock market had already collapsed, and the world economy was on its way to the depression.

The Young Plan was basically a rescheduling plan. Among its main features were: a reduction in the size of the annuities, which would start at 1.65 billion RM and rise to 2.5 billion RM in five years, and the provision of a loan of approximately 1.2 billion RM ($300 million). The present discounted value of the stream of payments was approximately 37 billion RM, a considerable reduction from the 50 billion figure of 10 years before. In addition to that, the 'transfer protection' system of the Dawes Plan was eliminated, and Germany was made responsible for the payments in foreign exchange or gold (but not in Reichsmarks). The annuities were also divided into conditional and unconditional parts. The latter was fixed at 660 million RM, and could not be postponed, while the former could be postponed up to two years All internal collection mechanisms from the Dawes Plan were abolished, except a special contribution made by the German Railway Company for 660 million RM, the value of the unconditional annual payment. The overall payment was to be simply included in the government's budget[17]. Finally, the Bank for International Settlements was created to intermediate and supervise the payment of reparations and war debts, and to float the Young loan.

In 1930 Germany's industrial production declined for the first time since 1926, and real wages also fell (Table 4). A trade surplus emerged in spite of a drop in exports, thanks to a drastic restriction in imports and to an improvement in the terms of trade, but it was barely large enough to cover reparations, leaving out the payment of interest and amortization on loans and bonds. The end of year figures still shows a positive capital inflow, due mainly to the long term inflow of the first half of the year, which included the Young Loan. In the second half of 1930, however, it became impossible for Germany to float a long term bond[18], and short term funds began to leave the country. Germany was only able to balance her payments with new foreign loans (mostly short-term), while also losing gold

[14] Falkus (1975, p. 461), Kindleberger (1973, p. 71).
[15] Bresciani-Turroni (1937, p. 422). Falkus (1975, p. 459) also points out that the revival was in part "a reduction to the severe production falls during the iron industry lock-out in December 1928".
[16] Bresciani-Turroni (1937, p. 428).
[17] The basic source here is Moulton and Pasvolsky (1932). The present value figure is from Angell (1932, p. 335).
[18] See Harns (1935, p. 15), and Moulton and Pasvolsky (1932, ch. 14).

for the second year in a row[19] (see Figure 2).

In September 1930 Hitler's National Socialist Party made its presence felt in the elections, a fact that increased the uncertainty of potential creditors, and led to further capital flight and withdrawal of funds. The internal finances were also running out of control and the currency was once again losing its base. In early 1931 domestic budget difficulties were still present, and "the withdrawal of foreign funds from Germany became more rapid. At the same time foreign loans practically ceased" (Moulton and Pasvolsky, 1932. p. 308).

In March 1931 Germany suddenly announced a customs union with Austria, generating an international political crisis. The collapse came first in Austria, with the Creditaustalt breakdown in May. A confidence crisis followed, and a run on the Reichsbank began in early June. Between May 30 and June 6 foreign reserves declined by $38 million. On June 5 the German government issued a manifesto assessing the situation, and calling for a reduction of the burden. This made the financial markets even more nervous, and led to an acceleration in the withdrawal of funds. A week later the stock of foreign reserves had declined by $130 million, dropping to $445 million. It was clear to all that, at this rate, the collapse would come very soon, especially because the Young Plan required a notice of 90 days for the suspension of payments. Still, the June 15 payment was duly made.

On June 18 Keynes, then in the United States and sensing the urgency of the situation, sent a cable to Hubert Henderson saying:

> "Bentley Code Probable American banks continue gradually withdraw funds position many banks here so weak they will run no risks merely to help general situation moratorium or other suspension not fully discounted by banks, and announcement may make matters worse" (Keynes, 1978, pp. 354- 355).

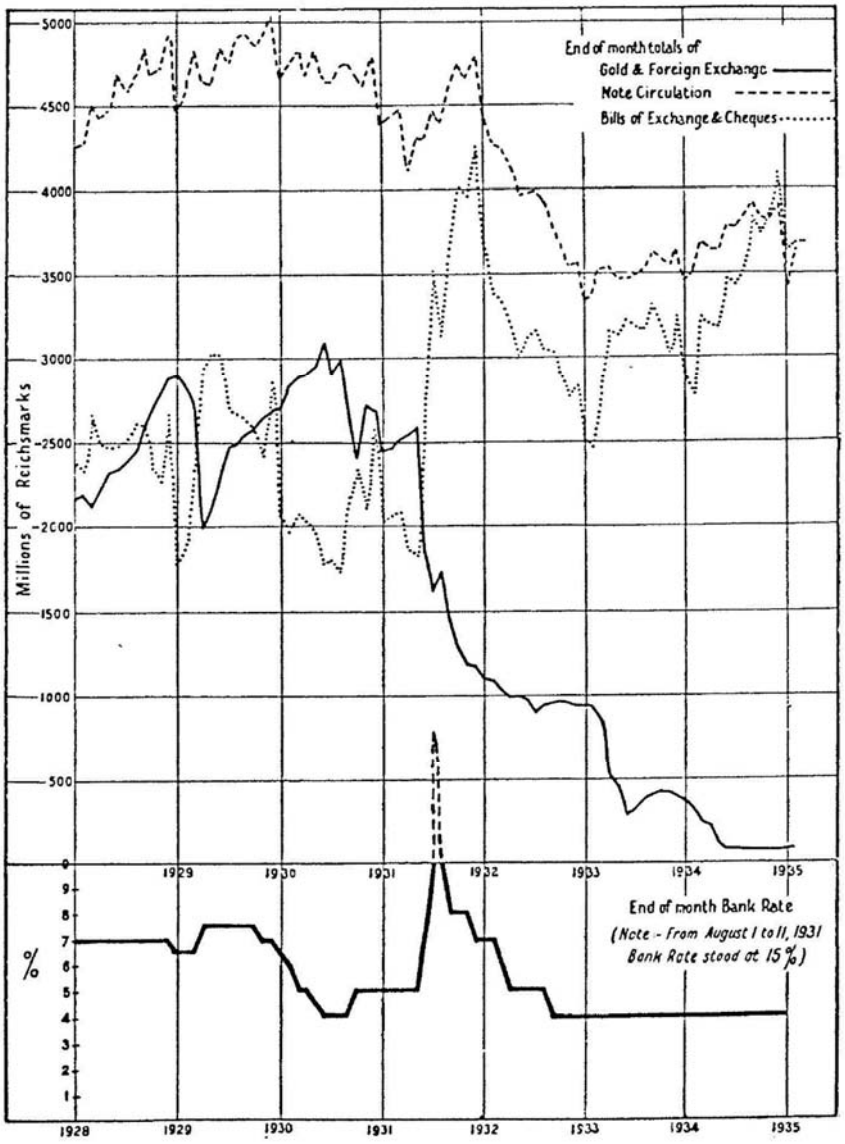
Two days later President Hoover announced a one-year moratorium on all war debts and reparations. A year later these obligations were all but cancelled in the Lausanne Settlement. Meanwhile, the withdrawal of foreign money continued, in spite of sharp increases in the Reichsbank's discount rate.

On July 13 German banks were closed for two days, and foreign exchange Controls were implemented, characterizing the final collapse. In the end of July, after an estimated reserve loss of 3 million RM, total German short-term liabilities still added up to almost 12 million RM[20], representing about one-half of the total indebtedness. The German debt was serviced until 1934, when the Hitler repudiation took place, ending the story.

[19] See Moulton and Pasvolsky (1932, p. 307), the main reference for the remainder of this section.
[20] The Economist (1932, p. 11). This indicates that the figures in Table 3 are probably underestimates of the total flow of short-term loans.

Figure 2

Situation of the Reichsbank, 1928-35



Source: Harris (1935, p. 115)

III. A Review of the Brazilian Experience, 1973-1982[21]

As opposed to Germany, in the case of Brazil the period that preceded the external shock was one fast growth. The year 1973 marked the end of the period which became known as the 'Brazilian Miracle'. Between 1968 and 1973 Brazil's GDP grew at an average rate of 11 percent per year, while the annual rate of inflation averaged 20 percent, declining over the period. Gross fixed capital formation rose from 19 percent to 22.4 percent of GDP, and the balance of payments seemed to pose no problem. Both exports and imports went from around 1.9 billion dollars in 1968 to 6.2 billion

[21] This section draws heavily on the work of Malan and Bonelli (1983), Bacha and Malan (1983), and Diaz-Alejandro (1983).

dollars in 1973, as Brazil promoted its exports in a booming world trade environment, creating room for the induced growth in imports. Foreign capital was plentiful, as indicated by overall balance of payments surpluses in every year during the period. Foreign exchange reserves went from $199 million in the end of 1967 to over 16 billion in the end of 1973 (see Tables 5, 6, 7). As Bacha and Malan (1983, p. 10) point out, foreign debt was an option, as the absence of foreign exchange constraints allowed for high rates of investment and growth.

