

Chapter 16

THE FEDERAL RESERVE SYSTEM

Central Banking

Fractional reserve banks are potentially subject to **runs**, or withdrawals of funds by depositors who fear that they may not be able to make withdrawals later. Since banks' non-cash assets consist largely of illiquid loans for which there is no ready market, such a run could force them to suspend redemption of their demand deposits until their outstanding loans mature and can be collected. Such a **liquidity crisis** can be a problem even for solvent banks that have sound assets that will eventually pay off as promised.

Central banks are an attempt to prevent such self-realizing suspensions, or at least to greatly reduce their likelihood, without eliminating fractional reserve banking altogether. The idea is that although withdrawals from any one bank may easily exceed its small reserves, the total reserves in all the banks in the country usually far exceed the total liabilities of any individual bank. If all the banks just kept their reserves on deposit with one central bank – a banker's bank, so to speak – this central bank would be able to provide more than enough reserves to any individual bank that happens to have a withdrawal problem. Since these banks will then not be forced to suspend payments, depositor panic will not be reinforced and may not occur in the first place.

Throughout the nineteenth century and into the twentieth, such bank panics were a recurrent problem in the United States. In 1907 a particularly severe panic occurred. Congress set about writing legislation intended to correct this situation, and in 1913 came up with an act that created the Federal Reserve System, a public agency which today serves as the United States' central bank.

The **Federal Reserve System**, or **Fed** as it is called for short, consists of 12 regional **Federal Reserve Banks** in important financial centers such as New York, Chicago, San Francisco, St. Louis, etc., plus a **Board of Governors** in Washington, D.C. When it was first set up in 1913, the Federal Reserve System was unique among the "central banks" of the world for being deliberately decentralized! Since the Banking Acts of 1933 and 1935, however, the powers of the "Fed" have become increasingly centralized in the *Board of Governors* and the *Federal Open Market Committee*, and the 12 Reserve Banks have had relatively little autonomy.

The Board of Governors

The **Board of Governors of the Federal Reserve System** (often referred to as the **Federal Reserve Board** for short, and abbreviated **FRB** or **BOG**) is a committee of 7

members, appointed by the President of the United States, subject to Senate confirmation, for terms of 14 years.

The Board of Governors

1. sets minimum reserve requirements for depository institutions, within the limits set by Congress (see Chapter xx, Table x),
2. supervises the twelve Reserve Banks,
3. may remove officers of member banks,
4. supervises the issue of Federal Reserve Notes,
5. regulates stock market loans and sets minimum margin requirements, and
6. determines the type of loans the Reserve Banks can make.

The power of the Board and its Chairman over monetary policy is greatly enlarged, however, by the fact that the Board makes up an automatic majority of the *Federal Open Market Committee*, to be discussed in the following section.

The 14-year terms of FRB members are staggered so that one Governor's term expires every two years, on January 31 of even years. Thus at any point in time, the membership of the Federal Reserve Board can include the appointees of as many as four different Presidents. It is only in the last year of a second administration that an individual President is assured of having appointed a majority of the Board.

One individual may serve at most one full 14 year term, but may first serve out the balance of another 14 year term that has been vacated due to death or resignation. The maximum possible term for a Governor is therefore 27.9 years. No two FRB members may be residents of the same Federal Reserve District.

Table 1 shows the membership of the FRB as it stood in Sept. 2009, in order by term expiration date.

Table 1**Board of Governors of the Federal Reserve System**

In order by end of term

Sept. 2009

Name	Year Appointed	Term Ends Jan. 31	Theoretical Appointing Admin.	Actual Appointing Admin.
Vacant since 6/06		2010	Clinton I	
Elizabeth A. Duke	2008	2012	Clinton II	GW Bush II
Vacant since 8/08		2014	Clinton II	
Donald L. Kohn (Vice Chairman)	2002	2016	GW Bush I	GW Bush I
Kevin M. Warsh	2006	2018	GW Bush I	GW Bush II
Ben S. Bernanke (Chairman)	2006	2020	GW Bush II	GW Bush II
Daniel K. Tarullo	2009	2022	GW Bush II	Obama

Data source: <http://www.federalreserve.gov/>

Note that only 5 of the 7 seats are actually filled, and of these 5, only 2 were filled on the theoretical 14 year cycle.

Whenever a Governor resigns or dies, a new member is appointed to fill out that Governor's remaining term, rather than for a full 14 years. In practice, FRB members more often than not do resign before their terms expire. Thus, during President Barack Obama's first year in office, there should have been three Clinton appointees still on the Board, but in fact there were none. Because of vacancies, he could have filled as many as three seats during his first year instead of the theoretical zero.

By the time you read this book, there will probably have been a lot more turnover in the FRB than the expiration dates of their terms would predict. Check the Fed's website at <http://www.bog.frb.fed.us/bios/> to find the current membership. How many further early vacancies have there been?

The **Chairman of the Board of Governors** is appointed from its members by the President for a 4-year term. Table 2 lists several noteworthy FRB Chairmen.¹

Table 2

Selected Federal Reserve Board Chairmen

Sept. 2009

Name	Term as Chairman
Marriner S. Eccles	November 15, 1936 – April 15, 1948
William McChesney Martin, Jr.	April 2, 1951 - January 31, 1970
Arthur F. Burns	February 1, 1970 - January 31, 1978
G. William Miller	March 8, 1978 - August 6, 1979
Paul A. Volcker	August 6, 1979 - August 11, 1987
Alan Greenspan	August 11, 1987 - Jan. 31, 2006
Ben S. Bernanke	Feb. 1, 2006 – Jan. 31, 2010*

* First Term as Chairman expires Jan. 31, 2010. Term on Board continues to Jan. 31, 2020.

Source: <<http://www.federalreserve.gov/bios/boardmembership.htm>>.

