

## Liquidity Risk, Regulation & Financial Crisis

### A. Overview

As we discussed earlier, a key role of the financial system is to provide asset transformation services. This is a fancy way of saying that one of the main roles of the financial system is to provide liquidity. That is, take an illiquid asset and make it more liquid. Since liquidity is valued, the bank is compensated for doing this. **Question:** How do you know that liquidity is valuable? Commercial banks are the most important of the FSFs, but they all provide liquidity to some extent.

In this section, I will first discuss some of the ways that banks create liquidity. Then, I will show you why this role can make banks unstable and subject to runs. The instability of banks, coupled with their key role in the financial system, provides the rationale for the government safety net and bank regulation.

### B. Ways that Banks Create Liquidity

1. The classic intermediation function of holding illiquid loans financed with liquid deposits.

**Review Question:** Why are bank loans illiquid?

Much of bank liabilities are highly liquid. Deposits, especially checking accounts (demand deposits), are very liquid. Depositor can take money on demand, bank must hand over the cash on a first-come, first-served basis. Check writing facility makes these account a very close substitute for currency. What makes the liquidity possible?

Low default risk

So, risk management (market risk, credit risk) geared toward avoiding insolvency is crucial aspect of liquidity production. **Question:** Can a risky bank (i.e. one that may become insolvent) issue a highly liquid deposit? If no, why?

**Question:** What is the role of deposit insurance in allowing banks to offer a liquid deposit?

Convenient Access

Need to be able to get to the bank, access funds, easily

Check processing and clearing

The services are costly. Beyond risk management, which we have covered in detail, these costs include:

Costs of branching network (physical plant, labor costs, etc.)

Cost of operating the “back office:” bookkeeping, check clearing, etc.

Fraud detection

2. Banks also provide funding liquidity to their borrowers (firms) by issuing loan commitments.

As we discussed earlier, a loan commitment is a contract that allows a firm to borrow up to a certain amount from the bank at a predetermined rate of interest over a predetermined length of time. The bank earns interest on funds borrowed, and fees on the difference between the amount borrowed and the maximum amount that could be borrowed.

A loan commitment offers firms liquidity because they can get cash any time they need it. Firms with loan commitments can operate with less cash on their balance sheet. (And people with credit cards – lines of credit – operate with less cash in their checking accounts and less currency in their wallets.)

Many firms that issue commercial paper also have back-up lines of credit from a bank in case they are unable to borrow in the CP market. Read the Saidenberg and Strahan article, “Are Banks Still Important for Large Firm Finance,” on the course website to understand the importance of these lines of credit during the LTCM/Russian default crisis of 1998.)

But, the loan commitment exposes bank to both credit risk and liquidity risk. **Question:** When is a borrower likely to draw funds from a loan commitment?

### C. Managing Liquidity Risk

Because banks provide liquidity to their borrowers and depositors, they are exposed to two risks.

From depositors, they may face:

Unexpected outflows of funding

From borrowers, they may face:

Unexpected demands for funding

To the extent that liquidity demands are *idiosyncratic*, banks can achieve diversification by serving many different clients. But, sometimes there are demands for liquidity that occur from many customers at once. The bank must be in a position to provide for these needs in a pinch. Otherwise, the promised liquidity services have little value.

**Example.** Suppose we have a bank with the following balance sheet (in millions):

<u>Assets</u>		<u>Liabilities</u>	
Loans	80	Deposits	90
Cash	20	Net worth	10

Off-balance Sheet Item: This bank also has \$20 million in undrawn loan commitments.

**Questions:** What happens to the balance sheet if the bank faces a \$20 outflow of deposits? Now, suppose at the same time that there is an outflow of deposits, the bank is also hit by demands from its borrowers to draw down an additional \$20 million in loans.

The example is, in a sense, unrealistic because the bank experiences a deposit outflow at the same time that it is hit by demands from borrowers to draw down funds. In fact, the bank is structured the way it is because the reverse is more likely. If there are large demands from borrowers for funds, it is usually because the money is hard to come by in the capital market. Under these kinds of bad market conditions, there is generally an inflow of funding into banks. This is known as a “flight to quality.” So, it makes sense to combine the two kinds of liquidity creation in the same place.

Having said that, the bank must still manage its liquidity risk judiciously. How does it do that? It has three sources of liquidity:

1. Cash (or other liquid assets) on the balance sheet and reserves at Federal Reserve Banks.

2. The ability to borrow in the inter-bank market (i.e the Fed Funds market).
3. The ability to borrow from the Federal Reserve through the discount window.