In addition to favourable international conditions, Brazil also benefited from a high rate of excess capacity in the early stages of the boom, and from expansionary monetary and fiscal policies. Consumer and housing loans were expanded, and an ambitious program of public investments was launched[22].

In 1973, the monetary base went up 47 percent, thanks to an expansion in the loans of the Banco do Brasil, and to the already mentioned gain in reserves[23]. As the economy approached full-capacity, inflationary pressures had to be repressed through price controls so that the 12 percent inflation target could be attained.

[22] See Malan and Bonelli (1977, 1983), Bacha (1980, 1984), and Simonsen (1980), for more details.
[23] See Fraga (1983) and Carneiro and Fraga (1984) for more details on Brazil's monetary and credit policies in the seventies.

Table 5 – Brazil: Balance of Payments, 1973-77 (in millions of U.S. dollars)

		1973	1974	1975	1976	1977
I.	Trade Balance (FOB)	7	-4690	-3540	-2255	97
	Exports	6199	7951	8670	10128	12120
	Imports	-6192	-12641	-12210	-12383	-12023
II.	Services	-1722	-2433	-3162	-3673	-4134
	(Net Interest)	(-514)	(-652)	(-1498)	(-1810)	(-2104)
III.	Current Account[a]	-1715	-7122	-6700	-6013	-4037
IV.	Capital Movements	3512	6254	6189	6651	5269
	Direct Investment	940	887	892	962	810
	Loans	4495	6961	5933	7761	8424
	Amortization	-1672	-1920	-2172	-2922	-4060
	Other[b]	-251	326	1536	920	96
V.	Errors and Omissions	382	-68	-439	554	-602
VI.	Overall Balance	2179	-936	-950	1192	630

Source: Malan and Bonelli (1983, Table 6), originally from the Central Bank Bulletin.

[a]Transfers included.

[b]Includes short-term capital movements.

Table 6 – Brazil: External Debt and Reserves (end-of-period, In millions of U.S. dollars)

Year	Medium and Long-term External Debt	Short-Term External Debt[a]	Official Monetary Liabilities[b]	Total External Debt	Gross Reserves[c]	Net Official Reserves[c]
1970	5295				1187	
1973	12572				6416	
1974	17166				5269	
1975	21171				4040	
1976	25985				6544	
1977	32037	2703	1512	34252	7256	5744
1978	43511	4097	1599	49207	11894	10295
1979	49904	5217	1486	56607	9688	8202
1980	53848	8575	1723	64146	6912	5189
1981	61411	10173	1799	73383	7507	5708
1982	69654	9376	6134	85164	3250	-2884
1983	81319[d]	7554	7106	95979	3757	-3349

Sources: IMF and Central Bank

[a]The 1982 figure is the 'standard, non-registered' debt given in the Central Bank's Annual Report, 1982. Figures for the other years are obtained from changes in short-term loans (Table 7).

[b]The 1980 IMF number is the basis. The figures for 1977, 1978 and 1979 may overstate the true values.

[c]Foreign exchange, gold, SDRs and reserve position in the IMF.

[d]Gross reserves minus official monetary liabilities.

Table 7 – Brazil: Economic Indicators

Year	Investment[a]	Savings[a]	GDP Growth	Inflation	Gov't. Deficit[a,b]	Real Wages
1973	22.4		13.6	16.6	n.a.	100
1974	23.9		9.7	29.1	n.a.	101
1975	25.0		5.4	27.3	n.a.	112
1976	23.3		9.7	43.3	n.a.	117
1977	21 .3	20.5	5.7	42.5	n.a.	125
1978	21 .2	19.8	5.0	37.6	n.a.	135
1979	20.3	18.2	6.4	55.9	3.0	138
1980	21.1	18.8	7.2	106.5	3.6	126
1981	19.2	18.7	-1.6	113.0	6.0	128
1982	18.4	17.4	0.9	92.0	6.6	141
1983	15.0	16.8	-3.5	168.3	2.6	

Sources: IMF, Modiano (1983, real wages), *Conjuntura Econômica*, Junho de 1984.

[a]As a percentage of GDP.

[b]Public sector borrowing requirement minus monetary correction on debt. This is basically an inflation adjusted government deficit.

At this point the overall State of the Brazilian economy seemed very promising, just calling for some short-run fine-tuning with respect to inflation and monetary expansion, but not much else. The optimistic targets of the Second National Development Plan do not seem impossible when viewed under this light, except in that it was implicitly assumed that the world economy would continue to boom. However, this did not occur as in December 1973 the world economy was hit by a fivefold increase in the price of oil. This section will attempt to describe the behaviour of the main economic variables in the Brazilian economy in the period between the first oil-shock, and the collapse which occurred in the last quarter of 1982. As in the case of Germany, the crisis took the form of a balance of payments crisis, so I will again place great emphasis on external developments.

III.I. Adjustment to the First Oil-Shock, 1974-1978

Having watched the trade balance deteriorate quickly and the money supply run out of control in the first two and a half months of 1974, the Geisel government took Office knowing that some adjustment would be necessary. In the words of Simonsen (1980, pp. 10-11), the Minister of Finance under Geisel,

> "President Geisel took Office in March 15, 1974, inheriting repressed prices, a number of commodity shortages and a huge deficit in the trade balance. In his five-year period a compromise solution was attempted for a number of objectives, namely: (i) to adjust the balance of payments and to keep a good International credit standing; (ii) to keep real product growing

at its historical pace; (iii) to control the inflation rate within acceptable limits by Brazilian standards; (iv) to promote export growth and to reduce the foreign dependence of the country through a new program of import substitution. Times were difficult enough and objectives to reconcile also conflicting enough".

The immediate consequence of the oil shock was a 4.6-billion-dollar deterioration in the trade balance, in spite of an increase in exports (see Table 5). Oil imports went from 0.7 to 2.8 billion dollars, the rest of the increases in imports coming from a 35 percent increase in the quantity imported (Table 8). In spite of some effort to bring inflation down by reducing the rate of money growth, the economy was still under heavy demand stimulus. As Bacha and Malan (1983, p. 13) point out,

"it [the Geisel administration] decided *both* to continue with the projects which had been initiated in the previous years of growing euphoria and, additionally, to launch an ambitious program of import-substitution in capital goods and basic raw materials in which foreign capital would have a role to play".

Here we see perhaps the main conflict of goals mentioned above by Simonsen: no balance of payments adjustment in the short-run would be possible, because growth was given first priority. The other standard adjustment tool, a real devaluation, was not considered; at the time a crawling-peg was maintaining the purchasing power parity of the Cruzeiro with respect to the dollar. Given the decision to opt for growth, the only alternative left was therefore to borrow.

In the first two years of the Geisel period external borrowing was not enough to cover the current account deficit, implying a loss of reserves (Table 6). This loss compounded the effects of a tight monetary policy, and led to a fall in industrial production in the first twelve months of the new government. After that, the emphasis shifted back to growth, until the end of 1976, a year in which GDP rose by 9.7 percent[24]. At that point, inflation was again becoming a problem, as aggregate demand was heated up and wage indexation made sure prices would be sticky coming down. The trade balance had improved slightly with increased exports, but not much progress was being made on the import side.

In 1977 monetary policy again became tight, this time implemented with a shift from standard monetary targets to credit expansion targets[25]. The rate of growth of GDP fell from 9.7 percent in 1976 to 5.4 percent in 1977, leading to a fall in imports which, with a favourable shift in the terms of trade led to balanced trade after three years of deficit. Gross fixed capital formation declined from its peak of 25 percent of GDP in 1975 to 21.2 percent of GDP in 1977, still a high rate of investment anyway (Table 7).

[24] See Simonsen (l980, p. 11).
[25] This shift was appropriate given the peculiar structure of the monetary system in Brazil. For more details, the reader should consult Fraga (1983) and Carneiro and Fraga (1984).

The year of 1978 was again marked by moderate growth and falling inflation. The trade balance registered a deficit of 1 billion dollars, due mainly to an adverse shift in the terms of trade (Table 8), so that at this point one could argue that the Brazilian balance of payments had completed its period of adjustment. Exports had doubled in the five years after OPEC, growing faster than world trade, while imports were kept roughly constant.

As many economists have pointed out, however, this was not entirely true[26]. Medium and long-term net external debt went from 6 to 32 billion dollars in the period[27], most of it contracted at floating interest rates. Already in 1978, before the second oil-shock, the current account deficit was almost one half total exports, mainly because of a two percentage points jump in international interest rates (Tables 9, 10). Moreover, the volume of oil imports (quantum index, Table 8) went *up* 30.8 percent between 1973 and 1978, while oil prices declined in real terms.

