

Sovereign Credibility with Financial Underdevelopment:
The Case of Nineteenth-Century Brazil

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*Working draft prepared for the Hoover Seminar on Collective Choice
6 March 2007*

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1. Introduction

How do political institutions impact financial development? Much of the scholarship on politics and finance sees the relationship between the political institutions that support sovereign borrowing on the one hand, and broader financial development on the other, as direct, and strongly positive. Sovereign borrowing requires that the state's promises to repay its loans be seen as credible.¹ In several historically prominent instances—namely the Dutch Republic, and Great Britain—credible sovereign borrowing involved creating a set of property rights in financial assets more broadly, which in turn supported the development of capital markets. This emphasis on the relationship between the political institutions governing the credibility of sovereign borrowing and financial development is bolstered by the many instances in history of nations where governments failed to establish such institutions and where private financial development was also extraordinarily weak.² But do political institutions that allow for credible sovereign

¹ A borrowing state is credible when sophisticated lenders have reason to believe the government's promise to repay loans in the future, can convert uncertainty over the sovereign's willingness to repay into risk, and thus are willing to lend. Since sovereign states are not usually subject to third-party enforcement of loan contracts, when we observe borrowing there must exist a mechanism that makes it difficult or costly for the state not to repay, *ex post*.

² Absolutists in particular loom large as examples: France, and Spain. Other examples abound. To provide but one that contrasts with the Brazilian case addressed here, nineteenth-century Mexico suffered innumerable coups, internal warfare, extreme political instability and recurrent defaults. Only in the latter decades of the century, when the Diaz regime implemented new mechanisms to improve the credibility of the state's promise to repay its creditors, did private capital markets begin to expand; Richard Salvucci, "La Deuda Eterna: Markets and Politics in Mexico's 'London Debt': 1823-1887," (2005).; Noel Maurer and Andrei Gomborg, "When the State Is Untrustworthy: Public Finance and Private Banking in Porfirian Mexico," *Journal of Economic History* 64 (2004).

borrowing necessarily lead to financial development? This paper employs a new set of quantitative measures on both public and private finance in nineteenth-century Brazil to demonstrate a striking result: the same political institutions that facilitated government borrowing also promoted policies that limited, and even undermined, the broader development of financial markets. The finding here is that there is no necessary relationship between credible sovereign borrowing, the political institutions that make such borrowing possible in the first place, and the development of capital markets. Instead, it is the full array of political institutions that shape financial policy making, and not just the credibility of the sovereign's promise to repay creditors, that determines whether or not the state's role is to enhance the development of capital markets, or to serve the more narrow interests of groups that restrict financial development for their own benefit.

This paper investigates the institutional origins of public and private finance in Brazil between 1824 and 1890. The Brazilian case is especially relevant to the question of the relationship between political institutions and financial development. Just as in the canonical cases of successful public borrowing, such as Holland, Britain and the United States, Brazil's institutional arrangements supported the creation of a long-term funded debt. This commitment to honor sovereign debt resulted in a record of successful long-term funded borrowing at home and abroad from the 1820s through the 1880s that was unrivalled among national governments in Latin America.³ The share of total debt accounted for by long-term funded issues grew, and domestic debt came to dominate the foreign debt. Some domestic bonds, denominated in the home currency and bearing exchange clauses, even came to circulate in European financial markets. Sovereign debt yields fell over time in London and Rio de Janeiro, as did the cost of new borrowing. The market's assessment of the probability of Brazilian default tended to decrease. Yet despite these salutary institutional arrangements, and a long record of successful

³ For two decades after mid-centuries Peru was the most successful of all Latin American states in raising loans in London. By handing control over the marketing of its guano exports to trading houses in Britain, the Peruvian state sought to create a penalty mechanism that could be used should it not service its debt. It nonetheless defaulted in the early 1870s; Catalina Vizcarra, "Guano, Credible Commitments, and State Finance in Nineteenth-Century Peru," (2006).

borrowing and debt service by the sovereign, the development of private capital markets lagged behind public borrowing.

The empirical evidence used below to assess the financial consequences of Brazil's political institutions is drawn from an array of primary sources. I develop data sets on the volume of domestic and external funded borrowing, costs of new borrowing by the state, yields to maturity and default risk on long-term debt instruments in the secondary markets in London and Brazil, the volume of paid-in equity in the Rio de Janeiro stock market, assets of the commercial banking sector, and private borrowing costs. Combined with qualitative evidence, these data sets permit tests of the two principal hypotheses that occupy this paper. The first is that the political institutions, embodied in the Constitution of 1824, made the Brazilian state's commitment to repay lenders credible, and supported positive levels of borrowing. The second is that policies elaborated under the same political institutions stunted the development of long-term private finance.

The remainder of this paper proceeds in six sections. The following section briefly reviews the literature on institutions, public debt, and financial development. Section three outlines the framework employed to assess the relationship between public and private capital markets in nineteenth-century Brazil. The fourth section tests the hypothesis that the multi-veto player character of Brazil's institutions did indeed render the state's commitment to repay credible. Ideally, such a test would compare the terms of borrowing before and after the adoption of the Constitution of 1824. However, there was only one loan directly to the government of Rio de Janeiro before 1824, which was a forced loan. Instead, the test proceeds by constructing an analytic narrative of a unique episode in 1831 when Brazil teetered on the brink of default.

Section five details Brazil's experience with borrowing domestically and abroad. To test the hypothesis that the Brazilian government was credible enough as a borrower to consistently support positive levels of debt requires reference to the volume and terms of borrowing. Three quantitative indicators are developed from primary sources to indicate the credibility of the state as borrower. The first is the amount of the public debt. If, as much of the theory of sovereign borrowing suggests, rationing figures prominently in a government's access to credit, then the ability to borrow repeatedly, indicates

creditworthiness. The second indicator is the government's borrowing costs. A government that can borrow, but only at a high rate of interest, is clearly viewed as risky. Falling risk premia provide a further indication of creditworthiness. The third indicator of sovereign credibility is the markets expectation of default at the time of borrowing.

Section six tests the relationship between multiple veto players, sovereign commitment, and private investment. It shows that Brazil's success in public borrowing did not spill over into private capital markets. The conclusion addresses how details from Brazil can best inform scholarly investigation of the general problem of institutions and financial development.

2. Political Institutions and Financial Development

Most of the work on successful cases of financial development is on countries that became wealthy relatively early in the modern era, or were already wealthy even before they had a financial revolution. Moreover, the most prominent cases of financial underdevelopment were relatively poor nations that also suffered heavy political instability. In the preponderance of successful cases, a key factor was changes in political institutions that created veto players who could constrain the sovereign from acting unilaterally to repudiate debt or undermine the property rights of the citizenry. These institutional changes not only allowed the sovereign to credibly commit to repay its debt; it also spilled over onto private parties, protecting financial assets from expropriation, and contributing to the growth of capital markets.⁴

The addition of veto players to the policymaking process provided a set of "checks and balances" that limited unilateral actions by the sovereign or the executive branch. Multiple veto points make for policy stability and help protect the interests of political minorities.⁵ Multi-veto player institutions thus reduce the risk of arbitrary market interventions by any single political actor. There were a number of ways in which

⁴ Douglass C. North and Barry R. Weingast, "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England," *Journal of Economic History* 49, no. 4 (1989).; James A. Robinson, "Debt Repudiation and Risk Premia: The North-Weingast Thesis Revisited," (2006).

⁵ George Tsebelis, *Veto Players: How Political Institutions Work* (Princeton: 2002).; George Tsebelis, "Veto Players and Institutional Analysis," *Governance* 13, no. 4 (2000).

political institutions could be changed to provide creditors with mechanisms to punish the sovereign in case of default.⁶ The most celebrated of these was the creation of “limited governments,” with largely liberal institutions, and legislatures with power over financial matters. Parliaments assigned this power could constrain the sovereign and commit the government to repayment of its debts through at least three mechanisms. First, by virtue of establishing the parliament as a veto player, the sovereign simply lost altogether its ability to unilaterally default. Second, if the sovereign (or the executive) tried go outside the rules and default anyway, the parliament could punish the sovereign in a number of ways, ranging from revenue sanctions (by withholding taxes in the future) to deposing the sovereign. Third, the parliament helped provide a coordinating mechanism for the government’s creditors. To the extent that creditors could exercise influence over elected members of the lower house, they enjoyed a standing vehicle to organize against any attempt by the sovereign to default.

By securing financial property, the establishment of limited government is seen as having created a double-barreled financial revolution in the Netherlands and Britain.⁷ As a result, private lending flourished, new firms could more affordably raise capital, and a key component of financial transaction costs declined.⁸ Liberal states could issue debt as

⁶ In France the sovereign could borrow, but used arrangements other than limited government to establish creditworthiness; see Hilton Root, “Tying the King's Hands: Credible Commitments and Royal Fiscal Policy During the Old Regime,” *Rationality and Society* 1, no. 2 (1990).; Noel D. Johnson, “Banking on the King: The Evolution of Royal Revenue Farms in Old-Regime France,” *Journal of Economic History* 66, no. 4 (2006).

⁷ The argument has also been disputed, however, on various points, ranging from difficulty in detecting the impact of the Glorious Revolution in private credit markets, to the insufficiency of multiple veto-player institutions as a condition for credible commitment by the sovereign; Nathan Sussman and Yishay Yafeh, “Institutional Reforms, Financial Development, and Sovereign Debt: Britain, 1690-1780,” *Journal of Economic History* 66, no. 4 (2006).; S.R. Epstein, *Freedom and Growth: The Rise of States and Markets in Europe, 1300-1750* (London and New York: 2000).; David Stasavage, “Credible Commitment in Early Modern Europe: North and Weingast Revisited,” *Journal of Law, Economics, and Organization* 18, no. 1 (2002).; Patrick K. O'Brien, “Fiscal Exceptionalism: Great Britain and Its European Rivals, from Civil War to Triumph at Trafalgar and Waterloo,” in *London School of Economics Economic History Working Paper* (2001).

⁸ North and Weingast, “Constitutions and Commitment,” pp. 821-828. Robinson, “Debt Repudiation and Risk Premia,” pp. 3-8, and Barry R. Weingast, “The Political Foundations of Limited Government: Parliament and Sovereign Debt in 17th and 18th-

needed, under good terms, and private financial markets were able to develop unhindered by fear of sequestration or inflationary erosion. The message that has emerged from the early modern experience is straightforward: getting the political institutions right makes it possible to get the economic institutions right, which in turn improves incentives, helping get relative prices right in the financial sector. Institutional changes in the political arena--especially the creation of multiple veto points in policymaking--that provide secure rights in financial property emerge as a core ingredient for promoting investment and, thereby, modern economic growth.⁹

3. Theory and Framework

To understand how the state may become a credible borrower, yet simultaneously stifle financial development, this paper focuses on two particular institutional features found in Imperial Brazil. The first relates to how the state's promises to repay loans could be taken seriously, and focuses on the creation of multiple veto players in the policymaking process at the national level. The second institutional issue relates to why policies did not emerge to better promote financial development. This involves the question of centralization, namely the way in which authority over business and capital market regulation was divided between the national and provincial levels of government, and within the national government itself.

