

*Brazil as a debtor, 1824–1931*¹

By MARCELO de PAIVA ABREU

SUMMARY

Internal rates of return of Brazilian loans floated between 1824 and 1931 fell below those of British and US government consols and bonds only for some of the loans floated after the beginning of the twentieth century. Higher volatility of yearly rates of return was rewarded by higher returns for all Brazilian Federal loans. Their spreads over consols in 1824–1943 are compared to those of Argentina and Chile and of Brazilian state and municipal loans for 1888–1930. In spite of some deterioration over time, Brazilian loans had a better performance than suggested by the literature, especially in the 1920s.

The history of Brazilian foreign debt can be divided into three periods, each involving access to world financial markets, followed by balance of payments difficulties, moratoria or default, permanent settlement with debt relief, and regular service payments on the old debt thereafter. The first of such periods started with the first Brazilian foreign loan in 1824. Borrowing ended with the funding loan of 1931. The second period started in the late 1960s: loans were floated until the crisis in 1982, followed by a long period of negotiations ending in 1993. A third period of voluntary lending to Brazil began in 1993.

The long-term history of foreign indebtedness by developing economies has been the focus of literature trying to draw lessons from past experience.² With much difficulty it is possible to disentangle successive references to secondary sources in the literature on serial defaulters and trace the dataset on defaults to Christian Suter.³ Work on foreign debt restructuring and

¹ Department of Economics, Pontifical Catholic University of Rio de Janeiro, Brazil. Support by the British Council, the Brazilian National Council of Research – CNPq, the Brazilian Ministry of Foreign Affairs and the Centre for Brazilian Studies at Oxford is acknowledged. The author thanks Alice Abreu, Leslie Bethell, Renato Flôres jr., Giorgio Fodor, Márcio Garcia, Eduardo Loyo, Arturo O’Connell, Giuseppe Tattara, Rogério Werneck, attendees of seminars in Brasília, Oxford, Porto Alegre, Rio de Janeiro, Trento, and Venice, and anonymous referees for their comments. He also thanks Leandro Carvalho, as representative of a long lineage of research assistants. The usual caveats apply.

² See, for instance, B. Eichengreen and R. Portes, ‘Debt restructuring with and without the IMF’, unpublished manuscript, London Business School, 2000; R. P. Esteves, ‘Sovereign debt and bondholders’ protection in the European capital markets before 1914’, mimeo, University of California, Berkeley, Dec. 2004; Reinhart and Rogoff, ‘Serial default’; Reinhart, Rogoff, and Savastano, ‘Debt intolerance’.

³ Suter, *Debt cycles*; *idem*, *Schuldenszyklen*. Reinhart and Rogoff, ‘Serial default’, quotes Reinhart, Rogoff, and Savastano, ‘Debt Intolerance’ as the source of data, which quotes Beim and Calomiris, *Emerging financial markets*, which quotes Purcell and Kaufman, ‘Risks of sovereign lending’, which relies heavily on Suter. Purcell and Kaufman, ‘Risks of sovereign lending’ is very difficult to find: there is no copy either in the Library of Congress or in the library of the International Monetary Fund. I thank Jeffrey Kaufman and Eduardo Loyo for help in obtaining a copy of it.

bondholders' protection has been less roundabout and has directly quoted the same database. Large databases are prone to be affected by oversimplification when it comes to details. For Brazil, Suter's work is at the origin of the often-repeated claim that Brazil defaulted between 1826 and 1829. This erroneous claim is based on an unreliable source and will be discussed in section I.⁴ The bottom line of the literature on serial defaulters is that they can develop 'debt intolerance' so that the risk of default rises sharply even when fundamentals are similar to those of economies with a better default record.⁵ The characterization of 'default' includes any foreign debt restructuring. Without a default in 1826–9, Brazil would be an exception, as the first restructuring occurred only in the final years of the nineteenth century. Brazil would have been a country that went from long-standing virtue to financial instability, in contrast with the virtuous evolution of European financial sinners in the nineteenth century such as Spain, Portugal, pre-1871 German states, Austria, and Greece.⁶

Problems with the literature are not restricted to doubts about Brazilian defaults. Little attention has been given to a careful definition of a 'default'. Countries are deemed to be either in a situation of default/restructuring or paying debt service normally. This zero-one approach does not take into account differences in the extent of reduction of initial obligations.⁷ Based only on Brazilian 1824–1931 debt history, five different situations would be considered as 'defaults' by this literature, even without taking the 1943 permanent settlement into account:

1. payment of agreed reduced service of federal loans with postponement of principal repayment for 13 years and payment of interest with new debt for three years (Funding Loans of 1898 and 1914);
2. full payment of service of previous funding loans and payment of agreed reduced service of Federal loans with postponement of principal repayment for three years and payment of interest with new debt for three years (Funding Loan of 1931);
3. payment of agreed reduced service on all foreign loans with partial postponement of principal repayment and reduction of contractual interest payments (1934 agreement);
4. total default (1937–9);
5. an agreement in 1940 similar to that of 1934, but with even lower payments.⁸

In order to take this information into account this article evaluates the impact of defaults, funding loans, and different kinds of restructuring, based

⁴ Rippy, *British investments in Latin America*, p. 26.

⁵ See Rogoff, 'New perspectives'.

⁶ See Reinhart, Rogoff, and Savastano, 'Debt intolerance', tab. 2, p. 8. It is not clear why defaults such as those of First World War government debts should be excluded when other renegotiations of government debts, such as that of Brazil in 1961, are listed as defaults.

⁷ Purcell and Kaufman, 'Risks of sovereign lending', p. 3 called attention to the 'myth' that sovereigns pay 'all or nothing (the debt is either fully serviced or in total default)'.

⁸ The specialized financial literature carefully recognizes such differences. See, for example, article IV on Credit Events, in International Swaps and Derivatives Association, Inc., '2003 ISDA Credit Derivatives Definitions' (New York, 2003).

on the comparison of internal rates of return and yearly rates of return of Brazilian loans with British and US government bonds. This approach makes better use of information on the menu of situations described above.

The first section presents a history of the Brazilian debt incurred between 1824 and 1931 and also data on debt. The literature on debtor performance is surveyed in the following section. The third section includes new results on the evaluation of Brazil as a debtor in the period 1824–1956, based on internal rates of return computed over the life of loans compared to internal rates of return on British and US government bonds. It also includes an evaluation of Brazilian bonds based on the trade-off between mean yearly rates of return and the standard deviation of such returns compared to those of alternative investments. It presents an analysis of Brazil's record as a debtor based on long-term rates of return for loans floated in each decade between the 1820s and the 1920s. Spreads of Brazilian central government loans on consols are compared with those of other Latin American debtors in section IV. They are also compared to spreads of selected Brazilian state and municipal loans. This is followed by a section that includes the main findings.

I

The more than 100 years of the first continuous period of Brazilian foreign indebtedness were marked by instability and several episodes of renegotiation. Brazil was the only Latin American economy that did not default on its foreign debt from the early nineteenth century to 1898.⁹ Even when it did default, the rescheduled conditions were met. The same happened in 1914 and 1931, after other renegotiations of the federal debt. It was only in 1934 that holders of Brazilian federal loans faced a reduction of payments established by contractual obligations, in contrast with past postponements following fundings.

The turmoil in the 20 years after the independence of Brazil, in 1822, was followed by a long period of financial stability until the final years of the Empire in the 1880s. The first Brazilian loans in the mid-1820s, partly destined to pay financial compensation to Portugal related to the independence, were followed by a modest increase of the foreign debt until the early 1860s. Table 1 includes long-term data on central government and non-central government loans and also on direct foreign investment and corporate securities.

⁹ See Dawson, *First Latin American debt crisis*, pp. 173, 181, 193, 211–2; Fodor, 'Boom that never was?'. For the tribulations surrounding the first Brazilian loans, see Brazil, *Finanças do Brasil*, pp. 117–22. There is no evidence of a straight default. This is confirmed by the record of Brazilian bonds in 1825–9 as quotations never fell under 52 (end of month, *The Times*) and remained between 60 and 70 most of the time, while loans of Buenos Aires and Chile fell under 30. Details on loans listed by the Corporation of Foreign Bondholders do not mention a Brazilian default, see *Report for the year 1877*, pp. 52–33. For Latin American debt to 1930, see Marichal, *Century of debt crises*. For data on Brazilian debt, Carreira, *História financeira* and Brazil, *Finanças do Brasil*.

