

NBER WORKING PAPER SERIES

AN HISTORICAL PERSPECTIVE ON THE CRISIS OF 2007-2008

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Working Paper 14569

<http://www.nber.org/papers/w14569>

NATIONAL BUREAU OF ECONOMIC RESEARCH

1050 Massachusetts Avenue

Cambridge, MA 02138

December 2008

Remarks prepared for the Central Bank of Chile Twelfth Annual Conference on Financial Stability, Monetary Policy and Central Banking, Santiago, Chile November 6-7 2008. The views expressed herein are those of the author(s) and do not necessarily reflect the views of the National Bureau of Economic Research.

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NBER Working Paper No. 14569  
December 2008  
JEL No. N10

**ABSTRACT**

This paper provides an historical perspective on the crisis of 2007-2008. The crisis is part of a perennial pattern. It has echoes in earlier big international financial crises which were triggered by events in the U.S. financial system. Examples include the crises of 1857, 1893 1907 and 1929-33. This crisis has many similarities to those of the past but also some important modern twists.

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## An Historical Perspective on the Crisis of 2007-2008

The current international financial crisis is part of a perennial pattern. Today's events have echoes in earlier big international financial crises which were triggered by events in the U.S. financial system. Examples include the crises of 1857, 1893, 1907 and 1929-1933. This crisis has many similarities to those of the past but also some important modern twists.

The crisis started in the U.S. with the collapse of the subprime mortgage market in early 2007 and the end of a major housing boom. It occurred following two years of rising policy interest rates. Its causes include major changes in regulation, lax oversight, relaxation of normal standards of prudent lending and a prolonged period of abnormally low interest rates. Defaults on mortgages spread to investment banks and commercial banks in the U.S. and across the world via an elaborate network of derivatives. It has recently spilled over into the real economy through a virulent credit crunch and collapsing equities market which will likely produce a significant recession. The Fed and other central banks have responded in a classical way by flooding the financial markets with liquidity and the fiscal authorities are also dealing with the decline in solvency in the banking system following the template of earlier bailouts like the Reconstruction Finance Corporation in the 1930s, Sweden in 1992 and Japan in the late 1990s.

This paper provides an historical perspective on the current crisis, contrasts the old with the modern and offers some lessons for policy. Section 1 describes the crisis in a bit more detail. Section 2 provides some descriptive empirical evidence putting the crisis in long-

run perspective. Section 3 presents some modern parallels and modern twists of the crisis. Section 4 discusses some of the issues in historical perspective for the emerging market economies. Finally, section 5 concludes with a discussion of some of the historical lessons for policy.

## 1. The Crisis

The crisis occurred following two years of rising policy interest rates. Its causes include : major changes in regulation, lax regulatory oversight, a relaxation of normal standards of prudent lending and a period of abnormally low interest rates . The default on a significant fraction of subprime mortgages produced spillover effects around the world via the securitized mortgage derivatives into which these mortgages were bundled, to the balance sheets of investment banks, hedge funds and conduits( which are bank-owned but off their balance sheets) which intermediate between mortgage and other asset backed commercial paper and long-term securities. The uncertainty about the value of the securities collateralized by these mortgages spread uncertainty about the soundness of loans for leveraged buyouts. All of this led to the freezing of the interbank lending market in August 2007 and substantial liquidity injections subsequently by the Federal Reserve and other central banks.

Since then the Fed both extended and expanded its discount window facilities and cut the funds rate by 300 basis points. The crisis worsened in March 2008 with the rescue of the Investment bank, Bear Stearns, by JP Morgan backstopped by funds from the Federal

Reserve. The rescue was justified on the grounds that Bear Stearns exposure to counterparties was so extensive that a worse crisis would follow if it were not bailed out. The March crisis also led to the creation of a number of new discount window facilities whereby investment banks could access the window and which broadened the collateral acceptable for discounting. The next major event was a Federal Reserve Treasury bailout and partial nationalization of the insolvent GSEs, Fannie and Freddie Mac in July on the grounds that they were crucial to the functioning of the mortgage market.

