



## Meeting of the Federal Open Market Committee January 30-31, 2007 Presentation Materials -- Text Version

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

Pages 216 to 255 of the Transcript

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

Class II FOMC - Restricted FR

#### Page 1

##### Top panel

(1)

**Title:** 2007 Fed Fund Futures Curves

**Series:** Fed fund futures curves, including the monthly fed fund futures contracts from January 2007 through July 2007

**Horizon:** Three curves shown for the dates of 10/25/2006, 12/12/2006, and 1/26/2007

**Description:** The more recent curve from 1/26/2007 shows that U.S. monetary policy expectations have come back up to levels similar to the 10/25/2006 curve.

##### Middle panel

(2)

**Title:** Eurodollar Futures March 2008 - March 2007 Calendar Spread

**Series:** Eurodollar futures March 2008 - March 2007 calendar spread

**Horizon:** October 1, 2006 to January 26, 2007

**Description:** The calendar spread declined gradually throughout the first half of the period shown, then it has risen continually since the December 12, 2006 FOMC meeting. The FOMC meetings on October 25, 2006 and December 12, 2006 are shown with tripwires.

##### Bottom panel

(3)

**Title:** Treasury Yield Curves

**Series:** Treasury yield curves, including the 2-year, 5-year, 10-year, and 30-year securities.

**Horizon:** Three curves shown for the dates of 10/25/2006, 12/12/2006, and 1/26/2007

**Description:** The more recent yield curve from 1/26/2007 shows that yields have significantly come back up since 12/12/2006, even surpassing levels seen on the 10/25/2006 yield curve.

#### Page 2

##### Top panel

(4)

**Title:** U.S. Breakeven Inflation Rates

**Series:** 5-year, 10-year, and 5-year 5-year forward breakeven inflation rates

**Horizon:** January 2, 2006 to January 26, 2007

**Description:** All three breakeven inflation rates have fluctuated over the period shown. However, on net, all three breakeven inflation rates have risen, primarily occurring since early January 2007. The FOMC meetings on October 25, 2006 and December 12, 2006 are shown with tripwires.

Source: Barclays

### Middle panel

(5)

**Title:** Corporate Cash Index Spreads, Investment Grade and High Yield

**Series:** Merrill Lynch High Yield Index and Merrill Lynch Investment Grade Index

**Horizon:** January 3, 2005 to January 26, 2007

**Description:** Both spreads have tightened significantly since late September 2006.

### Bottom panel

(6)

**Title:** Implied Volatility on the S&P 100 and Treasury Yield Implied Volatility

**Series:** VIX Index and Merrill Lynch Move Index

**Horizon:** January 2, 1995 to January 26, 2007

**Description:** Although both indexes began to pick up in December 2006, they have been declining significantly since mid 2002 and are at historical low levels dating back to 1995.

## Page 3

### Top panel

(7)

**Title:** Foreign Exchange Implied Volatility

**Series:** 1-month euro-dollar\* and dollar-yen option implied volatility

**Horizon:** January 2, 1995 to January 26, 2007

**Description:** Although implied volatility began to pick up in December 2006, it has since declined as it has been since 2004, and it is at historical low levels dating back to 1995.

\* Euro: 1990-1999 = USD/DM, 2000-present = USD/Euro [Return to text](#)

Source: Goldman Sachs (1995-1996), Bloomberg (1997-present).

### Bottom panel

(8)

**Title:** Composition of First-Lien Mortgage Originations 2001-2006\*

**Series:** Conforming Mortgages, Jumbo, Subprime, Alt-A, and Subprime as % of Total

**Horizon:** 2001 to 2006, full-year 2006 volumes are estimated as of Q3 2006.

**Description:** While total first-lien mortgage originations have been flat since 2004 at around \$2.5 trillion per year, subprime mortgages have grown from just 9 percent of total originations in 2003 to about 24 percent in 2006.

