Political Events and Sovereign Default Risk: Brazil, 1825-1889

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“We consider the powers delegated to you as most ample, but they would have been more
conformable to the ideas of the Capitalists of this Country if they had been founded on
some legislative Act of the Brazilian People, in cortes, or in Parliament assembled.”

--London merchant bankers to Brazil’s loan negotiators in London, 1824

“Lombard Street! Lombard Street! The English capitalists don’t stop providing
us with money, as much as we like, and when we like.”

--Senator Francisco Gê Acaiaba de Montezuma (visconde de Jequitinhonha), Rio de
Janeiro, 1865

Introduction

Imperial Brazil’s record of sovereign borrowing and debt repayment was exceptional.
Brazil was the most reliable sovereign borrower in Latin America in the nineteenth
century. It not only borrowed abroad, but accessed credit at home to an extent not seen

1 Department of History, UCLA. summerhill@ucla.edu. This paper is drawn from a
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underdevelopment in nineteenth-century Brazil. Research support for the project came
from the Fulbright-Hays Faculty Research Abroad Program, the Hoover Institution;
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All errors are mine.

2 Arquivo do Museu da Fazenda Federal (AMFF), Rio de Janeiro, Document 77.11.215,
Fletcher Alexander & Co., Bazett, Farquhar, Crawford & Co., Thomas Wilson & Co. to
Marechal Brant and the Chevalier Gameiro, 29 April 1824. Brazil’s loan negotiators
were Pedro I’s representatives in London, Felisberto Caldeira Brant Pontes (later marquês
de Barbacena), and Manoel Rodrigues Gameiro Pessoa (later visconde de Itabayana).

3 Montezuma was actually mocking the ease and growing frequency with which cabinets
in Rio resorted to London for loans in the 1860s; Visconde de Jequitinhonha, Reflexões
Sobre as Finanças do Brasil, Operações de Crédito do Thesouro e o Empréstimo
Contrahido em Londres de Cinco Milhões de Libras Esterlinas no Corrente Ano (Rio de
elsewhere outside of the advanced north Atlantic economies. Investors in the Empire’s bonds never once failed to receive their dividends at the scheduled date.

What proved, ex post, to be a perfect record of interest payments was not, ex ante, viewed as a sure thing. Despite its ability and willingness to repay its debts, investors charged a premium for the risk of Brazilian default. This default premium varied greatly in the imperial era. This paper assesses the political determinants of default risk on the Imperial government’s sovereign bonds in London. It first constructs a weekly indicator of default risk from 1825 through 1890. It then identifies structural breaks in Brazil’s risk premium—persistent shifts in the level of risk for which investors required compensation for in order to hold Brazil’s bonds. The paper then considers four categories of political factors that potentially influenced the level of the risk premium: political violence (internal and external wars); policy variables; cabinet-specific risk; and partisan control of the government. Finally, it tests the hypothesis that the political variables help explain changes in Brazil’s risk premium beyond the explanatory power of the structural breaks. The paper’s principal findings are: (1) the evolution of default risk on Brazilian bonds can be characterized by only four breaks, three of which relate to conflict in the Rio de la Plata; (2) though the period before 1850 exhibited a higher risk premium (and higher volatility), none of the principal political and regional revolts before 1850 are associated with shifts in default risk; (3) a cluster of policy variables, including the delegation of monetary policy to the Banco do Brasil, also had no impact on the risk of default; and (4) party influence in the government, and the political coalitions specific to each cabinet, contribute importantly to explaining changes in the risk premium on Brazilian bonds. In short, which group controlled the government was seen by bond investors as mattering for the creditworthiness of the Imperial state.

The paper proceeds from here in nine sections. The first provides an overview of a model of sovereign borrowing and risk that generates key hypotheses about determinants of the risk premium. The second section draws on archival materials to detail the background to Brazilian borrowing in London before 1890. Section three constructs the risk premium series based on an original data set of some 3,400 weekly observations of Brazilian bond prices. The fourth section estimates structural breaks and shifts in the mean level of risk in the series. Sections five, six, and seven estimate the impact of revolts, policies, and partisanship respectively. Section eight conducts non-nested hypothesis tests of the relevance of the political variables taking into account the underpinning structural breaks. The conclusion reviews the findings and suggests avenues for further research in political-fiscal history of the Brazilian empire.
A Model of Sovereign Borrowing: Credit Rationing and Risk Premia

Sovereign borrowing embodies the commitment problem in modern political economy. Loan contracts between a sovereign entity and its creditors were not enforceable in courts. During the entire nineteenth century the principal of sovereign immunity protected the assets of states and their rulers from attachment by creditors overseas. Enforcement of a sovereign debt contract was extraordinarily difficult and prohibitively costly. Military intervention in response to default was rare before the age of gunboat diplomacy. Credit boycotts against defaulting sovereigns penalized creditors as well, and could be circumvented. Penalties for default were difficult to erect and implement. The most remarkable aspect of sovereign borrowing was not the high likelihood of default, but rather that capitalists could be persuaded to lend in the first place, given the incentives that borrowers had to default.

Motivating the empirical work below, and deriving clear predictions about the importance of political factors in default risk, requires a model of how debt and default risk are determined. There are numerous such models. They differ in terms of the factors they choose to highlight. Here I draw on Schultz and Weingast’s implementation of the Easton, Gersovitz, and Stiglitz model of sovereign borrowing.4 Because a sovereign can abrogate its debt contracts, the supply of credit is not based on market conditions, but rather on the penalty that the sovereign suffers if it defaults. The sovereign’s incentive to default depended on the strength of this penalty relative to the gains the sovereign would obtain from repudiating the debt. The function of a strong penalty is to induce a willingness to repay on the part of the sovereign. Default arises not just because of tough economic times, but because influential constituents find the sacrifices required for continued debt service in bad economic times politically intolerable. Since political leaders have the option of extracting taxes to service the debt, it is the government’s willingness to repay, rather than resources, that is the crux of the issue. Unless the sovereign is borrowing inside its credit ceiling, it will be charged a risk premium on its loans, and the risk premium indicates the market’s appraisal of the probability of sovereign default.

A model taking into account the rationing constraint, and the exogenous probability of default, highlights the principal mechanisms setting the level of the risk premium. Figure 0.B. present the rationing constraints and debt ceilings of the sovereign, as a function of the strength of the penalty for default (P(x)). If the penalty is so low that the sovereign will default always, the sovereign is rationed out of the credit market (the far right side of the figure). At no interest rate can it borrow. Conversely, if the penalty is so high that the sovereign always repays, it borrows at the risk-free rate (the far left side). In the

intermediate range of the penalty, the sovereign can borrow, but only by paying a risk premium. Figure 0.A. presents the strategic interaction between a government (G) seeking to borrow and capitalists (C) with funds to lend that determines the risk premium. If the sovereign repays its loan it receives the benefits of borrowing minus the repayment costs. In the intermediate range of penalty, repayment depends on the political costs of servicing the debt (extracting taxes). When there is low realization of revenues, the sovereign defaults. With a high realization, the sovereign repays. Nature chooses the state of revenues, which is unknown to the capitalist at the time of lending. By backward induction the capitalist prices this uncertainty into the lending terms, charging an interest rate that is a function of the risk free rate and the (exogenous) probability that the low realization of revenues will occur.

For a given level of debt, three factors matter for understanding shifts in the risk premium. The first is the shift in the rationing constraint arising from the strength of the default penalty. Any feature that increased the penalty for default, or the likelihood of its implementation, would not only increase the state’s credit limit, but could also lower the risk premium. Conversely, factors that undermined the political conditions supporting debt repayment would raise the risk premium. Second, a reduction in the exogenous probability of default would lower the risk premium. The exogenous probability of default would be given by world market conditions for the goods that Brazil taxed. Yet even for these types of factors, politics mattered, since changes in the real economy that impacted repayment capacity filtered through the political institutions and preferences of policymakers. A decline in taxable economic activity did not mechanically result in default, but it did increase the political pressure on the tax mechanism. Third, improvements in fiscal efficiency—whether technical, organizational, or political—that permitted the extraction of greater revenues at no higher political cost worked just like a shift in the rationing constraint—the state would be able to borrow more for the same cost, or less.