Table 1. *Brazil: Outstanding public foreign debt floated before 1932, private securities and foreign direct investment, 1825–1955, £ million*

	Sterling loans			US dollar loans			(7)	(8)	(9)
	(1)	(2)	(3)	(4)	(5)	(6)			
	State, municipal and coffee		Total	State, municipal, and coffee		Total	All loans in other currencies ^a	Total public loans	Total foreign direct investment ^b
	Federal			Federal					
1825	5.1	0	5.1	0	0	0	0	5.1	0
1840	5.6	0	5.6	0	0	0	0	5.6	1.3
1860	7.7	0	7.7	0	0	0	0	7.7	n.a.
1865	14.7	0	14.7	0	0	0	0	14.7	7.2
1875	19.5	0	19.5	0	0	0	0	19.5	10.6
1885	17.8	0	17.8	0	0	0	0	17.8	24.4
1895	35.7	1.8	37.5	0	0	0	1.5	39.0	40.6
1900	41.0	1.8	42.8	0	0	0	1.5	44.3	n.a.
1905	70.0	18.3	88.3	0	0	0	5.0	88.3	45.4
1913	90.6	38.5	129.1	0	0	0	21.6	150.7	145.7
1930	101.7	61.3	163.0	30.1	46.4	76.5	12.1	251.6	162.4
1940	102.4	50.3	152.6	41.5	41.7	83.3	4.4	240.3	158.0
1950	28.4	23.5	51.9	31.5	23.6	55.1	0	107.0	260.4 ^c
1955	12.6	15.9	28.4	20.6	14.8	35.4	0	63.8	384.1

Notes: *a* These estimates are tentative because of currency devaluation and accumulation of arrears, especially for French loans. There was negligible debt in other currencies in the 1950s.

b Includes British and US direct investment and corporate securities. Estimates of investment from other sources are deficient. Long-term corporate securities were relevant in British investment: about 58 per cent of total investment in 1913 and 38 per cent in 1940. The only pre-1929 US corporate long-term loan, not included in the above totals, was the 1922 US\$4 million Paulista Railway, see Lewis, *America's stake*, p. 658. See Stone, 'British direct and portfolio investment'; idem, *Composition and distribution*; *South American Journal* (various dates); Bank of England, *Overseas investment*; US, *New estimate*; US, *U.S. investments*.

c British stock is for 1951.

Sources: Abreu, 'Divida pública externa'; Brazil, *Finanças do Brasil*; Brazil, *Anuário estatístico*, 1957.

During the 1840s, with the ending of the civil war Brazil was politically calm. The new Alves Branco import tariff recovered fiscal sovereignty, which had been restrained by agreements with Great Britain. In the 1850s and early 1860s, institutional modernization, especially of the legal framework affecting the Commercial Code and banking regulation, the new land legislation—at least at the level of intention—and the initial restrictions on slave labour, were matched by a fast expansion of exports. The debt–export ratio fell to 0.42 in 1860 from 1.68 in the 1820s as foreign indebtedness increased very slowly. The economy was periodically affected by instability in the developed economies, but expanded rapidly in the 1850s and early 1860s. The 1864–70 war adversely affected export growth and provoked a spurt of public indebtedness. Foreign debt trebled from 1860 to 1875, and the spread of Brazilian loans on consols peaked at 3.7 per cent in 1867.¹⁰ Recovery in the 1870s was interrupted by a financial crisis in 1875 and famine in the northeast in 1877–9. Transition to free labour submitted the economy to strains that would outlive the abolition of slavery in 1888. Only

¹⁰ As implied by end of year quotations of Brazilian bonds in *The Times*.

in the early 1880s was there a recovery of the exchange rate and spreads as some of these difficulties eased.

By the end of the 1840s, sterling parity had fallen to 27 pence per *mil réis*. The floating exchange rate level reflected recurrent balance of payments difficulties; it reached its lowest Imperial level of 19 pence per *mil réis* during the war in the 1860s. Appreciation of the exchange rate in the 1880s until it reached 27 pence per *mil réis* in 1889 was reflected in the recovery of credit. In the last four years of the Empire the foreign debt stock almost doubled and there was a conversion in 1889 of central government debt, mostly in the form of 5 per cent bonds, into 4 per cent bonds.

Prospectuses of Brazilian loans after 1850 generally referred to the development of infrastructure, especially railways, and government finance. The government did not always take into account the initial purpose of the loan; proceeds were often diverted to other uses. The ratio of new foreign loans to central government revenue (plus proceeds of new loans) exceeded 50 per cent in the late 1820s. It was insignificant in the 1830s and then rose to more than 6 per cent in the 1850s, 1870s, and 1890s. Shares were higher in the 1860s and in the 1880s, as Brazil significantly increased its foreign debt.¹¹

In the early Republican years, Brazil faced a major external shock as a result of increased political instability, and to a lesser extent to the 1890 Barings crisis in Argentina.¹² The foreign exchange devaluation of almost 300 per cent of the *mil réis*-sterling rate resulted in a massive fiscal shock. Spreads of central government loans, below 2 per cent in the late 1880s, peaked at 4 per cent in 1898. Crisis in the early 1890s, followed by a sharp fall in coffee prices after 1895, led to a funding loan in 1898 of £8.6 million, identical to the unsuccessful Argentinian funding of 1891.¹³ Railway profit guarantees that involved yearly remittances of around £1.3 million—about 40 per cent of interest payments on foreign debt—were included in the loan in face of opposition by the railways.¹⁴

By 1900 the debt-export ratio had more than quadrupled since 1860 to reach 1.73. Foreign debt—of £44.3 million in 1900—was still almost all in sterling, and mostly federal. Following the successful stabilization plan implemented in 1898–1902, the economy entered a period of expansion, with exports doubling in the decade. The massive inflow of foreign capital made possible the adoption of both the gold standard in 1907—at 15 pence

¹¹ See Levy, 'Brazilian public debt'; Brazil, *Mensagem presidencial*.

¹² See Fishlow, 'Conditionality and willingness to pay', for a comparison of the Argentinian and Brazilian debt crises in the 1890s. See also Della Paolera and Taylor, *Straining the anchor*, chs. 3 and 5; Triner, *Banking and economic development*, ch 4.

¹³ See Ferns, 'Baring crisis'. A funding loan was a consolidation of interest payments due on previous loans. Newly emitted bonds corresponded to maturing interest payments so that there was a refinancing of interest. Amortization payments were generally postponed.

¹⁴ In 1914 there were difficulties on the interpretation of how the new funding loan would affect the service of the 1901 loan, which were settled in 1919 in favour of bondholders. See Abreu, 'Funding loans brasileiros', p. 527; Franco, *Década republicana*.

per *mil réis*—and coffee valorization policies exploiting Brazil's market power.¹⁵ Accumulation of stocks, given Brazil's share of world output and price inelasticity of demand, resulted in a contraction of supply and a rise in world prices.

Central government reliance on foreign loans as a share of revenue reached a new peak of 16.7 per cent in the 1910s as internal debt became insignificant.¹⁶ This was reversed in the 1920s as proceeds of foreign loans fell to 8.3 per cent of all revenues raised by the government. The stock of foreign debt more than trebled in 1900–13 to £150.7 million, with a rapid expansion of non-federal debt. In 1914 more than 85 per cent of the Brazilian public foreign debt was denominated in sterling. There was a small share of French loans, but no dollar loans (see table 1). The debt–export ratio remained around 2.0 because of the expansion of exports. After 1912, rubber exports collapsed, the Balkan wars affected Brazil's ability to borrow, and coffee prices fell after valorization was deemed illegal in the US. This was followed by forced sales of stocks held in the US. The war led to abandoning the gold standard and a second funding loan of £15 million. Brazilian spreads exceeded 3 per cent in 1915.

The Brazilian share of total British investment overseas was 5.2 per cent after the loans floated in the 1820s and then fell to 2.8 per cent in the mid-1870s. It recovered to 5.1 per cent in 1905, with the two waves of new Brazilian loans in the second half of the 1880s and after the turn of the century. With the new inflow until 1913, it increased further to 6.6 per cent. By 1930, after the new boom in the second half of the 1920s, and in spite of embargoes in the early 1920s and moral suasion following sterling's return to gold, it had reached 7.6 per cent. By contrast, the Brazilian share in the stock of US total investment in 1930 was 4.7 per cent.¹⁷ Trends in Brazilian indebtedness after 1870 reflected to a large extent British capital outflows, which rose to a new peak of 4.7 per cent of British GDP in the 1880s, fell to 3.4 per cent in the 1890s, then recovered to reach the all-time peak of 6.5 per cent in 1905–14.¹⁸ Dollar indebtedness rose with the Wall Street bonanza in 1921–2 and, especially, in 1924–8.

