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## Distress Signals: Financial Fragility in the Interwar Period

The 1914–39 period defined a critical transition in Argentine economic history, yet the signs of future retardation and recurring crises were not so obvious. Even scholars with the most cursory acquaintance with the historical record can point to this key period as a regime shift, when the move from convergence and relative prosperity to divergence and relative backwardness began. All histories single out the interwar period, perhaps even the very year 1929, as the decisive break point.<sup>1</sup>

One may wonder if this emphasis justified. In its economic performance Argentina fared no worse than other settler economies in the transition to the interwar period. That is, despite important and violent shifts in the terms of trade and the virtual state of autarky in international capital markets, the Argentine economy managed to overcome both the depths of the 1914–18 and 1929–31 crises. How was this possible, in an economy that at the turn of the century was still a primary production economy? How should it affect our view of the origins of Argentine relative retardation?

As the first part of this book has made clear, Argentina staged a remarkable comeback from the Baring Crisis of the 1890s, and the inconsistent policy choices of the 1880s and earlier that had precipitated that famous fiasco. The recovery was centered on an extreme version of macroeconomic orthodoxy that coupled fiscal discipline with a seemingly iron-clad guarantee of monetary convertibility. The latter gold-standard commitment was considered an essential vehicle for building a new level of credibility in world capital markets starting from almost nothing.

Despite how unlikely the success of such an announced strategy might have seemed in 1891, by 1914 Argentina had emerged as the favorite of emerging market investors during the height of the classical gold standard. The new institutions appeared to be holding. Monetary stability was firm, and in a climate of surging economic growth, investment was high, capital inflows abundant,

1. Di Tella and Zymelman (1967); Díaz Alejandro (1970; 1984); Cortés Conde (1979); Taylor (1994); della Paolera and Ortiz (1995).

and the financial sector was in a phase of healthy expansion after the wounds of the 1890s crisis had started to heal.

This rosy scenario was rudely disturbed by a set of totally exogenous economic shocks associated with the First World War, shocks in the global economy that were to test the economic policy regime that Argentina had set in place. The regime was, of course, predicated on certain assumptions: that the gold standard would endure, that global capital markets would remain stable and liquid, and that trade in goods would remain open and facilitate Argentina's specialized strategy of exchanging primary product exports for manufactured imports.

The final part of our book examines the implications of this change in the external regime as it affected Argentine economic performance during the interwar period in general, and during the 1930s Great Depression in particular. To do so, we will need to set the stage by considering the state of the Argentine economy at the end of the Belle Époque. Our work is certainly a money and banking study, but we know that the Argentine monetary regime exhibited some remarkable continuity from 1890 until 1935, as the Conversion Office remained in control of the money supply and followed its strict rules of the game.

Yet while the monetary side remained fairly stable, an important part of the changing context in our study is the financial landscape of Argentina. After being virtually eradicated in the 1890s, domestic banks regrouped and expanded until 1914, and were joined in their work by an expanding group of foreign banks. A small but growing stock market also made itself felt, although equity markets were small next to debt markets and banking finance. After 1914, all these markets faced new constraints as external adjustments forced the Argentine economy down unexpected paths.

Our aim in this chapter is to address two sets of major questions about events in financial markets. First, exactly how remarkable was interwar financial development relative to previous and subsequent trends in Argentina and relative to other countries' long-run experience? What were the financial magnitudes involved? How much capital was mobilized and allocated? And what can we infer about the capacity of financial development to significantly improve Argentina's long-run rates of saving, investment and economic growth?

Second, what independent sources of macroeconomic instability were originated by financial shocks in this evolving domestic financial system? It requires us to assess the inherent fragility of the domestic financial system: could it produce financial shocks that could influence business cycles?<sup>2</sup> In addition, the economy soon faced one of the worst international depressions that saw world-

2. In particular, banking intermediaries have an inherent instability under the so-called Diamond-Dybvig (1983) framework. Since banks insure the nominal value in deposit contracts and they create high-powered deposits they are subject to runs from investors. In a scenario of generalized runs, the expectation of the bankruptcy of an otherwise safe institution is self-fulfilling.

wide financial panics and collapses. How did the institutional features of the emerging financial markets propagate, or dampen, shocks that originated in the real sector economy? Before we engage discussion of these topics, we first review the major elements of the theory of finance and development.

### Finance and Development in Theory

The influence of the development of financial and capital markets on economic growth and the emergence of market economies has been debated by economists and economic historians since Adam Smith. Theoretical and empirical studies have focused on the role of financial deepening on the process of economic growth.

As early as 1912, the Austrian Joseph Schumpeter in his *Theory of Economic Development* argued that finance scarcity was a serious obstacle to development. Economic historians such as Davis, Cameron, Gerschenkron, and Goldsmith made pioneering empirical contributions showing that financial markets were “necessary” institutions in the early stages of industrialization of today’s developed countries. By following a comparative approach, these studies claim that a lack of well-functioning capital markets institutions is central in explaining the relative backwardness of some continental European countries.<sup>3</sup>

Two contributions that can help us organize an analytical framework for studying the finance-growth nexus and assessing the quantitative importance of the financial system for economic development are the works of Townsend and Levine. They note that with perfect information and no transaction costs, there will be basically no need for financial intermediaries. Otherwise, intermediation provides a potentially valuable service.<sup>4</sup> The value-added characteristics of financial institutions, some of which were listed by Levine, are key functions that could increase the prospects for economic development:

1. To deepen the use of money and near-monies for transaction purposes to move beyond the technology of a barter-exchange system (i.e., the development of stable and credible monetary and financial institutions);
  2. To ease the trading, hedging, and pooling of risk by reducing the uncertainty about the timing and settlement of intertemporal economic transactions (i.e., innovation in the creation of liquid financial instruments);
3. See Schumpeter (1936); Gerschenkron (1962); Davis (1963); Cameron et al. (1967); Goldsmith (1969). More recently authors such as Gurley and Shaw (1955), McKinnon (1973), Shaw (1973), and Fry (1995) have studied the recent experience of a large sample of developed and developing countries. They examine the channels of transmission from financial intermediation to growth by inspecting institutional and economic forces such as legal regulation, and the influence of interest rates on savings and investments.
4. Townsend (1983); Levine (1996). A straightforward question about the functional role and usefulness of capital markets, and especially banks, was posed by De Long (1991) in his paper “Did J. P. Morgan’s Men Add Value? An Economist’s Perspective on Financial Capitalism.” The same question might be asked of any intermediary, in any country, at any time.

3. To ease the linkages between savers and investors by reducing the need for information so that available *short-run* funding from surplus economic units will flow to those short-of-funds investors who can promise a higher expected rate of return for their *long-run* projects (i.e., improved efficiency in allocating resources by transforming the maturity of assets);<sup>5</sup>
4. To mobilize savings by the pooling of capital from disparate savers for investment to obtain efficient scales of operation in firms (i.e., a mobilization of savings can produce a fall in the cost of external finance for firms and entrepreneurs allowing them to choose their first-best techniques);
5. To lower the cost of finance and interest rates, and thus enhance the resiliency of financial institutions to systemic fragility and provide for the flourishing of new entrepreneurs and new firms that otherwise could not have existed.

When the factors mentioned above are in operation, financial intermediation will enhance capital accumulation and, most importantly, technological adaptation and innovation. All these have the potential, in turn, to speed economic growth.

