The U.S. Financial Crisis: Credit Crunch and Yield Spreads

by

James R. Barth, Tong Li and Triphon Phumiwasana*

Abstracts: The current financial market meltdown has led to the most wide-ranging and intrusive set of steps taken by the government into the private sector since the Great Depression in the 1930s. It began with a collapse in housing prices, an increase in the inventory of unsold homes and a rapid rise in home foreclosures beginning in early 2007. Problems then started to spread throughout the financial sector when two Bear Stearns's hedge funds backed by subprime mortgages collapsed in August 2007. These deeply disturbing developments were followed by alarming losses and write-downs by a growing number of firms. The tally amounted to about US$680 billion as of October 31, 2008. These unfolding events led many financial institutions to tighten lending standards, increase liquidity, and deleverage by raising capital when possible in the marketplace, selling preferred shares to the government, and unloading selected assets.

This article examines the effects of all these developments on credit spreads of various financial instruments over Treasury securities. In an environment in which financial firms were simultaneously seeking liquidity to fund ongoing business operations, tightening lending standards, and deleveraging, it is not surprising that most credit spreads were not only widening but reaching record highs. It is also interesting to note that some of the spreads that have widened are due to flight to safety and a surge in global demand for Treasury securities, which pushes the short-term Treasury rate down substantially, even below the Federal Reserve's targeted federal fund rate.

* James R. Barth is the Eminent Scholar in Finance at the Auburn University and Senior Fellow at the Milken Institute. Tong Li is a senior research analyst and Triphon Phumiwasana is a research economist. The authors would like to thank Wen-Ling Lu for excellent assistance.

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The current financial market meltdown has led to most wide-ranging and intrusive set of steps taken by the government into the private sector since the Great Depression in the 1930s. It began with a collapse in housing prices, an increase in the inventory of unsold homes and a rapid rise in home foreclosures beginning in early 2007. Problems then started to spread throughout the financial sector when two Bear Stearns's hedge funds backed by subprime mortgages collapsed in August 2007. These deeply disturbing developments were followed by alarming losses and write-downs by a growing number of firms. The tally amounted to about US$680 billion as of October 31, 2008. These unfolding events led many financial institutions to tighten lending standards, increase liquidity, and deleverage by raising capital to the extent possible in the marketplace, selling preferred shares to the government, and selling selected assets.

The remainder of this article will principally discuss the effects of all these developments in the financial sector on credit spreads of various financial instruments over Treasury securities.

A Liquidity Freeze and Credit Crunch Grip the Economy

In an environment in which financial firms were simultaneously seeking liquidity to fund ongoing business operations, tightening lending standards, and deleveraging, it is not surprising most credit spreads were not only widening but reaching record highs. As illustrated in figure 1,

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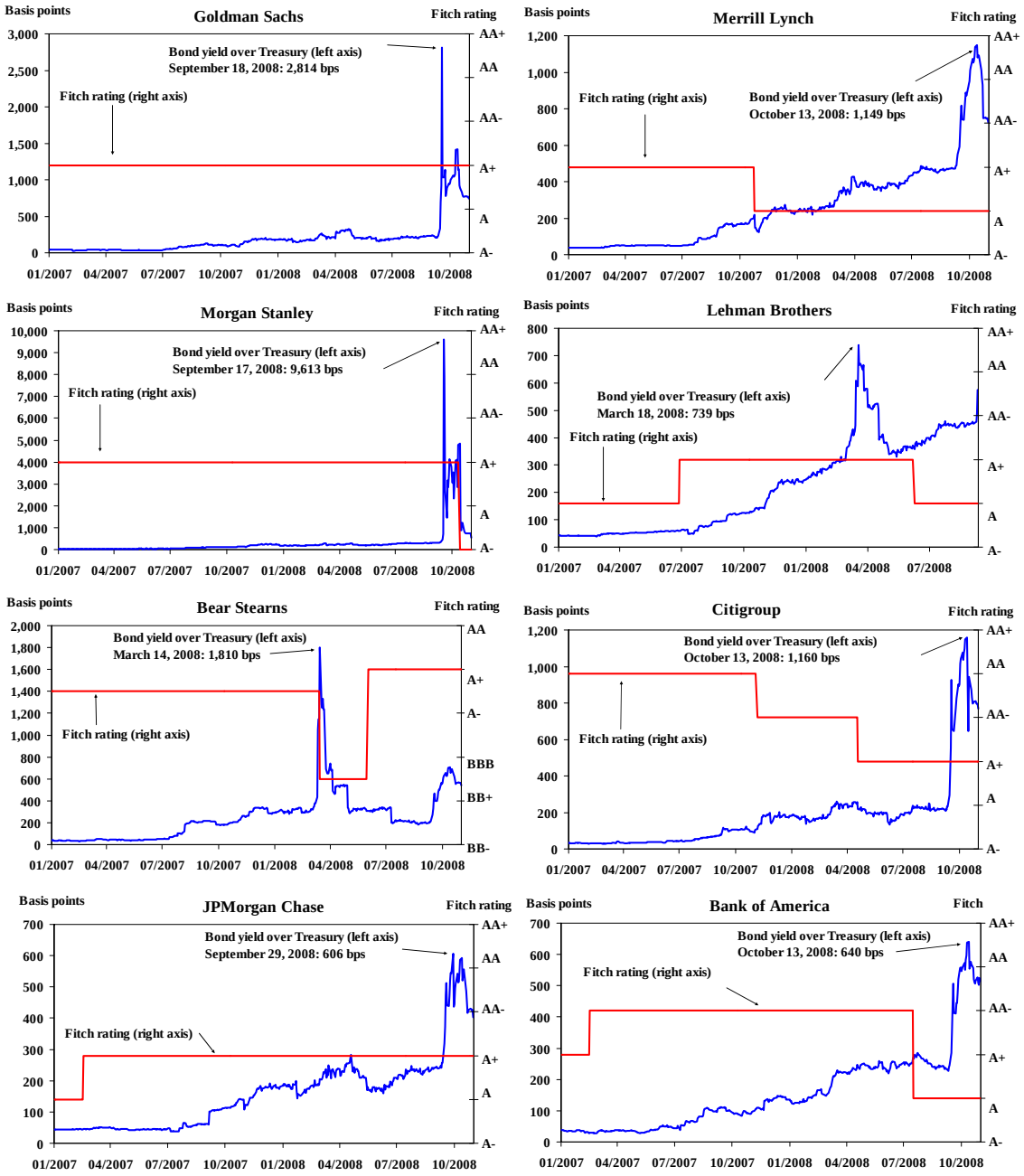
all eight major commercial and investment banks depicted experienced spreads that widened dramatically through the second half of 2007 and continued to widen still further through October 31, 2008. The spreads widened most for Bear Stearns, Lehman Brothers, and Merrill Lynch, and the least for Citigroup, JPMorgan Chase, and Bank of America. The spread for Goldman Sachs was fairly flat until a spike occurred on September 18, 2008, followed by a sharp decline that brought it more in line with the latter three institutions. These figures also show how Fitch's bond ratings compared to the spreads, with the correlation between the two relatively low over the selected time period.