\$ Billions

	2001	2002	2003	2004	2005	2006
Conforming Mortgages*	1,433	1,898	2,690	1,345	1,180	1,084
Jumbo	430	576	655	515	570	512
Subprime	190	231	335	540	625	620
Alt-A	60	68	85	200	380	400

\* Conforming mortgages include FHA/VA. [Return to text](#)

Source: Inside Mortgage Finance

## Page 4

### Top panel

(9)

**Title:** Delinquency and Charge-off Rates for Subprime MBS

**Series:** 60+ days delinquencies and charge-off rate

**Horizon:** January 1996 to September 2006

**Description:** Although the charge-off rate among securitized subprime mortgages has declined in the last couple years, delinquencies have risen and may portend higher future losses on subprime mortgages.

Source: Moody's

### **Middle panel**

(10)

**Title:** 60+ Days Delinquencies by Vintage (Subprime ARMs)

**Series:** Level of 60+ day delinquencies on subprime mortgages backing MBS pools. Shows delinquency levels according to year in which subprime MBS was issued.

**Horizon:** 2002 to 2006

**Description:** Delinquency rates for mortgages originated during 2006 are increasing much faster than those of recent years. Delinquency data may indicate that credit problems may be particularly severe among recently originated mortgages.

Source: JPMorgan

### **Bottom panel**

(11)

**Title:** Subprime MBS Tranche Spreads, Weekly

**Series:** AA, A, and BBB subprime MBS tranche spreads

**Horizon:** January 5, 1998 to January 22, 2007

**Description:** Spread widening in the cash subprime MBS market has been mostly confined to tranches rated triple-B and worse. Nonetheless, spreads on triple-B rated securities remain below the widest levels reached near the end of last year and during 2004. Moreover, spreads on double-A and single-A rated subprime MBS tranches remain near historically tight levels, implying that credit deterioration may be relatively contained.

## **Page 5**

### **Top panel**

(12)

**Title:** Copper 3-Month Forward Price and LME Warehouse Stock

**Series:** London Metal Exchange stock and 3-month forward contract price

**Horizon:** June 2004 to January 2007

**Description:** The consistent rise in LME copper inventories since October 2006 is indicative of an improvement in the supply and demand fundamentals for copper and coincides with a decline in the 3-month forward contract price.

Source: London Metal Exchange

### **Middle panel**

(13)

**Title:** Annual Global Corn Inventory vs. Weekly Front-Month Futures Price

**Series:** World stock, U.S. stock, and front-month corn futures price

**Horizon:** 2000 to 2006

**Description:** The decline in the world stock of corn has been led by a decline in U.S. stocks of corn. The broader use of corn as a bio-fuel likely contributed to decline in U.S. stocks and coincides with the sharp rise in the front-month corn futures price.

Source: USDA, Bloomberg

### **Bottom panel**

(14)

**Title:** Crude Oil Inventory vs. Front-Month Futures Price

**Series:** June 2006 - January 2007 U.S. inventory, 5-year historical average U.S. inventory, and front-month WTI price

**Horizon:** June 2006 to January 2007

**Description:** U.S. crude oil inventory levels are above the 5-year historical average and unseasonably warm weather this winter further contributed to a decline in the front-month WTI crude oil futures price.

Source: Department of Energy, Bloomberg

## Page 6

### Top panel

(15)

**Title:** WTI Crude Oil Futures Curves

**Series:** WTI crude oil futures curves, including the monthly rolling contracts from spot to 24 months

**Horizon:** Three curves shown for the dates of 6/30/2006, 12/12/2006, and 1/26/2007

**Description:** The WTI crude oil futures curves have progressively shifted lower since June 2006 given an improvement in supply and demand fundamentals and a reduction in risks to supply.

Source: NYMEX, Bloomberg

### Middle panel

(16)

**Title:** OPEC Spare Production Capacity

**Series:** OPEC spare production capacity in millions of barrels per day, 2007 forecast excludes potential production capacity increases

**Horizon:** 2000 - 2006, plus forecast for 2007

**Description:** OPEC spare capacity has been rising since mid- 2006 and is forecast to continue rising through 2007 even if potential production capacity increases (as a result of investment) are not included.