### Stylized Facts

Let us now turn to a first preliminary inspection of the available macrodata for Argentina to establish some links between measures of financial deepening and economic performance. Few scholars have tackled this subject and very little has been written on the interaction in Argentina between financial development and aggregate economic activity for the 1913–39 period.<sup>6</sup>

A vague consensus suggests that some financial development took place, though it was not all that might have been hoped for:

While the financial history of Latin America remains to be written, it appears that by the 1920s most countries had succeeded in establishing commercial banks of the (then) traditional sort.... Although there was no “financial repression,” critics pointed to a lack of medium and long-term credit, particularly to finance industry and non-export agriculture...<sup>7</sup>

5. Levine (1996) notes that “the link between liquidity and economic development arises because some high-return projects require a long-term commitment of capital, but savers do not like to relinquish control of their savings for long periods. Thus, if the financial system does not augment the liquidity of long-term investments, less investment is likely to occur in the high (risk-adjusted) return projects....” This is a crucial function because when performed in an efficient manner it enables entrepreneurs to overcome the problem of borrowing or credit rationing. Following Calomiris (1993), if financial intermediation did not develop beyond short-term credit and lending practices, the allocation of resources and the nature and speed of economic growth will be affected because the choice of inputs in production will be biased toward variable-cost inputs and against investment in fixed capital.

6. See, however, della Paolera and Ortiz (1995).

7. Díaz Alejandro (1985a, p. 2).

In his landmark history, Díaz Alejandro offers further evidence for significant financial deepening in the interwar period.<sup>8</sup> The domestic debt market featured an expanding array of debt instruments in fixed money terms, and mortgage activity grew. There was an increase in bank channels of mobilizing finance, notably via rapidly expanding savings accounts which expanded from 8 percent of output in 1913–14 to 22 percent in 1928–29. Monetization also expanded, and a traditional indicator, the ratio of monetary assets to output, rose from 46 percent in 1913–14 to 55 percent in 1928–29.

Not all signs were good, however. The equity market remained thin, and “companies relied primarily on bank credit for short-term financing and on retained earnings and ad hoc arrangements for long-term financing.” Trading on the Bolsa was dominated by mortgage paper and government bonds, and only around 10 percent of trades were in corporate stocks. In banking one institution obviously loomed large, the Banco de la Nación Argentina, which accounted for more than two-fifths of the assets of the entire banking system, and which, in the absence of a central bank, had a quasi-public function. Despite these caveats, the evidence seemed favorable: “the domestic contribution to financing pre-1930 capital accumulation was large and tended to grow” and suggested that by 1930 Argentina had become a “highly monetized” economy with an “expanding [domestic] capital market.”<sup>9</sup>

More than thirty years after Díaz Alejandro’s essay, a pioneering work built on scarce data, we think it time to re-examine these issues and explore the relationship between the development of domestic financial markets and economic growth for the 1913–39 period. But we have so far lacked a detailed analysis of the linkages between financial development, inside-money deepening, credit creation, the efficiency and level of investment, and economic growth. For the case of Argentina, an emerging economy, the role of financial development is an essential element in understanding what happened after 1914.

The Argentine economy suffered an immediate shock at the onset of the First World War. The British supply of financial services proved to be unreliable when international capital markets dried up. Thus, there was a need to substitute for foreign mobilization and accumulation of resources by domestic sources which would have to rely on a domestic financial technology.<sup>10</sup> As Levine noted:

England’s financial system did a better job at identifying and funding profitable ventures than most countries in the mid-1800s. . . . Indeed, England’s advanced financial system also did a good job at identifying profitable ventures in other countries, such as Canada, the United States, and Australia during the 19th Century. England was able to “export” financial services (as well as financial capital) to many economies with underdeveloped financial systems.<sup>11</sup>

8. Díaz Alejandro (1970, pp. 28–35).

9. Díaz Alejandro (1970, pp. 33–34).

10. Taylor (1992).

11. Levine (1996, p. 14).

The very same process was at work in parts of Latin America, notably in Argentina—perhaps to an even greater extent given its extreme degree of dependence on foreign capital. In this way an Anglo-Argentine elite came to dominate the financial landscape of turn-of-the-century Buenos Aires. About one half of Argentine capital was foreign owned, either directly or indirectly in 1913, a far higher percentage than in any other major lending nation at the time, and the bulk of that foreign capital was British in origin.

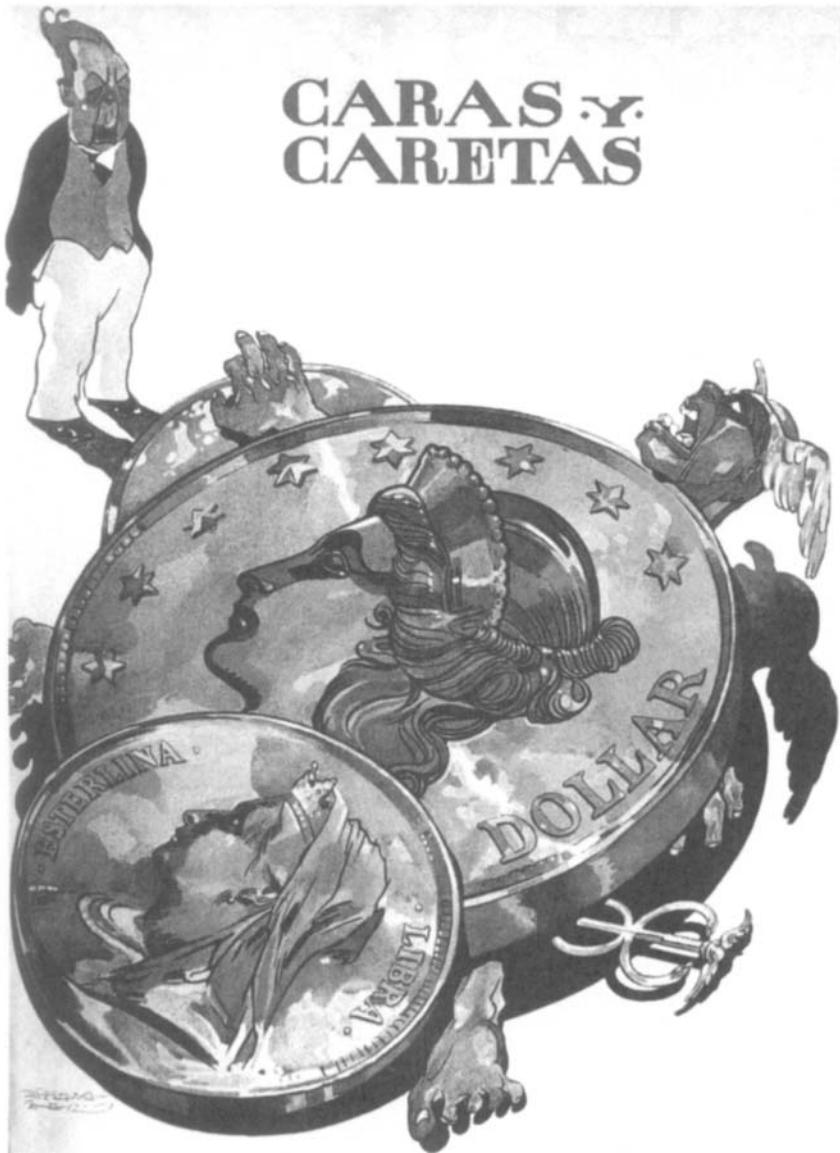
Why was Argentina so dependent on foreign capital in this period? This is a challenging question, and to discuss it fully would venture beyond the bounds of the present book, but it is a question worth dwelling on for a few moments to appreciate the dimensions of Argentina's external economic shock in 1914. Before this date, and ever since the devastation of the banking system in the Baring Crisis, a very large share of asset accumulation had been financed by capital inflows. The foreign capital stock in total size amounted to perhaps one half of the total domestic capital stock of the nation—a spectacular figure probably never equaled before or since as a measure of foreign capital penetration.