The first Brazilian loans after World War I were floated in the United States. By the end of the decade, one-third of the £251.6 million debt was in dollar bonds, with most of the residual still British. State, coffee valorization, and municipal loans had risen to more than 40 per cent of total debt. After a boom in 1919–20, the 1920s were like a repetition in a

¹⁵ See Fritsch, *External constraints*, pp. 1–31, on 1889–1914 economic policies. Brazil had fleetingly adopted the gold standard for the first time in 1888–9.

¹⁶ This was of course much below peaks in the nineteenth century.

¹⁷ For data on British investment, see Davies and Gallman, *Evolving financial markets*, tab. 2:2–5(b), p. 66; Feinstein, 'Britain's overseas investments'; and Kindersley, 'British foreign investments'. For US investment, see Lewis, 'America's stake'.

¹⁸ They had risen from 0.7–0.9% of GDP until 1850 to 2.0–2.8% in the 1850s and 1860s. See Edelstein, 'Foreign investment', p. 175.

shortened time span of what had happened in 1890–1913: crisis, coffee valorization, adoption of gold exchange standard, massive indebtedness, balance of payments crisis, exchange rate devaluation, and restructuring of foreign debt. The crisis until 1924 was akin to that of 1890–8 with the same consequences of devaluation on fiscal stability. In 1923–4, the Brazilian spread on consols hovered around 4 per cent. Adoption of contractionary policies, reopening of world financial markets, renewal of coffee valorization, and return to the gold standard created conditions for a shortened re-enactment of a golden age, only to be disturbed by the sudden interruption of capital inflows by mid-1928 and the consequent balance of payments crisis.¹⁹ As exports contracted, the debt–export ratio reached 4.0 in 1930 and debt service absorbed 30 per cent of exports. In the 1930s and early 1940s these ratios were reduced by default and renegotiation. After 1945, there were further reductions as financial markets were closed to Brazil. Debt stock in the early 1950s was around £100 million, and debt–export ratios under 0.3.²⁰

A third funding of £16.4 million followed Britain's abandonment of the gold standard in 1931. After its expiration in 1934, a four-year agreement was reached. It tried to reconcile the interests of creditors, who wanted to receive cash rather than more paper, and debtors, who wanted debt relief and to slow down the increase in nominal debt. It included all Brazilian public loans, was based on the recognition that Brazil's capacity to pay was not compatible with full service and, for the first time in Brazilian history, involved relief in interest payments. Reductions in debt service were allegedly based on the quality of guarantees: the better the guarantee, the higher the grade, the higher the amortization, the lower the discount on interest payments. Loans were classified in eight grades. Federal and 'coffee' loans were better graded than state loans, and state loans were better graded than municipal loans. Funding loans were in grade 1 and received full interest and amortization (at par). Grade 2 received full interest and 50 per cent of amortization. After grade 3 there was no amortization, and interest payments fell from 35 per cent (grade 3) to 20 per cent (grade 7) of contractual interest. All grades to grade 4 included federal loans. Grade 5 was for the Coffee Institute loan, and grades 6 and 7 for the best state and municipal loans. Grade 8 state and municipal loans were not serviced. Total yearly service of £24 million in the late 1920s was reduced to £7.3 million, rising to £9 million.²¹ Comments in the press in creditor countries were restrained, and the agreement was considered the best possible under the circumstances. The Foreign Office resisted pressures to get involved in the protection of bondholders' interests, with Secretary John Simon quoting

¹⁹ See Fritsch, *External constraints*, pp. 53–159, for economic policy in Brazil in the 1920s.

²⁰ For more detailed debt data, see Abreu, 'Funding loans brasileiros'.

²¹ Decree 23829, 5 Feb. 1934.

Lord Palmerston to justify intervention only in case of discrimination against British interests.²²

After the November 1937 coup, Vargas, the Brazilian dictator, announced the suspension of payments, claiming that it was impossible to pay both debt service and essential imports. Default was maintained until mid-1940.²³ The British government protested, but could not do much since the trade balance was against Brazil. The US reaction was mild, in line with Brazil's envisaged role in their Good Neighbor policy.²⁴

Negotiations in 1939/40 were prompted by a US–Brazil *rapprochement*. A four-year scheme was agreed by mid-1940, with yearly payments of £4 million. In 1931 and 1934 the terms of the agreements had been strongly influenced by the British, but in 1940 and 1943 this was reversed by the US. By 1943, the accumulation of foreign reserves led to negotiations as the government feared a weakened bargaining position as a result of its rapidly increasing reserves.²⁵

A permanent agreement was reached on two options to be offered to bondholders. Both the British Corporation of Foreign Bondholders and the US Foreign Bondholders Protective Council were represented in the negotiations, but the option was to be exerted by individual bondholders. The loan classifications of 1934 and 1940 were abandoned. By choosing option A, bondholders would maintain the nominal value of bonds, but accept reduced interest rates, typically below 2 per cent, compared to contractual rates of up to 8 per cent. By choosing option B, bondholders would agree to exchange some of their bonds, whatever the original debtors, for new 3.75 per cent Brazilian federal bonds and accept to redeem the residual (20 per cent to 50 per cent of nominal amounts) against cash payments that varied between 6 per cent and 62.5 per cent of the nominal value of bonds redeemed. If chosen by all bondholders, this option would have involved cash payments of £22.9 million in settlement of £79 million of outstanding debt. Old 'rubbish' loans were redeemed with a discount of 88 per cent. Discounts on interest due during the default were similar.²⁶ The agreement halved the present value of outstanding Brazilian debt of £220 million.

Foreign reactions to the agreement were sharply different in Britain and the US. There was rejoicing over the agreement in the US, but

²² *The Times*, 10 Feb. 1934; draft, Simon to Leather, March 1934, Public Record Office [hereafter PRO], Foreign Office [hereafter FO] 371, A1440/147/6.

²³ Deemed 'one of the most cynical which the London market can remember' by *The Economist*, 13 Nov. 1937.

²⁴ Waley to Holman, 29.12.37, PRO FO 371, A9412/795/6; Hull to Caffery, telegram 80, 16 Nov. 1937; National Archives: Record Group 59, 832.51/1200; US State Department, *Foreign relations of the United States*, pp. 353–4; Blum, *Morgenthau papers*, p. 493.

²⁵ Sousa Costa (Brazilian Finance Minister) to Vargas, 6 Feb. 1943, Vargas Foundation Archives: Getúlio Vargas Papers.

²⁶ Decree-Law 6019, 23 Nov. 1943. There was a strong incentive to choose option B, given the Federal guarantee and cash payments, as the two options were financially equivalent at a 4% interest rate.

complaints in London both about the mistreatment of British loans as a 'sacrifice to Pan-Americanism' and about the US position of accusing the British of bad behaviour when they came and played in their 'backyard'.²⁷ The British negotiator unsuccessfully stressed to London that it was a good agreement, as Brazil had paid on average only £2.6 million yearly in 1901–41, and some of the loans were of doubtful quality.²⁸

II

Existing evaluations of the record of 'Brazil' as a debtor are not satisfactory. It has been found that the aggregate long-term rate of return for all Brazilian loans floated between 1824 and 1931 was 6.6 per cent, compared to 3.4 per cent for British consols.²⁹ But this was based on the assumption that pre-1932 amortization payments were made at par rather than, as for most loans, by purchases in the market. Other contributions focused on the internal rates of return of loans floated in the 1920s and, in some cases, only of dollar-denominated loans.³⁰ These findings on the 1920s say little about the performance of debtors having a long history in world financial markets. There is almost a century of history missing from the analysis. Since the 1920s are the last decade of a period of 105 years of continuous increase in indebtedness of economies such as Brazil, and the shock in the late 1920s had no parallel in the past, it is not surprising that the record of such debtors was not as good as before.

Some evaluations of the performance of debtors in the 1920s have been based on differences between *ex ante* 'contractual' rates of return and *ex post* rates of return for loans.³¹ The larger the difference between such rates, the worse the performance of a given debtor is considered to have been. In such analyses, Brazil is placed near the bottom of the list of indebted countries, both for all US dollar bonds and for US dollar government bonds. The use of a 'contractual rate of return' as an indication of expected return for all loans included in the analysis, however, does not seem warranted by the terms of many loan contracts. Of the four Brazilian federal government loans floated in Wall Street in the 1920s, the amortization provisions of two loans allowed the purchase of bonds in the market when their quotation was under par, and for the other two loans there were provisions that amortizations were to be made at par values or higher. While the latter feature was also a contractual provision of the only federal loan floated in Britain in the 1920s, this was in marked contrast with the past. For most pre-1914 British

²⁷ Telegram 5376, Washington to London, 28 Nov. 1943, PRO: FO 371, A10846/473/6; Phillimore to Elliot Butler, 8 Dec. 1943, PRO: FO 371, A16/16/6; *The Economist*, 25 Dec. 1943.

