Always Turkeys?

Brazil's State Owned Banks in Historical Perspective

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Abstract: A sizable literature indicates that state-ownership of banks is associated with credit misallocation and bank insolvency. We wonder why, if state-ownership is so pernicious, did it exist in so many places—including the 19th century United States? We therefore build a unique dataset of all banks traded on the Rio de Janeiro stock exchange during the period 1875-1935 and use it to compare the performance of the Banco do Brasil to its private competitors. Our analysis indicates that the Banco do Brasil had a higher rate of return on equity, higher market to book ratio, and higher real return to private investors than Brazil's private banks.

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A sizable literature in financial economics finds that state banks have not been good vehicles for diffusing access to finance in developing countries. The reason is not hard to divine: state-owned banks tend to get captured by interest groups. Sometimes the interest group is political cronies, which causes credit to be allocated at lower interest rates to firms that are more likely to default (Khwaja and Mian 2005). At other times the interest group is large industrial conglomerates which do not need subsidized credit but which receive it anyway because their workforces are politically crucial for legislators or ruling parties (Cárdenas 2000: 190). In yet other cases the interest group is politicians themselves, who use the bank as a way to create a soft budget constraint (Beck, Crivelli, and Summerhill 2005). Regardless of the specific interest involved, the end result is often the same: credit is inefficiently allocated and the state-owned bank becomes insolvent (Cull and Xu 2000; Clarke and Cull 2002; Clark, Cull, and Shirley 2005; LaPorta Lopez-de-Silanes, and Shleifer 2002; Sapienza, 2004).

We wonder whether the track record of state-owned banks as portrayed in the extant literature is generalizable? Much of the literature focuses on data from the past decade and draws comparisons between state-owned and privately-owned banks during that period. Might there be circumstances in which state ownership of banks makes sense, particularly during the early stages of financial development? After all, the antebellum United States was dotted with banks that were either wholly or partially state-owned. Many of the first banks to be founded in the Midwest were entirely government owned (Bodenhorn 2003), while virtually all of the early banks on the eastern seaboard were joint ventures, in which a state government would grant a charter to private investors, who then lent the government the funds to pay for its shares of stock from that same

bank. The state government then repaid the loan out of the dividend stream of the bank (Sylla, Legler and Wallis 1987; Wallis, Sylla, and Legler 1994). In fact, the first, and by far the largest, commercial bank in the history of the country, the Bank of the United States (BUS), founded in 1791, was 20 percent owned by the federal government, which paid for the stock with a loan from the bank. The BUS was a commercial bank that was fully capable of taking deposits and making loans to private parties, and at the same time was the federal government's fiscal agent. In exchange, the BUS received a set of valuable concessions: the right to limited liability for its shareholders; the right to hold federal government specie balances; the right to charge the federal government interest on loans from the bank (notes issued by the bank to cover federal expenses); and the sole right to branch across state lines. It successor, the Second Bank of the United States, was financed and operated in much the same way, until the renewal of its concession was vetoed by Andrew Jackson in 1836.

One might argue that the experience of the nineteenth century United States is not applicable to developing economies. After all, the United States had institutions designed to constrain the authority and discretion of government agents (e.g., broad suffrage, bicameral legislatures at the state and federal levels, an independent judiciary, a free and vocal press, and well-developed political parties). It also had a population that was highly mobile, literate, and by world standards at the time, wealthy. In short, America's unusual institutional structure might have allowed it to avoid the pernicious effects of state-ownership of banks.

We therefore focus on an emerging market that had both private and state-ownership of banks for which we can construct a long-term panel dataset about bank

performance: Brazil from 1875 to 1935. Indeed, Brazil provides something of a natural experiment. During the period 1875-1905 all banks were privately owned, including the banks that served as the treasury's fiscal agent. In 1906, after a financial crisis, the government created a bank that was a joint pubic-private venture, the fourth Banco do Brasil. The governance structure of the bank gave the government cash flow and control rights: 30 percent of the stock was subscribed by the government; and the President of Brazil named the bank's president as well as one of the bank's four directors. The fact that the bank was a joint venture means that we have records of its dividend payments, share prices, capitalization, and retained earnings, which we also have for privately-owned banks, both before and after the creation of the fourth Banco do Brasil. This means that we can compare the financial performance of the state-owned Banco do Brasil with privately-owned banks. Moreover, we can compare the financial performance of the Banco do Brasil against the privately-owned bank that was its predecessor as the government's fiscal agent, the Banco da República, using a quasi-experimental model that captures changes in performance of the two banks, controlling for the performance of all other banks, changes in the macroeconomy, and changes in bank capitalization.

We find that the fourth Banco do Brasil had a higher rate of return on equity than its private competitors. We also find that its higher rates of return on equity were capitalized in its share price: the ratio of its market to book value of equity was significantly higher than that of its private competitors. In fact, we find that an investor who purchased a portfolio of bank stocks in 1906, and then reinvested all dividends, would have reaped a much larger return from her shares in the Banco do Brasil compared to any of the private banks in which she had a stake. Taken as a group, our results do not

indicate that Brazil's early state-owned bank conformed to the image of state-owned banks in the extant literature. Indeed, the fact that it came into existence as a result of a financial crisis that took down much of the private banking system indicates that there may be circumstances in which state ownership of banks—at least as joint ventures—is appropriate.

