FINANCE AND DEVELOPMENT IN AN EMERGING MARKET: ARGENTINA IN THE INTERWAR PERIOD

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ABSTRACT

The long-run economic performance of Argentina since World War One has been relatively disappointing until recently. Yet, in the interwar period, signs of future retardation and recurring crises were not so obvious. It is often claimed that an unmitigated success was the remarkably rapid growth of domestic financial markets. In conventional models, such "financial deepening" would help accelerate development, especially in an industrializing economy such as Argentina's. Yet the promise of this trend was unfulfilled: first the outbreak of World War One and then the Great Depression proved a setback for the fledgling financial system, and a long-run deterioration set in after 1940. In this paper we trace the course of financial development using historical and international comparisons and we analyze both macro- and microeconomic aspects of financial intermediation.

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Introduction

The economic history of Argentina, a melancholy tale of long-run retardation throughout most of the twentieth century, is understandably something of a fascinating curiosity for scholars with any interest in growth, development, and history. A country that promised in the 1900s and 1910s to enter the league of the developed nations, simply could not make it. The 1914–1939 period thus defined a critical transition in Argentine economic history; yet 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 begun. All histories single out the interwar period, perhaps even the very year 1929, as the decisive break point (Díaz Alejandro 1970; Di Tella and Zymelman 1967; Cortés Conde 1979; Taylor 1994).

However, in her economic performance Argentina fared no worse than other settler economies in the transition to the interwar period (Díaz Alejandro 1984, Taylor 1994). 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 1914–1918 and 1929–1931 crises (della Paolera et al. 1996). 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? Is it fair to say that autarkic forces in capital markets prevented an efficient allocation of investment to new endeavors? Or should we seek alternative or, at least, complementary explanations?

Few scholars have tackled the importance of financial and capital markets as a means to promote and enhance economic growth. Very little has been written on the interaction in Argentina between financial development and aggregate economic activity for the 1913–1939 period (see, however, della Paolera et al. 1996). A vague consensus suggests that some financial development took place, but it was not all that might have been hoped for. This was recognized by Díaz Alejandro (1985, 2), who noted that: "While the financial history of Latin America remains to be written, it appears that by 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...."

In his landmark history, Díaz Alejandro (1970, 28–35) offers further evidence for significant financial deepening in the interwar period. 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% of GDP in 1913–14 to 22% in 1928–29. Monetization also expanded, and a traditional indicator, the ratio of monetary assets to GDP, rose from 46% in 1913–14 to 55% 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," and activity on the Bolsa was dominated by trades in mortgage paper the bonds of state and national government bonds. Only around 10% of trades were in stocks of corporations. And even in bank finance, one institution loomed large, the Banco de la Nación Argentina (BNA), which accounted for more than two-fifths of the assets of the commercial banking system, and which, in the absence of a central bank, had a quasi-public function. Still, despite these caveats, the evidence looked favorable to Díaz Alejandro (1970, 33–34). He argued that "[t]he 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."

Almost thirty years after Díaz Alejandro's essay, a pioneering work built on scarce data, we think it time to re-examine these issues and search for new evidence. In this paper we focus on the relationship between the development of domestic financial markets and economic growth for the 1913–1939 period. This is our emphasis since it so often appears as a central redeeming feature of Argentine interwar history, yet it has received little attention from quantitative economic historians. Many economic historians have stressed the pre-1914 struggle of Argentina to adopt monetary regimes that would ensure macroeconomic stability and, in turn, facilitate access to international capital markets (della Paolera 1994, Bordo and Rockoff 1996). 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—in mobilizing domestic and foreign savings, allocating productive resources, facilitating risk management, and easing of trading of goods—is an essential element in understanding what happened after 1914.

In particular the Argentine economy suffered an immediate shock at the onset of World War I: the British supply of financial services proved to be unreliable when international capital markets dried up and, 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 (Taylor 1992). As Levine (1996, 14) observes "...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." The very same process was at work in parts of Latin America, notably Argentina—and there perhaps to an even greater extent given her extreme degree of dependence on foreign capital. Thus did an Anglo-Argentine elite 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 (Taylor 1992). International political and economic engagements started to dissolve in the autarkic atmosphere after World War I, with ramifications for world markets, and especially international capital mobility (Obstfeld and Taylor 1997). Savings-scarce countries, like Argentina, with 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 as effectively as the rapidly receding supplies of foreign capital. How did Argentina respond to this challenge?

Our aim in this paper is to address two sets of major questions about these events. 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 assess the inherent fragility of the domestic financial system: could it produce financial shocks that could influence business cycles?[1] In addition, the economy soon faced one of the worst ever international depressions, which wrought worldwide 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?

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[1] 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.

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's (1776) seminal piece. 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 (1963), Cameron et al. (1967), Gerschenkron (1962), and Goldsmith (1969) 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.[2]

Two contributions which 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 Robert Townsend (1983) and Ross Levine (1996). They note that in an Arrow-Debreu world, with perfect information and no transaction costs, there will be basically no need for financial intermediaries. Otherwise, intermediation provides a potentially valuable service. A straightforward question about the functional role and usefulness of capital markets, and especially banks, was posed by Bradford 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. The value-added characteristics of financial institutions, some of which were listed by Levine (1996), are key functions that could increase the prospects for economic development:

> (1) the deepening in 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);

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[2] More recently authors such as 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. The literature on endogenous growth has produced a renewed interest in the effect of financial development on the allocation of capital expanding and formalizing these ideas even further (see Fry 1995).

