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**Globalization and the Current Financial Crisis in
Historical Perspective**

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Globalization and the Current Financial Crisis in Historical Perspective

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Abstract

In this paper we compare the current financial crisis and the Baring crisis of 1890, which was short-lived and did not drag the world into a severe recession. We demonstrate the similarities between the two episodes in terms of background and potential impact on the world economy. We then analyze the differences between the two episodes that may account for the different effects of the two crises: the decision of the Bank of England to bailout Brings versus the decision by the FED to let Lehman Brothers file for bankruptcy; the degree of co-movement of financial assets; and the macroeconomic stability of the core of the global financial system. We show that the extent of co-movement “then” was much smaller than now and the macroeconomic stability of the financial system was much greater than today. With hindsight, we conclude that historical accounts which attribute the successful resolution of the Baring crisis to the actions of the Bank of England are probably incomplete – the Bank’s actions might not have been sufficient had the macroeconomic position of England been weaker (like that of the US today) and had financial markets experienced more contagion (like financial markets today).

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Introduction

The collapse of Lehman Brothers on September 15, 2008 was a key event which marked the watershed between the cyclical economic downturn which began in 2007 (associated with difficulties in mortgage-based securities) and a global recession from which most advanced economies have not yet fully recovered. Following Lehman's collapse, economists were initially focused on microeconomic explanations for the crisis: Issues such as managerial moral hazard, inappropriate risk valuation models, simple greed and regulatory failure have been raised and remedies along these lines offered. However, as the crisis continued, attention has shifted to macroeconomic explanations of the crisis, most of which focused on fundamental imbalances in the US or global economy.

The main objective of the present paper is to lend support for the macroeconomic view of the crisis by comparing the Baring crisis of November 1890 — which occurred in London and did not result in a global financial crisis — with the collapse of Lehman Brothers. We argue that, although both crises struck the center of the global financial system, and even though both shared what may seem like similar causes, the current financial crisis has turned into a severe global crisis primarily because of the different macroeconomic environment of the London market “then” and New York market now. While our emphasis on macroeconomics in this context is not unique (see Jagannathan et al., 2009; Obstfeld and Rogoff, 2009), we contribute to the literature by providing a historical counterfactual that helps identify the importance of macroeconomic factors. We also narrow down the macroeconomic explanations to those that concern the US economy, and in particular, its fiscal policy.

In addition to providing evidence on the macroeconomic underpinning of the crisis, the findings in the present paper provide additional support to claims made in our earlier work (Mauro, Sussman, and Yafeh, 2002 and 2008) in which we argue that the modern global financial system suffers from “contagion” (comovement of asset prices beyond what is warranted by fundamentals) whereas the historical financial system of the pre-World War I era was less prone to it. Although we argue that the current crisis is, in essence, a macroeconomic event, its spread across continents is related to the fast spread of crises in the modern period of globalization, in contrast with the historical experience whereby the slow spread of crises played a role in the limited spread of the Baring crisis.

Finally, with the perspective of the modern crisis in mind, the results in the present paper enable us to revisit the conventional wisdom, established by contemporaries and historians, regarding the reasons for the relatively small impact of the Baring crisis on the global financial system of the time. While many accounts laud the successful intervention of the Bank of England in providing liquidity to financial markets, our view is that, without the macroeconomic stability of the UK at the time combined with the low degree of contagion in the global financial system, this celebrated intervention, like that of the Fed, would probably not have been sufficient to avert a larger crisis.

The rest of the paper is organized as follows: in Section 1 we argue for the relevance of the comparison between the Baring Crisis and the current one. In section 2 we compare key variables between the two episodes, highlighting microeconomic similarities and macroeconomic differences. In section 3 we focus on the differences in the macroeconomic environment in the two eras in more detail; Section 4 concludes.

1. The Relevance of the Baring Crisis of 1890

This section begins with a brief historical account of the Baring crisis. We then argue that the comparison between the Baring crisis and the current crisis is valid, especially around the collapse of Lehman Brothers. At the same time, while the Baring crisis occurred in a period of financial globalization comparable to that of today's a key difference between the two periods is the extent of contagion in contemporary financial markets.

The Fall of Baring's Bank

According to contemporaries the House of Baring was the largest investment bank in London, and by extension, the largest in the world.² Like its rival, Rothschild's Bank, Baring's was a privately-held company not listed on the London Stock Exchange. Baring's underwrote sovereign debt for a number of foreign governments that would be classified using modern parlance as emerging economies.³

During the years preceding the crisis the value of Argentinean bonds quoted on the London stock exchange more than doubled, from about £21 million in 1885 to almost £50 million in 1890. Expressed in terms of British GDP of the time, the exposure of British investors to Argentina doubled during this time period, from about 1.7% to 3.4% of GDP. The volume of bonds listed on the London Stock exchange handled by Baring's also increased dramatically, from about £5.5 million in 1885 to more than £18 million in 1890, of

² The *Investor's Monthly Manual* (November 29, 1890, p. 564) refers to Baring's Bank as "... perhaps the greatest firm of merchant banking in the world."

³ Baring was exposed to the Argentina, Russia, Massachusetts, the Cape Colony, Canada and China (*Investor's Monthly Manual* listings, 1890).

which, almost £15 million were floated between 1884 and outbreak of the crisis.⁴ At the same time, the total exposure of London to Latin American sovereign debt remained constant at about 10% of British GDP. Chart 1 presents the price of Argentinean bonds relative to the price of a portfolio of emerging market sovereign bonds (excluding Argentina)⁵. The euphoria of investing in Argentina can be readily seen and so can its bloody aftermath following the Argentinean default.

Enjoying capital inflows at an unprecedented scale, Argentina's economy experienced an economic boom between 1885 and 1890.⁶ The great liquidity in the economy led to speculation in real estate funded by *Cedulas* – mortgage-based loans. These mortgage-based loans were tradable and ended up on European stock markets in large quantities. However, since the *Cedulas* were based on inflated land prices funneled by liquidity afforded by foreign investment, a crisis was nearly inevitable. Moreover, Argentina's Provinces accumulated debt at an increasing rate. Precipitating the crisis in 1889, capital inflows to Argentina declined sharply and the price of Argentinean bonds in London started to decline. A revolution which broke out in Argentina in August 1890 hastened the fall into the abyss.

As noted earlier, Baring's Bank was involved in underwriting massive amounts of Argentinean debt since 1885. As the price of Argentina's bonds in London started to decline in 1889, Baring's extended a new 21 million pesos (about £4.5 million) loan destined for the Buenos Ayres waterworks (Ziegler, 1988). However, since the London market sentiment

⁴ All figures are the authors' calculations based on figures from the *Investor's Monthly Manual* from 1885 and 1890. Between 1885 and 1890 Argentina's older debt was retired.

⁵ We use the portfolio of emerging market bonds constructed in Mauro, Sussman, Yafeh (2006) which includes: Argentina, Brazil, Canada, Chile, China, Colombia, Costa Rica, Egypt, Greece, Hungary, Japan, Mexico, Portugal, Queensland, Russia, Sweden, Turkey, and Venezuela.

⁶ This section is based on Eichengreen (1999) and della Paolera and Taylor (2001).

towards Argentina had changed, Baring's could not dispose of the loan. At the same time, Argentina's government called in the money, putting Baring's at a risk of insolvency. Moreover, the Russian government, which held large deposits with Baring's (which acted as an agent for servicing some of the Russian bonds traded in London), withdrew almost £5 million, so that any attempt to recall additional deposits in 1890 would have caused the bank to fail.

Baring's approached the Bank of England before November 8, 1890 and the Bank, fearing a collapse of the banking system and the London stock market, acted to provide liquidity to Baring's. On November 15, when the near-collapse of Baring's became public knowledge, stock markets reacted sharply, but news of the successful supply of liquidity to Baring's led to a quick correction. This is in contrast with the fall of Lehman Brothers, which is discussed in more detail in the following section.

Globalization Then and Now

To render the comparison between the Baring crisis of 1890 and the sub-prime crisis of 2007-2010 valid, we argue that the two episodes share important similarities on one hand, but, on the other hand, the differences between them may shed light on the causes of the much larger economic impact of the recent crisis.

First, we argue that the differences between 1890 and 2008 are not due to differences in globalization. Globalization as experienced today is often associated with modern technology – the internet, jet planes, telecommunication and satellites, as well as a variety of other small and not-so-small gadgets that, so we believe, enable the flow of capital around the world. But the premise that financial globalization is based on modern technology is not

accurate. Between 1870 and the outbreak of World War I the world experienced an era of globalization which, in certain respects, was similar to today's. In other respects, the globalization of the twenty-first century has yet to match the previous era of globalization. During that past era, London — the world's main financial center at the time — saw massive amounts of capital raised by contemporary “emerging markets” (although the term was not in use at the time), combined with very active trading by investors who were extremely well informed about events taking place in remote countries.

There is widespread agreement in the economic and financial history literature that the extent of globalization over the past 150 years can be described by a U-shaped curve. Whether financial globalization is measured by the ratio of foreign assets (or foreign liabilities) to GDP, by the flow of capital to GDP, or by a variety of other measures, the extent of globalization was very high during the pre-World War I era, declined dramatically in the interwar era and during World War II, and remained low for several more decades before beginning to rise again. Only in the final years of the twentieth century did financial globalization achieve a level and a form reminiscent of the pre-1914 period.

The 1870–1913 period of financial globalization — characterized not only by large international capital flows but also by free trade and nearly unrestricted migration and sophisticated financial markets — resembles, and in some respects surpasses, globalization as we know it today. The London market for bonds (debt) issued by the “emerging economies” of the day was large (with an overall capitalization amounting to more than one half of Britain's GDP), liquid (with bond prices fluctuating considerably and reported in the newspapers on a daily basis), and supported by timely and reliable information (with political and economic news about emerging economies widely available in the British press). The

typical portfolio of a British investor around the turn of the twentieth century was probably more internationally diversified, and included a far larger share of emerging market securities, than that of his great grandchild living at the beginning of the twenty-first century.

There are, of course, important differences between the two periods. First, in the previous era of globalization, most traded foreign assets were bonds, especially those issued by governments (“sovereign debt”), utilities and railway companies which were often closely backed by foreign governments. Today, a much wider variety of assets is being traded, including, of course, a much bigger focus on investment in stocks rather than bonds. Another important difference is that global movements of capital today tend to be multi-directional and to involve, to a very large extent, wealthy economies: for example, capital flows from Europe to the United States but also in the opposite direction, from the United States to Europe. Indeed, the United States today is a (large) net borrower (importer of foreign capital) with far more capital flowing into the country than flowing out from the United States to other economies. In the period 1870-1913 capital flows were, for the most part, unidirectional, primarily from Britain (and a few other wealthy economies) to capital-scarce developing countries in South America, Asia, Australia and Canada (within and outside the boundaries of the British Empire). Of particular importance is the fact that all large economies, and especially Britain, were net lenders at the time, exporting capital to poorer nations. We believe this is a major difference between the two periods and discuss it in more detail below.

Despite the similarities in the scale of globalization in the period 1870–1913 and today, there seem to be fundamental differences in the way the prices of financial assets were determined in the two periods. One striking difference is that, during the pre-1914 era, asset

(bond) prices followed country-specific trajectories and were determined by country-specific events such as wars, rebellions, droughts or other changes in the political and economic climate. By contrast, in the modern version of globalization, country-specific events, while still relevant, tend to have more limited influence on asset prices, while global developments play a greater role. In the 1990s for example, the price of bonds issued by the Government of the Philippines responded more to events taking place in, say, Russia, than to political events taking place within the Philippines. In other words, emerging market asset prices today, which are influenced by “global” events and by events taking place in other countries, tend to move together to a much greater extent than they did in the past. This is especially true in times of crisis: financial crises of the 1990s often took place simultaneously in several emerging markets, but they were typically restricted to one country in the pre-1914 period. The statements in this paragraph are particularly true for emerging markets, but they are also valid to a large extent for more developed economies.

What explains the observed differences in the extent to which asset prices move together (“co-move”) between the two periods? To some extent, the greater degree of co-movement of emerging market asset prices in modern times in comparison with the past can be explained by greater similarity in the economic structure of emerging market economies today. Before World War I, these economies tended to be very specialized (for example, Argentina produced wheat and wool while Brazil produced coffee and rubber). Now, they are better diversified and, as a result, engage in more similar economic activities than in the past, so that their economic fundamentals tend to move together to a greater extent than they did a century ago. Nevertheless, the increased similarity in the economies of today’s emerging markets cannot fully account for the rise in asset price co-movement and shared crises.