The rest of this paper proceeds as follows. Section two provides background on the history of Brazilian banking during the period under study. Section three describes our dataset and the methods used to construct it. Section Four contains our analysis of the data. Section Five concludes.

II. Historical Background

Brazil's first bank, the Banco do Brasil, was founded in 1808 when King Dom João VI was transported to Brazil by the British Navy following the invasion of Portugal by Napoleon. From Dom João's point of view, the purpose of the Banco do Brasil was clear: finance the expenses of his government. In order to get Brazil's merchants and landowners to buy stock in the bank, Dom João granted it a number of lucrative privileges: a monopoly on the issuance of paper money, a monopoly on the export of luxury goods, a monopoly on the handling of government financial operations, the right to have debts to the bank treated as having the same legal standing as debts owed to the royal treasury, and the right to collect new taxes imposed by the king—and to then hold those taxes as interest free deposits for a period of ten years. (Peláez 1975: 460-61).

There was nothing to stop the king, however, from reneging on his promises and expropriating the bank. The merchants and landowners who the government needed to buy the bank's shares remained so wary that the Banco do Brasil was unable to achieve

its original capitalization goals until 1817, 11 years after it was founded. Their wariness was not unfounded: most of the bank's business consisted of printing bank notes that were then used to buy bonds issued by the imperial government. As the amount of banknotes increased, so too did inflation. In effect, the bank was the government's agent in creating an inflation tax, and that inflation tax hit everybody, including the bank's shareholders, who likely did not receive an inflation-adjusted rate of return adequate to compensate them for the opportunity cost of their capital: the nominal rate of return on owner's equity in the Banco do Brasil from 1810 to 1820 averaged ten percent per year, which, as near as it can be known, probably did not exceed the rate of inflation by a wide margin. Not surprisingly the shareholders of the bank paid out virtually all of the available returns to themselves as dividends. Worse, in 1820, Dom João reneged on the arrangement by which the bank could hold the proceeds from the new taxes that he had created. The following year, he returned to Portugal, and took with him all of the metals that he and his court had deposited in the bank, exchanging them for whatever banknotes they had in their possession. The Banco do Brasil then continued to function through the rest of the 1820s, and was used by Dom João's son, the Emperor Dom Pedro I, much in the same way as it had been used previously—to finance government budget deficits through note issues. (Peláez 1975).

In 1822 Dom Pedro, at the urging of local elites and with the consent of his father, declared Brazil independent. Independence, however, occasioned a major change in Brazil's political institutions. The merchants and landowners who drafted the Constitution of 1824 gave parliament, and not the emperor, the ultimate responsibility to tax, spend, and borrow. They also specified an elected lower house of parliament, and

restricted the vote on the basis of wealth so that the lower house represented their interests. As Summerhill (forthcoming) has pointed out, this had two consequences: the emperor could not default on loans that he had contracted from landowners and merchants; and members of those elite groups could use their control of parliament to make sure that competing economic groups could not obtain bank charters. In point of fact, from the closing of the Banco do Brasil by parliament in 1829 to the mid-1850s, parliament permitted only seven new banks to be formed—all of which had limited provincial charters that created local banking monopolies.

This set of arrangements worked well for the incumbent bankers, but it came at a cost to the emperor: after 1829 the imperial government did not have a bank that it could use to finance budget deficits. Finding a solution was difficult because creating a national bank large enough to finance the government required aligning the incentives of all the incumbent bankers—some of whom were able to use their influence in parliament to undo whatever deals the emperor struck. Thus, parliament authorized a second Banco do Brasil in 1853, but then removed its right to issue bank notes just four years later. (Peláez and Suzigan 1976: 82-87).

A compromise was only reached in the 1860s when a coalition was formed between the bankers and the imperial government. An 1860 law specified that corporate charters, including those for banks, not only needed the approval of parliament and the emperor's cabinet, they also required approval from the Emperor's Council of State, whose members enjoyed life tenure. In 1863, the Second Banco do Brasil merged with two other Rio de Janeiro banks, the Banco Comercial e Agrícola and the Banco Rural e Hipotecario, which transferred to the Banco do Brasil their rights of note issue, thereby

creating something that the emperor had been seeking for a decade: a note issuing bank that acted as the government's fiscal agent. (Peláez and Suzigan 1976: 103). The government got its bank, and the economic elite got their banks, but no one else could get a bank charter—and no one from outside the small group of "barons" who sat on a bank board was eligible for a loan. (Hanley 2005; Summerhill forthcoming).

Some sense of how restricted the banking industry in Brazil was can be gleaned from Table 1, which contains our estimates of the size of the Brazlian banking based on information retrieved from the Rio de Janeiro stock exchange. Figure 1 then graphs the data on the number of operating banks and total real paid in capital. As Table 1 and Figure 1 indicate, in 1875 there were only 12 banks in the entire country. The number of banks then increased at a snails pace throughout the rest of the imperial period: at the end of the first semester of 1888 there were only 27. Moreover, their combined capitalization had only increased by 53 percent over the 13 year period. Twenty two percent of this capital was concentrated in one bank, the third Banco do Brasil.

