**Appendix 1: Materials used by Mr. Sack** 

Material for

# **FOMC Presentation:**

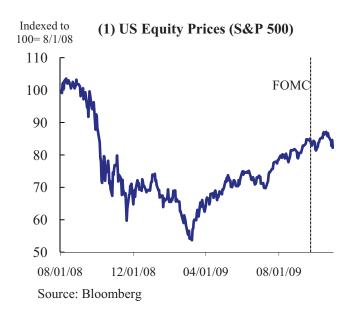
Financial Market Developments and Desk Operations

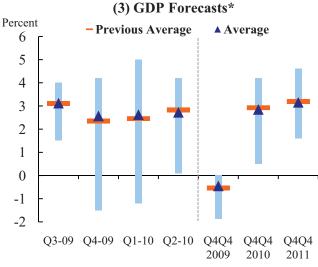
Brian Sack

November 3, 2009

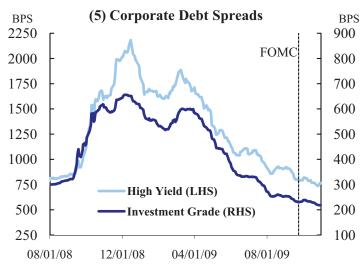
Class II FOMC - Restricted FR

Exhibit 1

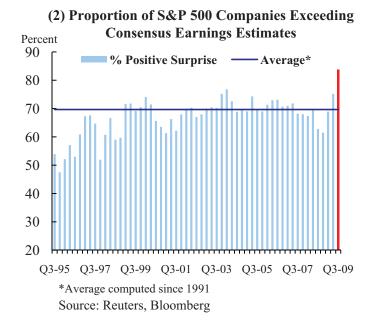


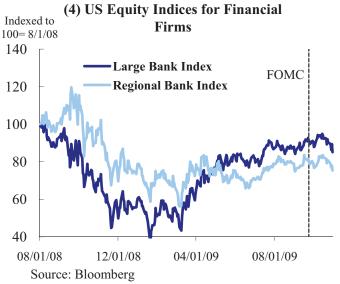


\*Range shown is for current survey forecasts Source: Dealer Policy Survey



Source: Bank of America

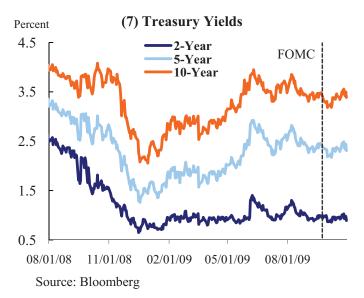


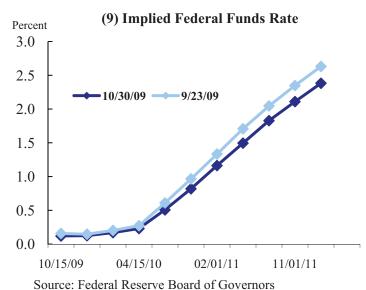


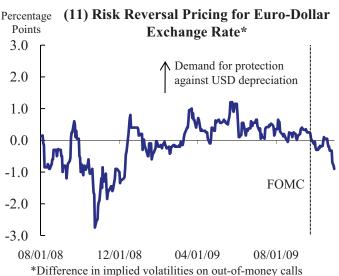


Source: Federal Reserve Board of Governors

Class II FOMC – Restricted FR Exhibit 2

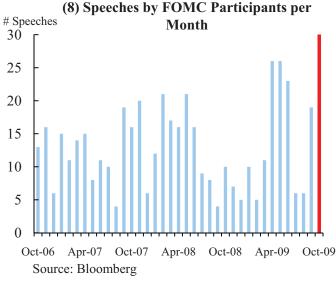






\*Difference in implied volatilities on out-of-money calls and puts for 1-month 25-delta options

Source: UBS



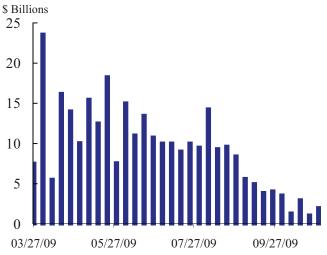


(12) Breakeven Inflation Rates Percent 3.0 2.5 2.0 1.5 1.0 5Y Spot 0.5 5Y5Y Forward 0.0 -0.5 **FOMC** -1.0 08/01/07 02/01/08 08/01/08 02/01/09 08/01/09 Source: Barclays Capital