Changes in investor behavior and the way in which international investment is organized and undertaken also contribute to greater co-movement of asset prices in modern times. During the 1990s, losses incurred at the outset of a crisis in a given country induced large investment funds (including mutual funds and hedge funds) to sell assets in (initially) unaffected countries in order to maintain certain liquidity and risk profiles. For example, when mutual funds foresaw future redemptions after a shock in one country, they raised cash by selling assets they held in other countries. Similarly, leveraged investors, such as banks and especially hedge funds, faced regulatory requirements, internal provisioning practices and other constraints that led them to rebalance their portfolios by selling their asset holdings in countries that initially were unscathed. By contrast, investors in the past operated primarily as individuals at a time when trading technologies were also slower. In times of impending crisis, investors may have responded to trouble in one emerging market by buying assets in another, thus shifting assets rather than selling them *en bloc*. We discuss the implications of these comparisons for the current crisis below.

A further factor determining whether “financial contagion” — the extent to which financial crises spread across borders — occurs has to do with whether financial institutions in the “core” advanced countries are adversely affected by developments in the country where a crisis originates. Historically, as well as in the current crisis, in many of the best known contagious emerging market crises, advanced country financial institutions played a key role in transmitting the initial shock to other countries in the “periphery.” As is well known, the most recent woes began with developments in the American financial system, and precipitated a crisis in emerging markets and developed economies around the world.

Similarities in Magnitude and in the Pre-crisis Economic Environment

We begin by establishing the quantitative similarities between the historical Baring crisis and the contemporary insolvency of Lehman Brothers. Since the world economy expanded substantially between 1890 and 2008 we normalize all magnitudes by GDP – that of Britain in 1890, the largest and wealthiest economy in the world at the time, and that of the US today. As a measure of financial risk, we use, for the 1890s, the volume of Latin American bonds traded in London — these economies were rather similar and, for the most part, considered risky⁷ — and the volume sub prime mortgages in the modern period.

Table 1 indicates that the potential for macroeconomic, financial and banking crises were almost identical in the two cases, even though, *ex post*, the outcomes were ultimately very different. The crises are not only similar as far as relevant magnitudes go. Both crises emerged following a period of low interest rates and high levels of liquidity which were associated with the upturn of the business cycle. In the following charts, we compare the developments of both crises in by aligning the historical and contemporary series using crisis-relative dates: November 1890 for the outbreak of the Baring crisis and July 2007 for the beginning of the sub-prime crisis.

As can be readily seen in Chart 2, both crises were precipitated by a run-up in the underlying asset prices and a decline which preceded, by about six months, the onset of the

⁷ In addition, there may have been some fear of financial contagion between Argentina and neighboring countries. Mitchner and Wiedermeir (2008) argue that the Argentinean default and the subsequent decline in Argentinean bond prices had a contagious effect on other Latin American bonds. Mauro, Sussman and Yafeh (2006) dispute this, and argue that Latin economies faced similar shocks to their fundamentals.

financial crisis (marked in red), which, in turn, was followed by a sharp decline in asset prices; asset prices stabilize about 18 months after the beginning of the crises.

A similar picture emerges when we compare the stock prices of banks exposed to problematic underlying assets. For the sub-prime crisis, we use the stock price of Lehman Brothers, and for the Baring crisis we use the stock price of the London and River Plate Bank, a London banking company exposed to the Argentinean economy.⁸ Chart 3 shows that stock prices increased up to the start of the crisis; of course, the different endings of both crises and the different policy responses are reflected in Lehman Brothers' stock price collapsing whereas the price of the London and River Plate Bank stock stabilized, albeit at a lower level.

The rapid rise in asset prices occurred in a macroeconomic environment of growth, facilitated by low interest rates. Chart 4 plots the 90-day commercial paper market rates for both episodes. Owing to the much greater volatility and seasonality of the historical series, we plot a 12-month moving average of the London 3-month commercial paper money rate and the actual US 3-month commercial paper money rate. In both episodes, the crisis is preceded by low interest rates and precipitated by a rise in interest rates, lower liquidity in financial markets, and “punctured” asset bubbles.

In Chart 5, we plot the real GDP for the UK of the nineteenth century and for the US today. Again, the similarity in the pre-crisis dynamics is visible. The aftermath of the crises is not similar, however, with the US experiencing a large drop in real GDP immediately

⁸ Data on the stock price of the London and River Plate Bank are drawn from issues of the London Times. Since Baring's was a private company, we cannot use data on its stock price.

following the collapse of Lehman Brothers, whereas this is not the case for the aftermath of the Baring crisis in 1890.

As can be seen from the discussion above, the magnitude of the Argentinean bond crisis and the ensuing Baring crisis as a share of British GDP was similar to that of the sub-prime crisis and the collapse of Lehman Brothers which followed. Both crises seem to have been associated with a rapid rise in the underlying asset prices fueled by low interest rates in an environment of economic expansion. However, the onset of the two crises led to different macroeconomic and financial outcomes: whereas the collapse of Lehman Brothers had severe financial and economic repercussions, the Baring crisis ended with little effect on global stock markets and on the British economy.

2. Initial Market and Policy Responses to the Baring and Lehman Brothers Crises

Most contemporary observers and economic historians seem to agree that the actions of the Bank of England, which, for the first time, followed the prescriptions of Walter Bagehot (1873) and acted as a lender of last resort, helped prevent a major financial crisis following the malaise of Baring's. This was in stark contrast with the traumatic financial events that followed the Overend and Gurney bank failure of 1866, whereby more than 200 companies went bankrupt after the Bank of England refused to bail out the insolvent banking company (Wood, 1999). These historical episodes are highly relevant as some contemporary observers (e.g., Mishkin, 2010) view the failure of the Federal Reserve to bail out Lehman Brothers and the indecisiveness of TARP as policy errors which exacerbated the financial crisis originating in the sub-prime market. In this section we focus on quantitative evidence on the policy and financial market responses in the two crises

The Bank of England's Response to the Baring Crisis of 1890

The decline in the demand for bonds issued by the Government of Argentina started in early 1890, but Baring's was hoping to forestall default by providing the Government with additional credit. However, by November 1890 it became apparent to Baring's that, on the one hand, it would not be able to sell the Argentinean debt it had underwritten and, on the other hand, it could not accommodate the Russian government's requests to withdraw £1.5 million on November 11 (Saiegh, 2010). Baring's therefore sought assistance from the Bank of England.

The Bank of England, which was in charge of the gold convertibility of the pound, could not extend credit to Baring's without beefing up its gold and other reserves. Therefore, during the week that followed, Lidderdale, the governor of the Bank, proceeded in two channels: the first was to beef up gold reserves, and the second was to secure a line of credit to Baring's in order to avert a collapse and panic on the London financial market. There were also rumors of an attempt to sell Baring's to the Rotshchild Bank (*London Times*, November 18, 1890). Owing to their explosive potential, all these activities were done in full discretion. The raising of the Bank Rate by the Bank of England and the increase in gold reserve were described in the daily press as a response to expected shipments of gold to Spain and Portugal (*London Times*, November 7, 1890). During the following week, the daily press was concerned with the Bank's gold reserves. On November 12, the *Times* reported that the Bank of England had arranged for gold imports from the Bank of France and Russia.

On November 15, the *Times* reported that "it became known that one of the big banking houses in London is in trouble." The report mentioned rumors related to difficulties related to Argentina's debt. "One 'house' had to seek outside help." The help was provided

by the Bank of England and other banks. The report ended by assuring the readership that “we are sure that there need be no fear of any event of the kind that was considered possible.” In the following days more details were disclosed. On November 17, it was disclosed that the liabilities of Baring’s involved a total of £21 million. On the following day assurances were made that the Bank of England gave a £12 million guarantee to Baring’s and stood by to provide liquidity to all banks with “reasonable security.” On November 19 and 20, panic hit the stock market. On November 19th, *The Times* wrote: “the news of recent events has only just begun to reach dwellers in the country who form an important section of the investing public, and are not, as a rule, constant students of the history of the City. When they realize that the most dangerous moment is already past we think that orders to buy... sound stocks which are now cheap will again be received.” The Bank of England declared that all banks participating in the guarantee should provide pro rata support and should not sit on their assets: “A time of discredit is just the time when strong banks should show that they are strong, and the only way to do that is to make it plain to all their regular customers that accommodation will be promptly given them to a reasonable and even liberal extent.⁹”

In the following days the markets calmed down, and the *Economist* summed up the events: “The past month will long be remembered in the City. The downfall of ... Baring... perhaps the greatest firm of merchant banking in the world... but it will be even more distinguished by the fact that a crisis of the gravest character has been averted by the action of the Bank of England, aided by joint-stock and other banks” (*Investor’s Monthly Manual*, November 29, 1890, p. 564).

⁹ *The Times*, November 20th, 1890.

In the event, the banks provided liquidity to Baring's, allowing it to liquidate some of its assets and negotiate with Argentina without affecting the market. A more detailed article examining developments on the London Stock Exchange shows that the collapse of Baring's on November 11 had only a small impact on the Stock Exchange. Despite concerns suggesting that "...speculators became alarmed at the prospect of stringent money for a lengthy period and ... that sooner or later great masses of securities must be liquidated ..." (*Investor's Monthly Manual*, November 29, 1890, p. 564), the downturn was short-lived and the market rebounded immediately.

According to the *Investor's Monthly Manual*, the most important channel of potential contagion was insufficient liquidity in financial markets, exacerbated by sales of large quantities of bonds in search of liquidity. It also saluted the Bank of England for figuring this out and for supplying immediately the necessary liquidity to the market. In a subsequent article it is noted that it was only "... a small body of speculators who have suffered rather than the multitude of investors, who with commendable caution... diligently refused to be led on to dangerous ground..." (*Investor's Monthly Manual*, December 31, 1890, p. 616.) Thus, the provision of liquidity averted herd behavior and a major financial crisis.

As can be seen in Table 2, Argentina's immediate neighbors suffered the greatest price volatility, while European bonds moved much less. With the exception of Argentina and Brazil, all other bonds were traded on November 27 at prices which were no lower than on November 11.

Chart 6 describes the actions taken by the Bank of England during the Baring crisis (shaded area). We first note that, because England was on the gold standard, the monetary base was unchanged throughout the crisis. However, the Bank raised the Bank Rate in the

week preceding the outbreak of the crisis and subsequently increased its lending to Baring's and the banking system by almost 50% in the first two weeks after the outbreak of the crisis. The Bank of England maintained this higher level of accommodation throughout the following year.

The Bank was able to increase its balance sheet so rapidly because of the increase in deposits at the Bank and the shipments of gold from Paris and Russia. The liquidity crisis in the London market (reflected in high market and Bank rates), did not cause an equivalent rise in the Paris market. Chart 7 shows the London market rate compared with the Paris rate. One can see that the crisis in London did not manifest itself in Paris; the spread between interest rates on similar bonds in the two most important financial centers in the world increased to 300 basis points. This allowed the *Banque de France* to ship of gold to England. We elaborate on the absence of contagion during the Baring crisis, as opposed to the collapse of Lehman Brothers, below.

To conclude, the Baring crisis which broke out in November 1890 was severe but short-lived (Eichengreen, 1999). The crisis was competently handled by the Bank of England, which increased credit to the British banking system by 40% to 50%. It was able to do so and maintain gold convertibility by using its Bank Rate to attract gold and deposits to beef up its balance sheet. Financial panic lasted for only three days.

The Federal Reserve's Response to the Collapse of Lehman Brothers

As in the Baring crisis, in the days preceding its collapse, Lehman Brothers sought assistance from the Federal Reserve and there were some negotiations for its acquisition by other banks, first by the Korean Development Bank and then by Barclays and Bank of

America. The deals did not go through and the Lehman filed for bankruptcy on September 15, 2008. The collapse of Lehman sparked a global liquidity crisis. The Federal Reserve's target rate, the effective federal funds rate, the New York commercial paper rate and the London inter-bank rate are shown in Chart 8. One noticeable difference between the collapse of Baring's (Chart 7) and that of Lehman Brothers is that the global liquidity crisis following Lehman's collapse was far more severe than the crisis sparked by the malaise of Baring's. Despite the injection of liquidity by the Federal Reserve Bank immediately after September 15, 2008, key market rates did not decline. Unlike during the Baring crisis, a spread of 300 basis points opened between the New York market rate and the effective Fed funds rate. Market rates declined to reflect the liquidity injection only by January 2009. Moreover, the New York and London market rates co-moved reflecting the global nature of the liquidity crisis in the aftermath of the Lehman Brothers' collapse.