A bank must hold some cash (and reserves at the Federal Reserve Banks) to meet normal liquidity demands, but reserves are costly because they do not pay interest (until very recently). Thus, the bank faces a tradeoff: too much cash is bad because cash does not earn a high return; too little is bad because it exposes the bank to losses if it must try to sell a portion of its loans.

Points 2 and 3 above (access to interbank market and access to the Fed) give banks a *competitive advantage* in offering liquidity to customers relative to other financial institutions.

With the current expansion of the Fed's discount window, this advantage may narrow significantly (more below on the current situation).

#### **D. Liquidity, Bank Runs and the Federal Safety Net**

We have seen that a bank has three pillars that it can use to satisfy demands for liquidity. The first is to hold some cash. The second is to have the ability to borrow on a short-term basis from other banks. The third is the ability to borrow from the Fed.

**Question:** Suppose a bank seems to be troubled. As a result, depositors - or perhaps short-term creditors financing an investment bank - get worried and start to withdraw funds. What will the bank do? Will it be able to borrow from other banks? Why might other banks refuse to lend to the bank experiencing outflows?

If a bank runs out of cash and can not borrow, it is faced with selling its loans at "fire-sale prices." **Question:** Why are fire sale prices so low? If they really are low, then a liquidity crisis can lead to, or worsen, a solvency crisis. (The opposite can happen too; solvency can lead to illiquidity-see below.)

You should see from these questions that I am trying to get you to understand the potential for a bank run. That is, a self-fulfilling crisis in which outflows lead to an inefficient liquidation of the bank and real losses, not only for bank depositors and owners, but also *borrowers*.

There is a famous study about the Continental Illinois failure that showed that the stock prices of borrowers from this bank fell during the period leading up to its rescue by the government. Why do you think borrower stock prices fell when the market thought Continental Illinois would fail?

Because banks are fragile, and because their provision of liquidity exposes them to the risk of runs, we have a government safety net under the banking industry composed of two key entities:

The Federal Deposit Insurance Corporation (FDIC)

The Federal Reserve

FDIC insures deposits up to now \$250,000, thus reducing the incentive for people to panic and pull their funds from a troubled bank. The Fed has the ability to lend to any bank during a crisis, thus alleviating the need for the bank to sell its loans (of subprime mortgage securities!) at fire-sale prices.

### **E. Moral Hazard and the Safety Net**

The safety net generates its own set of problems. In a nutshell, because depositors are insured, they have no incentive to care about the risks that the bank takes. Banks may have a strong incentive to take a lot of risk because the payoff is asymmetric: the shareholder captures the upside, but does not bear all of the costs of the downside.

The absence of any reason for depositors to care about risk, coupled with the incentive for banks to increase risk, is known as the 'moral hazard problem associated with deposit insurance.'

These risk-shifting strategies become very tempting at all corporations with limited liability whenever leverage becomes high (as it always is at banks). When a non-financial firm's leverage gets very high, perhaps because of very poor performance, their bondholders suffer from the asset substitution problem, which we studied earlier in the context of financial distress costs. As we saw, the loser in a normal corporate setting when asset substitution becomes a problem is the bondholder. However, they protect themselves at the outset of the contract with covenants, restrictions on dividends, restrictions on asset sales, limits to leverage, etc.

With deposit insurance, however, the bondholder (depositor) has much weaker incentives to enforce these kinds of constraints. Instead, we have government regulation as a substitute for the normal "market", or bondholder, discipline.

### **F. The Ways Regulation has Limited Moral Hazard**

The moral hazard problem created by the government safety net has been dealt with using four approaches: supervision & regulation of banks, market discipline, limits to activities, and limits to competition.

#### 1. Prudential Supervision & Regulation

Banks are examined annually by government officials from the state banking departments, the Federal Reserve, the FDIC and the Office of the Comptroller of the Currency (OCC). Examiners audit the bank's financial statements and insure compliance with regulations.

Here is a quick summary of who regulates what:

-Nationally-chartered banks: OCC

-State-chartered banks that are members of the Federal Reserve System: State Banking Department and the local Federal Reserve Bank

-State-chartered banks, not members of the Fed: State Banking Department and the FDIC

-In addition, the Federal Reserve has the responsibility for examiner Bank Holding Companies and Financial Holding Companies (FHCs are permitted to own banks, insurance companies and investment banking subsidiaries).

