Appendix 1: Materials used by Ms. Mosser and Mr. Hilton
(1) U.S. Libor–OIS Spreads
July 1, 2007 – January 23, 2009

Sept. 14: Lehman Brothers Holdings files for bankruptcy
Oct. 13: Euro Area Announcement

Source: Bloomberg

(2) Three-Month Commercial Paper Rates
August 1, 2008 – January 23, 2009

Sept. 14: Lehman Brothers Holdings files for bankruptcy
Sept. 19: AMLF announced
Oct. 7: CPFF announced (effective Oct. 27)
Oct. 21: MMIFF announced

Source: Federal Reserve Board

(3) Mortgages and Agencies
August 1, 2008 – January 23, 2009

Sept. 7: Fannie Mae and Freddie Mac enter conservatorship
Sept. 14: Lehman Brothers Holdings files for bankruptcy
Nov. 25: Agency Coupon and Agency-MBS Purchases Announced
Dec. 30: Agency-MBS FAQ Released
Jan. 5: First Agency-MBS Purchase

Source: Bloomberg, Lehman Brothers/Barclays
(4) Corporate Debt Cash Spreads Narrow Recently
August 1, 2007 – January 23, 2009

Source: Merrill Lynch/Bank of America

(5) Monthly Investment Grade Bond Issuance

Source: JPMorgan Chase
(6) Asset-Backed Security Spreads Narrow After Year End
August 1, 2008 – January 23, 2009

Source: JPMorgan Chase

(7) Commercial Mortgage-Backed and Leveraged Loan Prices Deteriorate
August 1, 2008 – January 23, 2009

Source: Lehman Brothers/Barclays, JPMorgan Chase
(8) Average Daily Bid-Ask Spread: Euro-Dollar FX Rate
January 1, 2007 – January 22, 2009

Source: ICAP FX

(9) Trade Quote Sizes in the Treasury Market Shrink
Average Daily, 2008 - 2009

Source: Broker Tec
(10) Average Absolute Price Error between Treasury Yields and FRB Model

Source: Federal Reserve Board

*Calculated from securities with two to ten years until maturity, excluding on-the-run and first off-the-run securities.

(11) Corporate CDS Bond Basis

Source: JPMorgan Chase

(12) Hedge Fund Returns Decline*

Source: CS/Tremont, Bloomberg, Lehman Brothers/Barclays

*12-Month rolling returns
(13) Bank Earnings Disappoint Expectations
Q3 2008 – Q4 2008

<table>
<thead>
<tr>
<th>U.S. Bank Holding Companies</th>
<th>Q4 Earnings</th>
<th>Q3 Capital Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Earnings Estimate ($bln)</td>
<td>Actual Earnings ($bln)</td>
</tr>
<tr>
<td>JPMorgan Chase</td>
<td>0.4</td>
<td>0.7</td>
</tr>
<tr>
<td>Citigroup</td>
<td>-5.0</td>
<td>-8.3</td>
</tr>
<tr>
<td>Bank of America</td>
<td>1.6</td>
<td>-1.8</td>
</tr>
<tr>
<td>Merrill Lynch</td>
<td>-1.9</td>
<td>-15.3</td>
</tr>
<tr>
<td>Wells Fargo**</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>State Street</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Bank of New York-Mellon</td>
<td>0.7</td>
<td>0.1</td>
</tr>
<tr>
<td>Goldman Sachs</td>
<td>-1.7</td>
<td>-2.1</td>
</tr>
<tr>
<td>Morgan Stanley</td>
<td>0.5</td>
<td>-2.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Foreign Banks (in local currency)</th>
<th>Q4 Earnings</th>
<th>Q3 Capital Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>UBS</td>
<td>-3.1</td>
<td></td>
</tr>
<tr>
<td>Credit Suisse</td>
<td>-3.0</td>
<td></td>
</tr>
<tr>
<td>Deutsche Bank</td>
<td>-4.4</td>
<td>-4.8</td>
</tr>
<tr>
<td>HSBC</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>Barclays*</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>RBS*</td>
<td>-4.2</td>
<td></td>
</tr>
<tr>
<td>BNP Paribas</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Societe Generale</td>
<td>0.6</td>
<td></td>
</tr>
</tbody>
</table>

Source: Bloomberg

*U.K. banks report semi-annually
**Expected to report Q4 earning on 1/28/09

(14) Bank Capital Ratios
Q3 2008

Source: Goldman Sachs
(15) Former Investment Bank Equity Prices
August 1, 2008 – January 23, 2009

Sept. 14: Lehman Brothers Holdings files for bankruptcy
Sept. 22: Goldman and Morgan Stanley become bank holding companies