(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) 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);[3]
(4) the mobilization of savings which involves 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) the fall in the cost of finance and interest rates, and the resiliency of financial institutions to systemic fragility can provide for the flourishing of new entrepreneurs and new firms that otherwise could not have existed.

When all the factors mentioned above are in operation, financial intermediation will enhance capital accumulation and, most importantly, technological adaptation and innovation. which will, in turn, translate into economic growth. 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.

Argentine Financial Development and Economic Growth: A Preliminary Sketch

In Table 1 we offer some preliminary macroeconomic indicators of financial development and economic growth from 1900 to 1939. Let us examine the broad development

[3] 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 towards variable-cost inputs and against investment in fixed capital;

indicators in the upper panel. The figures show that the Argentine economy suffered a significant slowdown in economic growth after World War I. From an average per capita real growth rate of about 3.5% per year for the first decade of the century, Argentina only rebounded in the twenties to a growth rate of 1.7% per year. The 1915–1919 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 (Taylor 1992). 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 GDP, 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 GDP gradually decline after peaking during the later years of World War One (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 several measures of financial development. The typical two candidates to be used as proxies for the degree of financial intermediation are: (1) monetary aggregates such as the money stock M3 defined as the sum of currency in hands of the public plus demand deposits and interest bearing deposits and liabilities of the banks and non-banks intermediaries (or DEPTH, following King and Levine 1993); and (2) the level of credit activity provided by the banking system as a ratio of GDP (or CREDIT following 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).

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.[4] Notwithstanding conceptual difficulties, the ratio of M3 to GDP is the traditional indicator of financial or monetary sophistication of

[4] See the work in progress by Nakamura and Zarazaga (1996). 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.

an economy in most of the relevant historical studies. In different studies, it has been shown that higher per capita incomes in developing economies are associated with higher degrees of monetizationand secular declines in money velocity.[5]

The variable CREDIT is perhaps a more accurate indicator of financial development, as it measures the amount of credit effectively intermediated by banks. In Table 1 we include the ratio of total loans of the financial system to GDP (CREDIT). 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 (quasi-state) bank, the Banco de la Nación Argentina (BNA). We then use the ratio of credit net of BNA to GDP 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 panel of Table 1 some other financial variables covering various aspects of bank and non-bank financial activity. We have a measure of the growth of savings accounts relative to GDP. From the Buenos Aires Bolsa we show an indicator of stock-market turnover volume relative to GDP, an index of banks' stock prices (derived from our monthly data set) and an index of all stock prices (from Nakamura and Zarazaga 1996). 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. While it is the case that the traditional indicator of money deepening measured by the ratio of M3 to GDP increased in a sustained fashion from 35% at the beginning of the century to reach a high of 50% at the onset of the Great Depression, the optimistic picture changes when we observe the behavior of more detailed statistics of banking credit, and even the DEPTH measure drops back to 41% 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% in 1905 to a high of 43% in 1930. But net credit as a fraction of GDP fell during World War I, recovered a little in the middle of the twenties, only to plunge, together with output, during the years of the Great Depression. Thus the widely-used M3/GDP measure depicts a monetizing economy, but one which nonetheless did not deliver financial

[5] For the monetary economic history of U.S.A. and U.K., Friedman and Schwartz (1982); for monetary history episodes of different European countries Bordo and Jonung (1987); and for recent experiences Fry (1985) and King and Levine (1992).

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% (DEPTH) and 18% to 24% (NETCREDIT), but even these modest gains were reversed.

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 "value" of the industry declined by more than 50% 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% 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 GDP fell by more than half from 1900 to the 1930s. Turnover is not the same as new capitalization, but even so, the data is 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 (see Nakamura and Zarazaga 1996).

However, to be fair, not all signs were disappointing, and certainly the expansion of savings accounts, in particular, from 5% to 21% in 1905–1930, has attracted attention. It was this trend, and the increase in monetization (DEPTH), led Díaz Alejandro (1970) 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 always interpreted with caution in this and other historical contexts. On the face of it increases in DEPTH or CREDIT of about 15 percentage points (as seen in interwar Argentina) would deliver impressive gains in growth performance. According to King and Levine (1993) or De Gregorio and Guidotti (1995), these changes would be worth about 0.5% per annum in growth performance, via improved mobilization and allocation of capital.

Such results failed to materialize in Argentina. The figures in the upper panel of Table 1 on saving and investment show the disappointing 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% of GDP; investment rates declined to average about 10% of GDP, much less than the investment rates of 15%–16% seen in 1905–1914 and so heavily financed by foreign capital inflows. After 1914 foreign capital only contributed an inflow of about 2% of GDP on average. Economic retardation was the result of this new capital constraint (Taylor 1992). 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.

Argentine Financial Development: An International Perspective

To recall some of the key motivating questions for this study: we ask again how remarkable was interwar financial development in Argentina? what were the magnitudes involved? and what can we infer about the capacity of financial development to significantly improve Argentina's prospects for long-run economic development? These 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 studies by King and Levine (1993) and De Gregorio and Guidotti (1995), who use 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 we can compare Argentine experience to a sample of a few well-chosen developed and developing countries in Figure 1.