If a Chairman is not reappointed as Chairman, he or she is free to remain on the Board until the remainder of his or her term as Governor. Thus, when Jimmy Carter became President in 1977, he was stuck with Arthur Burns, a Richard Nixon appointee who perhaps would not have been Carter's first choice, as FRB Chairman during his first year in office. (See Figure 1.) In January of 1978, a seat other than Burns' became vacant, and Burns' second term as Chairman simultaneously expired, so that Carter was free to appoint a new Chairman from outside the existing Board. Carter thus nominated G. William Miller, who had been a successful businessman. Burns could have completed his own term as Governor without being Chairman, but chose instead to resign early from the Board at the expiration of his term as Chairman, rather than to accept this demotion.

¹ By law, the titles of the chair and vice chair of the FRB are "Chairman" and "Vice Chairman," regardless of their gender. This could lead to an interesting showdown in the event a woman is one day appointed to either of these offices.

Christina D. Romer and David H. Romer, "Choosing the Federal Reserve Chair: Lessons from History," *Journal of Economic Perspectives*, Winter 2004, discuss and contrast the policies of these FRB Chairmen.



Figure 1

Although the Chairman of the Federal Reserve Board is a Presidential nominee, he or she is not necessarily the choice of the *incumbent* President.

Although the end of the Chairman's term as Chairman coincided with the expiration of his or another member's term as a Governor in 1970, 1974 and 1978, this cycle fell increasingly out of synch in later years because Miller resigned in mid-term, and because of subsequent repeated delays in Senate confirmation of nominees. On account of these delays, Alan Greenspan's first four terms as Chairman were in fact drawn out by an extra ten months, during which he served as Acting Chairman. When the expirations do not coincide in this manner, a President who wishes to replace an incumbent Chairman with someone not already on the Board may be required to name his or her candidate for Chairman to an ordinary position on the Board beforehand, because there is no guarantee that the incumbent Chairman will resign from the Board to create a vacancy when the incumbent's term as Chairman has expired.

Although Alan Greenspan is eligible to be reappointed as Chairman in June of 2004, his one permissible complete term on the Board expires in January of 2006. If whoever is then President nominates a candidate for his seat on the Board, and the Senate confirms this nomination, Greenspan will be out at that time, despite his unexpired term

as Chairman. However, if the President chooses not to nominate anyone for his seat, or if the Senate refuses to confirm whoever is nominated, Greenspan could conceivably serve on indefinitely as an Acting Governor.²

The **Vice Chairman** is likewise appointed from the Board for a term of four years. The Vice Chairman does not necessarily succeed as Chairman in the event of a vacancy, but would preside over FRB meetings until a new Chairman is appointed.

The Federal Open Market Committee

The **Federal Open Market Committee** controls the magnitude of the Federal Reserve System's *Open Market Operations*, that is to say, purchases and sales of securities on the open market. We will see in Chapter 17 that this virtually gives it the power to set the quantity of base money in the economy. The **FOMC**, as it is known, also has the power to set the interest rate the Fed charges on its massive *Repurchase Agreements*, and thereby determine the Fed Funds Rate banks charge one another on similar transactions. These are the two most important monetary policy powers within the Federal Reserve System.

The FOMC consists of 12 voting members: the 7 members of the Board of Governors, plus 5 Federal Reserve Bank presidents. The President of the Federal Reserve Bank of New York is *ex officio*³ a voting member, and traditionally serves as vice-chairman of the FOMC. The other four voting positions rotate among the Presidents of the other 11 Federal Reserve Banks.⁴ The 7 remaining Presidents are members, but may not vote until their turn comes up. Note that the 7 Governors constitute a majority of the FOMC, so that if they vote in unison under the leadership of their Chairman (who also ordinarily chairs the FOMC), they can entirely control the Fed's open market operations and Fed Funds Rate target.

The FOMC meets 8 times a year, but occasionally makes decisions by telephone conference call between regularly scheduled meetings.

Before his 1979 appointment as Chairman of the Board of Governors, Paul Volcker served as President of the New York Fed. Because he had long been active in formulating the Fed's open market policies, he was a particularly natural choice for Chairman when William Miller resigned in 1979.

² The case of Vice Chairman Roger Ferguson sets a precedent for such an Acting Governor situation: Ferguson was appointed to a 4-year term as Vice Chairman by President Clinton, effective 10/1999, but in a seat that expired in 1/2000. Clinton renominated him to continue in this seat, but the Republican Senate delayed his confirmation, on the chance that a Republican would be elected President the following November and that Ferguson's seat would be necessary to establish a majority of Republican nominees on the Board. He continued on the Board as Vice Chairman and Acting Governor until 7/2001, by which time there was a clear majority of Republican nominees even without his seat. At that time he was renominated by President G.W. Bush and confirmed for the term expiring in 2014.

³ Automatically, by virtue of one's office.

⁴ The Chicago and Cleveland Fed presidents vote every other year, while the remaining presidents vote every third year.



Fig. 2

Paul A. Volcker chaired the Federal Reserve Board, 1979 – 1987.