This set of arrangements, a coalition between the political elites who ran the government and a small number of merchant-financiers that created a narrowly based banking system, came under threat when the monarchy was overthrown and a federal republic was created in 1889. Space constraints prevent us from exploring how and why the coalition that had supported the emperor fell apart, but one crucial piece of the story was the abolition of slavery in 1888. Abolition drove a wedge between Brazil's planter class and the imperial government. In an effort to placate the planters by making credit more easily available, the imperial government awarded concessions to 12 banks of issue and provided 17 banks with interest free loans. The easy credit policies of 1888 were not

enough, however, to stem the tide of Brazil's República movement. In November of 1889 Dom Pedro II was overthrown in a military coup and a federal republic was created.

The creation of a federal republic undermined the arrangements that had supported a small and concentrated banking industry. The 1891 Constitution gave each of Brazil's 20 states considerable sovereignty, ending the central government's monopoly on the chartering of banks. This put the federal republic's first finance minister, Rui Barbosa, under considerable pressure: if he did not grant additional charters to new banks in order to satisfy the demand for credit from Brazil's growing regional economic elites—most particularly planters and manufacturers—those elites would get their own state governments to do so. As a result, Rui Barbosa quickly pushed through a series of financial reforms, one of whose features was that the federal government allocated bank charters to virtually all comers through a general incorporation law, and another of whose features was that banks could engage in whatever kind of financial transactions they wished. The results of these reforms were dramatic. Recall that in 1888 there were only 27 banks in the entire country. In 1891, as Figure 1 indicates, there were 133. Moreover, we estimate that their total real capitalization (in 1900 milreis) was 4 times that of the 1888 banks.

Brazil's central government soon found itself in a difficult position. The 1891 constitution denied it access to a crucial source of tax income, revenues from export taxes, which were now collected directly by states. The government therefore contracted gold-denominated foreign loans to make up for the budget shortfall. The government also allocated the right to issue to banknotes to a number of banks, each of which aggressively printed and lent currency. Their note issues, in addition to driving a

speculative boom in the stock market, were also drove up inflation. (Hanley 2005). The result was a currency mismatch: a hard-currency denominated debt, a domestic-currency denominated source of income (taxes paid in Brazilian milreis), and an inflation that drove down the international value of the domestic currency. The central government had three options: spend less, raise taxes, or curtail the growth of the money supply. It chose options two and three. In 1896 the government decided once again to restrict the right to issue currency to a single bank—the Banco da República, which was a private commercial bank that had a special charter that made it the agent of the treasury. Two years later, the government increased taxes and restructured its foreign debt. These moves, coupled with the already shaky financial situation of many of the banks, produced a massive contraction of the banking sector. In 1891, as Figure 1 shows, there were 133 banks operating in Brazil. Ten years later there were 84, and their combined capital was only one-quarter that of the 1891 banks. The numbers kept falling, so that by the end of 1905 there were only 63 banks in operation with a total capital still only one quarter that of 1891. Moreover, as Table 1 shows, one-third of this capital was concentrated in the single bank that served as the government's financial agent, the Banco da República.

That contraction occasioned yet another round of reform, which produced in 1906 a fourth Banco do Brasil. Essentially, the government nationalized the insolvent Banco da República, converting debts owed by the bank to the treasury into equity. Like the Banco da República, the fourth Banco do Brasil was a commercial bank fully capable of taking deposits and making private loans. It differed from the others, however, in that the central government was a major stockholder, owning almost one-third of its shares, and the President of the Republic had the right to name the president of the bank, along with

one of its four directors. (Topik 1980). In addition, the bank was not permitted to make loans with terms greater than six months and was not allowed to purchase stock in other companies. These restrictions were designed to guarantee that the bank would retain high levels of liquidity so that it could purchase treasury notes and bills, as well as to act as a lender of last resort in times of economic crisis (Topik 1987: 39). That is, the fourth Banco do Brasil was a state-owned bank: the government both had control rights and cash flow rights. For the better part of the next six decades, the Brazilian banking system was dominated by the Fourth Banco do Brasil, which acted both as a commercial bank and as the treasury's financial agent. The charter that created the bank included a number of lucrative privileges, including the right to hold federal balances, issue banknotes, and have a monopoly on interstate branching. The implication of this feature of the Banco do Brasil's concession cannot be overstated: The Banco do Brasil soon came to control one-quarter of total bank deposits (Topik 1980: 402-417).

III. Data and Methods

Was the Banco do Brasil an inefficient enterprise that made loans to cronies and ultimately became insolvent? In order to answer that question we need to draw a counterfactual: how would the bank have fared had it been a fully private bank, rather than a joint venture? There are two ways to operationalize this counterfactual. The first is to draw a comparison to the privately-owned banks in Brazil. Did the Banco do Brasil perform better or worse than its privately owned competitors, controlling for the fact that it was able to take advantage of scale economies by virtue of its right to hold federal balances and branch across state lines? The second is to draw a comparison to the privately-owned bank that preceded it as the government's fiscal agent, the Banco da

República, controlling for the fact that the Banco do Brasil was able to operate on a larger scale because of its special privileges?