The figure shows two measures of financial development, both using M3, the only monetary aggregate available for this purpose (we were unable to obtain currency in the hands of the public for such a broad sample). The first measure is the DEPTH measure, the ratio of M3 to GDP 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. The sample includes Argentina, plus three benchmark rich "core" countries (Britain, the United States, and Germany) and three developing "periphery"

countries (Italy, Portugal, and Spain). In 1913, Argentina was one of the five or so richest countries in the world, and would have been considered a good candidate for comparison with the first reference group. But by the postwar decades Argentina's position has certainly lapsed into the developing country sample, and fell behind the three European periphery 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 World War One, Argentina briefly surpassed all countries in the sample on this measures 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, 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 her 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, though 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 2 provides a starting point, and the figures depict time series of output per capita (PBIR/N), and two measures of financial development: currency in the hands of the public as a share of GDP (CRL/PBI)

and banking money (M3 minus M0) as a share of GDP (M3M0/PBI). According to the established theories of finance and development, the level of CRL/PBI should remain constant or even fall, and the level of M3M0/PBI should rise as development proceeds, reflecting an increase in sophistication with the public's substitution of assets in the financial system (banking money) for simple cash in hand (Townsend 1983).

The time path of output per capita shows the two major crises: World War One and the Great Depression, with the latter *less* severe then 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. CRL/PBI is seen to be declining dramatically from a high of 15% to about 6% in 1920, albeit with some reversal at the beginning in the 1914 crisis. But thereafter CRL/PBI holds steady and even increases slightly, reaching a level of 9%–10% in the 1930s. Thus, the substitution of banking system assets for cash seems to grind to a halt in Argentina soon after World War One. This trend break is also evident in the path of M3M0/PBI, which shows volatility around an upward trend before 1920 (almost doubling from 15% to 30%), no trend at all from 1920 to 1929 (with a mini-collapse in the mid-1920s), and a marked decline in the 1930s (almost falling back to 20%, comparable to pre-1914 levels).[6]

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.

[6] 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.

Financial Markets in the Interwar Period: Institutional and Economic Fragilities

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

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? In well-documented studies, Calomiris (1993) and Bordo (1985), argued that the "industrial organization of banking affected the propensities for panics and for nonpanic waves of bank failures" and they put special emphasis on the advantages of a branch banking system as a mechanism that could systematically avert financial panics and crises. [7] Yet a country not included their studies, Argentina, which had extensive bank branching, did not avoid such panics.

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, mostly, a fixed exchange-rate monetary standard (i.e., the gold or gold-exchange standard). Crucial here is the fact that until 1935 the Argentine monetary and financial regime operated without a central bank. Until that time, a potential cause of a sub-optimal financial structure came from the existence of a different kind of monetary authority, the *Caja de Conversión*. The *Caja* had the exclusive macroeconomic responsibility of guaranteeing the external value of the domestic currency. However, the *Caja* could not, *at the same time*, for all possible macroshocks, guarantee the internal convertibility of banking deposits (a multiple of the currency issue) into cash in the event of general bank runs. That is, the *Caja de Conversión* 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.

The almost simultaneous problems of exchange-rate crises and financial crises were a recurrent problem for Argentina, and this type of economic phenomenon is now better understood (Kaminsky and Reinhart 1996). The complicated dynamics of a regime that combined a high ratio of inside to outside money (i.e., a fractional reserve financial system) and a fixed exchange-rate regime (e.g., the Gold Standard) become apparent by the end of 1913. The "world central banker," the Bank of England, decided on successive and dramatic increases in its discount rate. The outbreak of the First World War was a devastating foreign shock for the Argentine economy and for the monetary

[7] The quote is from Calomiris (1993, 25). Calomiris and Bordo discuss U.S. banking structure with an international perspective which includes the causes of panics and crises.

and financial regime in particular. In Table 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: (1) the Baring crash (as a reference point); (2) the financial crash of 1913–1914; and (3) the 1930–1931 financial distress.

A common characteristic of real financial crises is that the fall in bank money or in the ratio of inside to outside money (due to a persistent run on bank deposits) is translated into a severe loss in output. By focusing on the 1913–1914 crisis we can see that, although a major devaluation of the currency was avoided (a major cost during the Baring crash), the banking industry was devastated. Bank stock prices fell by 38% 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.

It is important to notice that the destruction in the banking industry, measured by the price of bank stocks, was far worse than the (expected) behavior of overall stocks which declined by a "mere" 6%. 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 facto* in the subsequent years to 1930–1931, one is tempted to say that investors and economic agents had a very accurate perception that World War One had had a devastating effect on the health of financial and capital markets institutions. By 1930–31, prices of bank stocks are at the same level as 1914, general stocks are up by 47%, while nominal paid-in-capital is 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 have regressed the logarithm of bank stock prices on (a) the logarithm of bankruptcies that is used as a proxy for the distress of borrowers or the state of affairs in the real sector; and (b) on the logarithm of current and lagged values of the gold stock, variables used as a control for the domestic money market situation and possibly to be interpreted as a proxy for country macro-risk . The results are reported in Table 3(a) and the principal inferences to be drawn are:

(1) an increase in bankruptcies lowers the market value of banks: the long-run elasticity is -0.2, so an increase of 10% in bankruptcies lowers the price of bank stocks by 2% in the long run;

(2) 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% in the stock of gold increases the monthly price of bank stocks by 3.6% in the long-run.