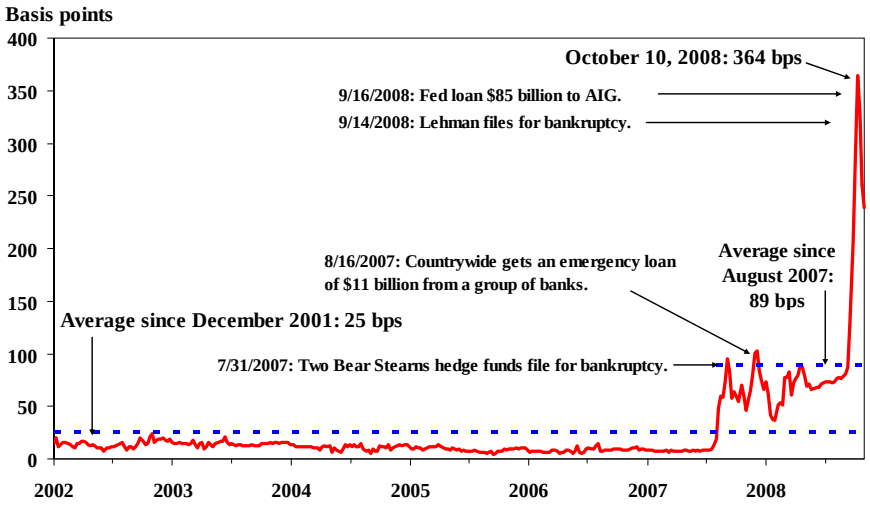
Figure 1: Yield spreads and bond ratings for major financial firms (2004–October 31, 2008)



Sources: Datastream, Bloomberg, Milken Institute.
Note: "Bond yield over Treasury" refers to each firm's bond rate relative to the comparable-maturity Treasury rate. Lehman Brothers filed for bankruptcy on September 15, 2008, and its bond yields over Treasury on that date was 40,160 bps.

Many of the steps taken by the government to deal with the spreading financial problems focused on the liquidity in the interbank lending markets. Figure 2 shows that the spread between LIBOR and the overnight index swap (OIS) rate, or the three-month premium paid by banks over anticipated central bank rates, increased from less than 14 basis points in July 2007 to 48 basis points in the second week of August, and still higher to 364 points on October 10, 2008. This widening spread indicates a reluctance of banks to lend to one another. Since August 2007, the average LIBOR-OIS spread was 80 basis points, compared to an weekly average of 11 basis points from January 2002 to July 25, 2007.

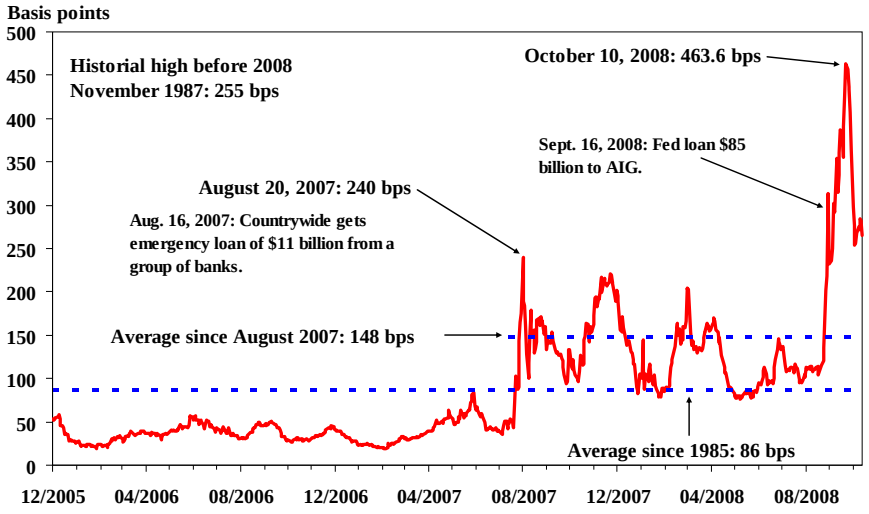
Figure 2: Liquidity freeze: Spread between 3-month LIBOR and overnight index swap rate (weekly, 2001–October 31, 2008)



Sources: Bloomberg, Milken Institute.

Another measure of a liquidity freeze is the spread between LIBOR and the Treasury bill rate, or TED ("T" for Treasury bill rate, and "ED" for the interbank Eurodollar rate). As figure 3 shows, when the financial crisis began to spread more widely the TED spread widened to 240 basis points on August 20, 2007, from an average of 38 basis points over the period December 2005 to July 31, 2007. It widened still further to 464 basis points on October 10, 2008. The recent high in the TED spread was more than 80 percent higher than the prior historical high that was set in November 1987.

Figure 3: Widening TED spread: Spread between 3-month LIBOR and Treasury-bill rate (daily, October 31, 2005–October 31, 2008)