Events took a turn for the worse in September when the Treasury and Fed allowed the investment bank Lehman Brothers to fail to discourage the belief that all insolvent institutions would be saved in an attempt to prevent moral hazard. It was argued that Lehman was both in worse shape and less exposed to counterparty risk than Bear Stearns. The next day the authorities bailed out and nationalized the insurance giant AIG fearing the systemic consequences for collateralized -default swaps (insurance contracts on securities) if it were allowed to fail. The fallout from the Lehman bankruptcy then turned the liquidity crisis into a full fledged global credit crunch and stock market crash (as well described in Kindleberger's *Manias, Panics and Crashes*) as interbank lending effectively seized up on the fear that no banks were safe.

In the ensuing atmosphere of panic, along with Fed liquidity assistance to the commercial paper market and the extension of the safety net to money market mutual funds, the US Treasury sponsored its Troubled Asset Relief Plan (TARP) whereby \$700 billion could be devoted to the purchase of heavily discounted mortgage backed and other securities to remove them from the banks' balance sheets and restore bank lending. The

bill was initially rejected by the Congress but then after the Senate added on to it many politically popular and expensive items was finally passed a week later in the midst of continued financial turmoil.

In early October the crisis spread to Europe and to the emerging countries as the global interbank market ceased functioning . The UK authorities responded by pumping equity into British banks, guaranteeing all interbank deposits and providing massive liquidity. The EU countries responded in kind. And on October 13 the US Treasury followed suit with a plan to inject \$250 billion into the US banks, to provide insurance of senior interbank debt and unlimited deposit insurance coverage for non interest bearing deposits. Time will tell whether these plans, which are similar to earlier, mainly successful, rescue packages like the RFC in the US in the 1930s and the Swedish and Japanese rescues in the 1990s, may solve the solvency crisis.

## 2. Some Descriptive Historical Evidence

Today's turmoil must be viewed in historical perspective. Figure 1 provides some background evidence for the U.S. over the past century. The upper panel from 1953 to September 2008 , shows the monthly spreads between the Baa corporate bond rate and the ten-year Treasury constant maturity bond rate. The spread, inter alia, represents a measure of the financial market's assessment of credit risk and also a measure of financial instability reflecting asymmetric information ( Mishkin 1991). Figure 2 takes a longer view and shows the Baa corporate bond rate and the Ten year Treasury Composite

bond rate from 1921 to September 2008. Also displayed in both figures are National Bureau of Economic Research ( NBER) recession dates and major financial market events including stock market crashes, financial crises, and some major political events that affected financial markets. The lower panels of Figures 1 and 2 show policy interest rates –the federal funds rate since 1953 and the discount rate for the longer 20<sup>th</sup> century. As can be seen , the peaks in the credit cycle ( proxied by the spreads) are often lined up with the upper turning points in the NBER reference cycles. Also many of the events, especially the stock market crashes and the banking crises of the 1930s, occur close to the peaks. Moreover , the lower panel often shows the policy rate peaking very close to or before the peaks of the credit cycle. Its movements roughly reflect the tightening of policy before the bust and loosening in reaction to the oncoming recession afterwards. As can be seen in the recent crisis, by September 2008 the Baa ten year TCM spread reached levels comparable to that reached in the last recession 2001-2002 and above that of the credit crunch of 1990-91. The Baa Ten year Composite spread was just below the spreads in the early 1980s recession after the Volcker shock and President Carter’s credit restraint program. All of these events were associated with significant recessions.

### 3. Historical Parallels and Modern Twists

Many of the financial institutions and instruments caught up in the crisis are part of the centuries old phenomenon of financial innovation. The new instruments often devised to

avoid regulation, are then proved to be successful or not by the test of financial stress such as we have been recently encountering.

The rise and fall of financial institutions and instruments occurs as part of a long standing pattern of booms and busts in the markets for equities, land , commodities, foreign exchange and other assets. The cycle is financed by credit. Lending booms and busts and the credit cycle are also intimately connected to the business cycle.