Since the mechanisms by which political institutions impact financial development assign precedence to sovereign borrowing, I begin with the Brazilian government's access to capital markets. The direct consequences of public borrowing are several. In the case of negative shocks to revenues (or positive shocks to public outlays), borrowing by the government, in lieu of abruptly raising taxes, can smooth revenues and

Century England," in *The Frontiers of the New Institutional Economics*, ed. John N. Drobak and John V. C. Nye (New York: 1997)., who delves further by addressing the question of how multi-veto player institutions can help coordinate the actions of creditors, pp. 224-226.

⁹ Direct support for the importance of multiple-veto player institutions in framing the context for investment is provided by David Stasavage, "Private Investment and Political Institutions," *Economics and Politics* 14, no. 1 (2002).

avoid efficiency-degrading distortions in the economy.¹⁰ Borrowing allows government to spend more in the current period than it can raise in tax revenues. The state's ability to borrow smoothes public sector consumption. If taxes are distortionary, as they usually are in practice, then by borrowing the government attains a higher level of inter-temporal utility, and avoids abruptly ratcheting tax rates up and down from period to period. In the presence of an economic shock, or a major war, the capacity of a state to borrow and take on debt thus creates benefits not just for government, but also for the real economy. Whether or not a state can borrow, and the terms of its borrowing, depends on whether lenders believe they will be repaid. In short, to borrow the amounts it seeks, on favorable terms, requires that the state's promise to repay its creditors is credible. Much of the theoretical work on sovereign debt has focused on specifying conditions that support sovereign borrowing. One class of models stresses the importance of the need for future access to credit markets. Faithfully servicing public debt creates a reputation for repayment can generate credibility.¹¹ The state may even service its loans despite considerable difficulty, in order to invest in its reputation as a "good" borrower and be able to borrow in the future.¹² However, under fairly general formulations, if the only punishment that can be imposed on a defaulting state is a cutoff of future borrowing, this alone is insufficient to prevent default.¹³ In order to borrow, and have its promise to repay be viewed as credible, the state must submit to some other penalty that creditors

¹⁰ . Indeed, borrowing to finance current expenditures can possess the remarkable quality of being both economically efficient, and politically palatable.

¹¹ Jonathan Eaton and Mark Gersovitz, "Debt with Potential Repudiation: Theoretical and Empirical Analysis," *The Review of Economic Studies* 48, no. 2 (1981).

¹² Douglas W. Diamond, "Reputation Acquisition in Debt Markets," *Journal of Political Economy* 97, no. 4 (1989).

¹³ Jeremy Bulow and Kenneth Rogoff, "Sovereign Debt: Is to Forgive to Forget?," *The American Economic Review* 79, no. 1 (1989).; Jeremy Bulow and Kenneth Rogoff, "A Constant Recontracting Model of Sovereign Debt," *The Journal of Political Economy* 97, no. 1 (1989).; Harold L. Cole and Patrick J. Kehoe, "The Role of Institutions in Reputation Models of Sovereign Debt," *Journal of Monetary Economics* 35, no. 1 (1995).; Harold L. Cole and Patrick J. Kehoe, "Models of Sovereign Debt: Partial Versus General Reputations," *International Economic Review* 39, no. 1 (1998).

can apply in case of default.¹⁴ Where default penalties are sufficiently strong, borrowers honor their promises to creditors, even when their ability to pay is compromised by exogenous factors.

Default penalties potentially have many sources. They can stem from threat of armed intervention in the service of the state's creditors ("gunboats"), successful credit boycotts, and the withdrawal of ancillary services provided by creditors and seen by the sovereign as essential.¹⁵ And, as noted above, political institutions can also work to raise the penalty in case of sovereign default. Governments seeking easy and affordable recourse to the capital market may thus find it in their interest to actually create, and willingly submit to, default sanctions. Because there is no third-party enforcement of sovereign debt contracts, one way that states may formalize default penalties is to embed them in institutional arrangements that are costly to change. Institutions in the framework employed here are simply rules that assign authority over how public policies are crafted. These rules delineate and define the entities that involved in crafting and implementing public policies, establish attributes and authorities for each entity, and shape how the preferences of politically salient constituencies are aggregated into policy outcomes. One class of formal models of policymaking emphasizes a key group of actors: those assigned the power to veto proposed changes in policy.¹⁶ In the case of sovereign borrowing, any proposal to default or repudiate debt must be approved by all veto players. So long as at least one veto point represents the interests of the state's creditors, a proposal to default will fail. Limiting the discretion of the sovereign through

¹⁴ James Conklin, "The Theory of Sovereign Debt and Spain under Philip II," *Journal of Political Economy* 106, no. 3 (1998), Weingast, "Political Foundations of Limited Government,".

¹⁵ On gunboats, see Kris James Mitchener, and Marc Weidenmier, "Supersanctions and Sovereign Debt Repayment," in *NBER Working Papers* (2005).; on withdrawing ancillary services see Conklin, "Spain under Philip II,". Credit boycotts were rarely effective; the prevention of a sovereign from issuing new bonds in London, for example, did not prevent them from doing so in some other financial center, nor from borrowing in a way that did not rely on formal securities exchanges.

¹⁶ Tsebelis, *Veto Players*..

political institutions that create multiple veto players thus reduces the likelihood that a government will default.¹⁷

The successful development of private finance, like that of sovereign lending, depends on the expectation of a positive return for the lender or investor. Some form of protections against expropriation by either the sovereign or other private parties is a necessary condition. For private debt, the willingness to lend depends heavily on whether contracting institutions are effective. Moreover, debt is not the only mechanism of business finance. Finance involves not only the mobilization of savings through lending, but also through various modes of equity investment. Beyond contracting institutions, there are property rights institutions that determine whether entrepreneurs can exploit organizational forms that can best permit firms to raise the capital they need to operate.¹⁸ These can be sole proprietorships, various forms of partnerships, or corporations (joint stock companies, with or without limited liability). I do not argue that every firm should be a corporation, nor that the corporate form is superior to partnerships.¹⁹ Importantly, for business activities where the amount of capital required is large relative to the savings that any individual proprietor commands, defining property rights in such a way that the full variety of organizational forms is available to investors becomes an important ingredient for capital market success. Though many firms may successfully meet their capital requirements through business partnerships, others may not. Firms requiring a large initial investment in fixed capital may not come anywhere near meeting their capital

¹⁷ Though this is not a complete guarantee against default; indeed, a complete safeguard against default simply may not exist. Preventing default requires an alignment of institutions and creditor interests. The latter may further depend on the underlying structure of issues addressed by public policy, making the credibility of sovereign debt a function of political coalitions across multiple issues; David Stasavage, *Public Debt and the Birth of the Democratic State : France and Great Britain, 1688-1789* (Cambridge, UK: 2003).

¹⁸ On the distinction between these two forms of institutions that govern business, see Daron Acemoglu and Simon Johnson, “Unbundling Institutions,” *Journal of Political Economy* 113, no. 5 (2005).

¹⁹ Naomi R. Lamoreaux and Jean-Laurent Rosenthal, “Legal Regime and Business’ Organizational Choice: A Comparison of France and the United States During the Mid-Nineteenth Century,” in *NBER Working Paper 10288* (2005).

needs without being able to incorporate.²⁰ Where having enough capital to exploit scale economies is important for securing profits sufficient to justify investment, the corporate form may well be indispensable.

A key prediction of literature on credible commitment is that sovereign credibility in Brazil should have fostered a broad-based process of financial development. Penalties on the sovereign in case of default not only facilitate government borrowing. The government's capacity to expropriate asset holders, including owners of financial assets was diminished as well. By reducing the risk of financial expropriation, penalties should have raised the volume of credit available to firms in the capital market.²¹ Ideally such a process culminates in a wide variety of firms obtaining finance in stock and bond markets. In relatively high-income economies, the sets of property rights in financial assets that resulted from the credible commitment to honor sovereign debt indeed made an important contribution to a process of broad-based financial development.²²

Even when there are multiple veto players, and credible sovereign borrowing, where the franchise is restricted elite interest groups may be uniquely successful at securing for themselves preferential treatment.²³ Privileged groups can extract from politicians particular policies that disproportionately benefit them. These arrangements can result in strong restrictions on entry. Importantly, even groups that want the government to borrow affordably (in order to provide public goods, or private-benefit generating infrastructure) may still seek policies that restrict private financial development, or favor a definition of property rights that works against efficient private

²⁰ Prominent examples would include large transport improvements, such as railroads, some types of banks, and later manufacturing enterprises.

²¹ Robinson, "Debt Repudiation and Risk Premia," pp. 8-10.

²² North and Weingast, "Constitutions and Commitment," pp. 824-828; Peter L. Rousseau and Richard Sylla, "Financial Systems, Economic Growth, and Globalization," in *Globalization in Historical Perspective*, ed. Michael D. Bordo, Alan M. Taylor, and Jeffrey G. Williamson (Chicago: 2003). pp. 374-377, stress the primacy of sound public finance for financial development.

²³ Enrico Perotti and Paolo Volpin, "Lobbying on Entry," (2004).

lending. Indeed, by their very willingness to lend money to the sovereign, they may secure for themselves benefits through other restrictive financial policies.²⁴

Institutions that centralize policy-making authority in the hands of national-level government further facilitate the restrictions on entry that fetter private financial development. A strong national government can serve a valuable function in confronting external threats, or suppressing separatist movements. But securing these benefits through political institutions that centralize authority necessary involves a tradeoff. A centralized polity—even one with multiple veto players, that supplies public goods on a national scale, and borrows credibly—is unlikely to succeed at providing local public goods. The latter depends critically on assigning the right authorities to different levels of a government.²⁵ Here, a conjectural counterfactual emerges: were the authority over corporate chartering assigned to provincial governments rather than being monopolized by the central government, one would expect to find policies more conducive to business investment. Even if provinces extracted bribes and revenues in return for the charters (as was often the case, for example, in the early U.S.), competition among provinces for mobile factors of production could nonetheless result in less restrictions on incorporation, greater access to stock and bond markets on the part of firms, and higher levels of output. Taking into account such a scenario, the costs of highly centralized political institutions could turn out to be considerable.

I begin with sovereign borrowing rather than private finance for two reasons. First, there is little reason to expect private capital market development if the state is, in fact, untrustworthy; unable to borrow, unable to issue securities that can compose a secondary market and prone to seize assets. Second, it is important to first establish not only that the Brazilian state was a credible borrower, but also that the country could generate private savings, and that mechanisms existed domestically to mobilize these savings. The existence and growth of the domestic public debt, in particular, allays the

²⁴ This was the case with the Banco do Brasil, which from 1854 to 1866 enjoyed a near monopoly on the issue of bank notes, in return for what was effectively an interest-free loan to the government.

²⁵ Barry R. Weingast, “The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development,” *Journal of Law, Economics, & Organization* 11, no. 1 (1995).

concern that Brazil might have simply been too poor to support financial development of any sort.

4. Institutional Constraints on Sovereign Default

The Brazilian constitution of 1824 defined the core institutions of national governance, established policy veto players, and specified the nature of the veto power those players exercised.²⁶ The constitution served as the coordinating device for national governance, enduring with only modest modifications for more than six decades. It specified the inviolability of property, and specifically the public debt, as part of the civil and political rights of Brazilian citizens.²⁷ A prominent politician and constitutional analyst noted that there was no ambiguity in this provision: “The state’s creditors, either because they entrusted their capital, or because they served, have the right to receive their property or wealth.”²⁸ The constitution further assigned ultimate responsibility for the budget, taxation, borrowing, and debt service to the parliament.²⁹

The institutional arrangements codified in the Constitution internalized the costs of sovereign default, and thus raised the penalty for default, in three ways. The first was

²⁶ This constitution was initially drafted by a constituent assembly, but shut down by Emperor Pedro I, whose closest advisors then completed the project. Francisco Ignacio Marcondes Homem de Mello, *Escreptos Historicos E Litterarios: A Constituinte Perante a História* (Rio de Janeiro: 1868).. For the constitution see, Paulino José Soares de Souza Uruguai and José Murilo de Carvalho, *Paulino José Soares De Sousa : Visconde Do Uruguai* (São Paulo: 2002). and José Antônio Pimenta Bueno São Vicente, *Direito Público Brasileiro E Análise Da Constituição Do Império* (Rio de Janeiro: 1857)..

