Abstract

This paper studies international capital flow cycles over two centuries with a focus on Latin America. Capital flows for the 19th and earlier 20th centuries are part of a database I am constructing on primary issuance in London, Paris, Berlin, Frankfurt, and New York. These data are combined with data on international primary issuance since 1970. I examine the amplitude and duration of capital flow cycles and coordination of these cycles across countries in Latin America. Particular attention is devoted to the ability of countries to re-enter capital markets in the aftermath of a crisis with the financial center at its epicenter.

Keywords: International capital flow cycles, sudden stops, crises, Latin America.

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I. Introduction

The international crisis that starts in 2008 is still alive and well. It erupts first in the United States, with the subprime market at its core. It spreads rapidly to other financial centers with similar maladies, some domestically grown like in Great Britain, others imported from overseas like in Germany and Switzerland. The crisis engulfs the periphery too. The collapse in economic activity in the financial epicenter rapidly triggers a drastic decline in international trade not seen since the Great Depression, affecting immediately Asia. With commodity prices also crashing, Latin America is also adversely affected. The world economy somewhat recovers in 2009 but new fragilities erupt in early 2010, this time in the advanced economies periphery, with Europe at the core of the crisis. Sovereign and banking crises spread rapidly in Ireland, Greece, Portugal, Spain, Italy, and Cyprus and now, they are even threatening the survival of the euro.

The global spread of the crisis and its long aftermath with still no end in sight has fuelled widespread interest on what went wrong. Many have pointed to the international capital flow bonanza that preceded the crisis as the main culprit. It is claimed that the international capital flows that predate the crisis have been “excessive” and fuelled consumption booms and bubbles in the stock and real estate markets, which in turn led to banking and sovereign problems, and to exclusion from international capital markets. These gyrations of international capital flows over the last ten years have also triggered a renaissance of a literature favoring controls. This view is not confined to academic circles. Even the International Monetary Fund has reversed its long-standing position in favor of free capital movements. But do all capital flow bonanzas end up in crises? The international finance literature has not ignored the link between leverage cycles and crises. However, it has only focused on cycles since 1980s when data on capital flows become available. In particular, most of the interest has been on the links between expansionary monetary policy in the financial centers and capital flows to the rest of the world. These episodes are short-lived and most of the analysis has been centered on the links between capital flow bonanzas lasting at most two years and their links to cyclical booms and busts in economic activity. In fact, with data on international capital flows at most starting in the 1980s it is hard
to examine long swings in capital flows.¹ Longer cycles are missing in these studies. Still, it is becoming widely recognized now that leverage cycles tend to be more protracted, with cycles lasting decades.² With data starting at the most in the 1980s, it is impossible to examine the link between longer borrowing cycles and crises, it is also impossible to study whether these cycles are becoming more pronounced.

This paper re-visits the topic of international capital flow bonanzas for a far longer sample using a newly database I constructed on international primary issuance since 1820. This database includes not just sovereign borrowing but also private primary issuance of bonds and shares in the world financial centers: London, Paris, Berlin, Frankfurt, and New York, the financial centers of the 19th and early 20th centuries. With this database, I can examine the patterns of international capital flows during the first episode of financial globalization until the collapse of international capital markets in 1931 and during the second episode of financial globalization since the 1970s when international capital markets become deregulated again. The focus of this paper is on Latin American countries. These countries have been active participants in international capital markets immediately following independence in the early 19th century until the 1930s when barriers to international capital and trade flows are erected around the world and then immediately following deregulation in the early 1970s.

This paper creates an anatomy of international capital flows to Latin America since the 1820s and links this anatomy to the evolution of the regional economies, the global economy, and the financial centers. The focus of the paper is on Argentina, Brazil, Chile, and Mexico. These countries are the ones that participate most heavily in international capital markets then and now. Smaller countries only participate sparingly in international capital markets. The two hundred years of booms and busts in international capital flows allow me to examine not only those crises that are solved rapidly, with countries re-accessing immediately international capital markets but also those crises that are protracted with countries being unable to borrow again for prolonged periods of time. I also keep track of the type of crises that affect these countries (growth, currency, and sovereign crises) and their effects on the time of exclusion of these countries from international capital markets. One important aspect of the first period of

¹ See, for example, Reinhart and Reinhart (2008). In that paper, the authors identify about 700 capital flow bonanzas for 181 countries from 1980 to 2008. Three-quarters of the episodes lasted two years or less. See also “International Capital Flows: Reliable or Fickle?,” the World Economic Outlook, April 2011.

² For example, Reinhart and Rogoff (2011) examine government debt cycles for far longer episodes.
financial globalization is that many of the crises at that time have the financial center at its
epicenter allowing us to make comparisons with the current crisis so as to understand better its
aftermath.

The main results of the paper can be summarized as follows: First, most of the literature
on international capital flows to Latin America focus on sovereign borrowing. The data I
collected indicates that during these two centuries, sovereign borrowing provides an incomplete
picture of leverage cycles. Both now and during the first episode of financial globalization
private international borrowing oscillates around 50 percent of total borrowing and its
participation increases as financial globalization progresses. Second, international leverage
cycles back then and now are almost identical. They are very protracted, lasting on average ten
years, with the average accumulated total issuance over the cycles being about twice the average
level of exports and reaching maximum levels of five times the average level of exports across
all countries. These results are provocative because some characteristics of the financial
environment during these two episodes are different. For example, Latin American countries
actively adopt on and off controls on capital flows throughout the second episode of financial
globalization but capital flows are completely unregulated during the first episode, casting
doubts on the effectiveness capital controls. Similarly, following the onset of the 2008 crisis,
central banks in the financial centers actively injected liquidity into financial markets, this is not
the case during the first episode of financial globalization. Third, leverage cycles around
episodes with crises in the financial center are different from other cycles both during the first
and second episodes of financial globalization. Their duration and amplitude are far larger than
cycles with no crises in the financial center suggesting the importance of global factors.
Interestingly, the ability of these developing countries to re-enter international capital markets
following crises in the financial center is not uniform across cycles. For example, while all the
Latin American countries could not re-enter international capital markets for many years
following the 1825 London financial crisis, they did re-enter international capital markets quite
rapidly following the 1873 world wide crisis with a center in the financial centers in Europe.
According to the evidence from the 1873 crisis as well as other crises starting in the financial
centers, such as the 1891 and 1907 crises, the aftermath of the 2008 crisis, with developing
countries re-entering international capital markets within a year of the crisis, is not so unusual
even though the massive injections of liquidity by central banks in the aftermath of the 2008
crisis is not present during the first episode of financial globalization. Fourth, problems in the financial center do not preclude countries in the periphery to re-enter international capital markets, only those with domestic vulnerabilities cannot re-enter international capital markets.

