

## Accessible Version

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### Meeting of the Federal Open Market Committee June 23-24, 2009 Presentation Materials

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[Presentation Materials \(PDF\)](#)

Pages 202 to 261 of the Transcript

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

Class II FOMC - Restricted FR

#### Page 1

*Top panel*  
(1)

**Title:** Treasury Yields

**Series:** Yields for the 2-Year, 5-Year, 10-Year, and 30-Year Treasury Notes

**Horizon:** August 1, 2007 - June 19, 2009

**Description:** Treasury yields rise following the April FOMC meeting.

Apr 29: FOMC

Source: Bloomberg

*Middle-left panel*  
(2)

**Title:** Policy Expectations Implied by Futures Rates

**Series:** December 2009 Fed Funds implied rate, December 2010 Eurodollar rate implied by contract less 15-day moving average of forward Libor-Fed Funds Basis Swap

**Horizon:** August 1, 2008 - June 19, 2009

**Description:** December 2009 rate nearly remains constant, while December 2010 rate increases.

Source: Bloomberg

*Middle-right panel*  
(3)

**Title:** Treasury Yield Curve

**Series:** Yields for the 1-Year, 2-Year, 3-Year, 5-Year, 7-Year, and 10-Year Treasury securities

**Horizon:** April 28, 2009 and June 19, 2009

**Description:** Treasury yield curve shifts upward ahead in June.

Source: Bloomberg

*Bottom panel*  
(4)

**Title:** Factors Driving 10-Year Yield Change Over Intermeeting Period

**Series:** Aggregated Primary Dealer responses indicating importance of various factors in the 10-Year Yield

**Horizon:** As of June 17, 2009

**Description:** Primary Dealers indicate importance of varying factors in the change of the 10-Year Yield.

Factors with average level of importance from "Important" down to "Somewhat important": Improved economic outlook, Reduction in downside inflation risk, Increase in Treasury supply, Mortgage convexity hedging, Increase in upside inflation risk.

Source: Dealer Policy Survey

## Page 2

*Top-left panel*

(5)

**Title:** Large-Scale Asset Purchase Programs

**Series:** Cumulative and expected totals for the Agency-MBS, Agency, and Treasury purchase programs

**Horizon:** December 2008 - December 2009

**Description:** Cumulative and expected totals for the Agency-MBS, Agency, and Treasury purchase programs.

Source: Federal Reserve Bank of New York

*Top-right panel*

*(6) Large-Scale Asset Purchase Programs*

As of June 19

	Treasury	Agency	Agency-MBS
<b>Purchases to Date</b>	170	90	577
<b>Announced Limit</b>	300	200	1250
<b>Dealer Survey*:</b>			
<b>2009 Q4</b>	363	200	1200
<b>2010 Q2</b>	363	200	1250

\* Median response [Return to table](#)

Source: Dealer Survey

*Middle panel*

(7)

**Title:** Supply of Treasury Debt

**Series:** SOMA Treasury Holdings, Other Treasury Securities Outstanding, and SOMA as a Percent of Total

**Horizon:** January 2007 - June 2009

**Description:** Supply of Treasury debt increases while SOMA as a percent of total decreases.

Source: Federal Reserve Bank of New York

*Bottom panel*

(8)

**Title:** Mortgage and Treasury Rates

**Series:** Fannie Mae 30-Year Current Coupon, Blended 5-and 10-Year Treasury yield, Fannie Mae Option Adjusted Spread to Treasury

**Horizon:** June 1, 2008 - June 19, 2009

**Description:** Rates increase after March 18 MBS program expansion.

Nov 25: Program Announcement; Jan 5: First MBS Purchase; Mar 18: Program Expansion

Source: Bloomberg, JP Morgan Chase

## Page 3

### *Top panel* (9)

**Title:** Breakeven Inflation Rates

**Series:** 5-Year Spot Breakeven Rate and 5-Year, 5-Year Forward Breakeven Rate

**Horizon:** August 1, 2007 - June 19, 2009

**Description:** Breakeven inflation rates increase.

Source: Barclays

### *Middle panel* (10)

**Title:** Probability Distribution of CPI Inflation Rate in 2014-2019

**Series:** Primary Dealer estimates for March, April, and June distributions of CPI rates

**Horizon:** 2014 - 2019

**Description:** Primary Dealer estimates for March, April, and June distributions of CPI rates

Estimated probability of 2.0-2.5% and 2.5-3.0% increased with each estimate. For June, 2.0-2.5% shows greatest probability at about 35%, and 2.5-3.0% shows second-greatest probability at about 25%.

Source: Dealer Policy Survey

### *Bottom panel* (11)

**Title:** Yield Curve Slope

**Series:** 10-Year Treasury Note Yield less Fed Funds rate, and NBER Recession Periods

**Horizon:** January 1, 1982 - June 19, 2009

**Description:** 10-Year Treasury yield spread to Fed Funds rate widens.

Shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research (NBER): July 1981-November 1982, July 1990-March 1991, March 2001-November 2001, and December 2007-present (June 2009).

Source: Bloomberg

## Page 4

### *Top panel* (12)

**Title:** Corporate Debt Spreads

**Series:** High Yield and Investment Grade corporate debt spreads

**Horizon:** June 1, 2008 - June 19, 2009

**Description:** Corporate debt spreads narrow.

Source: Bank of America

### *Middle panel* (13)

**Title:** Equity Prices  
**Series:** Standard & Poor's 500 Index and its implied skew based on 90-day 25 delta put minus call  
**Horizon:** June 1, 2008 - June 19, 2009  
**Description:** Equity prices increase moderately and skew decreases moderately.

Source: Optionmetrics

*Bottom panel*  
(14)

**Title:** US Trade-Weighted Dollar  
**Series:** US Trade-Weighted Dollar  
**Horizon:** June 1, 2008 - June 19, 2009  
**Description:** The US trade-weighted dollar declines.

Source: Bloomberg

## Page 5

*Top panel*  
(15)

**Title:** Equity Indices for Financial Firms  
**Series:** Supervisory Capital Assessment Program Banks Index and the Standard & Poor's 500 Index  
**Horizon:** December 31, 2008 - June 19, 2009  
**Description:** SCAP Banks Index increase greater than S&P 500 Index increase.

Feb 25: SCAP announced; Apr 24: SCAP white paper published; May 7: SCAP results

Source: Bloomberg

*Middle panel*  
(16)

**Title:** SCAP Capital  
**Series:** Supervisory Capital Assessment Program banks' Capital Raised and Capital Required  
**Horizon:** January 29, 2009 - June 19, 2009  
**Description:** Supervisory Capital Assessment Program banks' capital raised and capital required.

Source: Federal Reserve Bank of New York Staff Estimates

*Bottom panel*  
(17)

**Title:** US Libor-OIS Spreads  
**Series:** 3-Month USD Libor less Overnight Indexed Swap and 12-Month USD Libor less Overnight Indexed Swap  
**Horizon:** January 1, 2007 - June 19, 2009  
**Description:** Swap spreads narrow.

Source: Bloomberg

## Page 6

*Top panel*  
(18)

**Title:** Federal Reserve Short-Term Liquidity Facilities

**Series:** Levels of the Primary Credit Facility, Primary Dealer Credit Facility, Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, Commercial Paper Funding Facility, Central Bank Liquidity Swaps, and Term Auction Facility

**Horizon:** August 1, 2008 - June 17, 2009

**Description:** Short-term facility assets continue to contract.

Source: Federal Reserve Bank of New York

### *Middle panel*

(19)

**Title:** ABS Issuance

**Series:** Asset-Backed Security Term Asset-Backed Loan Facility Eligible and Non-Eligible Issuance

**Horizon:** Q1 2007 - Q2 2009 as of June 10, 2009

**Description:** ABS issuance increases greatly after TALF subscriptions begin.

Source: Federal Reserve Bank of New York, JP Morgan Chase

### *Bottom panel*

(20)

**Title:** AAA-Rated Asset-Backed Spreads

**Series:** 3-Year Prime Auto, 3-Year Credit Card, and CMBS Super Senior spreads

**Horizon:** January 1, 2008 - June 19, 2009

**Description:** Asset-backed spreads narrow after TALF subscriptions begin.

Sep 14: Lehman bankruptcy; Nov 25: TALF announced; Mar 19: First TALF Subscription

Source: JPMorgan Chase

## Page 7

### *Top panel*

(21)

**Title:** Balance Sheet Assets by Category

**Series:** Federal Reserve balance sheet assets categorized by All Other, Lending to Systemically Important Institutions, Short-Term Liquidity Facilities, Large-Scale Asset Purchases, and Legacy Treasuries

**Horizon:** August 1, 2008 - June 17, 2009

**Description:** Short-term liquidity facility assets decline while large-scale asset purchases increase.

Source: Federal Reserve Bank of New York

## Appendix 2: Materials used by Mr. Carpenter

Material for

**FOMC Briefing on Projections of the Balance Sheet, the Monetary Base, and Federal Reserve Income**

Seth Carpenter

June 23, 2009

**Class I FOMC - Restricted Controlled (FR)**

## Exhibit 1: Individual Balance Sheet Item Profiles

### *Asset Purchases and Federal Reserve Liquidity and Credit Facilities*

Twelve line charts, each showing a date range from 39783 (December 2008, expressed as an integer in days from the beginning of the twentieth century) through 42705 (December 2016). Except as noted, each chart shows two curves, "Current" and "April" projections.

- Temporary holdings of longer-term Treasuries are depicted to increase from zero at the end of 2008 to a late-2009 peak in each of four projections: "baseline," "expanded purchases," "April baseline," and "April expanded purchases." Each of the baseline scenarios peaks at approximately \$300 billion and decreases to a level around \$50 billion by the end of 2016. The expanded scenarios peak around \$750 billion and decrease to approximately \$100 billion and \$150 billion under the April and current projections, respectively.
- Agency debt is depicted to increase from its December 2008 level of \$20 billion to a peak of \$200 billion in early 2009, and then decrease to approximately \$25 billion at the end of the projection period. In the April projection, agency debt remains at the \$200 billion peak through the end of 2011 and then decreases to \$25 billion by the end of the projection period, whereas the current projection depicts agency debt beginning to decline immediately following the peak.
- Agency MBS is depicted to increase from zero at the beginning of the period to a peak of just over \$1200 billion in early 2009, and then decrease to \$600 billion under the April projection and \$800 billion under the current projection.
- Primary and secondary credit facilities decrease from over \$90 billion in December 2008 to near zero by early 2011 and 2012 in the current and April projections, respectively.
- Term auction facility (TAF) credit decreases from over \$400 billion to zero by the end of 2010 and 2011 in the current and April projections, respectively.
- Foreign central bank liquidity swaps are shown to decrease from over \$500 billion at the beginning of the projection period to zero by the end of 2010 in both projections. The rate of decrease through 2009 is greater in the current projection than in the April projection.
- Credit extended to AIG is depicted to increase from the December 2008 level of just under \$40 billion to approximately \$45 billion in early 2009, and then to decrease to zero at the end of 2014 in both projections.
- Current projections for the three Maiden Lane facilities. Maiden Lane III is projected to decrease from over \$25 billion to zero by the end of 2012, including a sharp drop of about \$7 billion in mid-2009. Maiden Lane and Maiden Lane II are depicted to decrease from over \$25 billion and \$20 billion, respectively, to zero at the end of 2015.
- Loans extended through the first wave of the Term Asset-Backed Securities Loan Facility (TALF v1.0) are depicted in both projections to increase from zero at the beginning of the projection period to \$100 billion at the end of 2009. Under the April projection, TALF v1.0 maintains a \$100 billion level through early 2012 and declines to zero by early 2013. The current projection shows TALF v1.0 increasing to \$125 billion by early 2010, maintaining that level through mid-2012 and decreasing to zero by early 2014.
- For loans extended through subsequent waves of the TALF (TALF v2.0/3.0), the April projection shows credit outstanding rising from zero to \$400 billion at the end of 2010, remaining at that level until early 2011, and falling to zero at the end of 2013. In the current projection, TALF v2.0/3.0 increases from zero to \$50 billion at the end of 2010, remains at that level until mid-2014, and declines to zero at the end of 2015.
- Credit extended through the Commercial Paper Funding Facility (CPFF) is depicted to decline from over \$300 billion at the beginning of the projection period to zero at the end of 2010 under both the current and April projections. The rate of decrease through 2009 is greater in the current projection than in the April projection.
- Credit extended through the Asset-Backed Commercial Paper Liquidity Facility (AMLF) is depicted in both projections to decrease from the December 2008 level of nearly \$25 billion to around \$5 billion in mid-2009. The April projection shows a gradual decline to zero at the end of 2010. In the current projection, AMLF spikes to a level over \$25 billion in mid-2009, then decreases to a low level in early 2010, and to zero by the end of 2010.

### *Federal Reserve Liabilities and Capital*

Four line charts, each showing a date range from 39783 (December 2008, expressed as an integer in days from the beginning of the twentieth century) through 42705 (December 2016).

- Federal Reserve notes are depicted to increase from their December 2008 level of just under \$900 billion to over \$1200 billion at the end of the period.
- Current and April projections are shown for the Treasury General Account (TGA) and the Supplementary Financing Program (SFP). The TGA declines from the December 2008 level of just over \$100 billion to around \$25 billion in early 2009. In the April projection, the TGA peaks in mid-2009 just below \$100 billion and declines to \$5 billion by the end of 2009. Under the current projection, the TGA peaks at a level over \$130 billion in mid-2009, then dips below \$25 billion and returns to a level above \$100 billion again within a few months. Then, the current projection for the TGA declines to \$5 billion by the end of 2009. The SFP drops from its December 2008 level of over \$250 billion to \$200 billion in mid-2009 in both projections. The level decreases to zero by the end of 2009 in the April projection, and by mid-2010 under the current projection.
- Capital is depicted to remain at a level of just over \$40 billion through the entire period under the April projection, and to increase smoothly to a level of \$129 billion at the end of the period under the current projection.
- Reserve balances are depicted under baseline and expanded purchases scenarios from the current and the April projections. In both of the April scenarios, reserve balances increase from their December 2008 level of around \$750 billion to peak in late 2009 at nearly \$2500 billion and \$3000 billion, respectively. Both projections then decrease to approximately \$25 billion by the end of 2015. In the current baseline and expanded scenarios, reserve balances peak in late 2009 over \$1500 billion and \$2000 billion, respectively, and decrease to approximately \$25 billion and \$100 billion, respectively, by the end of 2016.

\*Corrected versions of these charts are available on pages 248-249 of 261.

## Exhibit 2: Baseline Balance Sheet Projections

This exhibit provides a graphical description of the assumptions underlying the baseline balance sheet projections.

### *Top panel*

#### *Federal Reserve Assets*

A line chart presents nine categories of assets: Treasury securities, Agency debt, Agency MBS, Repurchase agreements, TAF, Central bank swaps, TALF, Other loans and facilities, and Other assets. Each is depicted by a different color and the chart stacks the colors so that the share of the total that each asset represents is depicted. The date range for all projections is from 2006 to 2016. Total assets increase from their 2006 level of approximately \$800 billion to peak in late 2009 at a level of approximately \$2800 billion, and then decline fairly steadily until the end of 2016, ending at a level of approximately \$1500 billion.

### *Bottom panel*

#### *Federal Reserve Liabilities and Capital*

A stacked line chart presents six categories of liabilities and capital: Federal Reserve notes; Reverse repurchase agreements; Deposits, other than reserve balances; Reserve balances; Other liabilities; and Capital. Total liabilities and capital follow the same path as total assets.

## Exhibit 3: Expanded Balance Sheet Projections

This exhibit is similar to Exhibit 2, but shows the assumptions underlying the expanded balance sheet projections.

### *Top panel*

#### *Federal Reserve Assets*

A stacked line chart shows Federal Reserve assets, which in this expanded scenario peak in late 2009 at a level of approximately \$3250 billion and decline steadily until the end of 2016, where they are at a level of approximately \$1500 billion.

*Bottom panel*

*Federal Reserve Liabilities and Capital*

A stacked line chart shows Federal Reserve Liabilities and Capital, which follow the same pattern as the expanded scenario for assets.

## Exhibit 4

### Growth Rates for Monetary Base

Date	Baseline	Expanded Purchases	April Baseline
Percent, annual rate			
Monthly			
Jun-09	-52.1	-52.1	60.2
Jul-09	-0.4	-0.4	131.9
Aug-09	99.3	99.3	133.9
Sep-09	97.3	97.3	120.5
Oct-09	103.1	148.3	98.1
Nov-09	95.7	173.1	79.9
Dec-09	102.1	163.8	71.1
Quarterly			
Q2 2009	24.9	24.9	38.4
Q3 2009	22.7	22.7	111.9
Q4 2009	108.2	157.0	107.3
Q1 2010	48.0	78.6	26.2
Q2 2010	-7.1	-6.7	-17.2
Q3 2010	-15.6	-14.0	-17.9
Q4 2010	-19.0	-16.9	-18.8
Annual - period average			
2009	92.5	98.2	120.3
2010	32.5	51.3	34.4
2011	-11.1	-10.0	-14.1
2012	-9.0	-10.0	-14.4
2013	-12.4	-14.2	-25.0
2014	-9.3	-11.2	-19.7
2015	-9.2	-10.3	-14.8
2016	-7.7	-10.2	2.3

Note: Not seasonally adjusted

## Exhibit 5

### Projected Federal Reserve Net Income

This exhibit has six line charts to describe three projections ("baseline," "market based," and "high interest rate"), each over a date range from 2008 to 2016. The three left-hand panels present net income and total expenses, each in a different color. These items are stacked and sum to show gross income. The right-hand panels show remittance and dividends, transfers, etc. in different colors. These items are stacked and sum to show net income.

#### *Top-left panel* *Baseline*

In the baseline scenario, gross income is depicted to increase from its 2008 level of approximately \$50 billion to peak in 2010 at nearly \$90 billion and decline gradually through the end of the period to approximately \$60 billion.

#### *Top-right panel* *Baseline*

Baseline net income is depicted to increase from its December 2008 level of approximately \$40 billion to peak in 2010 at approximately \$80 billion, decrease through 2013 to approximately \$45 billion, and then increase from 2014 through the end of the projection period to just over \$50 billion.

#### *Middle-left panel* *Market based*

In the market based scenario, gross income peaks in 2010 around \$90 billion and decreases gradually through the end of the period, ending at a level of approximately \$70 billion.

#### *Middle-right panel* *Market based*

Net income is depicted to peak in 2010 at approximately \$70 billion, decrease until 2012 to approximately \$40 billion and then increase through the end of the projection period to approximately \$60 billion.

#### *Bottom-left panel* *High interest rate*

In the high interest rate scenario, gross income peaks in 2010 at around \$110 billion and declines gradually through the end of the projection period to a level of about \$80 billion.

#### *Bottom-right panel* *High interest rate*

Net income is depicted declining sharply from approximately \$45 billion in 2009 to a level of approximately negative \$5 billion in 2011, then increasing gradually through the end of the period to about \$50 billion.

## Exhibit 6

### Projected Mark-to-Market Losses on the SOMA Portfolio

#### *Top panel*

A line chart plots the same three scenarios that are used in Exhibit 5 from 2009 to 2016. The baseline scenario shows gains of as much as \$50 billion on the portfolio through 2013, and then losses increasing through 2016 to just over \$50 billion. In the market based scenario, losses increase from zero in 2009 to approximately \$125 billion in 2013, and remain at that level through 2016. The high interest rate scenario depicts losses in 2009 of about \$100 billion, increasing to a loss in 2011 of more than \$250 billion, and then decreasing to a loss of less than \$200 billion in 2016.

## Appendix 3: Materials used by Mr. English

Material for **FOMC Briefing on Possible Effects of Very High Reserve Balances on Bank Balance Sheets**

Bill English

June 23, 2009

### **Class II FOMC - Restricted (FR)**

## Exhibit 1

### Reserve Balances and Regulatory Leverage Ratios

#### *Top-left panel*

#### *Reserve balances of depository institutions*

Data plotted as curves. Reserve balances of depository institutions rises from about \$40 billion in 2008:Q3 to about \$800 billion in 2009:Q2. Thereafter, the data are projected. Under the Bluebook baseline scenario, reserve balances of depository institutions rise to a peak of about \$1.7 trillion in 2010:Q1 and then gradually decline, reaching about \$1.4 trillion in 2010:Q4. Under the Bluebook alternative scenario, reserve balances of depository institutions increase to a peak of about \$2.1 trillion in 2010:Q1 and then gradually decline, reaching about \$1.8 trillion in 2010:Q4.