²⁷ Article 179, Section 23; see José Carlos Rodrigues, *Constituição Política Do Império Do Brasil Seguida Do Acto Adicional, Da Lei Da Sua Interpretação E De Outras* (Rio de Janeiro: 1863).., pp. 141-155. This provision originated in the draft constitution elaborated by the constituent assembly in 1823, and was similar to provisions that appeared in the French constitution of 1814, the Portuguese constitution of 1826 (Article 236), and to a weaker extent the Spanish constitution of 1812. Similar constitutional provisions did not, however, work the same everywhere, however. Both the Portuguese and Spanish governments defaulted during the nineteenth century, despite constitutional strictures. Clearly the specification of such a provision alone does not guarantee that it will be honored; the underpinning political equilibrium must be self-enforcing in order for the state’s commitment to honor the debt to endure.

²⁸ José Antônio Pimenta. Bueno, *Direito Público Brasileiro E Análise Da Constituição Do Império* (Rio de Janeiro: 1857). P. 431.

²⁹ Article 15, Sections 13 and 14; Rodrigues, *Constituição Política Do Império Do Brasil.*, p. 19.

by stripping the Emperor of the ability to unilaterally borrow or default. The second was by aligning the interests of politicians with authority over debt with the interests of the debt-holders. Since policymakers in the parliament's lower house, the Chamber of Deputies, had to stand for election at least every four years, they had to be concerned in part with the preferences of their constituents. If the median deputy (or an otherwise sufficiently influential deputy) in the lower chamber was responsive to domestic debt holders, he would suffer at the very least an electoral penalty from debt-holding constituents if he supported a government proposal to default. Moreover, even if the median deputy on the dimension pertaining to financial policy was not especially responsive to debt holders, cross-issue coalitions within the chamber might well prove sufficient to accomplish the same result.³⁰ Less formally, but more severely, the constitutionally enshrined promise to honor the debt was part of a broader set of expectations held by the elite that, if violated, could result in the withdrawal of support for the Emperor.

The proposed default of 1831 provides a natural experiment that reveals the workings of these institutions. The Minister of Finance brought forward to the Chamber of Deputies two linked proposals. One was to retire a large amount of copper money (much of it counterfeit) from circulation and thereby improve the quality of the monetary base. The second proposal was to authorize the cabinet to suspend service on the foreign debt for five years, to provide funds for the redemption of copper coinage, along with other needs. To more tightly focus on the strategic interaction involved in deliberating the proposed default, several simplifications are warranted. First, there was, at the time, no sitting emperor. Since Pedro I had abdicated under pressure two months earlier, and his heir was a minor, there was no one to exercise the "moderating" power.³¹ A three-man regency ruled, but lacked most of the powers assigned to the emperor by the constitution.³² As such the veto power of the emperor can be ignored. Second, the

³⁰ Stasavage, *Public Debt and the Birth of the Democratic State.*, pp. 31-39, establishes this as a possibility result.

³¹ Neill Macaulay, *Dom Pedro: The Struggle for Liberty in Brazil and Portugal, 1798-1834* (Durham, N.C.: 1986), pp. 213-252; Roderick J. Barman, *Brazil: The Forging of a Nation, 1798-1852* (Stanford: 1988), pp. 150-159.

³² Barman, *Brazil.*, p. 163.

proposed default did not make it as far as the senate. Attention can thus be restricted to the interaction of two players: the Government (G) or cabinet; and a privileged member of the Chamber of Deputies (C) whose preferred policy commands a majority of the Chamber's votes.³³ The default proposal by the Government, and its deliberation by the Chamber, followed the conventions of legislative process in Brazil at the time.³⁴ Figure 1 portrays the payoffs and the possible moves of the players in game. The timeline of the game involves sequential moves by "nature," G, and C. The initial move by nature selects the type of C that G faces in advance of G's proposal: a Chamber in which creditor interests are strong (Cs), or one in which creditor interests are weak (Cw). This information is private, known only to the chamber. While leaders or members of the Chamber may make public and private claims about the Chamber's type, the Government can find out if creditors are strong or weak only if it proposes Default. Once nature selects the chamber type, the government chooses between two options: Honor the debt (H) by including funds for its service in the cabinet's budget proposal, or Default (D).

By economizing on the costs of servicing the external debt, boosting public expenditures within Brazil, and improving the value of the domestic currency through the retirement of copper coinage, the proposal no doubt stood to confer benefits on many of the deputies' constituents. One might have expected the Chamber of Deputies to energetically support the cabinet's proposals. The proposal, however, did not resonate in the way that the cabinet had intended. Domestic creditors—and the deputies who represented their interests--instead seemed to view a proposed default that targeted foreigners as a prelude to a wider default, one that could include domestic debt holders. Deputy Raimundo José da Cunha Matos, who as a representative of the distant western province of Goiás would not appear to be closely tied to the creditor community

³³ This member can be viewed as either the median deputy, or the head of the majority faction on the floor of the chamber. For the analysis here the distinction makes no difference.

³⁴ Cabinet ministers were normally appointed through the emperor's moderating power, rather than being selected from the parliamentary majority. The procedures for introducing legislation, however, were typical of representative assemblies; the cabinet could propose legislation, but the two houses each had to deliberate and vote on the proposal.

concentrated in Rio de Janeiro, nonetheless summed up the opposition within the Chamber to the Cabinet proposal just a couple of days later:

[The proposed default] caused a widespread shudder in the city of Rio de Janeiro. The people, capitalists, merchants and those with commercial interests, and finally those who value the preservation of property, will all be frightened if they believe that, in front of the whole world, we are going to declare bankruptcy...shares of the [domestic] public debt have been offered at will, and no one wants to buy them....their owners deeply perturbed by fear that there is no way the interest on them will be paid.³⁵

The possibility of even a selective default, targeted at bondholders in London, was seen as putting the credibility of all government obligations at risk. Concern of this sort is consistent with the existence of a base of political constituents that sought to protect the value of its bonds.³⁶ This suggests that the government's creditors may have enjoyed a good deal of influence in the Chamber of Deputies.

The model thus assumes that C prefers to honor the debt. Thus, anytime G chooses H, not proposing default, C takes no action other than passing the budget containing provisions for debt service. If, by contrast, G proposes D, then C responds either by approving the proposed default (A), or rejecting it (R). Once C makes its choice, the game ends until the next legislative session. The likelihood that G will propose D is given by probability q . Since legislative defeat is costly for any cabinet, the cabinet not only prefers victory to defeat, but also prefers inaction to defeat, unless position-taking incentives against servicing the debt are very strong for G. While G may prefer default (D), to honoring the debt (H), whether it actually chooses to propose a

³⁵ For the full debate, see Brazil, Camara dos Deputados, *Anais da Camara dos Deputados*, 7 June-11 June 1831; pp. 127-157.

³⁶ While ownership of domestic issues was concentrated naturally in the commercial center of Rio de Janeiro, they were reasonably widely held, especially considering that Brazil was an overwhelmingly agrarian society. For further discussion, see Summerhill, *Inglorious Revolution*.

default depends on C's type. The payoffs from the two agents' actions are set so that when creditors are strong the Chamber will reject a proposed default.³⁷

The Government's payoff is highest when creditors are weak, and when the Government proposes D. The payoff to the Government is lowest when creditors are strong, the Government proposes D. Government wants to propose D only when it will pass, and never when it will fail. However, the probability that creditors are weak, p_w , is unknown to the Government. In a one-shot Government-Chamber game, the only circumstance in which the Government should propose default is when it believes that creditors are weak in the Chamber. There is no mechanism built into the game that lets the Government learn the Chamber's type, before the Chamber votes on the proposal.³⁸ The expected value to the Government of the game is:

$$V(p, q) = p_w [(4q) + 2(1 - q)] + (1 - p_w) [(-4q) + 2(1 - q)]$$

To find G's best proposal from its choice set (D,H) requires maximizing its expected utility with respect to q, such that $V(p,q)$ is at its highest value for any given p_w .³⁹

$$\frac{\partial V}{\partial q} = 0 \Rightarrow p_w = \frac{3}{4}$$

The result states that, under the stylized array of payoffs to the different actions in Figure 1, if the Government believes that the probability of creditors being weak is 0.75 or greater, its best action is propose default.

The cabinet's proposal to suspend payments to foreign creditors was made on 7 June 1831, energetically debated for several days, and then voted down on 11 June 1831.

³⁷ Moreover, because those opposed to default viewed the probability that the government would honor the domestic debt as a function of honoring the external debt, even when the default is targeted at overseas bondholders, the Chamber will still reject the proposal.

³⁸ That is, because of the structure of deliberation, there is no Bayesian updating in the game on the part of the cabinet.

³⁹ Or, alternatively, by calculating the expected payoffs from default and honoring the debt, respectively, deriving the critical value of p_w .

To make sure the next packet boat to Europe did not carry news of the Minister's proposal without information on its resolution, the Chamber of Deputies accelerated the required study and deliberation of the project, defeating it by a vote of 59 to 23. The defeat was politically costly for the Government.⁴⁰ The episode suggests that the cabinet did not have a full grasp of the opposition that the proposal would encounter in the Chamber. Indeed, the problem in the strategic interaction of the cabinet and the chamber, captured by the one-shot version of the game, is that there is no chance for the cabinet to update its expected probability of the Chamber's type, once it has made its proposal. If the cabinet honors the debt, it merely observes the Chamber supporting that proposal. It does not learn whether creditors are weak or strong in the Chamber. If, on the other hand, the Cabinet proposes default, and creditors are strong, then it learns the Chamber's type only too late for its own purposes—once the Chamber has already rejected the proposal. Given the uncertainty that the Government faced over the Chamber's type, why would it risk legislative defeat in 1831 by proposing default? One possibility is that position-taking incentives might have led the government to propose default, irrespective of the Chamber's rejection. Given that defeats on the floor of the legislature are generally costly to cabinets, and the cabinet and its allies dedicated energy to defending the proposal, it seems unlikely that position taking was the sole motivator of the cabinet's actions. Miscalculation, mistaken beliefs, and the like could have easily led the Cabinet to believe that creditors were weak. Uncertain about creditor strength, and in the wake of the emperor's ouster, the cabinet may have felt it was in a good position to press its program.

Though within the game there is no way for the Government to learn the Chamber's type, repeating the game—as was actually the case, year-to-year—alters things. The proposal to default, while defeated, nonetheless conveyed valuable information to future cabinets. Note that when the game is repeated later, cabinets become informed in a way that cabinet was not in 1831 and before. The history of the game can thus strongly shape all ensuing cabinets' beliefs about the strength of creditor interests in the Chamber. It is telling that, after 1831, there were no other attempts on the

⁴⁰ Not only was its proposal rejected, but the cabinet itself fell in the midst of a broader political dispute the following month.

part of any cabinet to propose default during the Empire, irrespective of the state's fiscal situation. To the extent that creditor strength in the chamber only grew with the size of the domestic debt, under the political institutions of the Empire cabinets had little reason after 1831 to ever think that the government's creditors would not be able to influence debt policy.