## 2. Market Discipline (increasingly obsolete)

The law limits deposit insurance; and other bank liabilities are not insured (until recently...). Thus, some of the bank's creditors have an incentive to prevent the risk-shifting described above.

Market discipline, however, is *undermined* by the potential for the government to make all creditors of a bank (insured and uninsured depositors) whole in the event of a bank failure or financial crises. The tendency to bail out everyone is especially bad at very large banks, and is known as the "too big to let fail" problem. Continental Illinois was the case that created this term; all creditors of this bank were made whole because Federal regulators were afraid of the consequences of having the large depositors "run".

The LTCM crisis illustrates the tendency for government officials to take strong actions when a large financial company (even an unregulated hedge fund!) gets in trouble. What has happened in recently months provides further evidence that the problem is more than theoretical (more below)

## 3. Limits on Activities

Banks are strictly limited in their activities. Until recently, banks could not engage in securities underwriting. These restrictions began to fall gradually over time in the 1980s when the Federal Reserve allowed non-bank subsidiaries of Bank Holding Companies to underwrite corporate debt and equity securities that banks could not underwrite as a consequence of the Glass-Steagall Act of the 1930s. These affiliates were limited in size.

Further expansion of the powers of banks and bank-affiliated firms occurred with passage of the Financial Modernization Act of 1999. This law allows an entity called a Financial Holding Company to own a full service securities firm without limit on its size.

Limits on commercial (i.e. non-financial) holdings of Bank Holding Companies and Financial Holding Companies remain in effect in the US. This limitation contrasts with the universal bank

model of Germany, where the German banks are important shareholders at many large non-financial German companies and are actively involved in corporate governance (e.g. they hold lots of seats on the Boards of Directors).

#### 4. Limits on Competition

Banks have been protected from competition by a number of means. Until the 1980s, for example, interest rates on bank deposits were controlled by “Regulation Q.” Today, only demand deposit interest rates are controlled (they are 0).

Also, there were limits on the ability of banks to branch, both within and across state lines, and there were limits on Bank Holding Companies’ ability to own banks across state lines.

**Question:** How do limits to activities help reduce moral hazard problems? How do limits to competition reduce moral hazard?

#### **G. What went Wrong in the 1980s?**

Fact: During the 1980s many countries experienced banking crises of varying degrees of severity. For example, an IMF study found the 130 (!) countries had a crisis between 1980 and 1995. Prior to the 1980s, however, there were very few problems in banking across the world going back to the 1930s.

What changed in the 1980s? Here is the short version: We can think of a process that began with greater *competition* in the production of financial services (**Review Question:** what are the three key services of the financial services industry?). Competition then led to pressure for *deregulation* to allow depository institutions to survive. With more competition and fewer constraints, depositories responded by taking *more risk*, which in turn led to a dramatic increase in failures at banks and savings institutions. This increase in failures led, in turn, to pressure for greater *regulation*, especially of the amount of *capital* held by banks and other depositories.

#### 1. Competition

Competition in the financial services industry became manifest in the U.S. in the 1970s, with the growth and development of the commercial paper market. Banks began to lose business as their best corporate customers (i.e. big firms) began to issue paper instead of borrowing from banks. At the same time, competition for funding emerged as non-bank financial companies offered money market mutual funds as a substitute for deposits. Interest rates soared in the 1970s due to inflation, but banks were constrained by regulation as to how much interest they could pay their depositors. Thus, banks, previously helped by these regulations, found themselves harmed by them.

These forces continued, and even accelerated in the 1980s. For example, banks began to lose

even more business to the bond market when Michael Milken and Drexel, Burnham, Lambert created the junk bond market. Prior to the 1980s, a firm could not sell a new bond if it were not investment grade. Thus, any risky firm wanting to borrow had to go to a bank. Milken convinced financial institutions (S&Ls, pension funds, insurance companies, etc.) to buy newly-issued junk bonds, thereby taking a large chunk of business away from banks.

The increasing competition reduced access to easy profits for banks and S&Ls, and thereby increased their incentive to take large risks.

## 2. Deregulation

Here is what the regulatory infrastructure looked like from the 1930s to the 1970s:

### Federal Reserve Act of 1913

Federal Reserve System established in response to banking crises of late 19<sup>th</sup> and early 20<sup>th</sup> Centuries

### McFadden Act of 1927

Prohibited branching across state lines; gave states the authority to restrict branching within the state (which about 2/3 of the states did).