This increase in vulnerability to interest rate and oil price increases may have been justified, given the performance of the Brazilian economy, but the adjustment could not be postponed forever. One of the key variables, the real exchange rate, was being kept roughly constant (see Figure 3) as the cruzeiro was pegged to the dollar and the value of the dollar did not fluctuate much in the period. In addition, throughout the Geisel term there was little or no incentive to reduce and substitute oil consumption because the domestic price of oil sub-products was heavily subsidized[28]. Finally, as in the case of Germany, the feasibility of some of the projects undertaken during the period, such as the atomic energy and the gasohol programs, was being questioned.

The second oil-shock, in early 1979, came as an additional reminder that things could go sour. We now turn to a description of the main shocks and policies of the period that preceded the crisis which occurred at the end of 1982.

[26] See, for example, Bacha and Malan (1983), Malan and Bonelli (1983).
[27] Gross external debt grew even more, as reserves went from $4 billion in 1975 to almost $12 billion at the end of 1978.
[28] For more details, see Modiano (1982).

Table 8 – Brazil: Foreign Trade Indices

Year	Exports		Imports		Oil Imports		Terms of Trade		Real Exchange Rate[a]
	P	Q	P	Q	P	Q	Total	Excluding Oil	
1972	41	76	47	70	22	61	87	72	88.3
1973	56	88	59	85	28	85	95	82	94.8
1974	71	89	91	115	93	87	78	78	97.6
1975	71	98	94	109	94	91	76	76	100.0
1976	82	99	96	108	96	101	85	88	95.2
1977	100	100	100	100	100	100	100	100	91.0
1978	92	113	107	105	101	111	86	84	102.9
1979	101	124	123	115	135	124	79	81	112.4
1980	107	152	164	115	226	107	65	78	119.2
1981	101	183	182	99	270	104	55	71	94.8
1982	95	164	175	90	259	98	54	68	91.3

Sources: Malan and Bonelli (1983), originally from *Conjuntura Econômica* and Fendt and Koksaka (1984).

Table 9 – Brazil: Balance of Payments, 1978-82 (in millions of U.S. dollars)

	Type	1978	1979	1980	1981	1982	1983p
I.	Trade Balance	-1024	-2840	-2823	-1202	780	6470
	Exports (FOB)	12659	15244	20132	23293	20175	21890
	Imports (FOB)	-13683	-18084	-22955	-22091	-19395	-15429
II.	Services	-6037	-7920	-10152	-13135	-17083	-13446
	(Net Interest)	(-2696)	(-4185)	(-6311)	(-9161)	(-11353)	(-9555)
	(Reinvested Profits)	(-975)	(-721)	(-411)	(-741)	(-1556)	(-697)
III.	Current Account	-6990	-10742	-12807	-11735	-16311	-6868
IV.	Capital Movements	11928	8090	9670	12911	7803	6408
	Direct Investment	2046	2212	1532	2326	2547	1354
	Long-term Loans	14284	11907	11513	17423	14881	14763
	Amortizations	-5439	-6541	-6706	-7515	-8234	-8010
	Short-term Capital (net)	1394	1120	3358	1598	- 797	-1822
	Brazilian Lending	-357	-608	-27	-921	- 594	123
V.	Errors and Omissions	-639	-130	-343	-414	- 368	-531
VI.	Overall Balance	4299	-2692	-3389	849	-8876	-991
	Gold Valuation and Monetization	4	654	421	-238	351	557
	Other Valuation Adjustments	249	-55	-45	-93	-66	-30
	Change in Monetary Liabilities	87	-113	237	76	4335	971
VII.	Change in Gross Official Reserves (-) = loss	4639	-2206	-2776	594	-4256	507

Source: IMF. The 1982 Bridge loan of US$ 2339 million was not counted here as a long-term loan, but as a monetary liability. Figures for direct investment include ‘reinvested profits’, an item not included in Table 6, as well as its counterpart in the balance of Services.

Table 10: World Economic Indicators, 1973-1983

Year	Real GNP Growth	U.S. Inflation	U.S. Prime-rate	World Trade Growth
1973	6.1	5.7	8.0	12.0
1974	0.5	8.8	10.8	4.5
1975	-0.6	9.3	7.9	-3.5
1976	5.0	5.2	6.8	11.0
1977	3.9	5.8	6.8	5.0
1978	4.1	7.4	9.1	5.5
1979	3.5	8.6	12.7	7.0
1980	1.3	9.2	15.3	1.5
1981	1.6	9.4	18.9	1.0
1982	-0.1	6.0	14.9	-2.5
1983	2.3	4.2	10.8	2.0

Sources: *World Economic Outlook*, IMF, 1984 and *Economic Report of the President*, 1984.

III.2. The Road to the IMF, 1979-1982[29]

As mentioned above, in spite of tighter monetary and credit policies, inflation did not come down significantly in 1978, mainly because of adverse supply shocks and full lagged wage indexation[30]. When oil prices started to rise, the need for economic adjustment became even clearer. On March 15, 1979, President Figueiredo took Office, bringing as his Planning Minister Mario H. Simonsen, and giving first priority to the combat of inflation.

In August 1979, however, Simonsen resigned from his post because of overall political pressures against his stabilization effort. To his place came Antonio Delfim Netto, the well-known economic minister of the 'Brazilian miracle' of 1968-1973. Delfim brought with him the idea that the way out of the inflation/balance of payments strait jacket was to promote growth, and in particular, agricultural growth. This would lead to a fall in domestic inflation and to a trade surplus, all at the small cost of subsidies and minimum price guarantees (financed by monetary expansion). As a consequence, the monetary base grew 64 percent in 1979, as opposed to 45 percent in the previous year.

On the cost side, strong inflationary pressures were also present: (i) in November a new wage law was enacted, reducing the readjustment interval to six months, and granting wage increases in excess of past inflation to low wage earners; (ii) in December a 30 percent devaluation of the cruzeiro with respect to the dollar was executed in conjunction with a reduction in export subsidies and import

[29] See Bacha (1983) for an excellent analysis of the 1979-1981 period.
[30] This is Simonsen's (1980, p. 12) view. The agriculture sector in the national accounts declined 2.6 percent in 1978.

restrictions. Inflation jumped to close to 80 percent on an end-of-period basis, and foreign confidence in Brazil began to fade away[31].

Figure 3

Brazil – Effective Exchange Rate Indices[1] (December 1978 = 100)

Source: IMF Data Fund and Fund staff estimates
[1]Appreciation(+)

The overall balance-of-payments showed a deficit of $2.2 billion as imports went up 32 percent, world interest rates continued to climb, the world went into a recession, and capital flows fell by 50 percent (see Tables 9 and 10). A small balance of payments crisis took place in the end of 1979, beginning of 1980, as the switch from long to short-term financing of the current account indicates (Table 11). Hoping to have some impact on inflationary expectations, Delfim also announced at the end of the year that in 1980 monetary correction (the lagged indexation factor) would be limited to 45 percent and exchange correction (the devaluation vis-a-vis the dollar) to 40 percent. As inflation continued to rise (for the above mentioned reasons) in the first half of 1980, these targets were eventually abandoned. Still, the devaluation of the cruzeiro in 1980 remained below the cruzeiro-

[31] *The Economist* (Dec. 15, 1979, p. 69) was already saying at that point that "Brazil may be forced to borrow from the International Monetary Fund next year..."

dollar inflation differential, so that by the end of the year the effects of the maxi-devaluation had been substantially reduced (see Figure 3).

The net combined effects of a real depreciation of the cruzeiro (on a period-average basis now), a high level of domestic activity, and a world recession (Tables 7, 9 and 10), led to $4.8 billion increases in both exports and imports, yielding a trade deficit of $2.8 billion for the second year in a row. In addition, international interest rates reacted to a monetary contraction in the U.S. by rising three percentage points, causing Brazil's current account to worsen by $2 billion. *The Economist* (Sept. 6, 1980, pp. 78-79) announced that Brazil was "crashing through the debt barrier", and that "many banks (were) reaching their 'country limit' for Brazil and the flood of new lenders had dried up..."[32]. At this point it is conceivable that, in the absence of capital Controls, a more violent balance-of-payments crisis would have occurred, driving reserves to zero. In 1980 Brazil's GDP increased by 7.2 percent, but real wages fell as inflation accelerated, and net external debt went from $46.9 billion to $59.0 billion, including a significant $3.6 billion increase in short-term liabilities and a $2.8 billion reserve loss (Tables 6, 7). A trip to the IMF was certainly in the cards at that point.