A well known tradition in monetary economics which goes back to the nineteenth century and in the twentieth century was fostered by Wesley Mitchell ( 1913), Irving Fisher ( 1933), Hyman Minsky( 1977) ,Charles Kindleberger and others. It tells the tale of a business cycle upswing driven by what Fisher called a displacement ( an exogenous event that provides new profitable opportunities for investment) leading to an investment boom financed by bank money( and accommodative monetary policy) and by new credit instruments –financial innovation. The boom leads to a state of euphoria where investors have difficulty distinguishing sound from unsound prospects and where fraud can be rampant. It can also lead to a bubble characterized by asset prices rising independently from their fundamentals. The boom inevitably leads to a state of overindebtedness, when agents have insufficient cash flow to service their liabilities. In such a situation a crisis can be triggered by errors in judgement by debtors and creditors in an environment changing from monetary ease to monetary tightening. The crisis can lead to fire sales of assets, declining net worths, bankruptcies, bank failures and an ensuing recession. A key dynamic in the crisis stressed by Mishkin(1997) is information asymmetry, manifest in the spread between risky and safe securities, the consequences of



which(adverse selection and moral hazard) are ignored in the boom and come into play with a vengeance in the bust.

Banks played a key role in the traditional story because bank credit in large part financed the boom, and the bust was often accompanied by bank failures and banking panics—events which eventually made the downturn worse. This led to the traditional case for the monetary authority to act as a lender of last resort and provide liquidity at penalty rates to the money market and or discount window lending to solvent but liquid banks.

Countercyclical monetary policy is also an integral part of the boom-bust credit cycle.

Bordo and Wheelock( 2007a, 2007b) using data for the US and 9 other countries for the past century show that stock market booms occur in environments of low inflation, rising real GDP growth and low policy real interest rates. As the boom progresses and inflationary pressure builds up, central banks( before World War II, driven by the gold convertibility constraint) inevitably tighten their policy rates helping to trigger the ensuing crash. The story is similar for housing booms and busts but they follow a different cycle because of long gestation lags in construction and in the adjustment of prices to a collapse in demand ( Leamer 2007).

Stock market crashes can be serious events leading to a decline in wealth and in consumption and also a scramble for liquidity in turn contributing to incipient banking crises. Housing busts also have serious consequences for the banking system via defaults on mortgages, and on the real economy via declining wealth on consumption expenditure, the collapse of residential investment and a financial accelerator effect as net worths decline. The recent housing boom in the US was largely triggered by a long period of abnormally low interest rates, attributed to loose monetary policy from 2001 to 2004 in

reaction to earlier financial turbulence and then fear of deflation and to a global savings glut ( Bernanke 2007). The bust was likely induced by a rise in rates in reaction to the inevitable inflationary pressure.

### The Non Bank Financial Sector, Financial Innovation and Financial Crises

The traditional financial crisis story depicts a shock to a major financial or non financial firm leading to a banking panic as depositors attempt to convert their deposits into currency. More recently, especially since the advent of deposit insurance, the source of the pressure has come from the asset side, rather than the liability side of a bank's balance sheet. Examples include the Penn Central episode in 1970 when the collapse of the railroad led to a panic in the commercial paper market which led, like today to concern by the Fed that it would spill over into the banking system. This led the New York Fed to open the discount window to the money center banks to freely discount non financial firms based on the collateral of sound commercial paper; the Latin American debt default of 1982 when many money center banks became close to insolvent until a massive rescue was orchestrated between the Fed and the IMF; and the collapse of the hedge fund LTCM in 1998 which also was perceived to be a threat to the banking system. LTCM was rescued by a lifeboat operation by the New York banks orchestrated by the New York Fed .An historical precedent was a crisis in the market for bills of exchange that spread from Amsterdam to Hamburg and which like LTCM led to the failure of the principal player and many others ( Schnabel and Shinn 2001).In each case the crisis

broke in the non bank financial sector but spilled over or threatened to spill over onto the banks who were the ultimate creditors.

Many of the financial crises of the past involved financial innovation which increased leverage. The 1763 crisis was centered on the market for bills of exchange, Penn Central on the newly revived ( in the 1960s) commercial paper market, the savings and loan crisis on the junk bond market, LTCM on derivatives and hedge funds.