Source: International Energy Agency

## Appendix 2: Materials used by Mr. Slifman, Mr. Wascher, and Mr. Gagnon

Material for **Staff Presentation on the Economic Outlook**

January 30, 2007

**STRICTLY CONFIDENTIAL (FR) CLASS I-FOMC\***

\*Downgraded to Class II upon release of the February 2007 Monetary Policy Report.

### Exhibit 1

#### Recent Indicators

##### Top panel

##### Real GDP

(Percent change, annual rate)

		2002:Q4 to 2006:Q1	Q2	2006 Q3	2007 Q4P	2007 Q1P
1.	Real GDP	3.5	2.6	2.0	2.6	2.0

		2002:Q4 to 2006:Q1	2006 Q2	2006 Q3	2006 Q4 <sup>p</sup>	2007 Q1 <sup>p</sup>
2.	(Dec. GB)	(3.5)	(2.6)	(2.0)	(1.3)	(1.7)
3.	PDFP*	4.1	1.8	2.1	2.1	2.0
4.	(Dec. GB)	(4.1)	(1.8)	(2.0)	(1.2)	(1.3)

\* Private domestic final purchases is the sum of PCE, business fixed investment, and residential investment. [Return to table](#)

p - staff projection. [Return to table](#)

## Middle-left panel

### Private Payroll Employment

Average monthly change  
Thousands

Period	Employment
2004	161.33
2005	151.58
2006:Q1	169.33
2006:Q2	98.00
2006:Q3	143.67
2006:Q4	119.33

## Middle-right panel

### Real Personal Consumption Expenditures

Trillions of 2000 dollars, annual rate

Period	Expenditures
January 2004	7.47
February 2004	7.47
March 2004	7.50
2004:Q1*	7.48
April 2004	7.51
May 2004	7.57
June 2004	7.52
2004:Q2	7.53
July 2004	7.59
August 2004	7.59
September 2004	7.64
2004:Q3	7.61
October 2004	7.66
November 2004	7.68
December 2004	7.72
2004:Q4	7.69
January 2005	7.72
February 2005	7.74
March 2005	7.75
2005:Q1	7.74
April 2005	7.80

Period	Expenditures
May 2005	7.79
June 2005	7.86
2005:Q2	7.82
July 2005	7.93
August 2005	7.89
September 2005	7.87
2005:Q3	7.90
October 2005	7.88
November 2005	7.91
December 2005	7.95
2005:Q4	7.91
January 2006	7.98
February 2006	8.01
March 2006	8.02
2006:Q1	8.00
April 2006	8.03
May 2006	8.06
June 2006	8.07
2006:Q2	8.05
July 2006	8.11
August 2006	8.10
September 2006	8.12
2006:Q3	8.11
October 2006	8.16
November 2006	8.21
2006:Q4	8.20
2007:Q1	8.28

\* Quarterly figures are averages. Figures for 2006:Q4 and 2007:Q1 are staff estimates. [Return to table](#)

Period	Percent change, a.r.
2006:Q3	2.8
2006:Q4(p)	4.6
2007:Q1(p)	3.6

p - staff projection. [Return to table](#)

### Bottom-left panel Single-Family Housing Starts

Millions of units, annual rate

Period	Starts	Adjusted Permits*
January 2004	1.56	1.57
February 2004	1.48	1.60
March 2004	1.63	1.68
April 2004	1.65	1.64
May 2004	1.65	1.70