Notwithstanding the willingness of foreign savings supply to finance investment in Argentina, the observation also prompts the question as to why domestic savings were so scanty in the first place. A number of hypotheses suggest themselves. One is that the arrested development of the domestic financial system prevented the effective mobilization of domestic savings supply. But this assumes that such savings were there to be mobilized. An alternative, or at least complementary, explanation suggests that the low level of savings in Argentina had other causes, notably the unusually high demographic burden in the country. With a rapidly growing population, and a large share of dependent children in the age distribution, Argentine households would be expected to be in a phase of high consumption before 1914.<sup>12</sup>

Considering both of these mechanisms indicates why investment and economic growth could be sharply curtailed by a closure of external capital markets. Neither mechanism is susceptible to very rapid adjustment. Financial development is usually a slow process that takes decades to reach fruition, as many studies have shown. Similarly, the demographic structure is a very slowly evolving feature of the economy, for two reasons.

First, large demographic burdens can take a generation to be transmitted from the child-dependent component of the age distribution into the productive labor force component. Second, fertility rates are themselves slowly evolving variables and so present another reason to expect great persistence in the demographic structure. For example, the persistent demographic burden in Argentina in the interwar period could explain the much lower rates of saving, and hence investment, there as compared to the rest of the world, and most if not all of

12. This paragraph and the one that follows draw on Taylor (1992).



Cartoon 7.1. *Con las manos en los bolsillos. Comercio — ¡Socorro! ¡Socorro! Irigoyen — Espera que venga mi término; despues hablaremos.* (With their hands in their pockets. Business — Help! Help! Irigoyen — Wait until my term comes; then we'll talk.)

*Notes:* A comment on interwar economic retardation. Ex-President Irigoyen, the man with his hands in his pockets, could not be re-elected so Alvear became the new president, putting Irigoyen on the sidelines. Business is shown being crushed by the dollar and the pound. It is interesting that the dollar is shown as being bigger than the pound.

*Source:* *Caras y caretas*, año 23, no. 1181, May 21, 1921.



the emerging relative retardation of the national level of income per capita by global standards.

International political and economic engagements started to dissolve in the autarkic atmosphere after the First World War, with ramifications for world markets, and especially international capital mobility.<sup>13</sup> Savings-scarce countries, like Argentina, whose prior development had been built around a heavy dependence on foreign lending were bound to feel a tightening of capital constraints, unless they could mobilize and allocate domestic supplies of capital to substitute effectively for the rapidly receding supplies of foreign capital. Yet such a realignment of the development process was no simple matter. How did Argentina respond to this challenge?

### *The Argentine Context*

In Table 7.1 we offer some preliminary macroeconomic indicators of financial development and economic growth from 1900 to 1939. Let us examine the broad development indicators in the upper part of the table.

The figures show that the Argentine economy suffered a significant slowdown in economic growth after the First World War. From an average per capita real growth rate of about 3.5 percent per year for the first decade of the century, Argentina only rebounded in the twenties to a growth rate of 1.7 percent per year. The 1915–19 period is characterized by a dismal performance of the real economy, even by international standards, but the depression years 1930–35 show relatively little decline by the same yardstick.<sup>14</sup>

Instrumental in both recessions were dramatic declines in investment activity, which never recovered its level of 1905–1914. Several open economy indicators provide evidence of the increased autarky of the Argentine economy in this period: a big reduction in capital inflows measured by the ratio of current account to output, and a dramatic worsening in the terms of trade. Despite a modest terms of trade recovery in the mid-1920s, exports as a share of output gradually decline after peaking during the later years of the First World War (more due to a collapse in the denominator than a rise in export quantum), and fall even further in the 1930s.

We would like to examine the association, if any, between economic development and measures of financial development. There are two typical proxies for the degree of financial intermediation. First, one can use a ratio of monetary aggregates to output, typically the broad money stock M3 defined as the sum of currency in hands of the public plus demand deposits and interest bearing deposits and liabilities of banks and nonbank intermediaries (denoted DEPTH).

13. Obstfeld and Taylor (1998).

14. Taylor (1992).

Table 7.1. *Finance and Development, 1900–1939*

Period	1900	1905	1910	1915	1920	1925	1930	1935
	-04	-09	-14	-19	-24	-29	-34	-39
<i>A. Broad Development Indicators</i>								
Per Capita GDP (1913=100)	76	93	98	83	98	109	99	106
Saving/GDP (%)	7	10	4	10	4	11	6	11
Investment/GDP (%)	9	16	15	7	10	13	9	11
Current Account/GDP (%)	-1	-6	-11	3	-6	-2	-3	0
Terms of Trade (1913=100)	88	103	104	88	64	83	73	95
Exports/GDP (%)	27	27	24	30	24	24	16	17
<i>B. Financial Development Indicators</i>								
DEPTH=M3/GDP (%)	35	38	40	43	49	47	50	41
CREDIT=Loans/GDP (%)	—	27	34	29	37	36	43	29
NETCREDIT=Private Loans/GDP (%)	—	19	24	18	22	21	23	16
Savings Accounts/GDP (%)	—	5	7	10	15	18	21	17
Stock Market Turnover/GDP (%)	26	19	10	6	11	7	7	10
Bank Stocks Price Index (Dec. 1913=100)	70	104	62	73	65	74	46	—
Stock Market Price Index (Dec. 1913=100)	57	77	94	140	107	142	—	—
Relative Price of Bank Stocks	122	135	66	52	61	52	—	—

*Notes:* GDP is gross domestic product. The terms of trade is the ratio of export to import prices. *Sources:* From Appendix 1 except population and stock market turnover from Comité Nacional de Geografía (1941); saving, investment, and current account ratios from Taylor (1998); terms of trade from Di Tella and Zymelman (1967), and post-1914 from IEERAL (1986); export ratio from Balboa (1972); savings accounts from *Revista de Economía Argentina* (February 1938); stock market price index from Nakamura and Zarazaga (1999).

Second, one can use the level of credit activity provided by the banking system as a ratio of output (denoted CREDIT).<sup>15</sup>

The usual caveats concerning the variable DEPTH and the use of M3 as an indicator of financial and capital market depth arise. Any definition of monetary aggregates or banking credit might be a weak indicator of capital markets development if it is the case that a significant percentage of industrial finance occurs outside the financial system.

For alternative domestic channels of investment such as the Buenos Aires Stock Exchange Market we only have fragmentary evidence on its quantitative importance, which we will discuss shortly.<sup>16</sup> Notwithstanding conceptual difficulties, the ratio of M3 to output is the traditional indicator of financial or monetary sophistication of an economy in most of the relevant historical

15. The DEPTH measure follows King and Levine (1993); CREDIT follows De Gregorio and Guidotti (1995). We have constructed, on the basis of a consolidated monetary database, annual and monthly data for a monetary aggregate that resembles M3. We have also collected monthly data on the loan activities of the Argentine banking system for the second definition, relying on the pioneering work of Baiocco (1937).

16. See the work in progress by Nakamura and Zarazaga (1999). However, in their paper they attempt to construct a preliminary index of the prices of stocks in the Buenos Aires Stock Exchange, which we include in the above table, not the size of the market capitalization. This issue, as to exactly how much finance was raised via equity instruments, is a subject for future research.

studies. In different studies, it has been shown that higher per capita incomes in developing economies are associated with higher degrees of monetization and secular declines in money velocity.<sup>17</sup>

The variable CREDIT is perhaps a more accurate indicator of financial development, as it measures the amount of credit effectively intermediated by banks. As banks develop their capacity to create banking money should increase. Related to this indicator, we want to analyze the credit to the private sector net of the loans of the most important official or quasi-public bank, the Banco de la Nación Argentina (BNA). We then use the ratio of non-BNA credit to output as an indicator. Thus, we abstract from a bank that was the financial agent of the government, and this indicator should be effectively related to the level and efficiency of *privately financed* investment (NETCREDIT).