### Modern Twists

Although there are many historical parallels to the current crisis there are several unique differences. In the most recent episode, the financial innovation derived from the securitization of subprime mortgages and other loans has shifted risk away from the originating banks into mortgage and other asset backed securities which bundle the risk of less stellar borrowers with more credit worthy ones and which were certified by the credit rating agencies as prime. These were absorbed by hedge funds in the US and abroad and in the asset backed commercial paper of the commercial and investment banks. As Rajan ( 2005) presciently argued, shifting the risk away from banks who used to have the incentives to monitor their borrowers to hedge funds and other institutions which do not, rather than reducing overall systemic risk increased it by raising the risk of a much more widespread meltdown in the event of a tail event as we have recently witnessed.

A key modern twist was the growth of the non bank financial sector ( shadow banking system) which was not regulated by the central bank nor covered by the financial safety

net. According to Eichengreen (2008) its rapid growth was a consequence of the repeal in 1999 of the Depression era Glass Steagall Act which separated commercial from Investment banking. These institutions held much lower capital ratios than the traditional commercial banks and hence were considerably more prone to risk. When the crisis hit they were forced to engage in major deleveraging involving the fire sale of assets into a falling market which in turn lowered the value of their assets and those of other financial firms. A similar negative feedback loop occurred during the Great Depression ( Friedman and Schwartz 1963).

#### 4. Prospects for the Emerging Markets

Financial crises have always had an international dimension as Morgenstern( 1959),Kindleberger( 1978) and Bordo( 1986) have shown. Contagion spreads quickly through asset markets, through international banking and through the monetary standard. Stock market crashes and banking panics often have occurred in many countries within a few months of the original shock. A classic example is the Baring crisis of 1890 which started in Argentina and affected the rest of Latin America and other emerging countries of the time. It was triggered by central bank tightening in England, France and Germany. This led to a series of sudden stops and current account reversals ( Bordo 2006) in the emerging countries and a number of banking crises and debt defaults. These events were echoed in the late 1990s ( see Calvo and Talvi 2005).

The current crisis was initially contained to the advanced countries among which contagion was spread by the holding of opaque subprime mortgage derivatives in diverse banks in Europe and elsewhere, and by the seizing up of the asset ( mortgage ) backed commercial paper market. In recent weeks pressure has spilled over to the emerging markets , especially those who are highly indebted to the advanced countries ,with high current account deficits and with significant exposure to the advanced countries boom such as Iceland, Hungary and Ukraine( IMF WEO chapter 1 September 2008). IMF and ECB rescues have been initiated. However many of the Asian countries (and some Latin American countries) have so far avoided the crisis, likely because of the precautionary measures many have taken in reaction to their meltdowns in the Asian crisis of 1997( eg the build up of large foreign exchange reserves and reduced exposure to foreign borrowing.). As the credit crunch continues and the burgeoning recession in the US and Europe plays out, then the emergers that are exposed to foreign capital will be affected as well as countries relying for their growth on exports to the US and Europe.

## 5. Policy Lessons from History

The crisis has implications for monetary policy on the key issues of liquidity, solvency and the stability of the real economy. With respect to liquidity the central banks reacted quickly in the Bagehot manner to deal with the freezing of the interbank markets in August 2007. The ECB flooded the European money market with liquidity as did the Fed which lowered the discount rate by 50 basis points . This suggests they heeded the first

part of Bagehot's lesson to lend freely but not quite on the second part of lending at a penalty rate. The Bank of England until mid 2007 followed a strict interpretation of Bagehot by keeping its discount window open to all comers but at a penalty rate. The subsequent run on Northern Rock on September 14 led to a large infusion of central bank liquidity and the announcement of a temporary complete guarantee of all UK bank deposits. The run on Northern Rock very likely reflected not the failure of the Bank's lender of last resort policy but inadequacies in the UK's provision of deposit insurance, the ill thought out separation of financial supervision and regulation from the central bank and political pressure( Milne and Wood 2008).

Since then the pressure on the interbank market and liquidity in general increased during the winter of 07-08 and in March with the Bear Stearns crisis , the Fed developed a series of new programs for access to the discount window lending including the term auction facility(TAF), The Term security Lending Facility( TSLF) and the Primary Dealer Credit Facility( PDCP).Since March the Fed has also expanded its liquidity provision to the commercial paper market.