<b>Period</b>	<b>Starts</b>	<b>Adjusted Permits*</b>
June 2004	1.53	1.66
July 2004	1.68	1.64
August 2004	1.69	1.64
September 2004	1.56	1.63
October 2004	1.66	1.63
November 2004	1.46	1.59
December 2004	1.71	1.65
January 2005	1.74	1.68
February 2005	1.80	1.66
March 2005	1.58	1.63
April 2005	1.68	1.70
May 2005	1.72	1.70
June 2005	1.72	1.72
July 2005	1.74	1.75
August 2005	1.71	1.74
September 2005	1.79	1.82
October 2005	1.73	1.75
November 2005	1.80	1.74
December 2005	1.63	1.67
January 2006	1.81	1.69
February 2006	1.81	1.63
March 2006	1.62	1.60
April 2006	1.52	1.52
May 2006	1.59	1.51
June 2006	1.48	1.45
July 2006	1.45	1.36
August 2006	1.37	1.32
September 2006	1.39	1.25
October 2006	1.19	1.20
November 2006	1.28	1.17
December 2006	1.23	1.20

\* Adjusted for non-permit-issuing localities. [Return to table](#)

### **Bottom-right panel**

### **Orders and Shipments of Nondefense Capital Goods\***

#### **Three-month moving average**

Billions of dollars

<b>Period</b>	<b>Orders</b>	<b>Shipments</b>
January 2004	50.49	50.19
February 2004	49.62	49.68
March 2004	49.98	49.83
April 2004	50.95	50.54
May 2004	51.73	51.07
June 2004	51.04	51.28

Period	Orders	Shipments
July 2004	51.45	51.54
August 2004	51.40	52.28
September 2004	52.59	52.71
October 2004	52.70	53.14
November 2004	53.60	53.28
December 2004	53.70	53.78
January 2005	55.39	54.58
February 2005	56.42	55.30
March 2005	56.75	55.67
April 2005	56.60	55.54
May 2005	56.76	56.05
June 2005	57.64	56.32
July 2005	57.66	56.53
August 2005	58.53	56.82
September 2005	58.53	57.14
October 2005	59.33	57.80
November 2005	59.26	58.12
December 2005	59.94	58.94
January 2006	60.74	59.60
February 2006	61.39	60.00
March 2006	62.30	60.44
April 2006	62.35	60.74
May 2006	62.86	61.25
June 2006	62.87	61.29
July 2006	63.45	61.56
August 2006	64.01	62.09
September 2006	65.04	62.33
October 2006	65.05	61.94
November 2006	64.62	61.71
December 2006	64.02	61.78

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

## Exhibit 2 A Closer Look at Recent Developments

### Top-left panel Production of Light Motor Vehicles

Percent change, annual rate\*

Period	Production
2004	-4.37
2005	-2.80
2006:H1	-1.18



Period	Production
2006:Q3	-18.61
2006:Q4	-4.71

Note: Based on data from the Industrial Production system.

\* Annual bars are Q4/Q4: Half-year bar is Q2/Q4. [Return to table](#)

## Top-right panel Residential Investment

Percent change, annual rate\*

Period	Investment
2004	6.07
2005	9.03
2006:H1	-5.87
2006:Q3	-18.67
2006:Q4 <sub>p</sub>	-20.59

\* Annual bars are Q4/Q4: Half-year bar is Q2/Q4. [Return to table](#)

p Projection. [Return to table](#)

## Middle-left panel Upstream Effects

- The drop in motor vehicle output affects IP directly through its impact on light motor vehicle manufacturing and indirectly through its influence on production in upstream industries.
- In the case of construction, all of the IP effect comes through the influence of construction declines on upstream industries.

## Middle-right panel Industrial Production

(Percent change, annual rate)

		2006:Q3	2006:Q4
1.	Total IP	4.0	-0.6
<i>Direct and upstream contribution of:</i>			
2.	Light motor veh.	-1.1	-0.2
3.	Res. invest.	-1.3	-1.3
4.	Other	6.4	0.9

## Bottom panels

### Changes in Payroll Employment - Highly and Moderately Cyclical Industries

Three-month moving average

Thousands

Period	High	Moderate
January 1972	144.90	<a href="#">ND</a>
February 1972	146.17	ND
March 1972	172.77	ND
April 1972	124.83	58.33
May 1972	144.00	55.37
June 1972	132.37	62.17
July 1972	57.67	45.03