The Federal Reserve Banks

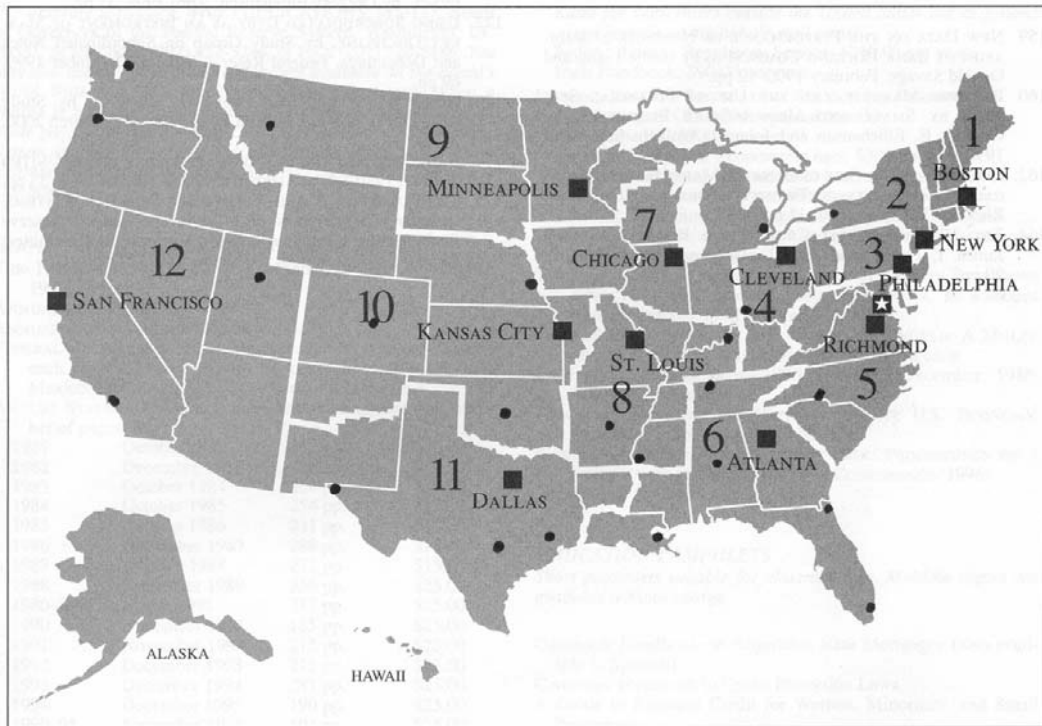
The actual operations of the Federal Reserve System are carried out by the twelve regional **Federal Reserve Banks**, listed in Table 3. These are not to be confused with the thousands of privately owned *Federal Reserve Member Banks*. The latter are ordinary commercial banks that have "membership" status within the Federal Reserve System.

Table 3.

The 12 Federal Reserve Banks

A	1	Boston
B	2	New York
C	3	Philadelphia
D	4	Cleveland
E	5	Richmond
F	6	Atlanta
G	7	Chicago
H	8	St. Louis
I	9	Minneapolis
J	10	Kansas City
K	11	Dallas
L	12	San Francisco

The districts for which the 12 Federal Reserve Banks are responsible are shown in Figure 3. The Reserve Banks have an additional 25 branch offices. Banks within each District deal with the Fed through their respective Federal Reserve Bank or branch office. This gives the District boundaries some significance for day-to-day banking operations. However, these boundaries have essentially zero importance for monetary policy.



LEGEND

Both pages

- Federal Reserve Bank city
- ▣ Board of Governors of the Federal Reserve System, Washington, D.C.

Facing page

- Federal Reserve Branch city
- Branch boundary

Fig. 3

The Federal Reserve Districts.

This map is totally irrelevant for the conduct of Monetary Policy. However, no Money and Banking textbook would seem complete without it.

Source: Federal Reserve Bulletin, Sept. 2003.

Officially, each Federal Reserve Note in circulation is issued by one of the twelve Reserve Banks. If you look closely under the serial number to the left of the portrait on a post-2001 bill, you will see that it says "A1" for District 1 (Boston), "B2" for District 2 (New York), etc. However, it makes no difference to the public which Reserve Bank's notes it uses, and the notes of each District circulate freely throughout the country.

In theory each Reserve Bank has the power to set the *discount rate* at which banks and thrift institutions may borrow from it. However, this power is "subject to the review and determination of the Board of Governors." Since the Board of Governors determines the level at which the Reserve Banks may set their discount rates, this

"power" in fact is no power at all, but merely a gesture to mask the actual impotence of the Reserve Banks. (Exception to prove the rule: During 1956, there were four months in which the Board of Governors did allow some regional discretion in the setting of discount rates!)

Each Reserve Bank has a Board of Directors with nine members. Three Class A and three Class B Directors are elected by the member banks within the District. The Class A directors are required to be bankers, one each representing large, medium, and small sized banks. The Class B Directors are required to be business persons, one each representing local commerce, agriculture, and industry. Three Class C Directors are chosen by the Board of Governors in Washington. The Board of Directors has some say in how its Reserve Bank is run, and names the Bank's president (subject to approval by the Board of Governors).

The Fed's Balance Sheet

We can learn quite a bit about the Fed and its role in the monetary system by examining its consolidated balance sheet, that is, a balance sheet which shows all the assets and all the liabilities of all twelve Federal Reserve Banks. The composition of the Fed's balance sheet changed enormously during 2008.

Table 3A shows a "Traditional," or pre-2008 consolidated balance sheet for July 5, 2007. The principal assets include Securities, Loans, and International Reserves. The principal liabilities of the Federal Reserve System are Federal Reserve Notes and Deposits. The capital or net worth of the System is also shown on the liability side. As on any balance sheet, net worth plus total liabilities exactly equals total assets. Altogether, the Fed had approximately \$880.4 billion or \$880,400,000,000.00 on each side of its balance sheet on this date.

Table 3B shows a "post-Traditional" or "Bernanke" consolidated balance sheet, two years later on July 2, 2009. As may be seen, the Fed's balance sheet had more than doubled in just two years (and most of this since Sept. 2008), to \$2.007 trillion, or \$2,007,400,000,000.00.

The discussion that follows will first analyze (I) the "Traditional" or pre-Bernanke Fed characterized by Table 3A. Then (II) the Bernanke changes characterized by Table 3B will be discussed.