We also include in the lower part of Table 7.1 some other financial variables covering various aspects of bank and nonbank financial activity. We have a measure of the growth of savings accounts relative to output. From the Buenos Aires Bolsa we show an indicator of stock-market turnover volume relative to output, an index of banks' stock prices, and an index of all stock prices. These indices allow us to get a sense of how banking performed relative to the rest of the equity market in price terms, and how the two finance channels, debt and equity, performed in terms of activity.

From our monetary and financial data we can infer that all was not well in the Argentine financial system. The DEPTH measure is certainly misleading. The ratio of M3 to output increased in a sustained fashion from 35 percent at the beginning of the century to reach a high of 50 percent at the onset of the Great Depression. But the optimistic picture changes when we observe the behavior of more detailed statistics of banking credit. Even the DEPTH measure drops back to 41 percent by 1935. However, when financial development is proxied by credit to the economy—and especially by net credit as a proxy of privately created loans for investment—the vitality of the emerging financial system is more questionable.

Total credit did rise appreciably prior to the slump, from a low of 27 percent in 1905 to a high of 43 percent in 1930. But net credit as a fraction of output fell during the First World War, recovered a little in the middle of the 1920s, only to plunge, together with output, during the years of the Great Depression. Thus the widely used M3-to-output ratio depicts a monetizing economy, but one which nonetheless did not deliver financial development in the form of a bank credit expansion to the same degree. By either measure, trough-to-peak gains never amounted to more than increases from 27 to 37 percent (DEPTH) and 18 to 24 percent (NETCREDIT), but even these modest gains were reversed.

17. For the monetary history of the United States and United Kingdom see Friedman and Schwartz (1982); for the monetary history of different European countries see Bordo and Jonung (1987); and for recent experiences see Fry (1985), and King and Levine (1992).

It is not just the credit data that suggest the banking sector had its problems. If banks were the best available technology to channel savings to investments, then their situation as perceived by the market participants did not flourish during the interwar period. From 1913 to 1935, the market value of the industry declined by more than 50 percent as shown by the quotation of an index of bank stock prices. The relative value of banking as an industry had declined dramatically even by 1930, the first year in which the deflationary effects of the Depression were felt domestically. Relative to other stocks, bank stocks had fallen in price by about 60 percent relative to their pre-1914 peak. This decline in market value of banks calls into question whether banks were an effective technology to channel savings to investments in interwar Argentina, an issue that will receive further scrutiny.

As for alternative sources of finance, there was little relief from the equity market either, and stock market turnover suggests a stock market of dwindling importance: turnover relative to output fell by more than half from 1900 to the 1930s. Turnover is not the same as new capitalization, but even so, the data are suggestive of a weak stock market unable to deliver a dynamic and growing source of industrial and commercial finance when such funding was exactly the type needed by the Argentine interwar economy. Further research is surely warranted on the evolution of the *Bolsa* to uncover its workings in this period.<sup>18</sup>

However, to be fair, not all signs were disappointing, and certainly the expansion of savings accounts, in particular, from 5 to 21 percent in 1905–1930, has attracted attention. It was this trend, and the increase in monetization (DEPTH), led Díaz Alejandro to see an “expanding capital market.” But more concrete measures of financial development results (in terms of credit delivered and the health of bank stocks) do not seem to justify this rosy view. And most tellingly of all, more savings accounts and more monetization, at the end of the day, could not by themselves deliver large and sustained increases in loan activity, and thus deliver an impact on the private finance of investment via the credit channel, the ultimate benchmark for financial development.

Hence, the standard measures of “financial development”—DEPTH and CREDIT—need to be interpreted with caution in this and other historical contexts. On the face of it increases in these measures of about 15 percentage points (as seen in interwar Argentina) should deliver impressive gains in growth performance. According to cross-section studies of the impact of financial development on growth using contemporary data, such changes would be worth about 0.5 percent per annum in growth performance, via improved mobilization and allocation of capital.<sup>19</sup>

That kind of boost to growth failed to materialize in Argentina. The figures in the upper part of Table 7.1 on saving and investment show the disappointing

18. See Nakamura and Zarazaga (1999).

19. King and Levine (1993); De Gregorio and Guidotti (1995).

bottom line. In the absence of foreign savings during the interwar years, the dwindling current account deficits meant that Argentine had to finance most of domestic investment out of domestic saving. Yet the home financial system could not respond to the challenge.

After 1914 savings rates climbed only modestly, averaging just 8 percent of output; investment rates declined to average about 10 percent of output, much less than the investment rates of 15 to 16 percent seen in 1905–14 and so heavily financed by foreign capital inflows. After 1914 foreign capital only contributed an inflow of about 2 percent of output on average.

Economic retardation was the result of this new capital constraint.<sup>20</sup> The financial system failed in its two core *microeconomic* tasks: it could neither successfully mobilize more capital (quantities did not increase appreciably); nor did the allocation of capital improve in efficiency (indeed bank stock price declines suggest a shift to poorer quality assets over time). The *macroeconomic* results were predictable, but to understand why the domestic system failed we need to understand its own institutional shortcomings, and so why it faced a much harder task than the foreign financial intermediaries it was seeking to replace.

### *International Perspectives on Financial Development*

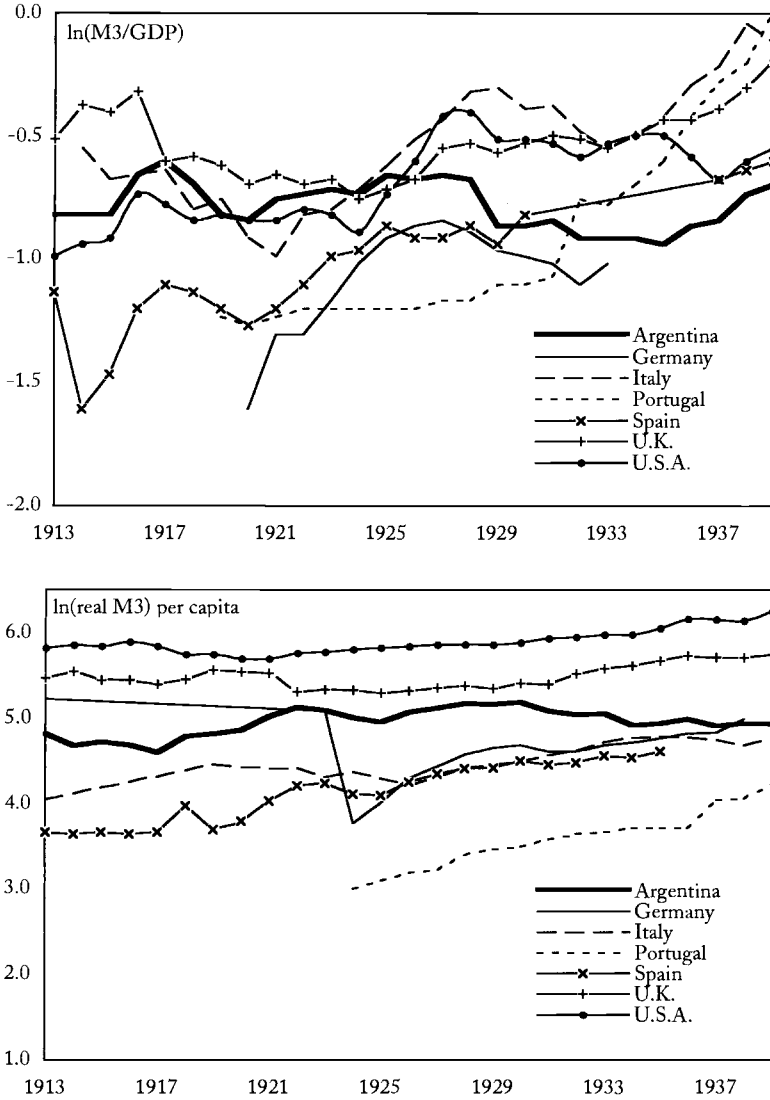
A key set of motivating questions for this chapter asked how remarkable was interwar financial development in Argentina. Those questions are, at least in part, comparative questions: if we assess Argentine growth relative to that of other countries, so we must also seek international benchmarks for financial development. This is very much the spirit of the modern studies using large cross-sectional databases covering scores of countries. We cannot hope to match this sample size given the availability of historical data before 1945, but, just as we did in the Introduction for income per capita comparisons, we can now compare Argentine experience to a sample of a few well-chosen developed and developing countries in Figure 7.1.<sup>21</sup>