This paper is organized as follows. Section II describes Latin American participation in international capital markets since the 1820s. Section III describes the database on international capital flows. It also reports the characteristics of international capital flow cycles in both episodes of financial globalization with particular attention to their amplitude and duration. Section IV links capital flow cycles to domestic and external shocks. Section V provides some preliminary reflections.

II. Latin America’s Participation in International Capital Markets

All Latin American countries (except Puerto Rico and Cuba) gain independence from Spain and Portugal in the early 1800s. The new independent countries immediately eliminate the restrictions to trade imposed on the colonies by Spain and Portugal. International trade starts and participation in international capital markets soon follows, with all governments floating bonds in London, the new financial capital of the world. The first Latin American country to float bonds in London is Colombia. The first issue is in 1820 for 547,784 pounds. By the end of 1825, the total issuance by Latin American countries has reached 20 million pounds, with participation of both large and small countries. The ability of Latin American countries to tap funding in London is in part favored by the increase in liquidity fueled by the sharp decline in military spending following the end of the Napoleonic wars and because of the monetary injections of the Bank of England. It is not just sovereign’s borrowing, private international investors create a large number of firms to exploit mineral resources in Latin America, previously under the control of the Spanish Crown. Overall, the early years of the 1820s are characterized by global growth and increases in international trade.

The boom ends in the summer of 1825 when the Bank of England raises its discount rates to stop the drain of reserves fueled by the import boom and the outflow of capital. The tightening of liquidity is followed by a stock market crash in October, a banking panic in

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3 The chronology of crises during the 19th and early 20th centuries is partly based on Bordo and Murshid (1999) and Marichal (1989). The analysis of the development of international capital markets during the late part of the 20th century is partly based on de la Torre, Gozzi, and Schmukler (2008).
December, and numerous bankruptcies. The financial debacle in London rapidly spreads to continental Europe, with bankruptcies of major banks in Germany, Italy, Amsterdam, Saint Petersburg, and Vienna. The crisis extends rapidly to Latin America as overseas loans are cut off. This is not all. The crisis also triggers a major fiscal problem in Latin America. As world trade collapses, so do tariff revenues, the only source of income of the governments of the new countries. Peru defaults in April 1826; Gran Colombia (Colombia, Ecuador, and Venezuela) and Chile default in September 1826; Argentina defaults in July 1827; Mexico defaults in October 1827; and the Federation of Central America defaults in February 1828. Brazil suspends the amortization of its debt in 1827 but continues paying coupons. It takes three decades before the debts are renegotiated and capital flows to Latin American resume.

The world economy recovery in the 1840s fuels a new boom in demand for primary products and raw materials, benefiting Latin American economies, in particular, Chile and Peru.\(^4\) The growing international trade accompanying the recovery in Europe fuels a new fiscal bonanza to all Latin American countries (as tariff revenues increase accordingly) and with it the possibility of settlement of the foreign debts.\(^5\) Brazil is the first to issue a new bond in London in 1839 and is followed by Peru in 1853. Still, the new loan boom to Latin America only flourishes in the 1860s after the end of the panic of 1857\(^6\).

The capital flow bonanzas to Latin America starting in the 1860s are far larger than that of the early 1820s, with capital flows financing not just governments and the extraction of mineral resources but also the creation of banks and the adoption of cutting edge technologies such as, telegraphs and the construction of railroads. The world international capital flow bonanza slows down with the British crisis in 1866\(^7\) and even more with the crisis of 1873. The end of the Franco-Prussian War in 1870 plays a critical part in the unfolding of the crisis of

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\(^4\) The export of agricultural and mineral products surges dramatically: Guano from Peru, copper from Chile, wool from Argentina, coffee from Brazil, sugar and tobacco from Cuba, tobacco from Colombia, and silver from Mexico. See Marichal (1989).

\(^5\) Chile is the first to renegotiate its debt in 1842, Peru follows in 1849. Most Latin American countries renegotiate their debts in the 1850s.

\(^6\) The crisis of 1857 begins in the U.S. A railroad stock boom fueled by British capital and the California gold discoveries in 1849 crashes in August 1857 with a banking panic. The crisis spreads to England in the Fall. From England the crisis spread to the continent, with a serious panic in Hamburg in December.

\(^7\) The crisis of 1866 is preceded by a large credit expansion both in England and France that triggers a boom in prices of intermediate goods, construction, and cotton-related industries. The boom ends with the panic of 1866 when Overend & Gurney, a major discount firm in London, collapses. France’s first investment bank, the Crédit Mobilier also fails. The crisis rapidly spreads to Spain, Italy, and Latin America.
1873. Following the defeat of the Napoleon III, the new French government has to pay a huge indemnity of 5,000 million francs (£200 million) to Germany. These indemnity transfers lead to a massive flow of capital into the economics of central Europe, fueling speculation in various financial markets. A spectacular stock market crash in Vienna in May 1873 ends with the stock market boom in Austria and spreads rapidly to Germany. Between 1873 and 1878, half the Austrian banks close, and 400 of the 800 Austrian join-stock companies go bankrupt. Stock markets in Amsterdam and Zurich also crash. The crisis crosses the Atlantic in September, the New York Stock market collapses and is followed with a U.S. a banking panic. As during the crisis of 1825, there is a collapse in world trade and in the prices of commodities and loans are called off. Tax revenues in Latin America sharply drop and trigger a new wave of defaults across Latin America.\textsuperscript{8} The steep decline in commodity and stock prices as well as the bank and industrial bankruptcies in most countries start the first worldwide 1873 recession. The crisis is also felt in the Middle East. By 1876 the Ottoman Empire, Egypt, Greece, and Tunisia have defaulted. In total, by the year 1876 fifteen non-European nations have suspended payments on almost 30 million of British pounds. In Latin America, Bolivia, Colombia, Costa Rica, Guatemala, Honduras, Peru, and Uruguay default on their foreign debt.