The intervention of the Federal Reserve Bank took the form of an increase in the monetary base, which roughly doubled, from \$800 billion in September 2008 to \$1700 billion in January 2009. As Chart 9 shows, the increase in the monetary base was gradual, yet lending by the Federal Reserve to banking institutions jumped from \$200 billion to \$1.3 trillion within a month. Despite these massive quantitative measures, it took until January of 2009 to restore liquidity to the global financial markets.

In sum, the Baring and Lehman Brothers episodes shared many similarities both in their background (low interest rates which led to a speculative debt boom) and in their initial magnitudes (as shares of GDP). However, the intervention of the Bank of England turned out to be more effective in averting an immediate global liquidity crisis — the Bank's actions seemed to have been credible enough to calm down panic-stricken markets and the credit

extended to Baring's and to the London banking system was sufficient for market rates to start declining immediately after the onset of the crisis. By contrast, the Federal Reserve Bank decided to let Lehman Brothers fall. When Lehman filed for bankruptcy, the Federal Reserve Bank had to inject much more liquidity in the form of lending and an increase in the monetary base than the Bank of England did in 1890. However, the effect of this added liquidity took almost four months to achieve its goal and seemed too late to prevent the world from slipping into the greatest recession since the Great Depression. One is tempted to conclude that the main difference between the two episodes is the behavior of central bankers. However, while the different behavior cannot be dismissed, in the following section we suggest two additional explanations for the apparent differences: contagion and underlying macroeconomic fundamentals.

2. Why Did the Failure of Lehman Turn into a Global Crisis? A Historical Comparison

In a recent article Saiegh (2010) uses the comparison with the Baring crisis of 1890 to debunk the novelty of one of the most popular fundamentals-based explanations for the severity of the sub-prime crisis. As he succinctly shows, mis-pricing risk was evident in both the Baring and the Lehman crises. He also points out that moral hazard (or "greed") is not a novel feature of the modern publicly-traded investment bank. Moreover, the fact that the partners owning Baring's were personally liable for the losses they generated did not prevent them from taking risks and therefore the corporate structure of modern investment banks cannot be held responsible for the severity of the crisis. Finally, Saiegh (2010) claims that the accusations leveled at financial market regulators are not new either – the Baring crisis occurred in an environment that had a much lower level of regulation. Saiegh concludes that

the prominent microeconomic explanations of the sub-prime crisis had their precedents in the Baring crisis. Since the Baring crisis did not lead to a global financial meltdown and a severe worldwide recession, these popular explanations cannot account for the different outcomes of the Baring crisis and the sub-prime crisis.

Some commentators argue that, by allowing Lehman Brothers to collapse, the Federal Reserve exacerbated the sub-prime crisis and turned it into a full-fledged global liquidity and banking crisis (Mishkin, 2010). Our account, in the previous section, of the differential actions of the Bank of England in 1890 and the Federal Reserve in 2008 supports these claims. However, in this section we suggest that two fundamental differences cannot be dismissed as important contributing factors to the severity of the current recession. The first is financial market contagion, and the second is the macroeconomic fragility of the world's financial center today, the US. Consequently, we also speculate that, had the global financial markets of 1890 shared these similarities with the recent crisis, the celebrated reaction of the Bank of England in 1890 would probably not have been sufficient to avert a slide into a global financial crisis.

Contagion Then and Now

In our previous work, (Mauro, Sussman and Yafeh, 2002 and 2006) we show that the global financial system during the period 1870 to 1914 was characterized by a low degree of financial contagion (crises shared by more than one country) and by limited co-movement of asset prices across countries in comparison with today's financial system. As already illustrated above, the New York commercial paper rate and the London inter-bank rate co-moved following the collapse of Lehman Brothers (Chart 8). However, key market rates in

the two most important financial markets during the Baring crisis, London and Paris, did not co-move (Chart 7). This is probably what allowed the Bank of England to increase its reserves to meet the liquidity requirements necessary to address the crisis.

Another measure of contagion is the behavior of asset prices before, during, and after the crisis. In Chart 10 we plot the prices of assets directly affected by the crisis – bonds issued by the Government of Argentina, the value of a portfolio of emerging market bonds, and three bank bonds – London and Westminster, Lloyds and the London and River Plate Bank. It can be readily seen that asset prices, buoyed by low interest rates, seem to have moved together in the run-up to the crisis; however, once the crisis broke out, asset prices diverged, suggesting the investors were able to discriminate between the varying underlying risks of these assets.

A closer look at co-movement around the Baring crisis is presented in Table 3 which shows the return correlation of selected assets. The assets include Argentina's sovereign debt, a weighted average of a portfolio of emerging market bonds, and the equity prices of three London-based banks. First, Panel A confirms the overall low level of correlation between financial assets in the pre-1914 era (Mauro, Sussman and Yafeh, 2002). However, in the pre-crisis period of low interest rates (Panel B of Table 3), the "tide lifted all boats" and the average correlation between all assets was 0.68, similar to the average correlation across bank shares. During the crisis itself (beginning in mid-1889, Panel C of Table 3), the average correlation drops to 0.31 (0.17 for bank shares). We note that the correlation between affected assets, the Argentinean bond and the shares of the London and River Plate bank is high. However, the correlation between these assets and the non-affected assets declines. Notwithstanding the initial days of panic in the week of November 17, 1890, for the entire

period of the Argentinean debt crisis, investors seem to have reacted in a discriminating way.

When we study the period following the crisis (panel D of Table 3), correlations are even lower and the investor sentiment towards Argentina-related assets and emerging market bonds are quite different from the sentiment toward British domestic assets. This is in line with the commentary in the *Times* (November 25, 1890), which warned its readers that, although a crisis had been averted, they should expect prices of bonds to decline in the following year – as people realize the speculative nature of their investments in bonds of other emerging economies.

We now turn to examine modern co-movement during the sub-prime crisis. One key difference between the historical and modern crises is that many banks, worldwide, were exposed to sub-prime loans (see, Appendix). However, it is nevertheless possible to distinguish between more heavily affected banks and other financial institutions, as in the historical analysis of comovement in Table 3. For comparison, we select identical a time frame similar to that used around the Baring crisis.

We proceed as follows. First, we select a “control group” of large banks which were not heavily exposed to sub-prime assets. This group consists of MetLife of New York (the seventh largest bank in the US), the Toronto Dominion Bank of Canada (the second largest bank in Canada), and Wells Fargo, the third largest bank in the US. We compare their stock price movements with that of a group of banks more heavily exposed to sub-prime assets: Lehman Brothers, Bank of America, BNP Paribas and Deutsche Bank. All bank stocks are traded in the New York stock exchange.

As can be seen in Chart 11, there is a high degree of co-movement in bank share prices. As in the period preceding the Baring crisis, all bank stock rise together; however, in

contrast with the historical data, all bank stocks nose-dive together after the failure of Lehman Brothers. After March 2009, when stocks begin to recover, however, we observe, as in the post-crisis period of the 1890s, that some bank stocks are priced differently. For example, Toronto Dominion Bank, which is based in Canada, and not exposed to the sub-prime crisis, recovers the most.

More formally, we repeat the exercise of calculating the correlations among our sample of bank stocks. Table 4 shows that the overall co-movement of asset prices is higher in the modern sample. For the period of low interest rates which coincides with the housing bubble in the years 2003 to 2006, we observe, as in the 1880s, that all asset prices co-move to a high degree. Unlike the Baring crisis period, during the sub-prime crisis itself, between July 2007 and March 2009, all assets decline together and the co-movement is very high when compared with the 1890's. During the recovery, from April 2009 to December 2010, comovement is lower, and the banks not involved in the sub-prime crisis, MetLife, Toronto Dominion and Wells Fargo seem to be correlated among themselves and less correlated with sub-prime infected banks. Overall, during the pre-crisis period (when asset prices are inflated), we observe a high degree of comovement in both the historical and the modern samples. During the crisis itself, however, there was much less contagion during the Baring crisis than during the sub-prime crisis. Post-crisis recovery periods are characterized by a lower degree of comovement in both periods.

3. The Macroeconomic Environment Then and Now

We now turn to another central difference between the two periods of globalization — the economic fundamentals of the economy at the “core” of the global financial system.

In the previous era of globalization the fundamental financial position of Britain was sound: The British Government did not run persistent deficits and the current account balance was positive at all times, making Britain a net capital exporter and creditor throughout the period (Chart 12). In addition, the British currency, the pound, was extremely stable with a fixed value in terms of gold, made possible by the sound macroeconomic fundamentals of the British economy.

Today, the financial center, the United States, looks very different: The United States Government has been running persistent and large deficits in the years leading to the crisis and the economy as a whole has been characterized for years by persistent current account deficits, making the United States a giant net borrower (Chart 13). Indeed, the United States has been borrowing not only from other rich economies (like Japan), but also from much poorer nations like China, a phenomenon which appears to be in contrast with economic intuition and models. In sharp contrast with the past experience of Britain, whose capital exports increased during the pre-World War I period of globalization, the United States has been increasing its foreign debt (capital imports) since the 1980s. In recent years, these macroeconomic imbalances have shaken (some of) the confidence in the dollar as the world's leading currency and there is occasional talk of its eventual replacement by the euro or even, in the not-so-distant future, by the Chinese *Renminbi* (yuan). Chart 14 shows the secular decline of the dollar since the end of the Bretton Woods system.

Perhaps pushing this comparison to an extreme degree, historically, Britain ceased to be the financial center of the world following World War I precisely when its economic characteristics started to resemble some of those of the US economy today: the British Government started running budget deficits (during the War) and became a net borrower

(from the United States); its currency, the British pound, depreciated in value because the macroeconomic imbalances experienced by the British economy were so severe that adherence to a fixed exchange rate regime was no longer possible. Although one could argue that the British Empire lasted for another 25 years or so after this period, it is easy to associate the beginning of its end with the emergence of these economic phenomena.

4. Conclusions

The comparison with the previous era of globalization suggests that globalization *per se* is neither the cause of the current crisis, nor the source of the economic difficulties faced by many countries around the world today. The crisis is exacerbated and spread globally to an extreme extent by factors which make financial contagion much more prevalent today than it was in the past; from our historical perspective, this is not an inherent flaw of globalization, but a feature of financial globalization as we experience it today. Following Saiegh (2010), the historical comparison outlined here suggests that problems in the US financial system are also not at the root of the crisis: regulation of (some) financial institutions in the United States in recent years has been poor, but regulation of financial institutions in Britain around the turn of the twentieth century was even poorer. Incentive problems may have adversely affected the behavior (and bailout) of present-day financial institutions on Wall Street, but these problems certainly existed during the Baring crisis of 1890. The most striking difference between today's international financial system and that of the pre-World War I era is, in our view, that the financial core, the United States, is fundamentally much more unstable than Britain was at the time. We regard the problems

within the US economy, sub-prime loans, the collapse of Lehman Brothers and AIG and so forth, as symptoms of this instability rather than its cause.

Historically, there is no dispute that the Bank of England, acting as a lender of last resort, succeeded in stabilizing the London financial market in November 1890, whereas the Federal Reserve allowed Lehman Brothers to fail and evidently sent financial markets and the world economy into a tailspin. We argue, however, that the success of the Bank of England in quickly stabilizing the financial markets by attracting gold reserves to London and by injecting liquidity probably stemmed from the beliefs of market participants that its actions would stabilize the financial market — a belief that rested on the stability of British macroeconomic fundamentals. By contrast, the injection of liquidity by the Federal Reserve was apparently less credible, presumably because the high US debt to GDP ratio. In hindsight, the actions of the Bank of England on November 1890 were surely the required ones, but had the financial core at the time been as unstable as the US is today, these actions may have not sufficed. The cure to the crisis will therefore not be found in new regulation of financial markets (although some new regulation will probably be helpful); the cure to the crisis will most certainly not be found in restricted capital flows and reduced globalization. Instead, future financial stability will be achieved only when the fundamental imbalances in the US economy are addressed, so as to make the financial “core” of today’s era of globalization as stable as the financial “core” of yesterday.

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Table 1: The Macroeconomic Magnitudes of the Baring Crisis and the Current Crisis

UK figures in millions of pounds, US figures in billions of US dollars. Problematic assets are defined as defaulted mortgage-based securities, 2007-8 figures based on reports in the financial press, e.g. Bloomberg, May 17, 2008.