Note. The data are quarterly averages in billions of dollars.

Source. Federal Reserve and staff estimates.

#### *Top-right panel*

#### *Regulatory leverage ratio*

- Definition:  
$$\left( \frac{\text{Tier 1 capital}}{\text{Average total assets}} \right)$$
- Ratio > 5.0 for a "well capitalized" bank

#### *Leverage Ratio Projections*

#### Middle-left panel

#### Projection assumptions

- Reserve balances expand in line with Bluebook scenarios
- Other assets unchanged
- Tier 1 capital declines

#### Middle-right panel

#### Baseline results

Billions of dollars

	Actual 2009:Q1	Projected 2010:Q1
Tier 1 capital	836	790
Reserve balances	491	982
Average total assets	10,811	11,302
Leverage ratio (aggregate; percent)	7.73	6.99

Note. Baseline scenario without any capital downstreamed to banks after 2009:Q1. All commercial banks with reserve balances.

Source. Call Reports and staff estimates.

### Bottom-left panel

#### Aggregate leverage ratio of commercial banks with reserve balances

Data plotted as curves. The aggregate leverage ratio of commercial banks with reserve balances moves in a narrow range around 7.5 percent between 1999:Q1 and 2009:Q1. Thereafter, the data are projected one year ahead, for the 2010:Q1 quarter. For the projection under the Bluebook baseline scenario, the aggregate leverage ratio of commercial banks with reserve balances is 6.99 percent in 2010:Q1. For the projection under the Bluebook alternative scenario, the aggregate leverage ratio of commercial banks with reserve balances is 6.83 percent in 2010:Q1. The projections are repeated under the assumption that all capital raised as a result of the SCAP is downstreamed to subsidiary banks. Under this assumption and for the projection under the Bluebook baseline scenario, the aggregate leverage ratio of commercial banks with reserve balances is 7.60 percent in 2010:Q1. Under this assumption and for the projection under the Bluebook alternative scenario, the aggregate leverage ratio of commercial banks with reserve balances is 7.43 percent in 2010:Q1.

Note. The data are quarterly in percent. A shaded bar indicates a period of business recession as defined by the National Bureau of Economic Research (NBER): March 2001-November 2001. A vertical line indicates the NBER Peak in December 2007.

Source. Call Reports and staff estimates.

### Bottom-right panel

#### Other results

- Broadly similar results for BHCs
- Leverage ratios for some individual banks could fall to low levels relative to regulatory norms
  - Individual institutions can take steps to reduce unwanted reserves

## Exhibit 2

### Qualitative Information and Policy Options

#### *Top panel*

##### *Information from consultations with Federal Reserve System staff*

- Banking organizations have not expressed material concerns about their reserve balances
- Some banks have maintained high levels of reserve balances as a liquidity buffer
- Some banks have profited by exploiting the spread between the rate paid on excess reserves and the cost of borrowing
- Banks thought that they could reduce their reserve balances if they chose
- Banking organizations have not discussed with System staff the possible effects of increased systemwide reserves

#### *Bottom-left panel*

##### *Summary*

- Depository institutions should not be significantly adversely affected by the anticipated levels of reserve balances
- No policy response appears necessary at this time
- Considerable uncertainty remains
- Staff will continue to monitor the impact on depository institutions

### *Bottom-right panel*

#### *Policy options*

- Option 1: Drain reserves
- Option 2: Exclude reserve balances from leverage ratio for all banking institutions
- Option 3: Exclude reserve balances from leverage ratio for selected banking institutions
- Option 4: Issue supervisory guidance

## Appendix 4: Materials used by Messrs. Clouse and Hilton

### Material for **FOMC Briefing on Reserve Management Tools to Target a Higher Policy Rate**

Jim Clouse  
Spence Hilton  
June 23, 2009

### **Class I FOMC - Restricted-Controlled (FR)**

## Exhibit 1

This exhibit contains three line charts that depict hypothetical demand and supply curves in the reserve market to illustrate the effects of various reserve management tools.

### *Top panel*

#### *Reserve Market*

The chart displays a hypothetical demand for reserves, with the funds rate on the vertical axis and reserve balances on the horizontal axis. The hypothetical demand curve asymptotes to the level of the rate paid on excess reserves--the so-called IOER rate--at high levels of reserve balances. A second demand curve on the same chart shows what the demand curve might have looked like in the last quarter of 2008. This demand curve drops below the level of the IOER rate at high levels of reserve balances. With this demand curve, a rapid expansion of reserve balances such as that late in 2008 would push the federal funds rate below the IOER rate.

### *Middle panel*

#### *Demand Side Tools*

The chart displays the effect of various tools that might be employed to keep the funds rate close to the target rate even with high levels of reserve balances. The tools described in this panel are those that strengthen or shape the demand curve including increases in reserve requirements, a system of voluntary requirements, payment of interest on balances held by the government sponsored enterprises (GSEs), and collateralized funds transactions. The chart shows that these tools would tend to shift the demand curve to the right, or flatten the demand curve at high levels of reserve balances, or both. With a fixed quantity of reserves, these tools should then put upward pressure on the funds rate.

*Bottom panel*  
*Supply Side Tools*

The chart displays the effects of various tools focused on the supply of reserves. These tools include reverse RPs, term deposits, issuance of so-called "Fed bills," an expanded supplementary finance program, asset sales, or reductions in liquidity programs. In the diagram, all of these tools would shift the supply of reserves to the left and so put upward pressure on the funds rate.

## Appendix 5: Materials used by Mr. Madigan

Material for Briefing on **Staff Proposal Regarding Liquidity Facilities**  
 Brian Madigan  
 June 23, 2009

### Class I FOMC - Restricted Controlled (FR)

## Staff Proposal for Extension of and Modifications to Various Liquidity Facilities

[Note: In the following table, the word "Yes" indicates a checkmark in the original document.]

		13 (3) <sup>i</sup>	Extend <sup>ii</sup>	Near-term Modification	Longer-term Proposal
<b>Depository institution facilities</b>					
1. Primary credit			NA	None	Increase spread, eliminate term loans
2. TAF			NA	1. Reduce auction amounts to \$125 billion 2. Optionally, raise minimum bid rate	One small monthly or quarterly auction
3. Foreign currency swaps			Yes	None	Allow to expire on 2/1/10, but study possible longer-term facility
<b>Primary dealer facilities</b>					
4. PDCF	Yes	Yes		Increase haircuts for most types of investment-grade and noninvestment-grade collateral	1. Later this year, restrict collateral to investment-grade 2. Allow to expire on 2/1/10
5. TSLF	Yes	Yes		1. Suspend Schedule 1 auctions 2. Offer \$75 billion of Schedule 2 monthly 3. Terminate TOP auctions	Allow to expire on 2/1/10
<b>Specific market and institution facilities</b>					
6. AMLF	Yes	Yes		Require that ABCP pledged as collateral has been purchased from a money fund experiencing material redemptions.	Allow to expire on 2/1/10
7. CPFF	Yes	Yes		None	Allow to expire on 2/1/10
8. MMIFF	Yes			None	Allow to expire on 10/30/09
9. TALF	Yes			None	
10. GSE facility <sup>iii</sup>			NA	None	Rescind

NA--not applicable.

<sup>i</sup> Relies on Section 13(3) authority. [Return to table](#)

<sup>ii</sup> Extend facility to February 1, 2010. [Return to table](#)

<sup>iii</sup> GSE facility was approved under Section 13(13) of the Federal Reserve Act. [Return to table](#)

## Appendix 6: Materials used by Messrs. Kiley and Sheets

Class II FOMC - Restricted (FR)

### Exhibit 1 Recent Indicators

#### *Top-left panel* *Change in Private Payroll Employment*

Thousands of employees

Period	Change
January 2005	92.00
February 2005	158.33
March 2005	157.33
April 2005	215.67
May 2005	202.67
June 2005	242.67
July 2005	233.00
August 2005	235.00
September 2005	185.00
October 2005	139.00
November 2005	187.00
December 2005	203.33
January 2006	263.00
February 2006	238.00
March 2006	272.00
April 2006	215.67
May 2006	134.00
June 2006	67.33
July 2006	72.33
August 2006	111.33
September 2006	125.67
October 2006	101.33
November 2006	138.33
December 2006	178.33
January 2007	202.33
February 2007	128.00
March 2007	110.33

Period	Change
April 2007	64.00
May 2007	99.00
June 2007	50.00
July 2007	51.67
August 2007	-16.33
September 2007	-3.67
October 2007	35.33
November 2007	122.67
December 2007	131.33
January 2008	56.00
February 2008	-64.00
March 2008	-136.67
April 2008	-162.00
May 2008	-162.00
June 2008	-179.67
July 2008	-170.67
August 2008	-177.33
September 2008	-212.33
October 2008	-292.67
November 2008	-428.33
December 2008	-551.67
January 2009	-673.33
February 2009	-702.33
March 2009	-695.00
April 2009	-644.00
May 2009	-527.33

Note: Three-month moving average.

### Unemployment Rate

Percent

Mar.	Apr.	May
8.5	8.9	9.4

### *Top-right panel* *Manufacturing IP*

Percent change, annual rate

Period	Percent
January 2005	5.40
February 2005	8.93
March 2005	4.36
April 2005	2.02

Period	Percent
May 2005	0.70
June 2005	3.04
July 2005	2.46
August 2005	1.76
September 2005	-2.72
October 2005	3.58
November 2005	5.84
December 2005	10.36
January 2006	6.80
February 2006	2.03
March 2006	1.17
April 2006	0.33
May 2006	0.33
June 2006	2.29
July 2006	0.44
August 2006	3.01
September 2006	0.77
October 2006	-1.45
November 2006	-3.36
December 2006	2.20
January 2007	1.62
February 2007	3.31
March 2007	0.23
April 2007	4.03
May 2007	3.02
June 2007	2.53
July 2007	3.60
August 2007	1.69
September 2007	2.00
October 2007	-1.90
November 2007	1.32
December 2007	0.92
January 2008	1.60
February 2008	-1.87
March 2008	-3.34
April 2008	-5.83
May 2008	-4.60
June 2008	-5.78
July 2008	-3.31
August 2008	-6.19

Period	Percent
September 2008	-18.00
October 2008	-16.08
November 2008	-20.38
December 2008	-17.89
January 2009	-27.41
February 2009	-20.74
March 2009	-17.19
April 2009	-9.74
May 2009	-13.00

Note: Three-month percent changes.

#### Monthly Percent Change

Mar.	Apr.	May
-1.9	-0.6	-1.0

### *Middle-left panel* *Real Personal Consumption Expenditures*

Billions of chained (2000) dollars

Period	Real PCE
January 2005	7683.70
February 2005	7706.48
March 2005	7702.44
April 2005	7752.24
May 2005	7731.55
June 2005	7815.45
July 2005	7863.71
August 2005	7837.29
September 2005	7813.30
October 2005	7836.95
November 2005	7858.52
December 2005	7899.29
January 2006	7921.20
February 2006	7959.07
March 2006	7962.04
April 2006	7989.80
May 2006	8004.29
June 2006	8012.24
July 2006	8052.28
August 2006	8037.65
September 2006	8049.11
October 2006	8101.14

Period	Real PCE
November 2006	8105.38
December 2006	8153.23
January 2007	8180.86
February 2007	8209.37
March 2007	8201.15
April 2007	8224.94
May 2007	8240.78
June 2007	8246.24
July 2007	8264.03
August 2007	8286.81
September 2007	8284.58
October 2007	8275.55
November 2007	8311.81
December 2007	8307.23
January 2008	8317.27
February 2008	8304.60
March 2008	8326.23
April 2008	8334.59
May 2008	8355.08
June 2008	8334.39
July 2008	8281.42
August 2008	8269.28
September 2008	8231.01
October 2008	8167.65
November 2008	8196.36
December 2008	8147.50
January 2009	8201.96
February 2009	8205.46
March 2009	8186.66
April 2009	8181.07

**Quarterly averages**  
Billions of chained (2000)  
dollars

Period	Real PCE
2005:Q1	7697.52
2005:Q2	7766.39
2005:Q3	7838.10
2005:Q4	7864.92
2006:Q1	7947.41
2006:Q2	8002.14
2006:Q3	8046.35

Period	Real PCE
2006:Q4	8119.94
2007:Q1	8197.17
2007:Q2	8237.27
2007:Q3	8278.52
2007:Q4	8298.20
2008:Q1	8316.06
2008:Q2	8341.33
2008:Q3	8260.59
2008:Q4	8170.49
2009:Q1	8198.05
<i>Staff forecast</i>	
2009:Q2	8192.63

*Middle-right panel*  
*Sales of Single-Family Homes*

Millions

Period	New homes	Existing homes
January 2000	0.87	4.64
February 2000	0.86	4.57
March 2000	0.90	4.64
April 2000	0.84	4.63
May 2000	0.86	4.57
June 2000	0.79	4.57
July 2000	0.89	4.55
August 2000	0.85	4.60
September 2000	0.91	4.69
October 2000	0.93	4.65
November 2000	0.88	4.74
December 2000	0.98	4.52
January 2001	0.94	4.55
February 2001	0.96	4.66
March 2001	0.94	4.83
April 2001	0.91	4.73
May 2001	0.89	4.68
June 2001	0.88	4.82
July 2001	0.88	4.81
August 2001	0.87	4.85
September 2001	0.85	4.63
October 2001	0.87	4.65
November 2001	0.92	4.65

Period	New homes	Existing homes
December 2001	0.98	4.86
January 2002	0.88	5.22
February 2002	0.95	5.20
March 2002	0.92	4.98
April 2002	0.94	5.00
May 2002	0.98	4.97
June 2002	0.96	4.86
July 2002	0.96	4.78
August 2002	1.01	4.73
September 2002	1.04	4.87
October 2002	1.01	5.02
November 2002	1.02	5.06
December 2002	1.05	5.28
January 2003	1.00	5.33
February 2003	0.94	5.29
March 2003	1.00	5.17
April 2003	1.01	5.15
May 2003	1.08	5.24
June 2003	1.19	5.24
July 2003	1.17	5.53
August 2003	1.21	5.76
September 2003	1.13	5.80
October 2003	1.14	5.63
November 2003	1.09	5.48
December 2003	1.13	5.70
January 2004	1.17	5.51
February 2004	1.16	5.63
March 2004	1.28	5.86
April 2004	1.19	5.92
May 2004	1.24	6.03
June 2004	1.18	6.09
July 2004	1.09	6.00
August 2004	1.18	5.87
September 2004	1.21	5.88
October 2004	1.31	6.02
November 2004	1.18	6.11
December 2004	1.24	6.05
January 2005	1.20	6.20
February 2005	1.32	6.02
March 2005	1.33	6.10

Period	New homes	Existing homes
April 2005	1.26	6.23
May 2005	1.29	6.18
June 2005	1.27	6.25
July 2005	1.39	6.24
August 2005	1.26	6.31
September 2005	1.24	6.34
October 2005	1.34	6.21
November 2005	1.21	6.14
December 2005	1.24	5.95
January 2006	1.17	5.88
February 2006	1.06	5.99
March 2006	1.12	5.99
April 2006	1.12	5.87
May 2006	1.09	5.75
June 2006	1.07	5.70
July 2006	0.97	5.53
August 2006	1.04	5.56
September 2006	1.02	5.50
October 2006	0.94	5.59
November 2006	1.00	5.57
December 2006	1.00	5.61
January 2007	0.89	5.57
February 2007	0.83	5.75
March 2007	0.83	5.30
April 2007	0.89	5.19
May 2007	0.84	5.14
June 2007	0.79	5.03
July 2007	0.78	4.99
August 2007	0.70	4.81
September 2007	0.69	4.47
October 2007	0.73	4.43
November 2007	0.64	4.46
December 2007	0.62	4.38
January 2008	0.61	4.36
February 2008	0.58	4.39
March 2008	0.51	4.35
April 2008	0.53	4.30
May 2008	0.51	4.38
June 2008	0.49	4.31
July 2008	0.50	4.39

Period	New homes	Existing homes
August 2008	0.44	4.37
September 2008	0.44	4.54
October 2008	0.41	4.39
November 2008	0.39	4.06
December 2008	0.37	4.25
January 2009	0.33	4.05
February 2009	0.35	4.22
March 2009	0.34	4.08
April 2009	0.34	4.17
May 2009	ND	4.25

*Bottom-left panel*  
*Orders and Shipments of Nondefense Capital Goods\**

Billions of dollars

Period	Orders	Shipments
January 2005	55.62	54.71
February 2005	56.68	55.50
March 2005	57.12	55.84
April 2005	56.93	55.69
May 2005	56.85	56.06
June 2005	57.77	56.50
July 2005	57.90	56.78
August 2005	58.81	57.00
September 2005	58.82	57.38
October 2005	59.59	58.00
November 2005	59.79	58.58
December 2005	60.32	59.26
January 2006	61.34	59.97
February 2006	62.26	60.63
March 2006	63.75	61.30
April 2006	63.95	61.80
May 2006	64.45	62.32
June 2006	64.31	62.42
July 2006	64.80	62.57
August 2006	64.87	62.71
September 2006	65.80	62.70
October 2006	65.94	62.40
November 2006	66.17	62.24
December 2006	65.19	62.24

Period	Orders	Shipments
January 2007	63.89	61.45
February 2007	62.43	60.83
March 2007	61.87	60.36
April 2007	62.86	61.10
May 2007	63.64	61.53
June 2007	63.46	61.69
July 2007	63.20	61.62
August 2007	63.30	61.67
September 2007	63.63	62.17
October 2007	63.18	62.45
November 2007	62.66	62.50
December 2007	63.13	62.52
January 2008	63.88	62.78
February 2008	64.44	62.65
March 2008	63.85	62.45
April 2008	64.09	62.55
May 2008	64.47	62.96
June 2008	65.42	63.35
July 2008	65.79	63.59
August 2008	65.71	63.34
September 2008	64.54	63.31
October 2008	61.90	62.43
November 2008	59.97	61.74
December 2008	57.62	60.71
January 2009	54.40	58.57
February 2009	51.64	56.66
March 2009	49.80	54.43
April 2009	49.75	53.59

\* Excluding aircraft. [Return to text](#)

Note: Three-month moving average.

### *Bottom-right panel* *Real GDP Forecast*

(Percent change, annual rate)

	Current	Apr. GB
2009:Q1	-5.5	-6.3
2009:Q2	-1.0	-1.5
2009:Q3	0.7	0.4

## Exhibit 2

### Medium-Term Outlook

#### *Top panel*

##### *Factors Affecting GDP Forecast*

- Inventory dynamics provide a lift in the second half of this year.
- Housing stabilizes and we expect construction to turn up next year.
- Risk premiums on corporate equity and debt decline further, contributing to gains in wealth and a lower cost of capital.