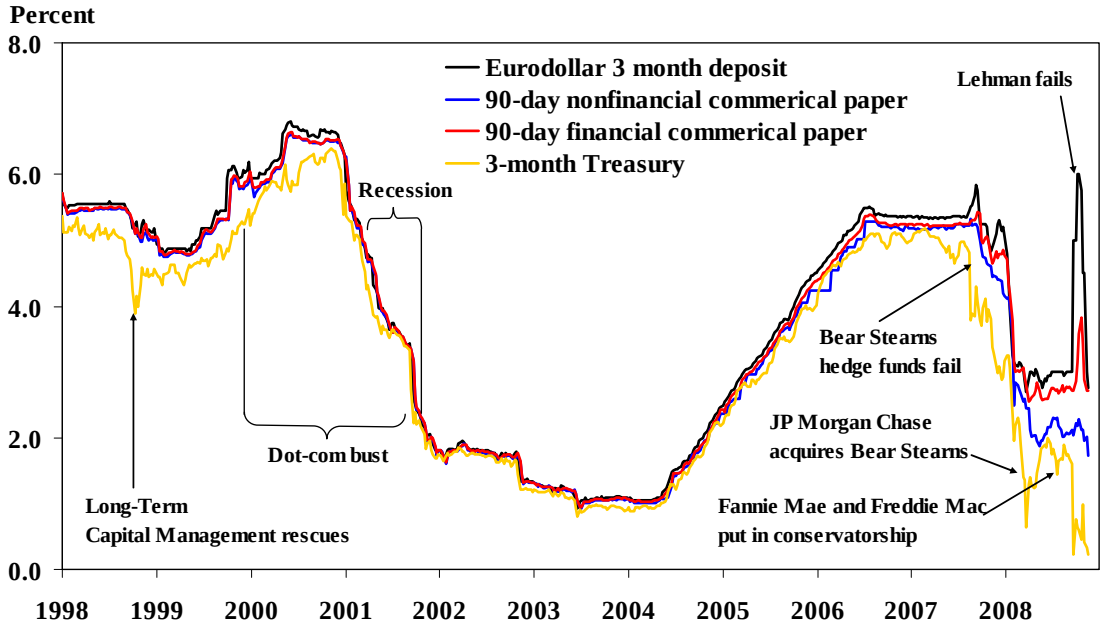


Sources: Bloomberg, Milken Institute

Figure 4 shows the 3-month interest rates for Eurodollar deposits, nonfinancial commercial paper, financial commercial paper and Treasury securities. In a normal period, these short-term interest rates move in a fairly tight range. As shown in Table 1, the average spreads over the Treasury rate from 2002 to 2006 was 20 basis points for Eurodollar deposits rate, 9 basis points for the nonfinancial firm commercial paper rate, and 14 basis points for the financial firm commercial paper rate. These spreads have widened considerably during the financial crisis. During the Long-Term Capital Management (LTCM) crisis, that was trigged by the Russian default in 1998, the Eurodollar deposits spread widened to 136 basis points and both the financial and nonfinancial commercial paper spreads increased to 122 basis points. Despite the dot-com collapse in 2000, the 9-11 attacks in 2001 and the recession in the same year, the average yield spreads of the three instruments remained at an average of 31 basis points, with a high of 107 basis points. The yield spreads of short-term commercial paper of both nonfinancial and financial firms over the Treasury rate widened again and substantially in late 2007, subsequently reaching

a record high of 131 basis points on September 18 and 336 basis points on October 16, 2008, respectively.

Figure 4: Interest rates on selected short-term instruments (weekly, January 3, 1998 – November 13, 2008)



Sources: Datastream, Milken Institute

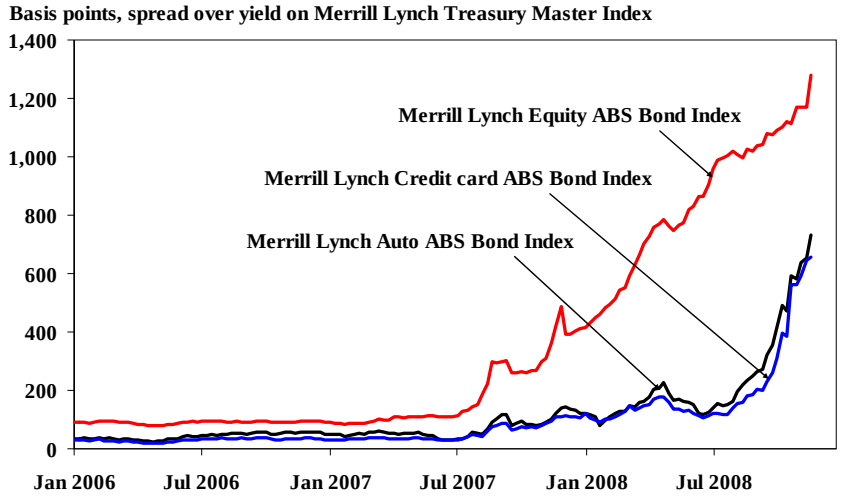
Table 1: Selected yield spreads (1998-November 13, 2008)

Basis points	Spread between 3-month Eurodollar deposit and Treasury		Spread between 90-day nonfinancial commercial paper and 3-month Treasury		Spread between 90-day financial commercial paper and 3-month Treasury	
	Average	High	Average	High	Average	High
1998	55	136	46	122	49	122
1999	55	122	41	88	45	91
2000	47	107	32	95	34	98
2001	22	71	25	95	27	95
2002	9	18	7	41	8	43
2003	12	19	10	24	11	24
2004	16	31	8	20	11	23
2005	31	54	13	30	20	41
2006	34	54	9	34	20	38
2007	88	228	57	153	70	193
2008	186	540	79	181	140	336

Sources: Datastream, Milken Institute

Many relatively stable spreads prior to July 2007 increased abruptly thereafter. As seen in figure 5, the spread of securities backed by home-equity loans over Treasury securities rose by an average weekly amount of nearly 17 basis points from August 2007 through November 20, 2008. The spreads for securities backed by credit card loans and auto loans also widened at an accelerated pace after July 2008. Both spreads were below 200 basis points in the first week of July 2008, but only five months later they had increased to more than 600 basis points.

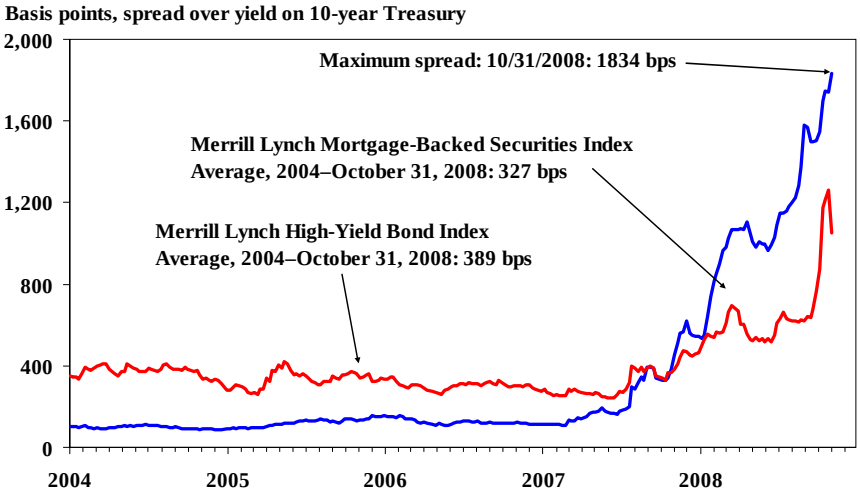
Figure 5: Widening spreads of home-equity, credit card and auto loan asset-backed securities (weekly, January 2006 – November 20, 2008)



Sources: Datastream, Milken Institute

The yield spreads of both mortgage-backed securities and high-yield bonds over the ten-year Treasury bond also rose considerably after July 2007, as illustrated in figure 6. This was due to the problems extending well beyond the mortgage market. Furthermore, the spreads indicate that the market considered mortgage-backed securities to be even riskier than high-yield bonds, which was not the case prior to that time.