This paper focuses on a reduced-form test of the first two factors. Improvements in fiscal efficiency cannot be tested with the high-frequency data used here (though I test it elsewhere using annual data).

The determinants of default risk occupy a growing literature in economic history and historical social science. Reputational mechanisms have long been prominent in the theoretical literature on sovereign borrowing and default, and recent historical work has found that reputation may well matter in determining the level of risk premia governments have to pay to borrow.⁵ The state’s ability to command the resources

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required to service debt can impact risk premia as well.\(^6\) War, and importantly its outcome, can alter the level of default risk.\(^7\) Changes in the external penalty for default can change the level of sovereign creditworthiness to a dramatic extent.\(^8\) Empire effects can lower the default premium for included borrowers.\(^9\) Institutional changes that alter the political penalty for default can result in large changes in the risk premium.\(^10\) Finally, partisan politics can alter the risk of default considerably.\(^11\)

Political institutions are one potential source of default penalties. The political institutions—in particular the liberal constitution of 1824 that divided fiscal authority between the emperor and the parliament—provided a strong political penalty for default. The more certain that money lenders were regarding the viability of Brazil’s institutions, the more they were willing to lend. Because quantity rationing is a key feature of sovereign borrowing, a rising debt ceiling alone, like that portrayed in Figure 1, is sufficient to demonstrate improved creditworthiness. Yet changes in the risk premium nonetheless provide valuable information on the market’s view of the likelihood of default. The frequent updating of expectations, which can be quickly priced into the borrower’s bonds, allows for the test of whether changes in risk are short term, or more durable and indicative of a fundamental change in perceptions on the state’s creditworthiness. It also makes it possible to test a variety of hypotheses regarding the determinants of sovereign default risk.

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Background to Brazil’s London Borrowing

While Brazil’s external borrowing had its own logic and trajectory, it is important to recognize the international aspects of sovereign credit. International lending to states had continental precedents. In the eighteenth century Amsterdam had emerged as the central node of Europe’s financial network. The evolution of multilateral payment systems for settling accounts among traders and merchant bankers made Amsterdam the most important commercial city in Europe. It was there that the first modern market for international sovereign debt first appeared. The disruption of the Napoleonic wars, and England’s rise to commercial and military preeminence, shifted the locus of lending to foreign states to London in the early nineteenth century. Brazilian borrowing was part of a larger process of growing capital outflows from Europe, especially from Britain, as the nineteenth century progressed. In the 1820s the number of sovereign borrowers issuing bonds through merchant bankers in London grew rapidly. This upswing in the volume of lending was driven in good part by the demand for funds from the governments of newly independent Latin American nations. Brazil’s first loans in London in the 1820s were part of this large wave of borrowing. The conjuncture was especially auspicious; low yields on the British national debt left investors looking for more lucrative opportunities. The new debt issues of largely unproven states in Latin America found an especially favorable reception. So popular were the securities of Latin American states that an exchange specifically for Foreign Funds was created in London in 1823. This initial wave of lending soon ran into trouble. A bank run and financial panic in London in 1825 brought down a number of banks involved in foreign lending. Almost all of the early confidence in the securities of the new Latin American nations turned out


17 The Foreign Funds Market, while located with the London Stock Exchange, was at first administered separately. The London Stock Exchange traded only in shares of Britain’s national debt. Traders in one exchange were not necessarily members of the other. The rapid growth of joint stock companies, traded initially on the streets and at the rival Royal Exchange, led to their listing on the Foreign Funds Market; Michie, *The London Stock Exchange: A History*, p. 54-7.

to be misplaced. Panic was followed by disaster for the holders of sovereign bonds: every Spanish American government that had borrowed in London defaulted. In Latin America only Brazil continued to service its debts.

Brazil’s debt burdens were not light, however, and pre-dated independence. In 1822 the service on the inherited debts from the colonial era and from the United Kingdom of Portugal, Brazil, and the Algarve, together with current expenditures, already outweighed anticipated revenues. The lack of a national budget during much of the 1820s meant that government officials in Rio de Janeiro spent on activities that were national in scope, but were limited largely to a local tax base. This shortfall compelled Brazil’s first turn to the London capital market, where it arranged for a three million pounds sterling loan. The ostensible purpose of the loan was to repay debt to the first Banco do Brasil, retire inconvertible paper currency, and pay indemnities to the Portuguese should a purely diplomatic settlement regarding the recognition of Brazilian independence prove impossible.

The details of Brazil’s first external loan in 1824 reveal that early borrowing involved not just prominent financiers in London, but also a competitive fringe of merchant bankers whose commercial and financial ties were already trans-Atlantic in scope, and who jockeyed to run the books on sovereign loans. The 1824 loan was negotiated by two men close to Pedro I, with substantial experience in crown service: General Felisberto Caldeira Brant Pontes (later marquês de Barbacena) and Manoel Rodrigues Gameiro Pessôa (later visconde de Itabayana). Though Brazil’s bankers initially expressed some

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20 The first parliament was not seated until 1826, and the first truly national budget was passed only in 1828; J. J. Sturz, *A Review, Financial, Statistical, & Commercial, of the Empire of Brazil and Its Resources* (London: 1837)., pp. 14-17.  
21 Ibid., pp. 9-10.  
22 Both men were prominent figures in the First Reign. Barbacena was a military officer, occasional merchant in Bahia, became a diplomat and later the finance minister in Rio, and was—until a falling out in 1829—one of Pedro I’s most trusted agents. In 1822 Barbacena represented the interests of the new Brazilian government in London, while Itabayana similarly served as Pedro’s agent in Paris and later would become Brazil’s first ambassador to the Court of St. James. Both were in Europe specifically working to secure recognition of Brazil’s independence; Jorge Caldeira, ed., *José Bonifácio de Andrada e Silva* (São Paulo: 2002)., pp. 150-58; Leslie Bethell, *The Abolition of the Brazilian Slave Trade, 1807-1869* (Cambridge, UK: 1970), Caldeira, ed., *José Bonifácio de Andrada e Silva*. pp. 32, 47-9. Barbacena and Itabayana rewarded themselves handsomely for negotiating the loan, taking one percent each as a fee for their services, a feat they repeated in 1825 when Nathan M. Rothschild handled the second tranche of the loan; AMFF 77.11.201B, N.M. Rothschild to the General Felisberto Caldeira Brant and the Chevalier Manoel Rodrigues Gameiro Pessoa, n.d.
concern about the lack of parliamentary approval for the loan (impossible since no parliament had yet been emplaced), by the time the loan contract was negotiated the constitution of 1824—with its clear division of financial authority and equally clear establishment of sovereign creditor rights—had been adopted. Competition for the loan among London merchant houses was keen. A syndicate made up of Edward Oxenford, Arthur Baily, and Isaac L. Goldsmid—men with varied interests, but noteworthy for their role in the Imperial Brazilian Mining Association—eagerly communicated to Brant and Pessoa that “we are ready to contract with you.”

The merchant J.B. Lousada repeatedly sent letters of interest in the loan, and the London merchant firm of Mello, Roberto & Companhia similarly sought to handle the issue. So did Hullett Brothers & Company, a proven entity that had launched the first sovereign loan for the Republic of Chile in 1822.

Strikingly, the Brazil loan was sought as well by the London-based Luso-Brazilian merchant house of Carneiro Leão, Freire, & Co., whose principals were Antonio Joaquim Freire Marreco, a Portuguese émigré to England, and José Alexandre Carneiro Leão.