	Baring Crisis		Sub-prime Crisis
UK GDP	1,442	US GDP	14,061
Value of Latin American debt	140	Value of sub-prime related assets	1,400
Latin American debt relative to GDP	9.8%	Sub-prime related assets relative to GDP	10.0%
Value of Argentinean bonds	49	Value of problematic sub-prime assets	475
Argentinean bonds relative to GDP	3.4%	Problematic sub-prime assets relative to GDP	3.3%
Value of Baring's balance sheet "difficulties"	21	Value of Lehman Brothers' problematic balance sheet assets	175
Baring's balance sheet "difficulties" relative to GDP	1.5%	Lehman Brothers' problematic balance sheet assets relative to GDP	1.2%

Table 2: Collapse and Recovery of Bonds Prices – November 11 to November 27, 1890Source: *Investor's Monthly Manual*, December 31, 1890

Country/ bond	Price on November 11th	Price on November 19th	Percent change	Price on November 27th	Percent change
Argentina 1884 5%	80.00	67.50	-15.6	75.00	+11
Brazil 1889 4%	89.00	77.00	-13.5	81.00	+5.2
Mexico 6%	91.50	86.00	-6.0	92.00	+7.0
Uruguay 5%	53.00	39.00	-26.4	54.00	+38.5
Greece 1881-4 5%	89.25	86.50	-3.1	91.00	+5.2
Hungary Gold rentes	89.50	87.50	-2.2	89.50	+2.3
Italy 5% rentes	92/00	91.00	-1.1	92.50	+1.6
Portugal 3%	56.25	53.75	-4.5	56.25	+4.6
Russia 4%	97.50	96.75	-0.8	97.00	+0.3

Table 3: Selected Asset Price Correlations, London: 1884-1894

Source: *Investor Monthly Manual*. Portfolio value is from Mauro, Sussman and Yafeh (2006).
Monthly data – end of month

Panel A -1884:7-1894:6					
	London and River Plate	Argentina bond	Lloyds Bank	London and Westminster Bank	Portfolio of emerging market bonds
London and River Plate	1.00	-0.02	0.67	0.16	0.85
Argentina bond	-0.02	1.00	-0.45	0.34	-0.37
Lloyds Bank	0.67	-0.45	1.00	0.36	0.65
London and Westminster Bank	0.16	0.34	0.36	1.00	-0.19
Portfolio of emerging market bonds	0.85	-0.37	0.65	-0.19	1.00
Average all assets	0.20				
Average Banks	0.39				
Panel B -1886:1-1888:12					
	London and River Plate	Argentina bond	Lloyds Bank	London and Westminster Bank	Portfolio of emerging market bonds
London and River Plate	1.00	0.88	0.74	0.85	0.70
Argentina bond	0.88	1.00	0.55	0.79	0.59
Lloyds Bank	0.74	0.55	1.00	0.56	0.66
London and Westminster Bank	0.85	0.79	0.56	1.00	0.45
Portfolio of emerging market bonds	0.70	0.59	0.66	0.45	1.00
Average all assets	0.68				
Average Banks	0.72				

Table 3 – continued

Panel C - 1889:7-1891:5					
	London and River Plate	Argentina bond	Lloyds Bank	London and Westminster Bank	Portfolio of emerging market bonds
London and River Plate	1.00	0.72	0.05	0.35	0.47
Argentina bond	0.72	1.00	-0.08	0.30	0.42
Lloyds Bank	0.05	-0.08	1.00	0.11	0.47
London and Westminster Bank	0.35	0.30	0.11	1.00	0.32
Portfolio of emerging market bonds	0.47	0.42	0.47	0.32	1.00
Average all assets	0.31				
Average Banks	0.17				
Panel D - 1891:8-1893:6					
	London and River Plate	Argentina bond	Lloyds Bank	London and Westminster Bank	Portfolio of emerging market bonds
London and River Plate	1.00	0.64	-0.72	-0.70	0.90
Argentina bond	0.64	1.00	-0.33	-0.45	0.54
Lloyds Bank	-0.72	-0.33	1.00	0.68	-0.65
London and Westminster Bank	-0.70	-0.45	0.68	1.00	-0.64
Portfolio of emerging market bonds	0.90	0.54	-0.65	-0.64	1.00
Average all assets	-0.07				
Average Banks	-0.24				

Table 4: Bank Share Price Correlations, New York: 2001-2010

Panel A -2001:1-2010:12							
	Bank of America	BNP	Deutsche Bank	Lehman Brothers	MetLife	Toronto Dominion	Wells Fargo
Bank of America	1.00	0.49	0.70	0.92	0.54	-0.02	0.64
BNP	0.49	1.00	0.88	0.55	0.94	0.80	0.82
Deutsche Bank	0.70	0.88	1.00	0.81	0.89	0.55	0.77
Lehman Brothers	0.92	0.55	0.81	1.00	0.62	0.07	0.58
MetLife	0.54	0.94	0.89	0.62	1.00	0.77	0.81
Toronto Dominion	-0.02	0.80	0.55	0.07	0.77	1.00	0.60
Wells Fargo	0.64	0.82	0.77	0.58	0.81	0.60	1.00
Average all assets	0.65						
Panel B - 2003:1-2006:12							
	Bank of America	BNP	Deutsche Bank	Lehman Brothers	MetLife	Toronto Dominion	Wells Fargo
Bank of America	1.00	0.93	0.90	0.83	0.89	0.88	0.95
BNP	0.93	1.00	0.98	0.95	0.95	0.96	0.95
Deutsche Bank	0.90	0.98	1.00	0.95	0.93	0.95	0.94
Lehman Brothers	0.83	0.95	0.95	1.00	0.95	0.97	0.88
MetLife	0.89	0.95	0.93	0.95	1.00	0.98	0.92
Toronto Dominion	0.88	0.96	0.95	0.97	0.98	1.00	0.92
Wells Fargo	0.95	0.95	0.94	0.88	0.92	0.92	1.00
Average all assets	0.93						

Table 4 continued

Panel C - 2007:7 2009:3							
	Bank of America	BNP	Deutsche Bank	Lehman Brothers	MetLife	Toronto Dominion	Wells Fargo
Bank of America	1.00	0.95	0.94	0.88	0.95	0.94	0.81
BNP	0.95	1.00	0.94	0.81	0.96	0.97	0.74
Deutsche Bank	0.94	0.94	1.00	0.94	0.95	0.94	0.61
Lehman Brothers	0.88	0.81	0.94	1.00	0.85	0.85	0.52
MetLife	0.95	0.96	0.95	0.85	1.00	0.97	0.73
Toronto Dominion	0.94	0.97	0.94	0.85	0.97	1.00	0.69
Wells Fargo	0.81	0.74	0.61	0.52	0.73	0.69	1.00
Average all assets	0.86						
Panel D - 2009:4-2010:12							
	Bank of America	BNP	Deutsche Bank	Lehman Brothers	MetLife	Toronto Dominion	Wells Fargo
Bank of America	1.00	0.58	0.68	0.70	0.39	0.36	0.67
BNP	0.58	1.00	0.75	0.54	0.03	0.16	0.37
Deutsche Bank	0.68	0.75	1.00	0.57	0.05	0.03	0.37
Lehman Brothers	0.70	0.54	0.57	1.00	0.18	0.06	0.39
MetLife	0.39	0.03	0.05	0.18	1.00	0.89	0.76
Toronto Dominion	0.36	0.16	0.03	0.06	0.89	1.00	0.67
Wells Fargo	0.67	0.37	0.37	0.39	0.76	0.67	1.00
Average all assets	0.44						

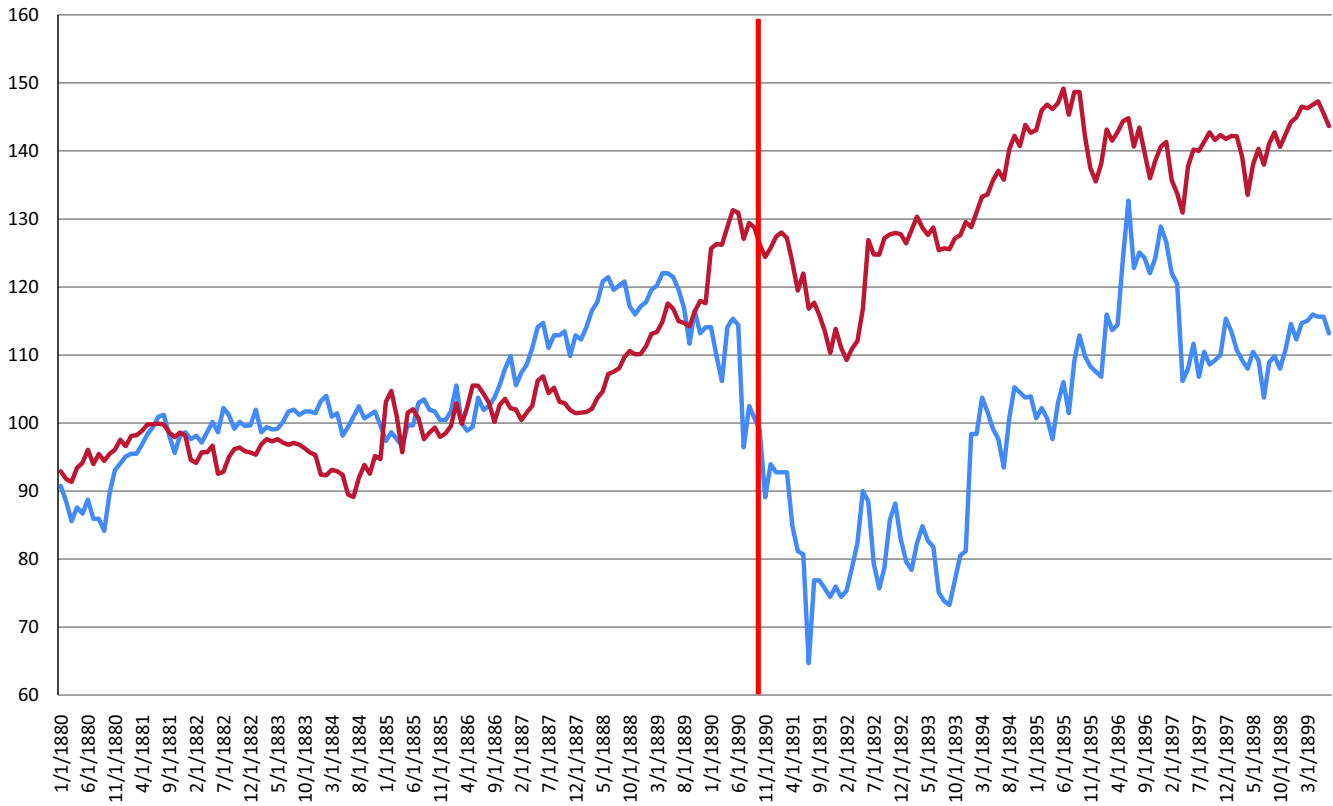
Appendix: Write-downs of Banks in Sub-Prime Crisis

Source: <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aK4Z6C2kXs3A&refer=home>

Firm		Write down	Credit Loss	Total
TOTALS*		332.3	46.9	379.2
Citigroup		37.3	5.6	42.9
UBS		38.2		38.2
Merrill	Lynch	37		37
HSBC		6.9	12.6	19.5
IKB	Deutsche	16		16
Royal Bank of Scotland	Bank	15.2		15.2
Bank of America	of	9.2	5.7	14.9
Morgan	Stanley	12.6		12.6
JPMorgan	Chase	5.5	4.2	9.7
Credit	Suisse	9.5		9.5
European	banks	9.2		9.2
Washington	Mutual	1.1	8	9.1
Credit	Agricole	8.3		8.3
Asian banks not		7.5	0.3	7.8
Deutsche	Bank	7.7		7.7
Wachovia		4.6	2.4	7
HBOS		6.9		6.9
Bayerische	Landesbank	6.7		6.7
Fortis		6.6		6.6
Societe	Generale	6.3		6.3
Mizuho	Financial	6.2		6.2
ING	Groep	6		6
Barclays		5.2		5.2
WestLB		4.8		4.8
Canadian	Imperial	4.2		4.2
North	American banks	3	1.1	4.1
LB	Baden-Wuerttemberg	4		4
E*Trade		2.5	0.9	3.4
Dresdner		3.4		3.4
Natixis		3.4		3.4
Wells	Fargo	0.6	2.7	3.3
Lehman	Brothers	3.3		3.3
Bear	Stearns	3.2		3.2
National	City	0.5	2.6	3.1