In short, two features of independence-era political changes made it possible for the government to credibly borrow: the assignment of authority over budgets, taxation, and borrowing to the parliament; and the enfranchised elite's prominent role as holders of the domestic debt, which made default politically costly. Together, these features raised the penalty that could be applied to both policy-making office holders, and the sovereign in case of default. These institutions worked to support borrowing by the state.

5. Sovereign Borrowing: Quantity, Costs, and Default Risk

The credibility of the Brazilian state's commitment to honor its financial obligations, which emerged explicitly with the Constitution of 1824, proved sufficient to allow it to borrow substantial sums abroad. Brazil ran chronic deficits, with expenditures commonly outstripping both actual revenues and the legislated budget.⁴¹ Difficulties in balancing the budget proved durable. In only 11 of 68 years was the government able to attain a primary budget surplus. Throughout the Imperial era revenues drew heavily on taxes on foreign trade. Through 1870 the largest single category of expenditures was military; thereafter outlays shifted increasingly toward subsidies to infrastructure investments.

The government took out its first foreign loan in order to cover its inherited colonial debts, and a large budget shortfall, in 1824. The financial bubble in London that rested heavily on Latin American investments burst the following year. When the smoke cleared, only Brazilian issues remained intact.⁴² In 1827 Brazil's Parliament formally established the national debt, to fund outstanding obligations from the pre-independence

⁴¹ Liberato de Castro Carreira, *O Orçamento Do Império Desde Sua Fundação* (Rio de Janeiro: 1883)., passim.

⁴² Dawson (1990).

era, and to make provisions for future borrowing.⁴³ The government immediately tapped domestic capital markets, at the time limited almost exclusively to Rio de Janeiro, and issued perpetual bearer bonds known as *apólices*. These ultimately became the mainstay of the public funded debt.

Thereafter at regular intervals Brazil raised funds in London and at home. Excluding the initial assumption of Portugal's 1823 loan in return for diplomatic recognition of Brazilian independence, the central government took out 20 loans before the end of the Empire in 1889. Of the 20 loans, 18 were structured by merchant banks in London, and two were issued domestically. In addition, there was an ongoing emission of domestic *apólices*. New *apólices* entered circulation in all but 14 years during the Empire.

A principal consequence of the creation of a funded debt, and the regular issue of new loans, was that funded obligations quickly outweighed unfunded debt (the main components of which were interest-bearing short-term treasury bills, and treasury-issued currency). With the London loans of 1824/1825, and the issue of *apólices* in 1828/1829, Brazil's funded debt rose to 60 percent of its total obligations in 1829. Between 1862 and 1868 the share of debt that was funded was set back to a level not seen since 1844, as a result of the rapid issue of treasury notes to help finance Brazil's war against Paraguay. The share of funded debt increased thereafter, though more slowly than before, and by 1885 had not quite yet attained the pre-war level. Overall, however, because of Brazil's ability to borrow, funded debts exceeded unfunded obligations by a good margin.

Brazil's record of debt repayment was remarkable among Latin American nations. Though the contracted amortization of foreign loans took place only intermittently through 1850, Brazil never missed interest payments, except in the case of the 1823 Portuguese Loan (which during the Portuguese succession struggle was an obligation that was unilaterally suspended by the Brazilian government, never repudiated). The state never attempted to pay interest in anything other than cash, even when new borrowing was required to do so.

Obligations taken up in London comprised the bulk of Brazil's funded debt for nearly three decades after independence. Figure 2 charts the relative share of total debt

⁴³Lei de 15 de novembro de 1827.

accounted for by foreign and domestic issues, respectively. For a few years in the 1850s the stock of domestic debt outstripped foreign, flip-flopping several times through the war with Paraguay and its immediate aftermath. Thereafter, new issues in London contributed relatively less to new borrowing. By the 1870s Brazil was definitively more reliant on domestic finance than it was on overseas lending.

Servicing this debt proved to be a serious challenge during the First Reign and Regency (1831-40). Throughout the 1830s and 1840s Brazil failed to execute the contracted amortization on its London loans. The Imperial state's willingness to pay was certainly subject to question during the period in which it suspended all service on the Portuguese loan of 1823. And in the early decades the government resorted, behind the scenes, to mini-bailouts from its London bankers, in order to make interest payments. Yet because of these efforts, on no occasion did the Imperial government miss an overseas interest payment on its own bonded debt.

Brazil's borrowing in London depended on the city's leading merchant banks. Early loans further specified the source of funding for dividends and amortization, typically the country's customs' revenues. Later loans simply dedicated more vaguely the "resources of the Empire" to paying the loan. Table 1 provides the identities of the merchant banks that handled each loan, along with the amounts raised and issued. The declared purpose of the London loans reported in Table 1 varied from simple deficit financing, to specific infrastructural uses. Of the 18 loans, 14 had little if any conceivable developmental purpose, conventionally defined. Several loans either indemnified the Portuguese for Brazilian independence, or re-financed indemnities. On occasion new loans retired the remaining balances from earlier borrowing. The loan of 1863, by way of example, served to redeem the outstanding balances of the loans of 1824, 1825, and 1843.⁴⁴ Refinancing of this kind proved necessary when the government did not have on hand resources to retire the loan at maturity. The proceeds of new borrowing in these instances could be exhausted almost instantaneously as a result. The

⁴⁴ *RMF* 1883, Anexo A, pp. 10-11; Charles Fenn and Robert Lucas Nash, *Fenn's Compendium of the English and Foreign Funds, Debts and Revenues of All Nations*, 14th ed. (London: 1889), p. 393; [Prospectus] "Imperial Brazilian 4 ½ per Cent. Loan 1863;" Rothschild Archive (hereafter RAL), 000/336/2, "1863. Empire of Brazil. Loan of £3,300,000 Sterling."

refinance of existing foreign balances involved little or no increase in net foreign indebtedness.

Domestic short-term debt was often converted to a long-term, funded basis abroad, as in the cases of the loans of 1863, 1871, and 1886. On other occasions new borrowing in London helped cover current deficits in Rio de Janeiro. The Imperial parliament repeatedly budgeted for expenditures that ran in excess of expected revenues. When conditions in the capital market were favorable, government could finance the projected deficit with funded long-term debt (rather than short-term Treasury bills) as it did in London in 1886, and in Rio on multiple occasions. Developmental borrowing by the state, while not frequent, grew increasingly prominent in the 1870s and 1880s. Government occasionally pursued new borrowing to cover outlays on railroad extensions. Loans in 1871, 1875, and 1883 went partly for new infrastructure outlays. When such expenditures remedied market failures and helped overcome deficiencies in the provision of social overhead capital, they could generate economic benefits well beyond those arising from the mere smoothing of tax revenues.⁴⁵

The 1865 loan was the largest up to that point in time, and was taken out early in the war against Paraguay in anticipation of military expenses. The pace and volume of Brazil's foreign borrowing accelerated appreciably in the 1880's. The largest foreign loan, by far, was the one subscribed in the last year of the Empire to convert all shares with coupon rates of five percent to new bonds with a coupon rate of four percent. By the end of the Empire, the government had issued bonds in London with a face value of nearly 67 million pound sterling, and raised nearly 60 million pounds.

Domestic lenders came to figure even more prominently than external sources of state finance. The Constitution of 1824 not only provided a political foundation for successful long-term public borrowing. The nature of the penalty that the government confronted from its domestic constituents in case of default meant that the state elicited from its own relatively underdeveloped capital markets an unusually large amount of

⁴⁵ William R. Summerhill, *Order against Progress: Government, Foreign Investment, and Railroads in Brazil, 1854-1913* (Stanford: 2003), pp. 58-105.

savings, with a growing share of the public debt accounted for by domestic issues.⁴⁶ By the second half of the Empire most funded debt was domestic in origin. Domestically-issued debt attained its highest level during the Imperial era in 1889, when all of the apólices and National Loans combined had shares with face values totaling nearly 435 million milréis (more than 46 million pounds sterling) in circulation.

As in the case of foreign borrowing, the funds raised from apólices were used for varied purposes, as reported in Table 2. They mainly covered deficits, but also paid for the redemption of treasury notes, some infrastructure, and even dowries for the women of the royal family. The single largest issue came during the war with Paraguay and its immediate aftermath, accounting for more than forty percent of all of six-percents issued during the Empire. In the 1880s, Brazil switched to the issue of five-percents, in response to the improved status of government debt in the Rio market (Table 3). The bulk of these appeared with a single issue in 1886, to redeem Treasury notes and currency. By the end of the Empire in 1889 more than 380 million milréis of apólices had been issued in Brazil, only 10 million of which had been amortized. This figure exceeded the amount of paid-in equity of all firms listed on Rio de Janeiro's stock exchange in 1888.

In addition to apólices, Brazil also issued national loans. There were three of these, seen in Table 4. The first was hastily extracted in 1822 from the merchant community of Rio de Janeiro. The second was also raised under urgency in 1868, during

⁴⁶ If private saving depends on reducing the uncertainty inherent in holding securities (whether issued by government or corporate entities) along with other assets, then improvements in sovereign credibility may help mobilize savings that would not otherwise be made available. Where this savings goes, in theory, varies. That the savings directly channel to the public sector figures as an assumption in Allan Drazen, "Towards a Political-Economic Theory of Domestic Debt," in *The Debt Burden and Its Consequences for Monetary Policy*, ed. Guillermo Calvo and Mervyn King (New York: 1998).pp. 164-167. That it can move to private sector business activities as well is derived as a result in Robinson, "Debt Repudiation and Risk Premia," pp. 8-12.

the war with Paraguay, but without coercion. The third was taken out 1879. Like apólices, national loans were denominated in milréis, but unlike apólices the loans of 1868 and 1879 promised interest and redemption at a fixed rate of foreign exchange. Interest on the national loans was payable in both Brazil and in Europe, so that bonds of the national loans circulated and traded outside of Brazil. Given their pegged values to external currencies, they were far more similar in secondary markets to Brazil's foreign loans.⁴⁷ Domestically-issued debt attained its highest level at the end of the Empire in 1889, when apólices and national loans combined represented obligations totaling nearly 435 million milréis (more than 46 million pounds sterling) in circulation.

One striking feature of Brazil's borrowing during the Empire was that even while taking on a larger amount of debt, the Imperial government's borrowing costs declined. Brazil's ex ante cost of foreign borrowing is the internal rate of return that sets the future stream of dividend payments, amortization, and fees specified in the loan contract equal to the money the government raised from the loan:

$$PV = \sum_{t=0}^T \left[\frac{(D_t + A_t + Fd_t + Fa_t - Da_t)}{(1+r)^t} \right] + \frac{B_T}{(1+r)^T}$$

where PV is the sum Brazil received from the loan, D is the dividend payment on the total issue at time t, A is the annual amortization, Fd is the fee on annual dividends (which in the first period also includes initial issue fees), Fa is the fee on annual amortization, Da are dividends paid on previously amortized shares, which were used to build up the government's sinking fund, B is the balance owed at maturity, T is the terminal period of the loan, and r is the Brazilian government's ex ante cost of capital.⁴⁸

⁴⁷Though both loans were raised in Rio de Janeiro, the 1879 bond was formally listed on the London exchange. Most of the 1879 loan, and a large portion of the shares of the 1868 loan, were held outside of the country by the early 1880s; *Retrospecto Commercial do Jornal do Commercio*, 1883, p. 34.