Drawing these counterfactuals requires that we have data both the Banco do Brasil and the Banco da República, as well as on the universe of private commercial banks that competed against them. We therefore build a unique dataset of Brazilian publicly traded banks covering the years 1875-1935 by compiling semiannual summary tables of the Rio de Janeiro stock market. These summary tables were printed once a month in the Jornal do Commercio, the Brazilian equivalent of the Wall Street Journal. The tables provide information on total paid in capital, number of shares issued, number of shares in circulation, nominal price per share, value of reserve funds, value and date of the most recent dividend, and the most recent trading price of shares. We collected hard copies or scanned microfiche of these tables published as close to January 1 and July 1 of each year. We note that some of the originals are difficult to read, and we therefore had that data reviewed by more than one researcher. In cases where researchers differed in terms of the recorded value, we adjudicated based on data for that same bank in adjoining semesters. That is to say, we put the data into context. If sufficient surrounding data was unavailable, we left the entry blank. We supplemented this information with data on the high and low prices paid for shares from the Jornal do Commercio's annual financial supplement, the Retrospecto Commercial do Jornal do Commercio. In addition to providing more complete information about trades, this source also allowed us to identify some banks that were active in the market but did not report capitalization data in the semiannual tables.

Based on this data we estimate measures of bank performance that are standard in

the finance literature. These include owner's equity (paid in capital plus reserves), income (changes in reserves plus the dividend announced from that semester's operations), the real rate of return on equity (income divided by owner's equity with all values deflated using the price series in Goldsmith 1986), the market value of firms (share price times number of issued shares),[1] the ratio of market to book values (market value divided by owner's equity), and the real rate of return to investors (changes in real share price, plus real dividends assumed to be reinvested in shares, divided by the previous year's real share price).

This process yields data series on 231 banks that operated at some point over the period 1875-1935, and we use that data to estimate the total size of the banking industry in Table 1. For the purposes of our regressions, however, we truncate the data so as to bias the rate of return of privately owned banks upwards, and hence against the hypothesis that the Banco do Brasil performed as well as privately-owned banks. As Table 1 shows, there were scores of banks that were created in the late 1880s and early 1890s that entered and existed within a few years of their creation. Some of them may have had fictitious capital. Even those that were not created so as to defraud investors were likely unprofitable, because they existed for only a few years before disappearing from the data set. We therefore exclude from regression analysis any bank that did not report at least 10 semesters of data sufficient to calculate the rate of return on equity and the market to book ratio. In some specifications, we also exclude any bank-semester

[1] We take the latest share price from the Jornal do Commercio to estimate the market value of shares. In cases where this was not available or was illegible, we took the average of the high and low quotes from the Retrospecto Commercial do Jornal do Commercio.

observations before 1906, in order to draw meaningful comparisons between the Banco do Brasil and its privately owned competitors. These coding rules mean that we reduce post-1906 banks in the data set from 92 to 25. In regressions designed to pick up the impact of switching from the privately-owned Banco da República to the government-owned Banco do Brasil we exclude bank observations before 1891. Our coding rules mean that we reduce post-1891 banks in the data set from 231 to 35.[2]

IV. Data Analysis

We begin with the analysis of rates of return on equity. If the Banco do Brasil was mismanaged we would expect it to have lower long-run rates of return than privately owned banks. Figure 3 graphs the return on equity series for the Banco do Brasil, its privately-owned predecessor, the Banco da República, and the average for all other banks that reported at least 10 semesters of data. We note that this biases the results against the hypothesis that the Banco do Brasil was as profitable as its private competitors, because we are likely excluding banks that went out of business during their first five years of existence—and these were almost certainly less profitable than the average. Nevertheless, the graphed data indicate that, with the exception of a few semesters the Banco do Brasil had substantially higher real rates of return on equity than its private competitors.

One might be tempted to argue that the higher rate of return of the Banco do Brasil was a function of its special privileges, such as the right to hold federal deposits and the right to branch across state lines. One might also argue that the graphed means

[2] We note that regressions estimated on the entire sample (i.e., including any bank that provides at least one observation) do not yield results that are materially different from those produced by regressions on the truncated sample.

might not be capturing a high level of dispersion in the rates of return of private banks. We therefore estimate an OLS regression on the real rate of return on equity in Table 3, truncating the dataset to semesters in which the Banco do Brasil existed. We control for the Banco do Brasil's special privileges by adding a variable for market share. We control for factors that affect all banks, such as changes in the macroeconomy, with semester dummies. We control for serial correlation and heteroscedasticity using the Huber-White method. Our regression takes the following form:

$$ROE_{i,t} = \alpha_0 + \alpha_1 Semester_t + \alpha_2 Banco\ do\ Brasil_{,t} + \alpha_3 Bank\ Market\ Share_{i\,t} + \alpha_4 E_{i,t} \quad (1)$$

where i is the bank id and t refers to the time period considered. In equation (1) the variable *ROE* is the real rate of return on equity, *Semester* is a dummy variable for each semester, *Banco do Brasil* is a dummy variable that takes a value of one for all Banco do Brasil observations, *Bank Market Share* is the proportion of each bank's reported capital to total capital, and E is the error term. Descriptive statistics for each of these variables is found in Table 2. Essentially, the regression treats the panel as a cross section, in which the average rate of return on equity of the Banco do Brasil is compared to the average for all other banks, controlling for differences in market shares.