Source: Bloomberg

(16) Commercial Bank Equity Prices
August 1, 2008 – January 23, 2009

Sept. 14: Lehman Brothers Holdings files for bankruptcy

Source: Bloomberg

(17) European Bank Equity Prices
August 1, 2008 – January 23, 2009

Sept. 14: Lehman Brothers Holdings files for bankruptcy

Source: Bloomberg
(18) Former Investment Bank CDS Spreads
August 1, 2008 – January 23, 2009

Source: Markit

Sept. 14: Lehman Brothers Holdings files for bankruptcy.
Sept. 22: Goldman and Morgan Stanley become bank holding companies.
Oct. 13: Euro Area Announcement

(19) Commercial Bank CDS Spreads
August 1, 2008 – January 23, 2009

Source: Markit

Sept. 14: Lehman Brothers Holdings files for bankruptcy & Bank of America announced purchase of Merrill Lynch.
Nov. 23: US government provides a package of guarantees, liquidity access, and capital to Citigroup.

(20) European Bank CDS Spreads
August 1, 2008 – January 23, 2009

Source: Bloomberg
(21) Sovereign CDS Spreads Widen
August 1, 2008 – January 23, 2009

(22) Treasury Yield Curve Steepens Modestly
August 1, 2007 – January 23, 2009

(23) Distribution of Expected Policy Target Rate Among Primary Dealers Prior to January 28 FOMC Meeting
(24) Federal Reserve Balance Sheet Assets
August 2007 – January 2009

Source: Federal Reserve Bank of New York

(25) Market Rates Corresponding to Liquidity Facilities
July 1, 2008 – January 23, 2009

Source: Federal Reserve Bank of New York
(29) Term Auction Facility Loans Outstanding

Source: Federal Reserve Bank of New York

(30) Demand at TAF Auctions

Source: Federal Reserve Board

(31) PCF and PDCF Borrowing

Source: Federal Reserve Bank of New York

Sept. 14: Lehman Brothers Holdings files for bankruptcy

Year End
(32) Amount of CPFF Loans Outstanding
October 27, 2008 – January 23, 2009
Source: Federal Reserve Bank of New York

(33) AMLF Loans Outstanding
Source: Federal Reserve Bank of New York

(34) Assets in Prime Money Market Funds
August 1, 2008 – January 23, 2009
Source: iMoneyNet
(35) Purchases of Agency-MBS
January 5, 2009 – January 23, 2009

Source: Federal Reserve Bank of New York

(36) Mortgage Refinance Applications
January 1, 2008 – January 16, 2009

Source: Bloomberg

(37) Purchases of Agency Coupon Debt
December 5, 2008 – January 22, 2009

Source: Federal Reserve Bank of New York
(38) Three-Month Libor and Expectations for Three-Month Libor Decline
July 1, 2007 – January 23, 2009

Source: Bloomberg

(39) Spread between Jumbo and Conforming Mortgage Rates Remains Wide

Source: Bloomberg

(40) Ten- and Thirty-Year AAA-Rated Municipal Debt Yields Decline*
August 1, 2008 – January 23, 2009

Source: Bloomberg
(41) Distribution of Expected Policy Target Rate Among Primary Dealers Prior to December 16 FOMC Meeting

Source: Dealer Policy Survey
Appendix 2: Materials used by Mr. Sichel, Ms. Dynan, and Mr. Reeve
Material for

Staff Presentation on the Economic Outlook

January 27, 2009
Recent Indicators

**Change in Private Payroll Employment**
Thousands of employees

Note: Three-month moving average.

**Manufacturing IP Ex. Motor Vehicles**
Percent change, annual rate

Note: Three-month percent changes.

**Light Motor Vehicle Production**
Millions of units, annual rate

 Quarterly average

Q1P O

**Real PCE Goods Ex. Motor Vehicles**
Percent change, annual rate

Dec. GB

**Single-Family Housing Starts**
Millions of units, annual rate

Starts
Permits

Dec.

**Real GDP**
(Percent change, annual rate)

<table>
<thead>
<tr>
<th></th>
<th>Jan. GB</th>
<th>Dec. GB</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008:Q4</td>
<td>-4.9</td>
<td>-4.7</td>
</tr>
<tr>
<td>2009:Q1</td>
<td>-5.6</td>
<td>-5.0</td>
</tr>
<tr>
<td>2009:Q2</td>
<td>-1.3</td>
<td>-1.2</td>
</tr>
</tbody>
</table>
Key Background Factors and Medium-Term Outlook

Real GDP

Factors Contributing to Recovery

- Financial stress begins to recede
- Housing begins to stabilize
- Fiscal and monetary stimulus
- Inventory dynamics

Response to 2009 Fiscal Stimulus Package

- Households begin spending tax cuts ($180) and transfers ($90) when received.
- Investment response to business tax cuts ($120) is limited.
- Of total new funding for state and local governments ($400), only 40 percent spent by the end of 2010.