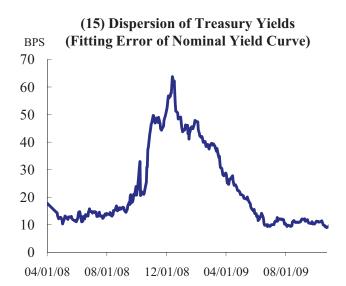
Exhibit 3

Class II FOMC – Restricted FR

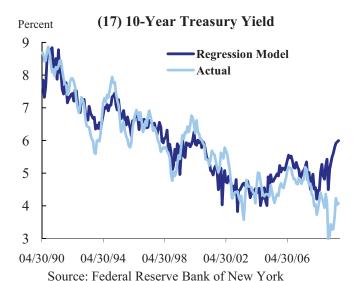




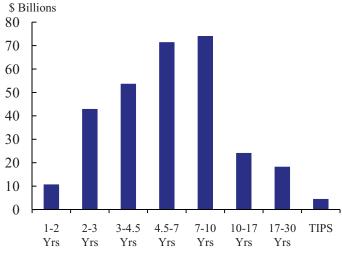
Source: Federal Reserve Bank of New York



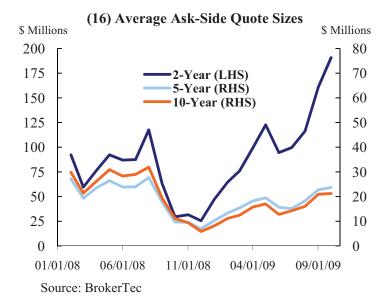
\*Average absolute errors for securities with 2-10 year maturities Source: Federal Reserve Bank of New York



(14) Distribution of Treasury Purchases



Source: Federal Reserve Bank of New York

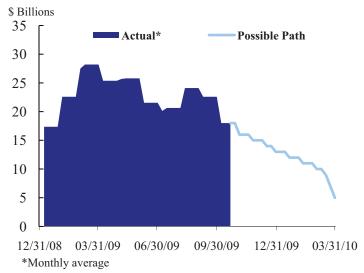


(18) Effects of Large-Scale Asset Purchase **Announcements on Rates BPS** 0 -25 -50 -75 -100 -125 -150 Tsy Tsy Agy Agy 2-Yr 10-Yr 10-Yr MBS

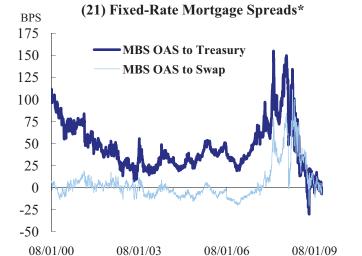
Source: Federal Reserve Bank of New York

Class II FOMC – Restricted FR Exhibit 4





Source: Federal Reserve Bank of New York



\* Fannie Mae current coupon spreads

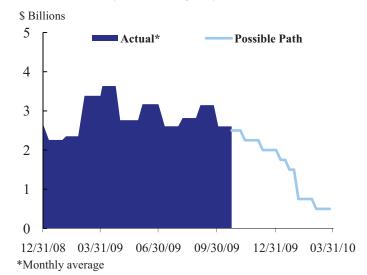
Source: Barclays Capital



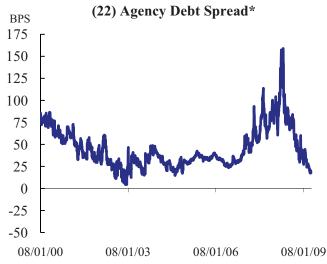
\*3-month forward 10-year swaption implied volatility

Source: Barclays Capital

### (20) Weekly Pace of Agency Debt Purchases



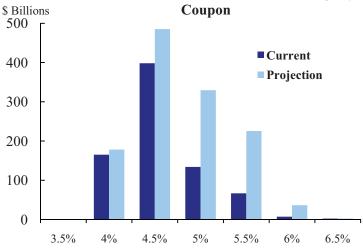
Source: Federal Reserve Bank of New York