#### *Middle-left panel*

##### *Contributions to Growth in Real GDP*

Percentage points

Period	Change in business inventories	Final sales
2008:H2	0.36	-3.83
2009:H1	-1.64	-1.62
2009:H2	1.76	-0.62
2010	0.35	2.61

#### *Middle-right panel*

##### *Contribution of Wealth to PCE Growth*

Period	Percentage points
2006	1.02
2007	0.71
2008	-1.22
2009	-2.59
2010	-1.61

#### *Bottom-left panel*

##### *BFI and the Accelerator*

Period	NFB output (Percent change)	BFI share (Percent)
1990:Q1	3.69	21.14
1990:Q2	2.13	20.50
1990:Q3	2.71	20.78
1990:Q4	2.20	20.62
1991:Q1	1.19	20.15
1991:Q2	-0.22	19.64
1991:Q3	-2.17	19.28
1991:Q4	-1.52	18.97
1992:Q1	-0.66	18.53

Period	NFB output (Percent change)	BFI share (Percent)
1992:Q2	1.08	19.04
1992:Q3	3.10	19.03
1992:Q4	3.37	19.29
1993:Q1	3.96	19.36
1993:Q2	4.99	19.82
1993:Q3	3.86	19.70
1993:Q4	3.37	20.30
1994:Q1	3.06	20.35
1994:Q2	3.13	20.26
1994:Q3	4.16	20.40
1994:Q4	5.17	20.93
1995:Q1	4.84	21.62
1995:Q2	4.87	21.51
1995:Q3	4.15	21.30
1995:Q4	2.74	21.42
1996:Q1	3.38	21.52
1996:Q2	2.69	21.53
1996:Q3	3.12	21.95
1996:Q4	4.84	21.96
1997:Q1	4.73	22.00
1997:Q2	5.21	21.97
1997:Q3	5.19	22.59
1997:Q4	5.11	22.29
1998:Q1	5.48	22.55
1998:Q2	4.97	22.85
1998:Q3	5.58	22.62
1998:Q4	4.49	22.75
1999:Q1	4.35	22.81
1999:Q2	5.40	22.99
1999:Q3	4.93	23.03
1999:Q4	5.13	22.49
2000:Q1	5.22	22.96
2000:Q2	5.35	23.12
2000:Q3	4.36	23.18
2000:Q4	5.30	22.87
2001:Q1	3.64	22.45
2001:Q2	2.13	21.45
2001:Q3	1.87	21.19
2001:Q4	0.35	20.44

Period	NFB output (Percent change)	BFI share (Percent)
2002:Q1	-0.17	19.60
2002:Q2	-0.42	19.20
2002:Q3	0.73	18.93
2002:Q4	0.77	18.76
2003:Q1	2.30	18.45
2003:Q2	2.04	18.71
2003:Q3	1.47	18.57
2003:Q4	2.20	18.59
2004:Q1	4.10	18.22
2004:Q2	4.48	18.52
2004:Q3	4.84	18.91
2004:Q4	4.99	19.27
2005:Q1	3.26	19.26
2005:Q2	3.51	19.50
2005:Q3	3.79	19.51
2005:Q4	3.28	19.57
2006:Q1	3.51	20.00
2006:Q2	3.18	20.09
2006:Q3	3.73	20.21
2006:Q4	3.71	20.10
2007:Q1	2.58	19.99
2007:Q2	2.61	20.09
2007:Q3	0.92	20.05
2007:Q4	1.63	20.10
2008:Q1	2.92	19.97
2008:Q2	2.36	19.81
2008:Q3	2.82	19.72
2008:Q4	2.09	19.04
2009:Q1	0.27	17.07
<i>Forecast</i>		
2009:Q2	-1.85	16.63
2009:Q3	-3.91	16.07
2009:Q4	-4.97	15.55
2010:Q1	-4.40	15.26
2010:Q2	-1.76	15.21
2010:Q3	0.70	15.30
2010:Q4	1.91	15.52

Note: BFI share equals nominal BFI divided by nominal nonfarm business (NFB) output. NFB output growth is measured as the percent change from four quarters earlier, lagged two quarters.

*Bottom-right panel*  
*Real GDP Forecast*

(Percent change, annual rate)

	Current	Apr. GB
2009:H1	-3.3	-3.9
2009:H2	1.1	0.8
2010	3.0	2.6

**Exhibit 3**  
**Inflation**

*Top-left panel*  
*PCE Price Index*

		Total	Core
Percent change, a.r.:			
2008:	Q4	-4.9	0.9
2009:	Q1	-1.0	1.5
	Q2	1.5	2.3
Monthly percent change:			
2009:	March	0.0	0.2
	April	0.1	0.3
	May	0.1	0.1

*Top-right panel*  
*Unemployment Rate*

Percent

Period	Unemployment Rate	April GB	NAIRU	April GB NAIRU
2005:Q1	5.28	5.28	4.85	4.85
2005:Q2	5.12	5.12	4.83	4.83
2005:Q3	4.97	4.97	4.85	4.85
2005:Q4	4.94	4.94	4.83	4.83
2006:Q1	4.71	4.71	4.82	4.82
2006:Q2	4.68	4.68	4.83	4.83
2006:Q3	4.65	4.65	4.81	4.81
2006:Q4	4.43	4.43	4.82	4.82
2007:Q1	4.50	4.50	4.82	4.82
2007:Q2	4.53	4.53	4.80	4.80
2007:Q3	4.67	4.67	4.78	4.78
2007:Q4	4.78	4.78	4.78	4.78
2008:Q1	4.94	4.94	4.77	4.77

Period	Unemployment Rate	April GB	NAIRU	April GB NAIRU
2008:Q2	5.37	5.37	4.75	4.75
2008:Q3	6.05	6.05	4.82	4.75
2008:Q4	6.86	6.86	4.88	4.75
2009:Q1	8.06	8.06	4.95	4.76
<i>Forecast</i>				
2009:Q2	9.27	9.01	5.01	4.82
2009:Q3	9.83	9.22	5.01	4.82
2009:Q4	9.98	9.26	5.01	4.82
2010:Q1	9.98	9.25	5.01	4.82
2010:Q2	9.95	9.22	5.01	4.82
2010:Q3	9.81	9.14	5.01	4.82
2010:Q4	9.66	9.07	5.01	4.82

*Middle-left panel*  
*PCE Energy Prices*

Four-quarter percent change

Period	Percent	April GB
2005:Q1	13.06	ND
2005:Q2	9.03	ND
2005:Q3	23.72	ND
2005:Q4	23.10	ND
2006:Q1	20.40	ND
2006:Q2	21.71	ND
2006:Q3	9.81	ND
2006:Q4	-3.98	ND
2007:Q1	0.47	ND
2007:Q2	4.05	ND
2007:Q3	1.23	ND
2007:Q4	19.08	ND
2008:Q1	20.05	ND
2008:Q2	19.69	ND
2008:Q3	27.47	ND
2008:Q4	-8.54	ND
2009:Q1	-21.64	-21.66
<i>Forecast</i>		
2009:Q2	-26.91	-28.82
2009:Q3	-24.25	-31.62
2009:Q4	1.28	-8.87
2010:Q1	15.09	3.90
2010:Q2	17.48	9.37

Period	Percent	April GB
2010:Q3	6.72	7.63
2010:Q4	4.47	6.10

*Middle-right panel*  
*Core Nonfuel Import Prices*

Four-quarter percent change

Period	Percent	April GB
2005:Q1	3.50	3.50
2005:Q2	2.88	2.88
2005:Q3	2.24	2.24
2005:Q4	2.22	2.22
2006:Q1	1.29	1.29
2006:Q2	1.68	1.68
2006:Q3	2.74	2.74
2006:Q4	2.37	2.37
2007:Q1	2.79	2.79
2007:Q2	2.91	2.91
2007:Q3	2.71	2.71
2007:Q4	3.40	3.40
2008:Q1	4.78	4.78
2008:Q2	6.49	6.49
2008:Q3	6.89	6.89
2008:Q4	3.52	3.52
2009:Q1	-0.99	-1.12
<i>Forecast</i>		
2009:Q2	-3.71	-4.33
2009:Q3	-4.22	-5.56
2009:Q4	-1.61	-3.32
2010:Q1	1.16	-0.56
2010:Q2	1.69	0.49
2010:Q3	1.32	0.93
2010:Q4	1.08	1.07

*Bottom panel*  
*PCE Price Index*

Four-quarter percent change

Period	Core	Total
2000:Q1	1.85	2.70
2000:Q2	1.74	2.53
2000:Q3	1.62	2.44

Period	Core	Total
2000:Q4	1.53	2.28
2001:Q1	1.62	2.22
2001:Q2	1.82	2.37
2001:Q3	1.95	2.05
2001:Q4	2.22	1.74
2002:Q1	1.84	1.15
2002:Q2	1.79	1.21
2002:Q3	1.89	1.52
2002:Q4	1.55	1.79
2003:Q1	1.51	2.32
2003:Q2	1.37	1.79
2003:Q3	1.35	1.94
2003:Q4	1.44	1.89
2004:Q1	1.77	2.00
2004:Q2	2.12	2.80
2004:Q3	2.10	2.69
2004:Q4	2.23	3.09
2005:Q1	2.25	2.82
2005:Q2	2.11	2.50
2005:Q3	2.08	3.19
2005:Q4	2.15	3.26
2006:Q1	2.06	3.08
2006:Q2	2.27	3.26
2006:Q3	2.45	2.86
2006:Q4	2.29	1.90
2007:Q1	2.35	2.31
2007:Q2	2.07	2.40
2007:Q3	2.01	2.24
2007:Q4	2.20	3.45
2008:Q1	2.18	3.51
2008:Q2	2.26	3.67
2008:Q3	2.34	4.30
2008:Q4	1.94	1.92
2009:Q1	1.75	0.77
<i>Forecast</i>		
2009:Q2	1.78	0.11
2009:Q3	1.44	-0.26
2009:Q4	1.41	1.42
2010:Q1	1.23	2.07
2010:Q2	0.86	1.99

Period	Core	Total
2010:Q3	0.79	1.36
2010:Q4	0.77	1.14

## Exhibit 4

### Risk I: Uncertainty Regarding Resource Utilization

*Top-left panel*

*Output and Unemployment Gaps*

Period	Output (Percent)	Unemployment (Percentage points, inverted scale)
1987:Q1	-1.57	0.67
1987:Q2	-1.23	0.41
1987:Q3	-1.08	0.17
1987:Q4	-0.11	0.11
1988:Q1	-0.38	-0.08
1988:Q2	0.13	-0.24
1988:Q3	-0.10	-0.23
1988:Q4	0.46	-0.38
1989:Q1	0.71	-0.44
1989:Q2	0.61	-0.45
1989:Q3	0.56	-0.32
1989:Q4	0.06	-0.18
1990:Q1	0.45	-0.38
1990:Q2	-0.05	-0.36
1990:Q3	-0.70	0.07
1990:Q4	-2.11	0.51
1991:Q1	-3.27	1.01
1991:Q2	-3.28	1.23
1991:Q3	-3.45	1.37
1991:Q4	-3.64	1.57
1992:Q1	-3.26	1.92
1992:Q2	-2.95	2.14
1992:Q3	-2.63	2.15
1992:Q4	-2.19	1.97
1993:Q1	-2.72	1.80
1993:Q2	-2.86	1.73
1993:Q3	-3.01	1.45
1993:Q4	-2.32	1.28
1994:Q1	-1.96	1.17

Period	Output (Percent)	Unemployment (Percentage points, inverted scale)
1994:Q2	-1.32	0.79
1994:Q3	-1.41	0.62
1994:Q4	-0.90	0.24
1995:Q1	-1.28	0.15
1995:Q2	-1.75	0.36
1995:Q3	-1.64	0.37
1995:Q4	-1.61	0.31
1996:Q1	-1.63	0.23
1996:Q2	-0.73	0.25
1996:Q3	-0.62	0.07
1996:Q4	-0.19	0.08
1997:Q1	-0.20	-0.01
1997:Q2	0.53	-0.19
1997:Q3	0.99	-0.27
1997:Q4	0.94	-0.45
1998:Q1	1.19	-0.59
1998:Q2	1.00	-0.79
1998:Q3	1.29	-0.69
1998:Q4	1.94	-0.77
1999:Q1	1.89	-0.87
1999:Q2	1.82	-0.86
1999:Q3	2.08	-0.95
1999:Q4	2.94	-1.06
2000:Q1	2.32	-1.12
2000:Q2	2.99	-1.21
2000:Q3	2.00	-1.10
2000:Q4	1.64	-1.20
2001:Q1	0.70	-0.88
2001:Q2	0.19	-0.65
2001:Q3	-0.97	-0.23
2001:Q4	-1.39	0.49
2002:Q1	-1.47	0.70
2002:Q2	-1.69	0.81
2002:Q3	-1.85	0.72
2002:Q4	-2.56	0.84
2003:Q1	-2.96	0.98
2003:Q2	-2.81	1.30
2003:Q3	-1.71	1.22
2003:Q4	-1.76	0.92

Period	Output (Percent)	Unemployment (Percentage points, inverted scale)
2004:Q1	-1.56	0.82
2004:Q2	-1.23	0.70
2004:Q3	-0.87	0.53
2004:Q4	-0.77	0.52
2005:Q1	-0.59	0.44
2005:Q2	-0.49	0.26
2005:Q3	-0.09	0.14
2005:Q4	-0.30	0.06
2006:Q1	0.29	-0.13
2006:Q2	0.37	-0.14
2006:Q3	-0.01	-0.13
2006:Q4	-0.21	-0.43
2007:Q1	-0.82	-0.34
2007:Q2	-0.27	-0.31
2007:Q3	0.27	-0.09
2007:Q4	-0.39	0.01
2008:Q1	-0.77	0.12
2008:Q2	-0.67	0.64
2008:Q3	-1.39	1.18
2008:Q4	-3.63	2.01
2009:Q1	-5.53	3.11
2009:Q2	-6.26	4.27
2009:Q3	-6.58	4.82
2009:Q4	-6.67	4.97

### *Top-right panel*

#### *Interpreting Recent Output and Unemployment Gaps*

- Output and unemployment gaps typically provide similar signals.
- Possible explanations for recent discrepancy:
  - GDP data understate contraction.
  - Participation boosted by EUC, wealth decline, or other factors.
  - Changes in NAIRU or other elements of potential.

### *Middle-left panel*

#### *Initial and Current Staff Estimate of the Output Gap (1987-2008)*

Percent

Period	Initial	Current
1987:Q1	-2.80	-1.57
1987:Q2	-2.50	-1.23

Period	Initial	Current
1987:Q3	-1.10	-1.08
1987:Q4	-0.90	-0.11
1988:Q1	-0.50	-0.38
1988:Q2	0.10	0.13
1988:Q3	0.50	-0.10
1988:Q4	0.00	0.46
1989:Q1	0.80	0.71
1989:Q2	1.00	0.61
1989:Q3	1.30	0.56
1989:Q4	0.90	0.06
1990:Q1	0.20	0.45
1990:Q2	0.60	-0.05
1990:Q3	0.30	-0.70
1990:Q4	-0.90	-2.11
1991:Q1	-2.80	-3.27
1991:Q2	-3.60	-3.28
1991:Q3	-3.30	-3.45
1991:Q4	-4.00	-3.64
1992:Q1	-4.50	-3.26
1992:Q2	-3.80	-2.95
1992:Q3	-4.20	-2.63
1992:Q4	-3.90	-2.19
1993:Q1	-2.80	-2.72
1993:Q2	-2.90	-2.86
1993:Q3	-3.30	-3.01
1993:Q4	-1.90	-2.32
1994:Q1	-1.10	-1.96
1994:Q2	-0.70	-1.32
1994:Q3	-0.20	-1.41
1994:Q4	0.50	-0.90
1995:Q1	0.80	-1.28
1995:Q2	0.20	-1.75
1995:Q3	-0.30	-1.64
1995:Q4	0.00	-1.61
1996:Q1	-0.30	-1.63
1996:Q2	0.40	-0.73
1996:Q3	0.50	-0.62
1996:Q4	0.70	-0.19
1997:Q1	1.00	-0.20
1997:Q2	1.70	0.53

Period	Initial	Current
1997:Q3	1.90	0.99
1997:Q4	1.90	0.94
1998:Q1	2.00	1.19
1998:Q2	2.00	1.00
1998:Q3	1.70	1.29
1998:Q4	2.00	1.94
1999:Q1	2.70	1.89
1999:Q2	2.70	1.82
1999:Q3	2.40	2.08
1999:Q4	2.50	2.94
2000:Q1	2.30	2.32
2000:Q2	3.20	2.99
2000:Q3	2.20	2.00
2000:Q4	1.70	1.64
2001:Q1	0.10	0.70
2001:Q2	-0.10	0.19
2001:Q3	-0.40	-0.97
2001:Q4	-1.80	-1.39
2002:Q1	-1.80	-1.47
2002:Q2	-1.50	-1.69
2002:Q3	-1.50	-1.85
2002:Q4	-1.70	-2.56
2003:Q1	-2.40	-2.96
2003:Q2	-2.62	-2.81
2003:Q3	-2.43	-1.71
2003:Q4	-1.96	-1.76
2004:Q1	-1.61	-1.56
2004:Q2	-1.57	-1.23
2004:Q3	-1.34	-0.87
2004:Q4	-1.42	-0.77
2005:Q1	-1.17	-0.59
2005:Q2	-1.22	-0.49
2005:Q3	-0.31	-0.09
2005:Q4	-0.50	-0.30
2006:Q1	-0.36	0.29
2006:Q2	0.16	0.37
2006:Q3	0.47	-0.01
2006:Q4	0.14	-0.21
2007:Q1	0.37	-0.82
2007:Q2	0.40	-0.27

Period	Initial	Current
2007:Q3	0.58	0.27
2007:Q4	0.49	-0.39
2008:Q1	-0.32	-0.77
2008:Q2	-1.25	-0.67
2008:Q3	-0.74	-1.39
2008:Q4	-3.11	-3.63

### *Middle-right panel*

#### *Model Uncertainty and Resource Utilization*

- Different methods imply different estimates of potential.
- Consider three methods:
  - Staff estimate.
  - Trend/cycle Phillips curve model.
  - Estimated DSGE (EDO) model.

### *Bottom panel*

#### *Alternative Estimates of the Output Gap with Confidence Intervals*

Percent

Period	Staff estimate	Lower bound of 90% CI	Upper bound of 90% CI	Lower bound of range of estimates	Upper bound of range of estimates
1985:Q1	-2.14	-2.95	1.35	-2.13	0.34
1985:Q2	-2.05	-2.88	1.45	-2.04	0.41
1985:Q3	-1.25	-2.11	1.54	-1.25	0.56
1985:Q4	-1.24	-2.06	1.62	-1.24	0.58
1986:Q1	-1.05	-1.92	1.51	-1.04	0.53
1986:Q2	-1.41	-2.31	1.33	-1.40	0.36
1986:Q3	-1.21	-2.19	1.19	-1.21	0.25
1986:Q4	-1.47	-2.32	1.07	-1.46	0.11
1987:Q1	-1.57	-2.41	1.23	-1.56	0.18
1987:Q2	-1.23	-2.10	1.35	-1.22	0.37
1987:Q3	-1.08	-1.94	1.50	-1.08	0.54
1987:Q4	-0.11	-1.08	1.90	-0.10	1.08
1988:Q1	-0.38	-1.27	1.83	-0.37	0.80
1988:Q2	0.13	-0.83	2.27	0.13	1.53
1988:Q3	-0.10	-0.97	2.52	-0.09	1.89
1988:Q4	0.46	-0.51	2.98	0.46	2.44
1989:Q1	0.71	-0.30	3.67	0.72	3.18
1989:Q2	0.61	-0.38	3.87	0.61	3.40
1989:Q3	0.56	-0.40	3.69	0.57	3.23
1989:Q4	0.06	-0.80	3.50	0.06	3.07

Period	Staff estimate	Lower bound of 90% CI	Upper bound of 90% CI	Lower bound of range of estimates	Upper bound of range of estimates
1990:Q1	0.45	-0.53	3.22	0.45	2.79
1990:Q2	-0.05	-0.99	2.60	-0.05	2.17
1990:Q3	-0.70	-1.61	1.97	-0.70	1.53
1990:Q4	-2.11	-2.93	1.34	-2.11	0.93
1991:Q1	-3.27	-4.10	0.34	-3.27	-0.13
1991:Q2	-3.28	-4.13	-0.47	-3.28	-1.29
1991:Q3	-3.45	-4.29	-0.69	-3.46	-1.64
1991:Q4	-3.64	-4.45	-0.73	-3.64	-1.67
1992:Q1	-3.26	-4.28	-0.58	-3.66	-1.52
1992:Q2	-2.95	-4.25	-0.38	-3.79	-1.31
1992:Q3	-2.63	-4.42	-0.16	-4.05	-1.10
1992:Q4	-2.19	-4.29	0.02	-3.95	-0.96
1993:Q1	-2.72	-3.84	-0.02	-3.35	-0.99
1993:Q2	-2.86	-3.74	-0.06	-2.89	-1.01
1993:Q3	-3.01	-3.85	-0.01	-3.03	-0.95
1993:Q4	-2.32	-3.19	0.22	-2.38	-0.71
1994:Q1	-1.96	-2.86	0.49	-2.04	-0.46
1994:Q2	-1.32	-2.25	0.73	-1.35	-0.25
1994:Q3	-1.41	-2.30	0.74	-1.45	-0.21
1994:Q4	-0.90	-1.89	0.82	-0.94	0.14
1995:Q1	-1.28	-2.25	1.03	-1.31	0.58
1995:Q2	-1.75	-2.67	0.92	-1.79	0.52
1995:Q3	-1.64	-2.62	1.01	-1.68	0.61
1995:Q4	-1.61	-2.62	0.92	-1.65	0.51
1996:Q1	-1.63	-2.64	0.62	-1.67	0.14
1996:Q2	-0.73	-2.04	0.80	-0.85	0.26
1996:Q3	-0.62	-1.93	1.29	-0.73	0.78
1996:Q4	-0.19	-1.68	1.90	-0.59	1.41
1997:Q1	-0.20	-1.63	2.39	-0.47	1.88
1997:Q2	0.53	-1.26	2.83	-0.25	2.29
1997:Q3	0.99	-1.05	3.08	-0.07	2.51
1997:Q4	0.94	-0.98	3.36	0.01	2.78
1998:Q1	1.19	-0.86	3.70	0.11	3.11
1998:Q2	1.00	-0.83	3.75	0.19	3.15
1998:Q3	1.29	-0.61	3.97	0.37	3.34
1998:Q4	1.94	-0.35	4.55	0.62	3.89
1999:Q1	1.89	-0.17	4.77	0.81	4.10
1999:Q2	1.82	0.01	5.11	1.00	4.44
1999:Q3	2.08	0.26	5.66	1.27	4.95