These facilities reflected a change in Fed tactics. The change involved provision of credit directly to financial firms that the Fed deemed most in need of liquidity in contrast to delivering liquidity directly to the market by open market purchases of Treasury securities and leaving the distribution of liquidity to individual firms to the market. The choice of targeted lending instead of imperial liquidity provision by the market exposed the Fed to the temptation to politicize its selection of recipients of its credit. In addition one question that arose is why this complicated method of providing liquidity was introduced when the uncomplicated system of open market operations is available? A

second question is why did the Fed reduce its holdings of government securities. How would the Fed be able to tighten monetary policy when it finally decides to combat a rise in the inflation rate? The only way to tighten is to sell government securities. The mortgage backed securities on the Fed's balance sheet may not be easily marketable.

With respect to solvency, the Fed and the other US monetary authorities have engaged in a series of bailouts of incipient insolvent firms deemed too systemically connected to fail. These include Bear Stearns in March 2008, the GSEs in July and AIG in September. The investment bank Lehman Brothers had been allowed to fail in September on the grounds that it was basically insolvent and not as systemically important as the others. One wonders if Bear Stearns had been allowed to fail if the severe crisis in September/October 2008 could have been avoided. Had Bear Stearns simply been closed and liquidated it is unlikely that more demand for Fed credit would have come forward than that actually occurred. The fact that general creditors and derivative counterparties of Bear Stearns were fully protected by the merger of the firm with JP Morgan Chase had greater spillover effects on the financial services industry than would have been the case had the Fed appointed a receiver and frozen old accounts and payments as of the date of the appointment. Fewer public funds would have been subjected to risk. When Drexel Burnham Lambert was shut down in 1990, there were no spillover effects.

Furthermore assume, as the Fed argued at the time, that there would have been a crisis in March like the one that followed Lehman's failure in September. Would it have been as bad as the latter event? Assume that the moral hazard implications of bailing out Bear Stearns led the remaining investment banks and other market players to follow riskier strategies than otherwise on the assumption that they also would be bailed out. This

surely made the financial system more fragile than otherwise. So that when the monetary authorities decided to let Lehman fail the shock that ensued and the damage to confidence was much worse.

Since the September 2008 crisis it has finally been realized that the deepest problem facing the financial system is solvency. The problem stems from the difficulty of pricing securities backed by a pool of assets, whether mortgage loans, student loans, commercial paper issues, or credit card receivables. Pricing securities based on a pool of assets is difficult because the quality of individual components of the pool varies and unless each component is individually examined and evaluated, no accurate price of the security can be determined.

As a result, the credit market, confronted by financial firms whose portfolios are filled with securities of uncertain value, derivatives that are so complex the art of pricing them has not been mastered, is plagued by the inability to determine which firms are solvent and which are not. Lenders are unwilling to extend loans when they cannot be sure that a borrower is creditworthy. This is a serious shortcoming of the securitization process that is responsible for the paralysis of the credit market.

The Fed was slow to recognize the solvency problem. It emphasized providing liquidity to the market when that is not the answer to the problem of the market's uncertainty about the solvency of individual or sectoral financial firms. No financial market can function normally when basic information about the solvency of market participants is lacking. The securities that are the product of securitization are the root of the turmoil in financial markets that began long before the housing market burst.



The Treasury's plan of October 13, 2008, based on the UK plan to inject capital into the banking system was designed to help solve this problem. However an issue that was not clear is whether funds would be injected into insolvent banks or into solvent banks which are temporarily short of capital. If funds were to go to insolvent banks this could prolong the credit crunch.

There is ample historical precedent for the Treasury plan including the Reconstruction Finance Corporation established by the Hoover administration in 1932. Under Roosevelt it injected \$ 1.3 billion to 6000 banks which is equivalent to \$ 200 billion in equity today ( Sylla 2008). In 1932 the Reconstruction Finance Corporation ( RFC)'s efforts were hampered by the publication of the list of banks raising capital. This led to runs on these banks and unwillingness by others to participate. It also has precedent in the Swedish bank bailout of 1992 and in Japan's long delayed bailout in the late 1990s.

With respect to the real economy, the Fed with its dual mandate of price stability and high growth ( full employment) focused on growth and cut the Funds rate vigorously. Considerable empirical and historical evidence suggests that credit crunches exacerbate recessions ( see figures 1 and 2 and IMF WEO chapter 4 September 2008). Given the Fed's dual mandate, the risk of recession consequent upon the credit crunch seemed to have been a reasonable rationale for a temporary easing of monetary policy. This action leaves open the possibility that the Fed could return to its emphasis on price stability once the recovery is in sight.