\*Fannie Mae 5-year benchmark spread to Treasury

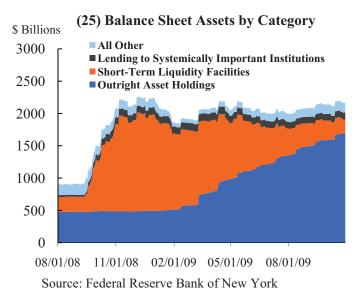
Source: Bloomberg

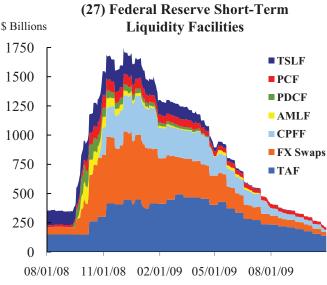
## (24) Concentration of Settled MBS Holdings by

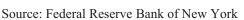


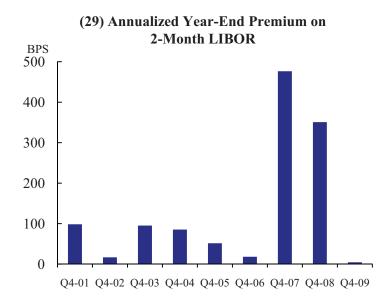
Source: Federal Reserve Bank of New York

Class II FOMC – Restricted FR Exhibit 5

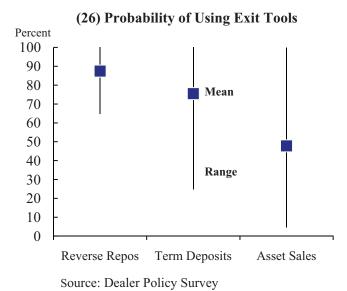








Source: Federal Reserve Bank of New York

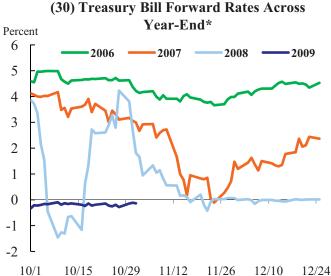


#### (28) Remaining Usage of Liquidity Facilities

	FX Liquidity Swaps <sup>1</sup>	CPFF	TAF
Volume of Funding Outstanding (\$ bil)	33	15	110
Number of Current Borrowers/Issuers	4	13	177
Change in Number of Borrowers/Issuers <sup>2</sup>	-9	-10	-19

<sup>1</sup>Number of FX liquidity swap borrowers includes ECB participants only.

Source: Federal Reserve Bank of New York



\*1-week implied forward rates spanning year-end

Source: Bloomberg

<sup>&</sup>lt;sup>2</sup>Change since previous FOMC meeting.

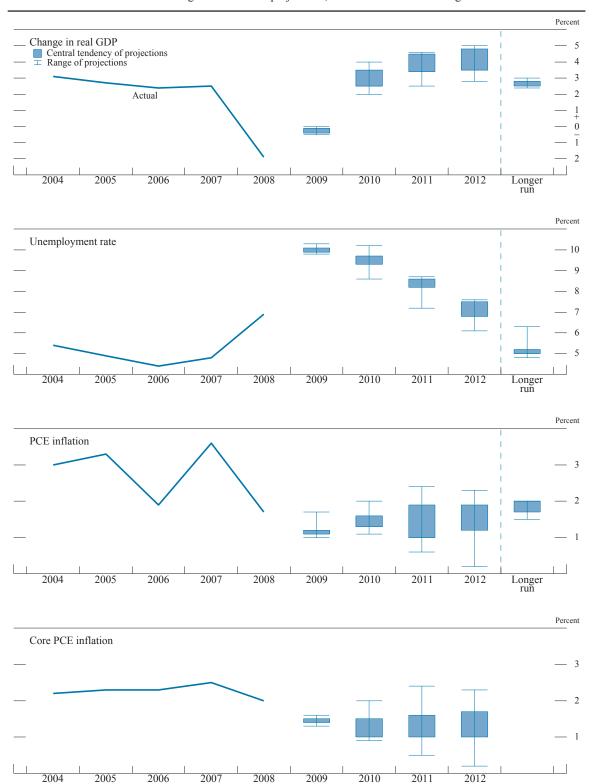
# Appendix 2: Materials used by Mr. Madigan

# Class I FOMC – Restricted Controlled (FR)

Material for Briefing on FOMC Participants' Economic Projections

Brian Madigan November 3, 2009

Exhibit 1. Central tendencies and ranges of economic projections, 2009–12 and over the longer run



Note: Projections of change in real gross domestic product (GDP) and of inflation are from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The June projections were made in conjunction with the FOMC meeting on June 23-24, 2009. The central tendency excludes the three highest and three lowest projections for each variable in each year. The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.