The sample includes Argentina, plus three benchmark rich “core” countries (Britain, the United States, and Germany) and three developing “peripheral” countries (Italy, Portugal, and Spain). As noted earlier, in 1913 Argentina was one of the five or so richest countries in the world and would have been

20. Taylor (1992).

21. The figure shows two measures of financial development, both using M3, the only monetary aggregate available for this purpose. The first measure is the DEPTH measure, the ratio of M3 to output for seven countries from 1913 to 1939. The second measure is *real* M3 per capita, measured in 1928 prices, and converted to U.S. dollars at 1928 parities. Unfortunately, we were unable to obtain currency in the hands of the public for such a broad sample (so as to examine shifts in the use of deposits versus currency). Nor were we able to get measures corresponding to our preferred CREDIT variable, a measure of bank financing in the economy.

Figure 7.1. International Comparisons of Financial Deepening, 1913–39



Notes and sources: For Argentina, see Appendix 1. Other countries from Mitchell (1992, 1993) and Bordo (unpublished data).

considered a good candidate for comparison with the first reference group. But by the postwar decades Argentina's position had certainly sunk into the developing-country sample and had fallen well behind the three European peripheral countries included in the second reference group. Can we find evidence of such a reversal of fortunes in this financial data?

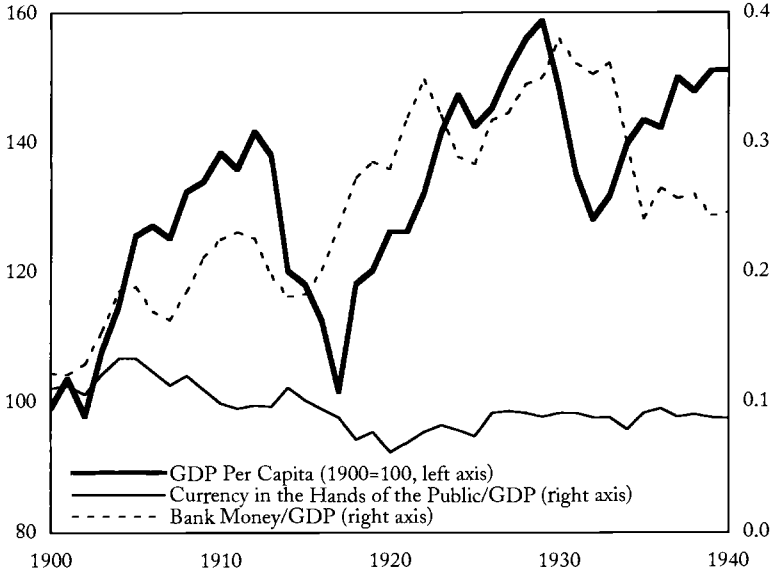
The first chart shows that in 1913, Argentina's DEPTH measure was only just behind that of the three core countries, and after the shocks associated with the First World War, Argentina briefly surpassed all countries in the sample on this measure of financial deepening. This success proved short-lived. A brief financial crisis in Argentina in the mid-1920s brought the DEPTH measure down to its initial level. The only core country by then below Argentina was Germany, whose own financial system had been wrecked by chaos and financial repression during the hyperinflation. There was then some stability up to 1929, but other periphery countries saw very rapid increases in DEPTH over the same years, which Argentina could not match. In the 1930s, Argentina faced further financial crises, reducing the DEPTH measure below that of *all* other countries in the sample by the late 1930s, excepting Germany. But Germany was by then an economy with serious problems financial and otherwise—heavily controlled currencies, an increasingly command-type economy, and crowding-out via militarization—all serving to strain the private financial system.

A similar story is told by the evolution of real M3 per capita in the second chart. Again, Argentina started near the top of the financial league table in 1913, and its relative position improved a little by the early 1920s. But after 1920 almost nothing happened to change the Argentine level of real M3 per capita, whereas in *all* other countries, this measure of real financial activity per person was continually increasing, even in the 1930s. The core countries all surpassed Argentina in the level of this variable by the 1930s, and only Portugal and Italy (barely) had a lower level, although they were converging rapidly.

Both of these measures indicate that in terms of financial development Argentina began in 1913 in a very strong position, consistent with its claim to be one of the richest economies in the world. However, this position was continuously eroded in relative terms in the interwar period, such that by the late 1930s, Argentina had experienced virtually no net increase in financial depth. Despite wars and the Great Depression, most other countries posted gains in the same period. It is very telling that Argentine financial development looks good only in comparison with a financial disaster case like Germany.

This sequence of events suggests that we examine the Argentine interwar financial system and economic growth in more detail. Figure 7.2 provides a starting point, and the figures depict time series of output per capita, and two measures of financial development: currency in the hands of the public as a share of output, and banking money as a share of output. According to the established theories of finance and development, the ratio of currency to output

Figure 7.2. Financial Deepening and Economic Performance, 1900–1940



Notes and sources: See Appendix 1.

should remain constant or even fall, and the ratio of banking money to output should rise as development proceeds. Such changes would reflect an increase in sophistication with the public's substitution of assets in the financial system (banking money) for simple cash in hand.<sup>22</sup>

The time path of output per capita shows the two major crises: the First World War and the Great Depression, with the latter *less* severe than the former. There are also minor recessions in 1906–07 (as in the United States) and in 1924–25. These cyclical events, both big and small, can be seen to have parallels in financial activity in the second and third figures. The currency ratio is seen to be declining dramatically from a high of 15 percent to about 6 percent in 1920, albeit with some reversal at the beginning in the 1914 crisis. But thereafter the currency-to-output ratio holds steady and even increases slightly, reaching a level of 9 to 10 percent in the 1930s.

Thus, the substitution of banking system assets for cash seems to grind to a halt in Argentina soon after the First World War. This trend break is also evident in the path of the bank money ratio, which shows volatility around an upward trend before 1920 (almost doubling from 15 to 30 percent). There is then no trend at all from 1920 to 1929 (with a minicollapse in the mid-

22. Townsend (1983).



1920s), and a marked decline in the 1930s (almost falling back to 20 percent, comparable to pre-1914 levels).<sup>23</sup>

In fact, one can argue that there is even evidence of financial retardation or involution after 1920, as the public substitutes back toward currency, and away from financial assets in the banking system. The interwar trends are certainly disturbing, and they may shed more light on the beginnings of Argentina's long-run retardation. However, the macroeconomic data gathered so far can only provide weak evidence of the failure of the Argentine financial system between the wars.

We are still poorly equipped to trace the causal relationship between, on the one hand, the institutional structure of the Argentine economy and its position in a changing international economy, and, on the other hand, internal developments in the financial system and their relationship to economic development. To understand these linkages better we now aim to provide an integrated view of the macroeconomic and microeconomic workings of the interwar Argentine financial system.

### **Institutional and Economic Fragilities**

Without further digression, we must therefore ask what were the institutional and economic impediments to the establishment of a fully fledged and resilient financial system during the interwar period? To understand why Argentina suffered recurrent financial distress it is important to introduce here the concept of intertwined macroeconomic monetary and financial risk for a small, open economy under a fixed exchange-rate regime like the gold standard.