Another lesson concerns whether the Fed should continue to follow the reactive policy to asset booms that it has been following or follow a preemptive policy. The traditional view of monetary policy argues that central banks should act reactively and deal with the

consequences for the financial system of an asset price boom after it has burst (Bernanke and Gertler 2001). An alternative view argues that if an asset bubble ( eg housing) is on the horizon, then the Fed should act pre-emptively to defuse it ( Cecchetti et al 2000). Bordo and Jeanne ( 2002) consider a circumstance in which the use of preemptive policy against the occurrence of a low probability event, which can have catastrophic consequences, such as a national housing bust, can be welfare improving. The recent events may spark further debate.

An additional lesson speculates on the genesis of the crisis. The recent financial crisis likely could have been avoided if the Fed had not provided as much liquidity as it did from 2001 to 2004. After Y2K when no financial crisis occurred , it promptly withdrew the massive infusion of liquidity it had provided. By contrast thereafter, it foresaw a series of shocks to the economy that might lead to financial crisis , eg the tech bust of 2001 and 9/11. In each case it injected liquidity, but when no financial crisis occurred , it permitted the additional funds it had provided to remain in the money market. In addition it overreacted to the threat of deflation in 2003-2004 which may have been of the good( productivity driven)variety rather than of the bad ( recessionary) variety ( Bordo and Filardo 2005). If consequent upon these events the market had not been infused with liquidity as much as they were and for so long, then interest rates would not have been as low in recent years as they were and the housing boom which had just bust may not have expanded as much as it did . Evidence for this perspective by Taylor ( 2007) suggests that interest rates in this period were on average considerably lower than would be the case based on his famous rule.

Some Less Gloomy Lessons from the Crisis

Finally, there are some less gloomy lessons from the crisis. First is the compressed consolidation of the U.S. banking industry. Since the 1990s the U.S. banking system has been slowly consolidating to take advantage of the removal of barriers to interstate banking and branch banking. Canada and most European countries went through this consolidation by mergers and acquisition in the late nineteenth and early twentieth centuries. Evidence suggests that the U.S. banking system historically was both less stable and less efficient than its Canadian counterpart (Bordo, Redish and Rockoff 1996). The recent crisis by forcing mergers and exit facilitates the move to a banking system with features closer to those of the other advanced countries with a few very large banks. However because of its legacy of community banking with significant local social capital many smaller banks will likely survive.

Second, the crisis is resolving issues raised by the Glass Steagall act of 1933 which separated commercial from investment banking. The act was repealed in 1999 and since then the more lightly regulated investment banks with an advantage of lower capital requirements competed successfully with the commercial banks, in turn inducing them to increase leverage and move liabilities off their balance sheets. The resultant increase in risk contributed to the crisis. The demise of Bear Stearns and Lehman has forced the other investment banks to merge with major commercial banks, to come under the umbrella of the Fed and FDIC safety nets. The creation of such universal banks has returned the US to the system it had before Glass Steagall and moves it closer to that of the banks in some European countries. Such universal banks have had a long history of stability and efficiency (Fohlin 2007).

Third the extension of the lender of last resort function to include most types of collateral and most financial institutions seems to be following some strictures from Bagehot's Lombard Street(1873) on what the central bank should do in a panic. Bagehot quotes what a Bank of England director said about its actions in the crisis of 1825:

““ we lent it by every possible means and in modes we never adopted before; we took in stock on security, we purchased Exchequer bills, we not only discounted outright, but we made advances on the deposits of bills of exchange to an immense amount, in short by every means consistent with the safety of the Bank, and we were not on some occasions over-nice. Seeing the dreadful state in which the public were, we rendered every assistance in our power” ( page 52).

Fourth and finally is the speed of response by the monetary authorities in the US and Europe in resolving both the liquidity and solvency aspects of the crisis. This is in contrast to the Great Depression when the Fed did virtually nothing and it was up to FDR by devaluing the dollar in 1933 and the Treasury through its gold purchases thereafter, to jump start the economy . It is also in contrast to the slow response by the Japanese authorities in the aftermath of the collapse of Japan's stock market and real estate bubbles.