While the world depression of the 1873 wreaks havoc in some Latin American economies, with several countries defaulting on their foreign debts; by the early 1880s a process of recovery has begun. The upswing in world economic activity fuels foreign trade and new capital flows. Again as in the 1860s and 1870s, capital flows finance not just governments but also private activities in new industries, such as railways, tramways, construction of ports, gas works, and of course, they also finance the production of raw materials, mining, and land companies, with Argentina and Uruguay as important recipients of this inflow. The boom of the 1880s ends in 1890 with the crisis set off by the near-failure of Baring Brothers, the underwriter of Argentine Government loans. The Bank of England prevents a panic via a recapitalization of Baring Brothers with the help of other major London financial institutions and loans from the Banque de France and the Russian central bank. Still, the crisis spreads back to Latin America with the cessation of British lending to Argentina, and Uruguay. Between 1890 and 1894

\textsuperscript{8} Bolivia, Colombia, Costa Rica, Guatemala, Honduras, Peru, and Uruguay default on their foreign debt following the 1873 crisis.
Argentina, Ecuador, Guatemala, Nicaragua, Paraguay, Uruguay, and Venezuela default. During the next years there is a sharp decline in the flow of British capital.

The next international capital flow cycle starts in mid-1890s and ends with the start of WWI. While Britain continues to be the main creditor, France, German and American investors set up new companies in banking as well as in railways, tramways, mines, ports, sugar refineries, flour mills, gas works, water works, and even some early electric and telephone companies. This episode is considered until now the heyday of financial globalization. The outbreak of World War I contributes to the end of this boom in international capital flows. In July, as war becomes imminent, a liquidity crunch spreads around the world as investors start to liquidate foreign assets, fueling panics in all asset markets. While the panic is promptly stopped by the central banks in the United Kingdom, the United States, and continental Europe, the outbreak of the war in Europe causes an abrupt suspension of capital flows. Only Brazil, Ecuador, Mexico, and Uruguay default. This time around, the governments of most nations of the region continue to service their debt using export surpluses.

Capital flows resume with the end of the war in Europe. Increases in productivity due to major inventions, including electricity, automobiles, communications, and petrochemicals as well as, innovations in industrial organization lead to a boom in economic activity that spills over around the world. Most Latin American nations benefit from the continuing rise in international prices of raw materials and primary products. It is at this time that New York becomes the leading financial center while lending from London and Paris retrenches following the imposition of capital controls in Great Britain and France and the collapse of capital markets in Germany. In 1927-1928 the Federal Reserve, concerned over stock market speculation, tightens monetary policy; a recession begins in July 1929. Prices of commodities collapse, stock markets around the globe crash, and capital flows sharply decline, precipitating currency and banking

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9 This boom is interrupted in 1907 with a crisis originating in the United States following the San Francisco earthquake in April 1906. The destruction caused by the earthquake puts pressure on financial resources in the United States and puts strain on the Bank of England’s reserves when British insurance companies start to pay out the U.S. claims. To stop the loss of reserves, the Bank of England hikes the discount rate from 3.5 to 6 percent causing a severe liquidity crunch in the United States. The U.S. stock mark crashes in early 1907 and economic activity begins to decline. In October, depositor runs on trust companies spread to the commercial banks. Banks suspend cash payments and the economy enters a sharp recession.

10 Foreign lending is formally restricted in Great Britain starting in December 1914. While formal restrictions are removed in various stages and completely eliminated in November 1919, foreign lending continues to be restricted by the Bank of England, with control undertaken through moral suasion. As discussed in Cottrell (2005) all projected foreign flotation has to be discussed with the Bank of England’s Governor.
crises in Latin America, Europe, and Australia. In September 1931 Great Britain abandons the
Gold Standard and so does the United States in 1934. Bolivia, Brazil, Chile, Colombia, Costa
Rica, Cuba, Dominican Republic, Guatemala, Nicaragua, Panama, Paraguay, Peru, and Uruguay
default in the midst of the great depression.

During the next forty years international capital flows languish in the midst of restrictions
to capital mobility in both developed and developing countries only to recover starting in the
1970s. Ironically, the revival of international capital markets can be traced to new financial
restrictions in Great Britain and the United States in the late 1950s and 1960s. In 1957, the
British government introduces new financial restrictions in the vain attempt to stop the
speculation against the pound. In the end the devaluation is not averted, but the restrictions make
London-based banks create a new market to avoid losing their share of financial transactions:
Banks’ dollar deposits start to be used to provide dollar loans in an unregulated market, which
becomes to be known as the Eurodollar market. In 1964, it is the U.S. turn. This time, the
currency under attack is the U.S. dollar. To stop the speculation, the U.S. government introduces
capital account controls in 1964.\textsuperscript{11} U.S. based-banks, like their British counterpart in the 1950s,
turn to the Eurodollar market to avoid the restrictions that could imperil their operations, with
liquidity in this market sharply increasing.

But perhaps, the straw that broke the camel’s back is the collapse of the Bretton Woods
system in 1973. With no need to defend the peg, countries can choose their own monetary
policy without the need to restrict capital mobility and thus a new era of financial liberalization
begins. As early as July 1973, United States eliminates capital account restrictions. Germany
and Great Britain follow, partially eliminating capital controls in 1973 while Japan joins in 1979.
In the late 1970s, Latin American countries deregulate the domestic banking sector and eliminate
restrictions on international capital flows.