Contribution of Fiscal Package to GDP Growth*

* Includes housing-related programs financed by the TARP.

Contributions of Inventories to Real GDP Growth
(Percentage points, annual rate)

<table>
<thead>
<tr>
<th></th>
<th>Current Episode</th>
<th>Postwar Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Year before peak</td>
<td>-0.5</td>
<td>0.4</td>
</tr>
<tr>
<td>2. Peak to trough</td>
<td>-0.3</td>
<td>-1.6</td>
</tr>
<tr>
<td>3. Year after trough</td>
<td>1.0</td>
<td>1.3</td>
</tr>
</tbody>
</table>


Inventory Dynamics

- In the year before the peak, inventories held down real GDP growth.
- Peak-to-trough, inventories hold down real GDP only a little.
- In the year after the trough, the cessation of inventory decumulation contributes importantly to real GDP growth.
**Single-Family Housing**

### Single-Family Starts

![Graph](image)

- Millions of units, annual rate
- 2004 to 2010

### Rate on 30-year Fixed-Rate Conforming Mortgages

![Graph](image)

- Percent
- MBS purchase program announced
- 2007 to 2010

### Tighter Supply of Mortgage Credit

Much more difficult to obtain mortgages for households:
- Lacking solid credit histories
- Unable to make significant downpayments
- In need of low introductory rates

Lending is more restrictive than in the past to those seeking to finance an amount above the conforming limit.

### Overvaluation of Single-Family Homes*

![Graph](image)

- Percent
- 1980 to 2008


### Housing Equity

<table>
<thead>
<tr>
<th>Current equity &lt; 20%</th>
<th>Sept. 2007</th>
<th>Sept. 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subprime</td>
<td>52</td>
<td>61</td>
</tr>
<tr>
<td>2. Prime*</td>
<td>17</td>
<td>31</td>
</tr>
</tbody>
</table>

### Foreclosure Starts

<table>
<thead>
<tr>
<th>Year</th>
<th>Prime*</th>
<th>Subprime</th>
<th>FHA/VA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Includes near-prime mortgages; first liens only.

Exhibit 4

Consumer Spending

Real PCE and DPI

Percent change, annual rate

Saving Rate and Wealth-to-Income Ratio

Ratio

Percent

Wealth-to-income ratio

Personal saving rate

Sources of Financing for Consumer Spending

Billions of dollars, annual rate

Commercial Banks Tightening Standards on Consumer Loans

Net percentage of respondents

Auto Loans Originated by the Detroit Three Finance Companies per Unit Sold

Thousands of dollars

Developments in Consumer ABS Markets

- Very little issuance since October.
- The commercial banks that make most credit card loans have alternative sources of funding.
- But, the finance companies affiliated with the auto manufacturers have not (for the most part) had access to these sources.
Business Investment and Finance

The Accelerator

Components of BFI

Equity Valuation for S&P 500

Investment-Grade Corporate Bond Yield

High-Yield Corporate Bond Yield

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.

+ Denotes latest observation using daily interest rates and stock prices and latest earnings data from I/B/E/S.

* Estimated using analyst year-ahead earnings from I/B/E/S.
Business Investment and Finance (continued)

Change in C&I Loans
Billions of dollars, monthly rate

Vacancy Rates and Rents on Commercial Properties
Percent change from year earlier

Prices of Commercial Properties
Index, 1996:Q4 = 100

Implications of Shutdown in the CMBS Market

Commercial Banks Tightening Standards and Spreads on C&I Loans
Net percentage of respondents

Delinquency Rates on Commercial Mortgages
Percent

Should add to the pressure on banks’ balance sheets and thereby indirectly damp structures spending:

- Market will not be able to help refinance construction loans coming due.
- Loans currently within CMBS coming due will need financing from alternative sources.

*Excluding farmland.
Source: Citigroup; Call Report; ACLI.
Exhibit 7

**Business Cycle Dynamics**

**Real GDP: Cyclical Comparison**

Index, Real GDP peak = 100

- 1973:Q4
- 1981:Q3
- 2008:Q2

**Quarters**

- Peak
- 2
- 4
- 6
- 8
- 10
- 94
- 96
- 100
- 102
- 104
- 106
- 108
- 110
- 112

**Recession and Recovery**

- Contraction in real GDP is in line with big postwar recessions.
- Projected recovery is more sluggish.