Table 3A**Consolidated Federal Reserve Balance Sheet
(Traditional)**July 5, 2007
(billions of dollars)

Assets		Liabilities + Net Worth	
Securities of US Treasury (held outright)	790.5	Federal Reserve Notes	781.4
Loans:	27.4	Deposits	
to dealers as Repos	27.2	Reserve	16.7
to banks through		Other	36.9
Discount Window	0.2	US Treasury	4.6
International Reserves:	51.5	Foreign Official	32.3
Gold Certificates	11.0	(incl. Reverse Repos)	
Foreign Currency	38.3	Misc. Liabilities	<u>11.3</u>
SDR Certificates	2.2	Total Liabilities	846.3
Misc. Assets	<u>9.6</u>	Capital Accounts (NW)	<u>34.1</u>
Total Assets	880.4	Liabilities + NW	880.4

Adapted from Federal Reserve Bulletin Statistical Release H4.1.

Table 3B**Consolidated Federal Reserve Balance Sheet
(Bernanke)**July 2, 2009
(billions of dollars)

Assets		Liabilities + Net Worth	
Securities of US Treasury (held outright)	657.0	Federal Reserve Notes	871.3
Loans:	318.7	Deposits	
to dealers as Repos	0.0	Reserve	726.3
to banks	318.7	Other	334.8
Discount Window	35.9	US Treasury	271.9
Term Auction Cred.	282.8	Foreign	72.9
International Reserves:	202.4	(incl. Reverse Repos)	
Gold & SDR Certificates	13.2	Misc. Liabilities	<u>26.4</u>
Foreign Currency	73.9	Total Liabilities	1958.8
Cent. Bank Liq. Swaps	115.3		
Junk:	823.8		
Fannie Mae & Freddie Mac	559.3		
Mort. Backed Secs	462.5		
Debt	96.8		
Bear Stears (Maiden Ln. I)	25.9		
AIG	78.9		
Direct Credit	42.8		
Maiden Lane II & III	36.1		
Comm.Paper Funding Fac	119.7		
MMMF CP Funding Fac	14.9		
Term Asset-Backed Securities			
Lending Facility	25.1		
Misc. Assets	<u>5.5</u>	Capital Accounts (NW)	<u>48.6</u>
Total Assets	2,007.4	Liabilities + NW	2,007.4

Adapted from Federal Reserve Bulletin Statistical Release H4.1.

I. The Traditional Fed Balance Sheet (Table 3A):

The Fed's Traditional Assets: Securities

Until 2008, **Securities** were by far the most important traditional asset of the Federal Reserve System. Almost all of these are U.S. Treasury obligations, which are classified as bills, notes, and bonds. Treasury bills are the shortest term Treasury securities, having an initial maturity of one year or less. Bills have no coupon payments, but interest is earned on them in the form of a discount below their maturity value. Treasury notes are coupon-bearing securities like bonds, but by definition have an initial maturity of ten years or less. Treasury bonds ordinarily have an initial maturity of 20 or 30 years.

Since 1966, Congress has allowed the Fed to buy the securities of certain Federal agencies in addition to U.S. Treasury obligations. Eligible agencies include Federal Home Loan Banks, Federal Land Banks, Federal Intermediate Credit Banks, the Banks for Cooperatives, and Fannie Mae, formerly known as the Federal National Mortgage Association. Although each of these entities was created by the U.S. government, their obligations are explicitly *not* backed by the "full faith and credit" of the United States. Until 2008, the Fed held only \$10 billion of these agency securities, however, and these holdings were generally static from year to year.

Open Market Operations, or outright purchases and sales of Treasury Securities, is the principal means by which the Fed injects (or removes) bank reserves and, indirectly, currency, into the economy from year to year. These Open Market Operations are performed under the direction of the FOMC by the **Open Market Desk**, an office at the Federal Reserve Bank of New York. We will examine open market operations in greater detail in Chapter 17 on the Tools of Monetary Control.

Loans

Loans to securities dealers secured as **Repurchase Agreements** have been the principal tool by which the Fed indirectly controls the Federal Funds Rate, and at the same time are the principal source of day-to-day, if not year-to-year, changes in the monetary base.

Recall that the Federal Funds Rate is the rate that banks charge each other for overnight use of reserve deposits. Banks will also borrow and lend overnight at comparable rates to non-bank institutions such as securities dealers, pension funds, and large corporations, provided these loans are secured as Repurchase Agreements or **Repos**.

Under a Repurchase Agreement, the borrower technically sells a Treasury Security to the lender in exchange for the amount borrowed, but with an agreement that the borrower will buy the security back the next day for the same amount plus one day's interest at the agreed upon rate. If the borrower goes out of business overnight, the

lender simply walks away as the owner of the securities. This is virtually risk-free for the lender, and is easier for both parties than placing a lien on the collateral.⁵ If the borrower simply sold the Treasury security and bought it back the next day without the repurchase agreement, he or she would bear the risk that its price might have fallen, and in addition would have to pay a bid/asked spread to a dealer. Repos may be for a short term such as a week or two in addition to overnight.

Since Repo loans are virtually default free, banks will lend or borrow money on repos at virtually the same Federal Funds Rate at which they lend to or borrow from other banks. Although for historical reasons the Fed does not lend directly to banks through the Repo market, it can guarantee that the Funds rate will stay very close to its target for the Funds rate if it simply stands ready to lend unlimited funds through Repos to dealers at a rate slightly higher than its target, and ready to borrow unlimited funds from dealers through “reverse repos” at a rate slightly lower than its target. Suppose, for example, that its target is 3.00%. If banks can obtain unlimited funds from dealers who in turn obtain the funds from the Fed at 3.05%, the Funds rate will never go much above 3.05%. And if banks can lend unlimited funds to dealers who in turn can relend to the Fed at 2.95%, the Funds rate will never go much below 2.95%.