**Exhibit 2: Economic Projections for 2009** 

## **Real GDP Growth**

	2009	2009:H1	2009:H2
<b>Central Tendency</b>	-0.4 to -0.1	-3.6	2.9 to 3.5
June projection	-1.5 to -1.0	-3.5 to -3.3	0.5 to 1.4
Range	-0.5 to 0.0	-3.6 to -3.5	2.7 to 3.7
June projection	-1.6 to -0.6	-4.0 to -3.0	0.1 to 2.9
Memo: Greenbook	-0.3	-3.6	3.1
June Greenbook	-1.1	-3.3	1.1

**Unemployment Rate** 

_	2009:Q4
<b>Central Tendency</b>	9.9 to 10.1
June projection	9.8 to 10.1
Range	9.8 to 10.3
June projection	9.7 to 10.5
Memo: Greenbook	10.1
June Greenbook	10.0

## **PCE Inflation**

	2009	2009:H1	2009:Н2
<b>Central Tendency</b>	1.1 to 1.2	-0.1 to 0.0	2.1 to 2.5
June projection	1.0 to 1.4	0.2 to 0.6	1.8 to 2.5
Range	1.0 to 1.7	-0.1 to 0.1	2.0 to 3.4
June projection	1.0 to 1.8	-0.1 to 1.0	1.4 to 3.2
Memo: Greenbook	1.1	-0.1	2.4
June Greenbook	1.4	0.3	2.6

# **Core PCE Inflation**

	2009	2009:Н1	2009:Н2	
<b>Central Tendency</b>	1.4 to 1.5	1.6	1.2 to 1.4	
June projection	1.3 to 1.6	1.8 to 2.0	0.7 to 1.4	
Range	1.3 to 1.6	1.5 to 1.6	1.0 to 1.6	
June projection	1.2 to 2.0	1.5 to 2.0	0.5 to 2.0	
Memo: Greenbook	1.4	1.6	1.3	
June Greenbook	1.4	1.9	0.9	

NOTE: For real GDP growth and inflation, the values for 2009, 2009:H1, and 2009:H2 are at annual rates in percent, measured in terms of Q4/Q4, Q2/Q4, and Q4/Q2, respectively.

Exhibit 3: Economic Projections for 2010-2012 and Longer Run

# **Real GDP Growth**

	2010	2011	2012	Longer Run
Central Tendency	2.5 to 3.5	3.4 to 4.5	3.5 to 4.8	2.5 to 2.8
June projection	2.1 to 3.3	3.8 to 4.6		2.5 to 2.7
Range	2.0 to 4.0	2.5 to 4.6	2.8 to 5.0	2.4 to 3.0
June projection	0.8 to 4.0	2.3 to 5.0		2.4 to 2.8
Memo: Greenbook	3.4	4.4	5.0	2.5
June Greenbook	3.0	4.8	5.3	2.5

**Unemployment Rate** 

1 0				
	2010	2011	2012	Longer Run
Central Tendency	9.3 to 9.7	8.2 to 8.6	6.8 to 7.5	5.0 to 5.2
June projection	9.5 to 9.8	8.4 to 8.8		4.8 to 5.0
Range	8.6 to 10.2	7.2 to 8.7	6.1 to 7.6	4.8 to 6.3
June projection	8.5 to 10.6	6.8 to 9.2		4.5 to 6.0
Memo: Greenbook	9.5	8.2	6.1	4.8
June Greenbook	9.7	8.0		4.8