**Financial Crises and Economic Downturns**

- Downturns linked to major financial crises tend to be severe.
- Average stepdown in real GDP growth after five major postwar financial crises was about 5 percentage points.
- For U.S., our forecast implies a stepdown of 3½ percentage points.

**Economic Growth Before and After Onset**

- Percent change, annual rate

- Four years before
- Worst two years

- Five major crises
- U.S. current episode


**Alternative Simulation: More Financial Stress**

**Real GDP**

Four-quarter percent change

- More financial stress
- Baseline

2007 2009 2011 2013
-4 -2 0 2 4 6 8

**Unemployment Rate**

Percent

2007 2009 2011 2013
4 5 6 7 8 9 10

**Core PCE Prices**

Four-quarter percent change

2007 2009 2011 2013
0.0 0.5 1.0 1.5 2.0 2.5

Note: Shading denotes 70% confidence interval.
**Labor Productivity and Inflation**

**Labor Productivity**

**Productivity Dynamics**

- In some earlier recessions labor productivity was procyclical.
- Procyclicality not observed during the 2001 recession.
- In the current episode, labor productivity expected to exhibit some procyclicality, as the deep recession leads to some labor hoarding.

**Unemployment Rate**

- Dec. GB
- NAIRU

**PCE Energy Prices**

**Four-quarter percent change**

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PCE price index</td>
<td>1.7</td>
<td>0.6</td>
<td>1.1</td>
</tr>
<tr>
<td>2. Dec. GB</td>
<td>(1.9)</td>
<td>(0.7)</td>
<td>(1.0)</td>
</tr>
<tr>
<td>3. Core PCE</td>
<td>1.9</td>
<td>1.0</td>
<td>0.8</td>
</tr>
<tr>
<td>4. Dec. GB</td>
<td>(2.0)</td>
<td>(1.1)</td>
<td>(0.8)</td>
</tr>
</tbody>
</table>
An Unconventional Policy: Large-Scale Asset Purchases

**Unemployment Rate**

- Baseline
- Unconstrained
- Asset purchase (LSAP)

**Core PCE Prices**

- Four-quarter percent change

**Assumptions Behind a Successful LSAP Program**

- Imperfect substitutability of long- and short-term debt.
- Sufficient substitutability among long-term fixed-income securities.
- Usual linkages to equity and foreign exchange markets.

**Simulation Assumptions**

**The Program:**
- $500 billion in MBS debt plus $500 billion in Treasury securities.
- On top of existing programs.
- Announced immediately, carried out over next year and a half.

**Financial Effects:**
- Reduces Baa rate: 75 b.p.

**Caveats, Financial and Macroeconomic**

**Financial:**
- Direct effects on interest rates are uncertain
- Current dysfunction in some financial markets could limit indirect effects
- Could be economies--or diseconomies--of scale in the size of the program
- LSAPS introduce tricky "exit issues" on how to unwind the program

**Macroeconomic:**
- The model may understate--or overstate--the macroeconomic outcomes
- Heavy reliance on mortgage rates and housing to drive economic recovery
Global Financial Markets

**Equity Prices**
Index, Jun. 3, 2008 = 100

**Bank Equity Prices**
Index, Jun. 3, 2008 = 100

**3-Month LIBOR-OIS Spreads**
Basis points

**Outstanding Central Bank Swap Draws**
Billions of dollars

**U.S. Dollar Exchange Rates**
Index, Jun. 3, 2008 = 100

**Broad Real Dollar**
Index, Feb. 2002 = 100

*Other important trading partners.
### Foreign Growth Outlook

#### Real GDP*

<table>
<thead>
<tr>
<th>Total</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1-Q3</td>
<td>Q4°</td>
<td>Q1</td>
<td>Q2</td>
<td>H2</td>
</tr>
<tr>
<td>1. Total</td>
<td>4.2</td>
<td>1.4</td>
<td>-3.8</td>
<td>-2.8</td>
</tr>
<tr>
<td>2. December Greenbook</td>
<td>4.2</td>
<td>1.4</td>
<td>-1.6</td>
<td>-1.2</td>
</tr>
</tbody>
</table>

#### Advanced Foreign Economies

<table>
<thead>
<tr>
<th>Japan</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. New export orders</td>
<td>-2.8</td>
<td>-3.4</td>
<td>-1.9</td>
</tr>
<tr>
<td>4. Manufacturing output</td>
<td>-5.2</td>
<td>-3.7</td>
<td>-1.5</td>
</tr>
<tr>
<td>5. United Kingdom***</td>
<td>-5.9</td>
<td>-4.0</td>
<td>-2.2</td>
</tr>
</tbody>
</table>