⁴⁸Some of the loans had amortization schedules designed to retire them completely by the time they matured. Others had balances at the end, much like a "balloon" payment on a present day mortgage. The cost of capital in the expression is computed using numeric techniques since there is no closed-form solution for r. Given there can be multiple values of r that solve the expression, in practice the approach was to begin with an

The government's cost of borrowing in the domestic market can be calculated in the same way. The government's ex ante domestic cost of capital is given by the internal rate of return on each loan, and each new issue of apólices. Domestic capital costs are readily estimated for the loans of 1868 and 1879, and when the actual issue prices of apólices are available. However, assumptions regarding the expected amortization schedule are required in order to calculate the costs of borrowing. In theory, apólices would all be redeemed eventually. In practice, apólices were perpetual annuities. The estimates derived here assume an amortization schedule of one percent per year, in accordance with the original 1827 legislation that created the national debt, for newly issued apólices. Allowing in this way for amortization, the calculation of the government's domestic capital cost is straightforward:

$$PV = \sum_{t=0}^T \left[\frac{(D_t + A_t)}{(1+r)^t} \right]$$

The product of the issue price of the apólices and the quantity of shares emitted gives the loan's net present value to the government, PV. The coupon of six milréis per year, multiplied by the stock of apólices from that issue in circulation each year, gives the total annual interest cost to the government, D. The apólice's face value is its redemption price. Assuming one percent of the total issue is amortized each year for a century, the annual outlay on amortizing the issue is A. The government's capital cost each year is the internal rate of return, r, that sets the amount raised on the issue to equal the stream of dividend payments and amortization.

Figure 3 presents measures of the cost of capital for each instance of new borrowing. Changes in Brazil's borrowing costs over time had two possible sources: changes in market-wide conditions, and country-specific factors. To uncover the risk premium on these loans, Figure 3 also presents the current yield on British consolidated

arbitrarily low r, at the lowest pre-1889 published coupon rate of 4.5 percent, and increase the value of r in increments of 0.1 until the right-hand side of the expression attained the value of the money raised on the loan.

annuities, or consols.⁴⁹ Costs were highest on the initial National Loan in 1822. Brazil's external borrowing costs were high with its first foreign loan, then fell quickly by almost 130 basis points with the implementation of the constitution, and with Nathan Rothschild underwriting the remainder of the loan in 1825. Borrowing costs were at their highest, unsurprisingly, with interest-covering loans of 1829. Costs fell thereafter, rose slightly in the early 1840s, declined in the 1850s, rose again with the war against Paraguay, and fell off thereafter.

The cost of domestic borrowing in Rio peaked with the political instability surrounding the end of the First Reign and the creation of the regency in the early 1830s. Thereafter domestic borrowing costs followed a long and steady decline, until the 1880s when the cost of borrowing dropped even more rapidly. With the exception of 1865, domestic borrowing costs ran slightly higher than borrowing costs in London until the 1870s. Higher costs in Rio had a ready explanation: currency risk. Creditors in London were promised repayment in sterling, while creditors in Rio were repaid in milréis. Given the milréis' steady slide against sterling until 1846, borrowing in milréis simply cost the government more. Apólices in inconvertible domestic currency carried higher risk for bondholders. For its part, the Ministry of Finance was a reasonably shrewd customer, taking conditions in both markets into account when deciding where to place a new issue. The result was a structure of borrowing costs that saw similar levels, and similar trends over time, both at home and abroad. Importantly, the domestic debt market allowed the state to borrow affordably and flexibly at home. Measures of default risk confirm the story suggested by borrowing costs. Figure 4 presents estimates of the probability of default on Brazil's external loans at the time of borrowing. Though risk of default varied, it followed a clear downward trend. By any conventional measure, Brazil's credibility as a borrower grew with time. Reputation for repayment may well have boosted its status as a debtor. But the institutional foundations of borrowing clearly underpinned Brazil's access to capital.

⁴⁹ Contemporaries, like modern analysts, understood the consol yield to indicate the risk-free return in the nineteenth century; J.M. Carvalho Moreira [Barão de Penedo], *O Empréstimo Brasileiro Contraído Em Londres Em 1863* (Paris: 1864), pp. 22-24.

Both the sovereign interest rate spreads (or derivatives thereof, such as default risk), and quantity measures of sovereign borrowing, yield the same interpretation of the Brazilian state's experience under the institutions adopted in 1824. With the executive branch deprived of discretion over whether to honor debt, Brazilian governments were able to repeatedly borrow in London and Rio de Janeiro. The first decades after independence witnessed considerable political instability of several types: abdication of the first emperor, revolts, and separatist movements. Because of these there was uncertainty over the survivability of the core political institutions. That their durability was in doubt meant also that the credibility of the default penalty implied by these institutions was also in doubt. As a result the quantity of borrowing remained small, and borrowing costs were relatively high. After 1850 more frequent borrowing, higher levels of funded debt, lower borrowing costs, and a rising share of the funded debt that was domestic in origin, all point to a shift. The institutions did not change, but the perception that they would persist did.

6. Private finance

Despite enjoying success with public borrowing, Brazil's financial markets were slow to develop. The relative backwardness of financial development is a key concern among economists and economic historians. The burgeoning literature on modern finance and economic performance finds that financial development, at an appropriately early phase of modern economic growth, has profound consequences for the real economy.⁵⁰ A growing body of work reveals that financial development is a requirement for, rather than a mere handmaiden of, modern economic growth.⁵¹

⁵⁰ See, for example, Robert G. King and Ross Levine, "Finance and Growth: Schumpeter Might Be Right," *The Quarterly Journal of Economics* 108, no. 3 (1993).; Ross Levine, "Financial Development and Economic Growth: Views and Agenda," *Journal of Economic Literature* 35, no. 2 (1997).; Ross Levine and Sara Zervos, "Stock Markets, Banks, and Economic Growth," *American Economic Review* 88, no. 3 (1998).; Raghuram G. Rajan and Luigi Zingales, "Financial Dependence and Growth," *American Economic Review* 88, no. 3 (1998)..

⁵¹ Rousseau and Sylla, "Financial Systems, Economic Growth, and Globalization," pp. 393-398.

Until the 1880s Brazil was sorely deficient in developing efficient financial intermediation, either through banking organizations, or stock and bond markets. Heavy restrictions on the forms that businesses could take meant that firms for which the minimum efficient scale was relatively large did not automatically have access to joint stock forms of organization. Private finance in Imperial Brazil suffered from politicized market interventions that undermined the development of domestic capital markets. Government limited access to the limited-liability, joint-stock form of the corporation, until 1882. It also heavily restricted entry into commercial banking, and especially so for note-issuing banks. These policies limited the options of entrepreneurs seeking to create or expand businesses, and left firms capital constrained. Unsurprisingly, private interest rates remained high throughout the imperial era. The central government's dominance over all aspects of financial policy meant that provincial governments could not tailor policies to best suit local needs. It is thus the height of irony that the very institutional arrangements that made Brazil the most credible borrower in Latin America also provided for the political centralization that made policies unresponsive to business interests, and hamstrung financial innovation in the private sector.

The extent of investor protections in the private economy, and the prospect for financial development, is determined in part by the degree of accountability that policy makers have to their constituents.⁵² What Imperial Brazil illustrates clearly is that a government can borrow credibly while simultaneously curtailing the development of capital markets.

Brazil had no general legal provision for incorporating firms before 1849. The Brazilian form of the limited liability, joint stock firm, or corporation, was the *sociedade anônima*. A few of these operated for short intervals as unincorporated joint-stock firms before the commercial code of 1850 banned the practice. Only with specific government recognition could individual firms obtain limited-liability status.⁵³ Weaknesses of Civil Law countries with respect to investor protections, which occupy presentist assessments of the quality of corporate regulation and governance, had little bearing on the shortage of

⁵² For a formalization of this problem see Perotti and Volpin, "Lobbying on Entry,"..

⁵³ The only bank to operate in Rio de Janeiro with this authorization between the demise of the first Banco do Brasil and 1851 was the Banco Commercial; Bernardo de Souza Franco, *Os Bancos Do Brasil*, 2a. ed. (Brasília: 1984), pp. 27-31.

limited liability joint stock companies in Imperial Brazil.⁵⁴ There existed a tighter constraint on entrepreneurs seeking to adopt the limited-liability form than just the problem posed by questions of creditor and shareholder rights. In Imperial Brazil shareholder rights were well defined and fully transparent once the Commercial Code of 1850 was implemented. The principal obstacle for most of the Imperial era was that limiting the organizational form of the firm that entrepreneurs could select. By the Commercial Code of 1850 only an act of parliament could permit a company to incorporate. The procedure for gaining authorization to issue equity was cumbersome, slow, and restrictive. Attempts to skirt the problem, by issuing tradable shares in partnerships, were energetically repressed by the government. Then, in 1860, things grew worse. Government maintained its grip on grants of limited liability, and imposed further restrictions on joint stock companies, especially banks, shifting part of the authority for the granting of limited liability for financial firms to the Emperor's Council of State (an advisory council, whose members enjoyed life tenure).⁵⁵ This measure applied equally to companies seeking to build a railroad or canal in more than one province.⁵⁶ Thus with the Council, and not just the cabinet and parliament, rested authority over limited liability for financial firms until 1882. For more than two decades the Sections of Treasury and Empire of the Council busied themselves scrutinizing the statutes of every proposed banking company, many railroads, and countless other companies that sought any sort of privilege or concession.⁵⁷ These measures were not used to prevent joint-stock companies from forming at all. Rather, for more than 30 years, they made it possible for the Cabinet to maintain considerable control over which enterprises could attain such status. They also guaranteed powerful limits on commercial banking. Next to railroads, probably no other branch of business would have benefited so much from the opportunities of the joint stock form of incorporation. In 1867 there

⁵⁴ Rafael La Porta et al., "Law and Finance," *Journal of Political Economy* 106, no. 6 (1998), Rafael La Porta et al., "Legal Determinants of External Finance," *Journal of Finance* 52, no. 3 (1997)..

⁵⁵ Law 1083, 22 August 1860, Article 2, Section 3.

⁵⁶ Decreto 2711, 19 December 1860, Capítulo 1, Article 9, Section 1.

⁵⁷ Lydia Magalhães Garner, "In Pursuit of Order: A Study in Brazilian Centralization, the Section of Empire of the Council of State, 1842-1889" (Ph.d., Johns Hopkins University, 1988)., especially pp. 381-420.

were only 69 corporations in all of Brazil; of these 24 were Brazilian-owned firms based in Rio de Janeiro.⁵⁸

Table 5 presents estimates of the paid-in capital of limited liability joint-stock firms in Rio de Janeiro at various intervals between 1850, when the Commercial Code was adopted, and 1888.⁵⁹ The growth in the paid-in capital of corporations from 1851 to 1855 was expressive, rising to 47.6 million milréis in prices of 1888, paid in to 33 firms.⁶⁰ From 1855 through 1860 the real value of joint-stock capital rose again, by more than sixty percent. The 1850s was truly a boom decade in the capital and money markets, and not solely because of new commercial regulations permitting the creation of corporations. The end of the trans-Atlantic slave trade, a result of British threats, figured into the boom as well: "as a consequence of the complete repression of the trade in Africans, capital previously employed in illicit transactions flowed into the market, from which resulted a decline of 3.5 to 4 percent per year in discounts, and an extraordinary increase in the prices of shares of all of companies."⁶¹ Between 1851 and 1860 *sociedades anônimas* were permitted to organize relatively freely. With the 1860 law, things stalled, and between 1861 and 1865 there was virtually no change in the paid-in equity of Rio corporations.