It was not to be, however. After some partial attempts at policy changes, Delfim Netto finally opted for what *The Economist* (Nov. 29, 1980, p. 61) called a "course correction", accepting that he had "more or less exhausted the banks willingness to lend his country money – until Brazil is back on the black" (ibid.). The targets for monetary and exchange rate corrections were formally abandoned, interest rates were decontrolled, and a target of 5 percent GDP growth was announced for 1981. In order to achieve this objective a very tight monetary policy was implemented, as documented for example in Bacha (1983, pp. 330-332). The real money supply declined from its 1980 level[33], and real ex-post interest rates went from large and negative to large and positive. In spite of a fiscal stimulus[34], economic activity declined sharply: instead of growing at 5 percent, GDP fell 1.6 percent.

In spite of a deterioration in the terms of trade, the trade balance became positive on a $4 billion swing. Bankers were reported to be "looking happier by the hour" as Brazil was "deflating its way out of the deficit" (*The Economist*, June 20, 1981). This effort, however, was not paying off, because world interest rates continued to climb to an annual average of 18.9 percent. As a consequence of this increase in debt Service, the current account improved only slightly, and the bankers found themselves lending the necessary amounts to cover the deficit, and increase reserves by $594 million. Little adjustment took place, as the effective exchange rate remained overvalued and inflation went

[32] Given the pre-announced path of the exchange rate, such a collapse could be explained by the models of Flood and Garber (1983), and Connolly and Taylor (1984).
[33] As is well known, it is hard to measure monetary tightness because money demand may change. In the present case the real money supply is probably a meaningful measure because inflation was roughly constant during the period.
[34] This assertion is based on the public sector borrowing requirement number presented in Table 7. Other evidence points in the opposite direction, e.g., already in 1981 public investments were being reduced.

up slightly. The stage was set for the final stretch.

The domestic liquidity crunch proceeded into 1982. Interest rates on consumer loans and working capital remained very high, and the real exchange rate appreciated even further as the cruzeiro remained pegged to the appreciating dollar. Imports were still kept very low, but the trade balance did not improve because exports dropped, following a severe contraction in world trade (Table 10). At the same time, interest payments on accumulated debt were increasing the pressure on the capital account. In the first quarter of 1982 a sharp reversal in the financing of the current account took place, as it had two years before. Long-term loans dropped substantially, and the gap was filled by short-term loans, mostly obtained through the highly decentralized interbank market. Domestically, investment continued to decline, going from 21.1 percent of GDP in 1980 to 18.4 percent in 1982, and economic activity was still depressed. In the first half of 1982 capital flows were sufficient to finance the growing current account with a loss of reserves of only $1.2 billion. At that point Brazil was still on its feet, but it is not clear whether the situation was sustainable, even in the absence of a liquidity crisis.

In August came the Mexican collapse, and all doubt disappeared. Capital flows to Brazil were sharply reduced, the level of foreign exchange reserves was declining, but a decision was made not to stop payments. Brazilian businesses and government were complaining that the Argentinian and Mexican crises were undermining Brazil's ability to address its own balance of payments problems[35], but in general not too much noise was made because the government was trying to put on a good show, in order to do well in the upcoming November elections. In this spirit, a trip to the IMF was rejected on the grounds that Brazil could solve its own problems without submitting itself to the IMF medicine. As the quarterly summary of Brazil's 1982 balance of payments indicates (Table 11), this would turn out to be impossible.

After the Mexican crisis, a sharp reversal in the pattern of short-term capital flows took place, as well as a reduction in long-term loans. In the last quarter of 1982 alone the capital account showed an *outflow* of $1.3 billion, and the overall balance of payments showed a deficit of $5.7 billion. The situation would have been even worse if capital flows had not been under strict control, but in any case Brazil had to call for help in order to be able to meet its payments. A well-known emergency package[36] was put together by the banks, the IMF, the U.S. Treasury and the BIS, leading to an overall increase of $4.4 billion in official monetary liabilities in 1982. Net reserves crashed from $5.7 billion at the end billion at the end of 1982, characterizing a balance of payments collapse.

Table 11 – Brazil: Current Account Financing, 1979-82(in $ millions)

[35] See, for example, *The New York Times*, September 9, 1982.
[36] See Bacha (1983a, p. 32) for details.

Period	Current Account	Long-term Financing[3]	Short-term Financing[3]	Reserve Loss[c]
1979:1	-2251	1476	- 280	811
2	-2247	1461	350	1193
3	-2952	1661	-51	1084
4	-3292	2210	829	238
1980:1	-3649	734	1335	2157
2	-3183	1619	162	1505
3	-3505	2077	543	334
4	-2470	2529	679	-489
1981:1	-2870	1664	913	503
2	-3077	2788	-350	298
3	-3116	2993	-177	-144
4	-2671	4258	842	-1308
1982:1	-3640	1117	1818	455
2	-4181	3038	758	803
3	-4493	2503	-125	1698
4	-3996	1257	-2515	1317

[a] Net long-term loans plus direct Investment.
[b] Net short-term loans.
[c] The 1982:4 figure includes the bail-out package of $4177. As opposed to Table 9, gold revaluations are not taken into account.
Source: Boletim do Banco Central do Brasil (various issues).

IV. Germany and Brazil Compared

Having covered in some detail the International collapses of Germany in 1931 and Brazil in 1982, we now turn to a comparative analysis of the two events.

IV.I. Economic Structure and Basic Facts

From the end of World War I to the Hoover moratorium the German economy was burdened with the payment of reparations. After an apparently successful period of externally financed growth, Germany was caught by the depression, and a crisis was inevitable. With some qualifications, we can tell a similar story for Brazil in the late seventies and early eighties: in 1973 the Brazilian economy was hit by a large and exogenous oil-shock, followed by a similar period of growth-with-debt. After that, a combination of many factors, including higher oil prices and interest rates, and low levels of world economic activity and trade, led to a crisis in the last quarter of 1982.

These are, of course, standard explanatory factors of the current debt crisis. Bacha (1984), for example, decomposes Brazil's current account deterioration into a terms of trade deterioration, interest rate shocks, and a 'retardation of world trade growth' effect, all countered by domestic policy

actions. Dornbusch (1984) shows that most of the accumulation of foreign debt in the 1979-82 period can be accounted for by oil and interest shocks (and lack of domestic adjustment). Khan and Knight (1983) emphasize external factors (terms of trade, growth in industrial countries and foreign real interest rates) as well as domestic factors (fiscal deficits, real effective exchange rates) in a study of the developing countries as a whole. Cline (1983) follows similar lines, and many other examples could be given. The fact is that, independent of the role played by domestic policies in these analyses, exogenous external shocks always appear as important factors in the explanation of the Brazilian debt crisis.

If we accept this view of 'debt as reparations', it is natural to ask whether the shocks that hit Germany and Brazil were of comparable order of magnitude. To answer this question, I follow Machlup's (1964, Ch. 15) approach. There it is suggested that the relevant magnitude (reparations or debt owed) should be contrasted with gross domestic product and exports. The ratio to GDP would give a measure of the extent of the domestic budgetary problem, i.e., the domestic raising of funds, and sharing of the burden. The ratio to exports, on the other hand would indicate the degree of the transfer problem, i.e., the conversion of domestic funds into acceptable international means of payment. These measures suffer from a number of shortcomings, such as being static and ignoring imports, but they serve as a first approximation. Table 14 presents these ratios for two periods, for both countries.

For Brazil the period was divided into two sub-periods, 1974-78 and 1979-82, for reasons already pointed out in the previous section. Given that little or no adjustment took place in the 1974-78 period, it is likely that the figures for the second sub-period (based on 1978 oil imports) underestimate the actual burden.

For Germany the sub-periods were 1925-28 and 1929-31, the former being a period of balance of payments surpluses. Since estimates of national income only exist for the years of 1925, 1929, and 1932, the numbers in Table 14 must be taken as rough approximations only. In order to minimize distortions, and still be able to differentiate between periods, the burden figures used for these ratios were those corresponding to 1925 and 1929, instead of the period averages used for the comparison with exports.

Table 14: Transfer Burdens (in percentage terms)

	Brazil		Germany	
	1974-78	1979-82	1925-28	1929-31
A/X	26.7	29.8	13.2	14.6
A/Y	1.8	2.5	1.9	3.5

Source: Tables 2, 5, 6, Machlup (1964), *Conjuntura Econômica*.

Germany: A = annual average of reparation payments in the period.

X = annual average of exports.

Y = national-income estimates for 1925 and 1929, from Machlup (1964, p. 383). See text.

Brazil: A = oil imports in excess of 1973 (for 1974-78) or 1978 (for (1979-82)).

X = annual average of exports.

Y = the ratios to GDP are obtained by multiplying the first ratios by the exports/GDP ratio from the national income accounts, *Conjuntura Econômica*, Junho de 1984.