Goldman	Sachs	3		3
BNP	Paribas	2.1	0.6	2.7
Lloyds	TSB	2.7		2.7
Nomura	Holdings	2.5		2.5
HSH	Nordbank	2.5		2.5
ABN	Amro	2.4		2.4
Bank of China		2		2
Commerzbank		1.9		1.9
Royal Bank of Canada		1.7		1.7
UniCredit		1.6		1.6
DZ	Bank	1.5		1.5
Alliance & Leicester		1.4		1.4
Dexia		1.1	0.2	1.3
Caisse	d'Epargne	1.2		1.2
Hypo Real Estate	Real	1		1
Gulf	International	1		1

Chart1
Sovereign Bond Prices: Argentina and a Portfolio of Emerging Markets

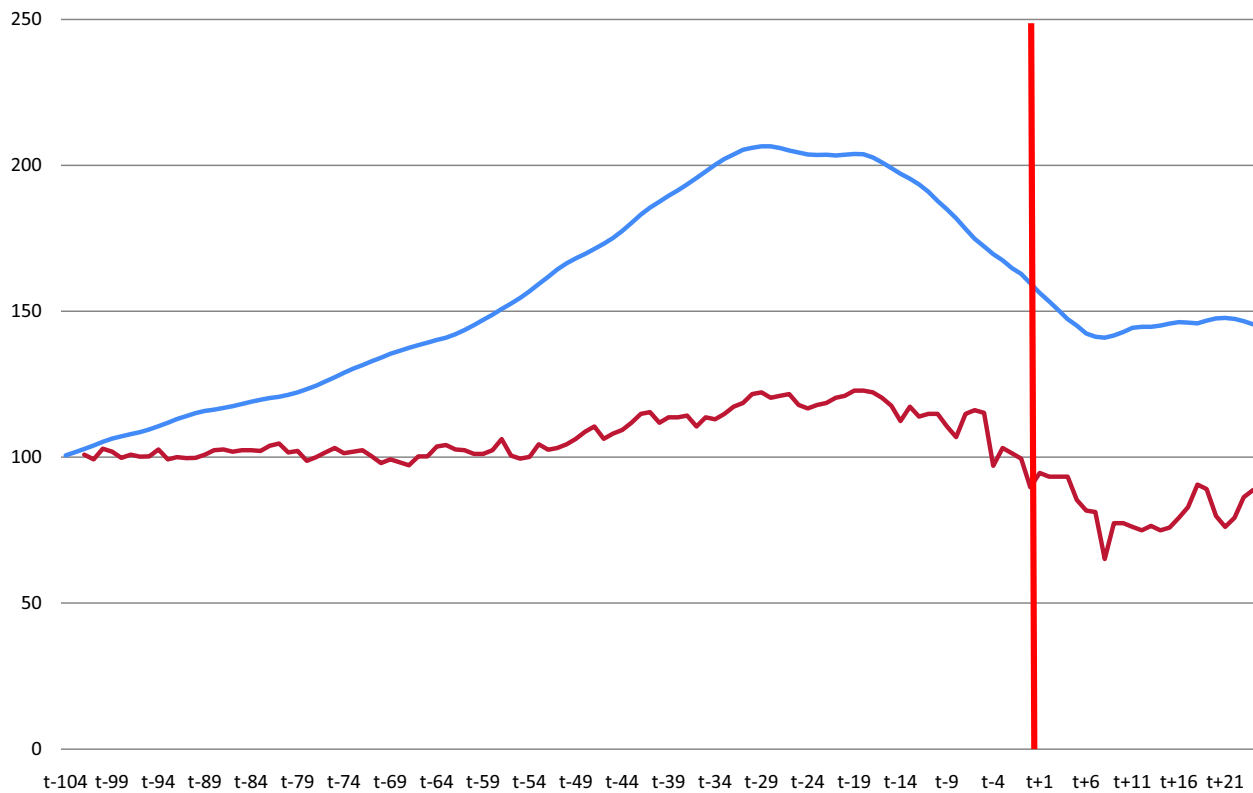


Source: Investor's Monthly Manual, see Mauro, Sussman, Yafeh (2006)

Monthly data - end of month index prices, Index:

— Argentina — Portfolio of Emerging Markets

Chart 2
Trends in Underlying Asset Prices - US Housing and Argentine bonds

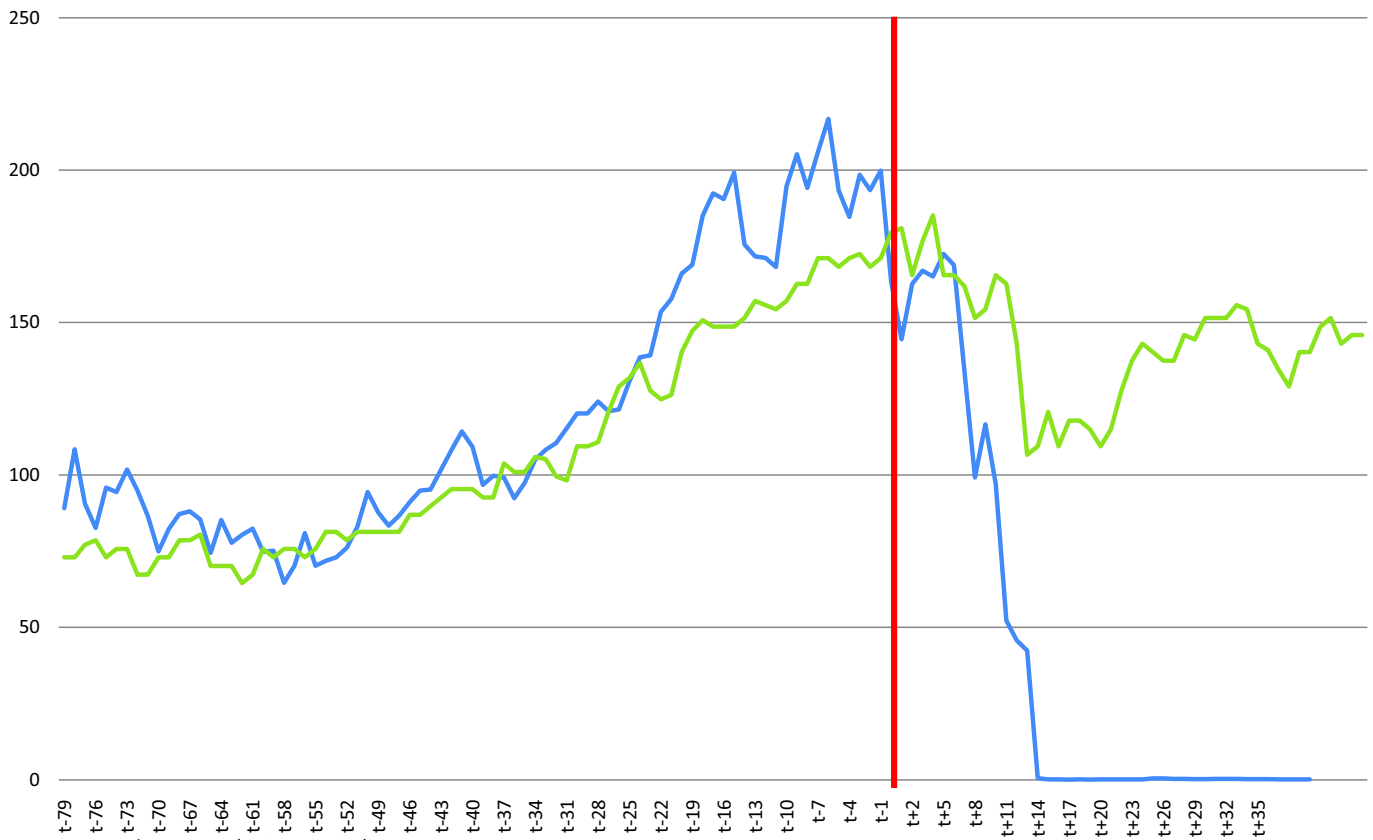


Sources: FRED, IMM (various issues)
 Monthly data; t = 11/1890 and 9/2008
 Index: 1882 and 2000=100

— Case Shiller housing price index — Argentina bond price

Chart3

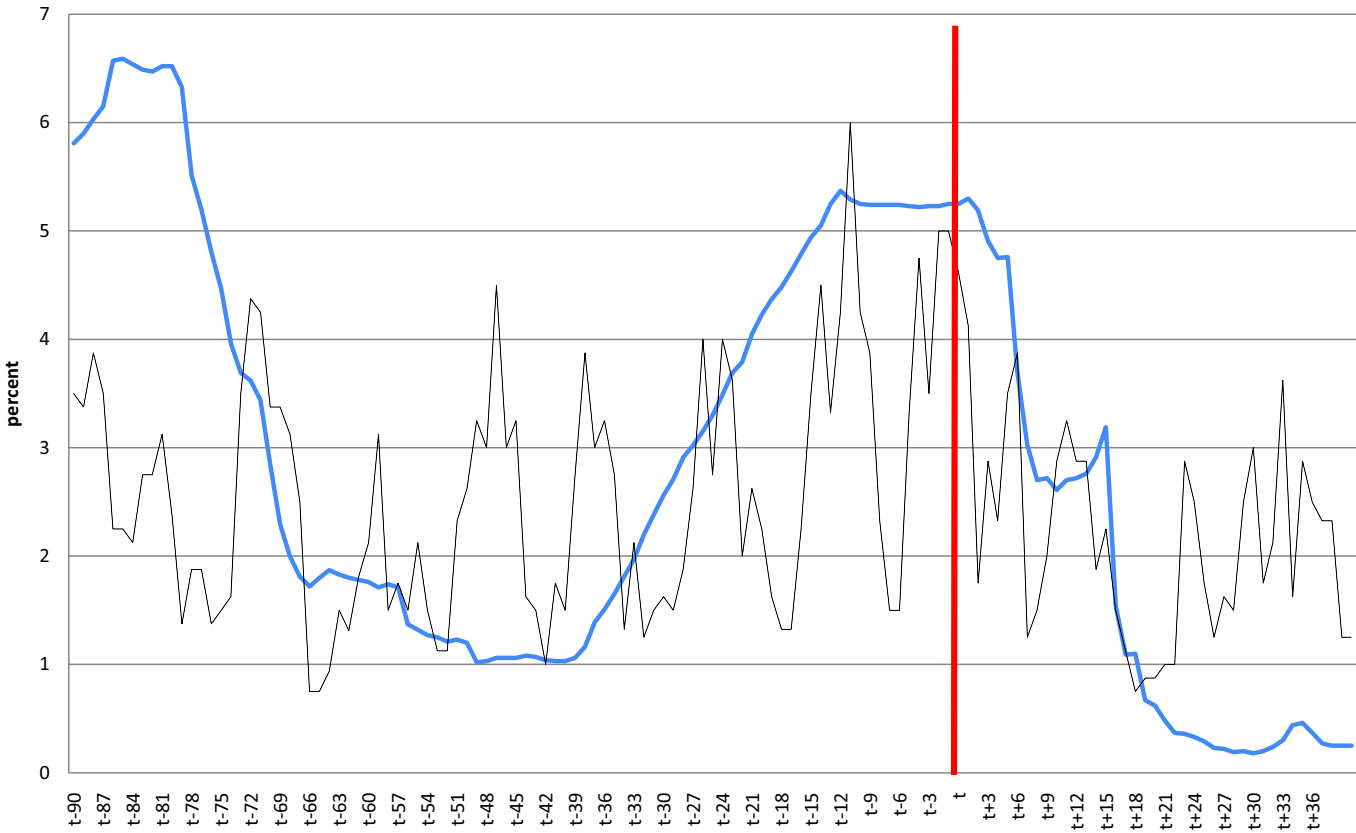
Stock Prices - Crisis-affected Banks, Then and Now



Sources: Nasdaq, Times (various issues)
 Monthly data end of month ; t = 11/1890 and 7/2007
 Index: ;1887 and 2005=100