Only with the law of 1882, which made joint-stock company formation a simple administrative procedure, did the pace of new issues pick up and the stock market return to growth. From 1880 to 1885 the real value of corporate capital very nearly doubled, rising from 132 million milréis to 250 million milréis. Moreover, corporate debt, first took on significance. Debt took the form of "debentures," which were preferred company

⁵⁸ The balance of the Brazil-originated companies were scattered across Pernambuco, Rio Grande do Sul, Bahia, Maranhão, Alagoas, Sergipe, Piauí, and Paraná. Of the 69 companies 17 were British in origin. These were free-standing companies that had registered as joint-stock companies and raised their initial capital in Britain. Some went on to place shares, denominated in sterling, in Brazilian securities markets; "Relação das Companhias nacionaes e estrangeiras que funcçionam no Imperio," *RMACOP*, 1867.

⁵⁹ By stopping short of 1889 the figures avoid the influence of rising liquidity that resulted from legislation creating new banks of issue.

⁶⁰ This includes every formally listed firm in Rio. Note however that it excludes Mauá's bank, since it was a silent partnership that temporarily operated with shares, not a limited liability joint-stock company. On the turmoil surrounding Mauá's effort see Jorge Caldeira, *Mauá: Empresário Do Império* (São Paulo: 1995), pp. 306-314.

⁶¹ RA 1851, *JdoC* 14 Janeiro 1852.

shares that paid a fixed coupon. Formally codified by the law of 1882, the issue of debenture debt provided an additional 62 million milréis for joint-stock firms in Rio by 1888.⁶² Just as the 1850 Commercial Code had permitted, in a highly controlled fashion, the formation of joint-stock companies, and the 1860 legislation reduced the pace of joint-stock formation, the permissiveness of the 1882 law was followed by an increase in the paid-in capital of joint-stock firms.

Two indicators reveal the very limited degree of overall private financial development in Imperial Brazil. The first indicator draws on Ryan's original research findings on lending in Rio de Janeiro, based on registered credit contracts.⁶³ Over the course of the nineteenth century interest rates for private loans in Rio de Janeiro remained high, and did not decline to anywhere near the degree that interest rates on public debt did. Figure 5 presents summary measures of the average rate of interest on all private lending contracts recorded in the city. Private rates of borrowing from 1835 through 1845 generally followed the upward trend of apólice yields, and then similarly declined through 1855. Private rates rose between 1855 and 1860, then fell somewhat, always remaining above ten percent. By 1885, when yields on long-term government debt were well below six percent in both Rio de Janeiro and London, average private rates of interest in Rio de Janeiro were still at ten percent.

The second indicator of financial underdevelopment is the high degree of bank concentration in what was elsewhere a reasonably competitive activity. Table 6 provides an overview of the evolution of joint-stock commercial banking in Rio de Janeiro from 1855 to 1888.⁶⁴ Several features and tendencies in the table stand out. The first is the

⁶² It is a common conjecture that rising coffee prices in the 1880s must have played an important role in explaining the increase in joint-stock investment. The average wholesale price of coffee in Rio in the 1880s was, in fact, less than that of the 1870s.

⁶³ Ryan, "Credit where Credit is Due," ms. 2004.

⁶⁴ The evolution of commercial banking is addressed in Maria Barbara Levy, "Historia Dos Bancos Comerciais No Brasil," (Rio de Janeiro: 1972).; Carlos Manuel Peláez, "The Establishment of Banking Institutions in a Backward Economy: Brazil, 1800-1851," *The Business History Review* 49, no. 4 (1975).; Carlos Manuel Peláez and Wilson Suzigan, *História Monetária Do Brasil: Análise Da Política, Comportamento E Instituições Monetárias* (Rio de Janeiro: 1976).; pp. 44-121. Detailed accounts for the assets and operations of the entire banking sector do not exist. Decreto 2679 of 3 November 1860 required joint stock banks to submit statements of their operations

slow rate of new entry. New commercial banks appeared on the scene only gradually. Not all of them survived. The appearance of the third Banco do Brasil, two other sizeable commercial banks, and a new trans-Atlantic banking partnership, all provided a small dose of competition during the decade. The 1860s witnessed the creation of only one new domestic commercial bank, but saw the appearance of two new British-owned banks. Four domestic banks and two more foreign banks appeared on the scene in the 1870s. The crisis of 1875 took out three banks, along with Mauá's large private bank. Thanks partly to the newly reformed companies law at the end of 1882, the 1880s witnessed another up tick in bank entry, though none of the new firms were large by local standards.

Despite the growth of banking assets, which was strongest in the 1880s, the commercial bank sector in Rio de Janeiro remained relatively small and deeply concentrated during the latter decades of the Empire. Real financial assets of these banks had expanded more than six fold between 1855 and 1888. The magnitude of this expansion would appear quite large, but this is in large part due to the low level of joint-stock banking assets that existed at the outset. From only three joint-stock commercial banks in 1855, the Rio commercial bank sector grew to some fifteen banks by the eve of the banking reform of 24 November 1888. Over the same interval five other banks had failed. The most salient feature of the evolution of commercial banking sketched in Table 6 is the persistent dominance of the Banco do Brasil, dominance that continued well after its loss of the monopoly on currency issue in 1866. It held the lion's share of bank assets for much of the period. By 1888, when the bank's share had shrunk to less than 40 percent of Rio commercial bank assets, the next largest bank had only one-third

regularly to the Ministry of Finance. In 1866 the Ministry was still trying to get banking organizations to comply with the reporting requirement; *RMF* 1866, p. 17. Statements of bank operations ultimately published by the Finance Ministry did not necessarily include full balance sheets, and almost never included statements of income and expenditure. Joint-stock banks were also required to publish their balance sheets regularly in public sources, and the table is crafted from the available balance sheets of individual banks. Some of these survive as part of the published reports to shareholders, and are housed in the Periodicals section of the Biblioteca Nacional in Rio de Janeiro. The rest come from balance sheets (often highly condensed) published in the *Jornal do Comércio*.

of the heft of the Banco do Brasil. Most Rio joint-stock banks remained small by comparison.

The large share of banking assets held by one organization, and the small number of banks overall, suggests a consistently high level of concentration of commercial banking assets. High concentration itself indicated the low-level of banking development permitted under the Empire. It further suggests a potentially large degree of pricing power by banks in the market for loans. The Herfindahl index takes into account each firm's market share:⁶⁵

$$H_t = \sum s_{it}^2$$

Conventional standards of concentration take a Herfindahl index between 0.10 and 0.18 as revealing a moderately concentrated market, and any measure in excess of 0.18 as highly concentrated. Figure 6 presents Herfindahl indices for the joint-stock commercial banking sector in Rio de Janeiro from 1855 through 1888. At every point in time Rio banking was highly concentrated. Though concentration clearly declined as new banks entered, the large share of all joint-stock bank assets controlled by the Banco do Brasil, and the relatively small number of banks overall, kept market concentration high.

Brazil's tendency to exhibit a small, concentrated banking sector stemmed logically from the high degree of political centralization that virtually eliminated the possibility of provincial initiatives in joint-stock banking, and made possible highly restrictive laws on entry that applied nationwide. But incumbent banks themselves had an obvious interest in limiting entry as well. Concentration raised bank profits, by leaving only a few firms in a position to pool equity capital on a large scale, giving them tremendous influence over both fees and interest rates. Moreover, incumbent banks had every interest in limiting competition and entry.

⁶⁵ The version of the index estimated here is the sum of the squared shares of total banking assets accounted for by each bank, for a given year. The index is normalized here such that a value approaching 1.0 indicates a monopolized market, while a value approaching zero indicates perfect competition.

The high degree of concentration in Rio commercial banking, with Herfindahl indices always above 0.18 through 1888, and which saw single bank always in command of more than one-third of the city's joint-stock banking assets, generates an obvious hypothesis: bank profits were high. At first blush, it is clear that this could not be true at every moment: banks did fail in Rio. Even a normally profitable bank can fail, of course, when caught short in a liquidity crunch. The hypothesis proves challenging to test systematically, given the nature of financial accounting at the time.⁶⁶ Only for the Banco do Brasil is such information available over a span of time sufficient to provide a test.

Figure 7 presents annual estimates on the return on equity invested at the Banco do Brasil. Equity is defined here as the original funds raised from purchasers of the bank's common stock, and which comprised the bank's capital. As a concept of profit, return on equity focuses on the appropriable earnings enjoyed by the bank's stockholders whether in the form of dividends, or in retained earnings. Profit is thus measured as the bank's earnings from all its assets each year, less its operating costs. As the figure shows, the Banco do Brasil never operated at a loss. On the contrary, the return on equity invested rose by 1858 to 10 percent, and never fell below that level through 1889. Annual rates of return typically hovered in a band from 10 and 15 percent, occasionally moving above that level. Given that the bank specialized in short-term discounting, the issue of bank notes (until 1866), and high-quality mortgage lending (after 1866), it was not an especially risky enterprise. These profits were rents, a result of restrictions on entry enforced by the central government. The bank was quite clearly a highly profitable enterprise. Thus finding is consistent with the hypothesis that the high degree of concentration in Rio commercial banking promoted high bank profits. Those persons fortunate enough to acquire the bank's shares when they were issued clearly enjoyed the fruits of restrictions on entry that reduced bank competition.

⁶⁶ Many banks published their balance sheets in only a summary fashion, and without income and loss statements. Unless the balance sheets provide indications of the distribution of net income for each period it is not possible to compute rates of return.

7. Conclusion

Because of its history Brazil serves as an insightful case for investigating the relationship between political institutions and financial development. Indeed, in an era before it could be categorized as a “serial defaulter”, Brazil established political institutions that supported successful sovereign borrowing. As these institutions came to be increasingly viewed as credible, the state’s borrowing costs fell, even as it borrowed more, and its debt increased. From 1824 through 1889, Brazil never missed an interest payment. It is especially striking, then, that private financial development did not keep up with the advances in public finance. Private financial development was actually stymied by the state, even as it built a record of successful debt repayment. The barriers to private financial development stemmed from highly centralized political institutions and a restrictive franchise. The organizational forms available to entrepreneurs were tightly controlled until 1883. Policymakers rarely permitted chartering of new joint-stock banks. Moreover, both market structure among banks, and the make-up of their boards of directors, were consistent with rent-seeking by incumbent firms. The commercial banking sector was small, concentrated and lucrative for investors. Private interest rates remained persistently high. Indeed, nothing like a full-blown financial revolution transpired in Brazil. The political institutions that made sovereign borrowing credible also made financial repression possible. From the vantage point of today, there is little reason to expect that states that get their institutions right for the purposes of public borrowing will necessarily see the financial development required for economic growth. Outside the issue of credibility vs. reputation, there are considerable institutional details that matter for supporting capital markets. And it appears likely that it is only with detailed case studies that scholars can begin exploit those details to specify and test most general hypothesis.