In addition to these caveats, the nature of the shocks must be taken into account before we can accept the conclusion that Germany and Brazil faced similar burdens. In particular, as Marion and Swensson (1984) have so elegantly shown, the distinctions between temporary and permanent changes, and between anticipated and unanticipated changes lead to different optimal dynamic responses to shocks. The case of reparations is the easiest, so let us examine it first. It is probably fair to say that, after World War I began, agents attached a certain probability to a German defeat. As a consequence, the payment of reparations must have been, at least in part, anticipated. Given that Germany was at war, however, it is unlikely that the optimal policy of early adjustment could have been implemented. Thus, the reparations had almost the effect of a full surprise. The case of the oil-shocks is more complex, so I shall call upon Gately's (1984) survey for help. The average view quoted there characterizes the first oil-shock as a not fully unanticipated shock, but a permanent one in the sense that oil prices would not return to pre-1974 levels. The second oil-shock was again a partial surprise, with the effect of reinforcing the view that the first shock had been permanent. Finally, the price elasticity of oil-demand must be taken into consideration. In the short and medium run this elasticity is usually taken to be very low. In the case of Brazil, we saw that no adjustment in consumption took place, because the internal price of oil was heavily subsidized. On the supply side there was some adjustment, as domestic oil production increased by 24% in the 1973-82 period. To be on the safe side, the second period burden was then measured with reference to 1978 oil imports.

On the whole, it seems that Brazil and Germany faced similar problems. The burdens to GNP were of comparable magnitudes, whereas the relation to exports differ to the extent that Germany was a more open economy.

The remainder of this section will examine some important macroeconomic variables in each country. The main focus will be on short-run adjustment, leaving the dynamic long-run process to the next section. In the background the reader should have in mind a simple macro model such as those of Dornbusch (1982) and Simonsen (1984). These models tell us that, in the short-run, adjustment to an adverse balance of payments shock requires a devaluation of the exchange rate, and a reduction in domestic absorption.

Let us begin with wages. A basic result in the field States that a real devaluation requires a fall

in real wages, as measured in terms of traded goods. In the two episodes considered in this study real wages rose in the period that followed the first external shock. This indicates that no real adjustment took place, at least until the economies were hit for the second time, and real wages fell. The classical Hume-Mill adjustment theory[37], which relied on the flexibility of wages and prices, was never given a chance to operate because, as we have seen, both countries opted for the financing of shocks, not for deflation. One can, however, conjecture that, under union pressure in the case of Germany, and wage-law pressure in the case of Brazil, the adjustment would have been just as costly early on as it turned out to be afterwards.

This discussion leads to an important instrument of aggregate demand control, the government's budget. In both cases the government seemed to be expanding when, again, standard theory called for a contraction. In the case of Germany there was pressure to bring the economy back to its pre-war level, whereas in the case of Brazil the pressure was on economic development. In addition to the overall level of aggregate demand we must also analyse the composition and maturity of government investment. In the cases we are looking at, there was a tendency to finance long-term projects with short-term loans, a fact that accounted for part of the increase in vulnerability that preceded the crisis.

Another important issue is the one recently stressed by Dornbusch (1984, p. 1):

> "Oil, U.S. interest rates and the 1981-82 world recession are often isolated as the chief causes of the world debt crisis. But these factors have only made much more apparent and unsustainable an underlying disequilibrium in which exchange rate overvaluation and/or budget deficits were perpetuated by continuing and excessive recourse to the world capital market".

In the specific case of Brazil, it is hard to tell whether an eventual collapse could have been avoided had the 1981-82 recession not taken place. The main point is, as Dornbusch points out, that the initial external shocks were fully accommodated by budget deficits, and that therefore there was no adjustment. This is a subtle point, because a country can run budget deficits without being in external disequilibrium, as is made clear when we look at the national income identity:

increase in net
foreign liabilities $= M - X + rF = (G - T) + (I - S)$

where:
M = imports
X = exports
r = interest rate on debt
G – T = government deficit
I = private investment
S = private savings

[37] See Viner (1937), and Fetter (1968) for excellent discussions of the classical theory, the transfer problem, and related issues.

F = net foreign liabilities (previous period)

Both Germany and Brazil accommodated their respective current account deteriorations. Dornbusch goes on to discuss each term in the identity in an intertemporal maximization framework. Let us assume instead that we are in a distorted short-run situation where savings and imports depend on current income, investment is given, and the real exchange rate is fixed, perhaps because of wage indication. Let prices be sticky, so that output is demand determined. In this case, an exogenous deterioration in the current account will lead to a recession if it is not accommodated by an increase in the budget deficit. This can be taken as a stylized interpretation of the German and Brazilian experiences. As we will discuss ahead, when we consider a longer horizon, it becomes unlikely that these policies of full accommodation were the correct ones[38].

The next issue that arises is related to inflation and the financing of the budget deficits. Here the two cases differ a lot. Germany was under the gold exchange standard, and hence the deficits were financed by domestic and foreign borrowing. Inflation was never a problem. Brazil, on the other hand, was not under any strict constraint; much to the contrary, the structure of the monetary system was such that increases in money demand were almost automatically accommodated. Thus, as we saw in section III, inflation and monetary policy played important roles in the period under consideration.

Finally, let us touch briefly on three other topics: exchange rates, trade structure, and capital flows. The first did not play an important role in Germany because, as we mentioned, it was a period in which the gold exchange standard ruled. Germany's real exchange rate appreciated slightly[39] in the period, but not as a result of any deliberate policy. Brazil's trade weighted real exchange rate (see Table 8) remained roughly constant up to 1978, again indicating no adjustment, and, after the devaluation of December 1979, appreciated substantially. This perverse move, given the balance of payments situation, was caused at first by the policy of fixing the rate of devaluation at low levels, and then afterwards by the policy of maintaining the real dollar rate constant when the dollar was appreciating.

The last two items point to important similarities. According to Angell (1930, p. 84), Williams (1930, p. 4), and Falkus (1975, p. 452), Germany's trade structure was weak in the sense that it was heavily dependent on imported raw materials and foodstuffs to produce its manufactured exports. Brazil is constrained in much the same way, as it depends on imported capital goods and imports

[38] The above discussion is related to the widely debated question of the reaction to supply shocks in general. For an excellent discussion of the issue of accommodation under supply shocks see Blinder (1982). Another interesting analysis is contained in Bacha and Malan (1984). There the possibility of a foreign exchange constraint is discussed using the accounting framework. If the constraint is binding, imports have to be limited, and output can be affected by supply side considerations.

[39] This follows from the fixed parities that held between 1926 and 1930, and the fact that the majority of Germany's trading partners deflated more than she did. See League of Nations (1931, p. 92, and 1941).

(such as oil) to maintain its production of manufactured goods (more than half the exports). Finally, as we saw before, capital flows were important, if not determinant, factors in the explanation of economic fluctuations, in both cases.

IV.2. Borrowing, Lending, and the Crises

We are now ready to look at each economy's path towards the collapse. The first point to note is that after being hit by the initial shocks both countries decided to borrow, and therefore postpone the adjustment. Germany had been a booming economy before World War I, and was facing strong internal pressures to bring the standard of living up to where it had already been. In addition to that, there was clearly need for a period of trade deficits given the overall State of the economy, and its above-mentioned trade structure. Brazil made a similar move after OPEC, getting a number of large projects started, perhaps in the hope that the shock had been temporary. Given the maturity of these projects, the expectation of adequate financing was a key determinant of the decision not to adjust. At that stage, real interest rates were very low, and were expected to remain so, as long as the savings from the oil-countries applied pressure on financial markets. As many have pointed out, a gamble was taken in both cases, but not an unreasonable one, given the structures of both economies, and the potentially high costs of short-run adjustment policies. There were other costs, however, and they came in the form of an increase in the vulnerability of each economy to further shocks, as discussed in sections II and III above.

After the second shocks, the two economies followed somewhat different trajectories. In Germany, the shock came in the form of a contraction and subsequent reversal of external capital flows. Shortly after the German downturn the great depression began, and Germany was forced to adjust by restricting domestic activity and curbing imports. Even if Germany had been granted some debt relief, or rescheduled her payments, it would have been impossible to avoid a fall in domestic activity, because there were no export markets available.

Brazil, on the other hand, was again faced with a choice after oil-prices went up for a second time, and interest rates started to rise. External funds were still available, and, after a short adjustment attempt, Delfim Netto took over and opted to postpone (or avoid) adjustment for the second time. This seems to have been a crucial mistake. Standard theory of optimal borrowing and savings tells us that temporary shocks should be financed, and permanent shocks should be adjusted[40]. This time, as mentioned above, the second oil shock should have eliminated any doubts that higher oil prices were not a temporary phenomenon, and thus some adjustment should have been imposed. In addition to

[40] In the presence of distortions immediate adjustment may be sub-optimal; but the adjustment is unavoidable.

that, these shocks hit an economy with an already substantial volume of foreign debt, and drove the transfer burden to unprecedently high levels. As interest rates continued to rise, and the world went into a recession, it became clear that some adjustment would be necessary. The decision to switch gears carne in late 1980, as already described, and involved mainly a contraction at home. The exchange rate was not used as an instrument, and the trade balance improved mainly because of an excellent export performance in 1981. After this interval the picture begins to look like Germany again. The adjustment at home was extracting a heavy toll on the economy, and the inflow of foreign capital was becoming a binding constraint.