Period	Staff estimate	Lower bound of 90% CI	Upper bound of 90% CI	Lower bound of range of estimates	Upper bound of range of estimates
1999:Q4	2.94	0.61	6.00	1.59	5.28
2000:Q1	2.32	0.63	5.93	1.68	5.21
2000:Q2	2.99	0.81	6.51	1.77	5.78
2000:Q3	2.00	0.47	6.46	1.56	5.71
2000:Q4	1.64	0.14	6.35	1.28	5.59
2001:Q1	0.70	-0.49	5.78	0.66	5.04
2001:Q2	0.19	-0.97	4.82	0.15	4.07
2001:Q3	-0.97	-1.89	3.61	-1.01	2.90
2001:Q4	-1.39	-2.31	2.07	-1.43	1.37
2002:Q1	-1.47	-2.41	1.20	-1.51	0.43
2002:Q2	-1.69	-2.61	0.80	-1.73	-0.04
2002:Q3	-1.85	-2.79	0.48	-1.89	-0.56
2002:Q4	-2.56	-3.42	0.17	-2.60	-0.82
2003:Q1	-2.96	-3.84	0.15	-3.00	-0.82
2003:Q2	-2.81	-3.77	0.36	-2.85	-0.59
2003:Q3	-1.71	-3.65	0.78	-3.13	-0.18
2003:Q4	-1.76	-3.54	1.02	-3.05	0.07
2004:Q1	-1.56	-3.41	1.21	-2.98	0.25
2004:Q2	-1.23	-3.48	1.34	-3.06	0.40
2004:Q3	-0.87	-3.27	1.45	-2.89	0.50
2004:Q4	-0.77	-2.92	1.51	-2.54	0.55
2005:Q1	-0.59	-2.65	1.56	-2.30	0.60
2005:Q2	-0.49	-2.67	1.61	-2.32	0.64
2005:Q3	-0.09	-2.56	1.71	-2.20	0.73
2005:Q4	-0.30	-1.98	1.78	-1.59	0.77
2006:Q1	0.29	-1.44	1.94	-1.02	0.89
2006:Q2	0.37	-1.17	1.99	-0.69	0.92
2006:Q3	-0.01	-1.06	1.85	-0.29	0.84
2006:Q4	-0.21	-1.16	1.74	-0.21	0.77
2007:Q1	-0.82	-1.65	1.72	-0.80	0.75
2007:Q2	-0.27	-1.15	1.93	-0.25	0.94
2007:Q3	0.27	-0.85	2.16	-0.11	1.14
2007:Q4	-0.39	-1.30	2.06	-0.37	1.07
2008:Q1	-0.77	-1.68	1.89	-0.75	0.89
2008:Q2	-0.67	-2.02	1.63	-1.35	0.58
2008:Q3	-1.39	-2.73	1.03	-2.07	-0.10
2008:Q4	-3.63	-4.66	-0.03	-3.86	-1.19
2009:Q1	-5.53	-6.68	-1.06	-5.90	-2.26
2009:Q2	-6.26	-7.88	-1.73	-7.23	-2.97

## Exhibit 5

### Risk II: Inflation Dynamics

#### *Top-left panel*

##### *Expectations and Inflation*

- Long-run inflation expectations have been reasonably well-anchored for some time.
- In our projection, this prevents a sharper deceleration in inflation.
- Un-mooring of expectations is a risk.

#### *Top-right panel*

##### *Long-Term Inflation Expectations*

**Reuters/Michigan, next five to ten years**

Period	Percent
April 1990	4.0
May 1990	4.3
June 1990	4.6
July 1990	4.2
August 1990	4.6
September 1990	4.7
October 1990	4.6
November 1990	4.6
December 1990	4.5
January 1991	4.6
February 1991	4.6
March 1991	4.6
April 1991	4.2
May 1991	4.4
June 1991	4.5
July 1991	4.2
August 1991	4.0
September 1991	3.9
October 1991	3.7
November 1991	3.8
December 1991	3.8
January 1992	3.6
February 1992	3.4
March 1992	3.6
April 1992	3.9

Period	Percent
May 1992	4.0
June 1992	3.4
July 1992	3.7
August 1992	4.2
September 1992	3.5
October 1992	3.7
November 1992	3.7
December 1992	3.4
January 1993	3.4
February 1993	4.1
March 1993	3.6
April 1993	3.5
May 1993	3.5
June 1993	3.8
July 1993	3.5
August 1993	3.3
September 1993	3.3
October 1993	3.5
November 1993	3.4
December 1993	3.6
January 1994	3.2
February 1994	3.3
March 1994	3.4
April 1994	3.2
May 1994	3.4
June 1994	3.4
July 1994	3.2
August 1994	3.5
September 1994	3.2
October 1994	3.3
November 1994	3.2
December 1994	3.2
January 1995	3.2
February 1995	3.2
March 1995	3.3
April 1995	3.5
May 1995	3.2
June 1995	3.1
July 1995	3.2
August 1995	3.1

Period	Percent
September 1995	3.1
October 1995	3.2
November 1995	3.1
December 1995	3.1
January 1996	3.2
February 1996	3.3
March 1996	3.2
April 1996	3.0
May 1996	3.3
June 1996	3.1
July 1996	3.2
August 1996	3.3
September 1996	3.2
October 1996	3.0
November 1996	3.0
December 1996	3.0
January 1997	3.2
February 1997	3.1
March 1997	3.0
April 1997	2.9
May 1997	3.0
June 1997	3.1
July 1997	2.9
August 1997	3.0
September 1997	3.1
October 1997	3.0
November 1997	3.1
December 1997	3.1
January 1998	2.9
February 1998	2.9
March 1998	2.8
April 1998	2.7
May 1998	2.8
June 1998	2.9
July 1998	2.7
August 1998	2.7
September 1998	2.9
October 1998	2.8
November 1998	2.8
December 1998	2.9

Period	Percent
January 1999	3.0
February 1999	2.8
March 1999	2.7
April 1999	2.8
May 1999	2.9
June 1999	2.8
July 1999	2.9
August 1999	2.8
September 1999	2.9
October 1999	2.8
November 1999	2.9
December 1999	2.9
January 2000	3.0
February 2000	2.9
March 2000	3.1
April 2000	2.8
May 2000	2.9
June 2000	2.8
July 2000	2.8
August 2000	2.9
September 2000	3.0
October 2000	3.0
November 2000	2.9
December 2000	3.0
January 2001	2.9
February 2001	3.0
March 2001	3.0
April 2001	3.1
May 2001	3.0
June 2001	3.0
July 2001	2.9
August 2001	3.0
September 2001	2.9
October 2001	2.7
November 2001	2.8
December 2001	3.0
January 2002	2.7
February 2002	2.8
March 2002	2.8
April 2002	2.8

Period	Percent
May 2002	3.0
June 2002	2.8
July 2002	2.8
August 2002	2.9
September 2002	2.5
October 2002	2.8
November 2002	2.8
December 2002	2.8
January 2003	2.7
February 2003	2.7
March 2003	2.8
April 2003	2.7
May 2003	2.8
June 2003	2.7
July 2003	2.7
August 2003	2.7
September 2003	2.7
October 2003	2.8
November 2003	2.7
December 2003	2.8
January 2004	2.8
February 2004	2.9
March 2004	2.9
April 2004	2.7
May 2004	2.8
June 2004	2.9
July 2004	2.8
August 2004	2.7
September 2004	2.8
October 2004	2.8
November 2004	2.7
December 2004	2.8
January 2005	2.7
February 2005	2.8
March 2005	2.9
April 2005	3.0
May 2005	2.9
June 2005	2.8
July 2005	2.9
August 2005	2.8

Period	Percent
September 2005	3.1
October 2005	3.2
November 2005	3.0
December 2005	3.1
January 2006	2.9
February 2006	2.9
March 2006	2.9
April 2006	3.1
May 2006	3.2
June 2006	2.9
July 2006	2.9
August 2006	3.2
September 2006	3.0
October 2006	3.1
November 2006	3.0
December 2006	3.0
January 2007	3.0
February 2007	2.9
March 2007	2.9
April 2007	3.1
May 2007	3.1
June 2007	2.9
July 2007	3.1
August 2007	2.9
September 2007	2.9
October 2007	2.8
November 2007	2.9
December 2007	3.1
January 2008	3.0
February 2008	3.0
March 2008	2.9
April 2008	3.2
May 2008	3.4
June 2008	3.4
July 2008	3.2
August 2008	3.2
September 2008	3.0
October 2008	2.9
November 2008	2.9
December 2008	2.6

Period	Percent
January 2009	2.9
February 2009	3.1
March 2009	2.6
April 2009	2.8
May 2009	2.9
June 2009	3.0

#### SPF, next 10 years

Period	Percent
1990:Q1	3.95
1990:Q2	4.21
1990:Q3	ND
1990:Q4	4.15
1991:Q1	4.05
1991:Q2	4.08
1991:Q3	ND
1991:Q4	4.00
1992:Q1	3.70
1992:Q2	3.90
1992:Q3	3.75
1992:Q4	3.60
1993:Q1	3.50
1993:Q2	3.70
1993:Q3	3.45
1993:Q4	3.45
1994:Q1	3.45
1994:Q2	3.50
1994:Q3	3.50
1994:Q4	3.50
1995:Q1	3.30
1995:Q2	3.35
1995:Q3	3.20
1995:Q4	3.00
1996:Q1	3.00
1996:Q2	3.00
1996:Q3	3.00
1996:Q4	3.00
1997:Q1	3.00
1997:Q2	2.85
1997:Q3	3.00
1997:Q4	2.65

Period	Percent
1998:Q1	2.60
1998:Q2	2.50
1998:Q3	2.50
1998:Q4	2.50
1999:Q1	2.30
1999:Q2	2.50
1999:Q3	2.50
1999:Q4	2.50
2000:Q1	2.50
2000:Q2	2.50
2000:Q3	2.50
2000:Q4	2.50
2001:Q1	2.50
2001:Q2	2.50
2001:Q3	2.50
2001:Q4	2.55
2002:Q1	2.50
2002:Q2	2.50
2002:Q3	2.50
2002:Q4	2.45
2003:Q1	2.50
2003:Q2	2.50
2003:Q3	2.50
2003:Q4	2.50
2004:Q1	2.50
2004:Q2	2.50
2004:Q3	2.50
2004:Q4	2.50
2005:Q1	2.45
2005:Q2	2.50
2005:Q3	2.50
2005:Q4	2.50
2006:Q1	2.50
2006:Q2	2.50
2006:Q3	2.50
2006:Q4	2.50
2007:Q1	2.35
2007:Q2	2.40
2007:Q3	2.40
2007:Q4	2.40

Period	Percent
2008:Q1	2.50
2008:Q2	2.50
2008:Q3	2.50
2008:Q4	2.50
2009:Q1	2.40
2009:Q2	2.50

### *Middle-left panel*

#### *Resource Utilization and Inflation*

- Inflation appears to be less sensitive to resource utilization than in the past.
- This reduced sensitivity contributed to our projection that inflation will decelerate by less than during similar earlier periods.
- If the effect of utilization on inflation were similar to that during the early 1980s, we could see deflation.

### *Middle-right panel*

#### *Slope of a Simple Phillips Curve*

Period	Estimated slope	Lower bound of 70% CI	Upper bound of 70% CI
1985	-0.38	-0.55	-0.22
1986	-0.37	-0.54	-0.20
1987	-0.36	-0.53	-0.19
1988	-0.34	-0.52	-0.16
1989	-0.36	-0.55	-0.17
1990	-0.37	-0.56	-0.18
1991	-0.36	-0.54	-0.18
1992	-0.36	-0.53	-0.19
1993	-0.37	-0.53	-0.20
1994	-0.33	-0.45	-0.22
1995	-0.40	-0.51	-0.29
1996	-0.35	-0.45	-0.26
1997	-0.36	-0.46	-0.26
1998	-0.35	-0.45	-0.25
1999	-0.34	-0.44	-0.25
2000	-0.38	-0.44	-0.33
2001	-0.39	-0.45	-0.34
2002	-0.32	-0.37	-0.26
2003	-0.29	-0.36	-0.23
2004	-0.21	-0.28	-0.14
2005	-0.21	-0.28	-0.13
2006	-0.22	-0.30	-0.14
2007	-0.22	-0.30	-0.14

Period	Estimated slope	Lower bound of 70% CI	Upper bound of 70% CI
2008	-0.21	-0.28	-0.14

Note: From a Phillips curve for core PCE inflation using annual data and 20-year rolling estimation samples.

CI Confidence interval

### *Alternative Simulations*

#### Bottom-left panel

#### Core PCE Prices

Four-quarter percent change

Period	Lower bound of 70% CI	Upper bound of 70% CI	Baseline	Higher inflation expectations	Deflation
2009:Q1	ND	ND	1.75	ND	ND
2009:Q2	1.78	1.78	1.78	1.78	1.78
2009:Q3	1.21	1.67	1.44	1.46	1.31
2009:Q4	1.05	1.75	1.41	1.50	0.92
2010:Q1	0.78	1.70	1.23	1.44	0.55
2010:Q2	0.32	1.43	0.86	1.25	0.05
2010:Q3	0.19	1.45	0.79	1.35	0.01
2010:Q4	0.15	1.50	0.77	1.49	0.15
2011:Q1	0.09	1.52	0.75	1.60	0.10
2011:Q2	0.02	1.51	0.72	1.67	-0.02
2011:Q3	0.01	1.53	0.71	1.75	-0.16
2011:Q4	-0.03	1.56	0.72	1.82	-0.18
2012:Q1	-0.01	1.57	0.74	1.87	-0.15
2012:Q2	0.02	1.59	0.78	1.92	-0.08
2012:Q3	0.05	1.63	0.83	1.98	0.01
2012:Q4	0.12	1.72	0.89	2.06	0.13
2013:Q1	0.19	1.79	0.95	2.17	0.24
2013:Q2	0.27	1.86	1.01	2.28	0.34
2013:Q3	0.34	1.94	1.08	2.39	0.42
2013:Q4	0.40	2.01	1.13	2.49	0.50

CI Confidence interval

#### Bottom-right panel

#### Federal Funds Rate

Percent

Period	Lower bound of 70% CI	Upper bound of 70% CI	Baseline	Higher inflation expectations	Deflation
2009:Q1	ND	ND	0.18	ND	ND
2009:Q2	0.12	0.12	0.12	0.12	0.12
2009:Q3	0.12	0.12	0.12	0.12	0.12
2009:Q4	0.12	0.12	0.12	0.12	0.12

Period	Lower bound of 70% CI	Upper bound of 70% CI	Baseline	Higher inflation expectations	Deflation
2010:Q1	0.12	0.12	0.12	0.12	0.12
2010:Q2	0.12	0.12	0.12	0.12	0.12
2010:Q3	0.12	0.12	0.12	0.12	0.12
2010:Q4	0.12	0.12	0.12	0.12	0.12
2011:Q1	0.12	0.12	0.12	0.12	0.12
2011:Q2	0.12	0.37	0.12	0.12	0.12
2011:Q3	0.12	1.14	0.12	0.47	0.12
2011:Q4	0.12	1.84	0.12	1.32	0.12
2012:Q1	0.12	2.43	0.12	2.00	0.12
2012:Q2	0.12	3.14	0.78	2.74	0.13
2012:Q3	0.12	3.77	1.60	3.46	0.13
2012:Q4	0.24	4.45	2.39	4.17	1.08
2013:Q1	1.17	5.12	3.12	4.86	1.93
2013:Q2	1.75	5.60	3.62	5.34	2.53
2013:Q3	2.21	5.95	3.94	5.66	2.91
2013:Q4	2.33	6.11	4.11	5.83	3.14

CI Confidence interval

## Exhibit 6

### The Dollar and Financial Markets

*Top-left panel*  
*Broad Real Dollar*

**Monthly**  
Index, Jan. 2002 = 100

Period	Index
January 2002	100.00
February 2002	100.53
March 2002	100.45
April 2002	100.46
May 2002	99.20
June 2002	98.04
July 2002	96.57
August 2002	97.83
September 2002	98.44
October 2002	98.97
November 2002	97.58
December 2002	96.80
January 2003	95.56

Period	Index
February 2003	95.67
March 2003	95.75
April 2003	94.95
May 2003	91.92
June 2003	91.63
July 2003	92.59
August 2003	93.78
September 2003	92.68
October 2003	90.49
November 2003	89.73
December 2003	88.29
January 2004	86.96
February 2004	87.57
March 2004	88.89
April 2004	89.68
May 2004	91.54
June 2004	90.90
July 2004	89.92
August 2004	89.94
September 2004	89.47
October 2004	88.30
November 2004	85.83
December 2004	84.61
January 2005	85.18
February 2005	85.25
March 2005	85.41
April 2005	86.70
May 2005	86.99
June 2005	87.92
July 2005	88.36
August 2005	87.50
September 2005	88.05
October 2005	88.75
November 2005	88.51
December 2005	87.57
January 2006	86.66
February 2006	86.67
March 2006	87.35
April 2006	87.35
May 2006	85.92

Period	Index
June 2006	87.12
July 2006	87.02
August 2006	86.44
September 2006	86.06
October 2006	85.61
November 2006	84.44
December 2006	83.69
January 2007	84.61
February 2007	84.23
March 2007	84.51
April 2007	84.00
May 2007	83.69
June 2007	83.52
July 2007	82.12
August 2007	82.15
September 2007	80.98
October 2007	79.04
November 2007	77.84
December 2007	78.25
January 2008	77.74
February 2008	76.55
March 2008	75.61
April 2008	75.73
May 2008	76.37
June 2008	76.94
July 2008	76.43
August 2008	78.12
September 2008	79.75
October 2008	84.04
November 2008	84.51
December 2008	83.11
January 2009	83.95
February 2009	86.07
March 2009	86.75
April 2009	85.04
May 2009	84.85
June 2009	81.68
<i>Forecast</i>	
July 2009	81.43
August 2009	81.20

Period	Index
September 2009	81.16
October 2009	81.14
November 2009	81.11
December 2009	81.00
January 2010	80.87
February 2010	80.75
March 2010	80.60
April 2010	80.44
May 2010	80.28
June 2010	80.11
July 2010	79.93
August 2010	79.75
September 2010	79.57
October 2010	79.39
November 2010	79.20
December 2010	79.02

*Top-center panel*  
*AFE Exchange Rates*

**Weekly**  
Index, Mar. 2, 2009 = 100

Period	United Kingdom	Euro area	Japan	Canada
6 March 2009	100.00	100.00	100.00	100.00
13 March 2009	100.99	98.32	100.16	99.12
20 March 2009	97.75	93.42	98.26	96.15
27 March 2009	98.50	95.25	100.11	96.32
3 April 2009	95.33	94.25	102.10	95.88
10 April 2009	96.41	96.43	102.47	95.40
17 April 2009	95.48	97.27	101.36	94.41
24 April 2009	96.01	95.46	99.18	94.01
1 May 2009	94.82	95.53	101.39	92.25
8 May 2009	93.51	93.92	101.15	90.01
15 May 2009	92.69	93.61	96.95	91.38
22 May 2009	88.79	90.50	96.50	87.32
29 May 2009	87.31	89.72	97.62	85.17
5 June 2009	88.09	90.59	100.31	86.62
12 June 2009	85.40	90.27	100.30	86.82
19 June 2009	85.32	90.54	98.23	87.73
26 June 2009	86.35	90.59	97.81	89.43

Note: A vertical line indicates the FOMC meeting on April 28-29, 2009.