Figure 6: Widening spread between mortgage-backed securities and high-yield bonds (weekly, 2004–October 31, 2008)



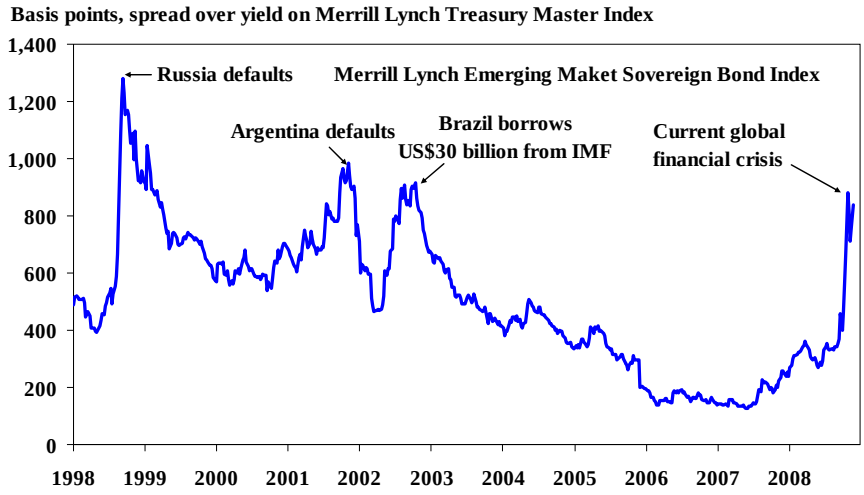
Sources: Bloomberg, Milken Institute

In addition, even yield spread between state and local government (municipal) bonds and Treasury bonds increased to its highest level since 1970, to a level of almost ten percentage points. This spread, moreover, has almost always been negative because municipal bonds have a tax advantage over Treasury bonds that increases for individuals in higher tax brackets. The development occurred because monoline insurers that had previously limited their coverage to municipal bonds had now ventured into the business of insuring securities backed by subprime mortgage loans. Losses and write-downs on the securities backed by subprime loans that they insured raised questions about their ability to honor their guarantees on municipal securities and contributed to a decline in the value of municipal securities. Tightening market conditions also reduced the supply of credit available to state and local governments.

A widening in interest rate spreads extended to many different sectors of the U.S. economy. Many countries around the world were also affected by a shortage of liquidity and other related financial problems, as shown in figure 7. The emerging market sovereign spread

nearly reached the earlier high level in 2001-2002, when Argentina defaulted on its debt and Brazil sought a rescue package from the International Monetary Fund.

Figure 7: Emerging market yield spread widened but so far lower than historical highs (weekly, 1998-November 20, 2008)



Sources: Datastream, Milken Institute

Yield Spreads of Government-Sponsored Enterprises Remain Even After Conservatorship

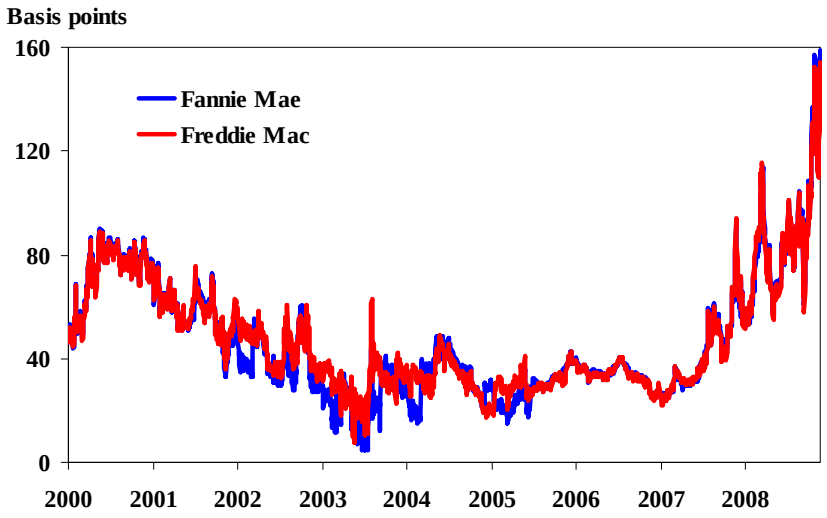
On September 7, 2008, the U.S. government seized control of Fannie Mae and Freddie Mac, the two main government-sponsored enterprises (or GSEs) created to expand the secondary market for home mortgages in the United States. The Federal Housing Finance Agency (FHFA) was appointed conservator and charged with overseeing their affairs and bringing them back to financial health. The move was structured so that each company would maintain a positive net worth. Treasury received senior preferred stock with a liquidation preference, an upfront $1 billion issuance of senior preferred stock with a 10 percent coupon from each GSE, receives quarterly dividend payments, warrants representing an ownership stake of 79.9 percent in each GSE going forward, and receives a quarterly fee starting in 2010. The agreements are indefinite in duration and have a capacity of $100 billion each. If the FHFA determines that a GSE's liabilities have exceeded its assets under generally accepted accounting principles, Treasury will

contribute cash capital to the GSE equal to the difference between liabilities and assets. An amount equal to each such contribution will be added to the senior preferred stock held by Treasury, which will be senior to all other preferred stock, common stock, or other capital stock to be issued by the GSE.

The agreements also specify many other terms and conditions. For example, neither GSE is allowed to increase its debt to more than 110 percent of its debt as of June 30, 2008 or to acquire or merge with another entity. Also, each GSE's retained mortgage and mortgage backed securities portfolio shall not exceed $850 billion as of December 31, 2009, and shall decline by 10 percent per year until it reaches $250 billion.