The events that followed the Mexican crisis, in August 1982, and the beginning of the depression, in October 1929, have already been described in the previous sections. We will therefore focus on a particular issue, namely capital flows and the behaviour of lenders, and its relation to current theoretical views on international borrowing and lending. Three questions will be addressed in turn: Why do countries borrow? Why do banks, or bond-holders, lend? Why do problems occur?

The first question is perhaps the more straightforward of the three. To answer it I can do no better than present Gersovitz' (1984) list:[41] countries borrow to smooth consumption (when faced with temporary fluctuations in income), to invest, to finance adjustment, and to finance trade. The first two reasons come directly from standard models of optimal borrowing, which tell us to equate the discounted marginal Utilities of consumption, and to invest until the marginal product of capital equals the marginal cost of capital. The last two reasons haven't been fully analysed in formal models, but are quite intuitive. In particular, when adjustment costs are present, the benefits from a full and immediate adjustment to a permanent shock have to be balanced against the costs of doing so. Examples where such costs could arise include the short-run rigidities discussed above, costly inter-sectoral reallocation of capital, and others.

What then can we say about Germany and Brazil? It seems clear that these countries borrowed for all these reasons, and it may therefore appear arbitrary to blame a single reason for an overall excess. Let us examine one at a time. The investment motive is perhaps the hardest of all to analyse, because we need figures on profitability at the margin. In principle, the investment borrowing that took place in Germany and Brazil was justified by the opportunities that existed; in practice, however, we saw that the projects chosen were not always adequate. Consumption smoothing was certainly not a valid reason for borrowing in either case. Reparations were a long-lasting shock, and so were higher oil prices, at least after OPEC II. Trade financing was another valid reason for borrowing in both cases, but only up to a certain extent. In the case of Brazil, anecdotal evidence indicates that trade, and other short-term credit lines, were being used to finance the balance of payments since 1980,

[41] Originally m Eaton and Gersovitz (1981).

when a small crisis took place. Germany also resorted to short-term loans, to finance working capital and longer-run projects. Needless to say, these financing strategies were inadequate for the purposes at hand; but more important is the underlying question of why did the appropriate financing become unavailable. We will briefly address this question ahead, but before that let us examine the last borrowing reason. The adjustment motive makes sense if it serves to reduce the necessary speed of adjustment, *but not to eliminate it*. In the case of Germany, it seems that very little or no adjustment took place in the 1924-28 period, so we can conclude that there was some over borrowing. In Brazil, the period of 1974-78 was again one in which there was no adjustment. Here perhaps the borrowing could be justified from a consumption smoothing point of view, if the first oil-shock was mistakenly seen as temporary. For the 18 months starting in August 1979, however, there was no excuse for borrowing without some adjustment.

From the discussion in the last two paragraphs one is led to conclude that, in both Brazil and Germany, some over borrowing and under-adjustment took place. The next question is then why did the matching over lending take place. Guttentag and Herring (1984, and references therein) have, in

a series of recent studies, provided us with a number of explanations for this behaviour. The first one is related to what they call 'disaster myopia'; a phenomenon which may cause economic agents to basically ignore large disastrous events (such as debt default) which have low probabilities of occurring. The second one has to do with imperfect information and faulty analysis of loans, and states that, for a number of reasons[42], banks misassessed the risks involved. Finally, they also mention the incentive effects related to the existence of deposit insurance, and to the implicit belief in a lender of last resort. This is a standard moral hazard argument which leads to excessive risk taking. It also helps explain the so-called 'herd behaviour' of banks, who tend to keep similar exposures in the belief that the industry as a whole would not be allowed to go under.

To these explanations of Guttentag and Herring I add two more. The key element in both is the fact that, in principle, every International loan has two risk components: one that is unique to each individual borrower ('project risk'), and one that is related to macroeconomic conditions, and increases with the sum of micro-risks ('country or foreign-exchange risk'). Over lending then occurs when either risk factor is ignored. Díaz-Alejandro (1984, p. 12) provides a very interesting example of the first case: after a large bail-out operation in 1977, all private loans to Chile became *de facto* guaranteed by the government, so that the project risk could be ignored. This compounded the effect of Chile's exchange rate policies, and led to massive capital inflows. The second cause of over lending can be interpreted as an externality: if, for any reason, each individual lender is small and takes the

[42] The reasons listed are: inadequacies of statistical data, inadequate analysis of covariances, the 'short-leash' fallacy (which implies that shorter maturities would improve the banks' ability to recall loans), and a misemphasis on accounting values.

macro-risk as given, or ignores the contribution of its own loan to that risk, then the overall level of loans will be excessive. Even if lenders are not small, this can happen if the overall risk level of the economy is unknown[43].

So far I have argued that Germany and Brazil over borrowed when they should have been partially adjusting to their new environments. Let us now examine lending behaviour in light of the explanations proposed in the last two paragraphs. The main question to be answered here is why did these excessive loans take place.

Consider the German case first. A large fraction of capital flows took the form of bonds, whose placement in New York was triggered by Dawes loan, as discussed before. According to Mintz (1951, pp. 70-71):

> "Investors bought low-grade bonds because they were not aware of the risks they were incurring ..."
> "The most important single factor leading investors to be less cautious was the complete absence of defaults on foreign government bonds during the period. (...) The confidence of the public grew as time passed and no losses were incurred".

Cleona Lewis (1938, p. 376) also provides a similar view:

> "With characteristic optimism, Americans looked favourably upon the higher yields offered by foreign bonds and overlooked the risks involved".

These general remarks, which were not specifically related to Germany, lend support to the assumptions of disaster myopia and imperfect information in the assessment of loan risks. It is hard, however, to blame individual bond-holders for their judgment, so we must turn to the intermediaries.

The behaviour of banking houses in that period was somewhat puzzling. On the one hand they seemed to be over-optimistic and backward-looking in their expectations; on the other hand, they were not ignorant of the main risk factors. Mintz (1951, pp. 74-77), for example, describes the banks' careful methods of credit analysis, but argues that "banks took little account of the probability that these favourable trends were unlikely to continue". This happened in spite of repeated warnings from well-known authorities, such as Moulton (1924) and S. Parker Gilbert (quoted by Mintz, 1951, p. 77), the Agent General for Reparation Payments. They pointed out, at the time, that Germany was over borrowing and overspending, and that the prospects of paying reparations alone were bleak, not to mention the amortization of the additional loans. Indeed, the bankers seemed to go beyond simply ignoring the advice of experts: they cut the funding of economists, such as Harold Moulton, who

[43] This argument is very much in the spirit of recent work by Bernanke (1981, 1983) on the propagation of business cycles.

argued against excessive loans to Germany[44]. One is thus led to conclude that these intermediaries were benefitting from their superior information, and passing on these loans to the public and the smaller banks. This conclusion is reinforced by the fact that the large metropolitan banks held virtually no German bonds in their portfolios[45].

They did, however, hold short-term loans, the other large component of capital flows to Germany. Here the explanation must come from the externality theory developed above, as the following passage indicates:

> "In many cases the loan investigators apparently ignored the relationships between new issues and the amounts of foreign capital already invested in the borrowing country. For example, when loans were extended to German banks the lenders carefully analysed the statement of the particular borrower, but in many cases did not take account of the total of Germany's foreign obligations. Yet it was the enormous total of the country's foreign indebtedness, and not the borrowing of any particular bank, that was responsible for the standstill agreements between the German banks and their foreign creditors". (C. Lewis, 1938, pp. 405-406)

The same basic argument was also put forth in the slightly different context of a criticism of the excesses of competitive foreign lending:

> "Another serious objection to highly competitive bidding for foreign loans is that it ordinarily leads to the distribution of the foreign financing of a country (including loans of the national government, political subdivisions, and corporations) among a large number of banking firms. The situation tends to obscure over borrowing by the country as a whole. Each banking house considers primarily the credit standing of the borrower with which it is dealing, and there is a tendency to overlook the effect on the country as a whole of loans obtained by other borrowers. Thus, each individual loan may be warranted by the financial position of the borrower, but the Service on the entire external debt may be in excess of the capacity of the country to transfer the funds abroad in a period of depression". (Madden, Nadler, and Sanvain, 1937, pp. 222-223)

Let us now examine the behaviour of Brazil's creditors. During the miracle years of 1968-1973 Brazil financed high rates of growth via external bank loans. Given this performance, it was only natural that the impact of the first oil-shock was almost automatically financed, and it was seen as a successful recycling operation. After that, however, as we have discussed, some adjustment should have taken place. It did not, and more loans continued to be provided. In hindsight therefore, we can say that the bank over lending to Brazil had the same roots as its German counterpart: banks ignored the effects of their individual actions in the overall level of risk or vulnerability of the economy.