Crucial here is the institutional and historical fact that, until 1935, the Argentine monetary and financial regime operated without a central bank. Until that time, a potential cause of a suboptimal financial structure came from the existence of a different kind of monetary authority, the Conversion Office. The Conversion Office could not act as a Lender of Last Resort of the financial system without threatening its macroeconomic responsibility of defending the external value of the domestic currency.

### ***Macroeconomic Twin-Risk: Exchange-Rate Regime and Financial Structure***

The almost simultaneous problems of exchange-rate crises and financial crises were a recurrent problem for Argentina, and this type of "twin crisis" economic

23. We also examined correlations of real output per person and the two financial variables. The correlations are striking: before 1920, the economy appears to be developing as per the standard economic model: real economic growth moves in parallel with the relative expansion of the financial system, and the substitution away from cash. After 1920, these correlations completely break down.

phenomenon is now better understood.<sup>24</sup> The complicated dynamics of a regime that combined a high ratio of inside to outside money (a fractional-reserve financial system) and a fixed exchange-rate regime (the Gold Standard) had become all too apparent by 1914. The “central banker to the world”—the Bank of England—had decided on a course of successive and dramatic increases in its discount rate. The years 1913–14 were thus characterized by a devastating foreign shock to the Argentine economy in general, and to the monetary and financial regime in particular.

In Table 7.2 we show the anatomy of several financial crises to highlight the main channels of transmission to the real economy. We include three important financial crises from our period of study: first, looking back, the 1890–91 Baring Crisis; next, the financial crash of 1913–14; and, last, the 1930–31 downturn. A common characteristic of real financial crises is the fall in bank money, or in the ratio of inside to outside money. This is due to a persistent run on bank deposits, and it is usually associated with a severe loss in output. In 1913–14 we see that, although a major devaluation of the currency was avoided—to avoid a repeat of one major cost of the Baring Crisis—another price was paid instead. The banking industry was devastated. Bank stock prices fell by 38 percent in one year. There was an intense process of capital crunch—the use of capital to pay out depositors when assets fail. Paid-in capital fell by more than one tenth in less than twelve months.

We note also that the destruction in the banking industry in 1913–14, measured by the price of bank stocks, was far worse than the collapse of overall stocks, which declined by a “mere” 6 percent. Suppose that the quotation of bank stocks reflected the expected net present value of the future stream of income of the industry. Then, judging by what happened *ex post*, one is tempted to say that investors and economic agents had a very accurate perception that the First World War had had a devastating effect on the health of financial and capital markets institutions.

By 1930–31, prices of bank stocks were again at the same level as they had been in 1914, but general stocks were up by 47 percent, and the nominal paid-in-capital stood below the 1913 level. In other words, it seems that financial markets were losing strength at each successive stage of financial distress. Even when a recovery was in place after a shock hit the system, investment in the industry never recovered its previous level.

To show the links between the expected solvency of the banks as determined, simultaneously, by monetary and real factors, we construct a simple econometric model. We perform a time-series regression of bank stock prices on two variables: the level of bankruptcies (a proxy for the distress of borrowers or the state of affairs in the real sector); and current and lagged values of the gold

24. Kaminsky and Reinhart (1999).

Table 7.2. *Anatomy of Three Financial Crises*

	Baring Crisis		World War One		Great Depression	
	1890	1891	1913	1914	1930	1931
<i>A. Real Activity</i>						
Real Output (% Change)		-10.9		-11.0		-3.9
<i>B. Monetary Variables</i>						
Money Supply (% Change, M0)		-25.9		-10.7		-8.3
Money Base (% Change, M3)		6.7		-3.6		1.3
Bank Money (% Change, M3-M0)		—		-17.5		-11.3
International Reserves Backing (%)	21.0	4.0	72.6	66.3	82.1	47.6
Exchange Rate (% Change, Paper-Gold)		45.0		1.7		25.0
Inflation (% Change, WPI)		56.0		1.2		-3.3
<i>C. Banking Variables</i>						
Deposits (% Change)		-47.2		-15.4		-8.6
Banking Fractional Reserves (%)	20.0	27.0	32.4	33.8	11.6	14.9
Money Multiplier (M3/M0)	2.3	1.6	2.1	1.9	3.7	3.3
<i>D. Financial Market Variables</i>						
<i>Ex Post</i> Real Interest Rate (% Internal)		—		6.5		10.8
Nominal Interest Rates (%)						
High Month	—	10.3	8.1	8.8	7.7	7.9
Low Month	—	—	7.5	7.5	6.4	6.7
Bank Stock Prices (Dec. 1913 = 100)	—	—	100	62	69	64
Stock Price Index (Dec. 1913 = 100)	—	—	100	94	147	—
Paid-In Capital (millions \$mn)	—	—	513	449	498	485

Sources: From Appendix 1 except stock price index from Nakamura and Zarazaga (1999).

stock (a control for the domestic money-market situation and also possibly to be interpreted as a proxy for country macrorisk). All variables are in log levels. The results are reported in the upper part of Table 7.3.

The principal inferences to be drawn from the model are twofold. First, an increase in bankruptcies lowers the market value of banks. The long-run elasticity is -0.2, so an increase of 10 percent in bankruptcies lowers the price of bank stocks by 2 percent in the long run. Second, a gold inflow (an improvement in the balance of payments) eases the monetary liquidity of the economy and has a positive impact on the financial intermediation industry. A rise of 10 percent in the stock of gold increases the monthly price of bank stocks by 3.6 percent in the long run.

In this model we see that the solvency of banks is crucially linked to a principal macroeconomic variable: the level of gold stock, mostly consisting of international reserves at the Conversion Office. From the point of view of individual bankers and investors, who set the “price” of banks, this variable, like the bankruptcy level, would be seen as exogenous—hence our choice of specification. The gold stock, in turn, is related to the choice and stability of the level of the exchange rate.

Table 7.3. *Model of Banks with "Twin Risk"*

<i>A. Bank Stock Prices, Bankruptcies, and Macroeconomic Risk</i>		
Dependent Variable	ln Bank Stock Price	
Constant	-0.02 (0.23)	
Trend	0.00 (0.07)	
ln Bankruptcies	-0.01 (2.28)	
ln Gold Stock	-0.30 (2.18)	
ln Gold Stock ( $t-1$ )	0.52 (2.12)	
ln Gold Stock ( $t-2$ )	-0.20 (1.42)	
ln Bank Stock Price ( $t-1$ )	0.96 (47.80)	
<i>Long-run elasticities</i>		
ln Bankruptcies	-0.20	
ln Gold Stock	0.36	
R-squared	0.96	
Number of observations	222	
SEE	0.03	
<i>B. Lending by Type of Bank as a Reaction to Gold Flows and Bank Stock Prices</i>		
Type of Bank	Domestic	Foreign
Dependent Variable	ln Loans	ln Loans
Constant	0.06 (1.31)	-0.08 (1.34)
Trend	0.00 (0.77)	0.00 (0.30)
ln Gold Stock	0.03 (2.72)	0.05 (3.26)
ln Bank Stock Price	0.02 (1.93)	0.03 (1.60)
ln Loans ( $t-1$ )	1.05 (17.20)	0.69 (13.10)
ln Loans ( $t-2$ )	-0.08 (1.41)	0.27 (5.28)
<i>Long-run elasticities</i>		
ln Gold Stock	0.70	1.22
ln Bank Stock Price	0.66	0.70
R-squared	1.00	0.99
Number of observations	343	343
SEE	0.02	0.04

Notes and sources: See text and Appendix 1.

The above transmission mechanism distinctly parallels the seminal ideas of Bernanke, who argued that the financial system constituted an additional channel through which monetary crises could cause havoc in the real economy. The above model is fairly simple and describes the first-order effect by which the terms of Argentina's deviation from gold standard rules can have a definite impact on the "pricing" of banks by exacerbating gold outflows. As it stands, we can trace out important independent effects of the real and monetary sectors on the perceived solvency of banks.<sup>25</sup>

Finally, note that we have developed a satisfactory microeconomic model of these channels as they affect bank "pricing." In the next chapter we will return to consider the problems of internal drain and external drain in a more formal macroeconomic model.