Because the GSEs are in conservatorship, it was decided that they will no longer be managed with a strategy to maximize common shareholder returns. It is not clear exactly what the new strategy is going to be. It should also be noted that holders of the subordinated debt of these two GSEs were not wiped out. Even after Fannie Mae and Freddie Mac were placed in the conservatorship, figure 8 shows that the difference between the yields on debt issued by the two institutions compared to the yield on Treasury securities rose to an all time high. This spread exists because of a concern on the part of investors that it is not clear what will eventually happen to the two companies and, more importantly, because the government has not provided an explicit government guarantee on the debt issued by them or in their survivability as separate ongoing companies.

Figure 8: Fannie Mae and Freddie Mac spreads over Treasury reach all time highs (daily, January 1, 2008-November 17, 2008)



Sources: Bloomberg, Milken Institute

Figure 9 provides a comparison of the credit default swap (CDS) spreads for Fannie Mae and Freddie Mac to Treasury securities. A credit default swap is a credit derivative contract between two counterparties, whereby the buyer pays periodic payments to the seller in exchange for the right to a payoff if there is a default or credit event in respect of a third party or reference entity. Tables 2 and 3 provide more detailed information about the credit default swap premiums for both Fannie Mae and Freddie Mac. These tables show that the premiums were highest for their subordinated debt, and increased by well over 100 basis points from June 2007 to March 2008, and increased still further to August 2008, before declining somewhat in October 2008 after the two firms had been put into conservatorship. Also, notice that there was a big disconnect between the movements in the credit default spreads and the ratings assigned by Fitch and Moody's for the different time periods. There is, however, a negative correlation between the credit default swap spreads and the stock prices of the two firms.

Table 2: Senior and subordinated credit default swap premiums for Fannie Mae (selected years)

Fannie Mae	6/29/2007		3/17/2008		8/20/2008		10/31/2008	
Stock price ($)	65.33		22.21		4.40		0.93	
Premium (basis points)	Senior	Sub	Senior	Sub	Senior	Sub	Senior	Sub
CDS Premium 1Y	1.7	3.6	44.6	171.9	37.6	413.3	40.0	461.9
CDS Premium 2Y	4.1	7.6	51.9	188.5	37.3	367.5	37.5	379.3
CDS Premium 3Y	6.1	10.6	59.1	204.7	37.3	326.5	35.5	311.0
CDS Premium 4Y	8.3	14.1	66.2	222.4	37.1	306.0	36.3	267.1
CDS Premium 5Y	10.0	17.1	73.2	240.8	39.8	294.6	37.5	233.2
CDS Premium 6Y	11.6	19.2	72.9	243.3	42.8	280.4	35.7	241.7
CDS Premium 7Y	13.1	20.4	69.4	242.4	45.0	270.2	34.3	247.6
CDS Premium 8Y	14.2	22.3	68.0	242.4	45.0	266.7	34.4	246.1
CDS Premium 9Y	14.9	23.8	68.1	243.0	45.0	263.9	34.5	245.0
CDS Premium 10Y	15.3	25.2	69.4	243.9	45.0	261.7	34.3	244.0
Rating: Fitch	AAA	AA-	AAA	AA-	AAA	AA-	AAA	AA-
Rating: Moody's	Aaa	Aa2	Aaa	Aa2	Aaa	Aa2	Aaa	Aa2

Sources: Datastream, Milken Institute.

Table 3: Senior and subordinated credit default swap premiums for Freddie Mac (selected years)

Freddie Mac	6/29/2007		3/17/2008		8/20/2008		10/31/2008	
Stock price ($)	60.7		20.62		3.25		1.03	
Premium (basis points)	Senior	Sub	Senior	Sub	Senior	Sub	Senior	Sub
CDS Premium 1Y	2.1	4.4	55.8	189.1	37.7	463.4	42.6	369.4
CDS Premium 2Y	3.6	7.5	60.5	203.5	38.2	393.3	42.6	328.7
CDS Premium 3Y	5.3	9.6	65.1	217.7	39.0	340.2	42.6	273.0
CDS Premium 4Y	7.1	12.7	69.6	231.2	39.5	315.9	43.9	237.5
CDS Premium 5Y	9.0	15.3	74.2	244.6	39.8	293.8	44.7	231.7
CDS Premium 6Y	10.1	16.9	79.9	246.2	39.5	275.4	43.6	217.6
CDS Premium 7Y	10.9	17.8	85.5	246.5	39.3	262.1	42.7	207.0
CDS Premium 8Y	11.7	19.3	84.5	246.1	39.1	253.0	42.6	203.0
CDS Premium 9Y	12.6	21.2	82.5	246.4	39.0	245.9	42.6	200.1
CDS Premium 10Y	13.6	23.2	80.0	247.2	38.9	240.2	42.6	197.1
Rating: Fitch	AAA	AA-	AAA	AA-	AAA	AA-	AAA	AA-
Rating: Moody's	Aaa	Aa2	Aaa	Aa2	Aaa	Aa2	Aaa	Aa2