The first international market to develop in the 1970s is the syndicated loan market,
particularly with lending to emerging markets. The dramatic surge in international loans is
triggered by the oil shock in 1973-74, with the high savings of OPEC countries being channeled
through the Eurodollar market particularly during the 1979-81 period. The boom in syndicated
lending to emerging markets peaks in 1981. But in 1982 international issuance collapses. At the

\textsuperscript{11} In September 1964, the United States Congress enacted the Interest Equalization Tax (IET), an excise tax on
purchases of new or outstanding foreign stocks and bonds by U.S. residents, which lowered the rate of return to U.S.
purchasers of foreign assets by an equivalent of 1 percentage point.
heart of this collapse are the monetary contraction, recession, and financial crisis in the United States. Mexico’s default in August 1982 adds to the fragility of the commercial banking sector in the United States. With U.S. banks recalling their loans from all emerging markets, other defaults follow. Most of Latin American countries suspend interest and principal payments and they are also followed by countries in Asia, Eastern Europe, and Africa. The rest of the 1980s witness a collapse of the international syndicated loan market to emerging economies: Gross issuance of syndicated loans remains at half of the issuance reached in the early 1980s.

In 1989, the Brady plan and its initiative to restructure defaulted loans in 1989 end with the isolation of developing markets from international capital markets. This time around, both the government and the private sector start issuing bonds in international capital markets. Latin America benefits especially from the new international bond market. The Brady plan also provides a new impetus to the syndicated loan market. Helped by the easy monetary conditions in industrial countries in the early 1990s, syndicated loans reach a new peak in 1997. This time around, the largest beneficiaries in emerging markets are the East Asian countries. The nationality of lenders also changes: While in the early 1980s most of the syndicates are composed of U.S. banks, in the 1990s Japanese and European banks play a leading role in lending to emerging markets, especially to East Asian countries. The boom in the 1990s in the syndicated loan market is not confined to emerging markets, the lion share of this market is captured by developed countries. The expansion of the bond and syndicated loan markets in the 1990s is now accompanied by the development of an international equity market. But the 1990s as the 1980s are plagued by crises. In the aftermath of these crises, net capital flows to emerging markets slow down. However, while in the late 1980s Latin America’s gross issuance in international markets collapses to about 4 percent of the levels attained in the early 1980s, in the late 1990s, total issuance declines only to about 60 percent of its peak in 1997.

A wave of international lending to Latin America starts in 2003, this time around Latin America’s international issuance peaks in 2007, only to decline by 30 percent in 2008. Interestingly, even in the midst of the current crisis, issuance to Latin America recover quickly in 2009. The rest of this paper compares these waves of the Latin American participation in international capital markets.

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12 The key innovation of the Brady Plan is to allow the commercial banks to exchange their claims on developing countries into tradeable instruments, allowing them to eliminate the debt from their balance sheets and creating almost overnight, a market for sovereign emerging market bonds.
III. International Issuance: Then and Now

The historical data for this paper forms part of a database I am constructing of international issuance of both the government and the private sector of all countries that participate in international capitals markets, including countries like Paraguay that floats a few bonds during the first episode of financial globalization to Australia that issues thousands of bonds and shares in international capital markets during the same period. The historical data for this project has been collected over several years from financial newspapers of the 19th and early 20th centuries, annual reports of the Stock Markets in London and Paris, the Annual Listings of Bonds and Stocks in the Berlin, Frankfurt, and Hamburg Stock Markets, the archives of the London Stock market, the Paris Bourse, and the New York Stock Exchange, as well as the archives of merchant banks such as the House of Rothschild in London as well as deposit banks, such as the Credit Lyonnais in Paris. I have also used publications from government agencies in the United States, such as the Department of Commerce and the Federal Reserve as well as private collections at Baruch College in New York. Part of the material has also been collected from important studies on sovereign debt by scholars in Latin America, Asia, and Europe. This database is unique, it includes all issuance in all the financial centers from 1820 to 1931.

The data for the modern episodes on international issuance are from the World Bank publications (Borrowing in International Capital Markets), from Stallings (1986), and Cruces and Trebesch (2011) for the 1970s and from Dealogic (an electronic database) since 1980. It includes bond, equity, and syndicated loan issuance in international capital markets. The data for both episodes (1820-1931 and 1970-2011) contains information on each single issue: the date of the issue, the name of the borrower, the purpose of the issue, the type of business of the borrower, the amount issued, the price of the issue (whether it is issued at par/premium/discount), the interest rate and the maturity of the bonds and syndicated loans, the banks underwriting the issue, the financial centers where the bonds/loans/shares are issued, and the currency of issue.

To introduce the historical data, I present two prospectuses in Appendix Figure 1. The first one is a 1,034,700 sterling-pound bond issued by the Province of Buenos Aires (Argentina)
in 1870. This is a 6% loan issued at a discount (88 percent of face value) redeemable in 33 years, with interest paid twice a year in London. This bond, as most sovereign bonds in the early phase of financial integration, is callable, allowing governments to refinance their debt in low-interest rate years. The second one is a 5% mortgage bond issued by the Railway Company Victoria to Minas in Brazil payable in 80 years.

More broadly, Figures 1 and 2 show the evolution of total primary-issuance in international capital markets. Figures 3 and 4 decompose total issuance into sovereign and private issuance. Finally, Figures 5 and 6 show the issuance/exports ratio to have a measure of participation in international capital markets relative to the size of each economy.

Figure 1 shows the newly collected data covering the period from 1820 to 1931. As shown in Figure 1, there are clear boom-bust episodes throughout the 19th and early 20th centuries peaking around 1824, 1865, 1872, 1889, 1905, 1911, and 1927.

The boom of the 1820s is mostly due to public loans to the newly independent countries. International issuance of all Latin American countries totals 21 million pounds (at face value). The nominal interest rate of these bonds oscillates between 5% and 6%. Bonds are sold at an average discount of 22 percent. This episode also witnessed the creation of new companies in the mining sector. In total, twenty eight companies are formed with a proposed capitalization of 24 million pounds. However, by the time of the collapse in the summer of 1825, the shares issued amounted only to 3.5 million pounds. Total issuance of Argentina, Brazil, Chile, and Mexico during this period totals 15 million pounds.