#### Emerging Market Economies

<table>
<thead>
<tr>
<th>Emerging Asia</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Retail sales volume</td>
<td>-6.5</td>
<td>-0.8</td>
<td>1.8</td>
</tr>
<tr>
<td>7. Industrial production</td>
<td>0.3</td>
<td>4.0</td>
<td>6.5</td>
</tr>
</tbody>
</table>

#### Global PMIs

**Diffusion index**

- New export orders
- Manufacturing output

- Source: Haver Analytics.

#### Japan

**12-month percent change**

- Real exports
- Real household spending

- Source: Haver Analytics.

#### Euro Area

**12-month percent change**

- Retail sales volume
- Industrial production

- Source: Haver Analytics.

#### China

**12-month percent change**

- Industrial production
- Retail sales volume

- Source: Haver Analytics.

---

*GDP aggregates weighted by shares of U.S. merchandise exports.

**Change from final quarter of preceding period to final quarter of period indicated.

***Updated since January Greenbook.

---

January 27–28, 2009

Authorized for Public Release

247 of 267
U.S. Trade

### Nominal Trade

**Billions of dollars**

- Monthly
- Non-oil imports
- Exports
- Oil imports

### Trade Balance

**Billions of dollars**

- Monthly
- Ex. oil imports
- Total

### Automotive Trade

**Billions of dollars**

- Monthly
- Imports
- Exports

### Aircraft Exports

**Billions of dollars**

- Monthly

### Trade in Real Goods and Services

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em><em>Growth Rates (percent, annual rate</em>)</em>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Exports</td>
<td>8.9</td>
<td>6.7</td>
<td>-19.9</td>
<td>-5.1</td>
<td>-2.7</td>
<td>-0.1</td>
</tr>
<tr>
<td>2. Imports</td>
<td>1.1</td>
<td>-3.9</td>
<td>-15.4</td>
<td>-11.7</td>
<td>-1.9</td>
<td>5.8</td>
</tr>
<tr>
<td><em><em>Contribution to Real GDP Growth (percentage points, annual rate</em>)</em>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Net Exports</td>
<td>0.8</td>
<td>1.6</td>
<td>-0.1</td>
<td>1.2</td>
<td>-0.1</td>
<td>-0.8</td>
</tr>
<tr>
<td>4. <em>December Greenbook</em></td>
<td>0.8</td>
<td>1.6</td>
<td>0.4</td>
<td>0.9</td>
<td>0.1</td>
<td>-0.5</td>
</tr>
</tbody>
</table>

*Change from final quarter of preceding period to final quarter of period indicated.*
Cyclical Comparisons

Real GDP

- United States
- Foreign*

*Weighted by shares of U.S. merchandise exports.

Contribution of Trade to U.S. GDP Growth

- Exports
- Imports
- Net exports

Broad Real Dollar

Index, historical average = 100

Note: Gray shading represents U.S. recessions as dated by the NBER. Blue shading represents the forecast period.
**Recent Price Developments**
Index, Jan. 3, 2007 = 100

- **Daily**
- **Peak oil price**
- **CRB nonfuel**
- **WTI oil**

**U.S. Crude Oil Inventories**
Millions of barrels

- **Weekly**
- **Peak oil price**
- **Deviation from historical average**

**Oil Demand**
Four-quarter percent change

- **Emerging economies**
- **World**
- **Advanced economies**

**Oil Production**
Millions of barrels per day

- **Non-OPEC**
- **OPEC**
- **OPEC target**

*Excluding Indonesia and Iraq.

**Financial Investors’ Net Oil Futures Positions**
Thousands of contracts

- **Index investors**
- **Noncommercial traders**

Source: CFTC.

**Commodity Price Outlook**
Index, Jan. 2007 = 100

- **Nonfuel index**
- **Oil import price**

*Authorized for Public Release*
Prices

**Consumer Price Indexes**

Four-quarter percent change

- **Canada**
- **United Kingdom**
- **Japan**
- **Euro area**

2007 2008 2009 2010

**CPI Excluding Food and Energy**

12-month percent change

- **Euro area**
- **Canada**
- **United Kingdom**
- **Japan**

*Staff estimates.*

**Policy Rates**

Percent

- **United Kingdom**
- **Euro area**
- **Canada**
- **Japan**

2007 2008 2009 2010

**CPI Excluding Food**

12-month percent change

- **Emerging Asia**
- **Latin America**

*Staff estimates.*

**Policy Rates**

Percent

- **Brazil**
- **Mexico**
- **China**
- **Korea**

2007 2008 2009 2010
Appendix 3: Materials used by Mr. Madigan
Class I FOMC – Restricted Controlled (FR)