Figure 1. The Government-Chamber Default Game

Figure 2

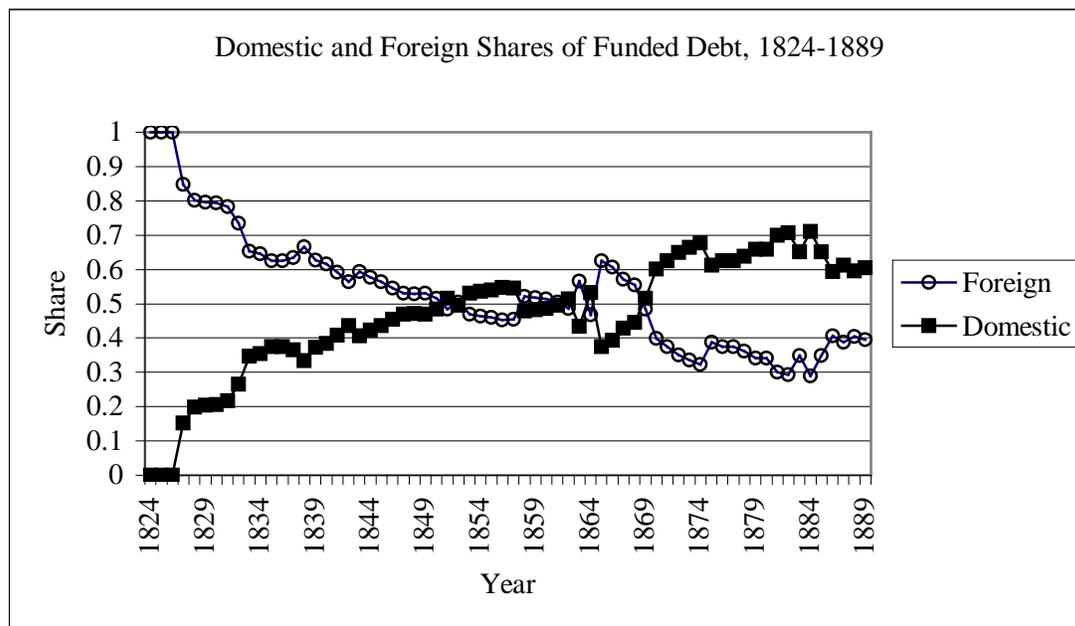
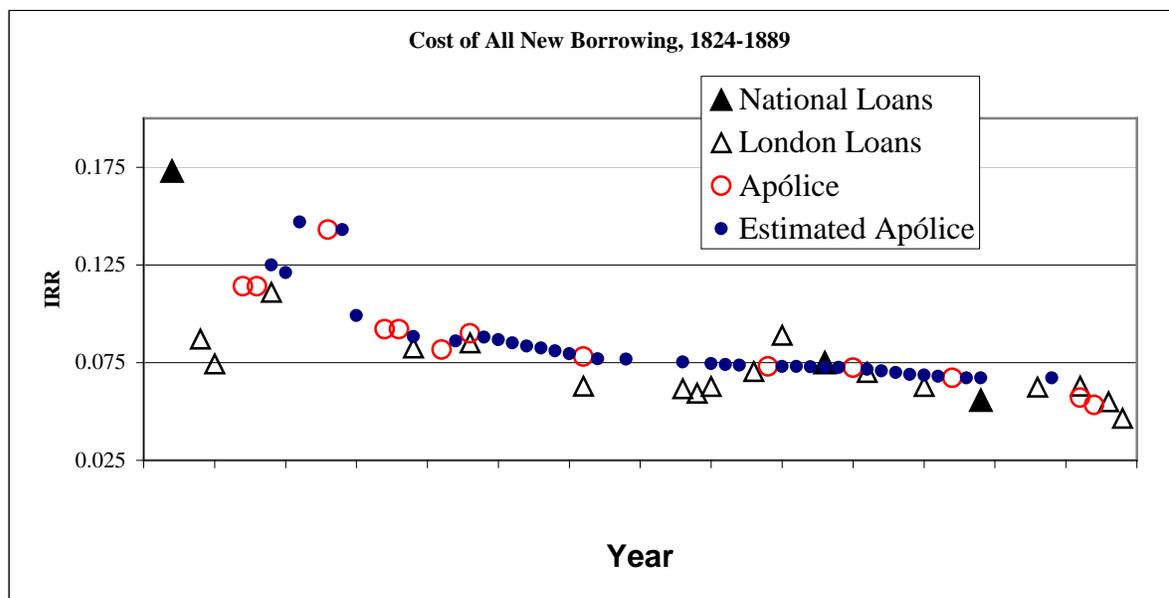


Figure 3 Initial Issue Cost of Borrowing, 1822-1889



SOURCES: See text.

NOTE: Internal rates of return on *apólices* estimated from *apólice* coupon rate, issue price, and a one-percent annual amortization rate; internal rates of return on the National Loans of 1822, 1868 and 1879 based on conditions in government decrees that

established the issues; internal rates of return on London issues based on terms detailed in each actual loan contract between the government of Brazil and merchant bankers.

Figure 4 Default Probabilities, by Loan

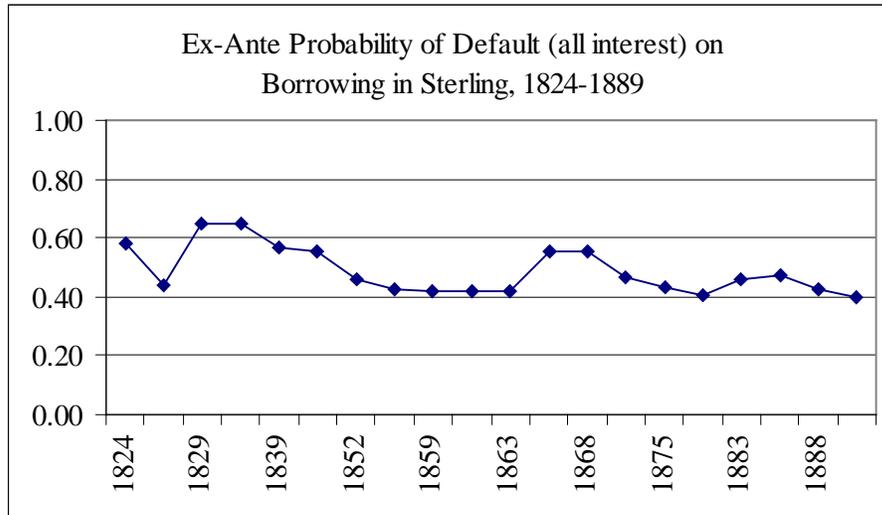


Figure 5.

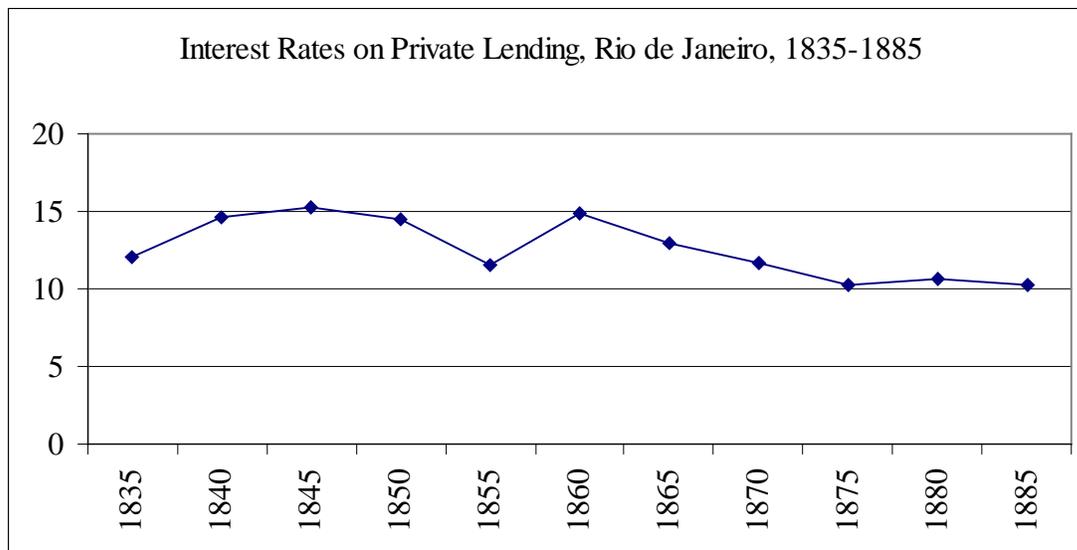
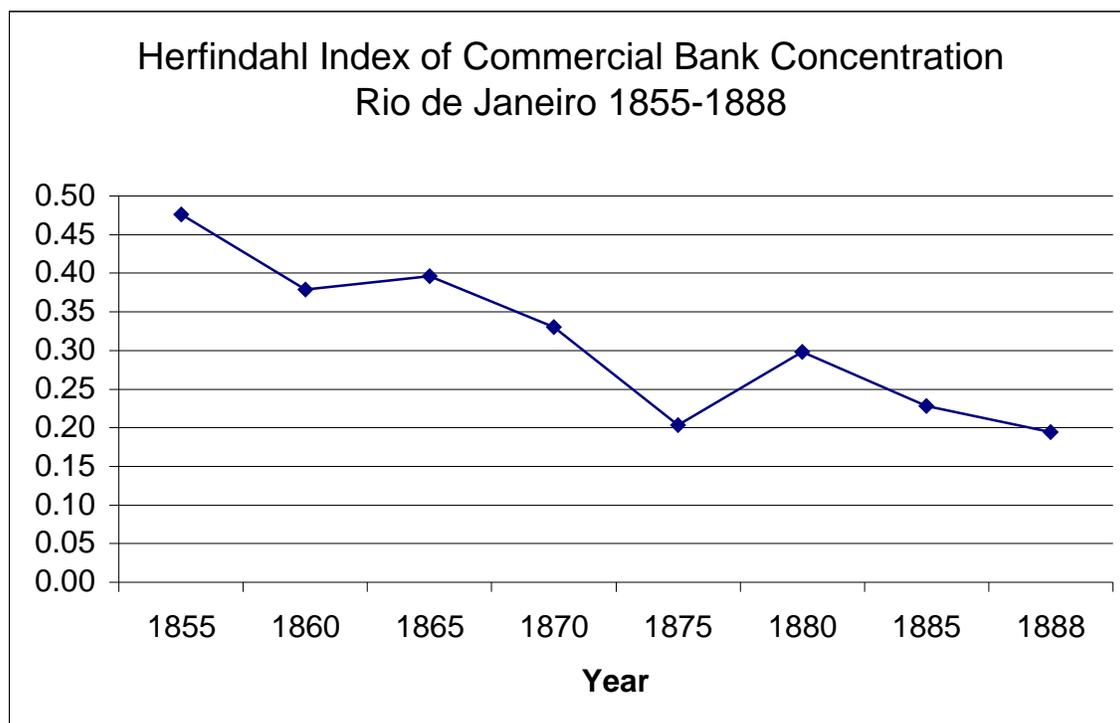
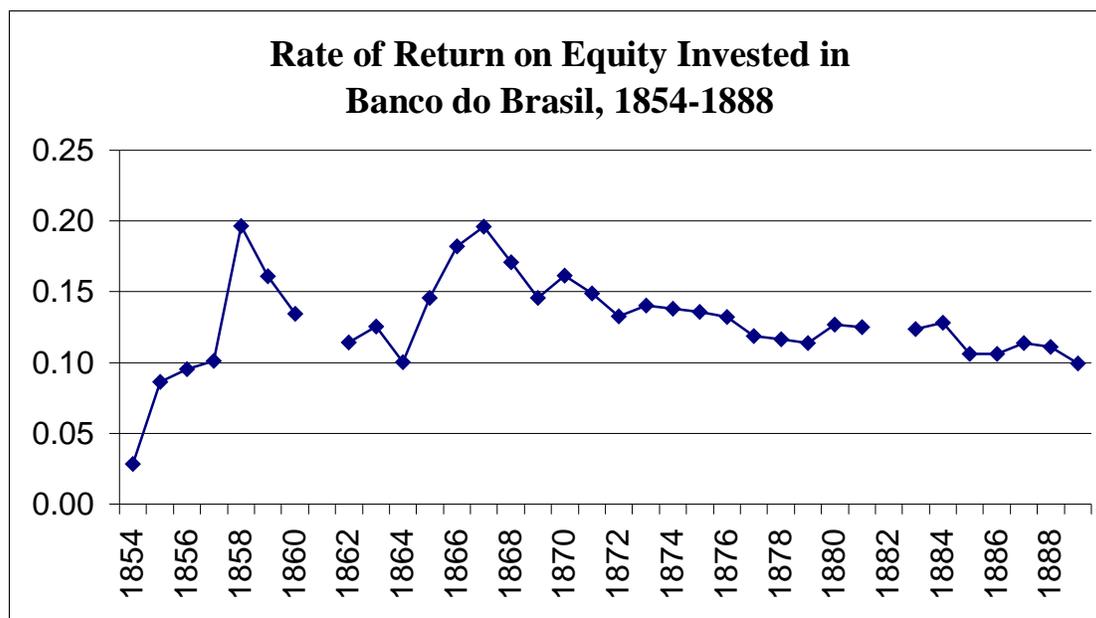