Although the Fed typically only enters the Repo market once a day, the expectation that it will borrow or lend virtually unlimited amounts at rates very near its Fed Funds target rate guarantees that the Repo rate, and therefore the Fed Funds Rate itself, does not differ systematically from the target before or after its daily intervention. The daily average Fed Funds rate is therefore ordinarily very close to the Fed’s target for it.

In order to hold the Funds rate at its target level, the Fed may have to lend or borrow large sums in order to meet all the demand or supply at the target level. However, it seldom allows its net Repo borrowing exceed \$50 billion. When it wishes to reduce Repo borrowing, it conducts what is known as a **Coupon Pass**. This is a large-scale open market operation in which indirect ownership of Treasury securities through Repo agreements is replaced with outright ownership, perhaps of the same very same securities. Dealers who sell their collateral during a coupon pass must repay the corresponding loans, so that Fed lending ordinarily goes down by the same amount that its securities increase. Thus year-to-year changes in the Fed’s assets tend to be primarily in the form of outright holdings of Securities, rather than in the form of Repo Loans, even though the latter are the primary source of day-to-day changes in the Fed’s assets.

The Fed ordinarily does not simultaneously borrow and lend under Repo agreements in the same maturity. When it is simultaneously lending through Repos and borrowing through Reverse Repos, it is therefore ordinarily doing this in different short-

⁵ Rather than actually changing ownership on the books of the Treasury, the collateral is often simply held in trust by a third party, usually the Bank of New York. Since repos are essentially riskless while Fed Funds transactions are unsecured claims on the borrowing bank, the repo rate is in fact commonly a few basis points less than the Funds rate, though we will treat them as interchangeable.

term maturities, e.g. 1 day versus 1 week. What matters for the monetary base is the Fed's Net Lending to dealers, without regard to this breakdown.

In addition to loans to securities dealers arranged as Repurchase Agreements, the Fed also lends directly to banks through what is called the **Discount Window**. The rate it charges on these loans is called its **Discount Rate**. These loans must be secured by sound collateral such as commercial loans or Treasury securities.

Since January, 2003, the Fed has lent freely to sound banks on good collateral through the Discount Window. However, it has had a policy of setting the Discount Rate on these loans well above its current Fed Funds rate target (originally 100 basis points above, later reduced to 50 basis points), so that banks in fact rarely take advantage of the Discount Window. Loans through the Discount Window to sound banks are therefore ordinarily a negligible portion of traditional Fed assets. The Discount Rate does, however, put a ceiling on how high the Funds Rate can go after the Fed's daily Repo market intervention, should there be an unexpected demand for reserves late in the day.⁶

Distressed banks that are not eligible for borrowing at the Fed's Primary Discount Rate may borrow at a **Secondary Discount Rate** 50 basis points above the primary Discount Rate. Such secondary borrowing is rare, but could amount to several billion dollars and become a perceptible component of the Fed's assets in the event of problems at a large bank or banks.

Prior to 2003, the Primary Discount Rate was typically below the Fed Funds target, but since the 1930's through 2002, banks were discouraged from using the Discount Window as a permanent source of funds. In order to take advantage of the low Discount Rate, banks had to demonstrate that they had adverse clearings or a seasonal demand for agricultural borrowing, and then were expected to repay these loans within two weeks. As a consequence, normal "adjustment and seasonal" use of the Discount Window rarely exceeded \$3 billion, and was ordinarily under \$1 billion, so that normal use was again a negligible source of Fed credit.

However, "Extended Credit" through the Discount Window in excess of two weeks was occasionally used by failing banks that other banks would not lend to. In August 1984, for instance, the Fed's Discount Window extended over \$7 billion in extended credit, in addition to approximately \$2 billion in routine adjustment credit. Almost all of this extended credit was to one bank, the failing Continental Illinois Bank of Chicago, immediately before its bailout. Other episodes of significant extended credit borrowing include the Franklin National Bank failure of 1974, the southwestern U.S. financial crisis of 1988-89, and the Bank of New England failure of 1990. After 1980, a substantially higher Discount Rate was charged on extended credit than normal adjustment and seasonal borrowing.

⁶ See Ed Stevens, "The New Discount Window," Federal Reserve Bank of Cleveland *Economic Commentary*, May 15, 2003 for a discussion of this change in policy.

Prior to 1980, only Commercial Banks that were classified as Federal Reserve Member Banks could use the Fed's Discount Window. However, since the Monetary Control part of the 1980 DIDMC Act subjected virtually all depository institutions - including most thrift institutions as well as nonmember banks - to the Fed's reserve requirements, these institutions were at the same time given "equal" access to the Discount Window with member banks. Nevertheless, only about 7,000 of the approximately 27,000 institutions theoretically eligible to use the discount window bothered to file the necessary paperwork.

When the Fed was first set up in 1913, it was envisioned that the Discount Window would be the principal source of Federal Reserve Credit, and indeed it was during World War I. However, since the 1930's, Open Market Operations (and, more recently, Repo lending) have largely supplanted it.

International Reserves

The Fed's International Reserves consist of Gold Certificates, assets denominated in foreign currencies, and Special Drawing Right Certificates.

Gold certificates are a vestige of the days prior to 1933, when Federal Reserve Notes were actually redeemable in gold coin at \$20.67 per ounce, and from 1935 to 1968, when foreigner central banks and even individuals, but not Americans citizens, could exchange dollars for gold bullion at the reduced rate (in terms of how much gold one gets per dollar) of \$35.00 per ounce. Originally, the Fed was required to keep 40% gold reserves against its obligations. This requirement was eventually reduced to 25% and finally removed altogether in 1968.