The regression results indicate that the Banco do Brasil was considerably more profitable than its private competitors. The coefficient of .065 indicates that the Banco do Brasil had a rate of return 6.5 percentage points per semester above that of its private competitors. This result is both statistically significant (at the 99 percent level) and economically significant. The sample mean is .041, which indicates that, on average, the Banco do Brasil had return on equity more than twice that of its competitors.

Interestingly, the coefficient for market share enters the regression with the "wrong" (negative) sign. When we drop the control for market share the coefficient on the Banco do Brasil dummy falls to .037. This suggests that the Banco do Brasil outperformed all other banks on average, but it especially outperformed other large banks.

One might argue that the addition of controls for market share might not be capturing all of the special privileges awarded to the Banco do Brasil, and thus the coefficient on the Banco do Brasil dummy might be overstating its profitability relative to privately owned banks. In order to address this concern we adopt a quasi-experimental approach in which we compare the Banco do Brasil to the private bank that served as the government's fiscal agent prior to the creation of the Banco do Brasil. First, we control for all time-invariant factors that are specific to banks by including bank dummies in the regressions. Second, we include semester dummies, in order to control for factors that affect all banks at any particular time, such as changes in the macroeconomic or institutional environment. Third, we control for time-varying heterogeneity within banks by the addition of a control variable for market share. We then create a dummy variable that takes a value of 1 both for the Banco da República and the Banco do Brasil, as well as retain the dummy for the Banco do Brasil. Thus, the Banco do Brasil dummy is now a step dummy that picks up the effect of switching from the privately-owned Banco da República to the government owned Banco do Brasil. The regression results, reported in Column 3 of Table 3 indicate that the switch from the Banco da República to the Banco do Brasil was not associated with a statistically significant change in rates of return.

If the Banco do Brasil was more profitable than its privately-owned competitors we would expect that fact to be reflected in its market price. We therefore estimate the

ratio of market to book values for the Banco do Brasil, the Banco da República, and all other banks, and present the data in Figure 3.[3] The graphed data indicate that while the Banco da República did not trade at a premium the Banco do Brasil did. This becomes particularly clear during the years after World War I.

In order to determine whether these patterns were statistically significant, and in order to control for the fact that any price premium commanded by the Banco do Brasil might have been due to its special privileges (as proxied by its size), we estimate a similar set of regressions to those on rates of return on equity, but substitute the market to book ratio as the dependent variable. As a first pass at the data we estimate the regressions without a control for market share and present the results in Column1 of Table 4. This specification indicates that the Banco do Brasil had a market to book ratio that was 27 percentage points higher than privately owned banks (significant at the 99 percent level). In Column 2 of Table 4 we add a control for market share, which drives down the magnitude and statistical significance of the Banco do Brasil dummy. This suggests that the higher market to book ratio of the Banco do Brasil was the result of its special privileges, to the degree that these are proxied by its larger market share.

One might argue that the coefficient on the Banco do Brasil dummy might be understating the degree to which its special privileges were capitalized in its market price. In order to address this concern we adopt a quasi-experimental approach in which we

[3] Our sample includes the same group of banks whose rates of return on equity were analyzed in the preceding set of regressions. We obtain materially similar results when we expand the sample to include banks whose rates of return we were unable to calculate because of incomplete data on income.

compare the Banco do Brasil to the private bank that served as the government's fiscal agent prior to the creation of the Banco do Brasil. First, we control for all time-invariant factors that are specific to banks by including bank dummies in the regressions. Second, we include semester dummies, in order to control for factors that affect all banks at any particular time, such as changes in the macroeconomic or institutional environment. Third, we control for time-varying heterogeneity within banks by the addition of a control variable for market share. We then create a dummy variable that takes a value of 1 both for the Banco da República and the Banco do Brasil, as well as retain the dummy for the Banco do Brasil. Thus, the Banco do Brasil dummy is now a step dummy that picks up the effect of switching from the privately-owned Banco da República to the government owned Banco do Brasil. The regression results, reported in Column 3 of Table 4 indicate that the switch from the Banco da República to the Banco do Brasil was associated with an increase in the market to book ratio. The coefficient on the Banco do Brasil dummy is 0.47 (and is significant at the 99 percent level), indicating that the switch was associated with a 47 percentage point increase in the market to book ratio. The results suggest that investors paid a premium for Banco do Brasil shares because of its special privileges.

One implication of the higher rate of return on equity and the premium paid by investors for Banco do Brasil shares is that it yielded a higher return to investors than investments in competing banks. In order to test this hypothesis we estimate the hypothetical rate of return earned by an investor who purchased an evenly distributed portfolio of bank stocks in 1906. We assume that the investor purchased 1,000 milreis worth of stock in each of 25 banks in 1906 and held on to that investment until 1933, or the bankruptcy of the bank. We also assume that all dividends were reinvested at the

current real market price, and that as new banks entered the market the investor purchased the inflation adjusted equivalent of 1,000 1906 milreis worth of stock in that bank. We then graph the mean, median, and Banco do Brasil return on the 1,000 milreis investment in Figure 4. We find a 1,000 milreis investment in the Banco do Brasil at its founding in 1906 would have been worth 14,216 milreis in 1933, adjusted for inflation and the reinvestment of dividends. No other bank even came close to this performance: a similar investment in the next most lucrative bank, Banco Mercantil do Rio de Janeiro, would have yielded 9,117. In fact, the average return of a 1,000 milreis investment on the portfolio of 25 banks, including the Banco do Brasil would only have been only 3,801 milreis.