### Federal Home Loan Bank Act of 1932 and National Housing Act of 1934

Savings Institution charter created. These institutions had greater freedom to raise funds than banks (i.e. more freedom to compete for deposits), but restricted in their ability to invest in assets other than residential mortgages.

### The Banking Act of 1933 (Glass-Steagall)

FDIC insurance established  
Ceilings on interest rates  
Separation of commercial banking and investment banking

### Bank Holding Company Act of 1956 and 1970 Amendment

Allowed states to prevent multi-state bank holding companies  
Gave the Fed oversight authority over bank holding companies

Bottom Line: Regulations restricted *activities* and *competition*. This worked well for the industry (although not the customer!) for 40 years, then the system broke down in 1970s. As noted, changes in financial markets created political pressure to relax constraints imposed by regulation. Here is what happened next:

States unilaterally began to allow more branching and cross-state ownership of bank assets

These changes opened up markets to entry, and led to dramatic increase in M&A activity in banking.

DIDMCA (1980)

The Depository Institutions Deregulation and Monetary Control Act did the following: 1. Expanded the set of assets savings institutions could hold; allowed banks to offer NOW accounts, effectively removing barrier to interest bearing checking; phased out other interest rate ceilings; increased deposit insurance to \$100k.

Depository Institutions Act of 1982

Further expanded investment powers of savings institutions. Allowed banks and savings institutions to offer money market deposit accounts. Allowed regulators of savings institutions use accounting gimmicks in order to avoid closing insolvent institutions. (**Question:** why would bank regulators want to avoid closing insolvencies?)

Federal Reserve permits Bank Holding Company Affiliates to engage in underwriting (1987)

The Federal Reserve in 1987 allowed subsidiaries of three holding companies to underwrite certain previously prohibited securities on a limited basis. The Federal Reserve derived legal authority for the decision from a clause in Section 20 of the 1933 Banking Act that prohibits banks from affiliating with a company 'engaged principally' in underwriting or dealing securities. The Fed argued that the 'engaged principally' clause allowed bank holding company subsidiaries to underwrite certain 'ineligible securities' such as municipal revenue bonds, commercial paper, and mortgage-related securities as long as the revenue from such underwriting did not exceed 5 percent of the subsidiary's gross revenue

On January 18, 1989, Federal Reserve allowed the 'Section 20 subsidiaries' to underwrite corporate debt and equity securities contingent on the 5 percent revenue limitation. The Federal Reserve continued its incremental lifting of restrictions by increasing the revenue limit on Section 20 subsidiaries to 10 percent on September 13, 1989 and to 25 percent on December 20, 1996.

With more competition increasing risk-taking incentives, and deregulation increasing risk taking opportunities, the resulting jump in bank and S&L failures in the 1980s should not be a big surprise!

### 3. Tightening of capital adequacy, recap of deposit insurance, and safety and soundness regulations

So, the 1980s was about deregulating and allowing banks and savings institutions to expand their activities and markets.

**Questions:** What happened to the banking and savings institutions industries in the 1980s? What role did the deregulation play in this experience? What aspects of deregulation were good? What aspects were ill advised?

In response to the high rate of failures, and the insolvency of the deposit insurance fund for savings institutions (FSLIC):

#### Competitive Equality in Banking Act (1987)

Allocated additional funds to FSLIC

#### Financial Institutions Reform, Recovery and Enforcement Act of 1989 (FIRREA)

Bailed out deposit insurance fund with taxpayer \$. Eliminated FSLIC and replaced with FDIC insurance for savings institutions; eliminated the Federal Home Loan Bank Board, formerly the regulator of savings institutions. Created the Resolution Trust Corporation to dispose of failed savings institutions. Created the Office of Thrift Supervision to oversee savings institutions. Reimposed restrictions on activities of savings institutions.

#### FDIC Improvement Act of 1991

Limited too-big-to-fail policy; set provisions for “prompt corrective action” to prevent future forbearance of insolvent banks of savings institutions. Created risk-based pricing of deposit insurance. Increased frequency of examinations of banks.

#### Basel Capital Accord of 1988 (implemented in 1992)

This was an agreement among bank regulators from many countries to impose a uniform set of risk-based capital adequacy standards on all internationally active banks.

**Discussion Questions:** What is the function of capital? Why should banks care how much they have? Why should customers care? Why should regulators care?