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23 AMFF 77.11.300L, Baily, Goldsmid, and Oxenford to Brant and Gameiro, 26 April 1824. Oxenford had opposed Brant and Pessoa’s representations, claiming that he had been previously contracted to handle Brazil’s loan; AMFF 77.11.302, Declaration Statement by Edward Oxenford, 24 April 1824. For Oxenford’s original loan proposal to the Brazilian government see Brazil. Ministério da Fazenda., Exposição do Estado da Fazenda Pública (Rio de Janeiro: 1823), pp. 71-2. On Oxenford’s claim to priority see Times, 24 January 1824; Times, 10 August 1824; and Sturz, A Review, Financial, Statistical, & Commercial., p. 9. Oxenford had purchased a major mining concession at Gongo Soco in Minas Gerais in 1824, which the Imperial Brazilian Mining Association, a London joint-stock corporation organized in 1825; Victor M. Filler, “Liberalism in Imperial Brazil: The Regional Rebellions of 1842” (Stanford University, 1975), pp. 175-6.; Marshall C. Eakin, British Enterprise in Brazil: The St. John D’el Rey Mining Company and the Morro Velho Gold Mine, 1830-1960 (Durham: 1989), p. 21. Goldsmid was not only a director of the Mining Association, and contender for the 1824 loan; he would emerge again as a figure in Brazilian state finance in the 1830s, as discussed below.

24 AMFF 77.11.297, through AMFF 77.11.297D, J.B. Lousada to Marechal Felisberto Caldeira Brant and the Chevalier Gameiro, between 17 April and 15 July 1824; Mello, Robertson, & Cia. to Brant and Gameiro, 27 April 1824, AMFF 77.11.304; Kent’s Original London Directory: Being an Alphabetical List of 20,000 Merchants, Manufacturers, Traders, Etc. Of London and the Environs, (London: 1825)., p. 239.

25 AMFF 77.11.298A through AMFF 77.11.298D, Hullett Brothers & Company to Brant and Gameiro, 23 April through 7 May 1824; Dawson, The First Latin American Debt Crisis., pp. 32-3.

26 Carneiro Leão, Freire & Cia., to Brant and Gameiro, 3 May 1824, AMFF 77.11.300N. On the firm and José Alexandre as partner see The Law Advertiser, Vol. 2, no. 53, 30 December 1824, p. 421; Pigot and Co.’s London & Provincial New Commercial Directory for 1823-4 : Containing a Classification of the Merchants, Manufacturers and
José Alexandre was a scion of Brás Carneiro Leão, a Portuguese-born Rio-based slave trader who became one of the wealthiest merchants in Rio in the late eighteenth century. The Rio firm that Brás left to his widow and sons remained a major force in overseas commerce and the slave trade for years thereafter. From 1815 José Alexandre served as a London correspondent of the Banco do Brasil, and was a member of the commission charged with managing the funds of the Portuguese government. At the time of independence he found himself in Brazil, where he was a member of the Apostolado. Two years later he was still the London agent of the Banco do Brasil, through his partnership of Carneiro Leão, Freire & Co. José Alexandre (who would later serve as a diplomat, and also become ennobled as the visconde de São Salvador de Campos), was a shareholder in the bank in Rio, and would join its governing board the following year.

The bid by Carneiro Leão, Freire and Co. to serve as the book runner on the 1824 London loan, though ultimately unsuccessful, raised the prospect that the loan sought partly to repay the state’s accumulated debts with the Banco do Brasil might be contracted by agents of the very same bank.

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27 Traders of London, the County of Middlesex, and All the Towns and Villages within Twelve Miles of the Metropolis, (London: 1823). p. 170.
28 The Apostolado was the secret society that supported Brazilian independence and favored monarchical government; Gorenstein, “Comércio e Política.”, p. 212; Senador Conde de Baependy, “Apontamentos Biográficos da Família Bráz Carneiro Leão do Rio de Janeiro,” Revista do Instituto Historico e Geografico Brasileiro 43, no. 2 (1880). pp. 371-3.
The transatlantic merchant networks circling around the loan were indicated by another of the bidders. The loan was sought not only by the Carneiro Leão’s firm in London, but also by an English firm with a base in Rio de Janeiro. A syndicate of Samuel, and Samuel & Phillips--merchants with experience both in Rio and London who were linked by marriage to Nathan M. Rothschild--formally expressed interest to the loan’s negotiators. Ultimately a larger merchant-banking syndicate consisting of three prominent London firms--Bazett, Farquhar & Co., Fletcher, Alexander, & Co., and Thomas Wilson & Co.—won the contract for the loan. The first tranche of Imperial Brazilian bonds, raising one million pounds, was issued through the merchant-banking syndicate with dividends payable in London, Hamburg, Paris, and Amsterdam. In an arrangement reminiscent of the Portuguese loan of 1796/1797, and in an effort to spread the burden of the loan’s service beyond the Rio tax base, the provincial treasuries (Juntas da Fazenda) of Rio de Janeiro, Bahia, Pernambuco, and Maranhão were separately specified in the contract to provide the regular service on the loan, with each obligated to

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contribute £60,000 per year. The loan was issued at a steep discount—75 pounds cash for a bond worth 100 pounds at redemption.

Despite the success of the bond issue, the syndicate opted not to handle the remaining two-thirds of the loan. Instead Nathan M. Rothschild underwrote the remaining two million pounds sterling as a separate loan in 1825, accompanied by a new issue of bonds. Rothschild’s involvement was clearly welcomed by the markets. The position of this “eminent capitalist” in the new loan left “little cause to doubt that the Government securities of Brazil will, under his auspices, bear as high quotations in the money-market as those of any of the continental States.” This second tranche of Brazil’s first foreign loan provided the Imperial government with an additional two million pounds, under improved terms of issue. Beyond mortgaging customs revenues, the loan agreement earmarked remittances of diamonds from the government’s monopoly for coupon payments. Rather than reduce its unfunded obligations at home, estimated at 20 million milréis, or some four million pounds sterling, the government spent much of the proceeds from the loan on military operations against Buenos Aires in the struggle over Montevideo and the Cisplatine.

Two insights can be drawn from Brazil’s first experience borrowing abroad. The first is that any sharp distinction between “foreign” and “domestic” sources of credit in the early nineteenth-century cannot be sustained. The trans-Atlantic ties of many potential loan contractors were strong. The second insight is that considerable competition among merchant-bankers characterized the trans-Atlantic market for sovereign issues.

Brazil’s finances remained on a shaky foundation through the 1820s. A new London loan in 1829 did not bring any funds to Brazil. The government’s revenue shortfall was