*Top-right panel*  
*EME Exchange Rates*

**Weekly**

Index, Mar. 2, 2009 = 100

Period	Korea	Brazil	Mexico	Russia	Thailand
6 March 2009	100.00	100.00	100.00	100.00	100.00
13 March 2009	95.59	97.43	95.61	97.17	99.61
20 March 2009	90.12	94.80	92.70	93.77	97.84
27 March 2009	87.18	95.90	93.84	94.44	98.09
3 April 2009	86.18	92.79	89.36	93.30	97.75
10 April 2009	85.70	91.43	86.06	93.89	98.20
17 April 2009	85.64	92.08	86.11	93.68	98.36
24 April 2009	86.36	92.52	86.83	92.73	98.06
1 May 2009	82.41	91.55	90.62	92.53	97.81
8 May 2009	80.17	87.39	85.92	90.73	96.67
15 May 2009	80.80	87.70	86.58	89.91	95.81
22 May 2009	80.15	85.42	86.32	86.94	95.23
29 May 2009	80.60	82.91	86.42	86.25	95.20
5 June 2009	80.50	82.60	87.16	86.53	94.95
12 June 2009	80.41	80.95	87.85	86.51	94.53
19 June 2009	81.58	82.33	87.44	86.87	94.59
26 June 2009	83.01	84.79	87.18	87.64	94.70

Note: A vertical line indicates the FOMC meeting on April 28-29, 2009.

*Middle-left panel*  
*BBB Corporate Spreads*

**Weekly**

Basis points

Period	United States	United Kingdom	Euro area	Japan
5 January 2007	138.04	116.59	76.70	29.35
12 January 2007	137.64	113.59	75.10	28.69
19 January 2007	135.12	113.20	73.37	27.38
26 January 2007	134.01	111.26	73.17	27.30
2 February 2007	133.64	111.06	74.65	26.76
9 February 2007	131.84	109.95	72.01	26.47
16 February 2007	130.18	109.47	71.70	27.65
23 February 2007	128.21	108.88	ND	25.80
2 March 2007	132.83	108.71	73.62	24.53
9 March 2007	134.40	109.84	ND	23.81
16 March 2007	137.01	111.57	76.26	23.57
23 March 2007	137.56	111.19	74.28	24.20

Period	United States	United Kingdom	Euro area	Japan
30 March 2007	138.93	110.89	72.56	25.23
6 April 2007	ND	111.01	ND	25.45
13 April 2007	138.19	110.97	78.11	25.78
20 April 2007	137.31	109.90	75.81	26.15
27 April 2007	137.70	109.70	75.39	25.13
4 May 2007	138.06	107.67	77.20	ND
11 May 2007	136.48	107.47	76.20	25.54
18 May 2007	135.53	107.10	74.62	24.99
25 May 2007	134.79	105.01	72.73	25.54
1 June 2007	136.03	105.58	70.55	29.02
8 June 2007	138.75	106.94	73.06	27.58
15 June 2007	138.06	107.79	73.17	28.45
22 June 2007	139.38	109.31	73.83	27.87
29 June 2007	142.38	113.35	76.93	29.82
6 July 2007	142.25	117.34	82.92	27.58
13 July 2007	143.97	120.17	85.65	28.00
20 July 2007	148.84	123.52	91.54	28.47
27 July 2007	171.51	132.03	102.02	27.61
3 August 2007	170.97	137.30	108.78	29.21
10 August 2007	168.41	132.89	110.44	29.84
17 August 2007	178.76	136.91	118.12	29.76
24 August 2007	180.50	139.38	118.60	32.93
31 August 2007	180.24	143.47	120.49	32.72
7 September 2007	183.51	150.43	124.19	31.08
14 September 2007	187.66	157.11	131.35	31.64
21 September 2007	181.44	147.00	120.52	34.11
28 September 2007	178.97	144.51	118.91	35.16
5 October 2007	174.28	144.20	ND	34.55
12 October 2007	167.92	139.77	109.28	33.87
19 October 2007	172.30	142.31	112.39	34.09
26 October 2007	174.15	143.65	111.36	34.15
2 November 2007	181.36	145.57	113.87	33.41
9 November 2007	190.52	150.85	120.82	33.58
16 November 2007	198.64	155.30	129.24	35.01
23 November 2007	205.42	164.12	141.04	ND
30 November 2007	212.09	163.58	145.49	38.62
7 December 2007	221.62	169.05	150.49	36.84
14 December 2007	221.80	171.24	152.87	36.78
21 December 2007	220.20	172.55	152.64	37.15
28 December 2007	219.30	172.29	153.27	36.12

Period	United States	United Kingdom	Euro area	Japan
4 January 2008	227.69	170.80	160.51	36.47
11 January 2008	239.11	178.27	170.49	35.55
18 January 2008	247.88	182.67	182.49	37.72
25 January 2008	252.44	191.61	193.14	38.92
1 February 2008	254.15	196.92	203.86	41.00
8 February 2008	259.66	203.84	ND	38.84
15 February 2008	266.98	212.15	217.53	42.64
22 February 2008	271.38	219.39	222.03	44.41
29 February 2008	274.74	220.75	222.36	45.49
7 March 2008	287.49	230.90	238.34	45.47
14 March 2008	299.18	237.05	252.90	46.25
21 March 2008	ND	239.05	ND	46.06
28 March 2008	305.57	239.09	ND	47.28
4 April 2008	301.08	243.69	244.35	47.92
11 April 2008	297.45	239.86	236.83	47.84
18 April 2008	290.63	233.59	222.79	45.82
25 April 2008	280.52	234.66	213.79	46.72
2 May 2008	264.47	224.78	199.71	46.05
9 May 2008	266.21	219.72	199.75	44.72
16 May 2008	265.38	206.60	193.15	44.23
23 May 2008	268.67	208.17	193.38	42.26
30 May 2008	265.01	206.56	192.28	42.63
6 June 2008	261.05	205.14	193.06	37.46
13 June 2008	260.05	204.92	192.20	39.50
20 June 2008	264.81	208.55	197.46	38.65
27 June 2008	279.64	211.58	208.89	39.13
4 July 2008	ND	215.22	216.68	38.15
11 July 2008	291.49	210.50	229.89	38.11
18 July 2008	294.97	207.78	226.62	39.53
25 July 2008	294.93	211.13	228.42	39.33
1 August 2008	300.26	208.65	229.02	41.74
8 August 2008	304.24	210.69	229.80	44.21
15 August 2008	307.82	212.70	227.38	44.16
22 August 2008	313.13	211.79	229.76	45.98
29 August 2008	315.06	216.39	232.98	47.60
5 September 2008	319.22	218.96	246.65	46.35
12 September 2008	329.28	218.65	251.21	46.27
19 September 2008	357.61	233.25	275.15	46.00
26 September 2008	369.30	235.29	297.88	46.69
3 October 2008	409.64	243.93	316.40	37.16

Period	United States	United Kingdom	Euro area	Japan
10 October 2008	481.18	254.73	392.84	33.26
17 October 2008	511.61	274.21	441.03	42.00
24 October 2008	524.83	289.97	502.48	40.22
31 October 2008	540.95	306.78	500.53	42.61
7 November 2008	536.30	338.67	481.09	45.50
14 November 2008	544.83	361.30	480.68	46.13
21 November 2008	603.28	369.90	498.91	46.98
28 November 2008	620.41	379.13	505.49	62.36
5 December 2008	636.41	395.77	503.76	64.25
12 December 2008	651.01	397.44	499.10	66.81
19 December 2008	658.02	390.16	496.79	69.50
26 December 2008	652.10	393.94	495.05	68.39
2 January 2009	652.75	398.44	495.87	ND
9 January 2009	604.24	390.47	460.32	71.96
16 January 2009	599.04	382.20	453.43	72.16
23 January 2009	590.79	371.96	450.09	72.76
30 January 2009	558.56	370.07	457.53	72.79
6 February 2009	538.46	342.47	434.64	74.78
13 February 2009	531.56	325.65	431.29	72.62
20 February 2009	543.07	322.62	437.10	73.40
27 February 2009	558.95	326.37	436.59	74.90
6 March 2009	560.22	323.40	443.85	68.98
13 March 2009	576.58	321.66	449.98	69.66
20 March 2009	589.08	327.17	449.51	ND
27 March 2009	588.97	331.00	437.48	71.56
3 April 2009	579.77	336.79	432.55	72.24
10 April 2009	ND	336.61	ND	82.43
17 April 2009	537.06	339.21	391.75	84.85
24 April 2009	520.70	338.75	386.27	82.55
1 May 2009	478.45	331.03	ND	89.00
8 May 2009	444.02	319.65	346.90	89.50
15 May 2009	449.25	318.15	334.06	83.50
22 May 2009	431.68	313.77	316.75	84.49
29 May 2009	403.83	315.63	305.48	71.64
5 June 2009	380.71	307.73	297.89	64.89
12 June 2009	359.11	302.42	289.56	61.21
19 June 2009	354.24	300.00	290.28	61.08

*Middle-right panel*  
*Equity Prices*

**Weekly**

Index, Jun. 3, 2008 = 100

Period	United Kingdom	Euro area	Japan	Emerging markets
3 June 2008	100.00	100.00	100.00	100.00
10 June 2008	96.22	95.51	98.68	96.67
17 June 2008	96.84	95.07	100.98	93.81
24 June 2008	92.89	90.30	97.47	91.05
1 July 2008	90.32	87.11	94.75	90.01
8 July 2008	89.19	86.05	91.72	ND
15 July 2008	85.07	82.08	89.76	86.36
22 July 2008	88.72	87.05	92.79	86.23
29 July 2008	87.76	86.41	92.61	84.82
5 August 2008	90.14	87.77	90.89	83.49
12 August 2008	91.57	89.76	93.63	82.02
19 August 2008	87.95	85.89	90.54	79.49
26 August 2008	90.45	86.52	89.93	78.68
2 September 2008	93.13	89.62	88.74	77.39
9 September 2008	89.66	85.45	87.27	74.73
16 September 2008	83.12	81.03	81.71	68.34
23 September 2008	84.77	81.75	85.09	70.75
30 September 2008	80.69	78.21	79.24	64.17
7 October 2008	75.82	72.64	71.47	55.57
14 October 2008	72.36	70.40	66.49	52.63
21 October 2008	69.17	66.07	65.49	48.90
28 October 2008	63.87	59.56	53.64	37.62
4 November 2008	75.52	70.03	64.15	48.38
11 November 2008	69.37	63.41	62.00	48.27
18 November 2008	68.23	60.66	58.61	43.06
25 November 2008	67.58	60.27	58.58	40.20
2 December 2008	66.91	59.59	55.34	42.51
9 December 2008	71.01	62.16	59.09	44.47
16 December 2008	70.08	61.46	60.30	46.59
23 December 2008	69.36	60.10	61.40	46.97
30 December 2008	71.54	61.66	62.35	46.16
6 January 2009	75.62	65.16	63.91	49.59
13 January 2009	71.74	61.26	59.21	45.81
20 January 2009	66.78	56.15	56.76	44.20
27 January 2009	68.42	56.82	56.73	42.71
3 February 2009	67.84	57.19	55.07	42.82
10 February 2009	68.96	58.22	55.92	46.77
17 February 2009	66.09	54.56	53.81	45.34
24 February 2009	62.49	51.01	51.15	42.24

Period	United Kingdom	Euro area	Japan	Emerging markets
3 March 2009	57.98	48.19	50.88	39.34
10 March 2009	61.07	49.45	49.65	40.18
17 March 2009	63.43	51.48	55.94	44.68
24 March 2009	64.45	53.97	59.74	47.97
31 March 2009	64.63	53.03	57.07	46.49
7 April 2009	65.08	55.55	62.16	51.59
14 April 2009	66.43	58.33	62.23	53.04
21 April 2009	66.22	57.80	61.31	52.45
28 April 2009	68.00	58.69	59.78	52.45
5 May 2009	72.29	62.17	63.18	58.04
12 May 2009	73.34	62.35	65.44	59.91
19 May 2009	74.26	63.26	65.38	60.32
26 May 2009	73.03	63.25	65.53	61.86
2 June 2009	74.27	65.00	68.30	66.42
9 June 2009	73.12	63.51	68.88	63.94
16 June 2009	71.77	62.32	68.64	63.75
23 June 2009	70.30	60.44	67.21	60.98

*Bottom-left panel*  
*Commodity Prices*

**Monthly**

Period	WTI oil (Dollars per barrel)	Nonfuel commodities (Index, Jan. 2007 = 100)
January 2007	54.16	100.00
February 2007	59.26	102.22
March 2007	60.56	104.38
April 2007	63.96	109.60
May 2007	63.46	110.86
June 2007	67.48	109.33
July 2007	74.12	108.66
August 2007	72.39	103.49
September 2007	79.93	105.13
October 2007	85.93	106.45
November 2007	94.62	105.75
December 2007	91.70	104.60
January 2008	92.95	111.12
February 2008	95.35	118.32
March 2008	105.56	122.57
April 2008	112.57	121.87
May 2008	125.39	120.23

Period	WTI oil (Dollars per barrel)	Nonfuel commodities (Index, Jan. 2007 = 100)
June 2008	133.93	121.21
July 2008	133.44	121.87
August 2008	116.70	114.62
September 2008	103.90	108.65
October 2008	76.66	92.22
November 2008	57.28	84.74
December 2008	41.02	77.79
January 2009	41.74	80.82
February 2009	39.16	78.82
March 2009	47.98	78.36
April 2009	49.79	83.01
May 2009	59.16	86.90
June 2009	69.67	89.87
<i>Forecast</i>		
July 2009	66.93	89.40
August 2009	67.50	89.41
September 2009	68.32	89.40
October 2009	69.07	89.60
November 2009	69.77	89.74
December 2009	70.37	90.01
January 2010	70.83	90.27
February 2010	71.24	90.46
March 2010	71.64	90.65
April 2010	72.06	90.81
May 2010	72.48	90.93
June 2010	72.90	91.06
July 2010	73.27	91.22
August 2010	73.60	91.25
September 2010	73.93	91.23
October 2010	74.27	91.30
November 2010	74.61	91.34
December 2010	74.96	91.45

*Bottom-right panel*  
*Baltic Dry Index*

**Daily**  
Index, Jan. 2, 2007 = 100

Period	Index
2 January 2007	100.00
3 January 2007	100.70

Period	Index
4 January 2007	101.65
5 January 2007	102.67
8 January 2007	103.57
9 January 2007	104.43
10 January 2007	104.95
11 January 2007	105.11
12 January 2007	105.00
15 January 2007	104.70
16 January 2007	103.03
17 January 2007	101.36
18 January 2007	99.77
19 January 2007	98.67
22 January 2007	98.17
23 January 2007	98.62
24 January 2007	99.10
25 January 2007	99.19
26 January 2007	98.78
29 January 2007	98.24
30 January 2007	96.97
31 January 2007	95.57
1 February 2007	95.43
2 February 2007	95.97
5 February 2007	96.47
6 February 2007	97.06
7 February 2007	97.56
8 February 2007	97.78
9 February 2007	97.90
12 February 2007	98.35
13 February 2007	98.62
14 February 2007	98.76
15 February 2007	98.44
16 February 2007	98.51
19 February 2007	98.51
20 February 2007	98.60
21 February 2007	99.50
22 February 2007	100.79
23 February 2007	102.80
26 February 2007	104.25
27 February 2007	106.40
28 February 2007	107.78

Period	Index
1 March 2007	108.98
2 March 2007	110.20
5 March 2007	111.02
6 March 2007	111.31
7 March 2007	111.67
8 March 2007	112.26
9 March 2007	113.10
12 March 2007	114.02
13 March 2007	114.66
14 March 2007	114.84
15 March 2007	114.70
16 March 2007	115.04
19 March 2007	115.88
20 March 2007	116.99
21 March 2007	118.21
22 March 2007	119.32
23 March 2007	120.56
26 March 2007	121.17
27 March 2007	121.33
28 March 2007	121.15
29 March 2007	121.13
30 March 2007	121.87
2 April 2007	122.53
3 April 2007	123.03
4 April 2007	124.11
5 April 2007	125.13
6 April 2007	ND
9 April 2007	ND
10 April 2007	125.58
11 April 2007	125.67
12 April 2007	125.45
13 April 2007	125.61
16 April 2007	125.81
17 April 2007	126.69
18 April 2007	128.93
19 April 2007	130.78
20 April 2007	132.32
23 April 2007	133.95
24 April 2007	136.37
25 April 2007	138.48

Period	Index
26 April 2007	140.06
27 April 2007	140.92
30 April 2007	141.33
1 May 2007	141.48
2 May 2007	141.64
3 May 2007	141.96
4 May 2007	142.98
7 May 2007	ND
8 May 2007	144.65
9 May 2007	146.53
10 May 2007	148.95
11 May 2007	150.37
14 May 2007	151.21
15 May 2007	151.28
16 May 2007	150.42
17 May 2007	149.36
18 May 2007	148.25
21 May 2007	147.50
22 May 2007	146.37
23 May 2007	145.26
24 May 2007	142.59
25 May 2007	140.51
28 May 2007	ND
29 May 2007	138.50
30 May 2007	136.24
31 May 2007	135.06
1 June 2007	135.33
4 June 2007	135.96
5 June 2007	136.24
6 June 2007	135.44
7 June 2007	132.93
8 June 2007	129.74
11 June 2007	128.05
12 June 2007	125.27
13 June 2007	122.30
14 June 2007	119.93
15 June 2007	118.93
18 June 2007	118.84
19 June 2007	120.11
20 June 2007	123.00

Period	Index
21 June 2007	128.30
22 June 2007	133.95
25 June 2007	136.58
26 June 2007	138.09
27 June 2007	139.79
28 June 2007	141.01
29 June 2007	142.00
2 July 2007	142.59
3 July 2007	142.55
4 July 2007	142.34
5 July 2007	141.39
6 July 2007	140.26
9 July 2007	140.69
10 July 2007	142.52
11 July 2007	146.66
12 July 2007	150.55
13 July 2007	151.69
16 July 2007	151.37
17 July 2007	150.12
18 July 2007	148.88
19 July 2007	148.54
20 July 2007	149.31
23 July 2007	150.62
24 July 2007	152.00
25 July 2007	153.36
26 July 2007	154.67
27 July 2007	155.85
30 July 2007	156.89
31 July 2007	157.59
1 August 2007	158.18
2 August 2007	158.34
3 August 2007	158.49
6 August 2007	158.11
7 August 2007	157.57
8 August 2007	156.46
9 August 2007	156.89
10 August 2007	158.58
13 August 2007	159.83
14 August 2007	161.57
15 August 2007	163.56

Period	Index
16 August 2007	165.55
17 August 2007	165.42
20 August 2007	164.87
21 August 2007	163.83
22 August 2007	163.11
23 August 2007	163.70
24 August 2007	164.60
27 August 2007	ND
28 August 2007	166.95
29 August 2007	169.06
30 August 2007	171.59
31 August 2007	174.21
3 September 2007	176.05
4 September 2007	178.85
5 September 2007	182.99
6 September 2007	187.06
7 September 2007	190.23
10 September 2007	191.74
11 September 2007	191.54
12 September 2007	190.48
13 September 2007	188.65
14 September 2007	187.79
17 September 2007	187.65
18 September 2007	188.03
19 September 2007	190.66
20 September 2007	194.96
21 September 2007	202.58
24 September 2007	205.43
25 September 2007	208.44
26 September 2007	209.43
27 September 2007	211.94
28 September 2007	214.30
1 October 2007	215.72
2 October 2007	216.38
3 October 2007	216.26
4 October 2007	215.18
5 October 2007	215.68
8 October 2007	218.62
9 October 2007	223.03
10 October 2007	231.12

Period	Index
11 October 2007	237.80
12 October 2007	241.91
15 October 2007	243.29
16 October 2007	243.11
17 October 2007	242.57
18 October 2007	242.75
19 October 2007	244.24
22 October 2007	245.49
23 October 2007	247.55
24 October 2007	248.45
25 October 2007	248.68
26 October 2007	249.38
29 October 2007	249.56
30 October 2007	246.23
31 October 2007	241.03
1 November 2007	239.34
2 November 2007	238.59
5 November 2007	238.39
6 November 2007	239.88
7 November 2007	241.44
8 November 2007	243.02
9 November 2007	245.80
12 November 2007	248.70
13 November 2007	249.69
14 November 2007	248.70
15 November 2007	247.41
16 November 2007	245.87
19 November 2007	243.84
20 November 2007	240.83
21 November 2007	237.89
22 November 2007	233.61
23 November 2007	229.54
26 November 2007	226.26
27 November 2007	223.86
28 November 2007	224.43
29 November 2007	228.27
30 November 2007	230.94
3 December 2007	232.30
4 December 2007	232.64
5 December 2007	231.08