Material for Briefing on
FOMC Participants’ Economic Projections

Brian Madigan
January 27, 2009
Exhibit 1: Economic Projections of FOMC Participants for 2009 to 2011 and over the Longer Run

- Change in real GDP
  - Central tendency of projections
  - Range of projections
  - Actual

- Unemployment rate

- PCE inflation

- Core PCE inflation

NOTE: Definitions of variables are in the notes to table 1. The data for the actual values of the variables are annual.
### Real GDP Growth

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Longer-Run</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Central Tendency</strong></td>
<td>-1.3 to -0.5</td>
<td>2.5 to 3.3</td>
<td>3.8 to 5.0</td>
<td>2.5 to 2.7</td>
</tr>
<tr>
<td><em>October projections</em></td>
<td>-0.2 to 1.1</td>
<td>2.3 to 3.2</td>
<td>2.8 to 3.6</td>
<td>2.5 to 2.7</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>-2.5 to 0.2</td>
<td>1.5 to 4.5</td>
<td>2.3 to 5.5</td>
<td>2.4 to 3.0</td>
</tr>
<tr>
<td><em>October projections</em></td>
<td>-1.0 to 1.8</td>
<td>1.0 to 4.5</td>
<td>2.0 to 5.0</td>
<td>2.0 to 2.9</td>
</tr>
<tr>
<td><strong>Memo: Greenbook</strong></td>
<td>-0.8</td>
<td>2.6</td>
<td>4.9</td>
<td>2.7</td>
</tr>
<tr>
<td><em>October Greenbook</em></td>
<td>-0.1</td>
<td>2.3</td>
<td>4.5</td>
<td>2.7</td>
</tr>
</tbody>
</table>

### Unemployment Rate

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Longer-Run</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Central Tendency</strong></td>
<td>8.5 to 8.8</td>
<td>8.0 to 8.3</td>
<td>6.7 to 7.5</td>
<td>4.8 to 5.0</td>
</tr>
<tr>
<td><em>October projections</em></td>
<td>7.1 to 7.6</td>
<td>6.5 to 7.3</td>
<td>5.5 to 6.6</td>
<td>4.8 to 5.0</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>8.0 to 9.2</td>
<td>7.0 to 9.2</td>
<td>5.5 to 8.0</td>
<td>4.5 to 5.5</td>
</tr>
<tr>
<td><em>October projections</em></td>
<td>6.6 to 8.0</td>
<td>5.5 to 8.0</td>
<td>4.9 to 7.3</td>
<td>4.5 to 5.8</td>
</tr>
<tr>
<td><strong>Memo: Greenbook</strong></td>
<td>8.4</td>
<td>8.1</td>
<td>6.7</td>
<td>4.8</td>
</tr>
<tr>
<td><em>October Greenbook</em></td>
<td>7.2</td>
<td>7.2</td>
<td>6.4</td>
<td>4.8</td>
</tr>
</tbody>
</table>

### PCE Inflation

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Central Tendency</strong></td>
<td>0.3 to 1.0</td>
<td>1.0 to 1.5</td>
<td>0.9 to 1.7</td>
</tr>
<tr>
<td><em>October projections</em></td>
<td>1.3 to 2.0</td>
<td>1.4 to 1.8</td>
<td>1.4 to 1.7</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>-0.5 to 1.5</td>
<td>0.7 to 1.8</td>
<td>0.2 to 2.1</td>
</tr>
<tr>
<td><em>October projections</em></td>
<td>1.0 to 2.2</td>
<td>1.1 to 1.9</td>
<td>0.8 to 1.8</td>
</tr>
<tr>
<td><strong>Memo: Greenbook</strong></td>
<td>0.6</td>
<td>1.1</td>
<td>0.8</td>
</tr>
<tr>
<td><em>October Greenbook</em></td>
<td>1.4</td>
<td>1.4</td>
<td>1.1</td>
</tr>
</tbody>
</table>