32 Brazil, Parecer da Comissão de Fazenda da Câmara dos Deputados da Assembleia Geral Legislativa do Império do Brazil., pp. 116-117. The amounts designated were based on the assumption that the remaining 2/3 of the loan would be taken by the contractors, which turned out not to be the case. The 1796/1797 loan placed a fixed amount of shares, and assigned a corresponding portion of debt service, to each of these same four provinces; “Quadro da Dívida Pública Fundada e interna do Império até o fim de 1827,” RMF, 1828.
33 AMFF, 77.11.201B, N.M. Rothschild to the General Felisberto Caldeira Brant and the Chevalier Manoel Rodrigues Gameiro Pessoa, Plenipotentiaries of His Majesty the Emperor of the Brazils, n.d.
34 Times, 12 January 1825; Times, 26 January 1825.
35 RAL 000/336/4, “Abstract of Brazilian Loan Contract 1825;” Brazil, Parecer da Comissão de Fazenda da Câmara dos Deputados da Assembleia Geral Legislativa do Império do Brazil., pp. 127-133. The Imperial government maintained old colonial monopolies on diamond mining and brazil wood for a time after independence, and these were used along with cash to remit dividend payments to loan contractors in London. See, for example, AMFF 77.11.201.A, Nathan M. Rothschild to Mattos, 19 February 1831, regarding losses of brazil wood shipments in 1827 and 1830.
so severe that it feared it would not be able to meet interest payments; the cabinet in Rio
quickly sought to secure new borrowing. Finance Minister Miguel Calmon du Pin e
Almeida [later the marquês de Abrantes] queried the Council of State as to whether the
loan authorized in the budget for the following year should be secured at home or abroad.
The Council voted by a majority to raise the loan within the Empire.\(^{37}\) Finding the
domestic market unfavorable, the Minister returned to the Council in December, urgently
seeking approval to borrow in London to cover the deficit for 1828. The Council, in an
extraordinary session, approved the request, as did Emperor Pedro I.\(^{38}\) While credit
operations had been generally authorized in the year’s budget, this specific loan in
London had not. The 1829 loan was the only borrowing done after the parliament had
been seated in 1826 without first securing explicit legislative sanction.\(^{39}\) In London,
Nathan M. Rothschild teamed with Thomas Wilson & Co., one of the contractors of the
original 1824 loan, to structure two identical new bond issues.\(^{40}\) The sole purpose of the
loans was to cover interest payments on the 1824-1825 loans, and to securitize debts that
resulted from advances by the contractors to cover dividends.\(^{41}\) In the wake of the
widespread Latin American defaults of the late 1820s there was little enthusiasm in the
bond market for a new bond from South America, and even less enthusiasm for a loan
designed to solely pay interest on earlier debts. The initial issue discount on the 1829
loan was huge, in the range found on bonds of Spanish American governments that
already had defaulted. When the loan’s shares were first exchanged in the secondary
market it traded they traded at a discount relative to the loans of 1824-1825.\(^{42}\) The very
need for the loan signaled that the costs of the Rio de la Plata campaigns had pushed the
Imperial government’s finances to the limit. The London stock exchange would not
formally list the new bonds, since issuing new debt to pay interest was not recognized by
the exchange as legitimate borrowing. Listing the bonds was complicated by the fact
Brazil had suspended service on the Portuguese loan the year before due to the succession

\(^{38}\) Atas do Conselho do Estado, Vol. 2, pp. 55-56.
\(^{39}\) The contractors noted explicitly that the loan was not raised by a legislative act, but
rather “with the advice of his [Dom Pedro I’s] Council of State;” AMFF 77.11.57, Loan
Agreement Between Viscount Itabayana and N.M. Rothschild, 3 July 1829; AMFF
77.11.578, Agreement Between Viscount of Itabayana and Messrs. Thomas Wilson and
Co., 3 July 1829.
\(^{40}\) Charles Fenn, \textit{A Compendium of the English and Foreign Funds and the Principal
Joint Stock Companies} (London: 1840), p. 54; RAL 000/336/4, “An
Agreement….between the Viscount Itabayana...and Nathan Meyer Rothschild,” 3 July
1829.
\(^{41}\) AMFF 77.11.57C, Private Agreement between Visconde de Itabayana and Messrs.
Thomas Wilson & Company, 3 July 1829; AMFF & &.11.57A, Private Agreement
between Visconde de Itabayana and Nathan Meyer Rothschild, 3 July 1829
\(^{42}\) RMF 1833, p. 8. In the 1831 debates over the proposal to suspend payments on the
foreign debt, one deputy went so far as to argue that the service on the 1829 bonds should
be halted until the loan was approved by the parliament; Brazil. Câmara dos Deputados.,
Annaes da Câmara dos Deputados (Rio de Janeiro), 11 June 1831, p. 154.
crisis in Portugal. For the 1829 loan the contractors chose to initially hold most of the bonds themselves, but nonetheless soon began to place them in the market. Only in 1833 did Brazil’s parliament belatedly approve the loan as part of the national debt.

After the crisis borrowing of 1829, new borrowing in 1839 and 1843 utilized other London merchant banks. Samuel & Phillips in London handled the 1839 loan. Yet another prominent London merchant banker, the same Isaac Goldsmid who had partnered with Oxenford in pursuing the 1824 loan, structured Brazil’s loan in 1843. It was N.M. Rothschild & Sons that handled Brazil’s foray into the capital market in 1852, and which in 1855 became the official overseas financial agent of the Brazilian government. Foreign borrowing thereafter came exclusively through the London Rothschilds through the end of the Imperial era.

Overall, from 1824 through 1889 Brazil engaged in 18 separate bond issues for 16 loans (two of its 16 foreign loans were divided between more than one banking house). By 1889 Brazil had borrowed more regularly, in larger amounts, and at lower cost, than any other central government in Latin America. The most striking feature of Brazil’s borrowing is that, over time, it borrowed more and paid less. Figure 1 presents the total stock of funded debt (foreign and domestic) of the Imperial government, from 1824 through 1889. It also presents the annual yield to maturity on Brazil’s sovereign bonds, and the Brazil-specific risk premium in the London bond market. Both the high level of the risk premium, and the volatility of the yield, fell sharply by mid-century. Thereafter, as the stock of debt increased, Brazil’s riskiness actually declined. The political foundations of fiscal centralization and sovereign creditworthiness were built in the 1820s. Once the major threats to the survival of those institutions were removed, Brazil could borrow greater amounts, at what on average was a lower cost of capital.

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44 RMF 1834, p. 9. A “curb” market clearly existed for the bonds, since they were quoted in the *Course of the Exchange* from the time of issue.
45 The claim that Brazil did not have access to the London capital market in this period is inaccurate; Niall Ferguson, *The House of Rothschild: The World’s Banker, 1849-1999* (New York: 1999), p. 68. As finance minister, Bernardo de Vasconcellos, who detested Nathan Rothschild, summarily dismissed him and arranged a loan through other agents.
46 Barman, “Rothschild and Brazil.”, p. 40.
47 The quantity series is constructed chiefly from figures presented in the required the reports of the Finance Minister to the Chamber of Deputies, and are adjusted to a fiscal year (1 July-30 June) basis. The domestic component of the debt--denominated in milréis--is converted to sterling using annual averages of weekly observations of the market rates of exchange. These are mainly quotes from Rio, but for some early years they necessarily come from London. The National Loans of 1868 and 1879 are included, but converted to sterling using the fixed-exchange clause of the loan contracts. The resulting sterling series is then deflated to constant 1889 prices using the British GDP deflator. Importantly, the figure excludes Brazil’s domestic short-term unfunded debt made up of letras de tesouro, which at certain points grew to be quite substantial.
Measuring Brazilian Sovereign Risk

Institution-based credible commitments to honor sovereign debt had salutary effects on both the volume of Brazil’s borrowing, and its costs, but such effects were in no way irreversible. Sustaining credibility, and thereby permitting the government to enjoy regular access to low-cost, long-term credit, further depended on events and government actions. Debt markets constantly reassessed the government’s willingness to repay. Institutional changes, policy measures, political events, and wars all could alter the sovereign’s credit risk (for the better or for the worse) long after initial credibility had been established.  

Because the Imperial state never defaulted, its bonds traded nearly continuously in London from the time of the first loan in 1824. Quotations of the bonds’ prices provide the basis for calculating “pure” country risk. The intuition behind the standard measure of country is the following. A bond’s market price, combined with its repayment features (maturity), and coupon rate and frequency, imply an expected yield to maturity for a holder of the bond at every given point in time. The risk free alternative investment in the London market, at least since the last third of the eighteenth century, was the British state’s consolidated debt, or “consols.” Consols were perpetual annuities bearing a fixed coupon payment in sterling. Because Brazil’s bonds in London promised interest and principal repayment in pounds sterling, they were free of Brazil-specific currency risk. All other bonds in London would exhibit the same currency risk (which was the risk that the Bank of England would not maintain the value of sterling). The risk premium is thus a real (as opposed to nominal) measure; adjusting both the Brazilian yield and the consol yield for expected inflation would leave the magnitude of the difference between them unchanged. Calculating the yield to maturity on Brazil’s bonds, and subtracting from it the yield to maturity on consols, leaves us with a consistent indicator of Brazilian sovereign risk (alternately called the default premium, risk premium, or country risk). Changes in the risk premium reflect the market’s appraisal of changes in the likelihood that the Brazilian state would either fail to pay interest or fail to redeem the bond as promised.