We now turn to the final question, namely, why did problems arise? A number of recent papers

[44] See Ferguson (1984, p. 76).

[45] See the Hearings on the Sale of Foreign Bonds or Securities in the U.S., U.S. Senate (1931). In particular, C. Mitchel indicated in his testimony (p. 80) that the National City Bank, held less than 0.01% of its assets in the form of long-term German bonds; while O. H. Kahn indicated that (pp. 134-142) Kuhn, Loeb & Co. held no such bonds, and that he thought all the larger metropolitan banks, as merchant banks, followed the same practice, in order to remain liquid.

have dealt with this topic, including Gersovitz (1984), Sachs (1984), Cooper and Sachs (1984), and Simonsen (1984). The following discussion draws from all the above, especially the first. The main problems that may face a country (and its creditors) are usually divided into three broad classes:

(i) insolvency

(ii) liquidity

(iii) repudiation

The first class covers cases in which the present value of the resources available is insufficient to pay the volume of debt already incurred. It can be stated as the value of production alone, or it can be extended to include the existence of traded and non-traded goods, as well as a limit to domestic taxation[46].

The liquidity view relates to the impossibility of servicing debts in the short-run, even though there is no long-run solvency problem. As Gersovitz (1984, pp. 5-6) points out however, in spite of difficulties in assessing the nature of the problem, there is no reason why lenders should not finance temporary difficulties. If we introduce uncertainty in the model the picture will look different. Now banks will worry about their exposure to individual borrowers, and lending limits may arise out of risk considerations. Another argument is the one of Sachs (1983) and Simonsen (1984). These authors argue that if, for some reason, a lender expects other lenders to cut their loans, then his best action will be to cut his loan too. The argument is based on the premise that each individual lender is small in the sense that he cannot by himself provide the necessary financing to avoid a liquidity crisis[47]. The following matrix game provides a simple description of Sachs' (1984) view.

Assume, for simplicity, that there are only two creditors, who face the decision of providing the second instalment of a loan. If both decide to lend, then each will have an expected profit of P. If both choose not to lend, each will lose L, the amount already disbursed. If one lends alone, he loses an additional amount ℓ, while the other loses only L. In matrix form we have:

		Lender I: Lend	Lender I: Not Lend
Lender II	Lend	P / P	$-L$ / $-(L+\ell)$
	Not Lend	$-(L+\ell)$ / $-L$	$-L$ / $-L$

[46] See the review in Cooper and Sachs (1984).

[47] Some reasons for this are given by Sachs (1984), and include bank-capital regulations, and risk-return considerations.

Note that there are no dominant strategies, that the game is not a prisoner's dilemma, and that there are two Nash equilibria: one where both lend, and one where both pull out. The second one characterizes a liquidity crisis.

The crisis equilibrium is not a plausible one where the number of players is small, because each player will have a strong incentive to play first, make the loan, and tell the other(s) that he has done so. The other(s) will then lend, and no liquidity crisis will take place. If the number of players is sufficiently large, a crisis becomes more likely to occur. The question then is what triggers a liquidity, as opposed to a solvency, crisis. The standard argument tends to rely on the role of 'bad news', but, as in the case of bank-runs, a substantial amount of research remains to be done. Note also that the liquidity view of crises is akin to the externality theory of over lending discussed above – in both cases there is a wedge between individual and social optimality.

Finally, the repudiation view asserts that countries contrast the costs and benefits of not paying back loans already taken. Lenders should take this behaviour into account, and set the appropriate lending limits for each country. In a dynamic world, with imperfect information and uncertainty, bankers may conclude that they are dangerously close to the limit, and may then want to reduce their exposure, causing a liquidity crisis[48].

We are now ready to analyse the foreign lending contractions that characterized the German and Brazilian crises. The German case is fairly simple: given the nature of the short-term loans, it was natural that, when conditions in the United States became very attractive just before the crash, a reduction in capital flows would take place. The final contraction took place too fast, as the liquidity theories propose, but the overall impact of reparations and the great depression on a vulnerable economy were probably the main factors.

In the Brazilian case, capital market imperfections played a more important role. The final credit contraction was clearly triggered by the Mexican crisis in August 1982, and lends support to an over lending-under lending theory based on imperfect information and externalities. This explanation does not exclude the repudiation view, which can cause a pre-emptive liquidity crisis, as mentioned above[49]. Note also that, as Sachs and Cooper (1984, pp. 12-14) indicate, after the initial crisis is controlled creditors and borrowers will have a strong incentive to engage in rescheduling operations, because these dominate the extreme options of default or cancellation of debts. This is in fact what occurred in Germany, before Hitler's final repudiation, and is now occurring in Brazil.

[48] Gersotivz (1934, p. 5) has an interesting interpretation for what may look like a liquidity crisis, but in fact is not: the process of rescheduling can be very cumbersome, and "as a result participant in and observers will feel a crisis is in progress".

[49] The banks' worries about the recent build-up in Argentina's and Brazil's foreign exchange reserves support this view.

V. Concluding Remarks

This study has argued that the experiences of Germany and Brazil were marked by a number of similarities. The following are some general conclusions that emerge from the analysis. Even without appealing to more sophisticated theories of optimal borrowing[50], we can make some important inferences. If the borrowing was in fact used to increase investment, then it may have been the case that the loans were ex-ante sound. After the shocks, however, the underlying investments may have become unprofitable, turning good loans into bad loans. Given the nature of the loan contracts, all the burden of the gamble falls on the borrower"[51]. Whether this is the ex-post best arrangement, it is not clear, because there may be mutual benefits from a partial debt relief, i.e., a sharing of the burden: the borrower will obviously benefit from any such scheme; but the lender may also gain if some internal redistribution is possible (the banks would lose, but gains from exports could be high enough to compensate for these losses). This sort of analysis also sheds light on an important facet of the design of future International financial intermediation systems: the resumption of capital flows after a crisis. If somehow (and this is not easy) the old loans are settled, then there are no reason why new loans should not take place.

So far we have been examining a case of pure investment borrowing. As we saw, however, both Germany and Brazil got into trouble when they borrowed to postpone the necessary adjustment policies. When adjustment policies were finally implemented, during crisis periods, they required abrupt domestic contractions. As a consequence, the costs involved were very high in terms of under-allocation and misallocation of resources. These costs, which in our case were related to trade structure and labour market distortions, should be taken into account in the design of optimal (dynamic) adjustment policies. Regardless of the speed, however, some adjustment should take place. In our two examples, no adjustment took place in the early stages; and the resulting increase in vulnerability worked to compound the effects of the crises that carne afterwards.

This study did not pay any attention to the sociology and the politics of borrowing, but it must be the case that there exist plenty of explanations for the over borrowing that took place. The more interesting economic phenomenon, however, was the matching over lending that permitted the financing of balance of payments positions that could not be sustained under any but the most optimistic scenarios. Among the main causes of this behaviour of banks were the lack of better information on the riskiness of loans, moral hazard, and the lending externality mentioned before. Many authors have argued that an externality was responsible for the behaviour of lenders that

[50] That is, theories which include distortions such as default possibilities, rigidities etc.
[51] In fact, so far in the recent experience more than the initial shock- burden has fallen on the borrowers, because of costly (and 'profitable' for the banks) rescheduling.

ultimately precipitated the crises. This paper supports this general view, but adds to it the fact that these same externalities were already present in the phase that preceded the crises.

References

Abraham, D. (1981), *The Collapse of the Weimar Republic, Political Economy and Crisis*, Princeton University Press, Princeton.

Aldcroft, D. H. (1977), *From Versailles to Wall Street, 1919-1929*, University of California Press, Berkeley.

Angell, J. W. (1932), *The Recovery of Germany*, Greenwood Press (reprint 1972), Westport.

Angell, J. W. (1930), "The Reparations Settlement and the International Flow of Capital", *American Economic Review*, May, 80-88.

Bacha, E. L. (1984), "External Shocks and Growth Prospects: The Case of Brazil, 1973-1989", Columbia University and PUC-Rio, Mimeo, May.

Bacha, E. L. (1983a), "The IMF and the Prospects for Adjustment in Brazil", in J. Williamson (ed.), *Prospects for Adjustment in Argentina, Brazil and Mexico*; Institute for International Economics, Washington.

Bacha, E. L. (1983), "Vicissitudes of Recent Stabilization Attempts in Brazil and the IMF Alternative", in J. Williamson (ed.), *IMF Conditionality*, Institute for International Economics, Washington.

Bacha, E. L. (1980), "Selected Issues in Post-64 Brazilian Economic Growth", in L. Taylor et. al., *Models of Growth and Distribution for Brazil*, Oxford University Press, Oxford.