²⁸ Phillimore to Powell, 26 Feb. 1944, PRO: FO 128/425(7).

²⁹ Abreu, 'Memory of bankers'.

³⁰ See Eichengreen and Portes, 'After the deluge'; Jorgensen and Sachs, 'Default and renegotiation'.

³¹ Eichengreen and Portes, 'After the deluge'.

loans amortization was to be made by purchase under par and by drawings when at or above par.³²

This is also true for other countries. Many contracts of Chilean loans in the nineteenth century stipulated amortization by drawings at par values, but, in the first decade of the twentieth century, for several loans amortization was contractually defined as to be made by purchases in the market when below par or by drawings when at or above par.³³ In the case of Argentina, one may have expected that controversies concerning redemption of the 9 per cent 1876 Treasury notes would have led to avoidance of provisions on redemption at market prices, but both in the 1897 conversion of 1882 municipal loans and in the 1905 conversion, contracts allowed amortization below par.³⁴ Under these conditions, a 'contractual rate of return' would be an upper bound of the expected internal rate of return. 'Contractual rates of return' would depend on alternative scenarios about expectations on future quotations of Brazilian bonds. The nearer to par these quotations were, the less objectionable is the notion of a 'contractual rate of return'.³⁵

An additional problem with the actual computations of *ex ante* and *ex post* rates of return aggregated by country is that, given that a large number of loans were floated in New York in the 1920s, stratified sampling has been adopted, dividing loans into different groups according to type of borrower (government versus corporate).³⁶ This tends to produce misleading results. 'Government' Brazilian loans floated in the 1920s were either federal loans, or loans to other levels of government. The 1891 Constitution allowed states and municipalities to float foreign loans. There was no federal guarantee, and consequently it would be more reasonable to consider these loans separately as it is to be expected that the shortfall between the *ex post* return and the contractual rates on federal loans would be smaller than on other government loans, at least on average. The average *ex post* Brazil rate of

³² Of the 26 Imperial or Federal sterling loans floated between 1824 and 1914 only those of 1865, 1908, 1911–12, and 1913 (1910) provided for amortization exclusively at par. The contract of the 1903 federal sterling loan of £8.5 million, for instance, stated that 'redemption shall be effected by the purchase of bonds when the price is below par and when the price is at or above par by drawings'. (Ministério da Fazenda, *Relatório*, pp. 37–8). Carreira, *História financeira*, reproduces the contracts in Portuguese of all loans floated during the Empire. The 1922 Central do Brasil dollar loan amortization provisions stated that this would be undertaken in the first 15 years by purchase in the market at or below par and in the last 15 years by purchase in the market up to 102 or by call by lot at that price, *Fitch bond book*, 1925, p.12.

³³ See Urzúa, A. F., 'Historia comentada de la deuda externa de Chile (1810–1945): nociones de deuda pública', Memoria de prueba para optar al grado de licenciado de la Facultad de Ciencias Jurídicas y Sociales de la Universidad de Chile (Santiago de Chile, 1945).

³⁴ See Peters, *Foreign debt*; Peña, *Deuda argentina* for contractual terms of Argentinian loans. See Peters, *Foreign debt*, pp. 27–8 for the controversial 1876 notes that had been floated at 75 and reached 122 in 1881.

³⁵ Several loans floated in Wall Street mentioned 'US gold coin'. In the context of a 'contractual rate of return' definition this would raise problems akin to those between France and its debtors on the 'gold franc' clause of pre-1914 French loans. See Cour Permanente de Justice Internationale, *Paiement de divers emprunts*, and Borchard, *State insolvency*, pp. 138–9, especially about *Perry v. United States* in 1935.

³⁶ Eichengreen and Portes, 'After the deluge'.

return was calculated based on a sample composed of state and municipal loans, and does not include a single federal loan. As shown in section I, federal loans were better treated than state or municipal loans in the debt negotiations in the 1930s and 1940s, and in most cases had a better record than other government loans.³⁷ It is no wonder Brazil ranked so badly in the debtors' league, below countries such as Chile with a worse history as a debtor than Brazil from the 1930s until the 1950s.³⁸

Lindert and Morton based part of their analysis on a comparison of *ex post* real (inflation-corrected) internal rates of return of loans with the relevant internal rates of return on government bonds in the UK and the US.³⁹ But the division of post-1850 debt history in long subperiods—1850–1914, 1915–45, and post-1945—is awkward for the evaluation of the long-term Brazilian performance. Brazil, like other developing economies, stayed out of the international financial market for voluntary loans for 35 years after the depression. Furthermore, by beginning the analysis in 1850, a quarter of a century of Brazilian virtuous performance is disregarded, while other debtors were in default. All these estimates focus on internal rates of return over the life of loans and their comparison with alternative investment in government securities in Britain and the US. No account is taken of yearly rates of return, or of the trade-off between such rates of return and risk as measured by their volatility.

III

Brazil's performance as a debtor in the first long period of foreign indebtedness needs a re-evaluation. This should take into account the long history of Brazilian indebtedness that started with the Latin American bubble in the 1820s and ended with the depression in the late 1920s and early 1930s. *Ex post* internal rates of return for loans floated in different years can be compared to rates of return for British and US government securities. There is scope for the analysis of average yearly returns on specific loans and of risk as measured by the volatility of such yearly rates. This can also be compared to the behaviour of alternative investment in 'riskless' government securities.⁴⁰

³⁷ Eichengreen and Portes, 'Foreign lending', tab. A.2, pp. 36–37. Loans included were: city of São Paulo 1922, state of Ceará 1922, state of Pernambuco 1927, and state of Rio Grande do Sul 1928. One of these loans had been classified as grade 6 in the 1934 debt agreement, two as grade 7, and one as grade 8.

³⁸ See Sanfuentes, 'Deuda pública externa de Chile'; Jorgensen and Sachs, 'Default and Renegotiation'.

³⁹ Lindert and Morton, 'Sovereign debt'. Part of the analysis is based on 'contracted' returns and is affected by the same problems raised in relation to Eichengreen and Portes, 'After the deluge'. Computation of 1824–1956 real rates of return for Brazilian loans did not generate results different from those using nominal values.

⁴⁰ See the app. for definitions of internal rate return and yearly rate of return.

Analysis in this section will centre on central Brazilian government loans, as only these loans reflected a 'Brazil' risk. Furthermore, information available on contractual conditions, quotations, and outstanding values is of better quality than on other types of loans. The focus is on the comparison of Brazilian loans with 'riskless' alternative investment in British and US long-term bonds. Federal loans made up most of the Brazilian debt until 1900, but in 1930 their share in the total debt stock had fallen below 60 per cent (see table 1).⁴¹ Funding loans have been excluded to avoid double counting.⁴² So were the small loans in French francs whose history was marked by controversies on the gold clause.

The *ex post* internal rates of return for each Brazilian central government sterling or dollar loan floated between 1824 and 1931 are compared to the internal rates of return on British and US government bonds in the same time span.⁴³ Internal rates of return were computed taking into account: actual loan proceeds, interest payments, amortization (at par or market value, whichever is the case depending on the contract), and the terms of the 1934–43 renegotiations. The impact of funding loans was computed by taking into account the flotation of such loans in the reschedule years and quotations of the new bonds during this period. Computation of internal rates of return was truncated in the mid-1950s as payments became small.

As shown in columns 2 and 3 of table 2, *ex post* internal rates of return on Brazilian sterling loans during the nineteenth century were significantly above the alternative British government securities, in some cases more than three times (1829 and 1886), or twice their level (1865). Towards the end of the nineteenth century, *ex post* Brazilian rates and rates on British consols converged, and for some loans floated after 1901 rates of return on consols and US Treasury bonds are higher.

The simple comparison of internal rates of return limits the scope of an evaluation of the performance of Brazilian loans compared to 'riskless' investments. Buyers of such bonds were willing to purchase them because the higher risk involved, as reflected by the perceived volatility of rates of return over shorter horizons, could be compensated by higher expected returns. Yearly *ex post* rates of return can be computed based on a conjectured behaviour of investors: they buy bonds in the beginning of each year, receive the contractual interest payment, and sell the bond at the end of the year. An average yearly *ex post* rate of return can be computed for the life of each loan, as well as a measure of the volatility of such yearly rates. Geometric averages of yearly *ex post* rates of return and standard deviations for all 1824–1927 central government loans are included in columns 4 and 6 of table 2.