Technically, the Treasury Department rather than the Fed holds the U.S. government's monetary gold stock. However, this gold is represented by gold certificates, that are owned the the Fed, so that the Fed is the effective owner of this gold. An interesting technicality is that the Fed's gold certificates are evaluated at the official gold price, which has been \$42.22 per ounce since 1973, rather than the market price, which was approximately \$400 per ounce in May, 2004. This means that the "\$11.0 billion" of gold certificates that shows up on the Fed's balance sheet actually corresponds to almost \$104 billion worth of gold at market prices. If the Treasury were to sell this gold, it would have to give the Fed \$11 billion of the proceeds to cancel the gold certificates, and would keep the remainder as a profit.

In addition to Gold Certificates, which have been relatively static, the Fed held \$18.7 billion of assets denominated in foreign currencies. Most of these are short-term interest- bearing government obligations, analogous to our Treasury bills, rather than actual currency or zero-interest deposits. We will investigate the implications of these International Reserves in Chapters 31 and 32 below.

Special Drawing Rights or SDRs are obligations of the International Monetary Fund. They were first created in 1970 as a sort of "paper gold" to supplement countries'

actual gold reserves. We will learn more about SDRs and the IMF in Chapter 33. In imitation of the procedure for gold, the Treasury actually holds the SDR's, and issues "SDR certificates" corresponding to them to be held by the Fed.

The Fed's Traditional Liabilities: Federal Reserve Notes

Federal Reserve Notes are the common dollar bills in your wallet. They are by far the Federal Reserve System's largest traditional "liability." Before 1933, they were actually promises to pay gold on demand, but since 1933 the Fed is no longer obligated to give anything in return for them domestically, and effectively stopped international gold redemptions in 1968, so that they are liabilities in only a formal sense. Together with coins, which for historical reasons are issued by the Treasury, these make up the supply of currency. This currency is held either by the public, or else by banks and other depository institutions as part of their legal reserves.

Reserve Deposits

Banks and other depository institutions keep a portion of their cash reserves on deposit with the Fed, where they can be used as check clearing balances or readily converted into currency. These deposits are liabilities of the Fed, but assets from the banks' point of view. They are the "Federal Funds" that banks lend to one another through the Federal Funds Market. Until October 2008, the Fed paid no interest on most of these deposits. Together with currency in circulation and vault cash, these reserve deposits make up the monetary base.

Other Deposits

The Fed does not offer checking accounts to the public, but it does keep accounts for the U.S. Treasury, foreign governments and their central banks, and certain international agencies such as the United Nations, the World Bank and the International Monetary Fund. These "other deposits" are not considered to be part of the monetary base.

Who owns the Fed?

In theory, the Federal Reserve System is owned by the thousands of private commercial banks that are "Members" of the Federal Reserve System. Each of these member banks had to buy a certain number of shares of "stock" in the region's Federal Reserve Bank when it joined the system. These contributions, plus retained earnings, are the source of the \$48.6 billion "Capital Accounts" item on the Fed's 2009 balance sheet, that represents the Fed's Net Worth. The Fed actually pays dividends on this stock, and the member banks elect the Class A and Class B directors.

However, this "ownership" by the member banks is largely a fiction. For most practical purposes, the U.S. government owns the Fed.

The primary functions of the owner of a firm are to control it and to collect its profits (and/or to absorb its losses). We speak of the shareholders of an ordinary corporation as its owners because they elect the board of directors, may keep any residual profits after contractual obligations are met, and bear any losses up to their investment. The shareholders of the Federal Reserve System do not really own it in this sense, because they neither control it nor keep the profits.

The most important decisions of the Federal Reserve System are made by the Board of Governors and by the FOMC. The member banks have no say at all in the membership of the Board. They do control the regional Banks' boards of directors, which elect the Bank Presidents who serve on the FOMC. Even so, the Presidents they choose are subject to Board veto, and in any case together they have only 42% of the votes on the FOMC. The member banks therefore have little real power in making the important Fed decisions.

Nor do the member banks collect the residual profits. They do receive dividends on their stock, but these are restricted by law to 6% of the par value. Any residual must be turned over to the Treasury. In 2007, for example, the gross income of the Fed was \$42.6 billion, mostly interest on its huge portfolio of government securities. It ran up expenses of about \$3.9 billion, for a net income of \$38.7 billion. Of this, member banks received only \$1.0 billion in dividends. Of the remaining \$37.7 billion, \$34.6 billion was turned over to the Treasury, and \$3.1 billion were retained as an addition to the Capital Accounts. If the Fed had made a billion more or less, that would have changed its payment to the Treasury by essentially the same amount. The U.S. government, not the member banks, therefore performs the profit-retaining function of ownership, as well as the control function.

Because it actually makes money - indeed, it literally is in charge of creating money - the Fed is one government agency that never has to go to Congress to beg for appropriations, so long as its expenses stay within its gross income. The costs that it can incur have virtually no limit apart from the discretion of its Board of Governors and of the directors of the twelve Banks, subject to the oversight of the relevant Congressional committees.

Prior to 1980, for example, the Fed provided "free" check clearing services to its member banks. Of course, these services used up real resources, so they were not truly free. Since the banks did not have to pay for them, they reduced the Fed's profits and therefore the Treasury, and ultimately the taxpayers, had to pay for them. The 1980 DIDMC Act required the Fed to charge for this and other services that it had been providing at little or no charge, however.

Another cost the Fed incurs at public expense without Congressional appropriation is the hiring of hundreds of economists, both at the Board and at the 12 Reserve Banks. These economists study problems closely (or sometimes remotely) related to monetary policy and write reports that give the appearance of authority to the

Fed's decisions, even though these decisions are ordinarily arrived at with little or no reference to these economic studies. However, one very real effect of the Fed's staff of economists is to increase the demand for economists and thereby to increase economists' national salary scale. Most economists are agreed that this is an important function that directly serves the National Interest.