In the equation presented in Table 3(a), it is seen that the solvency of banks is crucially linked to a principal macroeconomic variable: the level of gold stock, mostly international reserves at the *Caja de Conversión*. 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.

The above transmission mechanism distinctly parallels the seminal ideas of Bernanke (1983), 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.[8]

The story for 1913–1914 is compelling. Let us suppose that like in 1914, a foreign shock hits the economy and starts a financial crisis when economic agents begin to panic and try to convert all their deposits into currency. If the monetary authority, the *Caja de Conversión*, acts as a lender of last resort to finance the drain of deposits, the money market could at first absorb the fall in the nominal quantity of money. However, if the intervention is of a magnitude such that the relationship between the monetary base and international reserves increases significantly, this would exacerbate the expectation of an eventual devaluation of the currency. This, in turn, would feed a new run on bank deposits, but this time to convert peso deposits into specie (della Paolera et al. 1996, 28).

Microeconomics of Banking

Thus, one might now ask what was the "effective" cost, in terms of lending, of having a fragile-prone financial regime subject to this twin macro-shocks? 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 done by Baiocco (1937), we can assess the microeconomic behavior of bankers and banks (by origin of capital) and see how such behavior affected the availability of credit in the economy.

In Figure 3 we display the share in the financial system of the Banco de la Nación (BNA, the most important official bank), domestic banks (founded domestically by

[8] A second- order effect (of expected depreciation of the currency) via the behavior of depositors (investors) in a fractional reserve banking system also deserves comment here. But our data still preclude a detailed econometric analysis of this effect, usually referred to as twin exchange-rate and financial crises.

"coalitions" of migrants: Banco Frances del Rio de la Plata, Nuevo Banco Italiano, Banco Español, etc.), and foreign banks (international banks). One striking aspect is that from 1910 until 1930, domestic banks' share in total loans declined from almost 50% to less than 35%, foreign banks could hardly maintain a share of 20%, and the Banco de la Nación jumped from 28% to 45%. In short, it appeared that the private sector was losing ground in the capital market.

In Figure 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; again in the short-lived drain of 1922–23 they lost 25%; and in 1934, as we said previously, their nominal paid-in-capital was almost the same as in 1913. In a virtually unregulated banking environment, the bankers could optimize their asset holdings and portfolios, and we could think of the level of lending in terms of its assets or capital as being the most important choice variable in the industry.

In Figure 5, we observe that , excluding the Banco de la Nación , domestic - owned banks had a leverage ratio of risky loans to paid-in-capital much lower than the leverage of foreign-owned banks. Differences in capital constraints and in attitudes towards the tolerated riskiness of assets might explain the micro differences in lending. We speculate that foreign-owned banks, which after the Baring crash accounted for more than half of lending activities despite losing relative importance, could choose a higher loan-to-capital ratio because: (1) they could rely more on their international headquarters to avert and overcome financial crises (remember there was no such a thing as a lender of last resort in Argentina until 1935); and (2) they were lending to "safer" assets, giving them a mix of risk and returns that allowed them to carry a higher leverage (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 *Censo Bancario de la República Argentina* 1925 (Republica Argentina 1926). 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 7.3 while having a reserve-deposit ratio of 29%; domestic banks had a loan-capital ratio of 5.3 and a reserve-deposit ratio of 21%. Following Calomiris's (1993) model, one can infer that this is fully consistent with domestic banks having greater portfolio risk than foreign banks. That is, 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 this can 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. Meanwhile 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.

The evidence suggests that only foreign-banks could have a net-indebtedness position vis-a-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% of assets in domestic banks, but only 4% in foreign banks. Conversely, short-term loans accounted for 22% in domestic banks versus 45% in foreign banks (Republica Argentina 1926, 39).[9]

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 Figure 5. By combining Figures 4 and 5 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 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 Table 3(b) we use an econometric analysis to illustrate the differences in lending behavior as a function of: (1) gold flows, to show how inflows and outflows of capital are channeled to lending by bank type; and (2) 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

[9] 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% of total paid-in-capital of those banks (Republica Argentina 1926, 26–27, 44).

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 to the level of gold stock of the economy: if the economy experiences an increase of 10% in the gold stock, foreign banks increase lending by 12.2 %, but domestic banks by only 7 %. It is important to notice how elastic is the reaction of foreign banks to liquidity considerations and to the situation of the balance of payments of Argentina.[10]

To display these effects more clearly, Figure 6 displays impulse-response functions for the two types of banks based on the dynamic equations estimated in Table 3(b). It is apparent that full adjustment by the banks takes a number of years. Even after 36 months, a 10% decline in gold stocks translates into only a 5.4% (8.2%) fall in loans for domestic (respectively, foreign) banks, whereas the long-run adjustment would be 10% (12.2%). 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.

The finding of structural differences in lending behavior as a response to macroeconomic and microeconomic events from different type of banks, domestic and foreign, 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.

Finance and Development in Argentina: Success or Failure?

A review of the existing literature on Argentine financial development suggests a much more optimistic view of the interwar period than the one we have just presented. Marshaling new evidence both for Argentina in time series, and relative to other countries in cross-section, we have shown the weakness of the financial 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.