# **PCE Inflation**

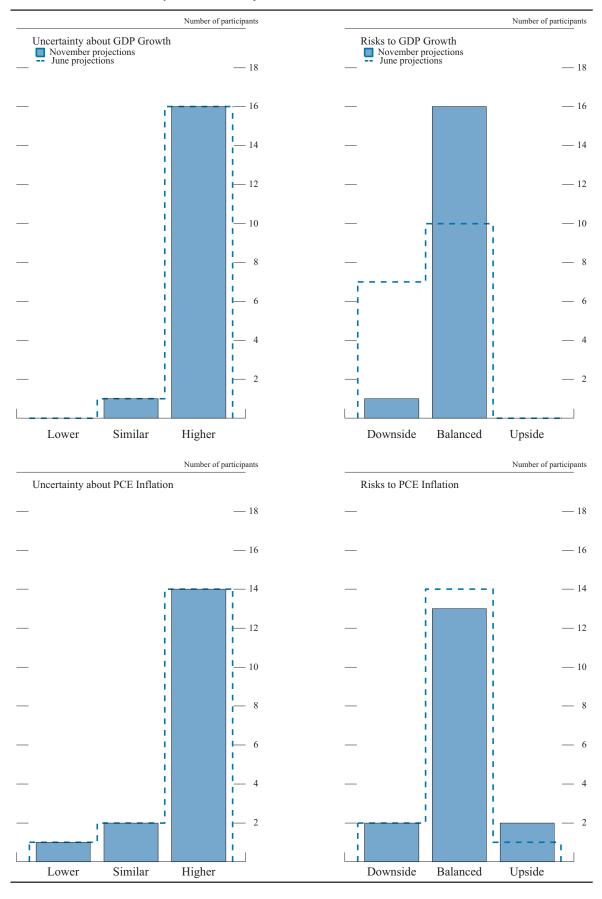
	2010	2011	2012	Longer Run
Central Tendency	1.3 to 1.6	1.0 to 1.9	1.2 to 1.9	1.7 to 2.0
June projection	1.2 to 1.8	1.1 to 2.0		1.7 to 2.0
Range	1.1 to 2.0	0.6 to 2.4	0.2 to 2.3	1.5 to 2.0
June projection	0.9 to 2.0	0.5 to 2.5		1.5 to 2.1
Memo: Greenbook	1.4	1.0	1.2	2.0
June Greenbook	1.1	1.2		2.0

# **Core PCE Inflation**

	2010	2011	2012
<b>Central Tendency</b>	1.0 to 1.5	1.0 to 1.6	1.0 to 1.7
June projection	1.0 to 1.5	0.9 to 1.7	
Range	0.9 to 2.0	0.5 to 2.4	0.2 to 2.3
June projection	0.5 to 2.0	0.2 to 2.5	
Memo: Greenbook	1.1	1	1.1
June Greenbook	0.8	0.7	

NOTE: See Exhibit 1 for variable definitions.

Exhibit 4. Risks and Uncertainty in Economic Projections



# Appendix 3: Materials used by Mr. Madigan

# Class I FOMC – Restricted Controlled (FR)

Material for Briefing on Monetary Policy Alternatives

Brian Madigan November 4, 2009

# September FOMC Statement

Information received since the Federal Open Market Committee met in August suggests that economic activity has picked up following its severe downturn. Conditions in financial markets have improved further, and activity in the housing sector has increased. Household spending seems to be stabilizing, but remains constrained by ongoing job losses, sluggish income growth, lower housing wealth, and tight credit. Businesses are still cutting back on fixed investment and staffing, though at a slower pace; they continue to make progress in bringing inventory stocks into better alignment with sales. Although economic activity is likely to remain weak for a time, the Committee anticipates that policy actions to stabilize financial markets and institutions, fiscal and monetary stimulus, and market forces will support a strengthening of economic growth and a gradual return to higher levels of resource utilization in a context of price stability.

With substantial resource slack likely to continue to dampen cost pressures and with longer-term inflation expectations stable, the Committee expects that inflation will remain subdued for some time.

In these circumstances, the Federal Reserve will continue to employ a wide range of tools to promote economic recovery and to preserve price stability. The Committee will maintain the target range for the federal funds rate at 0 to 1/4 percent and continues to anticipate that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period. To provide support to mortgage lending and housing markets and to improve overall conditions in private credit markets, the Federal Reserve will purchase a total of \$1.25 trillion of agency mortgage-backed securities and up to \$200 billion of agency debt. The Committee will gradually slow the pace of these purchases in order to promote a smooth transition in markets and anticipates that they will be executed by the end of the first quarter of 2010. As previously announced, the Federal Reserve's purchases of \$300 billion of Treasury securities will be completed by the end of October 2009. The Committee will continue to evaluate the timing and overall amounts of its purchases of securities in light of the evolving economic outlook and conditions in financial markets. The Federal Reserve is monitoring the size and composition of its balance sheet and will make adjustments to its credit and liquidity programs as warranted.