The risk premium series is constructed in three steps. First, weekly consol prices are converted to yields to maturity adjusted for the frequency of interest payment. The yield to maturity is simply the expected internal rate of return on the bond when purchased at time t, given by:

\[
P_t = \sum_{r} \frac{\text{coupon}_t}{(1+r)^t} + \frac{P_r}{(1+r)^T}
\]

49 The British government never defaulted on debt after the Glorious Revolution in 1688. For more than a half century afterwards, however, the bonds of Holland were less risky.
Where \( P \) is the market price of the bond, which is equal to the discounted stream of remaining future coupon payments and the redemption price \( (P_R) \) of the bond at maturity in year \( T \). The yield to maturity, \( r \), cannot be isolated in the expression, and is determined in practice using numeric techniques.

Three thousand four hundred and seventy observations of weekly prices for Brazilian bonds in London from 1825 to 1891 are taken from three sources: the *Times of London*, the *Course of the Exchange*, and the *Economist* magazine. The breadth of coverage by these three sources differed a good deal at various points in time. On several occasions one source would provide greater detail on bond prices than did the others. All three sources were scrutinized for the entire period of interest to identify which provided the best coverage at any given moment. None of the loans had bonds that traded over the entire period of time here (the typical maturity of a loan during the Imperial era was 30 years). This meant that before the bonds of one loan used in the series matured, the base of the series shifted to the bonds of a different loan. Table 1 presents details of the components of the series.

The second step involved calculating the risk-free return. Weekly and monthly consol prices come from the same sources. Until April of 1881 the data are for 3% consols, paying dividends twice yearly. In April of 1881 the market value of the three-percents exceeded par for the first time, increasing the likelihood that they would be called. This makes them unsuitable as a measure of the long-run rate of interest from that point on. From April 1881 the data are based on “New Gladstones,” 2.5% consols first issued in 1853. The yield is calculated as:

\[
ra = \left( 1 + \frac{1}{2} \text{coupon rate} \right)^2 - 1
\]

Beginning in 1884 the reference consols are “New Childers,” first issued that year, based on the arguments made by Klovland.\(^5^0\) Other than the different coupon rate, the key change in this period was the frequency of the dividend payment. The introduction of the New (Childers) 2.5% stocks in April 1884 shifted the dividend payment from a semester to a quarterly basis. This required a slightly different calculation of the annual equivalent yield:

\[
ra = \left( 1 + \frac{1}{4} \text{coupon rate} \right)^4 - 1
\]

The frequency of the consol observations, like that for the Brazilian bond prices, was weekly, with one difference. Until 1862 the Exchequer’s books were closed on consol trades in the weeks between the announcement of the ex-dividend date, and the actually payment of the dividend. The *Course of the Exchange* did not normally report prices during the weeks when the books were closed. Other sources, however, sometimes did

report prices, noting that the prices were not “official.” Where gaps persisted, the last consol price available was used to fill the gap.

The third and final step involved subtracting the consol yield from the yield to maturity on the Brazilian bonds. The resulting risk premium series is presented in Figure 2. Visual inspection is sufficient to reveal some of the major changes, especially around mid-century. Noteworthy as well is the high volatility present in the pre-1852 risk premium data. Indeed Brazilian sovereign risk before 1852, both in its level and volatility, looks like it came from a different country than the one that borrowed after 1852.51

Shifts in the Risk Premium

A common tack in statistical assessments of the impact of events and political factors is to use dichotomous variables (valued at 1 over the interval of time that the event is happening, and 0 when it is not). The problem with the approach in practice is that it assumes that the mean value of dependent variable (here the risk premium) is unchanging over a long period. It fails to allow for the possibility that the risk premium is shifting for reasons unrelated to the variables of interest. This creates a potentially fatal pitfall for the findings, since a political event can appear to be highly significant (both statistically and in terms of its impact), when in fact it has no bearing on the outcome of interest.52 An example is provided in Figure 2, and previews an actual result below. Visual inspection of Brazil’s annual risk premium suggests that the period in which the issue of paper currency had been taken from the Treasury and delegated to the third Banco do Brasil was one in which default risk was relatively low. A simple statistical analysis confirms this impression: using a dummy variable for the years corresponding to the Banco do Brasil’s status as guarantor of the value of the milréis reveals a statistically significant reduction in the state’s cost of capital. The relationship, however, is in fact spurious: once structural breaks in the series are identified, and the underpinning shifts in the mean of the series taken into account, the Banco do Brasil “effect” vanishes, since it neither corresponds to the break dates, nor retains its statistical significance. Precisely to guard against such spurious inferences when considering other variables, the risk premium series first must be checked for durable changes in its mean. Only then can the impact of political variables be assessed.

51 The shifts in the volatility of the series alone could impact the level of the risk premium, since a more volatile stream of returns is viewed by investors as intrinsically more risky. This of course suggest an autoregressive conditional heteroskedasticity approach in the vein of financial economics, but that is reserved for a separate paper. 
Several techniques distinguish such structural breaks from random variation and short-term fluctuations. \(^{53}\) To locate enduring shifts in the mean level of risk I apply the procedure created by Bai and Perron. It tests both for the existence of multiple breaks, and their location. Importantly, the results provide the required baseline against which the impact of political variables can be properly gauged.

A pre-condition for estimating structural breaks (or any other estimation using time-series data for that matter) is that the risk premium series is stationary; that is, it does not exhibit a unit root. Using a non-stationary data series in regression analyses can result in a spurious relationship between the variables of interest. Statistical tests for stationarity in the London risk premium series yield ambiguous results. Three types of tests were conducted to establish the stationarity of the data. First, the Augmented Dickey Fuller (ADF) test could not reject the null hypothesis of a unit root at the 10\% level, with lags selected using both the Schwarz information criterion and Akaike information criterion. \(^{54}\) Second, Phillips-Perron tests (the non-parametric alternative to ADF) rejected the null hypothesis of a unit root in the series in most cases. The third approach involved the Kwiatkowski, Phillips, Schmidt, and Shin (KPSS) unit root test, which provides a parametric correction for autocorrelation in the series. The null hypothesis of the KPSS test is no unit root. For the risk premium series the LM test statistic from the KPSS approach fails to reject the null of no unit root.

In sum, two of the three types of tests fail to reject a unit root in the series. Since there is no basis to accept any one of the results over another, non-stationarity of the risk premium series cannot be ruled out. However, if the data series presenting a unit root possesses at least one structural break, the series may be stationary once the break is properly accounted for. A Zivot-Andrews test for a unit root in the presence of a structural break shows that the risk premium series is indeed break-stationary (with the most significant break point coming in the last week of October of 1851). Given that the series is break-stationary, the Bai-Perron approach is implemented.

Several different criteria are employed under the Bai-Perron procedure to determine the number and locations of breaks. In historical work the Bayes Information Criteria (BIC) is most frequently used. However, Bai and Perron took care to point out that in the presence of serial correlation, the BIC will exaggerate the number of breaks in the series, and recommended relying instead on the sequential approach to estimating the number

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\(^{54}\) This was the case whether the equation was set to have a trend and intercept, an intercept alone, or no trend and intercept.
and location of breakpoints. Since the risk premium series exhibits very strong positive autocorrelation, and heteroskedasticity, the sequential approach is the one taken here. To limit the number of breaks to those that can be interpreted as meaningfully persistent within a six decade interval, I allow the selection only of breaks that “endure,” in a statistical sense, for at least three years.