Our study highlights two important institutional features of the interwar financial system as they interacted with the behavior of two types of intermediaries: domestic and foreign banks. First, we highlighted the macroeconomic "twin risk": under a quasi-fixed exchange-rate regime, with a currency board, but 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 under such

[10] 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.

monetary and financial institutions, 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, it was only the domestic banks that 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. Therefore, domestic banks could not fill the void left by the retreat of foreign capital after 1914; the 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.

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Table 1
Finance and Development 1900–1939

		1900 -1904	1905 -1909	1910 -1914	1915 -1919	1920 -1924	1925 -1929	1930 -1934	1935 -1939
(a) Broad Development Indicators									
A	Per capita GDP (1913=100)	76	93	98	83	98	109	99	106
B	Saving/GDP (%)	7	10	4	10	4	11	6	11
C	Investment/GDP (%)	9	16	15	7	10	13	9	11
D	Current Account/GDP (%)	-1	-6	-11	3	-6	-2	-3	0
E	Terms of Trade (1913=100)	88	103	104	88	64	83	73	95
F	Exports/GDP (%)	27	27	24	30	24	24	16	17
(b) Financial Development Indicators									
G	DEPTH = M3/GDP (%)	35	38	40	43	49	47	50	41
H	CREDIT = Loans /GDP (%)	—	27	34	29	37	36	43	29
I	NETCREDIT = Non-BNA Loans /GDP (%)	—	19	24	18	22	21	23	16
J	Savings Accounts/GDP (%)	—	5	7	10	15	18	21	17
K	Stock Market Turnover/GDP (%)	26	19	10	6	11	7	7	10
L	Bank Stocks Price Index (start of period, Dec.	70	104	62	73	65	74	46	—
M	Stock Market Price Index (start of period, Dec.	57	77	94	140	107	142	—	—
N	Relative Price of Bank Stocks	122	135	66	52	61	52	—	—

Sources: Nominal GDP, A, G: della Paolera et al. (1996), with population from Anuario Geográfico (1941); B, C, D: pre-1914 from Di Tella and Zymelman (1967), post-1914 from IEERAL (1986); F: Balboa (1972); H, I, L: Baiocco (1937). Economía Argentina (February 1938); K: Anuario Geográfico (1941); M: Nakamura & Zarazaga (1996). N: L

Table 2
Anatomy of Financial Crises

	Baring Crisis		World War I		Great Depression	
	1890	1891	1913	1914	1930	1931
(a) Real Activity						
Real Output (% change)		-10.9		-11.0		-3.9
(b) Monetary Variables						
Money Supply (% change, M0)		-25.9		-10.7		-8.3
Money Base (% change, M3)		6.7		-3.6		1.3
Bank Created Money (% change, M3-M0)		—		-17.5		-11.3
International Reserves Backing (%)	21.0	4.0	72.6	66.3	82.1	47.6
Devaluation (% change in $mn/$oro)		45.0		1.7		25.0
Inflation (% change, WPI)		56.0		1.2		-3.3
(c) Banking Variables						
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
(d) Financial Market Variables						
Ex-Post 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: della Paolera et al. (1884), Baiocco (1937), Nakamura and Zarazaga

Table 3

(a) Bank Stock Prices, Bankruptcies, and Macroeconomic Risk

Dependent Variable	ln Bank Stock Price
Constant	-0.015
	(0.23)
Trend	0.000
	(0.07)
ln Bankruptcies	-0.009
	(2.28)
ln Gold Stock	-0.302
	(2.18)
ln Gold Stock (-1)	0.517
	(2.12)
ln Gold Stock (-2)	-0.199
	(1.42)
ln Bank Stock Price (-1)	0.956
	(47.8)
Long-run elasticites	
ln Bankruptcies	-0.20
ln Gold Stock	0.36
R^2	.957
NOBS	222
SEE	0.03