— Lehman Brothers — London and River Plate

Chart 4
90-Day Commercial Paper Rates: London and New York



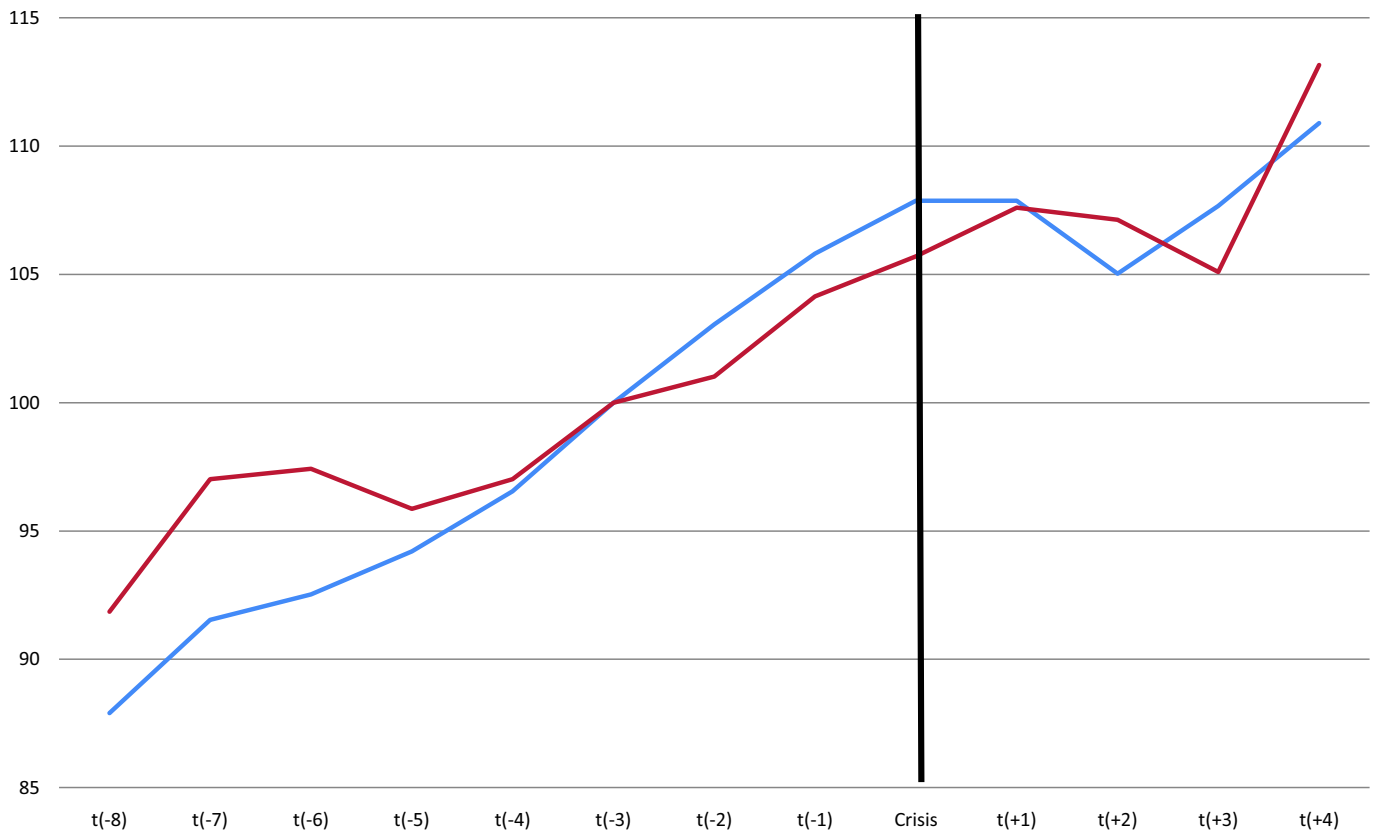
Sources: FRED , IMM (various issues)

Monthly data ; Monthly average t = 11/1890 and 7/2007

— 3 Month commercial paper New York

— 3 Month commercial paper London

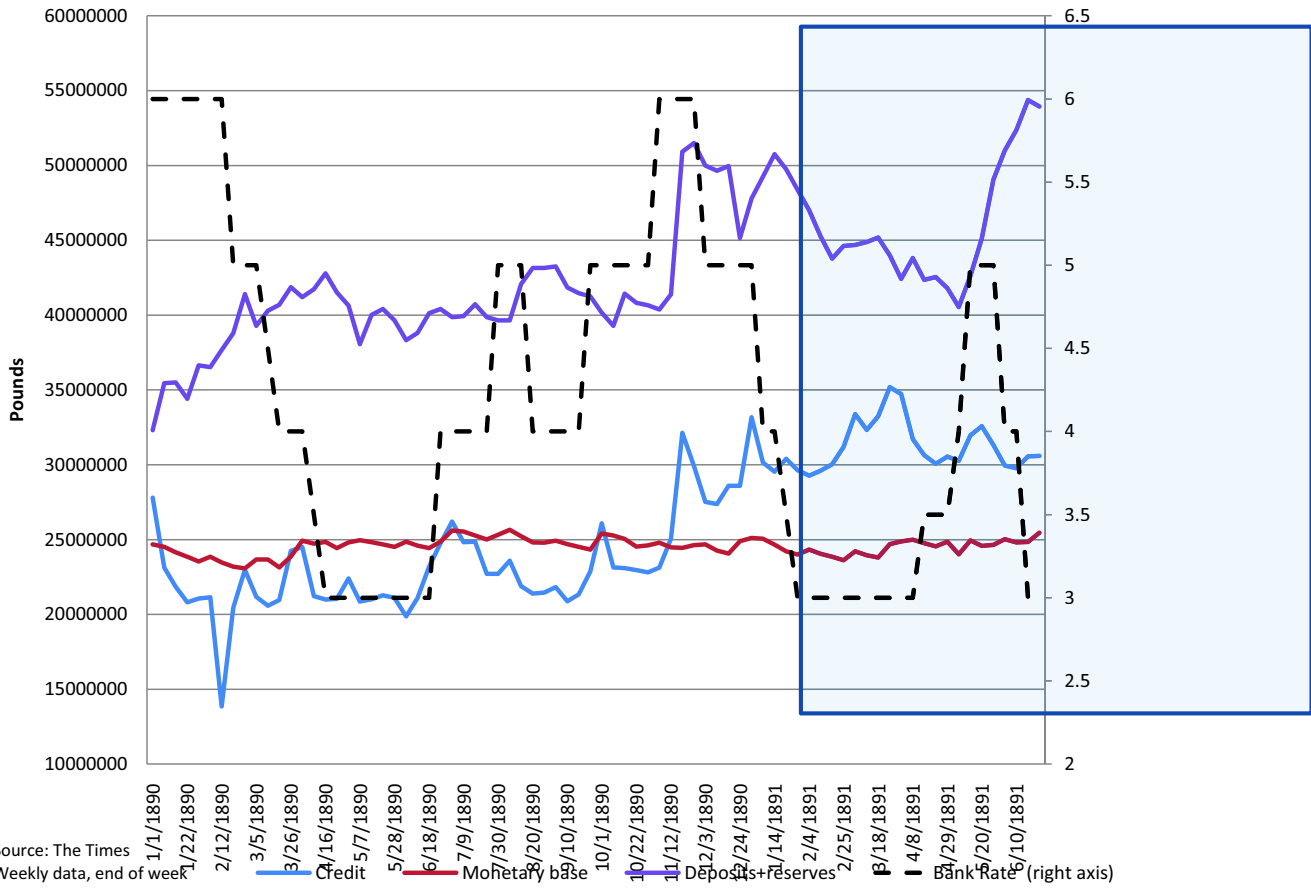
Chart 5
Real GDP: UK and US



Sources: FRED , Mitchell (1988)
Annual data; t = 1891 and 2007
Index; 1887 AND 2005 = 100

— US — UK

Chart 6
Bank of England Intervention During the Baring Crisis



Source: The Times
 Weekly data, end of week

Chart 7
London and Paris 90- day Market Rates

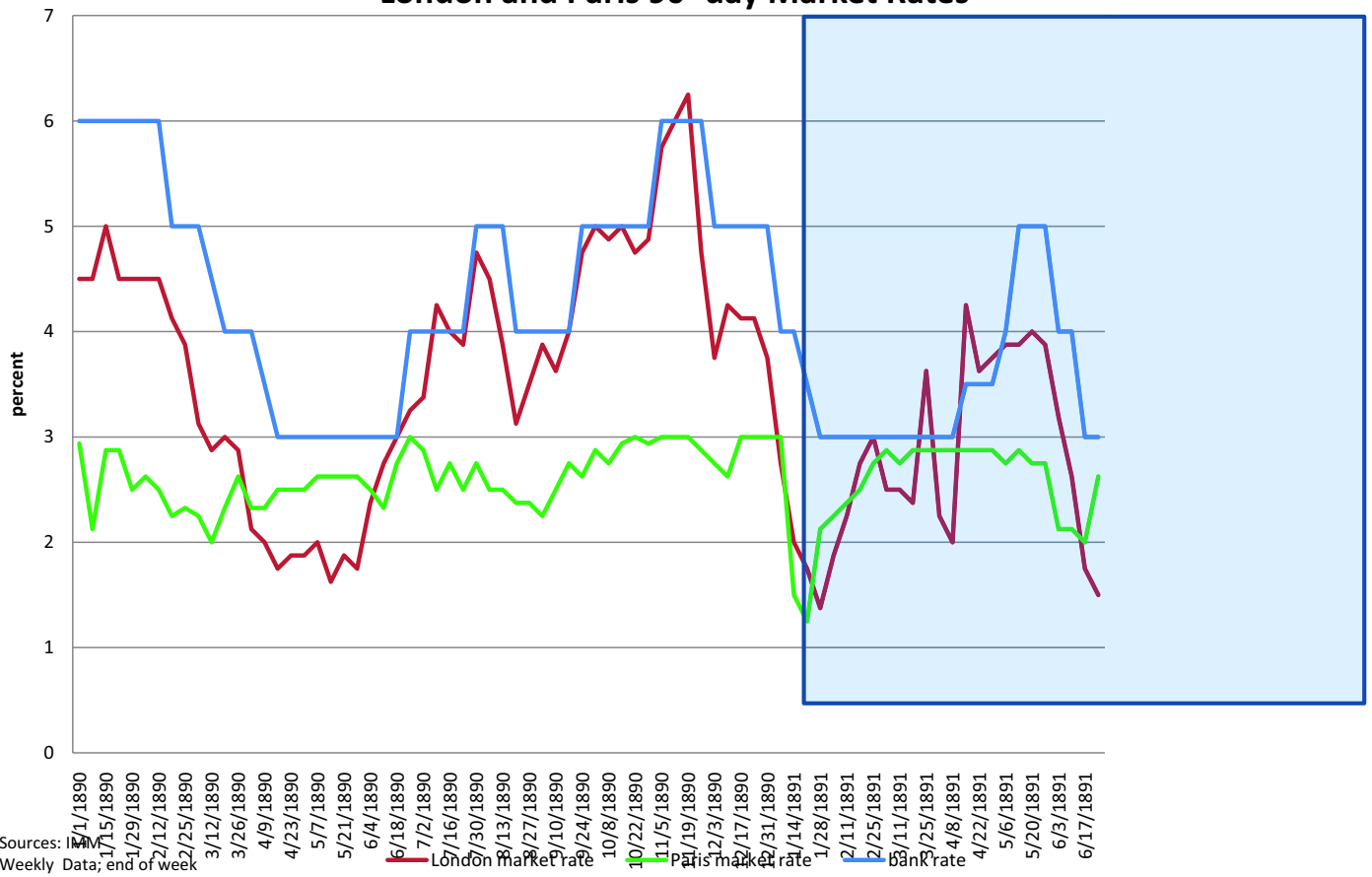
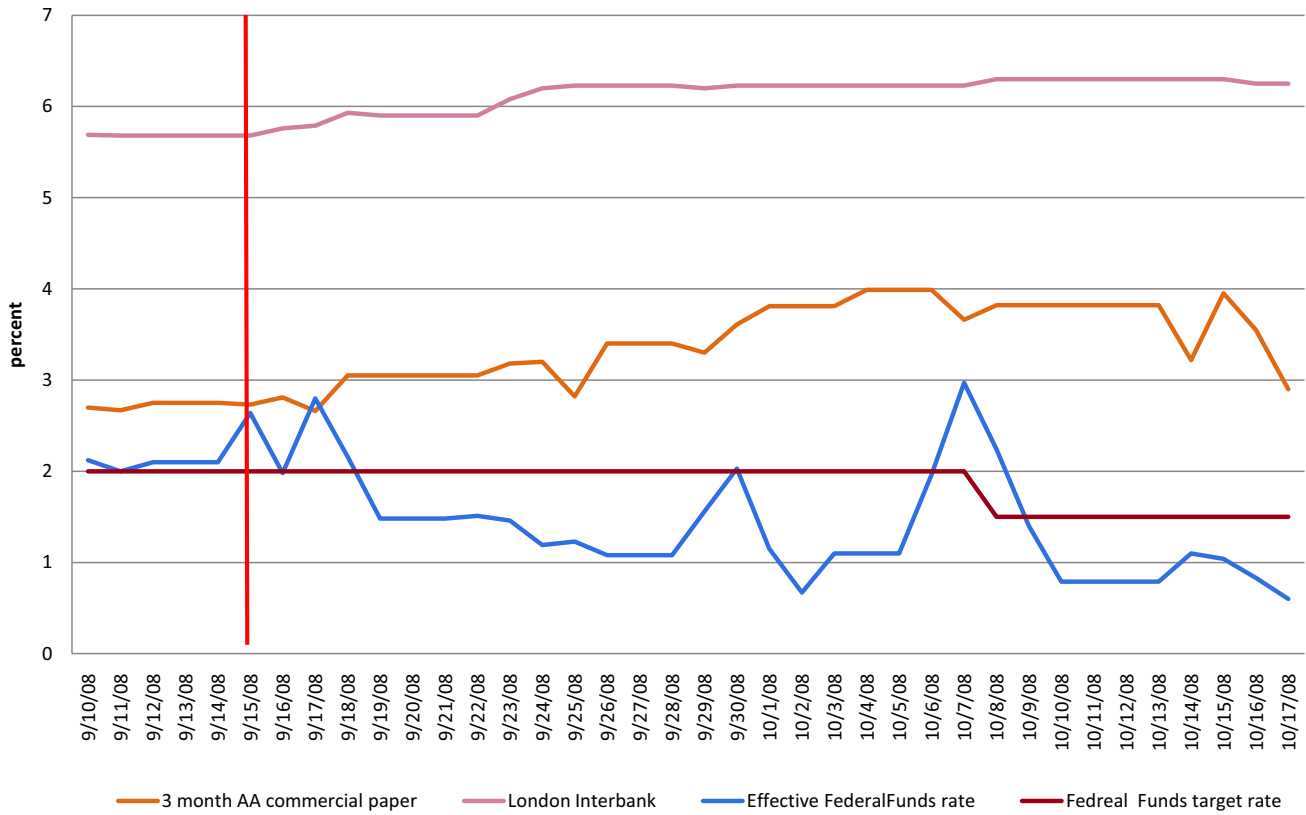