⁴¹ On contractual conditions see Carreira, *História financeira; Brazil, Finanças do Brasil; The Fitch bond book*. See note to tab. 2 for sources for other data.

⁴² Their impact on the service of each loan was taken into account.

⁴³ Data on consols and US Treasury bonds from Mitchell and Deane, *Abstract*, Banking and insurance 8 tab., p. 455; and United States, *Historical statistics*, ser. x 474.

Table 2. *Brazil: Ex post internal rates of return, average yearly ex post rates of return and standard deviation of yearly rates of return of Brazilian central government loans and of alternative investment in British and US government securities (percentage)*

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Date of flotation</i>	<i>Ex post internal rate of return on Brazilian bonds</i>	<i>Ex post internal rate of return on consols and US government bonds</i>	<i>Average yearly ex post rate of return on Brazilian bonds</i>	<i>Average yearly ex post rate of return on consols and US government bonds</i>	<i>Standard deviation of yearly rates of return on Brazilian bonds</i>	<i>Standard deviation of yearly rates of return on consols and US government bonds</i>
Sterling loans						
1824	6.05	3.30	6.43	3.31	13.21	4.61
1825	4.57	3.77	7.46	3.78	15.47	4.89
1829	10.29	3.36	7.58	3.39	13.53	4.63
1839	6.83	3.36	6.30	3.34	9.73	4.09
1843	4.87	3.10	7.09	3.05	8.70	4.52
1852	4.77	3.00	5.60	3.20	7.43	2.89
1858	4.21	3.19	5.65	3.34	8.11	2.38
1859	4.55	3.32	4.73	3.38	7.28	2.39
1860	4.72	3.36	5.89	3.42	6.38	2.18
1863	5.28	3.32	5.76	3.32	6.10	2.05
1865	7.96	3.70	6.69	3.57	3.60	1.92
1871	6.32	3.40	5.57	3.34	3.35	1.65
1875	5.60	3.47	5.48	3.38	3.36	1.89
1883	4.75	2.85	6.56	2.87	30.28	6.55
1886	7.59	2.42	6.11	2.32	2.38	1.18
1888	3.91	2.79	6.15	2.66	30.28	6.89
1889	3.92	2.57	6.10	2.69	29.94	6.93
1895	5.52	2.25	6.39	2.55	29.95	7.22
1901	2.51	2.65	6.66	3.00	40.72	7.46
1903	4.63	2.48	5.68	2.87	27.93	7.58
1908	5.40	1.67	5.32	2.31	15.49	6.91
1910	2.66	2.80	6.24	3.09	15.49	8.04
1911	2.63	3.08	7.13	3.54	39.31	8.14
1911/12	3.60	2.47	7.51	3.54	47.01	8.14
1913 (1910)	4.28	3.36	4.83	3.72	48.17	8.31
1913	2.77	3.18	7.19	3.30	35.93	8.28
1927	4.01	4.77	6.21	3.85	34.30	8.22
Dollar loans						
1921	5.72	3.83	8.25	3.34	37.81	4.67
1922	4.31	3.31	8.51	3.04	37.63	4.35
1926	4.44	2.75	8.34	2.67	37.63	4.47
1927	4.06	2.48	8.27	2.49	38.47	4.44

Sources: Carreira, *História financeira*; Brazil, *Finanças do Brasil*; Brazil, *Anuário estatístico*; *The Fitch bond book* (various dates); *The Times* (various dates); *South American Journal*; *New York Stock Exchange monthly and yearly record* (various dates); Mathieson, *Stock exchanges: ten-year record of prices and dividends* (various dates); and Van Oss and Mathieson, *Stock exchange values*.

The measuring rods to consider such averages and standard deviations of rates of return are the average yearly *ex post* rates of return and standard deviations of alternative investment in British and US government bonds held during the same period as that of each Brazilian loan under analysis. These averages and standard deviations are included in table 2 as columns 5 and 7. Comparison of average yearly rates of return and standard deviations of Brazilian loans and British and US government loans indicates that for all Brazilian central government loans, average yearly *ex post* rates of return are higher than those of British and US bonds, and the same applies to standard deviations.

The rate of return-standard deviation pairs of points for Brazilian loans and alternative investment in government securities in Britain or the US are plotted in figure 1. The points for loans having the Brazilian highest and the lowest return-volatility ratios in relation to 'riskless' alternatives, those for the 1886 and 1913 (1910) loans, are linked. The return-volatility ratios of all other loans are between these polar examples. Only selected pairs of points for other loans are linked and labelled (1829, 1865, and US 1927). *Ex post*, and taking into account the trade-off between risk and return during the full life of Brazilian loans, it made sense for less risk-averse investors to hold Brazilian bonds rather than low return *cum* low risk British and US bonds.

There are significant changes in the slope of return-volatility lines. In the late years of the Brazilian Empire (1860s–80s) investors obtained substantially higher returns than those on British consols despite incurring less risk

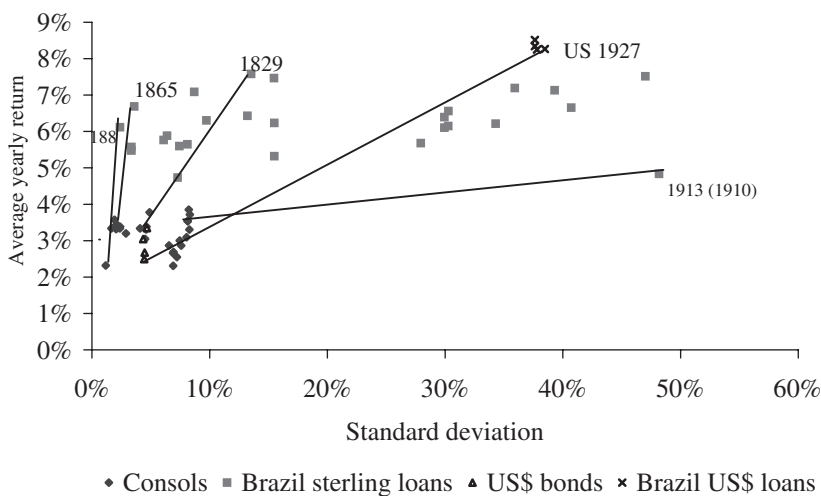


Figure 1. *Return and volatility of British consols, US bonds and Brazilian loans 1824–1927*

than had been the case in the 1820s. This would be reversed after 1890 as returns on Brazilian loans deteriorated and volatility increased. Steeper lines between the 1860s and the late 1880s are mostly explained by the fact that reduced volatility of Brazilian bonds was not followed by a convergence of rates of return as these reflected conditions when loans were floated. High volatility of the yearly rates of return on Brazilian bonds in the first half of the nineteenth century reflected doubts about Brazil's capacity and willingness to continue to service foreign debt. After the late 1890s, increased volatility was driven by the series of funding loans and then by default in the 1930s.

A low differential between returns on a Brazilian loan and British government consols and US Treasury bonds can mean either that the market evaluation of the Brazilian risk was low at the time the loan was floated, or that there was partial or total default at some point in the life of the loan. As already mentioned, given the nature of most Brazilian loan contracts, which established that amortization was to be made by purchases in the market, if the price was below par, and by drawings, if above, it is unclear what could have been the 'contractual' rate of return. A possible, not totally satisfactory, way around this problem is to compare the flat yield rates of consols (that is the return without taking account of capital gains or losses in a given year) with the flat yield implied by the initial price (discount) and the nominal interest on each Brazilian loan⁴⁴ so as to determine an *ex ante* spread and compare it with the *ex post* spread between actual yearly rates of return on Brazilian loans and on British and US government securities. For most of the 32 sterling and US dollar loans, the *ex post* spread exceeds the *ex ante* spread. But for seven of those loans, *ex ante* spreads are higher than *ex post* spreads: for those of 1824, 1839, 1871, and 1913 (1910) by a very small margin (0.1–0.3 per cent) and more significantly for those of 1829, 1859, and 1927.