#### November FOMC Statement - Alternative A

- 1. Information received since the Federal Open Market Committee met in September suggests that economic activity has turned up. Conditions in financial markets were roughly unchanged, on balance, over the intermeeting period. Activity in the housing sector has increased over recent months. Household spending appears to be expanding, but remains constrained by ongoing job losses, sluggish income growth, lower housing wealth, and tight credit. Business spending is being damped by firms' efforts to reduce inventories to bring them into better alignment with sales and by cutbacks in fixed investment. Partly reflecting these factors, the Committee anticipates that the economic recovery will be relatively weak and that slack in resource utilization will diminish quite slowly absent further policy action.
- 2. <u>Inflation has fallen considerably over the past year.</u> With substantial resource slack likely to continue to dampen cost pressures and with longer-term inflation expectations stable, the Committee expects that inflation will remain subdued for some time.
- 3. To promote a sustained economic recovery and higher resource utilization, the Committee will provide additional monetary stimulus by increasing its purchases of agency mortgage-backed securities to a total of \$1.5 trillion, up from the previously announced amount of \$1.25 trillion, and it is also in the process of purchasing up to \$200 billion of agency debt. The Committee will extend these purchases through the second quarter of 2010 and gradually slow their pace in order to promote a smooth transition in markets. The Committee will continue to evaluate the timing and overall amounts of its purchases of securities, in light of the evolving economic outlook and conditions in financial markets. The Committee will maintain the target range for the federal funds rate at 0 to 1/4 percent and continues to anticipate that low rates of resource utilization, subdued inflation, and stable inflation expectations are likely to warrant this exceptionally low range for the federal funds rate for an extended period. The Federal Reserve will continue to employ a wide range of tools to promote economic recovery and to preserve price stability. The Federal Reserve is monitoring the size and composition of its balance sheet and will make adjustments to its credit and liquidity programs as warranted.

#### November FOMC Statement – Alternative B

- 1. Information received since the Federal Open Market Committee met in September suggests that economic activity has continued to pick up. Conditions in financial markets were roughly unchanged, on balance, over the intermeeting period. Activity in the housing sector has increased over recent months. Household spending appears to be expanding but remains constrained by ongoing job losses, sluggish income growth, lower housing wealth, and tight credit. Businesses are still cutting back on fixed investment and staffing, though at a slower pace; they continue to make progress in bringing inventory stocks into better alignment with sales. Although economic activity is likely to remain weak for a time, the Committee anticipates that policy actions to stabilize financial markets and institutions, fiscal and monetary stimulus, and market forces will support a strengthening of economic growth and a gradual return to higher levels of resource utilization in a context of price stability.
- 2. With substantial resource slack likely to continue to dampen cost pressures and with longer-term inflation expectations stable, the Committee expects that inflation will remain subdued for some time.
- 3. In these circumstances, the Federal Reserve will continue to employ a wide range of tools to promote economic recovery and to preserve price stability. The Committee will maintain the target range for the federal funds rate at 0 to 1/4 percent and continues to anticipate that economic conditions, including low rates of resource utilization, subdued inflation trends, and stable <u>inflation expectations</u>, are likely to warrant exceptionally low levels of the federal funds rate for an extended period. To provide support to mortgage lending and housing markets and to improve overall conditions in private credit markets, the Federal Reserve will purchase a total of \$1.25 trillion of agency mortgage-backed securities and about \$175 billion of agency debt. The amount of agency debt purchases, while somewhat less than the previously announced maximum of \$200 billion, is consistent with the recent path of purchases and reflects the limited availability of agency <u>debt.</u> In order to promote a smooth transition in markets, the Committee will gradually slow the pace of its purchases of both agency debt and agency mortgage-backed securities and anticipates that these transactions will be executed by the end of the first quarter of 2010. The Committee will continue to evaluate the timing and overall amounts of its purchases of securities in light of the evolving economic outlook and conditions in financial markets. The Federal Reserve is monitoring the size and composition of its balance sheet and will make adjustments to its credit and liquidity programs as warranted.