The capital inflows to Argentina, Brazil, Chile, and Mexico during the 1860s and early 1870s total 79 million pounds. It is during this period that a large number of British banks are created following the laws in 1858 and 1862 allowing the formation of joint-stock banks with limited liability. This is also the period of the creation of deposit banks such as the Credit Lyonnais (1863) and the investment banks (banques d’affaires) such as Banque de Paris et des Pays-Bas (1873), with both English and French banks founding new banks in continental Europe and Latin America. In Latin America, The London and Brazilian Bank is the first to be incorporated in May 1862 with a capital of 1,000,000 pounds; the London and River Plate Bank follows with a capital of 500,000 pounds. In 1863, the London and South American Bank limited is founded and merged with the Mexican Bank in 1864 to form the London Bank of Mexico and South America Limited with a proposed capital of 1,000,000 pounds. Many others,
such as the London and Venezuelan Bank, the Mercantile Bank of the River Plate in Uruguay, and the Anglo Peruvian Bank are created in this period. It is also during the 1860s and 1870s that the first joint-stock railway companies are formed. Railway construction is financed through issues of bonds, mortgage bonds, and equity issuance. Some of the earlier issues are those of the Brazilian Street Railway in 1869, the Sao Paulo Railway in 1870, City of Buenos Aires Street Railway in 1870, and Buenos Aires National Tramways Limited also in 1870. While the expansion is slowed down by the Overend Gurney crisis in London in 1866, by the early 1870s Latin American countries are heavily participating in international capital markets again. In this episode, Peru becomes the most indebted country in Latin America, with its foreign debt increasing to about 36 million pounds in 1873 from 5 million pounds in 1856. The collateral provided by the exports of guano, monopolized by the Peruvian government, allows Peru’s government to access international capital markets in such grand way.

After the crisis in 1873, the next lending cycle peaks in 1889. From 1874 until the onset of the Baring crisis in 1891 issuance to these four countries reaches 270 million pounds. The next cycle of capital issuance of the four countries peaks around 1909. From 1890 until the start of the first war capital flows to Argentina, Brazil, Chile, and Mexico almost reach 900 million pounds. A large part of international issuance finances the construction of railways and tramways, ports, gas works, and water drainages. Other areas financed by international capital flows are land development, coffee and sugar plantations, production of nitrates, and general mining operations. The last capital flow bonanza starts in 1918 and peaks in 1927. Until the end of 1931, total issuance by the four countries totals 520 million pounds.

Figure 2 shows the better known boom-bust cycles in international issuance from 1970 to 2011. As shown in Figure 2, across all countries there are three distinct long cycles in international issuance in the last 40 years. The first one starts in the early 1970s and peaks in 1981. During this episode, total issuance total 123 million dollars. A new cycle starts in 1990 following the Brady Plan in 1989-1990 and peaks in 1997. Total issuance during the 1990s is approximately 500 million dollars. The next cycle starts in 2002 and peaks in 2007. Total issuance in the 2000s is approximately 1 billion dollars. Interestingly, the crisis in 2008 has a transitory effect in Latin American countries, with international issuance re-starting in 2009 and still increasing.
Table 1 characterizes further the evolution of international issuance in the two episodes. Panel A shows the volatility of international issuance while Panel B shows the correlations of international issuance across countries. Although most of the literature in international capital flows has emphasized the volatility of international capital flows in the last forty years, it is clear from the top table that volatility in the last episode of financial integration is not unusual, in fact it has declined somewhat from 1.48 to 1.37 on average for the four countries. The volatility of issuance across countries has changed more substantially. Argentina’s issuance is the less volatile during the first episode but is the most volatile in the last forty years. On the other extreme, Mexico’s issuance is the least volatile during the current episode but experiences the highest volatility during the first episode of financial globalization.

Panel B shows the cross country correlations in international issuance then and now. One interesting feature of these tables is that the average correlation across countries has sharply increased from 0.40 during the first episode to 0.64 (about a 60 percent increase) during the second episode of financial integration, raising questions about whether capital markets are ignoring idiosyncratic shocks to the various countries or whether global shocks are becoming more pronounced.

An important financial literature on Latin American participation in international capital markets has been just concerned with sovereign borrowing. As shown in Figures 3 and 4 and Table 2, private international borrowing has been very important in both episodes, with the private share oscillating between 45 percent during the first episode and 67 percent during the second episode on average across all countries. The importance of private issuance changes over time. In the 1820s, private issuance is just 10 percent of total issuance. In the 1860s and early 1870s, private issuance increases to about 30 percent of total issuance while in the 1880s private issuance reaches 55 percent of total issuance. Private issuance at the turn of the century until the WWI is approximately 42 percent of total issuance while it declines to 25 percent during the last capital flow bonanza before the crisis of 1931. Private participation in international capital markets also varies during the 1970-2011 period. In the 1970s and early 1980s, private issuance just reaches 24 percent of total issuance, it increases to 55 percent during the 1990s, and to 70 percent during the 2000s. Countries with the highest share of government borrowing change over time, with Argentina being the country with the largest share of private borrowing in the first episode and the one with the smallest share now. In contrast, Brazil issuance moves in the
opposite direction. Interestingly, as shown in Table 2, volatility across both private and public issuance has declined sharply in the second episode with the only exception of Argentina public borrowing. Finally, Panel C shows the correlations between public and private international in both episodes. Notably, these correlations have almost doubled during the second episode with private borrowing reinforcing sovereign borrowing cycles.

Information on total issuance is insufficient to compare the extent of financial integration then and now. I need to compare total issuance with an indicator of the size of the economy. The most common indicator used to capture the extent of integration across countries is the ratio of total issuance (or capital flows) to GDP. Official estimates of GDP for the 19th century and even the early 20th century are not available. Instead, I use exports as the scale variable. Figures 5 and 6 and Table 3 show the issuance/exports ratio. As shown in Table 3, the average issuance/exports ratio oscillates between 10 and 30 percent with the average ratio increasing in the second episode of financial globalization.