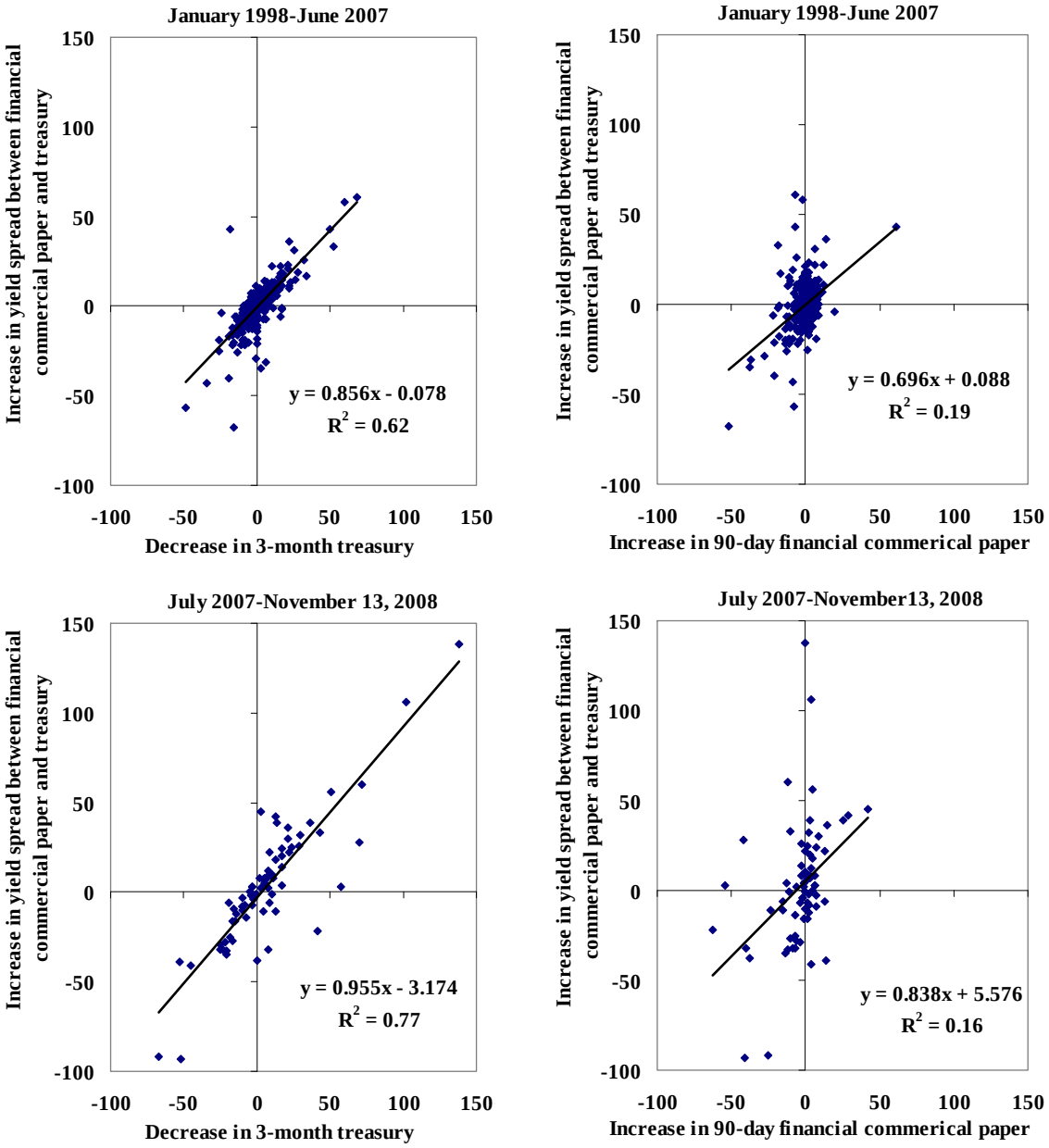
Sources: Datastream, Milken Institute.

The Flight to Safety

It is interesting to note that some of the spreads that have widened are due to flight to safety. There has been a surge in global demand for Treasury securities, which pushes the short-term Treasury rate down substantially. As shown earlier in Figure 2, the short-term Treasury rate tends to drop during times of financial distress and a corresponding lack of confidence in

financial markets, such as during the LTCM episode and the current crisis. Figure 9 shows the scatter plot of the weekly changes in the yield spread between 90-day commercial paper of financial firms and 3-month Treasury securities before and after the current financial crisis. Weekly changes in the spread are found to be smaller before than after the crisis. Furthermore, declines in Treasury rates typically have a higher correlation with changes in the yield spread than increases in commercial paper rates. Indeed, based on R-squared from simple linear regressions, the weekly variation in changes in the Treasury rate explain 62 percent of the variation of the yield spread prior to the crisis and 77 percent during the crisis. The global flight to safety has also strengthened the U.S. dollar, which has appreciated more than 20 percent from July 2008 to November 20, 2008.

Figure 9: Decomposition of changes in yield spreads between 90-day commercial paper of financial firms and 3-month Treasury, selected periods



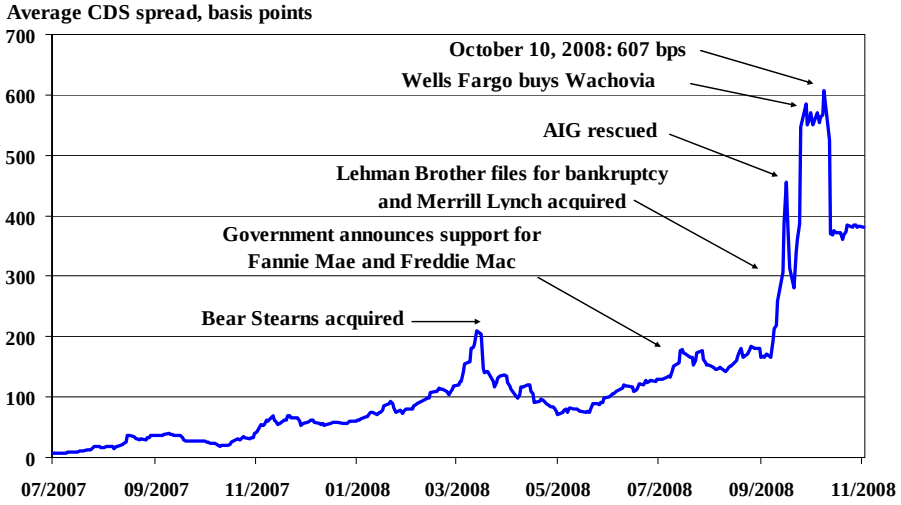
Sources: Datastream, Milken Institute.

Fear of Counterparty Risk Grows

One of the problems in the current environment is the increase in counterparty risk. Banks do not want to lend to each other and business firms do not know if other business firms will be able to fulfill their contractual obligations. Concern over counterparty risk has heightened during the current financial turmoil. The ability to repackage risk of a certain type in a contractual agreement and its resulting value in the financial marketplace depends on the notion that a counterparty who takes on risk can fulfill its contractual obligation when the need arises. Since many large and important financial firms are facing extremely difficult times, counterparty risk has become a major problem throughout financial system.

Figure 10 provides additional information about market reaction to the spreading financial crisis, using the Credit Derivatives Research (CDR) Counterparty Risk Index, which tracks the credit risk of selected financial institutions acting as counterparties to most of the contracts traded in the credit default swap market. It clearly shows that the risk, as perceived by the market, of the institutions (included in this specific measure) being able to fulfill their commitments not only trended upward over the past year but also spiked temporarily whenever a rescue action was taken. For example, when the Federal Reserve rescued AIG on September 16, 2008, the index shot up 68 basis points in a day to 457 basis points and when WellsFargo agreed to buy Wachovia in October 2008 the index reached a record high of 607 basis points. The highs over the entire period occurred during the week of October 6, 2008, when the International Monetary Fund issued a bleak global forecast.