Seigniorage with Fractional Reserve Banking Under the Fed

In Chapter XX, we analyzed Seigniorage, a.k.a. Inflationary Finance, under the simplifying assumptions that the government directly created the entire money supply and paid no interest on it. This would be the case under 100% reserve banking so that the money stock M equaled the monetary base B , and if the government counted the change in the money stock (and therefore in the base) as income.

Under Fractional Reserve Banking, the base is only a fraction

$$B = \frac{1}{k} M$$

of the money supply. Assuming the Fed pays no interest on bank reserves, as was the case before 2008, the real value of the government's seigniorage from money creation is only

$$\frac{\Delta B}{P} = \frac{1}{k} \frac{\Delta M}{P} = \frac{1}{k} \mu m .$$

The remainder of the potential seigniorage,

$$\mu m - \frac{1}{k} \mu m = \frac{k-1}{k} \mu m ,$$

goes to the banks as perpetual profits if, as between 1933 and 1980, they are constrained by law from paying interest on their checking accounts. If they are allowed to compete freely for customers by paying interest on checking accounts, as has been the case with NOW accounts but not traditional demand deposits since 1980, this potential seigniorage instead goes to bank customers.

The Federal Government does not just count new base money as outright profits at the time the new base money is created. Instead, the Treasury borrows to cover its deficits by selling new securities on the financial markets. If these are purchased by the Fed with new base money that stays permanently in existence, the Fed will receive perpetual interest on these securities from the Treasury. However, since the Fed turns all of its marginal profits over to the Treasury, it simply returns these interest payments to the Treasury. Thus this portion of the Treasury's borrowing costs it nothing, and it may as well have just printed the money itself, as it did with the Civil War Greenbacks.

Although fiscally speaking, the Treasury may as well print the new money itself, having the Fed do it instead has the advantage of separating the fiscal decision to run a deficit from the monetary decision to expand the base and therefore the money supply.

If, as was traditionally the case before 2008, the Fed pays banks no interest on their reserve deposits, the Fed is effectively getting a perpetual interest-free loan on these balances, so that they generate seigniorage for the Fed equal to that on currency. However, if the Fed instead pays the same interest on reserves that banks can get through the Fed Funds market, the Fed loses this portion of its potential seigniorage.

II. The Bernanke Fed Balance Sheet (Table 3B)

The 2007-2008 Housing Finance Crisis and the Fed's Asset Side.

In 2007, a crisis began to emerge in the housing finance market. Most mortgages were sound, but an increasing number were **subprime**, meaning that they had far less than the traditional 20% initial owner equity, and mortgage principal and interest an excessive fraction of borrower income. Reckless loan officers eager to collect commissions often did not even ask for proof of income, and often accepted inflated appraisals of home values, so that borrower equity was often actually negative. These loans came to be known as “**NINJA**” mortgages, for “No Income, No Job, No Assets.” The severity of the situation was well known to those who cared to find out even in 2006.⁷

Many of these loans were packaged into pools known as **Mortgage Backed Securities**, and resold to other institutions. Often these were guaranteed by the two giant mortgage intermediaries Fannie Mae and Freddie Mac. The solvency of these firms had been in doubt for several years, and accounting irregularities made it hard to determine what their position really was. Nevertheless these mortgage backed securities were often given top ratings by the debt rating agencies Moody's and Standard and Poor's, so that purchasers could pretend that they had no default risk.

Any residual default risk was supposedly “eliminated” through contracts known as **Credit Default Swaps** underwritten by firms like insurance giant American International Group (AIG).

As long as housing prices rose briskly every year, even subprime mortgages rarely went into default. However, in 2007 house prices stalled and then began to fall. As house prices continued to fall and unemployment rose during 2008, increasing numbers of borrowers let their homes go into foreclosure.

Mortgage backed securities began to lose appreciable value. Commercial Paper that was issued by firms that had positions in these securities began to lose value as well, and the risk premium on moderately risky “P-2” Commercial Paper rose to unusually high levels. By summer of 2008, it was apparent that Fannie Mae and Freddie Mac were in deep trouble.

⁷ In 2006, the Columbus (OH) *Dispatch*, for example, ran a 3-part front page series on the precarious situation in the subprime mortgage market.

Rather than allow the firms that had made these bad decisions to suffer losses and even fail, the Bernanke Fed moved in in 2008 to support the market for subprime Mortgage Backed Securities and to rescue many of the firms that had exposure to them.

Already in June 2008, the investment house of Bear Stearns was on the brink of collapse but rescued by advances from the Fed through a Fed-owned company called “Maiden Lane LLC” that subsidized the takeover of Bear Stearns by JPMorgan Chase & Co. The front door of the Federal Reserve Bank of New York faces Liberty Street in New York City’s financial district, but its back door is on a small street called Maiden Lane, so that the implication was that these advances were to those who had back door access to the Fed. (LLC stands for Limited Liability Company.)

In September 2008, all hell broke loose. Fannie Mae and Freddie Mac were put into “conservatorship,” a status similar to receivership, but their debt and mortgage guarantees were effectively underwritten by Fed purchases of their bonds and MBSs. By 2009, the Fed held \$97 billion of these firms’ debt, as well as \$460 billion in Mortgage Backed Securities guaranteed by these two firms as well as the smaller Government National Mortgage Association (GNMA), aka “Ginnie Mae.”

The big investment bank Lehman Brothers was actually allowed to fail, but the Fed bailed out AIG both with direct advances and via “Maiden Lane II LLC” and “Maiden Lane III LLC”. These advances enabled AIG to make good on tens of billions of dollars that it owed to investment banks and bank holding companies like Société Générale, Goldman Sachs, Deutsche Bank, Merrill Lynch, UBS and others that had imprudently counted on AIG.⁸

In mid-September, the \$63 billion Primary Reserve Fund, a Money Market Mutual Fund that had tried to enhance its returns by investing in moderately risky P-2 commercial paper, including \$785 million in Lehman Brothers paper, lost 3% of its portfolio value overnight, when Lehman failed. Like most other Money Market Funds, it had been “penny-rounding” by rounding its net asset value to the nearest cent on the dollar. However, this loss forced it to “break the buck,” or fail to hold its net asset value within rounding distance of \$1.00.