### Core PCE Inflation

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Central Tendency</strong></td>
<td>0.9 to 1.1</td>
<td>0.8 to 1.5</td>
<td>0.7 to 1.5</td>
</tr>
<tr>
<td><em>October projections</em></td>
<td>1.5 to 2.0</td>
<td>1.3 to 1.8</td>
<td>1.3 to 1.7</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>0.6 to 1.5</td>
<td>0.4 to 1.7</td>
<td>0.0 to 1.8</td>
</tr>
<tr>
<td><em>October projections</em></td>
<td>1.3 to 2.1</td>
<td>1.1 to 1.9</td>
<td>0.8 to 1.8</td>
</tr>
<tr>
<td><strong>Memo: Greenbook</strong></td>
<td>1.0</td>
<td>0.8</td>
<td>0.6</td>
</tr>
<tr>
<td><em>October Greenbook</em></td>
<td>1.5</td>
<td>1.3</td>
<td>1.1</td>
</tr>
</tbody>
</table>
Exhibit 3: Risks and Uncertainty in Economic Projections

Uncertainty about GDP Growth

Risks to GDP Growth

Uncertainty about PCE Inflation

Risks to PCE Inflation
Exhibit 4: GDP Growth Projections of FOMC Participants for 2009 to 2011 and over the Longer Run

NOTE: Definitions of variables are in the general note to table 1.
Exhibit 5: Unemployment Projections of FOMC Participants for 2009 to 2011 and over the Longer Run

NOTE: Definitions of variables are in the general note to table 1.
Exhibit 6: PCE Inflation Projections of FOMC Participants for 2009 to 2011 and over the Longer Run

NOTE: Definitions of variables are in the general note to table 1.
Exhibit 7: Core PCE Inflation Projections of FOMC Participants for 2009 to 2011

Note: Definitions of variables are in the general note to table 1.
Appendix 4: Materials used by Mr. Madigan
Class I FOMC – Restricted Controlled (FR)

Material for
FOMC Briefing on Monetary Policy Alternatives

Brian Madigan
January 27-28, 2009
Exhibit 1
Unconventional Policy Tools

1. Policy communications
   • About the federal funds rate
     o Quantitative expectations
     o Qualitative expectations
     o Conditional expectations
   • About other policy tools
     o Amounts and time frame
   • About inflation outlook and objectives
     o Explicit numerical inflation objective
     o Longer-term projections
     o Express concern about undesirably low inflation

2. Credit policies
   • Supporting or substituting for dysfunctional markets

3. Transactions under open market authority
   • Swap arrangements
   • MBS purchases
   • Treasury purchases
Alternative A

1. The Federal Open Market Committee decided today to keep its target range for the federal funds rate at 0 to 1/4 percent. The Committee continues to anticipate that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for some time.

2. Information received since the Committee met in December suggests that the economy has weakened somewhat more than anticipated. Industrial production, housing starts, and employment have declined steeply, as consumers and businesses have cut back spending. Furthermore, global demand appears to be slowing significantly. Conditions in some financial markets have improved, in part reflecting government efforts to provide liquidity and strengthen financial institutions; nevertheless, credit conditions for households and firms remain extremely tight. The Committee anticipates that a gradual recovery in economic activity will begin later this year, but the downside risks to that outlook are sizable significant.

3. In light of the declines in the prices of energy and other commodities in recent months and the prospects for an extended period of economic slack, the Committee expects that inflation pressures 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.

4. The Federal Reserve will employ all available tools to promote the resumption of sustainable economic growth and to preserve price stability. The focus of the Committee’s policy is to support the functioning of financial markets and stimulate the economy through open market operations and other measures that are likely to keep the size of the Federal Reserve's balance sheet at a high level.

[Alt. 1: To provide further support to activity in housing markets, the Committee decided to expand its purchases of agency mortgage-backed securities to $750 billion this year from its previously announced total of $500 billion. The Committee anticipates completing these purchases by the end of the third quarter. The Committee also is prepared to purchase longer-term Treasury securities as needed to improve overall financial conditions.]

[Alt. 2: To help improve overall financial conditions, the Committee decided to purchase up to $250 billion of longer-term Treasury securities this year. The Federal Reserve continues to purchase large quantities of agency debt and mortgage-backed securities to provide support to the mortgage and housing markets, and it stands ready to expand such purchases as conditions warrant.]

Next month, the Federal Reserve will implement the Term Asset-Backed Securities Loan Facility to facilitate the extension of credit to households and small businesses. The Committee will continue to monitor carefully the size and composition of the Federal Reserve’s balance sheet in light of evolving financial market developments and to assess whether expansions of or modifications to lending facilities would serve to further support credit markets and economic activity and help to preserve price stability.
**Alternative B**

1. The Federal Open Market Committee decided today to keep its target range for the federal funds rate at 0 to 1/4 percent. The Committee continues to anticipate that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for some time.