### *Microeconomics of Banking*

We might now ask what was the effective cost, in terms of lending, of having a fragile financial regime subject to the risk of twin crises. This is a difficult question to tackle without examining the microeconomic behavior of banks. Thanks to the construction of a new data set based on the monumental work of Baiocco, we can now assess the microeconomic behavior of banks and see how such behavior affected the availability of credit in the economy.<sup>26</sup>

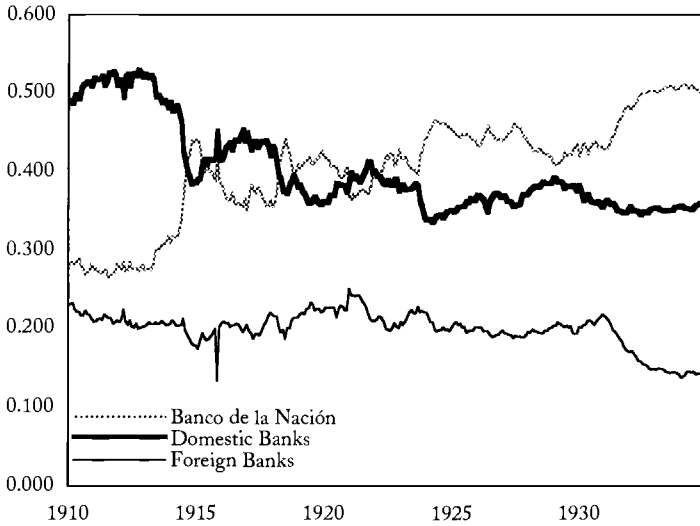
In Figure 7.3 we display the share in the loans in the financial system. We show three types of bank: the Banco de la Nación, the most important official bank; the other domestic banks, such as the Banco Frances del Rio de la Plata, Nuevo Banco Italiano, Banco Español; and the foreign banks. One striking feature of the data is that from 1910 until 1930, domestic banks' share in total loans declined from almost 50 percent to less than 35 percent. Foreign banks could hardly maintain a share of 20 percent in the same period. The Banco de la Nación's share jumped from 28 to 45 percent. In short, it appeared that the private sector was losing ground in the capital market to the state bank.

In Figure 7.4, the evolution of paid-in capital of banks is reported. It is interesting to note the dramatic "capital crunches" suffered by domestic banks during financial crises or distress. In the 1914 crisis, the domestic banks lost almost half their capital; in the short-lived drain of 1922–23 they lost 25 percent; and in 1934, as we said previously, their capital was almost the same as in 1913. How did these shocks to bank capital affect intermediation? In a virtually unregulated banking environment, the bankers could optimize their

25. See Bernanke (1983). A second-order effect of an expected depreciation of the currency via the behavior of depositors (investors) in a fractional reserve banking system also deserves comment here. But our data preclude a detailed econometric analysis of this effect, usually referred to as twin exchange-rate and financial crises. In the case of a discrete devaluation this is the well-known *peso problem*.

26. Baiocco (1937).

Figure 7.3. Loans by Bank Type, 1910–35



Notes and sources: Units are shares of total loans. See Appendix 1.

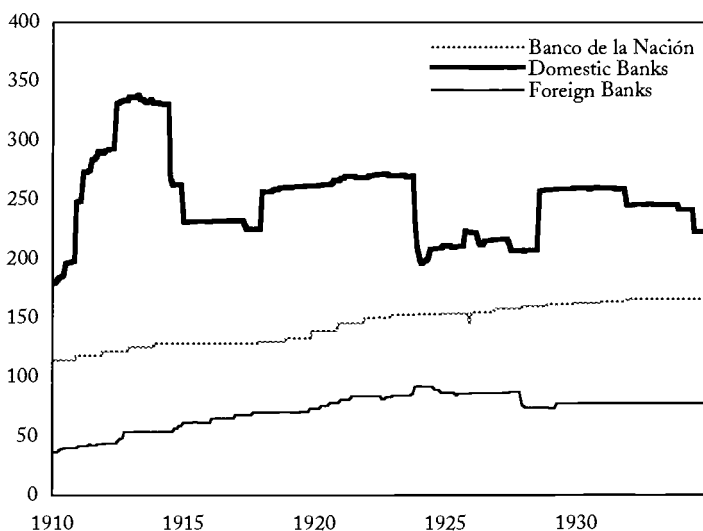
asset holdings and portfolios, so we think of leverage, the ratio of risky loans to paid-in-capital, as being the most important choice variable in the industry.

In Figure 7.5, we observe that, excluding the Banco de la Nación, domestic banks had a leverage ratio much lower than the leverage of foreign-owned banks. We believe that differences in capital constraints and in attitudes toward the tolerated riskiness of assets might explain the micro differences in lending. Foreign-owned banks could choose a higher loan-to-capital ratio for two reasons. First, foreign banks could rely more on their international headquarters to avert and overcome financial crises, unlike domestic banks that had no Lender of Last Resort until the central bank appeared in 1935. Second, foreign banks were lending to “safer” assets, giving them a mix of risk and returns that allowed them to carry a higher leverage, since they specialized in trade financing where exchange-rate risk, self-liquidating characteristics, and collateral risk are all well-hedged.

Our interpretation of the differences in observed leverages across banks of different type follows that of the official line as presented in the official banking census of 1925.<sup>27</sup> In the census, the disparity between the loan-capital ratios is *not* attributed to systematic differences in fractional banking reserves. For example, in December 1925, foreign banks maintained a loan-capital ratio of

27. República Argentina (1926).

Figure 7.4. Capital by Bank Type, 1910–35



*Notes and sources:* Units are millions of paper pesos. See Appendix 1.

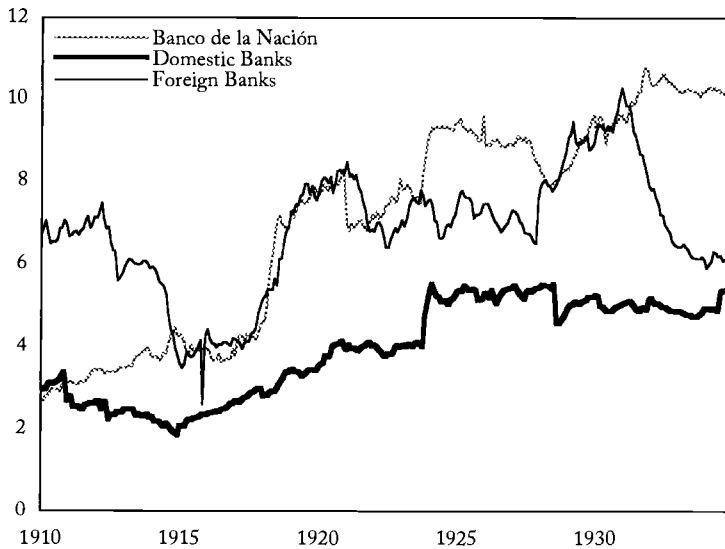
6.3 while having a reserve-deposit ratio of 29 percent; domestic banks had a loan-capital ratio of 5.3 and a reserve-deposit ratio of 21 percent.

All the same, this observation is still fully consistent with domestic banks having greater portfolio risk than foreign banks.<sup>28</sup> Domestic banks had to hold more capital because they were longer in riskier and more illiquid assets; foreign banks had high liquidity but more lending intermediation too. How can this be reconciled? First, not surprisingly a large share of funding comes through deposits, and deposit-capital ratios, as a first approximation, explain the observed differences in loan-capital ratios. However, on top of this, domestic banks relied exclusively on capital, reserves, and deposits to effect lending; foreign banks could rely on profits generated internationally and, especially, on easy access to open letters of credit from international correspondent banks. In other words, foreign banks could leverage more easily by using international credit and diversification.