Money Market Funds are just Mutual Funds that own a portfolio of assets and pass the returns and risks on to their investors, while providing them diversity and liquidity. The most conservative ones hold only very short term Treasury bills, bank CDs and relatively safe P-1 commercial paper. These are very safe from noticeable negative returns, but in turn may have very low average returns. Funds like Primary Reserve pay higher returns if all goes well, but may have negative returns occasionally.

⁸ Mary Williams Walsh, “A.I.G. Lists Firms to which it Paid Taxpayer Money,” *New York Times* March 16, 2009.

Rather than acting like a Mutual Fund and simply marking its shares down to \$.97 (or equivalently keeping its share value at \$1.00 and marking down share holdings by 3%), Primary Reserve froze up and stopped redeeming shares altogether. Investors in other higher-risk Funds started pulling their money out, causing P-2 commercial paper yields to shoot up as prices fell. Corporate borrowers that had been counting on MMMF purchases of their paper found themselves forced to borrow on less advantageous terms.

The Bernanke Fed responded by instituting a \$120 billion Commercial Paper Funding Facility LLC as well as a \$15 billion Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility to support the Commercial Paper market, thereby enabling high-risk MMMFs to pay high positive returns without the risk of occasionally returns, and high-risk corporations to borrow on more favorable terms than investors are willing to offer.

Already in December of 2007, the Fed began a massive program of lending directly to banks and other depository institutions through the \$283 billion Term Auction Credit Facility (aka Term Auction Facility). The fund periodically lends funds for 28 or 84 days through auctions to the highest bidding banks. The banks appear to be at a loss what to do with these funds, since bank excess reserves are much higher – the bulk of the \$726 billion in bank reserve deposits in July 2009 represented excess reserves rather than required reserves. However, because the Fed has been paying interest on reserves since October 2008, banks have little incentive not to borrow the funds, just in case borrowers willing to pay the prime rate can be found.

Many foreign banks and financial institutions tried to get in on the high promised returns on American subprime mortgage-backed securities, and found themselves in difficulty when the American market went sour. Accordingly, the Fed has advanced \$115 billion in Foreign Central Bank Liquidity Swaps, representing dollars that foreign central banks have in turn lent to their own struggling financial institutions. Since they are international transactions, Table 3B classifies them as International Reserves. However, unlike the traditional Foreign Currency line which only exposes the Fed to exchange rate risk, these are denominated in dollars and may entail some credit risk. Foreign central banks can print their own money at will, but not dollars.

Since the bulk of the Fed's new assets entail varying degrees of credit risk, they are classified in Table 3B as "Junk" assets, by analogy to the high-risk "junk bonds" often issued by private firms during leveraged buyouts of other firms. Often risky assets perform well and make higher returns than safe assets, so the Fed may actually make a profit on some of these assets.

However, the downside is that many of these assets may default and pay off only a fraction of what the Fed paid for them.

Post-2008 Changes on the Liabilities Side.

Three big changes appeared on the liabilities side of the Fed's balance sheet between 2007 and 2009. Most of these changes have been since 2008.

First, bank Reserve Deposits have shot up from \$17 billion to \$726 billion. As mentioned already, these are mostly Excess Reserves that banks are now paid interest on, and therefore have little incentive to lend out immediately. However, as soon as borrower confidence picks up, these funds are all standing ready to be lent out on short notice, to increase the money supply, spending, and prices.

Second, US Treasury deposits have shot up from \$5 billion to \$272 billion. Traditionally, the Treasury has tried to keep its outstanding debt to the minimum necessary to finance its actual spending, and has kept only a small account for current outlays with the Fed. The huge increase in this account apparently represents Troubled Asset Relief Program (TARP) and similar funds that have been approved by Congress, but which the Treasury hasn't yet figured out how to spend. Rather than waiting to borrow and then taking a chance that Congress will change its mind, the Treasury evidently prefers to keep these funds ready to spend at a moment's notice. Treasury deposits are not counted as part of the Monetary Base. However, the base will increase as soon as the Treasury spends these funds, unless the Fed undertakes a compensating sale of its assets.

And third, Foreign Official deposits have increased "moderately," from \$32 billion to \$73 billion. These increased deposits partially offset the \$115 billion in new Central Bank Liquidity Swaps, and like the Treasury deposits may represent funds that Central Banks have borrowed, but haven't yet figured out how to spend.

The New Fiscal Role of the Bernanke Fed

Before 2008, Congress exercised and closely guarded its constitutional powers to appropriate spending, borrow funds, and to levy taxes. The Fed let Congress make all the decisions about how to spend money and on whom, and merely decided how much of the Congressionally-authorized Treasury Debt to monetize through open market operations, as supplemented by short-term, secure loans to banks and dealers. The Fed had broad emergency lending powers under the now much-cited Section 13(3) of the Federal Reserve Act,⁹ but only used them in true emergencies such as 9/11, and then only for brief periods.

Under the leadership of Fed Chairman Ben Bernanke, however, the Fed has decided to indefinitely help out the creditors of Fannie Mae, Freddie Mac, Bear Stearns, and AIG, but not those of Lehman Brothers. It also has taken over almost half a trillion dollars of the mortgage market, plus \$135 billion of the corporate commercial paper market. All this has taken place without any specific act of Congress.

⁹ See <<http://www.federalreserve.gov/aboutthefed/section13.htm>>.

Congress has raised no objections, so it has basically abdicated this portion of its powers to the Fed. This change represents a major shift in the allocation of powers with the US government.

Afterthought:

FRANK & ERNEST