The computation of *ex post* internal rates of return and their comparison with those on British consols and US government bonds can also be used to evaluate the performance of all loans floated in each decade since the 1820s, so that a comprehensive picture of Brazil's central government record as a debtor emerges. Ten decades are added to the decade that has been singled out for attention in much of the literature, namely the 1920s. Table 3 shows the *ex post* internal rates of return on Brazilian loans per decade from the 1820s to the 1920s for sterling and dollar bonds (in the latter case only for the 1920s). The internal return rates on Brazilian sterling loans are systematically above those on British consols until the decade of the 1900s, and only fall slightly below their level in the 1910s, and more significantly (0.76%) in the 1920s. The internal rate of return on Brazilian

⁴⁴ Or the contractual rate of return, if the amortization had been contractually established at a fixed price.

Table 3. *Brazil: Ex post internal rates of return on Brazilian loans and on British consols and US government bonds by decade of flotation*

Decade	Ex post internal rates of return on Brazilian bonds		Ex post internal rates of return on consols and US government bonds	
	Sterling loans	Dollar loans	Sterling loans	Dollar loans
1820s	5.95	No loans	3.46	No loans
1830s	6.83	No loans	3.36	No loans
1840s	4.87	No loans	3.10	No loans
1850s	4.52	No loans	3.14	No loans
1860s	6.63	No loans	3.45	No loans
1870s	5.94	No loans	3.43	No loans
1880s	4.20	No loans	2.73	No loans
1890s	5.52	No loans	2.25	No loans
1900s	3.40	No loans	2.40	No loans
1910s	2.84	No loans	3.09	No loans
1920s	4.01	4.70	4.77	3.12

Sources: as tab. 2.

dollar loans in the 1920s is above the rate of return on US bonds, even if these loans were normally serviced only until 1930.⁴⁵

At a still more aggregate level, the internal rate of return for all sterling loans floated between 1824 and 1927, excluding funding loans to avoid double counting, is 5.6 per cent compared to 3.3 per cent for consols. For dollar loans, all floated in the 1920s, these rates of return are respectively 4.7 per cent and 3.1 per cent. These aggregate rates, however, hide significant differences over different subperiods in such a long time span as, for instance, the clear deterioration of Brazil's performance as a borrower after the beginning of the twentieth century.

IV

Comprehensive comparison with the full set of bonds floated by other 'emerging markets' is not possible because of information and space constraints. For no other economy in this group was there such a long period of uninterrupted regular payments of debt service as in Brazil. But for most of these economies—Greece, Portugal, Turkey, Egypt, and Mexico—either default was more frequent than in South America, or there was extreme coercion by creditors as in Egypt. Comparison here is restricted to the main South American economies.⁴⁶ Figures 2 and 3 present the spreads of

⁴⁵ Evaluations that take into account average yearly rates of return and volatility of all Brazilian loans floated in the same decade show results similar to those obtained for *ex post* internal rates of return: average yearly rates of return and volatility for Brazilian loans are higher than those for British consols and US bonds floated in all decades between the 1820s and the 1920s.

⁴⁶ See Wynne, *State insolvency*, for non-Latin American default episodes. For Argentina and Chile, see Peters, *Foreign debt*; Sanfuentes, 'Deuda pública externa de Chile'; and Jorgensen and Sachs, 'Default and renegotiation'.

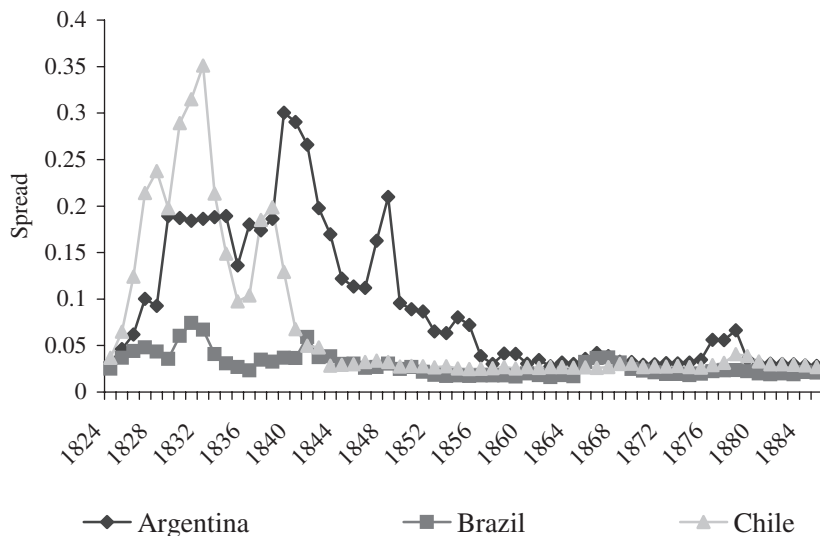


Figure 2. *Spreads of Argentinian, Brazilian and Chilean central government loans, 1824–1885*

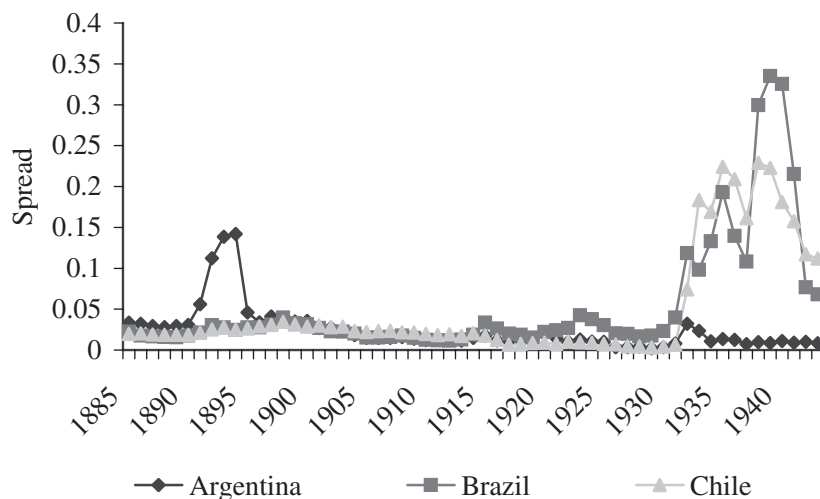


Figure 3. *Spreads of Argentinian, Brazilian, and Chilean central government loans, 1885–1943*

Argentinian, Brazilian, and Chilean central government loans over British consols between 1824 and 1943. Initially, spreads for Brazil were quite high, even exceeding 5 per cent in the early 1830s and again in the early 1840s, but they fell significantly afterwards. For the Argentinian and Chilean bonds

in default after the 1820s spreads reached 35 per cent.⁴⁷ They fell below 5 per cent only after debt settlements by Chile and Argentina in the early 1840s and late 1850s. In 1880, the debt–export ratios of 0.97 in Argentina and 1.06 in Chile were still much higher than Brazil’s 0.57.⁴⁸ In Argentina there were sharp spread increases in the late 1870s and, especially, during the 1890s with the Baring crisis and the failed 1891 Funding Loan. It was only after the Arreglo Romero of 1893, which involved temporary decreased interest payments that spreads started to fall. Except for a period of weakness during the war, in the second half of the 1860s, Brazilian spreads were generally lower than those of Argentinian loans until 1900 and then rather similar in the 1900s.

By 1900 the Brazilian debt–export ratio had increased to 1.73, still lower than the very high 2.51 for Argentina, but higher than Chile’s 1.37. The deterioration of Brazilian debt indicators continued after the turn of the century, and the contrast with the improvement in the position of Argentina, in the middle of an export boom, and also Chile, is very significant. By 1910 the debt export ratio was above 2 in Brazil and in the 0.8–1.0 range in the other two economies. Market evaluation of the Brazilian risk deteriorated further after 1914 and spreads significantly exceeded those on Argentinian loans. Market memory on the long-term Brazilian record was clearly not strong enough to outweigh deterioration in macroeconomic policy in the 1920s. Chilean spreads were constant from the early 1840s until the 1900s and fell further in the 1920s so that with the deterioration of Brazilian spreads a significant gap opened.

The great depression after 1928 badly affected Chile’s, and somewhat less intensely, Brazil’s capacity to pay. Debt–export ratios went beyond 3 in 1930 in both countries. Chile’s straight default was reflected in very high spreads, only exceeded by the Brazilian spreads during total default in the late 1930s. As Chile delayed its permanent debt settlement until 1948, spreads on its loans in the 1940s remained higher than those in Brazil. Argentina in contrast, not only serviced its national debt, with spreads below 1 per cent, but in fact had paid it up by 1945.