V. Conclusions and Implications

Researchers looking at data from recent decades have demonstrated that state-owned banks are inefficient and prone to failure. We have wondered why, if state banks are so prone to failure, they come into existence in the first place. One hypothesis is that they were created for political, not economic, reasons. Another hypothesis is that they were functional at their inception, and may have been essential to the creation of a stable private banking system. The evidence suggests that this may have been the case with Brazil's state owned banks. In fact, the Banco do Brasil came into existence as part of a rescue of a private bank that served as the treasury's financial agent. Moreover, the financial crisis that took down that bank, the Banco da República, took down most of the country's private banks. The evidence we have assembled on bank rates of return on equity, market to book ratios, and real returns to investors all indicate that the Banco do Brasil outperformed its private competitors.

One might be tempted to argue that the Banco do Brasil is an outlier in that it was set up as a joint public-private venture. We wonder, however, whether the assumption underneath this argument—that most government banks are always wholly government owned—is accurate. At least in the Brazilian case, the state-owned banks that followed the Banco do Brasil, such as the Banco do Estado de São Paulo (Banespa) and the Banco do Estado do Rio de Janeiro (Banerj) were also initially set up as joint ventures. It may also be the case that there are significant differences in the performance of wholly publicly owned and joint-venture banks. Only research into the financial histories of state-owned banks in other contexts can provide an adequate answer to this question.

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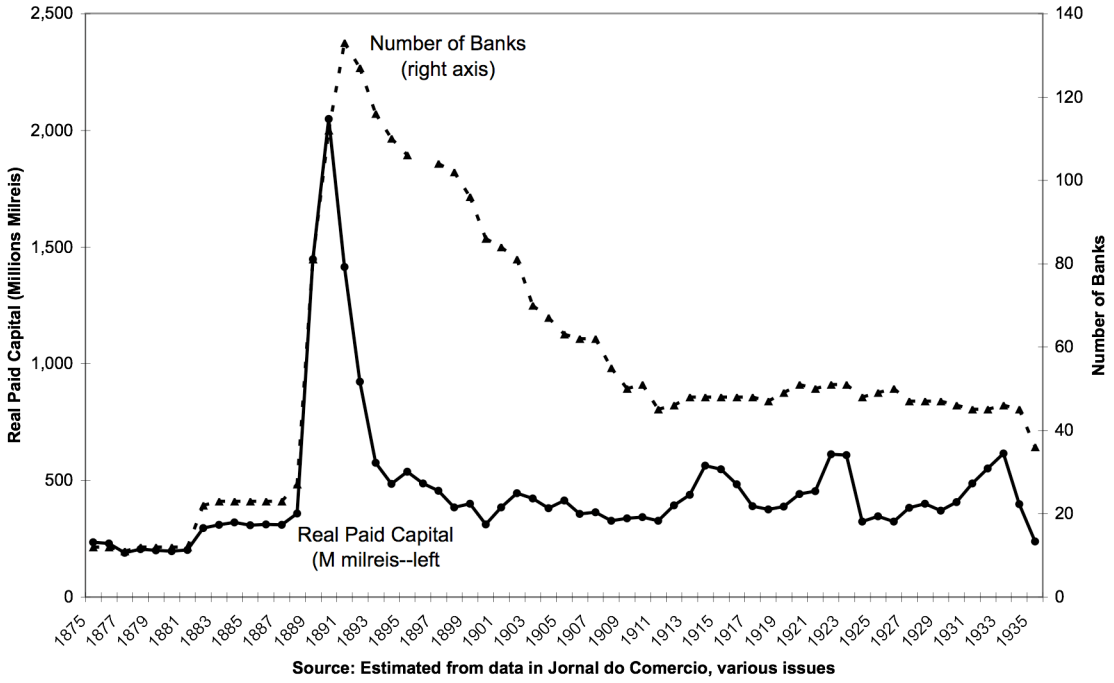
Figure 1, Size of the Brazilian Banking System