#### November FOMC Statement – Alternative C

- 1. Information received since the Federal Open Market Committee met in September indicates that a recovery in economic activity is under way. Conditions in financial markets were roughly unchanged, on balance, over the intermeeting period. Activity in the housing sector has increased over recent months. Household spending appears to be expanding. Businesses have made additional progress in bringing inventory stocks into better alignment with sales. The Committee anticipates that policy actions to stabilize financial markets and institutions, fiscal and monetary stimulus, and market forces will support a strengthening of economic growth in a context of price stability.
- 2. Longer-term inflation expectations <u>have been</u> stable, <u>and</u> the Committee expects that, <u>with appropriate monetary policy adjustments</u>, inflation will remain <u>at levels consistent with price stability</u>.
- 3. At this meeting, the Committee maintained the target range for the federal funds rate at its exceptionally low level of 0 to ½ percent, and it anticipates that economic conditions are likely to warrant low levels of the federal funds rate for some time. In view of continued improvements in financial market conditions and the economic outlook, the Committee decided to cap its purchases of agency mortgage-backed securities at \$1.1 trillion and its purchases of agency debt at \$160 billion. The Committee will gradually slow the pace of these purchases in order to promote a smooth transition in markets and anticipates that they will be executed by the end of January 2010. The Committee will continue to evaluate the timing and overall amounts of its purchases of securities in light of the evolving economic outlook and conditions in financial markets. The Federal Reserve is monitoring the size and composition of its balance sheet and will make adjustments to its credit and liquidity programs as warranted.

# Possible Sequence of Forward Guidance and Policy Actions -- Revised

# 1. Language from the September 2009 statement

In these circumstances, the Federal Reserve will continue to employ a <u>wide range of tools</u> to promote economic recovery and to preserve price stability. The Committee will maintain the <u>target range for the federal funds rate at 0 to ½ percent</u> and continues to anticipate that economic conditions are likely to warrant <u>exceptionally low levels</u> of the federal funds rate <u>for an extended period</u>.

# 2. Language from the November 2009 statement

Alternative A. The Committee will maintain the <u>target range for the federal funds rate at 0</u> to ½ percent and continues to anticipate that low rates of resource utilization, subdued inflation, and stable inflation expectations are likely to warrant this <u>exceptionally low range</u> for the federal funds rate <u>for an extended period</u>. The Federal Reserve will continue to employ a <u>wide range of tools</u> to promote economic recovery and to preserve price stability.

Alternative B. In these circumstances, the Federal Reserve will continue to employ a <u>wide range of tools</u> to promote economic recovery and to preserve price stability. The Committee will maintain the <u>target range for the federal funds rate at 0 to ½ percent</u> and continues to anticipate that economic conditions, including low rates of resource utilization, subdued inflation trends, and stable inflation expectations, are likely to warrant <u>exceptionally low levels</u> of the federal funds rate <u>for an extended period</u>.

**Alternative C.** At this meeting, the Committee maintained the <u>target range for the federal funds rate at its exceptionally low level of 0 to ½ percent</u>, and it anticipates that economic conditions are likely to warrant <u>low levels</u> of the federal funds rate <u>for some time</u>.

# 3. Economic recovery is sufficiently established

In these circumstances, the Committee will maintain the <u>target range for the federal funds</u> rate at 0 to ½ percent and continues to anticipate that economic conditions, including low rates of resource utilization, subdued inflation trends, and stable inflation expectations, are likely to warrant [exceptionally] low levels of the federal funds rate <u>for some time</u>.

(continued on next page)

## 4. Policy firming is likely soon

In these circumstances, the Committee maintained its target range for the federal funds rate at 0 to ½ percent at this meeting. With the economic recovery now reasonably well established, [resource utilization increasing,] and inflation stable, the Committee anticipates that [some | a gradual] reduction in the exceptionally large degree of monetary accommodation will be appropriate before long. The timing [and pace] of this reduction will depend on the evolution of economic and financial conditions, [but at present it appears likely that the Committee could [begin to] implement some [a] reduction in accommodation in the [first | second] half of 20xx]. The reduction in accommodation will likely be accomplished in part through an increase in the interest rate paid on reserve balances held by depository institutions at the Federal Reserve; that increase will have the effect of putting upward pressure on the federal funds rate and other money market rates. In order to reinforce the upward pressure on short-term interest rates, the Federal Reserve may [likely will also employ tools to drain reserves from the banking system, such as conducting reverse repurchase agreements and offering term deposits to depository institutions. In order to ensure the readiness of such tools, the Federal Reserve plans to conduct some small-scale operations of the facilities over the next few months.] Although the Federal Reserve does not currently have plans to sell assets from its portfolio, it retains the option of asset sales as a means of further reducing monetary accommodation.