Analysis has centred until now on central government loans. But after 1900, state and municipal loans became significant. The large number of such loans and the limited information available on many of the contracts make a comprehensive study beyond the scope of this article. Selected loans, however, provide material for some interesting findings. Figure 4 shows the spreads over British consols for selected Brazilian state and municipal loans

⁴⁷ Figs. 2 to 5 are based on data from *The Times*, 1824–1884; and Mathieson & Sons, F., *Stock exchanges: ten-year record of prices and dividends* (several years), highest yearly quotations, 1885–1943.

⁴⁸ Debt export ratios for Brazil from section I. For Argentina estimates based on data from Rippy, *British investments in Latin America* (only for 1880); Tornquist, *Economic development of the Argentine Republic*; and Williams, *Argentina international trade*. For Chile, based on data from Braun, Braun, Briones, Díaz, Lüders, and Wagner, ‘Economía chilena’.

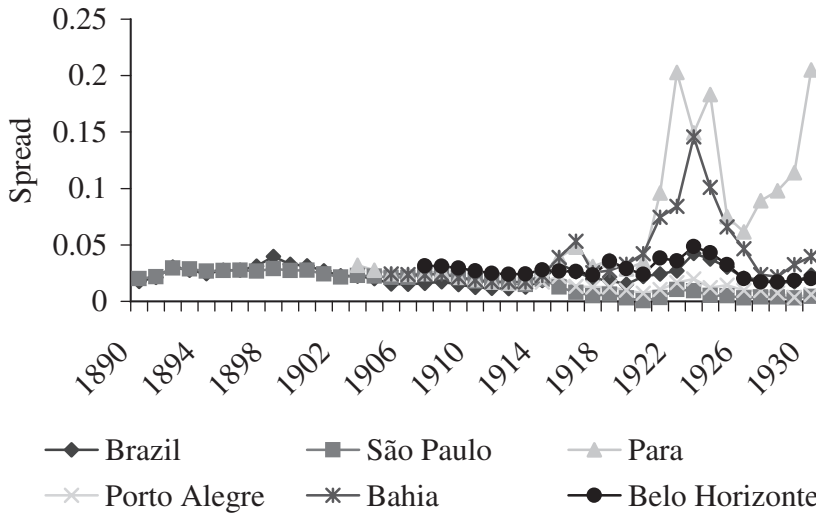


Figure 4. *Spreads of Brazilian central government, state, and municipal loans, 1890–1930*

as well as for the central government loans between 1888 and 1930.⁴⁹ The selected loans are: the state of São Paulo (1888), prominent in the coffee business; the state of Pará (1901), whose economy depended on rubber exports that slumped in the 1910s; the city of Porto Alegre (1907), capital of the southernmost state of Rio Grande do Sul; the state of Bahia (1904), whose default after 1914 was the first by non-central government borrowers; and the city of Belo Horizonte (1905), capital of Minas Gerais.

Much of the evidence on comparative spreads for different types of Brazilian loans is hardly surprising. The defaults of Bahia and Pará are clearly shown by very high spreads. Brazilian municipalities with an average financial record, such as Belo Horizonte, show consistently higher spreads than those for the central government. But for better quality state and municipal loans, such as those of São Paulo and Porto Alegre, spreads after 1914 became lower than those on loans of the central government, as shown in more detail in figure 5. It is easier to suggest some explanation for this trend for São Paulo loans, as São Paulo was the dominant producer of coffee in Brazil and had the control of coffee policy. Porto Alegre municipal finances were sounder than those of Belo Horizonte.⁵⁰

These new findings put in a different light the treatment of sub-central government loans in the foreign debt negotiations conducted by Brazil with

⁴⁹ US dollar state and municipal loans were not included because of their short ‘normal life’ as they were floated in the 1920s and their service was defaulted in the early 1930s.

⁵⁰ Porto Alegre loans were guaranteed by the state of Rio Grande do Sul and the Belo Horizonte loan faced major difficulties related to its repayment by the issue of a French loan in 1910. See Brazil, *Finanças do Brasil*, pp. 531, 557–62.

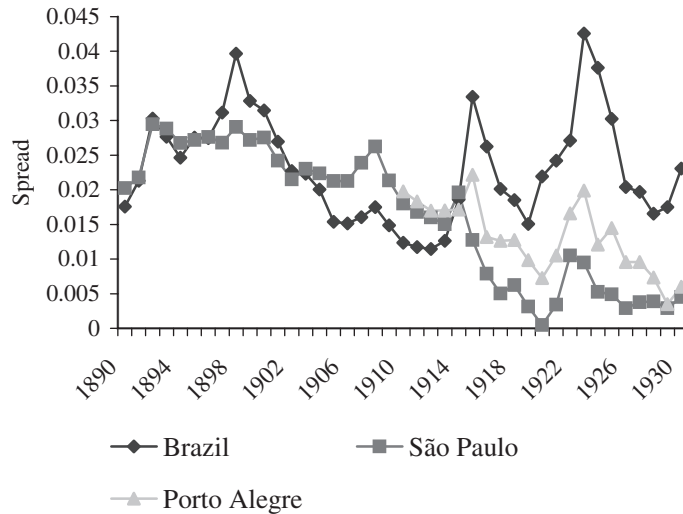


Figure 5. *Spreads of Brazilian central government, São Paulo, and Porto Alegre loans, 1890–1930*

its creditors in the 1930s and 1940s. In the agreements of 1934 and 1940, and also in the permanent settlement of 1943, those non-central government loans were consistently less favourably treated than central government loans. Once the federal government started to control the allocation of foreign exchange after 1930 it had total control of the negotiations, in spite of not being the original borrower of non-central government loans. It was then possible, given a constraint on total service payments, to treat the central government bondholders better than those holding the best types on non-central government Brazilian debt, perhaps with a hopeful eye in the future, when the republic would return to the market.

V

Evaluation of the performance of debtors in international markets requires a long-term perspective. It is difficult to reach conclusions based on the performance of loans floated in only one decade, especially if this decade happens to be the 1920s. Based on a longer-term perspective 'Brazil' had a better performance than suggested by research concentrating on the 1920s. And even for loans floated in the 1920s, performance was not as bad as suggested by former evaluations. This is true both using *ex post* internal rates of return over the life of loans and *ex post* yearly rates of return. The higher volatility of yearly rates of return of Brazilian loans was matched by higher rates of return than those of benchmark investments in British consols and US Treasury bonds.

If compared to other South American creditors, market valuation as expressed by spreads on consols favoured Brazil until the end of the nine-

teenth century, with the exception of the second half of the 1860s. After 1914, and especially in the 1920s, Brazilian spreads became higher than those of Argentina and Chile with differences reaching up to 300 points. During the depression there was also a sharp contrast in the experience of these economies as Argentina paid up its debt and Chilean default occurred earlier and for a longer period than that of Brazil.

The performance of other Brazilian debtors such as states and municipalities, and loans related to coffee valorization, was generally worse than that of the Brazilian central government. But this was not always the case: for selected loans of states and municipalities spreads were lower than those for central government loans after 1914. The settlements that followed default in the 1930s did not reflect adequately the diversity of market valuations of Brazilian risks as the central government used its leverage to assure a relatively better treatment for its loans.

Departamento de Economia, PUC-Rio

<i>Date submitted</i>	<i>31 August 2004</i>
<i>Revised version submitted</i>	<i>28 May 2005</i>
<i>Accepted</i>	<i>7 December 2005</i>

DOI: 10.1111/j.1468-0289.2006.00359.x

APPENDIX

The *ex post* internal rate of return of a loan is the interest rate that makes the present value of its cash flow equal to zero. This includes interest payments and amortization payments. Whether amortization payments were at par or by purchase in the market depended on specific contracts.

$$AV \cdot P = \sum_{t=1}^n AV_t \cdot r(1+i)^{-t} + \sum_{t=1}^n A_t \cdot Q_t \cdot (1+i)^{-t}$$

The yearly rate of return (also *ex post*) is computed each year for an outstanding loan based on the assumption that the bondholder will buy the bond in the beginning of the year and sell it at the end so that its return in the year will include both the contractual interest payment and the capital gain or loss because of fluctuations in the price of the loan during the year

$$\begin{aligned} YRR_t &= [AV_{t-1} \cdot r + AV_{t-1} \cdot (Q_t - Q_{t-1})] / [AV_{t-1} \cdot Q_{t-1}] \\ &= [r + (Q_t - Q_{t-1})] / Q_{t-1} \end{aligned}$$

where:

AV is the initial nominal outstanding value of the loan

P is the issue price of the loan

AV_t is the nominal outstanding value of the loan at the beginning of period t

r is the contractual nominal rate of interest

i is the internal rate of return

A_t is the amortization at the end of year t

Q_t is the loan's quotation at the end of period t
 YRR_t is the yearly rate of return for the loan in year t