## **H. Changes in the 1990s**

## Recent Deregulation

While the late 1980s and early 1990s were concerned with cleaning up the mess created by the rash of failures, in the second half of the 1990s the banking industry became profitable again, and the moves toward deregulation resumed with:

### Interstate Branching and Bank Efficiency Act of 1994

This law allows banks and bank holding companies to branch across state lines

### Financial Modernization Act of 1999

Allows a new entity, known as a Financial Holding Company, to engage in any financial activity. This law removes the last vestiges of the Glass-Steagall Act separating commercial and investment banking.

## Basle II

With the growing concern that the Basle Accord was too simplistic and leading to “regulatory arbitrage”, international bank regulators have revised the Accord to strengthen the link between capital and bank risk, and also to enhance the ability of both markets and bank supervisors to measure and contain bank risk.

The revisions to the risk-based capital portion of the old Accord attempt to take advantage of bank’s own internal models for measuring credit risk. These models, as we saw earlier, typically are based on attempts to rate the borrow in a way that is comparable to the Moody’s/S&P ratings for the bond market. This is obviously difficult because the typical bank borrow does not have public debt. Nevertheless, the idea is to avoid the kind of incentive faced by the “USBank” in the Bistro Trust case; that is, you want capital regulations that will not create incentives for banks to try to sell of their safest assets and hold onto the risky ones.

In addition to trying to measure credit risk more accurately, the new Accord recognizes the importance of market risk and “operational” risk in banking. We studied market risk earlier. Operational risk encompasses a whole host of problems such as computer failures, fraud, etc. that can lead to losses. The new Accord attempts to have banks hold capital to cover for unexpected losses stemming from each of these three sources (credit, market and operational).

The New Accord also emphasizes two additional “pillars”: one is bank supervision (i.e. having well structured bank exams); the other is “market discipline”. As you will see in the article, the idea of enhancing market discipline really boils down to accurate financial disclosure to investors and counterparties.

## I. The current situation

Today's financial crises is a combination of a solvency crisis and a liquidity crises. An insolvent company is one whose assets are worth less than its debt; a firm faced with a liquidity problem is one whose access to cash (short-term finance) is not large enough to meet its needs for cash (e.g. making payroll, financing inventory, rolling over short-term debt that comes due, making margin calls for financial companies). A firm can face a liquidity problem even if it is solvent, but if investors are worried about solvency, this worry itself can lead to a reduction in access short-term credit.

Solvency problems have occurred because the housing bubble in the U.S. popped, leading to large losses in the banking system. The situation began in 2006, but became a widespread concern in the summer of 2007. Since then, the problem has been accelerated by liquidity problems.

The liquidity problems that we have seen occurred because creditors of financial institutions *do not understand* how the fundamental losses (originally stemming from housing) are distributed across the banking system. Heavy use of derivatives, such as credit default swaps, makes it hard for investors to determine which entities actually face the default risk! So, there is asymmetric information in the market for short-term finance, which is very important for large banks.

So, the basic mechanism linking the two issues is:

Asset price declines (starting with losses in sub-prime MBS) ==>  
Weak bank balance sheets (i.e. potential insolvency) & asymmetric information (due to prevalence of credit derivatives) ==>  
A reduction in the supply of liquidity (no one wants to lend to a possibly failing bank, and banks demanding more funds are more likely to be troubled) ==>  
Further reduction in asset prices...

The problem is that everyone is acting rationally and in a way that seems to maximize the probability that their firm will survive the storm. This 'self-protection' instinct leads firms to hoard cash, both because they are afraid that counterparties might default and because holding cash helps insulate them from losing access to credit markets. But, when everyone does this, it is catastrophic because no lending occurs! The same thing happens in the 'real economy'. When people are nervous about the future (e.g. worried about job security), they increase saving and, by necessity, consume less. This kind of action is fine for individuals but when everyone wants to increase savings at the same time, the economy grinds to a halt because no one consumes.

The failure of Bear Stearns is a good example of the problem. Bear held a large portfolio of sub-prime mortgage-backed securities. Bear also was very dependent on short-term borrowing, and had very high leverage. The value of their sub-prime mortgage-backed securities was difficult for outsiders to value. Thus, when investors lost confidence in Bear Stearns' valuation of these securities, they faced a 'run', not from depositors but from their customers! Moreover, Bear lost

access to the short-term credit markets, and so they could not roll over their debt as it came due. Thus, the firm quickly ran out of cash and had to be taken over. This takeover was facilitated by the Fed, who engineered a purchase by JPMorgan by guaranteeing Bear's \$29 billion portfolio of MBS. Since then, the Fed has lost \$2 billion on that portfolio (so far).