Chart 8
Market and Federal Reserve Interest Rates - Lehman Brothers Crisis



Sources: FRED
 Daily Data

Chart 9 Federal Reserve Bank Actions during the Lehman Brothers Crisis

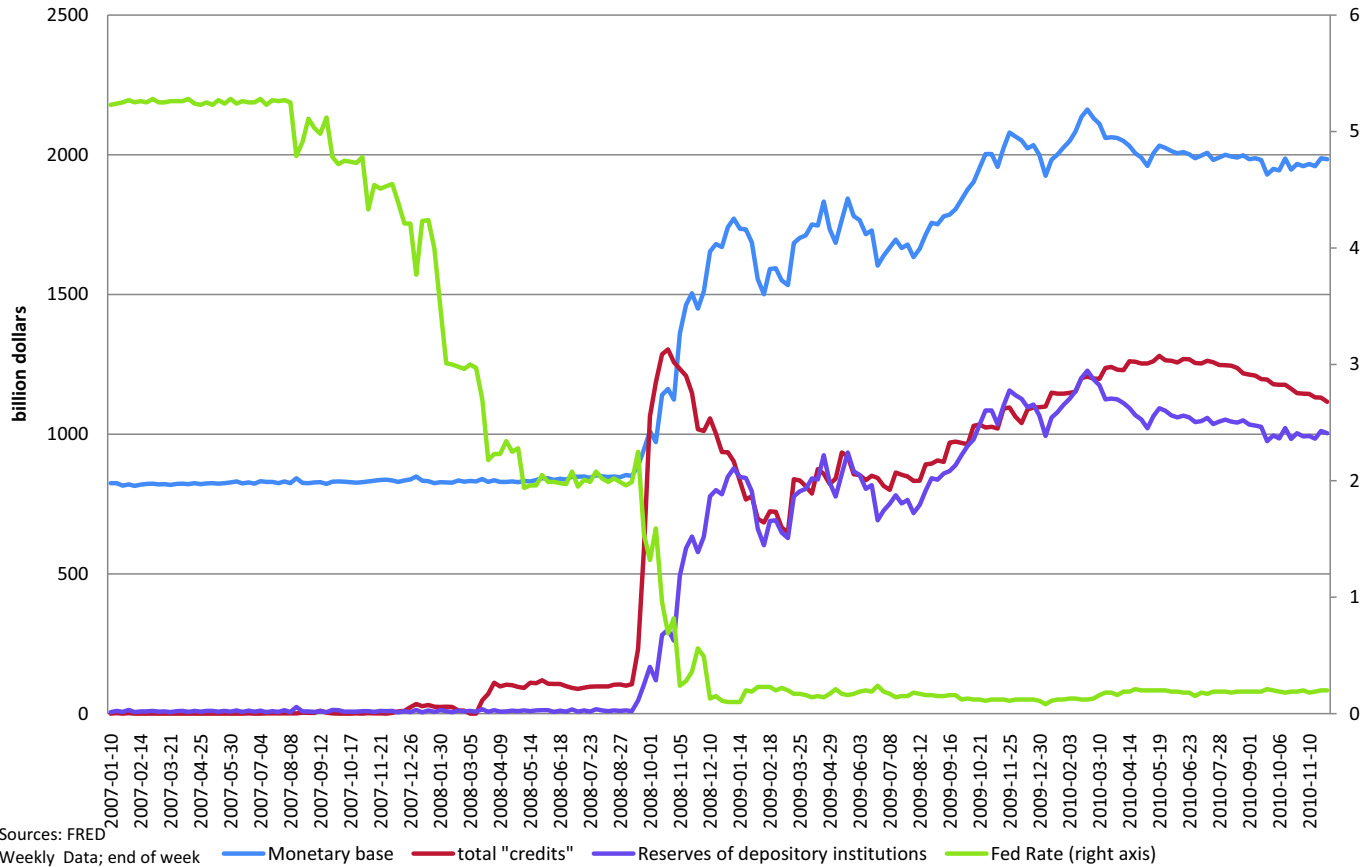
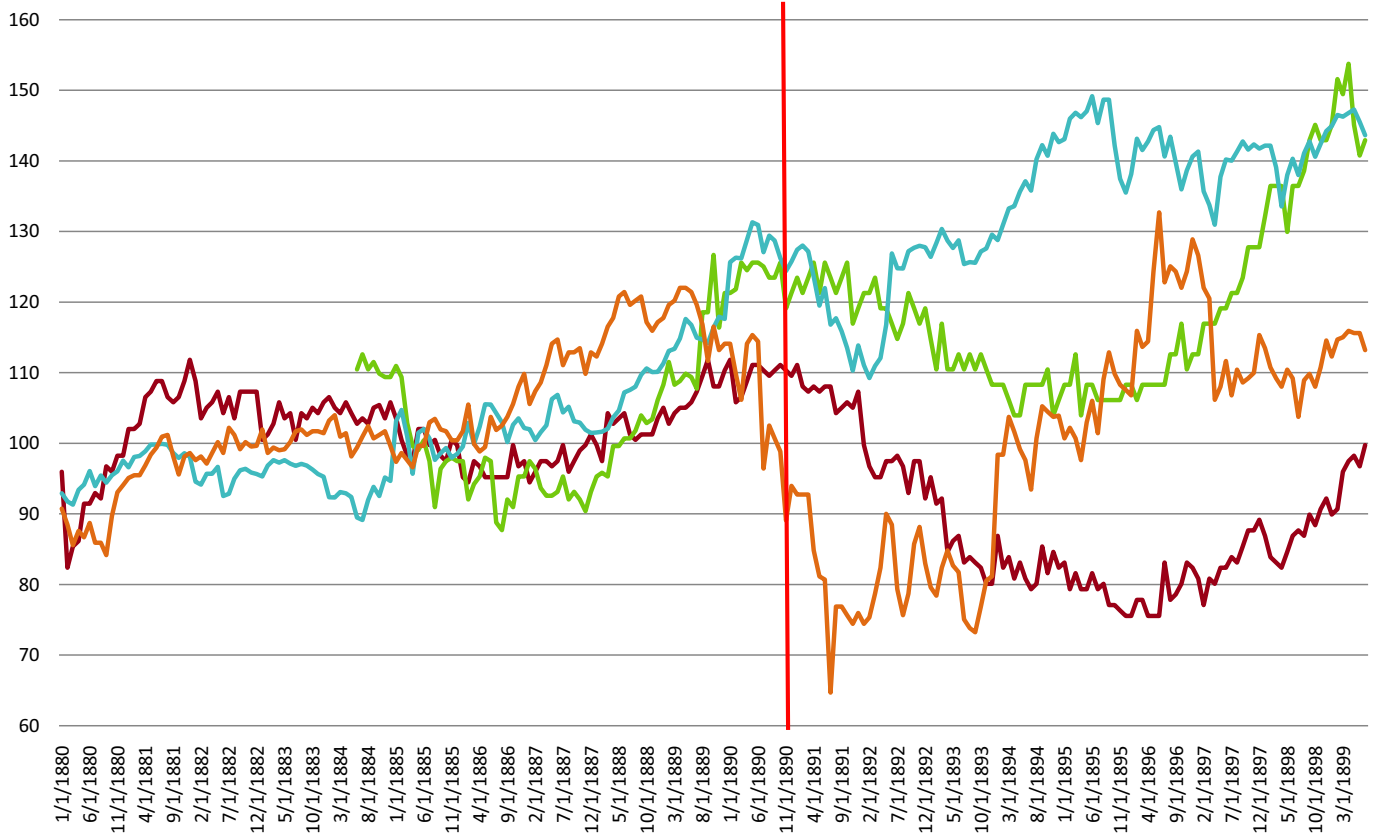


Chart 10
Selected Asset Prices, London 1880-1890



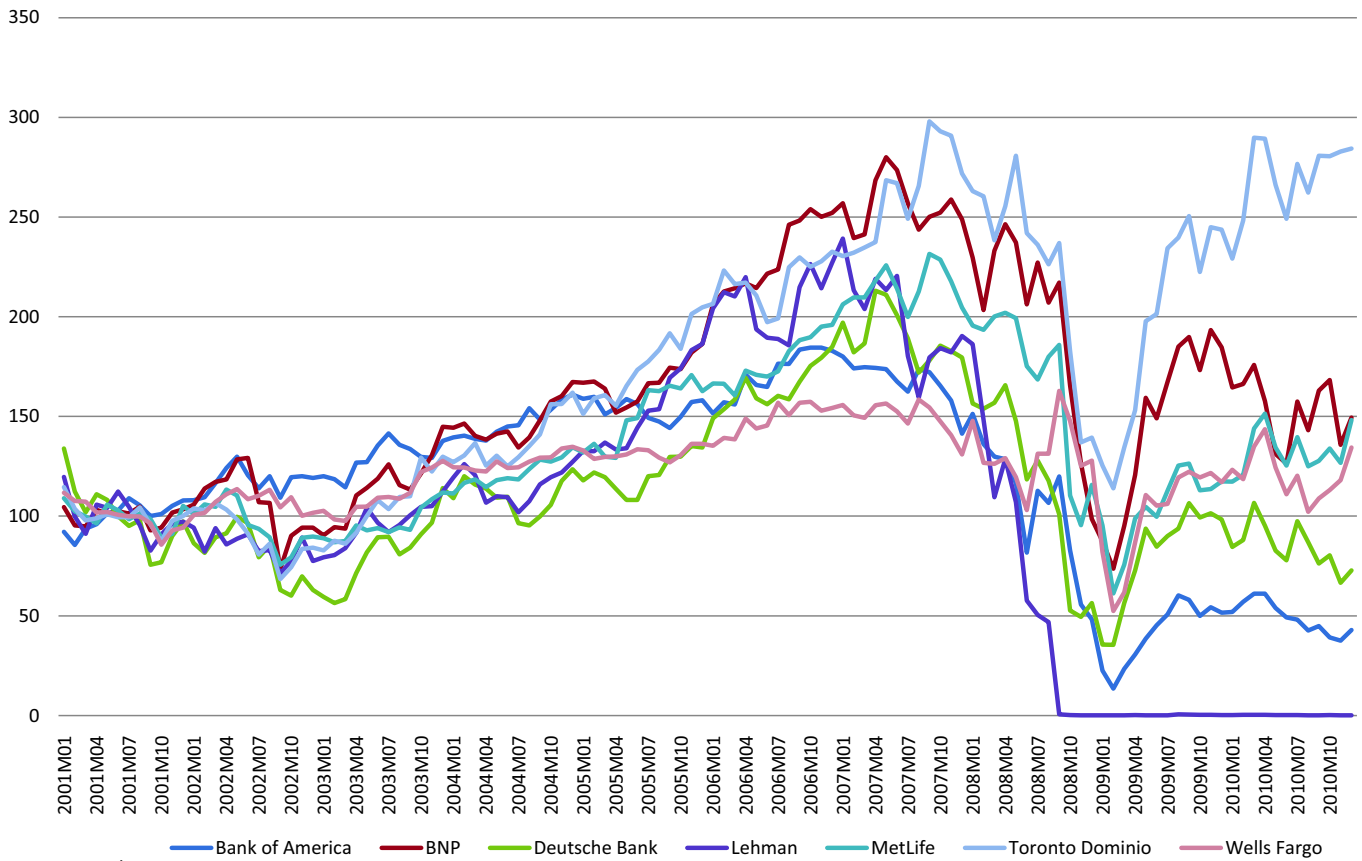
Source: IMM and , see Mauro, Sussman, Yafeh (2008)