Source: Estimated from data in Jornal do Comercio, various issues

Figure 2, Annual Real Rate of Return on Equity, 1880-1933

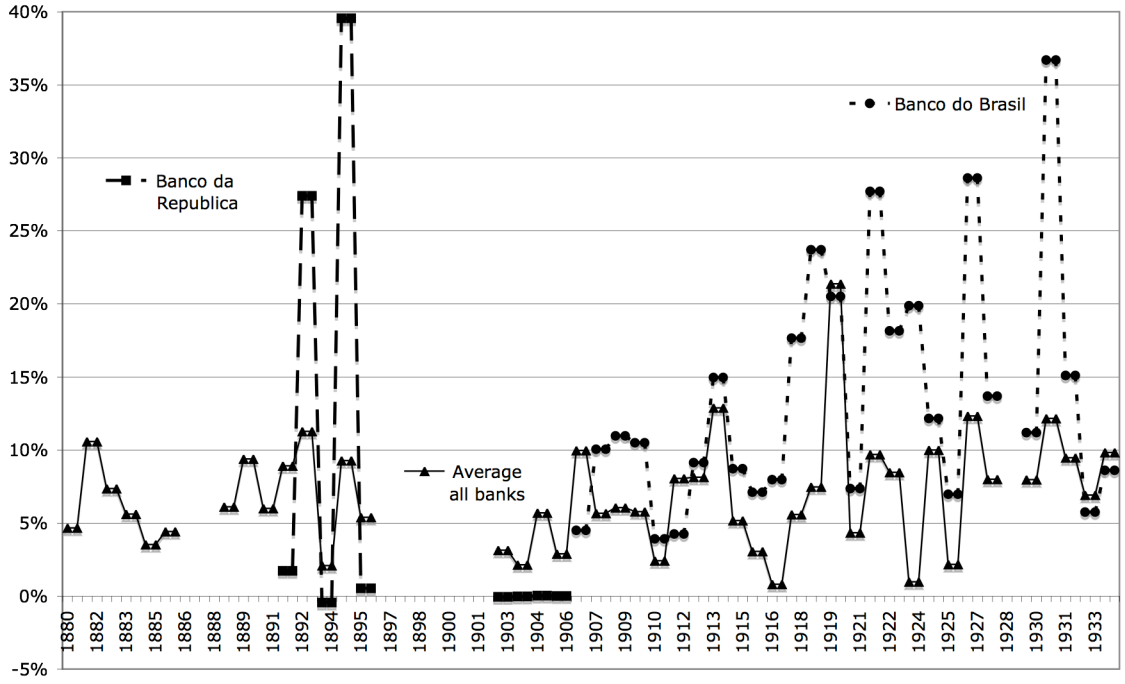


Figure 3, Market to Book Ratios, 1875-1933

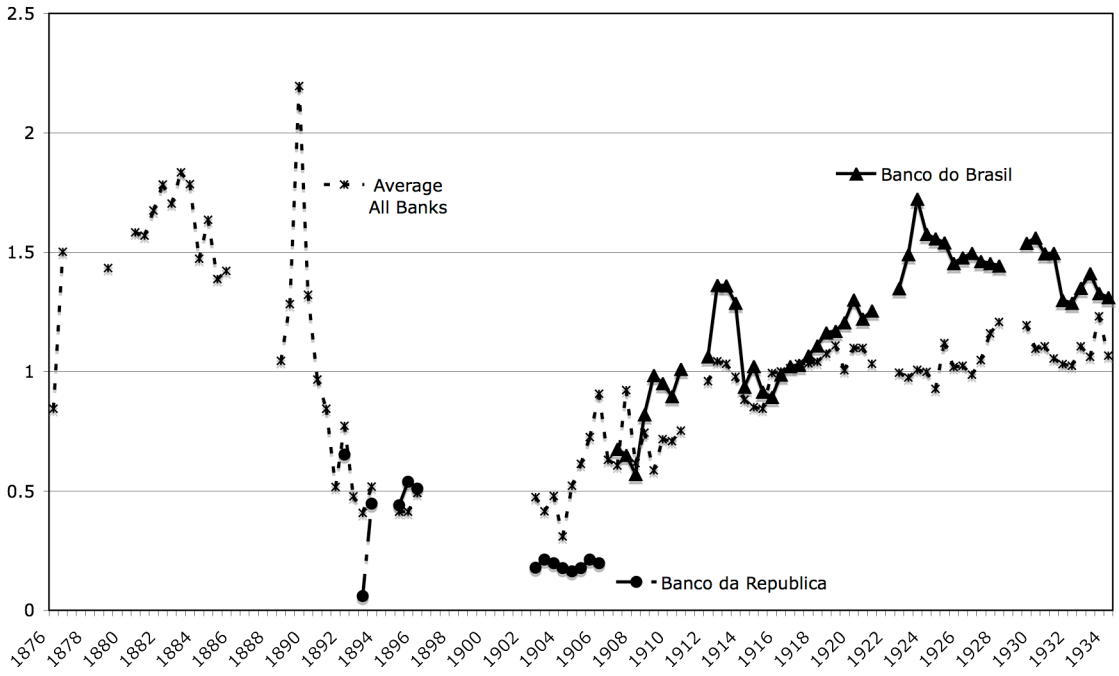
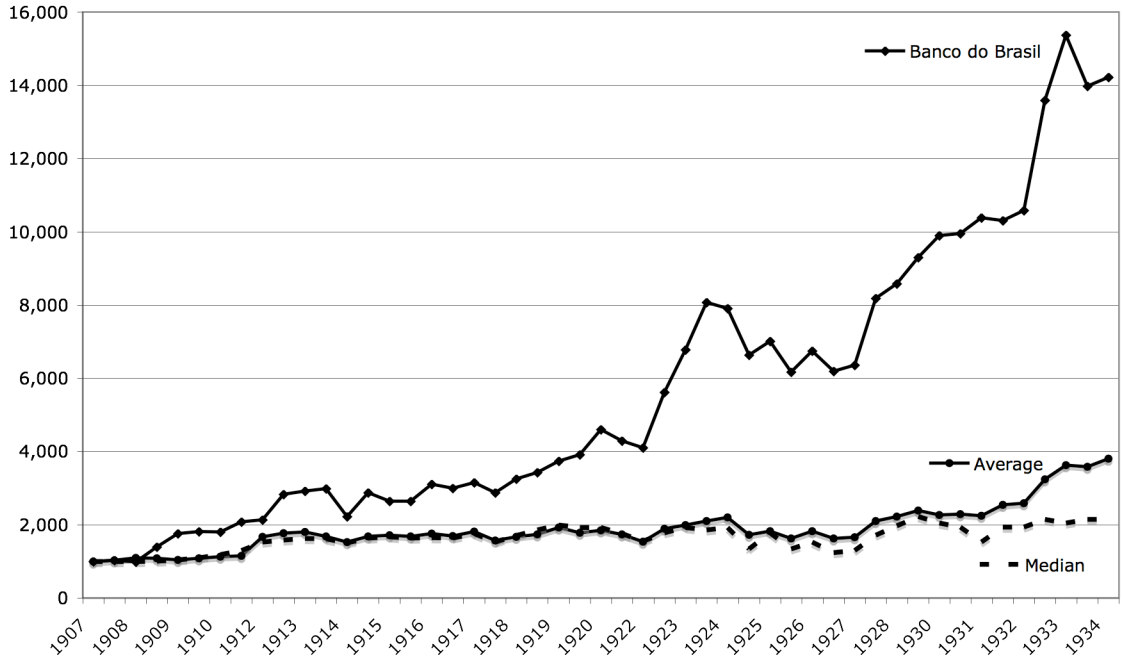