(b) Lending by Type of Bank as a Reaction to Gold Flows and Bank Stock Prices

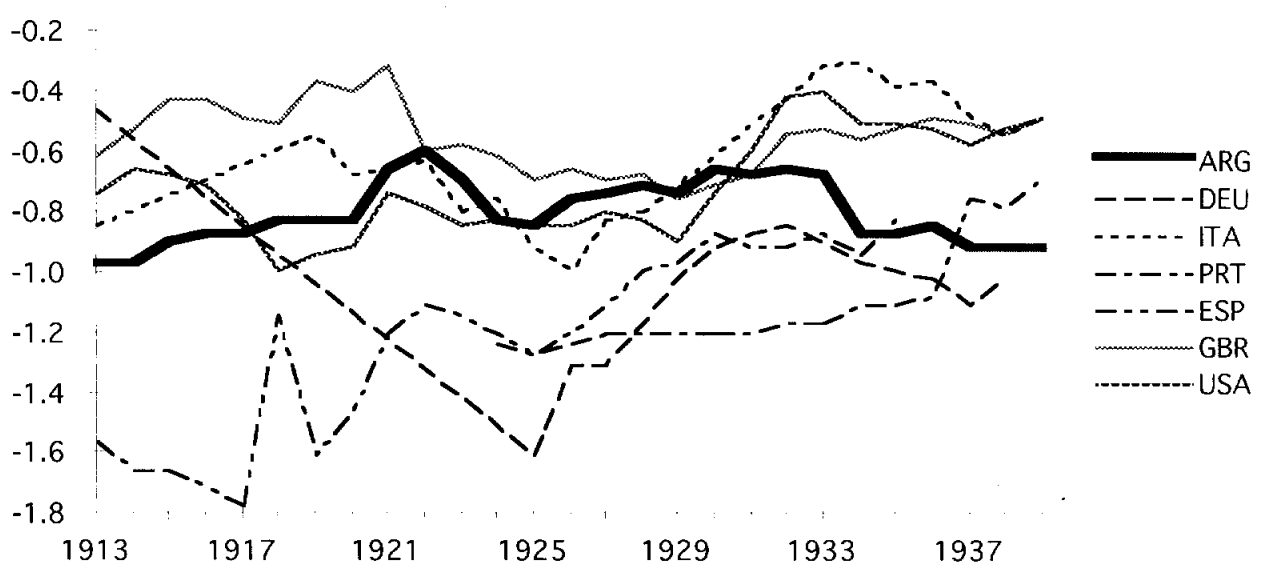
Type of Bank Dependent Variable	Domestic ln Loans	Foreign ln Loans
Constant	0.059	-0.082
	(1.31)	(1.34)
Trend	0.000	0.000
	(0.77)	(0.30)
ln Gold Stock	0.025	0.046
	(2.72)	(3.26)
ln Bank Stock Price	0.023	0.026
	(1.93)	(1.60)
ln Loans (-1)	1.048	0.689
	(17.2)	(13.1)
ln Loans (-2)	-0.083	0.274
	(1.41)	(5.28)
Long-run elasticites		
ln Gold Stock	0.70	1.22
ln Bank Stock Price	0.66	0.70
R^2	.996	.990
NOBS	343	343
SEE	0.02	0.04

Notes: (a) monthly data, May 1907–January 1936; (b) monthly data, February 1917–December 1935. ln Bank Stock Price = ln bank stock price index; ln Bankruptcies = ln value of bankruptcies in million peso moneda nacional; ln Gold Stock (-1) = lagged ln of domestic gold stock in million peso oro.; ln Loans = ln loans in million pesos moneda nacional

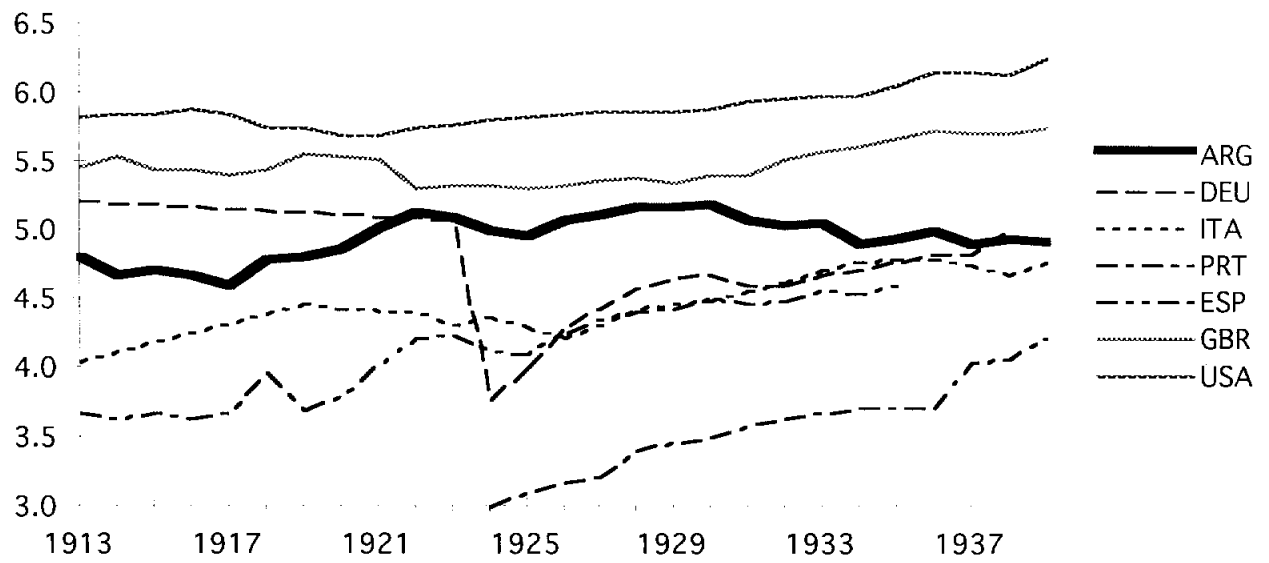
Source: Baiocco (1937) except bankruptcies from *Revista de Economía Argentina* (various issues).