I now examine in more detail the capital flow cycles. To identify cycles I use the algorithm used in general to identify business cycles. The first step in the determination of the cycles is the identification of cyclical turning points. The algorithm that I am going to apply looks for clearly defined swings in total issuance with at least a minimum duration similar to that of business cycles. This is the only identifying restriction. I am not imposing any other restrictions such as minimum amplitude of the cycles. Essentially, the algorithm isolates local minima and maxima in a time series, subject to a constraint on the length of upturns and downturns. In particular, I impose the restriction that the cycle cannot have duration of less than 5 years. That is, $y_t$ is a maximum if:

$$y_{t-2}, y_{t-1} < y_t < y_{t+1}, y_{t+2}$$ (1)

and the trough is identified as the minimum value between two local peaks.

I apply this filter to the total issuance/exports ratio for each of the four countries in the sample for both episodes of financial globalization. The algorithm identifies 40 cycles during the first episode of financial globalization and 18 cycles since 1970. The average duration of the cycles is 9 years for the first episode and 10 years for the second episode, with cycles reaching a maximum duration of 17 years for the first episode of financial globalization and 21 years for the

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13 See, for example, Bry, G. and C. Boschan, 1971 and Kaminsky and Schmukler (2008).
second episode of financial globalization. To capture the size of the capital flow bonanzas I estimate for each cycle $i$:

$$amplitude_i = \frac{\sum_{t_i=1}^{T_i} issuance_{t_i}}{\sum_{t_i=1}^{T_i} X_{t_i} / T_i}$$

(2)

where the numerator is total issuance over the cycle normalized by the average level of exports over the duration of the cycle.

Table 4 and Figure 7 summarize the findings. The average capital flow bonanzas are quite pronounced in both episodes, with total issuance over the cycles being about twice the average level of exports during the cycle. The average duration of a cycle in these two centuries is about a decade and the maximum duration of these cycles is about two decades. The amplitudes over the two episodes of globalization are quite similar: 1.91 during the first episode and 2.17 during the second episode. Still, the amplitude of the cycles is quite varied with some bonanzas being quite dramatic and reaching almost ten times the level of exports during the episode and others quite mild with total issuance being just a fraction of exports during the cycle. I now put the data under the microscope and examine whether there is a common pattern of large and small cycles. I divide the cycles between those that precede crises with the financial center at the epicenter and the other cycles with more idiosyncratic behavior. Table 5 shows the results. Interestingly, cycles around crises with the financial center at its epicenter are more pronounced, in particular during the first episode of financial globalization. The question is whether these capital flow bonanzas are “excessive,” triggering too much investment or consumption booms and when the crises erupt at the center, the periphery collapses and becomes unable to re-access international capital markets for many years as it seems to be the case for the European periphery in the current crisis.

I now estimate the time elapsed between the time of the crises in the financial center and and the time each country re-access international capital markets. The question is how to define re-entering international capital markets. There are a variety of papers that try to assess years of exclusion from markets following a sovereign default. For example, Cruces and Trebesch (2011) examine the experience of all defaulting countries starting in the 1970s. In particular, they are interested in classifying defaults according to investors’ losses or haircuts. They also examine whether larger haircuts keep countries out of international capital markets for longer
episodes. They define two measures of re-entering international capital markets: Partial re-access to markets is defined as the first year with an international loan or bond placement and/or the first year with positive aggregate credit flows to the public sector. They also define full re-access to markets as the first year when bond or loan issuances in international capital market exceed one percent of GDP. The problem with these criteria is that they impose a one-size fits all rule. They do not take into account that the ability to access international capital markets is unconditionally different for different developing countries. Overall, richer and larger developing countries access international capital markets more frequently than small and poorer countries. That is, while being able to place one bond in international capital markets can be classified as re-entering capital markets for countries such as Bolivia or Paraguay that only issued not more than 50 bonds during the first episode of financial globalization, this criterion still indicates credit constraints for countries like Argentina and Brazil that issue thousands of bonds and shares in the various financial centers of the world. The criterion of issuance being above the one-percent of GDP threshold has a similar problem, imposing a too stringent criterion for countries like Bolivia that rarely reach that benchmark and a lax criterion for Argentina and Brazil with issuance on average far larger than that threshold.

To account for the diversity of participation in international capital markets across countries, I define re-entering international capital markets not just by country but also taking into account the time-varying country participation in international capital markets. I define re-entering capital markets when total international issuance is higher than 30 percent of the issuance at the previous peak.\footnote{Naturally, this is an ad-hoc criterion. I will examine the robustness of the results using other thresholds in the next draft of the paper.}

Table 6 reports the number of years to re-access international capital markets after a crisis in the financial center.\footnote{If a country regains market access immediately following the crisis, I follow the literature in considering the duration of market exclusion to be one year.} There are 36 events across the four countries and the two episodes of financial globalization. Years of exclusion from international capital markets following the 1931 crisis are the highest but these events coincide with the end of the first episode of financial globalization following the introduction of world-wide restrictions to capital mobility that lasted until the 1970s. Even excluding the aftermath of the 1931 crisis, the years to re-access international capital markets vary across events and countries. The shortest lived crisis (in terms
of exclusion from international capital markets) is the 1907 crisis\textsuperscript{16} even though this crisis is catalogued by Bordo and Murshid (1999) as the most virulent crisis during the gold standard period. Argentina, Brazil, and Mexico re-enter the market immediately, with Chile re-entering in 1909. The next two other short-lived financial crises are the 1873 and 2008 crises. Importantly, these crises are far reaching and protracted. Many identify the 2008 as the worst crisis since the 1931 crisis. The 1873 crisis is also viewed as a major international crisis leading to a world-wide recession and defaults in Europe, Asia, and Latin America. Still, most of the four major borrowers of Latin America re-enter international capital markets immediately, the exceptions being Argentina in 2008 and Chile in 1873. The longest-lived financial crisis in Latin America is the one following the London panic or 1825, with countries being excluded from international capital markets for on average more than 30 years. Why are the aftermaths of these crises so different? The next section examines the links between the state of the economies of the four Latin American countries and the number of years of exclusion from international capital markets following the onset of crises with the financial center at its epicenter.