Footnote references

- Abreu, M. de P., 'A dívida pública externa do Brasil, 1824–1931', *Estudos Econômicos*, 15 (1985), pp. 167–89.
- Abreu, M. de P., 'On the memory of bankers: Brazilian foreign debt, 1824–1943', *Political Economy*, 4 (1988), pp. 45–81.
- Abreu, M. de P., 'Os funding loans brasileiros, 1898–1931', *Pesquisa e Planejamento Econômico*, 31 (2002), pp. 515–40.
- Beim, D. O. and Calomiris, C. W., *Emerging financial markets* (Boston, Mass., 2001).
- Blum, J. M., *From the Morgenthau papers: years of crisis: 1928–1938* (Boston, Mass., 1959).
- Borchard, E., *State insolvency and foreign bondholders: volume I. General principles* (New Haven, Conn., 1951).
- Braun, J., Braun, M., Briones, I., Díaz, J., Lüders, R., and Wagner, G., 'Economía chilena 1810–1995: Estadísticas históricas', *Documento de Trabajo* 187, Pontificia Universidad Católica de Chile, Instituto de Economía (Santiago, 2000).
- Carreira, L. de C., *História financeira e orçamentária do império do Brasil* (Brasília, 1980).
- Corporation of Foreign Bondholders. *Fifth annual general report of the Council of the Corporation of Foreign Bondholders . . . for the year 1877* (1878).
- Davies, L. and Gallman, R. G., *Evolving financial markets and international capital flows: Britain, the Americas and Australia* (Cambridge, 2001).
- Dawson, F. G., *The first Latin American debt crisis: the City of London and the 1822–25 loan bubble* (New Haven, Conn., 1990).
- Della Paolera, G. and Taylor, A. M., *Straining the anchor: The Argentine currency board and the search for macroeconomic stability, 1880–1935* (Chicago, Ill., 2001).
- Edelstein, M., 'Foreign investment and accumulation, 1860–1914', in R. Floud and D. McCloskey, eds., *The economic history of Britain since 1700* (Cambridge, 2nd edn. 1994), pp. 73–96.
- Eichengreen, B. and Portes, R., 'Foreign lending in the interwar years: the bondholders' perspective', *CEPR Discussion Paper* 273, (September 1988).
- Eichengreen, B. and Portes, R., 'After the deluge: default, negotiation and readjustment during the interwar years', in B. Eichengreen and P. H. Lindert, eds., *The international debt in historical perspective* (Cambridge, Mass., 1989), pp. 12–47.
- Ernesto Tornquist & Co., Limited, *The economic development of the Argentine Republic in the last fifty years* (Buenos Aires, 1919).
- Feinstein, C., 'Britain's overseas investments in 1913', *Economic History Review*, 2nd. ser., XLIII (1990), pp. 288–95.
- Ferns, H. S., 'The Baring crisis revisited', *Journal of Latin American Studies*, 24 (1992), pp. 241–73.
- Fishlow, A., 'Conditionality and willingness to pay: some parallels from the 1890s', in B. Eichengreen and P. H. Lindert, eds., *The international debt in historical perspective* (Cambridge, Mass., 1989), pp. 86–105.
- The Fitch bond book* (New York, 1923–7).
- Fodor, G., 'The boom that never was? Latin American loans in London', Università degli Studi di Trento, Dipartimento di Economia, *Discussion Paper* 5, 2002.
- Franco, G. H. B., *A década republicana: o Brasil e a economia internacional* (Rio de Janeiro, 1991).
- Fritsch, W., *External constraints on economic policy in Brazil, 1889–1930* (1988).
- Jorgensen, E. and Sachs, J., 'Default and renegotiation of Latin American foreign bonds in the interwar period', in B. Eichengreen and P. H. Lindert, eds., *The international debt in historical perspective* (Cambridge, Mass., 1989), pp. 48–85.
- Kindersley, R., 'British foreign investments in 1930', *Economic Journal*, 42 (1932), pp. 177–95.
- Levy, M. B., 'The Brazilian public debt – domestic and foreign, 1824–1913', in R. Liehr, ed., *La deuda pública en América Latina en perspectiva histórica* (Frankfurt am Main and Madrid, 1995), pp. 209–54 and 487–514.
- Lewis, C., *America's stake in international investments* (Washington, D.C., 1938).
- Lindert, P. and Morton, P. J., 'How sovereign debt has worked', in J. Sachs, ed., *Developing country debt* (Chicago, Ill., 1989), pp. 39–106.
- Marichal, C., *A century of debt crises in Latin America: from independence to the great depression, 1820–1930* (Princeton, NJ, 1989).
- Mitchell, B. R. and Deane, P., *Abstract of British historical statistics* (Cambridge, 1971).

- New York Stock Exchange, *Monthly and yearly record* (New York, various dates).
- Peña, J. B., *Deuda argentina: compilación de leyes, decretos, resoluciones, notas y contratos sobre la deuda pública nacional. Primera parte. Crédito público* (Buenos Aires, 1907).
- Peters, H. E., *The foreign debt of the Argentine Republic* (Baltimore, Del., 1934).
- Purcell, J. F. H. and Kaufman, J. A., *The risks of sovereign lending: lessons from history* (New York, 1993).
- Reinhart, C. M. and Rogoff, K. S., 'Serial default and the "paradox" of rich-to-poor capital flows', *American Economic Review*, 94, 2 (2004), pp. 52–8.
- Reinhart, C. M., Rogoff, K. S., and Savastano, M. A., 'Debt intolerance' in W. Brainard and G. Perry, eds., *Brookings papers in economic activity*, 1 (2003), pp. 1–74.
- Rippy, J. F., *British investments in Latin America, 1822–1949: a case study in the operations of private enterprise in retarded regions* (Minneapolis, Minn., 1959).
- Rogoff, K. S., 'New perspectives on international debt and exchange rates', *NBER Reporter*, Fall 2004, pp. 11–3.
- Sanfuentes, A., 'La deuda pública externa de Chile entre 1818 and 1935', *Estudios de Economía*, 14 (1987), pp. 19–72.
- Stone, I., 'British direct and portfolio investment in Latin America before 1914', *Journal of Economic History*, 37 (1977), pp. 690–722.
- Stone, I., *The composition and distribution of British investment in Latin America, 1865–1913* (New York, 1987).
- Suter, C., *Schuldenzyklen in der Dritten Welt: Kreditaufnahme, Zahlungskrisen and Schuldenregelungen Peripherer Länder im Weltsystem von 1820 bis 1986*, (Frankfurt am Main, 1990).
- Suter, C., *Debt cycles in the world-economy: foreign loans, financial crises, and debt settlements, 1820–1990* (Boulder, Col., 1992).
- Triner, G. D., *Banking and economic development: Brazil, 1889–1930* (New York and Basingstoke, 2000).
- Van Oss, S. F. and Mathieson, F. C., *Stock exchange values: a decade of finance 1885 to 1895* (1895).
- Williams, J. H., *Argentine international trade under inconvertible paper money 1880–1900* (Cambridge, Mass., 1920).
- Wynne, W. H., *State insolvency and foreign bondholders, 2: selected case histories of governmental foreign bond defaults and debt readjustments* (New Haven, Conn., 1951).

Official publications

- Bank of England, *United Kingdom overseas investment, 1954 and 1955* (1957).
- Brazil, *Mensagem presidencial* (Rio de Janeiro, various dates).
- Brazil, Instituto Brasileiro de Geografia e Estatística, *Anuário estatístico* (Rio de Janeiro, various dates).
- Brazil, Ministério dos Negócios da Fazenda 1903 (Rio de Janeiro, 1903)
- Brazil, Ministério da Fazenda, Secretaria do Conselho Técnico de Economia e Finanças. *Finanças do Brasil: dívida externa 1824–1945* (Rio de Janeiro, 1955).
- Cour Permanente de Justice Internationale, *Affaire concernant le paiement de divers emprunts serbes émis en France [and] Affaire relative au paiement, en or, des emprunts fédéraux brésiliens émis en France* (Leyden, 1929).
- United States Department of Commerce, *A new estimate of American foreign investments abroad* (Washington, D.C., 1931).
- United States Department of Commerce, Bureau of the Census, *Historical statistics of the United States: Colonial times to 1970* (Washington, D.C., 1975).
- United States Department of Commerce, Office of Business Economics, *U.S. investments in the Latin American economy* (Washington, D.C., 1957).
- United States State Department, *Foreign relations of the United States 1937, V: the American republics* (Washington, D.C., 1954).