Figure 6



SOURCES: For the assets of the Banco do Brasil, *RBB*, 1852-1889. A good portion of the *relatórios* of the other Rio banks are available for consultation in the periodicals section of the Biblioteca Nacional in Rio de Janeiro. Where the published reports to shareholders did not survive, end of year balance sheets are taken from the *Jornal do Comércio* and the *Diário Oficial do Império*. For the London and Brazilian Bank, annual reports to shareholders are available in the archive for the Bank of London and South America, University College, London.

Figure 7



NOTES: Return is measured as the bank's operating surplus divided by the original equity investment by shareholders.

SOURCE: Banco do Brasil, *Relatório*, 1854-1860; 1862-1881; 1883-1888.

Table 1. Brazilian Borrowing in London, 1824-1889

Loan	Place of Issue	Principal Purpose of Loan	Bank	Issue Price	Coupon Rate	Amount Raised	Amount Issued	Maturity (Years)
1824	London	Deficit	Bazeth et al.	75	5	1,000,000	1,333,300	30
1825	London	Deficit	Rothschild	85	5	2,000,000	2,352,000	30
1829	London	Loan Interest	Rothschild	52	4	200,000	384,600	30
1829	London	Loan Interest	Wilson & Co.	52	4	199,940	384,500	30
1839	London	Deficit	Samuel & Phillips	76	5	312,500	411,200	30
1843	London	Portugal (Convention of 1842)	Goldsmid, et al.	85	5	622,702	732,000	20
1852	London	Retire 1823 Portuguese Loan	Rothschild	95	4.5	954,250	1,010,000	30
1858	London	Buyout of Dom Pedro II Railroad	Rothschild	95.5	4.5	1,425,000	1,523,500	20
1859	London	Retire 1829 Loan	Rothschild	100	5	508,000	508,000	30
1860	London	Infrastructure	Rothschild	90	4.5	1,210,000	1,373,000	30
1863	London	Retire 1824 Loan/1843 Loan/Cover Floating Debt	Rothschild	88	4.5	3,300,000	3,855,300	30
1865	London & Amsterdam	War Finance	Rothschild	74	5	5,000,000	6,963,600	37
1871	London	Floating Debt/Railroad Extension	Rothschild	89	5	3,000,000	3,459,000	37
1875	London	Railroad Construction and Railroad Dividend Guarantees	Rothschild	96.5	5	5,000,000	5,301,200	30
1883	London	Railroads/Public Works/Engenhos Centrais	Rothschild	89	4.5	4,000,000	4,599,600	38
1886	London	Floating Debt/Deficit	Rothschild	95	5	6,000,000	6,431,000	38
1888	London	"Abolition"	Rothschild	97	4.5	6,000,000	6,297,300	38
1889	London	Conversion	Rothschild	90	4	17,440,300	19,837,000	56

Table 2 Authorized Issues of Brazilian Six-percent Perpetual-interest Bonds (*Apólices*),
1828-1882

Periods	Principal Purpose	Amount Issued
1828-1832	Deficit	13,496,600
1832-1834	"Prezas"	5,974,600
1837	Revolts	1,723,000
1837-1838	Deficit	5,861,400
1839	Deficit	1,918,000
1840	Military expenditures	303,400
1841	Deficit	4,105,600
1842-1843	Deficit	5,346,600
1842-1845	Portuguese claims	2,124,200
1843-1844	Royal dowry and trousseau	1,720,000
1843-1846	Deficit	1,495,000
1844-1845	Deficit	2,344,000
1844-1848	Deficit	7,505,400
1846	Deficit	336,000
1851-1853	Deficit	5,213,800
1858	Portuguese claims	5,400
1860-1862	Swap for shares of Recife and San Francisco railroad	2,466,400
1860-1863	Swap for shares of Bahia and San Francisco railroad	186,600
1860-1872	Swap for shares of Dom Pedro II railroad	11,328,600
1861-1862	Withdraw paper money	2,150,000
1863	Withdraw paper money/Redeem notes and Rio de la Plata indemnities	5,890,400
1864	Takeover turnpike road	3,161,000
1865	Withdraw paper money/Royal weddings	1,228,000
1865-1872	Paraguayan war	143,894,700
1869	Land purchase	50,000
1870	Island purchase	1,705,800
1870	Redeem treasury notes	25,000,000
1871		600
1873-1876	Dock company	2,734,000
1876	Deficit	8,600,000
1877	"Diverse"	30,000,000
1877	Dowry	1,200,000
1879	Consolidation of floating debt	40,000,000
1880-1882	Swap for shares of Baturité railroad	606,000
Total Issued		339,675,100
Amortized		10,154,200
Amount in Circulation in 1889		329,520,900

NOTES: amounts issued in milréis.

Table 3. Authorized Issues of Brazilian Five-percent Perpetual-interest Bonds (*Apólices*), 1830-1886

Periods	Purpose	Amount Issued
1830-1883	Fund pre-1827 Obligations	2,000,000
1886	Consolidate Floating Debt	50,000,000
Circulation		52,000,000

Note: amounts issued in milréis.

Table 4. Brazilian National Loans

Loan	Interest Cost	Place of Issue	Purpose	Coupon	Amount Raised	Amount Issued	Period (Years)
1822	17.3	Rio de Janeiro	Military Expenditures	6	297,398\$	437,178\$	10
1868	7.49	Rio de Janeiro	War Finance (Gold)	6	27,000,000\$	30,000,000\$	33
1879	5.57	Rio de Janeiro	Deficits/Floating Debt	4.5	50,000,000\$	51,885,000\$	20

Notes: The 1822 loan had a forced character, and the actual amount raised is unclear. The proceeds reported here are based on the highest figure located in contemporary sources. The 1868 and 1879 loans were issued in Rio de Janeiro, interest payable in Brazil, Britain and Continental Europe. Dividends and amortization on the 1868 loan were paid in gold. Dividends and amortization on the 1879 loan were payable in specie, or in Brazilian currency at the current rate of exchange, at the discretion of the government. Interest cost is the internal rate of return, ex ante, that equates the net present value of the loan (the amount received at issue) with the future stream of dividends, amortization, and fees.

Table 5. Paid-in Equity Capital of Domestic Joint-Stock Companies traded on the Rio de Janeiro Stock Exchange, 1851-1888

Year	Domestic Paid-In Capital	Deflated Paid-In Capital
1851	3,840,000	6,134,185
1855	39,925,000	47,643,198
1860	86,691,916	78,454,223
1865	81,117,164	77,254,442
1870	71,390,337	64,606,640
1875	162,191,740	148,255,704
1880	143,877,251	132,240,120
1885	251,704,160	250,202,942
1888	250,202,942*	256,972,128

SOURCES: See text

NOTES: All values in milréis. Figures include British-owned firms whose shares traded on the Rio exchange. Deflated figures are expressed in prices of 1888, using the deflator described in the text.

*This figure does not include 62.4 million milréis of debenture shares that had been issued mainly between 1881 and 1888.

Table 6. Share of Commercial Banking Assets, by Bank, Rio de Janeiro, 1885-1888

BANK	1855	1860	1865	1870	1875	1880	1885	1888
BANCO DO BRASIL	0.727	0.558	0.590	0.511	0.375	0.512	0.434	0.387
BANCO RURAL E HIPOTECÁRIO	0.273	0.145	0.117	0.188	0.083	0.081	0.077	0.064
BANCO COMERCIAL E AGRÍCOLA		0.187						
BANCO COMERCIAL DO RIO DE JANEIRO				0.135	0.156	0.103	0.118	0.125
BANCO NACIONAL DE DEPÓSITOS E DESCONTOS					0.118			
BANCO INDUSTRIAL E MERCANTIL					0.097	0.041	0.032	0.026
BANCO PREDIAL					0.020	0.040	0.053	0.044
BANCO DO COMÉRCIO					0.051	0.052	0.047	0.061
BANCO AUXILIAR							0.003	0.004
BANCO DE CRÉDITO REAL DO BRASIL							0.079	0.093
BANCO DE CRÉDITO REAL DE SÃO PAULO							0.044	--
BANCO UNIÃO DO CRÉDITO							0.010	0.012
BANCO UNIÃO DOS LAVRADORES						0.009	0.000	0.000
BANCO DEL CREDERE								0.016
BANCO INTERNACIONAL DO BRASIL								0.085
MAUA, MACGREGOR, E CIA*	0.127	0.110	0.040					
LONDON AND BRAZILIAN BANK*			0.141	0.050	0.054	0.086	0.056	0.036
THE BRAZILIAN AND PORTUGUESE BANK*			0.112	0.116	0.045	0.075	0.046	0.031
BRASILIANISCHE BANK FUR DEUTSCHLAND*								0.017
REAL TOTAL ASSETS (Millions of Milréis in 1888 prices)	94.0	136.5	186.7	190.6	249.0	314.6	494.5	603.1

NOTES: *Foreign-owned bank or foreign-partnered bank. Two foreign joint-stock banks were so short-lived they do not appear in the table: the

BANQUE BRESILIENNE FRANCAISE (1872-1875), and the DEUTSCH BRASILIANISCHE BANK (1873-1875). The BANCO DE CRÉDITO REAL DE SÃO PAULO, a mortgage bank in São Paulo with offices in Rio de Janeiro, was one of the rare instances of a provincially-chartered joint-stock bank.

SOURCES: For the Banco do Brasil, *RBB*, 1852-1889. A good portion of the *relatórios* of the other Rio banks are available for consultation in the periodicals section of the Biblioteca Nacional in Rio de Janeiro. Where the published reports to shareholders did not survive, end of year balance sheets are taken from the *Jornal do Comércio* and the *Diário Oficial do Império*. For the London and Brazilian Bank, annual reports to shareholders are available in the archive for the Bank of London and South America, University College, London.

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