The structural-break regression is estimated on the risk premium in levels, and the parameter estimates are readily interpretable in terms of “basis points” of the bond’s yield (parameter estimate X 100). The results reveal only four breaks in the risk premium series across nearly seven decades. None of the breaks come before 1852. The spike that is so visible in 1831 does not register as a break, which is no doubt a result of the requirement there not only that there be a change, but that the change persist for three years.

Surprisingly, and despite that fact that the data are weekly over nearly seven decades, none of the breaks here is estimated with particularly high precision. The smallest confidence interval of the four breaks spans more than a year. Since much can happen in a year or two, my interpretation of the breaks in terms of events sticks close by the actual break dates. It is worth emphasizing that both the break date, and the confidence intervals, must be interpreted in light of the time required for 1) news to travel from Brazil to London (especially before the transatlantic telegraph connection in 1874), and 2) the news to “settle,” that is, for news to be verified as true, rather than rumor.

For example, within a subset of the data from 1825 up to the first overall break in 1852, the BIC locates nine breakpoints, while the sequential procedure finds none. The subseries exhibit very strong positive serial correlation, with a Durbin-Watson statistic near zero, such that break point selection using BIC does not seem reliable. One concern is that permitting a maximum of only nine breaks on weekly observations over more than 65 years may miss many breakpoints that were not significant for the period as a whole, but highly significant within a particular decade or other interval. That seems unlikely in practice, since the sequential procedure finds only four breaks overall, but in principle is a reasonable concern. To test for this possibility, I split the series at the break point in 1852 selected by the Zivot-Andrews test, and then searched separately for breaks within the two subseries, permitting shorter spans between breakpoints. In neither subseries did the number of breaks rise, nor did the locations of the breaks change from those detected using the entire series.

The hypothesis of homoskedasticity in the risk premium series is soundly rejected, the mean of the series is some fifty percent greater than the median, and the series exhibits mild kurtosis. This normally calls for transformation of the variable to logarithms, but in this case the transformation offers little improvement and potentially confounds the structural breaks procedure by dampening movements in the series. In logarithms the mean and median are nearly identical, but kurtosis is much worse than it is in levels. Since the estimating procedures used here provide their own corrections for heteroskedasticity, the risk premium is not transformed.

The confidence intervals on the breaks selected using the sequential method are appreciably wider than those selected by BIC.
Importantly, it is not possible to link a break in the risk premium series in London with events in Brazil down to the day or even week, and this is why confidence intervals are important.

The first break in the series comes in February 1852, and kicked off a long-term secular decline in the government’s risk premium and its overall cost of borrowing under the Empire. The risk premium fell from an average of 5.1 percent from 1825 to 1852, to only 1.5 percent thereafter, or just 150 basis points on top of London consol yields. This was a considerable reduction in the market’s expectation that Brazil would default. Two proximate factors were at work. First, between November 1851 and March 1852 the Imperial government resumed the regular amortization of its London bonds for the first time in more than twenty years. This signaled the bond market that the Brazilian state was serious about honoring the terms of its loan agreements. The turning point also corresponds directly to the military defeat of the Argentine leader Rosas in the battle of Monte Caseros. The Brazilian government had invested considerable diplomatic resources in building the coalition of opponents that joined forces to fight against Rosas. The government also sent army and navy units to participate directly in the battle. Rosas’ loss brought about the end of a potentially long-term and costly conflict for Brazil in the Rio de la Plata region.

The second break plots in January of 1859. It has the widest confidence interval of the four breaks. The risk premium increased with the break, but only by about 40 basis points, the least economically significant of the shifts. No single event in such a long period (running from late November 1857 to February 1860) stands out. An obvious possibility is the replacement of one Conservative cabinet by another less than a month before the break. This hypothesis is tested more directly in the next section. But it would also be impossible to rule out an impact from a number of other events that occurred well inside the confidence interval for the break point. New borrowing in London increased the stock of debt, which could easily raise the risk premium. The famous Alves Branco tariff of 1844 was repealed earlier in 1857, and further reduced later in 1857 and again in 1858. If the reduction in the tariff created expectation of lower revenues, then much as

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59 Two other events fall near the confidence interval, but not inside it. In 1849, under growing British pressure, the Brazilian cabinet began to seriously work against the contraband trade in slaves from Africa. The major facilities for offloading and auctioning slaves along the fluminense coastline were shut down by the police before 1851 (this according to the famous Alcoforado report). Second, in 1852 Brazil arranged to borrow through the Rothschild house in London for the first time since the 1820s, and was the first foray into the London market in nearly ten years, all of which could have bolstered confidence in Brazilian bonds. But the loan came too late in the year to fit in the confidence interval here.

60 The Alves Branco tariff of 1844 had long garnered what now seems to be excessive attention. The 1844 tariff did not dramatically elevate revenues in the 1840s over what the previous “pro-British” tariff had done, a point first made by Adalton Diniz, “O Tratado de Comércio com a Inglaterra e a Receita Fiscal do Império Brasileiro no Período de 1821 a 1850” (ms. 2005). Nor did the end of the Alves Branco tariff have a
in the case of an increase in the debt, this could raise the risk premium. Finally, the commercial crisis of 1857 began before the start of the confidence window for the break, but runs inside it, and could easily help account for an increase in the default premium as well.

The third break in the level of default risk came in September of 1864. The average risk premium jumped by more than fifty percent after the break. The timing of the break is most obviously associated with the diplomatic crisis between Brazil and its rivals to the south. In August the imperial government issued an ultimatum to the Uruguayan government to desist from anti-Brazilian measures, which was part of the cycle of diplomatic dispute leading to war with Paraguay. The break point can be readily disentangled from other factors. For example, the Progressista cabinet of Francisco José Furtado (sandwiched as it was between two other Progressista cabinets) came to power at the end of August. Though Furtado’s program included a promise to balance expenditures and revenues, the looming prospect of war clearly dominated new-found fiscal discipline in term of the expectations of the market. Both the seizure of the Brazilian ship *Marquês de Olinda* by Paraguayan forces in November, and the onset of armed conflict in December, fall comfortably within the confidence window of the break.

The final break point at the end of December 1869 brought the risk premium back down almost to the pre-war level, which was remarkable given the dramatic run-up in the overall stock of debt since the beginning of the war. The confidence interval around the break encompasses the last major battle of the war in 1869 at Campo Grande/Acosta Nú, the death of Solano López at the hands of Brazilian forces in March of 1870, the acceptance by a vanquished Paraguay of the Triple Alliance Treaty in June, and the establishment of the new Brazil-dominated Paraguayan government and constitution in November 1870.\(^{61}\) It also includes the debate over and passage of the Free Birth Law, though no feature of the measure would have necessarily cut Brazil’s risk premium by one third.\(^{62}\)

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\(^{62}\) On the contrary, emancipation in Brazil was accompanied by calls for indemnities to slave owners, which would have increased the debt burden and been more likely to raise the risk premium (if it were to have any impact at all). For example, in 1886 the Barão de Cotegipe, both a senator and at the time the president of the cabinet, proposed that the government issue an additional 200 million milreis in apólices to indemnify former slave owners for the loss of their property. The measure failed, but if it had passed it would...
It is noteworthy the long list of events of a political or fiscal nature that do not show up as durable shifts in the risk premium. These would include, most obviously, the pre-1850 revolts, parliament’s recognition of the National Debt in 1828, the political crisis of the First Reign, the Additional Act of 1834, diplomatic and naval pressure to suppress the slave trade, or the abolition measures of the 1880s. Conflict in the Rio de la Plata seems to trump most all else in driving the durable changes to Brazil’s default risk in London.

From here the analysis proceeds in two steps. The first is to move from the purely inductive approach of the structural breaks to one that draws on the historiography. This is done through a series of regressions that check for the impact of known factors and events on Brazil’s default risk. The second is then see whether these factors improve in any way on the patterns revealed by having identified the structural breaks.