Period	Index
6 December 2007	229.41
7 December 2007	227.73
10 December 2007	226.01
11 December 2007	224.59
12 December 2007	224.75
13 December 2007	225.04
14 December 2007	224.34
17 December 2007	222.76
18 December 2007	220.56
19 December 2007	216.94
20 December 2007	212.44
21 December 2007	208.91
24 December 2007	206.81
25 December 2007	ND
26 December 2007	ND
27 December 2007	ND
28 December 2007	ND
31 December 2007	ND
1 January 2008	ND
2 January 2008	201.11
3 January 2008	198.05
4 January 2008	196.83
7 January 2008	197.51
8 January 2008	197.47
9 January 2008	195.00
10 January 2008	188.49
11 January 2008	179.80
14 January 2008	173.13
15 January 2008	165.94
16 January 2008	156.41
17 January 2008	146.39
18 January 2008	146.17
21 January 2008	147.32
22 January 2008	145.60
23 January 2008	141.28
24 January 2008	134.54
25 January 2008	130.74
28 January 2008	128.75
29 January 2008	127.01
30 January 2008	133.45

Period	Index
31 January 2008	136.89
1 February 2008	138.75
4 February 2008	138.45
5 February 2008	136.44
6 February 2008	135.76
7 February 2008	138.77
8 February 2008	143.70
11 February 2008	147.48
12 February 2008	151.82
13 February 2008	157.54
14 February 2008	163.13
15 February 2008	166.37
18 February 2008	166.95
19 February 2008	165.55
20 February 2008	160.17
21 February 2008	158.29
22 February 2008	162.57
25 February 2008	165.03
26 February 2008	165.39
27 February 2008	165.10
28 February 2008	165.84
29 February 2008	172.20
3 March 2008	178.20
4 March 2008	180.80
5 March 2008	184.62
6 March 2008	190.07
7 March 2008	193.08
10 March 2008	195.07
11 March 2008	193.62
12 March 2008	188.78
13 March 2008	183.04
14 March 2008	180.32
17 March 2008	178.99
18 March 2008	178.53
19 March 2008	176.45
20 March 2008	173.81
21 March 2008	ND
24 March 2008	ND
25 March 2008	172.34
26 March 2008	173.69

Period	Index
27 March 2008	178.33
28 March 2008	182.52
31 March 2008	182.79
1 April 2008	178.47
2 April 2008	173.15
3 April 2008	173.94
4 April 2008	175.01
7 April 2008	175.10
8 April 2008	175.39
9 April 2008	175.53
10 April 2008	176.95
11 April 2008	178.44
14 April 2008	180.07
15 April 2008	179.98
16 April 2008	180.21
17 April 2008	181.81
18 April 2008	185.55
21 April 2008	188.87
22 April 2008	193.40
23 April 2008	200.45
24 April 2008	207.69
25 April 2008	211.02
28 April 2008	211.35
29 April 2008	209.75
30 April 2008	211.63
1 May 2008	213.50
2 May 2008	216.72
5 May 2008	ND
6 May 2008	222.91
7 May 2008	228.55
8 May 2008	231.19
9 May 2008	231.55
12 May 2008	231.17
13 May 2008	234.20
14 May 2008	240.87
15 May 2008	250.33
16 May 2008	259.19
19 May 2008	264.85
20 May 2008	266.75
21 May 2008	266.25

Period	Index
22 May 2008	263.47
23 May 2008	259.33
26 May 2008	ND
27 May 2008	254.90
28 May 2008	254.35
29 May 2008	256.66
30 May 2008	258.77
2 June 2008	259.17
3 June 2008	260.19
4 June 2008	262.90
5 June 2008	264.40
6 June 2008	262.66
9 June 2008	260.89
10 June 2008	258.06
11 June 2008	251.19
12 June 2008	229.41
13 June 2008	218.19
16 June 2008	213.05
17 June 2008	212.92
18 June 2008	213.46
19 June 2008	214.30
20 June 2008	213.25
23 June 2008	208.35
24 June 2008	206.72
25 June 2008	209.09
26 June 2008	214.27
27 June 2008	217.12
30 June 2008	216.90
1 July 2008	212.15
2 July 2008	206.72
3 July 2008	201.88
4 July 2008	200.27
7 July 2008	202.76
8 July 2008	206.90
9 July 2008	209.73
10 July 2008	210.65
11 July 2008	208.78
14 July 2008	207.67
15 July 2008	206.97
16 July 2008	205.65

Period	Index
17 July 2008	204.91
18 July 2008	203.85
21 July 2008	202.69
22 July 2008	201.40
23 July 2008	200.32
24 July 2008	198.39
25 July 2008	195.36
28 July 2008	192.56
29 July 2008	190.77
30 July 2008	189.73
31 July 2008	188.67
1 August 2008	187.29
4 August 2008	185.68
5 August 2008	183.22
6 August 2008	177.99
7 August 2008	170.12
8 August 2008	162.88
11 August 2008	159.58
12 August 2008	158.15
13 August 2008	160.53
14 August 2008	167.84
15 August 2008	170.93
18 August 2008	172.40
19 August 2008	170.62
20 August 2008	166.12
21 August 2008	162.63
22 August 2008	161.66
25 August 2008	ND
26 August 2008	160.94
27 August 2008	159.47
28 August 2008	156.73
29 August 2008	154.01
1 September 2008	151.35
2 September 2008	146.26
3 September 2008	139.02
4 September 2008	132.87
5 September 2008	128.09
8 September 2008	124.23
9 September 2008	118.86
10 September 2008	113.68

Period	Index
11 September 2008	110.68
12 September 2008	108.57
15 September 2008	107.37
16 September 2008	107.67
17 September 2008	109.84
18 September 2008	112.15
19 September 2008	112.53
22 September 2008	111.94
23 September 2008	108.17
24 September 2008	101.54
25 September 2008	94.16
26 September 2008	84.73
29 September 2008	79.26
30 September 2008	72.77
1 October 2008	68.42
2 October 2008	67.63
3 October 2008	67.90
6 October 2008	67.68
7 October 2008	66.09
8 October 2008	62.52
9 October 2008	56.62
10 October 2008	50.24
13 October 2008	44.70
14 October 2008	40.92
15 October 2008	36.53
16 October 2008	34.06
17 October 2008	32.53
20 October 2008	30.65
21 October 2008	29.22
22 October 2008	27.62
23 October 2008	25.99
24 October 2008	24.93
27 October 2008	23.71
28 October 2008	22.21
29 October 2008	20.92
30 October 2008	20.02
31 October 2008	19.25
3 November 2008	18.71
4 November 2008	18.43
5 November 2008	18.68

Period	Index
6 November 2008	18.98
7 November 2008	18.75
10 November 2008	18.55
11 November 2008	18.50
12 November 2008	18.64
13 November 2008	18.95
14 November 2008	19.02
17 November 2008	19.36
18 November 2008	19.57
19 November 2008	19.43
20 November 2008	19.16
21 November 2008	18.91
24 November 2008	18.64
25 November 2008	18.19
26 November 2008	17.26
27 November 2008	16.58
28 November 2008	16.17
1 December 2008	15.83
2 December 2008	15.47
3 December 2008	15.20
4 December 2008	15.06
5 December 2008	15.00
8 December 2008	15.18
9 December 2008	15.36
10 December 2008	15.63
11 December 2008	16.08
12 December 2008	17.28
15 December 2008	18.16
16 December 2008	18.73
17 December 2008	18.91
18 December 2008	18.75
19 December 2008	18.50
22 December 2008	18.12
23 December 2008	17.73
24 December 2008	17.51
25 December 2008	ND
26 December 2008	ND
29 December 2008	ND
30 December 2008	ND
31 December 2008	ND

Period	Index
1 January 2009	ND
2 January 2009	17.48
5 January 2009	17.46
6 January 2009	17.53
7 January 2009	17.85
8 January 2009	18.57
9 January 2009	19.72
12 January 2009	20.11
13 January 2009	20.61
14 January 2009	20.81
15 January 2009	20.54
16 January 2009	19.93
19 January 2009	19.63
20 January 2009	19.72
21 January 2009	20.36
22 January 2009	21.38
23 January 2009	22.17
26 January 2009	22.51
27 January 2009	22.71
28 January 2009	22.94
29 January 2009	23.43
30 January 2009	24.20
2 February 2009	24.86
3 February 2009	25.97
4 February 2009	29.77
5 February 2009	33.88
6 February 2009	37.14
9 February 2009	41.05
10 February 2009	44.65
11 February 2009	46.48
12 February 2009	44.99
13 February 2009	43.16
16 February 2009	41.76
17 February 2009	42.86
18 February 2009	44.92
19 February 2009	46.53
20 February 2009	47.48
23 February 2009	47.14
24 February 2009	45.46
25 February 2009	44.33

Period	Index
26 February 2009	44.11
27 February 2009	44.92
2 March 2009	45.56
3 March 2009	46.01
4 March 2009	47.14
5 March 2009	49.02
6 March 2009	50.33
9 March 2009	51.16
10 March 2009	51.98
11 March 2009	51.37
12 March 2009	49.79
13 March 2009	48.00
16 March 2009	46.55
17 March 2009	44.65
18 March 2009	42.09
19 March 2009	40.60
20 March 2009	40.31
23 March 2009	40.10
24 March 2009	39.76
25 March 2009	39.36
26 March 2009	38.77
27 March 2009	37.96
30 March 2009	37.23
31 March 2009	36.53
1 April 2009	35.60
2 April 2009	34.79
3 April 2009	34.06
6 April 2009	33.61
7 April 2009	33.16
8 April 2009	33.09
9 April 2009	33.43
10 April 2009	ND
13 April 2009	ND
14 April 2009	33.75
15 April 2009	34.70
16 April 2009	36.28
17 April 2009	38.05
20 April 2009	39.29
21 April 2009	40.65
22 April 2009	42.28

Period	Index
23 April 2009	42.91
24 April 2009	42.37
27 April 2009	41.60
28 April 2009	40.49
29 April 2009	40.08
30 April 2009	40.40
1 May 2009	40.85
4 May 2009	ND
5 May 2009	42.91
6 May 2009	46.71
7 May 2009	49.63
8 May 2009	50.08
11 May 2009	50.10
12 May 2009	50.96
13 May 2009	52.75
14 May 2009	55.01
15 May 2009	57.54
18 May 2009	58.92
19 May 2009	59.81
20 May 2009	60.28
21 May 2009	61.23
22 May 2009	63.02
25 May 2009	ND
26 May 2009	66.55
27 May 2009	71.57
28 May 2009	74.60
29 May 2009	79.03
1 June 2009	83.26
2 June 2009	92.87
3 June 2009	97.06
4 June 2009	92.58
5 June 2009	86.16
8 June 2009	82.47
9 June 2009	79.57
10 June 2009	78.08
11 June 2009	78.78
12 June 2009	81.05
15 June 2009	85.12
16 June 2009	89.37
17 June 2009	91.07

Period	Index
18 June 2009	92.13
19 June 2009	92.06
22 June 2009	91.13

Average 2003-2008: 102.29

## Exhibit 7

### *Other Explanations for Recent Dollar Movements*

Top-left panel

10-Year Government Bonds

Weekly  
Percent

Period	United States	United Kingdom	Germany	Japan
11 January 2008	3.85	4.42	4.11	1.45
18 January 2008	3.72	4.41	4.00	ND
25 January 2008	3.58	4.47	3.95	1.38
1 February 2008	3.67	4.52	3.96	1.44
8 February 2008	3.66	4.45	3.88	1.44
15 February 2008	3.72	4.59	3.94	ND
22 February 2008	3.85	4.67	4.01	1.46
29 February 2008	3.78	4.64	4.02	1.44
7 March 2008	3.61	4.41	3.82	1.36
14 March 2008	3.51	4.35	3.76	1.31
21 March 2008	3.39	4.31	3.74	ND
28 March 2008	3.52	4.41	3.88	1.27
4 April 2008	3.55	4.43	3.96	1.34
11 April 2008	3.54	4.48	3.99	1.34
18 April 2008	3.67	4.55	4.02	1.35
25 April 2008	3.81	4.72	4.15	1.49
2 May 2008	3.83	4.69	4.16	ND
9 May 2008	3.85	4.66	4.11	ND
16 May 2008	3.86	4.75	4.13	1.65
23 May 2008	3.84	4.88	4.25	1.67
30 May 2008	4.03	4.97	4.36	1.78
6 June 2008	3.98	4.99	4.41	1.75
13 June 2008	4.15	5.16	4.56	1.80
20 June 2008	4.20	5.18	4.63	1.81
27 June 2008	4.09	5.09	4.57	1.68
4 July 2008	4.00	5.08	4.59	1.66
11 July 2008	3.90	4.89	4.42	1.62

Period	United States	United Kingdom	Germany	Japan
18 July 2008	3.98	4.91	4.44	1.58
25 July 2008	4.11	5.01	4.62	ND
1 August 2008	4.04	4.87	4.42	1.54
8 August 2008	3.99	4.74	4.30	1.51
15 August 2008	3.91	4.63	4.22	1.45
22 August 2008	3.83	4.58	4.17	1.44
29 August 2008	3.79	4.51	4.15	1.42
5 September 2008	3.69	4.46	4.10	1.47
12 September 2008	3.66	4.49	4.09	1.51
19 September 2008	3.54	4.46	4.06	ND
26 September 2008	3.84	4.62	4.21	1.48
3 October 2008	3.70	4.41	3.97	1.49
10 October 2008	3.69	4.32	3.84	1.44
17 October 2008	4.02	4.70	4.08	ND
24 October 2008	3.74	4.51	3.86	1.53
31 October 2008	3.92	4.43	3.79	1.49
7 November 2008	3.82	4.38	3.76	1.50
14 November 2008	3.78	4.14	3.66	1.50
21 November 2008	3.38	3.99	3.53	1.46
28 November 2008	3.10	3.83	3.32	ND
5 December 2008	2.66	3.49	3.07	1.37
12 December 2008	2.67	3.59	3.22	1.40
19 December 2008	2.26	3.29	3.06	1.31
26 December 2008	2.18	3.08	2.94	ND
2 January 2009	2.24	3.05	2.94	ND

Note: As shown in the figure, the series extend to about June 19, 2009. United States generally increases to end at about 3.7. United Kingdom generally increases to about 3.75 by early February, decreases to nearly 3.0 by mid-March, and increases to end at about 3.85. Germany generally increases to end at about 3.5. Japan generally increases to end at about 1.5.

## Top-right panel Five-Year Sovereign CDS Premiums

**Daily**  
Basis points

Period	United States	United Kingdom	Germany	Japan
2 January 2009	60.86	105.15	45.23	42.76
5 January 2009	62.08	109.13	45.31	41.88
6 January 2009	60.46	107.92	43.70	37.70
7 January 2009	59.46	102.10	40.12	37.93
8 January 2009	55.76	100.63	40.45	38.02
9 January 2009	54.24	101.70	43.64	37.62
12 January 2009	54.86	102.54	44.36	37.62
13 January 2009	56.25	107.25	46.13	38.82

Period	United States	United Kingdom	Germany	Japan
14 January 2009	59.60	115.02	50.26	39.27
15 January 2009	58.89	118.90	51.44	40.23
16 January 2009	61.13	125.70	53.54	40.29
19 January 2009	65.13	126.42	53.79	41.50
20 January 2009	66.48	143.90	57.28	40.00
21 January 2009	62.71	147.70	59.44	40.94
22 January 2009	71.69	135.58	58.83	43.33
23 January 2009	70.67	141.56	61.76	41.43
26 January 2009	71.00	135.44	60.14	41.43
27 January 2009	66.97	129.42	56.56	42.14
28 January 2009	65.58	124.58	57.56	41.80
29 January 2009	65.58	122.64	56.79	43.37
30 January 2009	62.85	123.44	57.01	46.39
2 February 2009	62.86	125.83	57.42	53.97
3 February 2009	76.13	128.83	57.48	55.38
4 February 2009	77.00	126.56	57.78	52.81
5 February 2009	79.50	126.72	57.89	53.95
6 February 2009	79.50	126.60	61.34	55.53
9 February 2009	77.50	126.45	61.17	56.04
10 February 2009	77.83	126.25	61.45	57.59
11 February 2009	77.83	126.66	61.81	57.59
12 February 2009	80.00	134.50	63.19	69.30
13 February 2009	79.50	144.58	65.44	75.80
16 February 2009	80.00	148.17	65.43	78.07
17 February 2009	81.50	164.50	72.99	118.99
18 February 2009	89.75	162.63	84.09	105.39
19 February 2009	89.83	157.54	85.63	99.51
20 February 2009	90.00	163.28	90.38	100.74
23 February 2009	99.75	162.61	89.49	96.04
24 February 2009	97.00	164.63	91.38	96.56
25 February 2009	93.67	164.02	90.35	96.75
26 February 2009	90.75	148.94	87.73	94.76
27 February 2009	92.25	145.30	84.88	96.34
2 March 2009	93.00	149.13	85.77	95.97
3 March 2009	94.75	154.30	87.28	104.96
4 March 2009	94.67	154.88	86.93	101.55
5 March 2009	97.50	155.24	87.67	95.81
6 March 2009	100.25	158.00	89.67	112.74
9 March 2009	97.33	159.30	90.46	105.23
10 March 2009	92.33	154.38	87.58	113.16

Period	United States	United Kingdom	Germany	Japan
11 March 2009	90.00	144.86	81.68	118.17
12 March 2009	86.33	143.40	79.13	112.76
13 March 2009	82.33	137.73	76.90	114.51
16 March 2009	73.00	137.25	66.77	104.51
17 March 2009	73.00	131.50	68.42	100.00
18 March 2009	72.67	130.86	67.24	92.56
19 March 2009	70.88	127.01	66.16	98.00
20 March 2009	65.50	117.96	61.65	98.00
23 March 2009	63.67	111.91	57.74	95.20
24 March 2009	61.67	110.60	54.40	89.10
25 March 2009	61.67	115.38	50.61	82.62
26 March 2009	57.00	112.83	50.47	89.63
27 March 2009	56.50	110.59	52.98	85.25
30 March 2009	60.00	117.89	56.55	84.80
31 March 2009	60.50	123.42	56.73	87.02
1 April 2009	63.00	124.70	55.71	90.06
2 April 2009	57.33	116.40	54.53	89.88
3 April 2009	49.25	100.93	44.99	84.76
6 April 2009	47.00	91.17	44.70	76.61
7 April 2009	48.00	92.31	45.80	78.31
8 April 2009	48.00	96.92	45.65	78.69
9 April 2009	46.50	93.41	43.85	78.05
10 April 2009	46.50	93.41	43.85	78.53
13 April 2009	46.50	90.99	43.85	76.05
14 April 2009	44.50	89.39	41.71	73.24
15 April 2009	39.67	87.24	40.81	73.53
16 April 2009	40.00	84.88	40.61	68.63
17 April 2009	40.00	83.85	41.28	63.11
20 April 2009	43.25	86.51	41.32	68.45
21 April 2009	46.00	92.54	43.32	67.52
22 April 2009	47.55	99.10	43.81	68.72
23 April 2009	44.33	99.10	40.95	69.75
24 April 2009	44.33	99.72	41.55	68.86
27 April 2009	38.50	99.03	41.32	67.82
28 April 2009	43.50	101.44	41.65	67.28
29 April 2009	40.67	101.20	41.00	67.28
30 April 2009	36.40	96.58	37.89	69.31
1 May 2009	36.40	95.30	37.64	66.81
4 May 2009	36.40	95.30	38.27	66.81
5 May 2009	37.00	89.91	35.43	66.81

Period	United States	United Kingdom	Germany	Japan
6 May 2009	34.67	81.57	33.40	66.81
7 May 2009	27.00	70.75	24.50	56.72
8 May 2009	22.00	58.88	23.40	54.43
11 May 2009	22.50	60.88	23.33	49.22
12 May 2009	23.00	60.98	24.64	49.83
13 May 2009	28.00	67.25	28.87	49.75
14 May 2009	31.00	72.24	32.83	49.75
15 May 2009	31.00	69.60	32.38	49.13
18 May 2009	36.15	75.98	35.79	53.46
19 May 2009	30.00	73.57	32.67	49.63
20 May 2009	29.00	72.32	30.40	49.63
21 May 2009	32.67	80.00	34.10	47.20
22 May 2009	32.00	82.45	36.88	42.93
25 May 2009	32.00	82.45	36.88	40.00
26 May 2009	36.00	83.03	37.08	37.40
27 May 2009	38.67	85.52	38.25	37.55
28 May 2009	45.50	88.64	39.86	38.04
29 May 2009	44.00	86.34	39.25	39.28
1 June 2009	40.50	83.20	36.17	39.62
2 June 2009	38.67	79.90	33.60	34.52
3 June 2009	39.91	80.39	33.50	34.52
4 June 2009	40.63	83.46	35.00	36.46
5 June 2009	40.00	85.20	34.00	36.62
8 June 2009	40.75	85.39	34.85	36.90
9 June 2009	40.67	87.37	35.05	37.84
10 June 2009	40.67	84.75	35.00	38.81
11 June 2009	40.67	85.38	33.75	39.06
12 June 2009	40.00	86.17	33.75	44.78
15 June 2009	41.50	85.46	34.00	42.55
16 June 2009	42.50	87.67	34.50	42.63
17 June 2009	41.70	90.29	35.50	46.52
18 June 2009	41.88	90.00	36.77	46.92
19 June 2009	44.25	86.31	36.25	47.10
22 June 2009	42.82	87.83	36.73	43.74