2. Information received since the Committee met in December suggests that the outlook for the economy remains weak. Industrial production, housing starts, and employment have continued to decline steeply, as consumers and businesses have cut back spending. Furthermore, global demand appears to be slowing significantly. Conditions in some financial markets have improved, in part reflecting government efforts to provide liquidity and strengthen financial institutions; nevertheless, credit conditions for households and firms remain extremely tight. The Committee anticipates that a gradual recovery in economic activity will begin later this year, but the downside risks to that outlook are significant.

3. In light of the declines in the prices of energy and other commodities in recent months and the prospects for considerable economic slack, the Committee expects that inflation pressures will remain subdued in coming quarters.

4. The Federal Reserve will employ all available tools to promote the resumption of sustainable economic growth and to preserve price stability. The focus of the Committee’s policy is to support the functioning of financial markets and stimulate the economy through open market operations and other measures that are likely to keep the size of the Federal Reserve's balance sheet at a high level. The Federal Reserve continues to purchase large quantities of agency debt and mortgage-backed securities to provide support to the mortgage and housing markets, and it stands ready to expand the **quantity** of such purchases and the duration of the purchase program as conditions warrant. The Committee also is prepared to purchase longer-term Treasury securities as needed to improve **if evolving circumstances indicate that such transactions would be particularly effective in improving conditions in private credit markets.** Next month, the Federal Reserve will implement the Term Asset-Backed Securities Loan Facility to facilitate the extension of credit to households and small businesses. The Committee will continue to monitor carefully the size and composition of the Federal Reserve’s balance sheet in light of evolving financial market developments and to assess whether expansions of or modifications to lending facilities would serve to further support credit markets and economic activity **and help to preserve price stability.**
Alternative C

1. The Federal Open Market Committee decided today to keep its target range for the federal funds rate at 0 to 1/4 percent. The Committee continues to anticipate that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for some time.

2. Information received since the Committee met in December suggests that the outlook for the economy remains weak. Industrial production, housing starts, and employment have continued to decline steeply, as consumers and businesses have cut back spending. Conditions in some financial markets have improved, in part reflecting government efforts to provide liquidity and strengthen financial institutions; nevertheless, credit conditions for households and firms remain tight. The Committee anticipates that a recovery in economic activity will begin later this year, supported in part by additional fiscal measures and the monetary and liquidity policies already in place.

3. The declines in the prices of energy and other commodities in recent months have significantly reduced overall price inflation. With economic slack likely to persist, the Committee expects that both overall and core consumer price inflation will remain low.

4. The Federal Reserve will employ all available tools to promote the resumption of sustainable economic growth and to preserve price stability. The focus of the Committee’s policy is to support the functioning of financial markets and stimulate the economy through open market operations and other measures that are likely to keep the size of the Federal Reserve's balance sheet at a high level. The Federal Reserve continues to purchase large quantities of agency debt and mortgage-backed securities to provide support to the mortgage and housing markets. Next month, the Federal Reserve will implement the Term Asset-Backed Securities Loan Facility to facilitate the extension of credit to households and small businesses. The Committee will continue to monitor carefully the size and composition of the Federal Reserve’s balance sheet in light of evolving financial market developments.
December FOMC Statement

The Federal Open Market Committee decided today to establish a target range for the federal funds rate of 0 to 1/4 percent.

Since the Committee's last meeting, labor market conditions have deteriorated, and the available data indicate that consumer spending, business investment, and industrial production have declined. Financial markets remain quite strained and credit conditions tight. Overall, the outlook for economic activity has weakened further.

Meanwhile, inflationary pressures have diminished appreciably. In light of the declines in the prices of energy and other commodities and the weaker prospects for economic activity, the Committee expects inflation to moderate further in coming quarters.

The Federal Reserve will employ all available tools to promote the resumption of sustainable economic growth and to preserve price stability. In particular, the Committee anticipates that weak economic conditions are likely to warrant exceptionally low levels of the federal funds rate for some time.

The focus of the Committee's policy going forward will be to support the functioning of financial markets and stimulate the economy through open market operations and other measures that sustain the size of the Federal Reserve's balance sheet at a high level. As previously announced, over the next few quarters the Federal Reserve will purchase large quantities of agency debt and mortgage backed securities to provide support to the mortgage and housing markets, and it stands ready to expand its purchases of agency debt and mortgage-backed securities as conditions warrant. The Committee is also evaluating the potential benefits of purchasing longer-term Treasury securities. Early next year, the Federal Reserve will also implement the Term Asset-Backed Securities Loan Facility to facilitate the extension of credit to households and small businesses. The Federal Reserve will continue to consider ways of using its balance sheet to further support credit markets and economic activity.