The evidence suggests that only foreign-banks could have a net-indebtedness position vis-à-vis correspondents in the rest of the world. That is they could channel resources from abroad but only for investing in very safe and short-term assets. For example, long-term loans and mortgage loans represented 16 percent of assets in domestic banks, but only 4 percent in foreign banks. Conversely,

28. See the model of Calomiris (1993).

Figure 7.5. Leverage by Bank Type, 1910–35



Notes and sources: Leverage shown is loan-to-capital ratio. See Appendix 1.

short-term loans accounted for 22 percent in domestic banks versus 45 percent in foreign banks.<sup>29</sup>

The second important behavioral consideration is that changes in leverage are more important as a response to changing business cycle conditions in the case of foreign banks. This is apparent from the data presented in figures 7.4 and 7.5, where we can see that when financial crises or exchange rate crises arise, severe capital crunches occur in domestic banks but no severe curtailment of paid-in capital occurs in the other banks. Therefore, it was principally the domestic banks, who were more prone to long-term lending, that were exposed to capital crunches.

We argue that this was because they could not rely on international diversification to smooth out financial runs or crises. Under stressful conditions, domestic banks might have been forced to call back loans, but a total transformation of assets to pay back short-term debt was, in general, neither sufficient nor feasible: therefore, capital was squeezed out. In contrast, foreign banks

29. República Argentina (1926, p. 39). In the census it is shown that foreign-owned banks typically had a net debtor position, that is they were recipients of financial capital from correspondent banks abroad which was applied to trade lines. Domestic banks and the Banco de la Nación had a net creditor position vis-à-vis such *corresponsales en el exterior*. For 1925, the net debtor position for foreign banks was equivalent to 60 percent of total paid-in-capital of those banks (República Argentina 1926, pp. 26–27 and 44).



could immediately call up loans, and they could decide not to open up new letters of credit. In the former case, idiosyncratic risks could not be by-passed by domestic banks and the adjustment mechanism during a downturn in the business cycle was a capital crunch. In the latter case, lending was immediately curtailed to effect adjustment in the case of foreign banks.

To reinforce the argument, in the lower part of Table 7.3 we use another econometric model to illustrate the differences in lending behavior. Loans are taken to be a function of two variables: gold flows, to show how inflows and outflows of capital are channeled to lending by bank type; and bank stock prices, to assess the performance of the industry and how bankers react to the “pricing” of banks by the market.

The results are consistent with theory: in a monetary, small, open economy, gold inflows and increases in the expected net present value of the banking industry should be conducive to an increase in the amount of lending. Note also the long-run elasticities of lending by type of bank with respect to the level of gold stock of the economy: if there is an increase of 10 percent in the gold stock, foreign banks increase lending by 12.2 percent, but domestic banks by only 7 percent. Foreign banks seem very sensitive to liquidity considerations and to changes in the balance of payments.<sup>30</sup>

To display these effects more clearly, Figure 7.6 displays impulse-response functions for the two types of banks based on the dynamic equations estimated in Table 7.3. It is apparent that full adjustment by the banks takes a number of years. Even after 36 months, a 10 percent decline in gold stocks translates into only a 5.4 percent (8.2 percent) fall in loans for domestic (respectively, foreign) banks, whereas the long-run adjustment would be 10 percent (12.2 percent). Evidently, banks could not adjust their loan portfolios overnight, so external shocks had long-lasting effects, as banks continued to adjust their lending activity over several years.

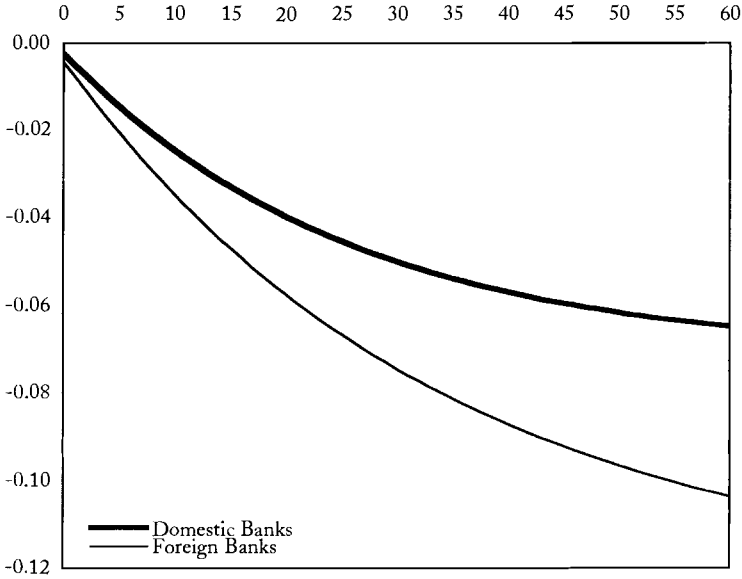
We have thus found structural differences in lending behavior as a response to macroeconomic and microeconomic events in different types of banks, domestic and foreign. This is an extremely important result, one that has not been identified in previous studies of banking in emerging markets in a historical perspective, nor in contemporary studies.

### **The Interwar Financial System: Success or Failure?**

Much of the existing literature on Argentine financial development offers a somewhat optimistic view of the interwar period. We disagree with this interpretation. Marshaling new evidence both for Argentina in time series, and relative to other countries in cross section, we see weakness in the financial

30. There are no significant differences in relation to the elasticity of loans to changes in the bank stock prices but it is worth noting that the elasticity is again very high.

Figure 7.6. Response of Bank Loans to a Shock to Gold Stock



Notes and sources: See text. Horizontal axis shows time in months; vertical axis ln(loans).

system between the wars. According to this new view, we have reason to suspect the financial system as one cause of Argentina’s relative retardation after 1914. Moreover, our work pinpoints two important institutional features of the interwar financial system.

First, we highlighted the macroeconomic “twin risk”: under a fixed exchange-rate regime, without a Lender of Last Resort, the fractional-reserve financial system was prone to systemic risks triggered by external shocks via gold flows. Second, we examined the micro behavior of banks in that setting, and we found significant differences between domestic and foreign banks. Adverse external shocks damaged the value of all banks, but elicited a larger and swifter adjustment of lending by foreign banks. However, in terms of capital adjustment, only the domestic banks suffered “capital crunches.”

The two types of banks differed in asset risks, type of lending, and they served different niches after 1914. Foreign banks narrowed their lending activities to specialize in liquid short-term commercial loans, leaving domestic banks to supply longer-term loans up in firms and real estate. They also crucially differed in terms of exposure to risk. *Ceteris paribus*, a foreign bank was less likely to fail. First, it could pool risk via international diversification: in a time of crisis foreign banks could call on overseas partners for liquidity; for example, a bank’s London headquarters. Second, it could avoid systemic risk by its

link to a monetary authority that acted as a lender of last resort. If the crisis was very severe then central banks would intervene—for example, the London headquarters of the bank would enlist the support of the Bank of England, as indeed happened during the 1890 Baring Crisis.

Given these considerations, Argentine domestic banks were forced to choose a lower leverage: they had to maintain a higher capital cushion. Hence a barrier to economic growth would emerge as a result of the arrested development of the financial system. Or, put another way, Argentina paid a price for the disintegration of world capital markets that went beyond just the loss of foreign capital inflows. The domestic financial also faced a loss of intermediation services when it became more risky as a result of isolation from global diversification and risk pooling. Domestic banks could not fill the void left by the retreat of foreign capital after 1914; lower leverage meant that they could not mobilize finance to the same extent and thus could not facilitate so easily the accumulation and allocation of capital in this emerging economy.