# 5. Policy firming is commencing

In these circumstances, the Committee increased its target range for the federal funds rate to ½ to ½ percent. In association with this increase, the Board of Governors increased the rate of interest on bank reserves to ½ percent and approved requests from Federal Reserve Banks to raise the discount rate to [1] percent, and the Committee directed the Federal Reserve Bank of New York to use reverse repurchase agreements to lower the quantity of excess reserves in the banking system, consistent with the higher target range for the federal funds rate. With the economic recovery now well established, resource utilization continuing to increase, and inflation stable, the Committee anticipates that it will [further] [gradually] reduce the still-exceptional degree of monetary accommodation in coming months. This reduction is likely to be accomplished by additional increases in the interest rate on bank reserves, by further use of reverse repurchase agreements (possibly with a broader set of counterparties than just primary dealers), and potentially by offering term deposits to depository institutions. Although the Federal Reserve does not currently have plans to sell assets from its portfolio, it retains the option of asset sales as a means of further reducing monetary accommodation.

#### **DIRECTIVES**

## SEPTEMBER FOMC MEETING

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ½ percent. The Committee directs the Desk to purchase agency debt, agency MBS, and longer-term Treasury securities during the intermeeting period with the aim of providing support to private credit markets and economic activity. The timing and pace of these purchases should depend on conditions in the markets for such securities and on a broader assessment of private credit market conditions. The Desk is expected to complete purchases of about \$300 billion of longer-term Treasury securities by the end of October. It is also expected to execute purchases of up to \$200 billion in housing-related agency debt and about \$1.25 trillion of agency MBS by the end of the first quarter of 2010. The Desk is expected to gradually slow the pace of these purchases as they near completion. The Committee anticipates that outright purchases of securities will cause the size of the Federal Reserve's balance sheet to expand significantly in coming months. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

## **NOVEMBER FOMC MEETING — ALTERNATIVE A**

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to 1/4 percent. The Committee directs the Desk to purchase agency debt and agency MBS during the intermeeting period with the aim of providing support to private credit markets and economic activity. The timing and pace of these purchases should depend on conditions in the markets for such securities and on a broader assessment of private credit market conditions. The Desk is expected to execute purchases of up to \$200 billion in housing-related agency debt and about \$1.5 trillion of agency MBS by the end of the second quarter of 2010. The Desk is expected to gradually slow the pace of these purchases as they near completion. The Committee anticipates that outright purchases of securities will cause the size of the Federal Reserve's balance sheet to expand significantly in coming months. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

## NOVEMBER FOMC MEETING — ALTERNATIVE B

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to 1/4 percent. The Committee directs the Desk to purchase agency debt and agency MBS during the intermeeting period with the aim of providing support to private credit markets and economic activity. The timing and pace of these purchases should depend on conditions in the markets for such securities and on a broader assessment of private credit market conditions. The Desk is expected to execute purchases of about \$175 billion in housing-related agency debt and about \$1.25 trillion of agency MBS by the end of the first quarter of 2010. The Desk is expected to gradually slow the pace of these purchases as they near completion. The Committee anticipates that outright purchases of securities will cause the size of the Federal Reserve's balance sheet to expand significantly in coming months. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

## NOVEMBER FOMC MEETING — ALTERNATIVE C

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to 1/4 percent. The Committee directs the Desk to purchase agency debt and agency MBS during the intermeeting period with the aim of providing support to private credit markets and economic activity. The timing and pace of these purchases should depend on conditions in the markets for such securities and on a broader assessment of private credit market conditions. The Desk is expected to execute purchases of about \$160 billion in housing-related agency debt and about \$1.1 trillion of agency MBS by the end of January 2010. The Desk is expected to gradually slow the pace of these purchases as they near completion. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.