Figure 1
International Comparisons of Monetary and Financial Deepening

(a) ln(M3/GDP)

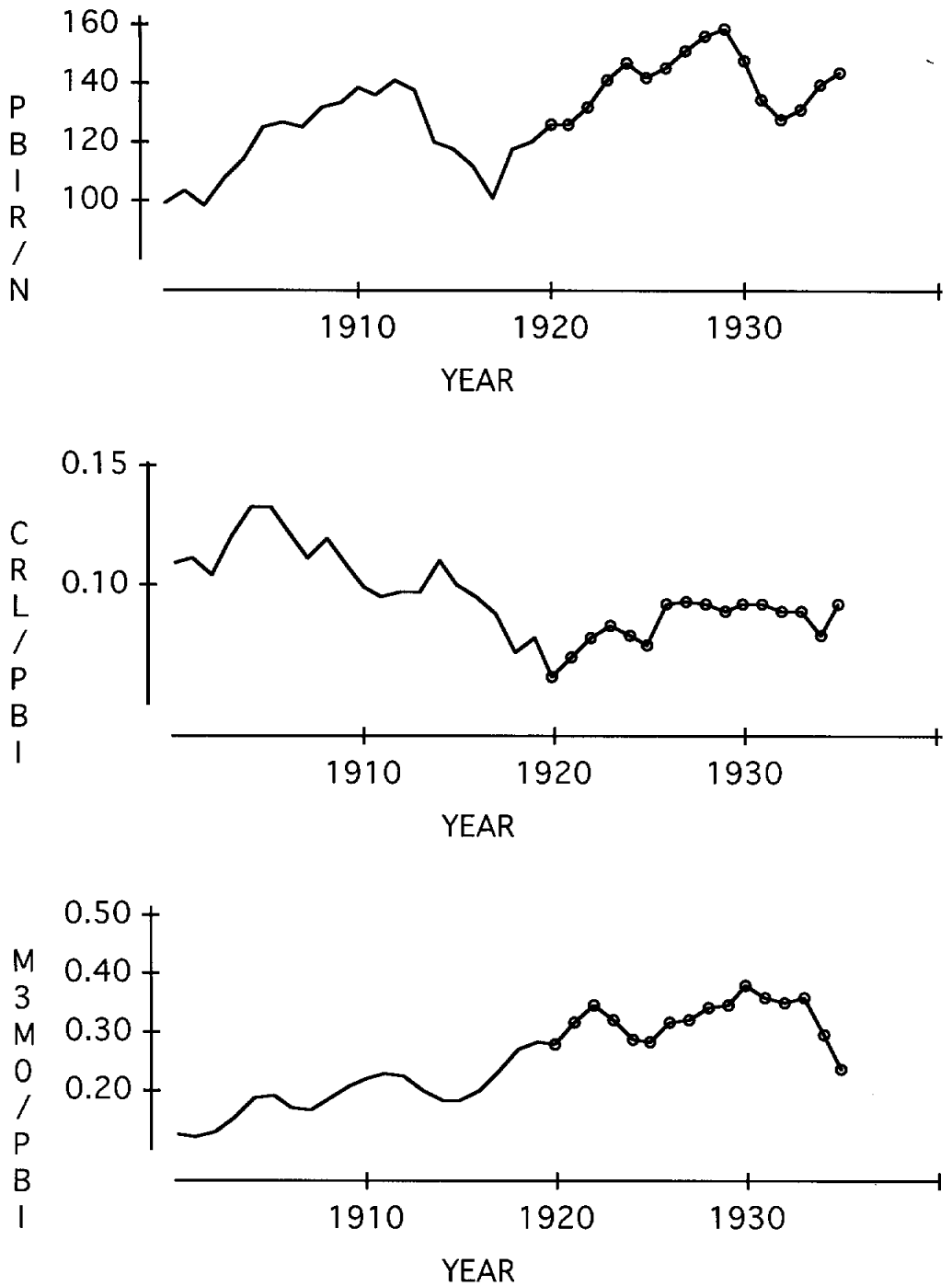


(b) ln(real M3 per capita [1928 US dollars])



Sources: Argentina from della Paolera (1996); others preliminary from Mitchell (1992; 1993) and Bordo (unpublished data).

Figure 2
Financial Deepening and Economic Development

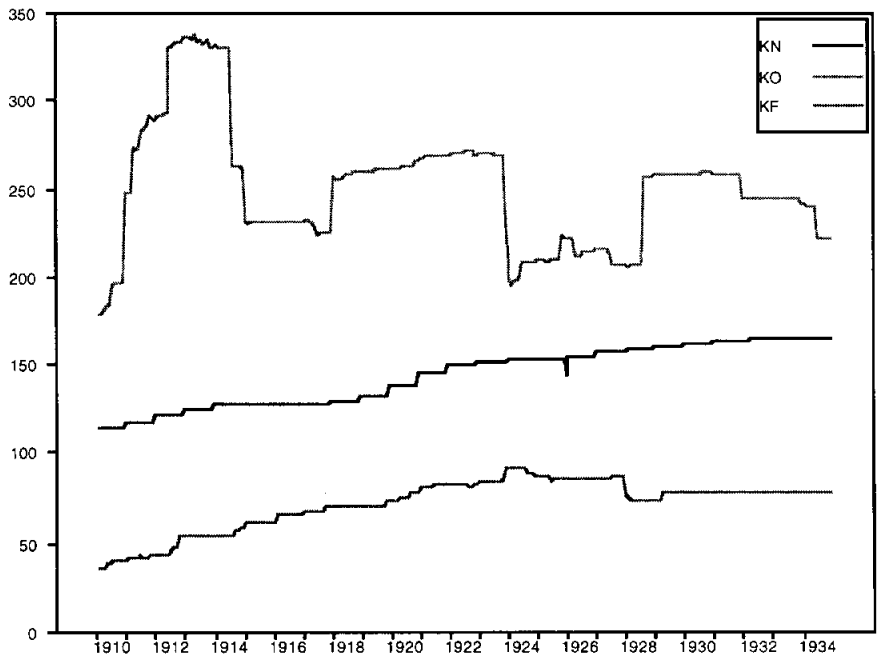


Notes: CRL/PBI = currency in the hands of the public/GDP; M3MO/GDP= (M3-M0)/GDP; PBIR/N = real GDP per capita.
Source: della Paolera et al. (1996).