Figure 4, Real Return to 1,000 Milreis Investment in Brazilian Banks in 1906



Source: Calculated from data in Jornal do Commercio, various issues.

Table 1
Size Estimates of the Brazilian Banking System, 1875-1935

Year	Entering Banks	Exiting Banks	Operating Banks	Estimated Total Paid-in Capital (Millions 1900 Milreis)	Third Banco do Brasil as Percent of Total	Banco da Republica as Percent of total	Fourth Banco do Brasil as Percent of Total
1875	0	0	12	234	38%		
1880	0	0	12	197	40%		
1882	10	0	22	296	28%		
1888	4	1	27	358	22%		
1889	55	2	81	1,447	15%		
1890	38	20	112	2,048	10%		
1891	52	26	133	1,413	12%	23%	
1892	11	18	127	922	13%	27%	
1893	2	9	116	576		35%	
1894	1	2	110	486		38%	
1895	1	5	106	537		40%	
1896	2	4	0	487		40%	
1897	2	2	104	455		25%	
1898	0	9	102	384			
1899	3	10	96	400		24%	
1900	0	2	86	311			
1901	0	4	84	385		33%	
1902	2	11	81	445		32%	
1903	0	4	70	422		33%	
1904	0	4	67	380		33%	
1905	0	2	63	413		33%	
1906	1	0	62	356			26%
1907	0	6	62	363			26%
1908	0	4	55	326			27%
1909	2	5	50	336			26%
1910	2	6	51	341			25%
1911	0	3	45	327			25%
1912	4	0	46	393			21%
1913	2	2	48	438			19%
1914	2	0	48	563			17%
1925	3	1	49	346			14%
1926	1	5	50	323			13%
1927	3	2	47	382			13%
1929	2	1	47	369			12%
1930	0	2	46	406			12%
1931	1	0	45	486			11%
1934	0	11	45	397			15%
1935	1	5	36	237			24%

Source: Estimated from data in Jornal do Comercio, various issues.

Table 2
Summary Statistics

Panel I: Post 1906 Dataset

Variable	Mean	Std. Dev.	Minimum	Maximum
Return on Equity	0.041	0.092	-0.237	1.576
Market to Book Ratio	0.998	0.450	0.014	3.125
Market Share (by Capitalization)	0.032	0.047	0.001	0.377

Panel II: Post 1891 Dataset

Variable	Mean	Std. Dev.	Minimum	Maximum
Return on Equity	0.040	0.087	-0.237	1.576
Market to Book Ratio	0.899	0.495	0.014	3.125
Market Share (by Capitalization)	0.035	0.055	0.001	0.377

Table 3

Rate of Return on Equity (ROE) Regressions

	Real ROE	Real ROE	Real ROE
Intercept	0.0791 **	0.0876 **	0.0169
	(.035)	(.035)	(.024)
Banco do Brasil Dummy	0.0368 ***	0.0644 ***	-0.0466
	(.008)	(.014)	(.037)
Joint Banco do Brasil and Banco da Republica Dummy			0.2177 ***
			(.059)
Market Share		-0.2120 ***	-0.6572 ***
		(.082)	(.170)
Bank Dummies			Yes
Semester Dummies	Yes	Yes	Yes
N	540	540	723
Adjusted R^2	0.06013	0.06195	0.1272

* = .1

** = .05

*** = .01

Table 4

Regressions on Market to Book Ratios

	Market to Book Ratio	Market to Book Ratio	Market to Book Ratio
Intercept	0.5760 *** (.143)	0.4972 *** (.152)	0.8772 *** (.318)
Banco do Brasil Dummy	0.2674 *** (.033)	0.0082 (.100)	0.4740 *** (.118)
Joint Banco do Brasil and Banco da Republica Dummy			1.0617 *** (.306)
Market Share		1.9950 *** (.697)	-3.3401 *** (1.040)
Semester Dummies	Yes	Yes	Yes
Bank Dummies			Yes
N	540	540	723
Adjusted R^2	0.03257	0.04428	0.7096

* = .1

** = .05

*** = .01