Figure 10: Counterparty risk increases for financial firms (daily, July 2007–October 31, 2008)



Sources: Datastream, Milken Institute.
Note: Credit Derivatives Research (CDR) Counterparty Risk Index averages the market spreads of the credit default swaps of fifteen major credit derivatives dealers, including ABN Amro, Bank of America, BNP Paribas, Barclays Bank, Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs Group, HSBC, Lehman Brothers, JPMorgan Chase, Merrill Lynch, Morgan Stanley, UBS, and Wachovia.

The discussion so far has focused on financial institutions and their credit default swap spreads. It is useful, however, to broaden the perspective by looking at the spreads for other types of industries. Table 4 shows the credit default swap spreads for different sectors of the economy from January 1, 2004 to October 17, 2008, with the time period broken down into pre- and post-financial meltdown. The low, high, and average CDS spreads as well as the standard deviation of the spreads are provided for the two sub-periods. For every sector, the average spread was higher post-June 30, 2007 than pre-June 30, 2007, and the standard deviation was also higher in the second sub-period. One would expect that when the financial sector and real economy return to a more normal condition, the CDS spreads shown for October 17, 2008 would decline to much lower levels for the different sectors. Notice in particular that the spread for the financial services sector was 1,102 basis points on that date, which is far greater than the average

of 34 basis points for the first sub-period and even greater than the average of 307 basis points for the crisis period.

Table 4: Credit default swap spreads for different sectors (January 1, 2004–October 31, 2008)

Basis points	CDS spreads as of 10/31/2008	From July 1, 2007 to October 31, 2008				From January 1, 2004 to June 30, 2007			
		High	Low	Average	Standard deviation	High	Low	Average	Standard deviation
Automobiles and parts	2,012	3,285	294	809	549	637	140	309	122
Banks	150	596	19	157	99	33	10	21	6
Basic resources	885	1,062	91	223	173	122	44	77	15
Chemicals	334	368	76	161	61	109	45	74	15
Construction and materials	460	477	79	197	87	158	32	78	33
Financial services	948	1,176	46	327	247	49	21	34	7
Food and beverage	284	290	50	122	54	61	29	45	6
Health care	246	246	66	131	35	74	34	56	7
Industrial goods and services	275	287	73	129	45	107	49	72	10
Insurance	611	923	31	260	194	79	17	38	13
Media	1,174	1,430	127	452	317	138	56	97	17
Oil and gas	281	332	61	118	50	121	43	68	18
Personal and household goods	442	556	125	291	81	121	47	83	14
Retail	388	411	89	198	77	123	42	80	12
Technology	501	501	118	216	76	205	71	126	29
Telecommunications	520	707	58	197	114	225	48	99	42
Travel and leisure	1,295	1,656	218	645	341	511	96	253	86
Utilities	323	358	67	136	60	149	39	85	27

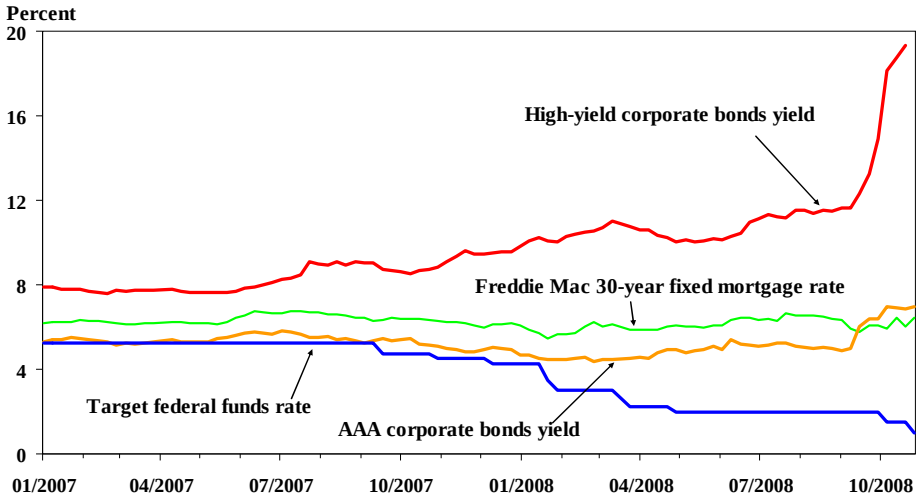
Sources: Datastream, Milken Institute.

Federal Reserve Takes Numerous and Historic Steps to Provide Liquidity and Ease Credit

Beginning on August 17, 2007, the Fed cut the discount rate ten times, from 6.25 percent to a low of 1.25 percent on October 29, 2008, where it remains as of this writing. Similarly, beginning on September 18, 2007, the Fed lowered its target federal funds rate nine times, from 5.25 percent to a low of 1.0 percent on October 29, 2008, where it currently remains. It should be noted that the actual federal funds rate has recently been lower than the target rate, with the real rate being negative.

However, although the federal funds rate declined over this period, the thirty-year fixed mortgage rate has remained relatively flat for the past twenty-two months, and the gap between the two rates widened significantly. A portion of the widening was due to a slight increase in the mortgage rate since January 2008. Figure 11 compares trends in the target federal funds rate, AAA corporate bond yield, high yield corporate bond yield, and Freddie Mac's thirty-year fixed mortgage rate over the same period as the previous figure. It basically tells the same story, but shows that reductions in the target federal funds rate have failed to lead to lower high yield corporate yields or AAA corporate bond yields. In fact, the AAA corporate bond yield increased somewhat at the end of the period, while high yield corporate bond yields increased sharply. This move reflects the greater perceived risk associated with these securities and the flight to safety discussed earlier.