*U.S. External Sector*

Middle-left panel

Trade in Real Goods and Services

2008		2009		2010 <sup>P</sup>
Q1-Q3	Q4	Q1 <sup>e</sup>	Q2 <sup>P</sup>	H2 <sup>P</sup>

	2008		2009			2010 <sup>P</sup>
	Q1-Q3	Q4	Q1 <sup>e</sup>	Q2 <sup>P</sup>	H2 <sup>P</sup>	
<b>Contribution to Real GDP Growth (percentage points, a.r.*)</b>						
1. Net Exports	1.6	-0.1	2.1	1.1	-0.6	-0.3
<b>Growth Rates (percent, a.r.*)</b>						
2. Imports	-3.9	-17.5	-36.3	-12.2	6.7	5.3
3. Exports	6.7	-23.6	-30.6	-5.4	3.0	4.0

\* Change from final quarter of preceding period to final quarter of period indicated. [Return to table](#)

## Middle-right panel

### Real GDP

Percent change, a.r.\*

Period	Total foreign	United States
2008:Q4	-7.2	-6.4
2009:Q1	-8.5	-5.5
2009:Q2	-1.4	-1.0
2009:H2	1.7	1.1
2010	3.1	3.0

\* Approximate change from final quarter of preceding period to final quarter of period indicated. [Return to table](#)

## Bottom-left panel

### Current Account

Period	Percent of GDP	Billions of dollars
2005:Q1	-5.74	-697.88
2005:Q2	-5.82	-716.24
2005:Q3	-5.91	-741.35
2005:Q4	-6.61	-839.26
2006:Q1	-6.13	-794.60
2006:Q2	-6.15	-808.31
2006:Q3	-6.48	-859.16
2006:Q4	-5.63	-752.12
2007:Q1	-5.89	-796.40
2007:Q2	-5.55	-762.12
2007:Q3	-4.92	-686.46
2007:Q4	-4.71	-661.32
2008:Q1	-5.07	-717.19
2008:Q2	-5.25	-750.88
2008:Q3	-5.11	-736.71
2008:Q4	-4.36	-619.50
2009:Q1	-2.88	-405.99
<i>Forecast</i>		
2009:Q2	-3.35	-470.88

Period	Percent of GDP	Billions of dollars
2009:Q3	-3.60	-507.92
2009:Q4	-3.87	-551.02
2010:Q1	-4.13	-592.74
2010:Q2	-3.92	-568.92
2010:Q3	-3.88	-568.37
2010:Q4	-4.10	-607.11

Bottom-right panel  
Oil Import Balance

Period	Percent of GDP	Billions of dollars
2005:Q1	-1.76	-214.18
2005:Q2	-1.87	-230.10
2005:Q3	-2.13	-266.75
2005:Q4	-2.33	-296.40
2006:Q1	-2.25	-291.44
2006:Q2	-2.38	-312.86
2006:Q3	-2.50	-331.77
2006:Q4	-2.05	-273.65
2007:Q1	-2.09	-281.80
2007:Q2	-2.27	-311.16
2007:Q3	-2.36	-329.24
2007:Q4	-2.86	-401.70
2008:Q1	-3.18	-450.25
2008:Q2	-3.48	-497.68
2008:Q3	-3.63	-523.39
2008:Q4	-2.41	-341.79
2009:Q1	-1.48	-208.90
<i>Forecast</i>		
2009:Q2	-1.72	-241.88
2009:Q3	-1.93	-272.72
2009:Q4	-2.12	-301.18
2010:Q1	-2.18	-313.61
2010:Q2	-2.07	-300.73
2010:Q3	-1.96	-287.66
2010:Q4	-2.19	-323.69

Exhibit 8  
Outlook for Growth in the Advanced Foreign Economies

*Top panel*  
*Real GDP\**

Percent change, annual rate\*\*

		2008		2009		2010 <sup>P</sup>
		Q4	Q1 <sup>e</sup>	Q2 <sup>P</sup>	H2 <sup>P</sup>	
1.	<b>Total Foreign</b>	<b>-7.3</b>	<b>-8.6</b>	<b>-1.4</b>	<b>1.7</b>	<b>3.1</b>
2.	<i>April Greenbook</i>	-7.3	-7.2	-2.4	0.8	2.8
3.	<b>Advanced Foreign Economies</b>	<b>-6.0</b>	<b>-7.6</b>	<b>-2.2</b>	<b>0.3</b>	<b>1.9</b>
4.	Japan	-13.5	-14.2	0.3	0.5	1.5
5.	Euro area	-6.8	-9.7	-3.0	-0.5	1.6
6.	United Kingdom	-6.1	-7.3	-0.9	0.8	1.8
7.	Canada	-3.7	-5.4	-2.8	0.7	2.3

\* GDP aggregates weighted by shares of U.S. merchandise exports. [Return to text](#)

\*\* Change from final quarter of preceding period to final quarter of period indicated. [Return to table](#)

*Middle-left panel*  
*Purchasing Managers Indexes\**

Diffusion index

Period	U.K.	Euro area	Japan
January 2007	58.19	57.51	ND
February 2007	57.44	57.71	ND
March 2007	56.98	57.39	ND
April 2007	57.09	56.94	ND
May 2007	56.92	56.84	ND
June 2007	57.66	57.77	ND
July 2007	56.98	57.52	ND
August 2007	57.81	57.36	ND
September 2007	56.66	54.69	49.10
October 2007	53.49	54.65	49.06
November 2007	53.69	54.12	50.73
December 2007	53.60	53.28	51.26
January 2008	52.90	51.79	48.57
February 2008	53.99	52.78	48.84
March 2008	51.91	51.80	47.71
April 2008	50.20	51.94	47.65
May 2008	49.37	51.05	46.78
June 2008	46.16	49.30	45.25
July 2008	46.16	47.75	42.48
August 2008	48.73	48.17	42.65
September 2008	44.47	46.88	40.45

Period	U.K.	Euro area	Japan
October 2008	42.31	43.61	38.77
November 2008	38.06	38.92	35.70
December 2008	38.93	38.18	33.11
January 2009	40.84	38.29	30.05
February 2009	40.28	36.22	30.85
March 2009	44.52	38.25	33.04
April 2009	47.71	41.06	39.32
May 2009	50.85	44.03	42.85
June 2009	ND	44.40	ND

\* Total economy PMIs. Latest value for euro area is flash estimate. [Return to text](#)

### *Middle-right panel* *Retail Sales Volume*

12-month percent change

Period	U.K.	Euro area	Japan*
January 2007	3.37	1.76	0.88
February 2007	4.95	1.79	1.90
March 2007	5.12	3.18	1.25
April 2007	4.10	2.05	0.80
May 2007	3.79	1.44	1.05
June 2007	3.76	1.83	-0.04
July 2007	4.33	1.55	1.37
August 2007	4.62	1.39	2.14
September 2007	5.42	1.63	1.08
October 2007	3.73	1.18	0.71
November 2007	4.10	0.34	0.96
December 2007	2.37	-0.32	1.49
January 2008	4.79	1.25	0.85
February 2008	5.09	0.79	2.35
March 2008	3.09	-0.61	0.36
April 2008	2.44	-0.53	0.41
May 2008	6.09	0.34	-0.19
June 2008	1.49	-0.91	0.41
July 2008	1.11	-1.30	2.01
August 2008	1.47	-1.40	-1.22
September 2008	1.10	-1.28	-0.07
October 2008	1.57	-1.96	-0.26
November 2008	0.92	-1.73	-1.77
December 2008	3.24	-1.92	-2.94
January 2009	2.56	-2.76	-3.23

Period	U.K.	Euro area	Japan*
February 2009	-1.53	-3.25	-6.40
March 2009	0.91	-2.70	-3.74
April 2009	2.66	-2.19	-2.86
May 2009	-1.68	ND	ND

\* Monthly real consumption. [Return to table](#)

### *Bottom-left panel* *Contributions of Fiscal Stimulus*

Percentage points, Q4/Q4

Period	Japan	U.K.	Euro area	U.S.
2009	1.50	0.70	0.80	1.05
2010	0.10	-1.00	0.40	0.75

Note: Values are approximate.

Source: Staff estimates.

### *Bottom-center panel* *Unemployment Rate\**

Percent

Period	U.S.	U.K.	Euro area	Japan
January 2007	4.6	5.5	7.8	4.0
February 2007	4.5	5.5	7.7	4.0
March 2007	4.4	5.5	7.6	4.0
April 2007	4.5	5.4	7.5	3.9
May 2007	4.5	5.4	7.5	3.8
June 2007	4.6	5.3	7.4	3.7
July 2007	4.7	5.3	7.5	3.6
August 2007	4.7	5.3	7.4	3.8
September 2007	4.7	5.3	7.4	4.0
October 2007	4.8	5.3	7.4	4.0
November 2007	4.7	5.2	7.3	3.8
December 2007	4.9	5.2	7.3	3.7
January 2008	4.9	5.2	7.3	3.8
February 2008	4.8	5.2	7.2	3.9
March 2008	5.1	5.3	7.2	3.8
April 2008	5.0	5.2	7.3	4.0
May 2008	5.5	5.4	7.4	4.0
June 2008	5.6	5.5	7.4	4.1
July 2008	5.8	5.7	7.5	4.0
August 2008	6.2	5.8	7.6	4.1
September 2008	6.2	6.0	7.7	4.0

Period	U.S.	U.K.	Euro area	Japan
October 2008	6.6	6.1	7.8	3.8
November 2008	6.8	6.3	8.0	4.0
December 2008	7.2	6.5	8.2	4.3
January 2009	7.6	6.7	8.4	4.1
February 2009	8.1	7.1	8.7	4.4
March 2009	8.5	7.2	8.9	4.8
April 2009	8.9	ND	9.2	5.0
May 2009	9.4	ND	ND	ND
<i>Forecast</i>				
2009:Q1	ND	7.10	ND	ND
2009:Q2	9.3	7.89	9.15	5.00
2009:Q3	9.8	8.63	9.59	5.30
2009:Q4	10.0	9.15	9.98	5.59
2010:Q1	10.0	9.43	10.29	5.83
2010:Q2	9.9	9.59	10.54	5.92
2010:Q3	9.8	9.66	10.73	6.00
2010:Q4	9.7	9.68	10.86	6.04
2011:Q1	9.5	9.64	10.95	6.06
2011:Q2	9.3	9.55	11.01	6.07
2011:Q3	9.2	9.44	11.03	6.07
2011:Q4	9.0	9.32	11.02	6.06

\* Greenbook forecast for U.S.; forecasts from simple regression for others. [Return to text](#)

### *Bottom-right panel* *Output Gaps*

Percent\_

Period	U.S.	AFE
2008:Q1	-0.77	0.62
2008:Q2	-0.67	-0.01
2008:Q3	-1.38	-0.75
2008:Q4	-3.56	-2.82
2009:Q1	-5.38	-5.20
<i>Forecast</i>		
2009:Q2	-6.06	-6.20
2009:Q3	-6.36	-6.69
2009:Q4	-6.45	-6.98
2010:Q1	-6.38	-7.09
2010:Q2	-6.20	-7.15
2010:Q3	-5.93	-7.11
2010:Q4	-5.61	-7.02

\* Deviation from potential GDP. [Return to table](#)

## Exhibit 9 (Last)

### Outlook for Growth in the Emerging Market Economies

*Top panel*  
*Real GDP\**

Percent change, annual rate\*\*

		2008		2009		2010 <sup>P</sup>
		Q4	Q1 <sup>e</sup>	Q2 <sup>P</sup>	H2 <sup>P</sup>	
1.	<b>Emerging Market Economies</b>	<b>-8.8</b>	<b>-9.8</b>	<b>-0.4</b>	<b>3.4</b>	<b>4.5</b>
2.	China	1.6	6.5	7.0	7.7	8.9
3.	Other Emerging Asia	-14.0	-6.6	0.6	2.1	4.4
4.	Mexico	-9.8	-21.5	-5.2	3.7	3.4
5.	Other Latin America	-7.4	-5.0	-0.0	1.9	3.0

\* GDP aggregates weighted by shares of U.S. merchandise exports. [Return to text](#)

\*\* Change from final quarter of preceding period to final quarter of period indicated. [Return to table](#)

### *China*

#### Middle-left panel

#### Recent Indicators

12-month percent change, except as noted

Period	Investment*	Retail sales volume	PMI (Diffusion index)
January 2007	23.44	10.75	55.1
February 2007	23.44	14.68	53.1
March 2007	26.83	12.52	56.1
April 2007	25.85	13.06	58.6
May 2007	27.06	13.18	55.7
June 2007	28.45	12.39	54.5
July 2007	26.39	11.49	53.3
August 2007	27.34	11.31	54.0
September 2007	24.78	11.54	56.1
October 2007	30.72	12.14	53.2
November 2007	26.07	12.08	55.4
December 2007	18.71	13.84	55.3
January 2008	24.27	14.14	53.0
February 2008	24.27	10.19	53.4
March 2008	27.31	12.71	58.4
April 2008	25.37	12.88	59.2

Period	Investment*	Retail sales volume	PMI (Diffusion index)
May 2008	25.44	13.12	53.3
June 2008	29.49	14.85	52.0
July 2008	29.23	15.45	48.4
August 2008	28.09	16.78	48.4
September 2008	29.02	16.99	51.2
October 2008	24.39	16.66	44.6
November 2008	23.81	17.63	38.8
December 2008	22.27	17.36	41.2
January 2009	26.53	17.68	45.3
February 2009	26.53	13.41	49.0
March 2009	30.31	16.45	52.4
April 2009	33.96	16.98	53.5
May 2009	38.67	17.45	53.1

\* Staff estimate from year to date figures. [Return to table](#)

## Middle-right panel Imports and Electricity Production

Quarterly  
Percent change, s.a.a.r.

Period	Imports**	Electricity production
2005:Q1	10.14	15.22
2005:Q2	35.42	9.01
2005:Q3	5.78	8.27
2005:Q4	47.13	15.50
2006:Q1	17.55	22.15
2006:Q2	7.16	6.67
2006:Q3	13.46	22.10
2006:Q4	28.12	11.72
2007:Q1	31.08	10.21
2007:Q2	1.20	26.57
2007:Q3	17.03	16.80
2007:Q4	64.81	11.98
2008:Q1	50.61	10.21
2008:Q2	3.74	8.45
2008:Q3	-7.60	-3.53
2008:Q4	-50.51	-32.05
2009:Q1*	-51.4	18.5
2009:Q2*	45.7	19.2

\* 2009:Q1 values are approximate. 2009:Q2 values are approximate average of April and May at annual rate. [Return to table](#)

\*\* Source: Haver Analytics. In nominal U.S. dollars. [Return to table](#)

## *Other Emerging Market Economies*

Bottom-left panel

Purchasing Managers Indexes\*

Diffusion index

Period	India	Brazil	Singapore
January 2007	55.29	52.83	52.60
February 2007	53.63	53.67	51.50
March 2007	53.00	54.90	51.10
April 2007	53.81	55.35	49.70
May 2007	53.37	54.29	50.00
June 2007	53.24	54.93	52.30
July 2007	52.91	54.80	53.30
August 2007	57.93	54.85	51.70
September 2007	59.28	56.36	53.90
October 2007	61.66	57.25	52.90
November 2007	60.85	56.45	53.80
December 2007	61.85	55.33	51.00
January 2008	60.66	54.74	50.50
February 2008	59.45	53.36	50.30
March 2008	57.49	52.79	49.40
April 2008	57.47	54.02	49.30
May 2008	57.45	53.53	49.00
June 2008	58.63	52.11	50.60
July 2008	57.76	53.51	51.60
August 2008	57.95	51.12	50.60
September 2008	57.28	50.35	49.50
October 2008	52.19	45.68	45.80
November 2008	45.76	41.60	44.30
December 2008	44.37	40.04	44.80
January 2009	46.69	38.13	45.00
February 2009	47.03	41.60	45.00
March 2009	49.46	42.18	47.10
April 2009	53.27	44.81	49.20
May 2009	55.74	47.80	51.20

\* Manufacturing sector. [Return to text](#)

Bottom-center panel

Industrial Production

Index, Jan. 2007 = 100

Period	Brazil	Mexico	Korea	Taiwan
January 2007	100.00	100.00	100.00	100.00

Period	Brazil	Mexico	Korea	Taiwan
February 2007	100.97	100.18	101.26	102.97
March 2007	102.28	102.64	99.73	102.95
April 2007	102.33	101.14	100.72	104.48
May 2007	103.68	101.58	102.79	107.53
June 2007	104.02	102.11	103.06	108.27
July 2007	103.92	101.85	104.32	112.98
August 2007	105.69	101.76	105.76	110.08
September 2007	104.57	102.28	105.58	110.60
October 2007	109.06	101.85	109.27	112.89
November 2007	106.87	100.79	109.81	113.38
December 2007	106.23	102.72	110.17	114.09
January 2008	107.95	102.99	111.88	116.21
February 2008	107.54	102.64	111.61	117.31
March 2008	108.18	103.08	111.97	115.08
April 2008	108.35	101.85	111.88	115.21
May 2008	107.35	101.58	111.97	113.00
June 2008	110.51	101.85	111.88	112.95
July 2008	111.93	100.79	110.44	110.64
August 2008	110.34	101.67	109.00	110.93
September 2008	111.87	99.12	109.72	105.46
October 2008	110.30	99.21	106.93	97.16
November 2008	102.46	97.45	96.13	84.95
December 2008	89.48	95.08	86.86	78.21
January 2009	91.38	93.06	88.30	75.81
February 2009	93.16	93.23	94.60	78.23
March 2009	93.99	91.65	99.19	85.49
April 2009	95.06	92.53	101.80	91.13

## Bottom-right panel Exports

Index, Jan. 2007 = 100

Period	Mexico	Korea	Singapore
January 2007	100.00	100.00	100.00
February 2007	102.90	98.36	90.86
March 2007	101.32	100.58	96.75
April 2007	103.37	101.62	97.54
May 2007	105.50	102.50	96.90
June 2007	105.45	105.27	98.86
July 2007	107.18	105.98	104.20
August 2007	108.76	107.64	101.12
September 2007	112.23	97.04	100.89

Period	Mexico	Korea	Singapore
October 2007	110.81	110.74	110.97
November 2007	116.59	115.03	111.00
December 2007	117.00	113.34	109.88
January 2008	119.65	115.14	121.79
February 2008	116.12	117.04	116.47
March 2008	123.69	119.05	111.28
April 2008	121.09	128.33	126.13
May 2008	120.37	129.04	121.56
June 2008	120.91	122.02	123.06
July 2008	128.57	143.84	133.79
August 2008	118.24	126.48	117.94
September 2008	113.57	123.17	118.88
October 2008	107.48	119.10	105.57
November 2008	100.13	92.50	93.81
December 2008	88.51	93.58	86.35
January 2009	86.12	75.92	72.40
February 2009	85.64	95.49	82.57
March 2009	84.81	92.89	79.75
April 2009	84.68	103.25	84.57
May 2009	ND	92.34	84.31

## Appendix 7: Materials used by Mr. Madigan

Material for Briefing on **FOMC Participants' Economic Projections**  
 Brian Madigan  
 June 23-24, 2009

### Class I FOMC - Restricted Controlled (FR)

## Exhibit 1. Economic Projections of Federal Reserve Governors and Reserve Bank Presidents, June 2009

(Percent)

Variable	Central tendency				Range			
	2009	2010	2011	Longer Run	2009	2010	2011	Longer Run
<b>Change in real GDP (Q4/Q4)</b>								
June projection	-1.5 to -1.0	2.1 to 3.3	3.8 to 4.6	2.5 to 2.7	-2.0 to -0.6	0.8 to 4.0	2.3 to 5.0	2.4 to 2.8
<i>April projection</i>	<i>-2.0 to -1.3</i>	<i>2.0 to 3.0</i>	<i>3.5 to 4.8</i>	<i>2.5 to 2.7</i>	<i>-2.5 to -0.5</i>	<i>1.5 to 4.0</i>	<i>2.3 to 5.0</i>	<i>2.4 to 3.0</i>