IV. The Aftermath of Crises and Domestic Fragilities

To examine further the ability of countries to re-access international capital markets, I examine the evolution of these countries’ economies. I focus on indicators of real economic activity and currency and sovereign problems. The number of indicators for the first episode of financial globalization available is quite limited. Thus, for the purpose of comparison between the two episodes, I limit the number of indicators for the second episode to the indicators available for the 19\textsuperscript{th} and early 20\textsuperscript{th} centuries.

The indicators for real economic activity are total exports and the terms of trade. The indicators of currency and sovereign problems are the nominal exchange rate and the years during which the country suspends amortization and/or payments of coupons on its external debt. The exports data for Argentina, Brazil, Chile, and Mexico for the first episode are respectively from: \textit{Dos Siglos de Economia Argentina 1810-2004}, Orlando J. Ferreres (2005); \textit{Estadisticas}

\textsuperscript{16} This crisis starts in London when the Bank of England begins raising its discount rate to counter the gold drain to the United States. The crisis spreads to New York where a stock market collapse triggers massive depositor runs first against trusts companies and second against commercial banks. The crisis also spreads from England via France to Italy. Economic activity declines.

The indicators of currency and sovereign problems are the nominal exchange rate and the years during which the country suspended amortization and/or payments of coupons. For the first episode of financial globalization the data on exchange rate and episodes of default are from Kaminsky and Vega (2011) *Varieties of Sovereign Defaults: Latin America, 1820-1931*. For the second period, the data are from the International Financial Statistics and country reports published by the International Monetary Fund.

The evolution of these indicators is shown in Figures 7-10. Using these indicators, I construct indices of fragility as it is traditional in the currency crisis literature. In this literature, fragilities are identified with the tails of the distribution of a variety of indicators, that is, extreme events. Fragilities in economic activity are identified with sharp declines in exports or the terms of trade. In particular, I identified fragilities in the years when the growth rates of exports or terms of trade are in the 20th percentile of the distribution. For currency problems, I identify a currency crises in those years when the rate of depreciation of the domestic currency is in the

---

17 Weights for the export price index are estimated for each decade to account for the changing importance of the various products in total exports over the 110 years of the historical sample.
80th percentile of the distribution. Finally, the years of sovereign crises are those years when the country is either not amortizing the debt or not paying the coupons or is suspending completely the service of the debt. Using information on all indicators, I construct an index of fragility for each country as follows:

\[
Fragility = \frac{\text{number of indicators at the tails}}{\text{total number of indicators}}
\]  

Figures 11 and 12 show the index of fragility for each country separately as well as for the region. The indices are 3-year moving averages of the fragilities in a particular year and the two previous years. The red vertical lines date the year of the crises with the financial center at its epicenter.

On average, across the four countries, fragilities during the first episode of financial globalization are at the highest level in the aftermath of the 1825 crisis, at the onset of the first world war and during the deflation episode after that war, and at the onset of the 1931 crisis. During the second episode of financial globalization, fragilities are at the highest level at the onset of the debt crisis in 1982. Notably, during the onset of the 2008 crisis, vulnerabilities across all countries are at their lowest.

Figure 13 links the number of years for a country to re-enter international capital markets after the crises with the financial center at its epicenter and the degree of fragility of the domestic economy. I look at the average degree of fragilities in a five year episode starting with the onset of each crisis. I classify the economy following the onset of a crisis with low fragilities if the average level of fragility in the five year episode is equal or less than 20 percent. Overall, countries with low fragilities re-enter international capital markets immediately even in the midst of the most devastating crises in the financial center, both in the first episode of financial globalization and in the second episode of financial globalization.

V. Reflections

The international financial crisis that started in 2008 with its global spread and overall market instability has fueled new interest on financial contagion and on cross-border capital
flows. Gyrations in capital movements over the past five years have also triggered the renaissance of a literature favoring controls. This view is not confined to academic circles. Even the International Monetary Fund has reversed its long-standing position in favor of free capital movements. The idea is that capital flow bonanzas end up with large reversals and crises, with countries unable to tap international capital markets when they need it the most. To avoid the large capital flow bonanzas and sharp reversals it is recommended countries implement conservative macro policies and introduce capital controls as Chile implemented in the 1970s and the 1990s. Interestingly, even when Latin American countries implemented capital controls repeatedly since the 1970s, capital flow cycles from 1970 to 2011 are similar to those in the 19th and early 20th centuries, even though at that time international capital flows were unregulated. Moreover, it is not clear that countries cannot tap international capital markets in times of high stress in the world financial markets. Overall, even in the midst of the worst crises during the 19th and early 20th centuries, most Latin American countries are able to tap international capital markets even in the aftermath of pronounced capital flow bonanzas.

An important area to re-examine with this database for two centuries on international capital flows is the relationship between growth and capital flow bonanzas: Did this international credit boom help to start investment projects that could not have started in less exuberant episodes (Railways, electricity, phone, gas works), triggering a virtuous cycles of capital flow bonanzas, growth, less fragilities, and more capital flows? Another, important issue to re-examine is whether the composition of capital flows matters. These are my future areas of research.
References (Incomplete)

Bordo, Michael and Antu Murshid, 1999, The International Transmission of Financial Crises before World War II: Was there Contagion?"


Table 1
Characteristics of International Issuance

Panel A
Volatility

<table>
<thead>
<tr>
<th>Episodes</th>
<th>Coefficient of Variation</th>
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<td>Mexico</td>
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Panel B
Comovements

Cross-Country Correlations: 1820-1931

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<td>0.87</td>
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<table>
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<td></td>
<td></td>
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<tr>
<td>Brazil</td>
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Table 2
Characteristics of Public and Private International Issuance

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<th>Brazil Public</th>
<th>Brazil Private</th>
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<th>Chile Private</th>
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<th>Mexico Private</th>
<th>All Countries Public</th>
<th>All Countries Private</th>
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<td>0.43</td>
<td>0.57</td>
<td>0.67</td>
<td>0.33</td>
<td>0.62</td>
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<th>Argentina Private</th>
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<th>Brazil Private</th>
<th>Chile Public</th>
<th>Chile Private</th>
<th>Mexico Public</th>
<th>Mexico Private</th>
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<th>All Countries Private</th>
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<td>2.03</td>
<td>1.68</td>
<td>1.89</td>
<td>1.84</td>
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<td>1.45</td>
<td>1.73</td>
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<td>1970-2011</td>
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<td>1.39</td>
<td>1.01</td>
<td>1.45</td>
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<td>1.16</td>
<td>0.83</td>
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Panel C
Correlations