*External and Internal Political Violence*

There is ample reason to suspect that political violence, especially that which threatened the survival of the central government or its command over the fiscal base, could register a negative impact on default risk. Brazil had a large number of armed uprisings before 1850. Many were of a small, local, and transitory nature. Indeed, by the time news of them arrived in London, or even Rio de Janeiro, it might also be known already that the uprising had been suppressed or was otherwise inconsequential. Rebellions and conflicts on a larger scale (or of longer duration) are of particular interest. Those considered here are the Guerra dos Cabanos (1832-1835), Sabinada (1837-1838), Cabanagem (1835-1840), Farroupilha (1835-1845), Balaiada (1838-1840), the Liberal revolt of 1842, the Praieira (1848-1849) and the war with Paraguay (1864-1870).

The second specification of Table 3 presents the results of a regression of dummy variables representing these conflicts on the risk premium (controlling for autocorrelation and heteroskedasticity using the Newey-West estimator). In every case but two the conflicts have the predicted effect, raising Brazil’s risk premium in London in a statistically significant way. The two exceptions are the Cabanagem, and the war with Paraguay. The coefficient on the Cabanagem is statistically significant but of the wrong sign. The effect on the war with Paraguay is not significant, despite the fact that two of the main structural breaks above can be readily associated with events related to the war.

have elevated the domestic debt about nearly half, and the overall debt by more than quarter; Brasil, Senado, Annaes do Senado, 19 June 1888. In short, because of the question of indemnities, proposals to end slavery would be more likely to raise the risk premium than they would be to lower it.

The start dates of these conflicts are known; the end dates are less certain, since some went out with a bang and others went out with a whimper. In every case without a firm end date multiple secondary sources have been consulted, and a particular event selected to represent the effective end of the fighting, even if a few breakaways continued in isolation for longer periods.
The market likely distinguished between “formal” dates of the conflict, and the effective dates on which it perceived major changes in default risk. This further highlights the value of the inductive approach as a first step, because the market no doubt captures more effectively the perceptions of contemporaries than does the historiography.

Policy Variables

Several key policy changes under the Empire may have impacted perceptions of default risk. Four in particular are of interest. From 1828 until 1834 Brazil suspended all service on the Portuguese Loan of 1823, which Brazil took on in 1825 as part of the independence settlement with Portugal. The eruption of the succession crisis in Portugal led Brazil to halt payments. Depending on which side won in Portugal, Brazil might not be credited for having serviced the debt. Though it continued to pay interest on its own loans in this period, the suspension of service on the Portuguese loan was technically a default, one which might have raised the risk premium on Brazil’s own bonds. A dummy variable for the period in which Brazil suspended service on the loan addresses this possibility.

The delegation by politicians of control over key aspects of economic policy can enhanced the credibility of the state’s commitment to repay its debts, in the same way that the delegation of the authority over taxing, spending, and borrowing by the sovereign to a legislature improves credibility. Such delegation can always be undone. However, in a multi-veto point setting like that created by the Brazilian constitution, once policy authority has been delegated, stripping it away is politically costly because it requires the assent of all veto players. Specifically, the delegation of authority to manage aspects of the debt to independent bureaucracies or even private entities can reduce sovereign credit risk, by insulating decisions that impact the debt from the vagaries of day-to-day political temptations. The Imperial government implemented a modest form of delegation that potentially held considerable sway over its default risk. In 1853 the government arranged for the creation of the privately financed third Banco do Brasil, forcing the fusion of the Rio de Janeiro Banco Commercial, and Maua’s Banco do Brasil. From 1853 to 1866 the government delegated to this bank right to issue currency, and responsibility for managing the exchange rate. The treasury refrained altogether from

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67 Amaro Cavalcanti, Resenha Financeira do Ex-Império do Brazil em 1889 (Rio de Janeiro: 1890).; Amaro Cavalcanti, O Meio Circulante Nacional, Resenha e Compilação
new issues of currency. In return for its issue privileges, the bank made an implicit loan to the government by agreeing to retire each year a fixed amount of notes left in circulation by the first Banco do Brasil decades earlier. As the largest, and uniquely privileged, of the country’s commercial banks in the 1850s and 1860s, the Banco do Brasil was charged with a role similar to the Bank of England: maintaining the quality of the currency while also keeping the local money market in good health. The merits of successfully delegating control over the money supply to an external body were clear, since it could provide low inflation and exchange rate stability. Exchange rate stability in particular facilitated repayment of the London loans.

The Banco do Brasil’s monopoly of currency issue was weakened for a brief spell starting in 1857 as several other banks—most of them outside of Rio de Janeiro-- were allowed by the government to issue notes. The plurality of issue could be expected to elevate the risk premium, since it potentially could exacerbate exchange rate fluctuations.

Finally, one goal of delegating monetary authority to the bank was to attain convertibility. This was congruent with legislation of 1846 that established the sterling parity of the Brazilian currency. In practice, however, strict convertibility was quite limited. The variable “Gold” takes on the value of 1 in periods when actual convertibility was in effect.68

The third specification of Table 3 presents the results. As expected, the period in which the Portuguese loan was suspended raised Brazil’s risk premium. The Banco do Brasil’s unique authority helped lower default risk from 1853 through 1866, while neither the plurality of bank note issue nor convertibility to gold had any impact on risk.

Parties and Coalitions

By the late 1830s clearly identifiable political parties had emerged at the national level.69 Partisan effects on risk premia have been found in both eighteenth-century England, and

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68 The periods during which Brazil’s currency was convertible to gold were: April 1854-November 1857; August 1858-January 1859; October 1862-September 1864; and June 1889-December 1889.
the nineteenth-century United States. 70 In Brazil partisan identity was more than just a label. Though each party had its own internal divisions, the main cleavage between the parties involved the question of the authority of the central government. Conservatives supported a strong, centralized constitutional monarchy based in Rio. For most of the Imperial era Liberals had no disagreement with the idea of constitutional monarchy (though after 1868 they increasingly objected to the personal power of the emperor stemming from his exercise of the poder moderador). But Liberals did favor less authority for the central government and more authority for the provinces. Liberal control of the government posed a risk that fiscal changes could reduce the revenues assigned to the central government, reallocating them to the provinces. To assess this possibility, cabinets from 1840 on are categorized as either Liberal, Conservative, Conciliação, or Progressista. 71

The fourth and fifth specifications in Table 3 test the hypothesis that the partisan basis of the cabinet mattered for default risk in London. The fourth specification admits the partisan distinctiveness of the Progressista cabinets, while the fifth treats them as indistinguishable from Liberals. The only statistically significant effect in either specification is that on the Conciliação cabinet the 1850s (portrayed in Figure 5), a partisan hybrid that was mainly conservative in its leanings. The average risk premium was appreciably lower under this cabinet than under Liberal, Progressista, or Conservative governments.

The absence of clear-cut partisan effects raises another prospect: given that cabinets were selected by the emperor, but could not survive for long without at least a modicum of support in the chamber of deputies, each cabinet may well have represented a unique coalition of regional, ideological, and even local interests, as well as differing levels of policy competence. To assess the possibility that many cabinets (and not just that of the Conciliação) were perceived as distinctive in ways beyond their partisan character, each one is treated as a separate variable and allowed to have its own impact on the risk premium in London. 72 As the longest-running cabinet, the twelfth cabinet of the Second Reign (the Conciliação) is excluded and provides the baseline against which the impact of the other cabinets can be measured.