Figure 3 **Share of Total Loans of Banks, by Bank Type**

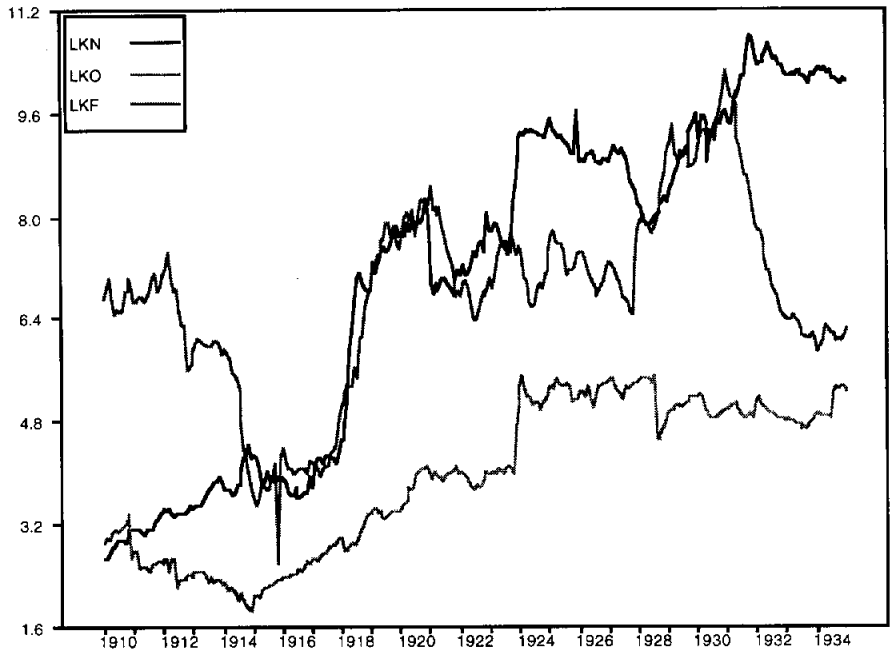
Note: LNL=BNA, LOL=domestic, LFL= foreign.
Source: Baiocco (1937).

Figure 4 **Capital of Banks, by Bank Type**



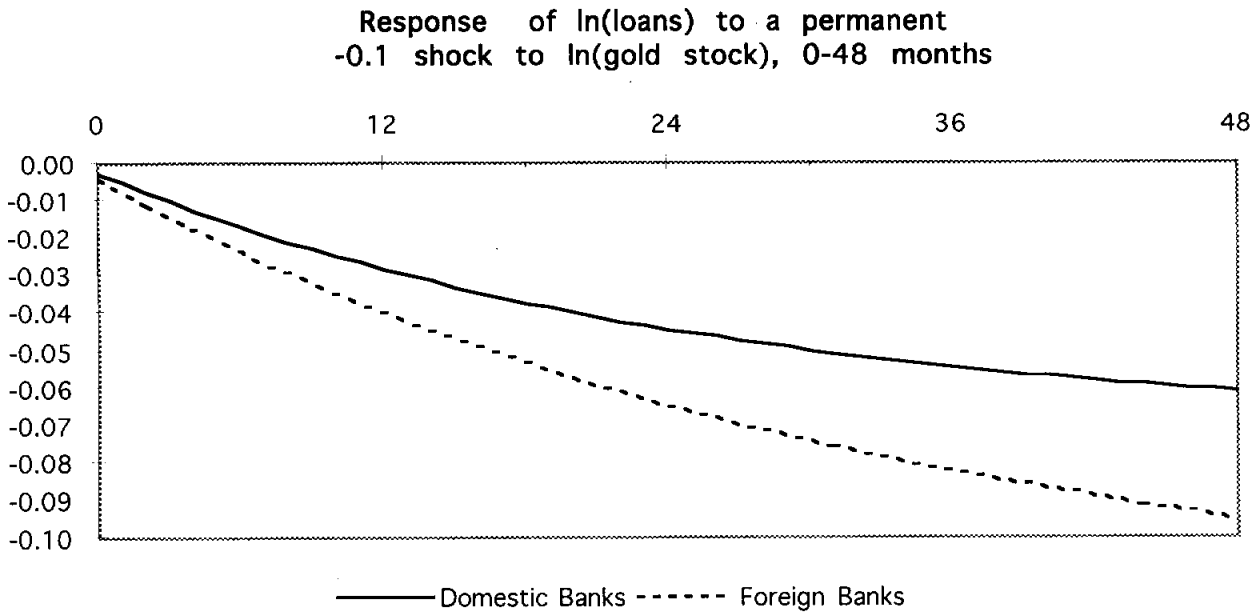
Note: Paid-in capital only. KN=BNA, KO=domestic, KF= foreign.
Source: Baiocco (1937).

Figure 5 **Loan-Capital Ratios of Banks, by Bank Type**



Note: LKN=BNA, LKO=domestic, LKF= foreign.
Source: Baiocco (1937).

Figure 6 **Impulse-Response Functions from Gold Stock to Loans By Bank Type**



Source: Table 3(b).