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</tr>
<tr>
<td>----------</td>
<td>-----------</td>
</tr>
<tr>
<td></td>
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<td>1820-1931</td>
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<tr>
<td>1970-2011</td>
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Table 3
Characteristics of the Issuance/Exports Ratios
### Table 4
**Characteristics of Cycles of Total Issuance**

#### First Episode of Financial Globalization

<table>
<thead>
<tr>
<th>Country</th>
<th>(Total Issuance During the Cycle)/Exports</th>
<th>Number of Cycles</th>
<th>Duration of Cycles in Years</th>
</tr>
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<td>Average</td>
<td>Maximum</td>
<td>Minimum</td>
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<tr>
<td>Chile</td>
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<td>4.99</td>
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<td>All Countries</td>
<td>1.91</td>
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#### Second Episode of Financial Globalization

<table>
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<th>Country</th>
<th>(Total Issuance During the Cycle)/Exports</th>
<th>Number of Cycles</th>
<th>Duration of Cycles in Years</th>
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<tr>
<td>Brazil</td>
<td>2.07</td>
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<tr>
<td>Chile</td>
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</tr>
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<td>Mexico</td>
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<td>5.60</td>
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<td>2.17</td>
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Table 5
Amplitude of Cycles: A Classification

First Episode of Financial Globalization

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<th>Episodes</th>
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<th>Brazil</th>
<th>Chile</th>
<th>Mexico</th>
<th>All Countries</th>
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<td>With Financial Center at the Epicenter</td>
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<td>1.44</td>
<td>1.49</td>
<td>3.00</td>
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<tr>
<td>Idiosyncratic</td>
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<td>1.31</td>
<td>0.71</td>
<td>1.66</td>
<td>1.14</td>
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Second Episode of Financial Globalization

<table>
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<th>Chile</th>
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<th>All Countries</th>
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<tbody>
<tr>
<td>With Financial Center at the Epicenter</td>
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<td>2.77</td>
<td>3.25</td>
<td>2.36</td>
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<tr>
<td>Idiosyncratic</td>
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<td>1.97</td>
<td>1.17</td>
<td>1.77</td>
<td>1.94</td>
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Table 6
Crisis with the Financial Center at its Epicenter
Re-Entering International Capital Markets

<table>
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<tr>
<th>Year of Crisis</th>
<th>Argentina</th>
<th>Brazil</th>
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<th>Mexico</th>
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<td>33</td>
<td>39</td>
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<td>3</td>
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<td>1907</td>
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<td>1914</td>
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</tr>
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<td>1931</td>
<td>more than 40</td>
<td>more than 40</td>
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<td>more than 40</td>
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</table>

<table>
<thead>
<tr>
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<th>Brazil</th>
<th>Chile</th>
<th>Mexico</th>
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<tbody>
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<td>1982</td>
<td>10</td>
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<td>2008</td>
<td>more than 40</td>
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<td>1</td>
<td>1</td>
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</table>

Note: The year of re-entering the international capital market is the year in which total international issuance is at least 30% of the previous peak.
Figure 1
Total International Issuance: 1820-1931
(in British Pounds)
Figure 2
Total International Issuance: 1970-2011
(in Million US Dollars)
Figure 3
Private and Public Issuance: 1820-1931
(in British Pounds)

Argentina

Brazil

Chile

Mexico
Figure 4
(In millions of US Dollars)

Argentina

Brazil

Chile

Mexico
Figure 5
International Issuance/Exports
1820-1931

Argentina

Brazil

Chile

Mexico
Figure 6
Total International Issuance/Exports: 1970-2011
(in Million US Dollars)
Figure 7
Amplitude of International Issuance Cycles: Now and Then

Note: The amplitude of the cycle is the total issuance over the cycle as a ratio of the average level of exports during the cycle.
Figure 8
Exports

Note: The figures show the logs of exports. Exports during the first episode of financial globalization are in British Pounds, Exports during the second episode of financial globalization are in million dollars.
Note: The shaded areas are episodes of sovereign defaults.
Note: The 1970 exchange rate =1. The exchange rates in the graphs are in logarithms. The shaded areas are episodes of sovereign defaults.
Notes: The red vertical lines identify the dates of the crises with the financial center at their epicenter.
Figure 13
Domestic Fragilities

Notes: The red vertical lines identify the dates of the crises with the financial center at their epicenter.
Figures 14
Years to Re-Enter International Capital Markets Following a Crisis with the Financial Center at its Epicenter

High Fragilities
Low Fragilities

Appendix Figure 1: Prospectuses

BUENOS AYRES 6% STATE LOAN, 1870,
Under the authority of the State Laws of the 15th November, 1868; and 27th January, 1870;
16th of February, 1869 (as varied by a further Law of 3rd September, 1869; and 3rd January, 1870);
FOR £1,034,700 STERLING,
In Bonds to Bearer for £100, £500, and £1,000 each,
The Interest Payable Half-Yearly in London.
The Loan to be redeemed at par by Annual Drawings in about 33 years, by means of
an accumulative Sinking Fund, which however the Government reserves to itself the
right to increase, so as to redeem the Loan at an earlier period.

PRICE OF ISSUE, 88 PER CENT.

ÉTATS-UNIS DU BRÉSIL

COMPAGNIE
DU
CHEMIN DE FER DE VICTORIA À MINAS

ÉMISSION
DE
50,000 Obligations Hypothécaires 5 0/0 Or de 500 Francs
AU PORTEUR

Rapportant 25 francs nets par an
Remboursables au pair en 80 ans à partir de 1920
Jouissant pendant 30 ans d’une
GARANTIE OR DU GOUVERNEMENT FÉDÉRAL BRÉSILIEN

Prix d’émission : 465 francs