Monthly data - end of month

Index: 1881=100

— London and Westminster — Lloyds — Portfolio of Emerging Markets — Argentina

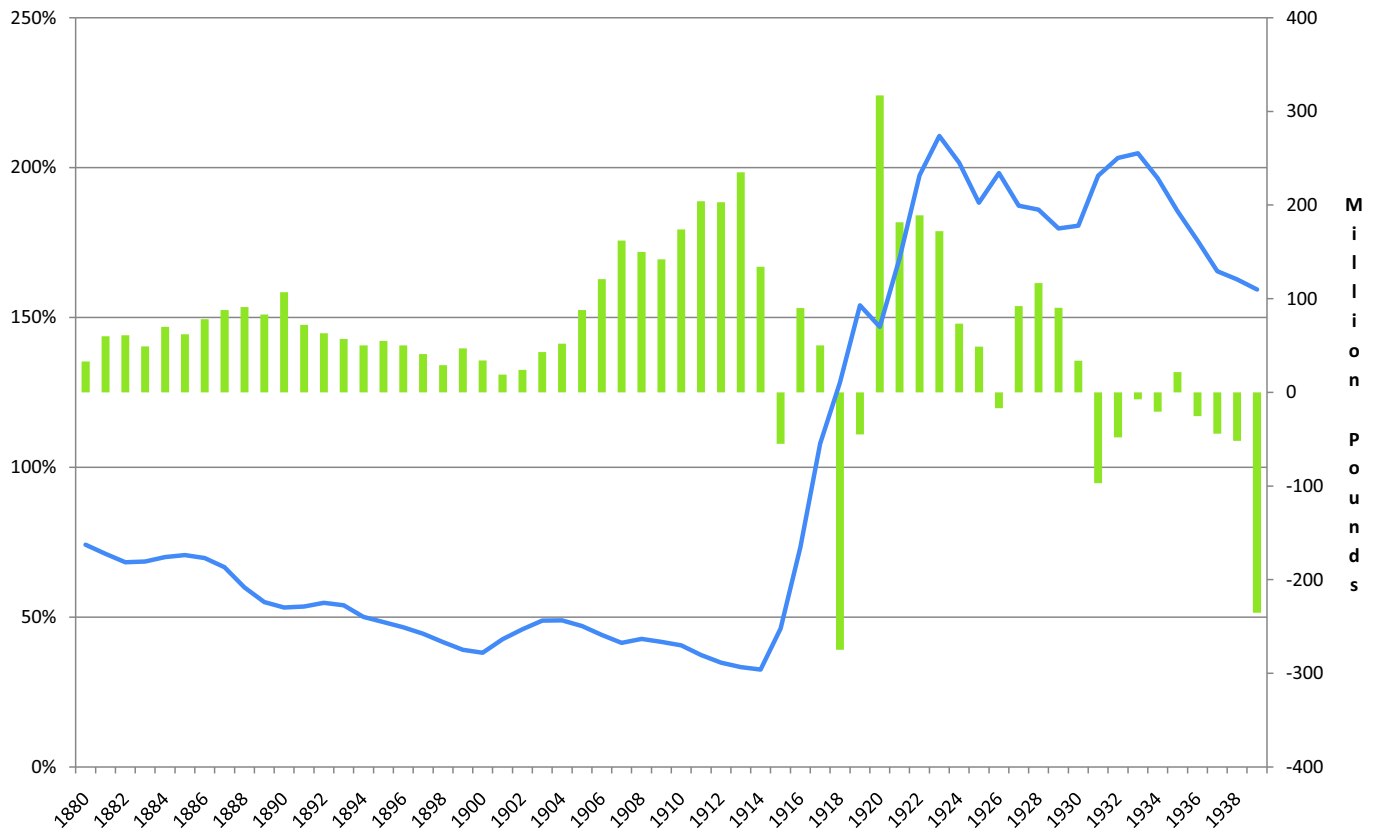
Chart 11
Banks Share Prices, New York 2001-2010



Sources: Nasdaq

Monthly data end of month Index: 2001=100

Chart 12
UK Current Account and Debt to GDP, 1880-1937



Source: Mitchel (1988)
 Annual data

■ UK Current account surplus — Debt to GDP

Chart 13
US Current Account and Debt to GDP, 1960-2008

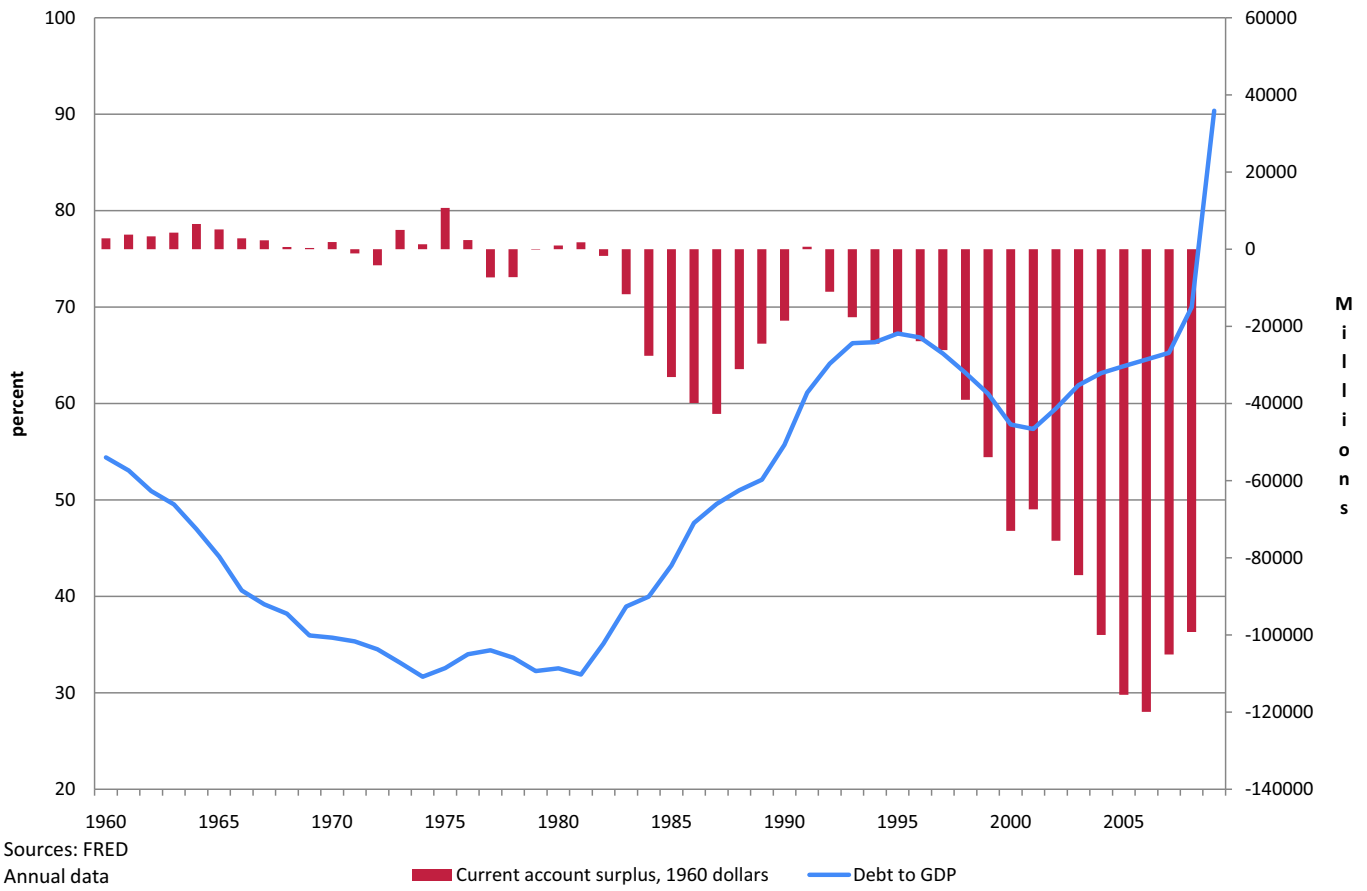
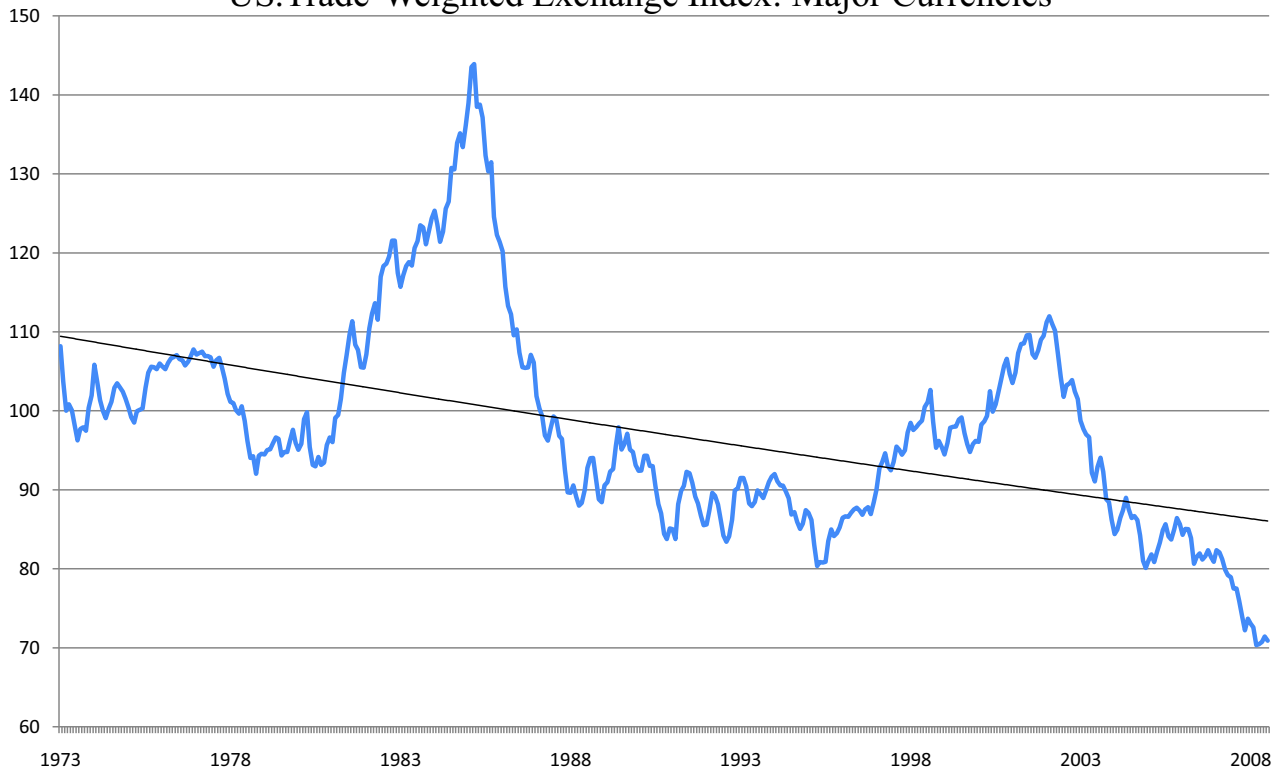


Chart 14
US.Trade-Weighted Exchange Index: Major Currencies



Sources: FRED
Monthly data daily averages Index: March 1973=100