72 The first and second cabinets of the First Reign are excluded because Brazil did not yet have bonds quoted in London. The tenth cabinet under the Regency and the seventeenth cabinet under the Second Reign are excluded because they did not last a week, the interval between bond quotations.
In Table 4 a positive coefficient means that the risk premium under that cabinet was higher than that of the Conciliação, while a negative coefficient means that the risk premium was even lower than that of the Conciliação. Only two cabinets are associated with less risk—those immediately before and after the Conciliação, a clue that the Conciliação might be spurious, picking up the sharp break in 1852. Five cabinets in two distinct periods stand out for their association with elevated levels of default risk. The first three cabinets of the Regency (1831-1832) had high levels of default risk, indicative of the political instability and uncertainty following the forced abdication of Pedro I. The eighth and ninth cabinets of the Second Reign are associated with even higher risks of default. These correspond to the Praieira, the last major regional revolt against the national government in Rio de Janeiro.

Whether the events are indicated by violence, policies, or partisanship, all of the categories of factors offer some promise of explaining changes in perceptions of Brazil’s default risk.

**Evaluating the Significance of the Political Variables**

To escape the risk of spurious results that dummy variables present, Caporale and Grier propose a non-nested hypothesis test of whether the models with the political variables reject (or work better than) the break-point model. In practice this involves adding the predicted (fitted) value of the risk premium, derived from the political model, as an independent variable in the break point model.

Table 5 presents the results for each model. The first includes the fitted values from the model estimating the impact of revolts on the risk premium. Surprisingly, the coefficient is insignificantly different from zero. Revolts and wars, as a category of political events, do not add to the explanatory power of the structural breaks with respect to the risk of default. In part, the “riskiest” part of the major war—that against Paraguay—is already incorporated in the structural breaks. But the absence of a role for political and regional revolts before 1850 is striking. It may also be the case that some of these register an impact through a separate channel (below).

The second model repeats the analysis, but using the estimated impact of the policy variables. These too fail to improve on the structural breaks model, confirming the spuriousness of the “Banco do Brasil” effect. The third model is the full partisan model, and suffers a similar fate (though it is closer to statistical ignorance at conventional levels).

The fourth model incorporates the predicted values of the restricted partisan model (which treats the Progressista cabinets as Liberal), and it performs well. Taking into account the partisan identity of the cabinets in this configuration does indeed improve on the pure structural breaks model. And although in the partisan model only the

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73 The test is a partial application of Davidson and McKinnon’s J-test method for non-nested hypothesis testing.
Conciliação cabinet had any significant impact, the effect here results from the entire model, not just the Conciliação variable. Simply adding the Conciliação variable to the structural breaks model does not give a significant result.

The fifth specification adds the predicted risk premium from the cabinets model. Not only does the fitted variable perform well, the structural breaks lose all statistical significance. Taking changes in cabinets as an indicator of shifting political coalitions, not only does politics matter, but the breaks in the series corresponding to external conflict can be accounted for through this channel. What was happening within Brazil, or between Brazil and its rivals, mattered less to the bond market than which coalition was governing Brazil when those events transpired.

**Conclusions:**

Imperial Brazil was the most successful of all Latin American sovereign borrowers. Capital markets on both sides of the Atlantic rewarded the Brazilian state for its commitment to debt repayment, providing it with increasing amounts of credit at lower cost.\(^4\) As a result, Brazilian governments could smooth public expenditures, and avoid the economic distortions arising from abrupt changes to tax rates, by recourse to borrowing. The government was “rationed-in” the capital market.

Despite its ability to borrow, the Brazil state also exhibited a highly variable credit risk. This risk is indicated by an original measure of the risk premium on Brazilian bonds, constructed using more than 3,000 weekly observations of Brazilian bond prices in London. A systematic search for breaks in the risk premium series revealed only four significant breaks from 1825 to 1889, three of which were associated in some way with conflict in the Rio de la Plata.

By first identifying the shifting mean of the risk premium series, it was possible to properly assess the impact of several categories of political variables. Evaluating the impact of political variables on outcomes over time is traditionally accomplished through the use of dichotomous (“dummy”) variables. Many of the political variables assessed here in this traditional framework had a statistically significant effect on default risk, and were of the expected sign. However, these results are all potentially spurious, since the risk premium series is not adjusted for structural breaks. Tests of the hypothesis that political variables could improve on the model based solely on structural breaks rejected a role for pre-1850 revolts, as well as a role for policy variables. However, the partisan identity of the cabinet, along with cabinet-specific attributes, had statistically significant effects on Brazilian default risk. Though there has been little (or no) historical work done on the cabinet-specific politics of taxing and debt service during the imperial era, the results here reveal that bond holders were not only informed about events in Brazil, but used that information to update their expectations of default. Moreover, Brazilian default

\(^{74}\) A companion paper to this one focuses on the Rio de Janeiro bond market from 1829 through 1889.
risk was viewed by the market through a political lens, where partisanship and the identity of each cabinet had strong impacts on the risk premium. Which group controlled the government was seen by bond investors as mattering most in making their evaluations of the creditworthiness of the Imperial state.
Figure 0.A Sovereign Borrowing Problem

\[ \begin{align*}
U_C^g[A(1+i)] \\
U_C^g[B(A) - C(T,h)] \\
U_C^d[-A] \\
U_C^d[B(A) - P(x)] \\
U_G^g[A(1+i)] \\
U_G^g[B(A) - C(T,l)] \\
U_G^d[-A] \\
U_G^d[B(A) - P(x)] 
\end{align*} \]
Figure 0.B—Debt Ceilings and Interest Rates as Function of Default Penalties

interest rate

\[ i^* \]

\[ r \]

\[ D_t = f(P_t) \quad D^* = f(P^*) \]

Debt Ceiling
Figure 1. Brazilian Total Funded Debt and London Risk Premium, 1825-1889 (Annual)

Note: Annual (fiscal year) data. Annual risk premium is an unweighted average of weekly observations each year. Sources: see text.
Figure 2. Weekly Risk Premium on Brazilian Sovereign Bonds in London, 1825-1891
Figure 3. Example of “Spurious” Dummy Variable: the Banco do Brasil as the Monetary Authority, and the Government Risk Premium

Note: variables are normalized to make for easy comparability, with the right scale being a relative measure and not the actual level of the risk premium.
Figure 4. Structural Break in Brazil’s Default Risk in London

Note: Endogenously-selected structural break in 1852, based on the Zivot-Andrews procedure. Annual data are use here for illustration.
Figure 5. The Cabinet of the *conciliação*, 1853-1857

Source: Sisson.
Table 1. Components of the Brazil Sovereign Yield Series, 1825-1891

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<tr>
<th>Start of Subseries</th>
<th>End of Subseries</th>
<th>Loan</th>
<th>Coupon</th>
<th>Maturity</th>
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Table 2: Break points in the risk premium series for Brazilian sovereign bonds in London, 1825 to 1891

Minimum Interval Length (h)=173 weeks, Maximum number of structural breaks (m)=9

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<th>Break Weeks ($T_i$)</th>
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<td>November 25, 1857 to February 10, 1860</td>
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<td>September 9, 1864</td>
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<td>August 6, 1869 to November 24, 1871</td>
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$R^2 = 0.67$

$F = 1414.2$

$n = 3470$

*** significant at 1% level

NOTE: Both the UD max and WD max tests support the existence of breaks vs. the alternative of no breaks. The number of breaks selected by both the BIC and the LWZ criterion is nine, while the number of break points selected by the sequential procedure is four, which are those reported here.
Table 3. Regression of Risk Premium on Structural Breaks and Political Variables

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Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
Table 3, continued.

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Newey West errors in parentheses

* p<0.05, ** p<0.01, *** p<0.001
Table 4. Regression of Risk Premium on Cabinets, 1825-1889

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Newey-West standard errors in parentheses

* p<0.05, ** p<0.01, *** p<0.001
Note: Cfr = First Reign cabinet; Reg= Regency Cabinet; Csr=Second Reign cabinet
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Newey-West standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
References


———. Resenha Financeira do Ex-Império do Brazil em 1889. Rio de Janeiro, 1890.


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