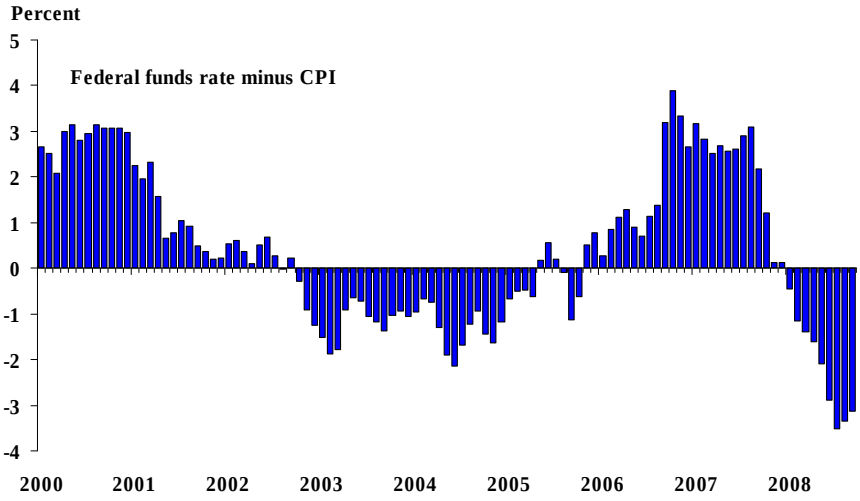
Figure 11: Increasing spreads between corporate bonds, mortgage securities, and target federal funds rate (weekly, 2007–October 31, 2008)



Sources: Federal Reserve, Freddie Mac, Merrill Lynch, Bloomberg, Milken Institute.

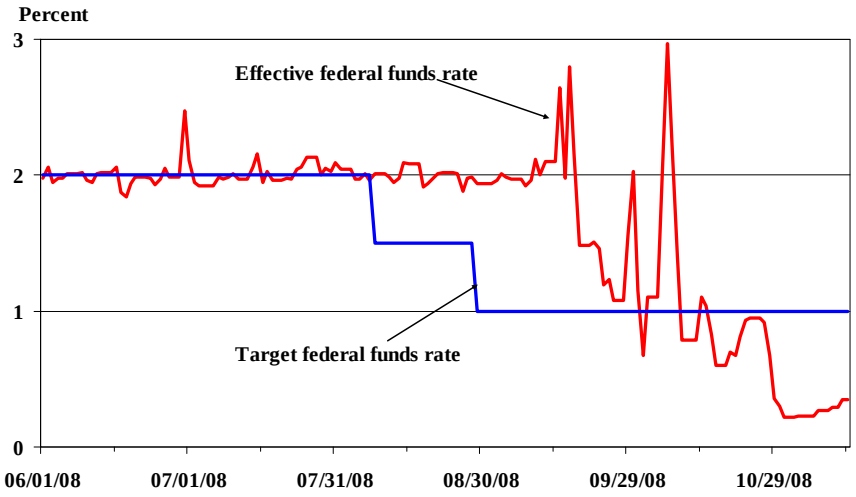
One concern about the Fed's recent actions is that they may exacerbate inflation if the current recession and subsequent recovery follow a V-shaped pattern. The housing price bubble came about because interest rates were held too low, for too long and housing seemed to be an attractive opportunity for both borrowers and lenders, not to mention players. Figure 12 shows that from October 2002 through April 2005, real short-term interest rates were negative. After remaining positive for 25 months, real interest rates became negative once again in January 2008. Indeed, they became substantially more negative in recent months than in the earlier part of the decade. Indeed, the cuts in the target federal funds rate by the Fed under Chairman Bernanke have been far more aggressive then those under his predecessor, Chairman Greenspan. As figure 13 shows, the effective federal funds rate was close to zero in November 2008, and actually has been below the target federal fund rate for two months or so. This situation leaves little room for Fed to lower rates still further. Depending on how low they remain and how long they stay low, the possibility remains that another asset bubble may form.

Figure 12: Negative real federal funds rate (monthly, January 2000–September 2008)



Sources: Federal Reserve, Bureau of Labor Statistics, Milken Institute.

Figure 13: Federal Reserve has little maneuvering room (daily, June 1, 2008–November 14, 2008)



Sources: Federal Reserve, Milken Institute.

In addition to cutting interest rates, Table 3 shows that the Fed has implemented several new and historic programs in response to the current financial turmoil.

Table 5: Federal Reserve Programs to deal with the current financial turmoil

Program	Cost	Date announced	What it was meant to accomplish
Term Discount Window Program (TDWP)	$111 billion as of 10/29/2008	10/17/07	Extends the term of discount window loans from overnight to up to 90 days.
Term Auction Facility (TAF)	$301 billion as of 10/29/2008	12/12/07	The Fed auctions off loans under the TAF every Thursday for a term of 28 days. It may expand TAF lending to $900 billion by the end of 2008.
Term Securities Lending Facility (TSLF)	$198 billion as of 10/29/2008	3/11/08	Establishes term swaps between the Fed and primary dealers. Collateral can be Treasury securities, federal agency securities, and other highly rated debt securities.
Bear Stearns	Up to $29 billion	3/14/2008	The Fed acquired $29 billion in mortgage backed securities from JPMorgan Chase to fund its purchase of Bear Stearns. As of October 29, 2008, the market value of these mortgage-backed securities is $26.8 billion.
Primary Dealer Credit Facility (PDCF)	$80 billion as of 10/29/2008	3/16/08	Extends overnight borrowing from the Federal Reserve to primary dealers.
AIG	$85 billion as of 10/29/2008	9/16/2008	AIG received an $85 billion, two-year secured loan on September 16, 2008, in exchange for warrants for a 79.9 percent equity stake in AIG. The firm was given an additional $37.8 billion on October 8, and another $20.9 billion credit line under CPFF on October 30, 2008. On November 10, Treasury purchased $40 billion of newly issued AIG preferred stock under the TARP (potentially reducing the original loan from $85 billion to $60 billion).
Asset Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF)	$96 billion as of 10/29/2008	9/19/2008	Loans to banks so that they can buy asset-backed commercial paper from money market funds.
Expansion of the Federal Open Market's temporary reciprocal currency arrangements (swap lines)	Up to $620 billion	9/29/2008	The Federal Open Market Committee authorized a $330 billion expansion of its swap lines for U.S. dollar liquidity operations by other central banks, raising the total cap to $620 billion (up to $30 billion by the Bank of Canada, $80 billion by the Bank of England, $120 billion by the Bank of Japan, $15 billion by Danmarks Nationalbank, $240 billion by the ECB, $15 billion by the Norges Bank, $30 billion by the Reserve Bank of Australia, $30 billion by the Sveriges Riksbank, and $60 billion by the Swiss National Bank).
Commercial Paper Funding Facility (CPFF)	$145 billion as of 10/29/2008	10/7/08	This includes the $37.8 billion loan and the $20.9 billion credit line extended to AIG.
Money Market Investor Funding Facility (MMIFF)	Up to $540 billion	10/21/08	The MMIFF provides assurance that money market mutual funds can liquidate their investments if cash is needed to cover withdrawals from customers.