Variable	Central tendency				Range			
	2009	2010	2011	Longer Run	2009	2010	2011	Longer Run
Memo: June Greenbook	-1.1	3.0	4.8	2.5				
<b>Unemployment rate (Q4)</b>								
June projection	9.8 to 10.1	9.5 to 9.8	8.4 to 8.8	4.8 to 5.0	9.7 to 10.5	8.5 to 10.6	6.8 to 9.2	4.5 to 6.0
<i>April projection</i>	<i>9.2 to 9.6</i>	<i>9.0 to 9.5</i>	<i>7.7 to 8.5</i>	<i>4.8 to 5.0</i>	<i>9.1 to 10.0</i>	<i>8.0 to 9.6</i>	<i>6.5 to 9.0</i>	<i>4.5 to 5.3</i>
Memo: June Greenbook	10.0	9.7	8.0	5.0				
<b>PCE inflation (Q4/Q4)</b>								
PCE inflation	1.0 to 1.4	1.2 to 1.8	1.1 to 2.0	1.7 to 2.0	1.0 to 1.8	0.9 to 2.0	0.5 to 2.5	1.5 to 2.1
<i>April projection</i>	<i>0.6 to 0.9</i>	<i>1.0 to 1.6</i>	<i>1.0 to 1.9</i>	<i>1.7 to 2.0</i>	<i>-0.5 to 1.2</i>	<i>0.7 to 2.0</i>	<i>0.5 to 2.5</i>	<i>1.5 to 2.0</i>
Memo: June Greenbook	1.4	1.1	1.2	2.0				
<b>Core PCE inflation (Q4/Q4)</b>								
Core PCE inflation	1.3 to 1.6	1.0 to 1.5	0.9 to 1.7		1.2 to 2.0	0.5 to 2.0	0.2 to 2.5	
<i>April projection</i>	<i>1.0 to 1.5</i>	<i>0.7 to 1.3</i>	<i>0.8 to 1.6</i>		<i>0.7 to 1.6</i>	<i>0.5 to 2.0</i>	<i>0.2 to 2.5</i>	
Memo: June Greenbook	1.4	0.8	0.7					

## Exhibit 2. Risks and Uncertainty in Economic Projections

### *Top-left panel* *Uncertainty about GDP Growth*

Number of participants

	Lower	Similar	Higher
June projections	0	1	16
April projections	0	0	17

### *Top-right panel* *Risks to GDP Growth*

Number of participants

	Downside	Balanced	Upside
June projections	7	10	0
April projections	11	6	0

### *Bottom-left panel* *Uncertainty about PCE Inflation*

Number of participants

	Lower	Similar	Higher

	Lower	Similar	Higher
June projections	1	2	14
April projections	1	1	15

*Bottom-right panel*  
*Risks to PCE Inflation*

Number of participants

	Downside	Balanced	Upside
June projections	2	14	1
April projections	5	11	1

## Appendix 8: Materials used by Mr. Stockton

### Orders and Shipments of Durable Goods

*Top panel*

(Percent change from comparable previous period, seasonally adjusted)

Category	2008		2009	2009		
	Q3	Q4	Q1	Mar.	Apr. <sup>f</sup>	May <sup>a</sup>
	Annual rate			Monthly rate		
<i>Nondefense capital goods</i>						
Orders	-14.0	-49.9	-49.1	-1.0	-2.9	10.0
Aircraft	-66.3	-99.5	-100.0	102.3	-6.4	630.5
<b>Excluding aircraft</b>	<b>-5.2</b>	<b>-36.5</b>	<b>-44.2</b>	<b>-1.4</b>	<b>-2.9</b>	<b>4.8</b>
Computers and peripherals	-36.6	-20.8	-18.4	-4.6	-6.6	9.4
Communications equipment	16.7	-28.7	-58.7	7.8	-4.7	6.0
All other	-3.5	-38.4	-44.7	-1.9	-2.3	4.2
Shipments	-.8	-19.8	-28.1	-.9	-2.6	-.3
Aircraft	-8.0	-65.3	233.3	9.4	-1.5	-7.6
<b>Excluding aircraft</b>	<b>-.3</b>	<b>-15.5</b>	<b>-35.4</b>	<b>-1.7</b>	<b>-2.7</b>	<b>.3</b>
Computers and peripherals	-28.7	-25.3	-.8	-2.8	-1.4	1.6
Communications equipment	-10.7	-16.6	-47.3	3.0	-4.2	-2.4
All other	4.0	-14.4	-36.7	-1.9	-2.7	.4
<i>Supplementary orders series</i>						
Durable goods	-8.1	-45.2	-39.0	-2.2	1.8	1.8
Real adjusted durable goods	-13.0	-45.2	-36.3	-1.3	.7	2.0
Capital goods	-10.3	-47.3	-47.2	-2.6	1.7	9.5
Nondefense	-14.0	-49.9	-49.1	-1.0	-2.9	10.0

Category	2008		2009		2009	
	Q3	Q4	Q1	Mar.	Apr. <sup>r</sup>	May <sup>a</sup>
	Annual rate			Monthly rate		
Defense	20.3	-26.7	-33.9	-11.1	28.5	7.4

r Revised. [Return to table](#)

a Advance. [Return to table](#)

Source: Census Bureau.

### *Bottom-left panel* *Computers and Peripherals*

A line chart shows two series, Shipments and Orders of computers and peripherals. Unit is billions of dollars, ratio scale. Shipments start at a level slightly under 9 billion dollars at the beginning of 2000. From the end of 2000 to early 2003, the series steadily drops, to around 5.5 billion dollars in early 2003, and after a brief rise, to just below 5 billion dollars in mid-2004. The series climbs, with a few sudden drops, reaching about 6 billion dollars at the beginning of 2006, before plummeting to around 4.5 billion at the end of 2006. The series fluctuates between about 4.5 and 5.8 billion until early 2008, where it continues to drop steadily until the end of the series in May 2009, at a level of about 4.3 billion. The Orders series mostly follows the trajectory of the Shipments series. It begins at a level slightly above 8 billion dollars at the beginning of 2000. From the end of 2000 to early 2003, the series steadily drops, to around 5.5 billion dollars in early 2003, and after a brief rise, to about 4.5 billion dollars in mid-2004. The series fluctuates between about 4.8 and 5.3 billion dollars until the beginning of 2006, where it peaks slightly above 6 billion before plummeting to around 4.5 billion at the end of 2006. The series fluctuates between about 4.5 and 5.8 billion until early 2008, where it continues to drop steadily until the end of the series in May 2009, at a level of about 4.3 billion.

Source: Census Bureau.

### *Bottom-center panel* *Communications Equipment*

A line chart shows two series, Shipments and Orders of communications equipment. Unit is billions of dollars, ratio scale. The Shipments series starts around 9 billion dollars in 2000, and climbs to around 10 billion in mid 2001 before falling to about 4.2 billion in early 2003. The series fluctuates between about 3.9 and 5 billion until hitting a high of about 5.8 billion in early 2006. The series continues to fluctuate, mostly exhibiting slight decreases until it falls from about 5.7 billion in early 2008 to under 4 billion by early 2009. The Orders series mostly follows the trajectory of the shipments series, but fluctuates much more wildly. It begins at a level of about 10 billion in early 2000, immediately falling to 8 billion and then rising to 14 billion, before falling again to 10 billion by early 2001. The series dips dramatically, to 6 billion by late-2001, under 4 billion in early 2002, and to just above 2 billion in late 2002. The series then fluctuates less dramatically, between about 3.8 and 6 billion, until early 2006 where it rises to about 6.5 billion, and fluctuates between about 5 and 6 billion before dipping to about 4 billion when the series ends in early 2009.

Source: Census Bureau.

### *Bottom-right panel* *Other (non-high-tech, nontransportation)*

A line chart shows two series, other Shipments and Orders. Unit is billions of dollars, ratio scale. Shipments starts at about 44 billion in early 2000, before steadily dropping to about 38 billion by early 2002. The series rises to about 40 billion in late 2002, falls back to about 38 billion, and then steadily increases from early 2003, reaching about 52 billion in late 2006, and 54 billion at its peak in early 2008. The series then falls dramatically, first to 51 billion in mid-2008, and then again to about 44 billion by the beginning of 2009. The Orders series mostly follows the trajectory of the shipments series. It begins at a level slightly above 46 billion dollars in 2000, fluctuates between there and 42 billion in 2000, and then steadily drops to about 36 billion in early 2002. The series then

risers continuously, except a few small drops, hitting a peak of about 56 billion in mid-2006. After dropping to about 51 billion several months later, the series hits about 56 billion again in early 2008, before dropping dramatically to about 42 billion in early 2009 when the series ends.

Source: Census Bureau.

## Durable Goods Manufacturing

### *Top panel*

#### *Change in Inventories at Durable Goods Manufacturers*

(book value, billions of dollars at annual rate)

	2008			2009		2009		
	Q2	Q3	Q4	Q1	Feb.	Mar.	Apr.	May
Durable goods	24.2	26.4	15.0	-56.0	-54.9	-68.4	-44.8	-29.7
Lumber and wood prod.	-.6	1.1	-1.3	.3	-1.6	2.5	-3.1	-2.8
Nonmetallic mineral prod.	-.4	.6	-.4	-1.2	-1.8	-1.8	-1.5	-.5
Primary metals	7.3	6.6	-12.1	-12.6	-13.4	-14.0	-12.5	-10.2
Fabricated metals	4.4	5.6	-2.8	-11.4	-10.0	-15.0	-11.6	-6.4
Machinery	1.2	3.1	2.5	-8.4	-10.1	-15.3	-8.5	-4.3
Computer and electronic prod.	1.2	2.7	3.5	-6.4	-2.6	-8.4	-2.7	1.2
Electrical equipment	.5	.5	-2.5	-4.2	-4.6	-2.0	-2.9	-1.5
Transportation equipment	9.9	5.1	27.7	-9.2	-5.8	-11.3	3.4	-3.8
Motor vehicles	-1.3	-3.2	-4.7	-7.8	-6.2	-8.1	-5.5	-4.1
Aircraft & parts	10.9	9.0	31.1	-1.8	-.9	-1.5	8.7	-.6
Furniture	-.4	-.1	-1.0	-2.2	-3.1	-2.2	-2.7	-1.5
Other durables	1.0	1.1	1.3	-.9	-1.8	-1.1	-2.9	.1
Memo: Inventory-shipments ratio, durable goods	1.57	1.61	1.76	1.86	1.88	1.89	1.88	1.90

Source: Census Bureau.

### *Bottom-left panel*

#### *Real Adjusted Durable Goods Orders*

A line chart shows one series, 3-month moving average. Unit is percent. The series starts at about -1.5 percent in early 2002, and fluctuates between its beginning level and 2 percent until late 2003, where it hits a peak of about 2.5 percent before plummeting to below -2 percent, quickly rising to about 1.5 percent, and then dipping again to about -2 percent in mid-2004. The series fluctuates with mostly upward movements until reaching about 2.3 percent in early 2005, and then fluctuating between that level and 0 until mid 2006, where the series falls to about -1.8 percent in early 2007, before rising to almost 1 percent, and falling again to about -1.2 percent in late 2007. The series continues to fluctuate between -1 and 1 percent until early 2008, where it abruptly falls to about -5.5 percent in late 2008. The three-month moving average moves back up to about 0.5 percent by May 2009.

Source: Calculated by FRB staff.

### *Bottom-right panel*

#### *Inventory-Shipments Ratio at Durable Goods Manufacturers*

A line chart shows one series, months' supply. The series starts at about 1.72 in 1996, before falling to about 1.51 in mid-1998. The series climbs to about 1.63 shortly after, before falling to about 1.49 in early 1999, and continues to hover around 1.5 until steadily rising from early 2000 and hitting a peak of about 1.65 in early 2001. The series falls steadily, to about 1.45 in late 2002, quickly rises to 1.52 at the end of 2002, and then declines until reaching about 1.3 in early 2004. The series fluctuates between 1.3 and 1.4 until late 2006, where it begins climbing up, first hitting about 1.55 in early 2008, and then jumping to about 1.9 by May 2009.

Source: Census Bureau.

## Appendix 9: Materials used by Mr. Carpenter (corrected)\*

\*As indicated by Mr. Madigan on page 165 of 261

Material for

**FOMC Briefing on Projections of the Balance Sheet, the Monetary Base, and Federal Reserve Income**

Seth Carpenter

June 23, 2009

**Class I FOMC - Restricted Controlled (FR)**

[Note: The information in Appendix 9 is identical to the information in [Appendix 2](#), except that Exhibit 1 has been corrected to display dates rather than their integer equivalents.]

## Appendix 10: Materials used by Mr. Madigan

Material for Briefing on **Monetary Policy Alternatives**

Brian Madigan

June 24, 2009

**Class I FOMC - Restricted Controlled (FR)**

## April FOMC Statement

Information received since the Federal Open Market Committee met in March indicates that the economy has continued to contract, though the pace of contraction appears to be somewhat slower. Household spending has shown signs of stabilizing but remains constrained by ongoing job losses, lower housing wealth, and tight credit. Weak sales prospects and difficulties in obtaining credit have led businesses to cut back on inventories, fixed investment, and staffing. Although the economic outlook has improved modestly since the March meeting, partly reflecting some easing of financial market conditions, economic activity is likely to remain weak for a time. Nonetheless, the Committee continues to anticipate that policy actions to stabilize financial markets and institutions, fiscal and monetary stimulus, and market forces will contribute to a gradual resumption of sustainable economic growth in a context of price stability.

In light of increasing economic slack here and abroad, the Committee expects that inflation will remain subdued. Moreover, the Committee sees some risk that inflation could persist for a time below rates that best foster economic growth and price stability in the longer term.

In these circumstances, the Federal Reserve will employ all available 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 ¼ percent and anticipates that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period. As previously announced, 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 up to \$1.25 trillion

of agency mortgage-backed securities and up to \$200 billion of agency debt by the end of the year. In addition, the Federal Reserve will buy up to \$300 billion of Treasury securities by autumn. 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 facilitating the extension of credit to households and businesses and supporting the functioning of financial markets through a range of liquidity programs. The Committee will continue to carefully monitor the size and composition of the Federal Reserve's balance sheet in light of financial and economic developments.

[Note: In the June FOMC Statement Alternatives, strong emphasis (bold) indicates bold red underlined text in the original document.]

## June FOMC Statement -- Alternative A

Information received since the Federal Open Market Committee met in **April suggests** that the pace of **economic contraction is slowing. Indicators of consumer and business sentiment have risen, and household expenditures have** shown further signs of stabilizing; **nonetheless**, spending remains constrained by ongoing job losses, lower housing wealth, and tight credit. Businesses **continue to** cut back on fixed investment and staffing **but are making progress in bringing inventory stocks into better alignment with sales. Although conditions in financial markets have generally improved, the Committee judges that further monetary policy stimulus is warranted to help ensure that the sharp rise in some longer-term interest rates over recent months does not undermine a recovery in overall economic activity.**

**Substantial resource** slack is likely to persist here and abroad, and the Committee expects that inflation will remain subdued. Moreover, the Committee **still** sees some risk that inflation could persist for a time below rates that best foster economic growth and price stability in the longer term.

In these circumstances, the Federal Reserve **is employing a wide array 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 ¼ percent and anticipates that economic conditions are likely to warrant exceptionally low levels of the federal funds rate [for an extended period]**at least through mid-2010** . To provide **additional** support to mortgage lending and housing markets and **to facilitate further improvement** in private credit market conditions, **the Committee decided to increase the total amount of its large-scale securities purchases. The Committee now anticipates that over the course of this year** the Federal Reserve will purchase up to \$1.25 trillion of agency mortgage-backed securities, up to \$200 billion of agency debt, and up to **\$750 billion** of Treasury securities. **The Committee will evaluate the timing, composition, and amounts of any additional purchases of securities in view of market conditions, the evolving economic outlook, and the necessity of ensuring that policy accommodation can ultimately be withdrawn smoothly and at the appropriate time.** The Federal Reserve will **also be monitoring** the size and composition of its balance sheet **and will make adjustments to its credit and liquidity programs as warranted** in light of financial and economic developments.

## June FOMC Statement -- Alternative B

Information received since the Federal Open Market Committee met in **April suggests** that the pace of **economic contraction is slowing. Conditions in financial markets have generally improved in recent months, and indicators of consumer and business sentiment have risen.** Household spending has shown further signs of stabilizing but remains constrained by ongoing job losses, lower housing wealth, and tight credit. Businesses **are cutting back** on fixed investment and staffing **but appear to be making progress in bringing inventory stocks into better alignment with sales. Although economic activity is likely to remain weak for a time**, the Committee continues to anticipate that policy actions to stabilize financial markets and institutions, fiscal and monetary stimulus, and market forces will contribute to a gradual resumption of sustainable economic growth in a context of price stability.

**The prices of energy and other commodities have risen of late. However, substantial resource slack is likely to dampen cost pressures**, and the Committee expects that inflation will remain subdued **for some time.**

In these circumstances, the Federal Reserve will employ all available 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 ¼ percent and **continues to** anticipate that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period. As previously announced, 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 up to \$1.25 trillion of agency mortgage-backed securities and up to \$200 billion of agency debt by the end of the year. In addition, the Federal Reserve will buy up to \$300 billion of Treasury securities by autumn. 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. [Of course, the Committee will continue to take careful account of the necessity of ensuring that policy accommodation can ultimately be withdrawn smoothly and at the appropriate time.]

## June FOMC Statement -- Alternative C

Information received since the Federal Open Market Committee met in **April suggests** that the pace of **economic contraction is slowing. Conditions in financial markets have improved in recent months, and indicators of consumer and business sentiment have risen.** Household spending has shown **further** signs of stabilizing but remains constrained by ongoing job losses, lower housing wealth, and tight credit. Businesses have **continued to** cut back on fixed investment and staffing **but appear to be making 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 contribute to a gradual **recovery in economic activity that is expected to begin later this year.**

**Although the prices of energy and other commodities have risen of late, core inflation has remained moderate, and** the Committee expects that **overall** inflation will remain subdued.

In these circumstances, the Federal Reserve **is employing a wide array 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 ¼ percent and anticipates that economic conditions are likely to warrant exceptionally low levels of the federal funds rate **until late this year.** As previously announced, 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 up to \$1.25 trillion of agency mortgage-backed securities and up to \$200 billion of agency debt by the end of the year. In addition, the Federal Reserve will buy up to \$300 billion of Treasury securities by autumn. **The Committee anticipates that the pace of purchases of such securities will taper off gradually by the end of this year.** The Committee will continue to evaluate the timing, **composition,** and overall amounts of its securities purchases **and to carefully monitor the Federal Reserve's balance sheet. The Federal Reserve will make adjustments to its credit and liquidity programs as warranted** in light of the evolving economic outlook and conditions in financial markets.

Table 1: Overview of Alternative Language for the June 23-24, 2009 FOMC Announcement

		April FOMC	Alternative		
			A	B	C
1. Economic Activity	Outlook	"likely to remain weak for a time"	----	"likely to remain weak for a time"	recovery "expected to begin later this year"
	Pace of Recovery	gradual	----	gradual	gradual
	Risk Assessment	----	Recovery could be undermined by higher long rates, absent further monetary stimulus	----	----
2. Inflation	Outlook	"will remain subdued"	"will remain subdued"	"will remain subdued for a time"	"will remain subdued"
	Rationale	increasing slack here and abroad	substantial slack "likely to persist here and abroad"	recent rise in energy prices; substantial slack "likely to dampen cost pressures"	recent rise in energy prices
	Risk Assessment	some downside risk	still some downside risk	----	----
	Overview				

April FOMC		Alternative			
			A	B	C
<b>3. Policy Decision</b>		"all available tools"	"a wide array of tools"	"all available tools"	"a wide array of tools"
	<b>Forward Guidance on Funds Rate</b>	"anticipates... for an extended period"	"anticipates... for an extended period" or "at least through mid-2010"	"continues to anticipate... for an extended period"	"anticipates... until late this year"
	<b>Changes in LSAPs</b>	-----	\$750 billion in Treasuries by end of year	-----	"will taper off gradually" by end of year
	<b>Evaluation of LSAPs</b>	"timing and overall amounts"	"timing, composition, and amounts", subject to exit strategy	"timing and overall amounts"	"timing, composition, and overall amounts"
	<b>Adjustments to Programs</b>	-----	"as warranted"	"as warranted" [carefully reflecting the exit strategy]	"as warranted"

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