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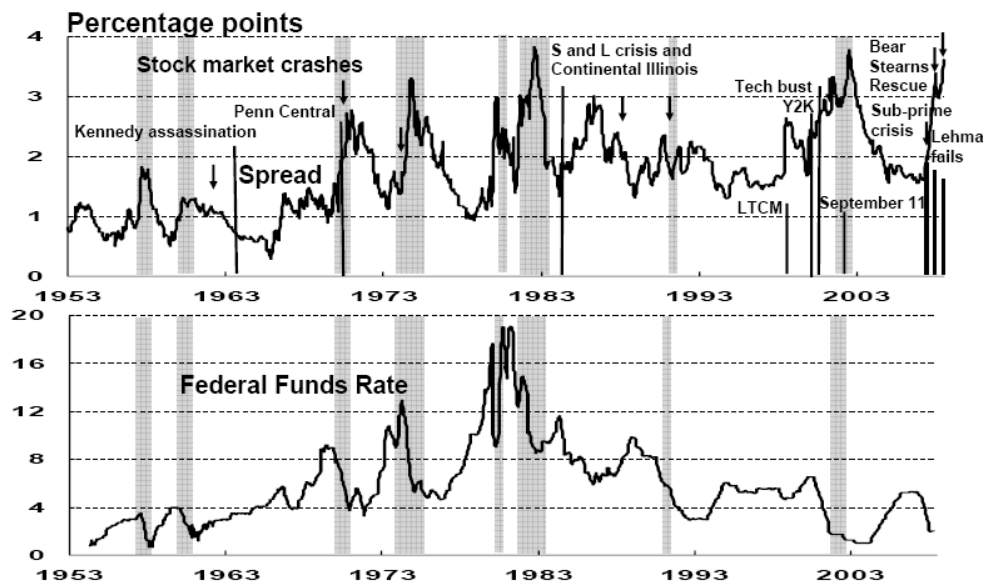
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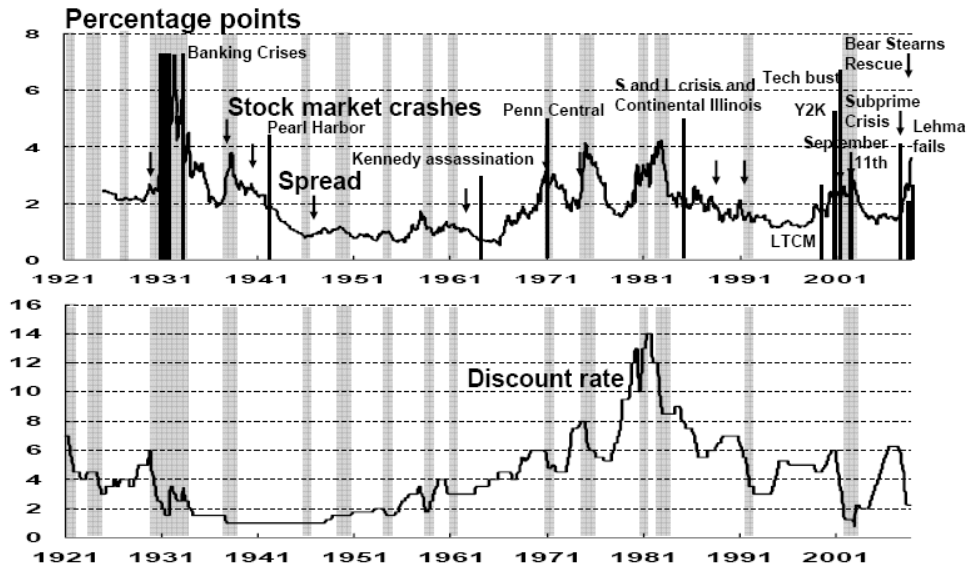
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**FIGURE 1: FEDERAL FUNDS RATE AND Baa AND 10-YEAR TCM SPREAD**



Sources: Federal Reserve Board and NBER

**FIGURE 2: DISCOUNT RATE AND Baa AND COMPOSITE TREASURY OVER 10 YEARS SPREAD**



Sources: Federal Reserve Board and NBER