So, Bear Stearns failed because uncertainty about their true solvency led to a liquidity crisis.

Prior to and following the Bear Stearns episode, the Fed has tried to deal with problems in the financial system by expanding the supply of credit. As we have discussed, they have done this by lending to an increasingly large number of firms, both overnight and for longer term. *It has not work!!* The reason is that the problem, fundamentally, began with insolvency. That is, large losses in sub-prime mortgages. So, when the Fed lent to banks, they were simply piling up cash rather than lending it out because of the asymmetric information problem in the market (again, the problem that investors could not be sure who was bearing the large losses that everyone knew were out there!)

In mid-September, following the collapses of Fannie & Freddie, Lehman and AIG, it became very clear that nothing could be solved without re-capitalizing the banking system. In other words, no amount of liquidity production would get banks to lend until investors believed that the solvency problems had been dealt with. So, over the past few weeks the US and other central banks have essentially tried to eliminate the solvency risk in lending by doing the following (this is US focused):

1. Invest directly in banks

- Government purchase of new preferred equity in banks.

- Later, there may be reverse auctions whereby the government buys up the distressed assets at prices higher than current prices in the market.

2. Takeover / recapitalize failed institutions

- Fannie & Freddie are now owned by the US Government

- Private-sector takeovers have been brokered and/or subsidized: Bear Stearns, Merrill Lynch, WaMu, and Wachovia

3. Expand insurance of bank liabilities

- The limit on deposit insurance raised to \$250,000 from \$100,000

- All demand deposits are FDIC insured on a temporary basis

- Interbank lending is also guaranteed on a temporary basis

The result has been a decline in the interest rates on interbank lending and an increase in volume.

The Fed also stepped in directly to provide credit to the commercial paper market because it does not want the non-financial sector to collapse before the moves above begin to work. The Fed has made two big moves:

1. Purchase commercial paper (CP) directly from issuers in the primary market

2. Purchase commercial paper from money market mutual funds - the traditional buyers of CP -

in the secondary market.

The money funds have been unwilling to buy CP in recent weeks because they are afraid of redemptions; instead they have been buying very liquid US Treasuries. This move is supposed to enhance their willingness to buy CP by insuring liquidity in the secondary market.

The crisis has also gone global. One consequence of this has been a sharp appreciation of the US dollar because US government securities are the only safe haven for funds that everyone trusts. Treasury has accommodated this increased demand by selling about \$500 billion at auction over the past 6 weeks. Second, the Yen has soared because investors have unwound the so-called 'carry trade' in which borrowing in Yen and lending in other currencies had looked very profitable due to low borrowing rates in Japan. These exchange rate swings are wreaking havoc on import-export industries. Also, commodity prices, most notably oil, have collapsed. These wild swings in F/X and commodities create huge losses on a whole new class of assets, which feeds the downturn...

Right now it is very hard to assess the short term consequences of these policies. It is really tough to know how well they will work, plus there is no way to know what would have happened in the absence of these policy moves.

But, it is important to recognize that all of these policy moves have large long-run costs!

#### Long Run issues:

1. The U.S. financial system has been reshaped, with fewer and larger financial firms. The financial specialists such as the traditional investment bank (e.g. Merrill Lynch) or mortgage company (e.g. Washington Mutual) are dying. Even Goldman Sachs and Morgan Stanley have become Bank Holding Companies, which means they can raise deposits and, even if they don't, they are subject to Fed oversight. So, we are likely to end up with a *more concentrated* and *less competitive* financial system over the foreseeable future.

2. The regulatory landscape will also certainly change, with more power vested in a few government entities. It seems pretty much a fait accompli that the Fed will end up being the most powerful regulator when all is said and done.

One of the strengths of the US system had been a large number of different kinds of financial firms and regulators. This system fostered innovation, but it was obviously not stable and was prone to abuse. Looking ahead, we will have to live with a less dynamic financial system, which will probably have negative consequences for the long-run prospects of the economy as a whole (even though it may be more stable).

3. The third issue is the moral hazard that inevitably comes with all of these government bailouts. Creditors to the large remaining financial institutions understand now that all of them are 'too big to let fail'. As we will see, this issue has been around for a long time, and was

significantly worsened in 1998 with the LTCM debacle. Today's policy actions have added to the moral hazard to such a degree that it is hard to see how we will every be able to 'trust' the credit market to make careful decisions going forward.