Bacha, E. L. and P. S. Malan (1983), "Brazil's Debt: from The Miracle to the Fund", Catholic University of Rio de Janeiro, unpublished.

Balderston, T. (1983), "The Beginning of the Depression in Germany, 1927-30: Investment and the Capital Market", *Economic History Review*, 36: 395-415.

Bernanke, B. S. (1983), "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression", *American Economic Review*, 73: 257-276.

Bernanke, B. S. (1981), "Bankruptcy, Liquidity, and Recession", *American Economic Review* (Proceedings), 71: 155-159.

Blinder, A. S. (1981), "Monetary Accommodation of Supply Shocks Under Rational Expectations", *Journal of Money, Credit, and Banking*, 13: 425-438.

Bresciani-Turroni, C. (1937), *The Economics of Inflation*, Augustus Kelley (reprint).

Bry, G. (1960), *Wages in Germany, 1881-1945*, Princeton University Press, Princeton.

Cagan, P. (1956), "The Monetary Dynamics of Hyperinflation", in M. Friedman (ed.), *Studies in the Quantity Theory of Money*, University of Chicago Press, Chicago.

Carneiro, D. D. and A. Fraga (1984), "Variáveis de Crédito e Endogeneidade dos Agregados Monetários: nota sobre a evidência empírica nos anos 70", *Pesquisa e Planejamento Econômico*, 14: 175-196.

Cline, W. R. (1983), *International Debt and the Stability of the World Economy*, Policy Analyses in International Economics 4, Institute for International Economics, Washington.

Connolly, M. B. and D. Taylor (1984), "The Exact Timing of the Collapse of an Exchange Rate Regime and its Impact on the Relative Price of Traded Goods", *Journal of Money, Credit, and Banking*, 16: 194-207.

Cooper, R. N. and J. D. Sachs (1984), "Borrowing Abroad: The Debtor's Perspective", Harvard University, unpublished.

Díaz-Alejandro, C. F. (1984), "Good-Bye Financial Repression, Hello Financial Crash", Columbia University, unpublished.

Díaz-Alejandro, C. F. (1983), "Some Aspects of the 1982-83 Brazilian Payments Crisis", *Brookings Papers on Economic Activity*, 2: 515-542.

Dornbusch, R. (1984), "External Debt, Budget Deficits and Disequilibrium Exchange Rates", M.I.T. Working Paper #347, June.

Dornbusch, R. (1984a), "The International Debt Problem", *Challenge*, 27: 4-11.

Dornbusch, R. (1982), "Stabilization Policies in Developing Countries: What Have We Learned?", *World Development*, 9: 701-708.

Eaton, J. and M. Gersovitz (1981), *Poor Country Borrowing in Private Financial Markets and the Repudiation Issue*, Princeton Studies in International Finance Nº 47, International Finance Section, Princeton.

The Economist (1932b), "Reparations and War Debts", supplement, January 23.

Falkus, M. E. (1975), "The German Business Cycle in the 1920s", *Economic History Review*, 28: 451-65.

Ferguson, T. (1984), "From Normalcy to New Deal: Industrial Structure, Party Competition, and American Public Policy in the Great Depression", *International Organization*, 38: 41-94, Winter.

Fetter, F. W. (1968), "The Transfer Problem: Formal Elegance or Historical Realism", in C. R. Whittlesey and J. S. G. Wilson (eds.), *Essays on Money and Banking in Honor of R. S. Sayers*, Oxford University Press, Oxford.

Flood, R. P. and P. M. Garber (1982), "Collapsing Exchange-Rate Regimes: Some Linear Examples", *Journal of International Economics*, forthcoming.

Fraga, A. (1983), "Subsidized Credit and Passive Money in Brazil: 1971-1981", Princeton University, unpublished.

Garber, P. M. (1982), "Transition from Inflation to Price Stability", in *Carnegie Rochester Conference Series on Public Policy*, 16: 11-42.

Gately, (1984), "A Ten-Year Retrospective: OPEC and the World Oil Market", *Journal of Economic Literature*, 22: 1100-1114.

Gersovitz, M. (1984), "Bank's International Lending Decisions: What We Know and Implications for Future Research", Princeton University, unpublished.

Graham, F. (1930), *Exchange, Prices and Production in Hyper-Inflation: Germany 1920-1923*, Princeton University Press, Princeton.

Guttentag, J. M. and R. Herring (1984), "Commercial Bank Lending to Less Developed Countries: From Overlending to Underlending to Structural Reform", The Wharton School, unpublished.

Harris, C. R. S. (1935), *Germany's Foreign Indebtedness*, Arno Press (reprint 1978), New York.

Keynes, J. M. (1919), *The Economic Consequences of the Peace*, Harcourt, Brace and Howe, London.

Keynes, J. M. (1978), *Activities 1922-1932: The End of Reparations*, Collected Writings vol. XVIII, Macmillan, London.

Khan, M. S. and M. D. Knight (1983), "Determinants of Current Account Balances of Non-Oil Developing Countries in the 1970s: An Empirical Analysis", *IMF Staff Papers*, 30: 819-842.

Kindleberger, C. P. (1984), *A Financial History of Western Europe*, George Allen & Unwin, London.

Kindleberger, C. P. (1978), *Economic Response*, Harvard University Press, Cambridge.

Kindleberger, C. P. (1973), *The World in Depression, 1929-1939*, University of California Press, Berkeley.

Kuczynski, R. (1932), *Banker's Profits from German Loans*, The Brookings Institution, Washington.

Landes, D. S. (1969), *The Unbound Prometheus*, Harvard University Press, Cambridge.

League of Nations (1931), *The Course and Phases of the World Economic Depression*, Geneva.

Lewis, C. (1938), *America's Stake in International Investments*, The Brookings Institution, Washington.

Lewis, W. A. (1949), *Economic Survey, 1919-1939*, George Allen & Unwin, London.

McCloskey, D. (1983), "The Rhetoric of Economics", *Journal of Economic Literature*, 21: 481-517.

Machlup, F. (1964), "The Transfer Problem: Theme and Four Variations", in *International Payments, Debts, and Gold*, Scribners, New York.

Madden, J. T., M. Nadler, and H. C. Sauvain (1937), *America's Experience as a Creditor Nation*, Prentice-Hall, New York.

Malan, P. S. and R. Bonelli (1983), "Crescimento Economico, Industrialização e Balanço de Pagamentos: o Brasil dos Anos 70 aos anos 80", Catholic University of Rio de Janeiro, unpublished.

Malan, P. S. and R. Bonelli (1977), "The Brazilian Economy in the Seventies: Old and New Developments", *World Development*, Jan.-Feb.

Marion, N. P. and L. E. O. Swensson (1984), "Adjustment to Expected and Unexpected Oil Price Changes", *Canadian Journal of Economics*, 17: 15-31.

Mayer, A. J. (1967), *Politics and Diplomacy of Peacemaking*, Alfred Knopf, New York.

Meier, C. (1975), *Recasting Bourgeois Europe*, Princeton University Press, Princeton.

Mintz, I. (1951), *Deterioration in the Quality of Foreign Bonds Issued in the United States, 1920-1930*, Arno Press (reprint), New York.

Modiano, E. M. (1982), "Choques Externos e Preços Internos: dificuldades da política de ajuste", in P. Arida (ed.), *Dívida Externa, Recessão e Ajuste Estrutural*, Paz e Terra, Rio de Janeiro.

Moulton, H. G. (1924), *The Reparation Plan*, McGraw-Hill, New York.

Moulton, H. G. and L. Pasvolsky (1932), *War Debts and World Prosperity*, Brookings, Washington.

Nurkse, R. (League of Nations) (1944), *International Currency Experience*, League of Nations, Princeton.

Sachs, J. (1984), *Theoretical Issues in International Borrowing*, Princeton Studies in International Finance Nº 54, International Finance Section, Princeton.

Sargent, T. (1983), "The Ends of Four Big Inflations", in S. Fischer (ed.), *Inflation*, University of Chicago Press, Chicago.

Schmidt, C. T. (1933), *German Business Cycles, 1924-1933*, New York.

Simonsen, M. H. (1984), "The Developing Countries Debt Problem", Getúlio Vargas Foundation, unpublished.

Simonsen, M. H. (1980), "Inflation and Anti-Inflationary Policies in Brazil", paper presented at a conference on world inflation and inflation in Brazil, Getúlio Vargas Foundation, Rio de Janeiro.

United States Senate, Committee on Finance (1931), *Hearings on the Sale of Foreign Bonds or Securities in the U.S.*, S. Res. 19.

Viner, J. (1937), *Studies in the Theory of International Trade*, Harper and Brothers, New York.

Williams, J. A. (1930), "The Reparations Settlement and the International Flow of Capital", *American Economic Review*, May, 80-88.