<b>Period</b>	<b>High</b>	<b>Moderate</b>
August 1972	105.53	44.17
September 1972	81.43	21.17
October 1972	195.40	55.23
November 1972	144.37	67.57
December 1972	177.13	85.63
January 1973	177.30	78.17
February 1973	214.50	78.53
March 1973	208.53	76.50
April 1973	158.77	64.83
May 1973	114.77	40.60
June 1973	118.73	24.40
July 1973	105.23	9.30
August 1973	100.30	18.03
September 1973	66.07	16.80
October 1973	97.17	44.33
November 1973	106.43	52.43
December 1973	111.57	46.17
January 1974	49.93	43.13
February 1974	21.53	26.97
March 1974	3.40	24.97
April 1974	31.70	0.00
May 1974	28.63	5.53
June 1974	28.10	7.50
July 1974	-7.53	14.57
August 1974	-33.53	-8.17
September 1974	-60.40	-23.07
October 1974	-56.63	-35.40
November 1974	-141.23	-69.17
December 1974	-252.63	-118.90
January 1975	-333.83	-166.57
February 1975	-356.93	-174.90
March 1975	-287.43	-139.70
April 1975	-256.57	-91.10
May 1975	-129.83	-18.27
June 1975	-81.80	13.73
July 1975	-9.83	50.37
August 1975	60.50	66.47
September 1975	104.40	79.70
October 1975	127.00	89.43
November 1975	79.33	65.20
December 1975	119.23	69.23
January 1976	181.57	81.37
February 1976	210.73	102.87

<b>Period</b>	<b>High</b>	<b>Moderate</b>
March 1976	187.10	101.50
April 1976	145.97	75.40
May 1976	101.60	30.43
June 1976	64.70	21.63
July 1976	33.10	13.33
August 1976	66.30	31.50
September 1976	85.20	55.87
October 1976	46.17	39.50
November 1976	68.60	48.07
December 1976	77.13	37.83
January 1977	141.63	72.30
February 1977	135.60	82.77
March 1977	194.93	87.80
April 1977	212.33	85.63
May 1977	210.17	87.03
June 1977	180.00	87.50
July 1977	177.70	75.80
August 1977	155.80	69.00
September 1977	155.37	74.10
October 1977	135.20	69.47
November 1977	158.73	78.10
December 1977	171.07	76.17
January 1978	153.53	80.93
February 1978	141.43	79.80
March 1978	157.30	83.97
April 1978	246.20	94.13
May 1978	255.67	92.97
June 1978	248.70	97.10
July 1978	194.43	63.43
August 1978	185.87	61.00
September 1978	147.43	37.93
October 1978	153.47	72.57
November 1978	168.60	93.50
December 1978	170.53	102.57
January 1979	125.07	88.97
February 1979	98.47	60.60
March 1979	148.53	57.10
April 1979	132.47	3.97
May 1979	142.60	39.63
June 1979	85.40	48.17
July 1979	86.80	75.70
August 1979	13.07	32.77
September 1979	11.33	-1.73

<b>Period</b>	<b>High</b>	<b>Moderate</b>
October 1979	18.83	33.70
November 1979	40.33	35.30
December 1979	14.97	41.30
January 1980	17.87	22.67
February 1980	31.50	1.33
March 1980	12.43	5.63
April 1980	-121.63	-33.60
May 1980	-227.70	-40.90
June 1980	-303.70	-75.27
July 1980	-243.10	-70.80
August 1980	-91.33	-32.70
September 1980	32.73	-1.33
October 1980	131.63	49.23
November 1980	124.33	41.50
December 1980	119.07	52.60
January 1981	90.47	40.10
February 1981	43.13	41.03
March 1981	41.57	35.37
April 1981	84.77	39.37
May 1981	81.47	37.93
June 1981	56.70	37.27
July 1981	9.27	31.77
August 1981	4.13	21.00
September 1981	-18.70	7.63
October 1981	-61.37	-22.87
November 1981	-121.07	-40.43
December 1981	-177.97	-61.60
January 1982	-214.03	-69.20
February 1982	-142.57	-54.63
March 1982	-106.27	-44.97
April 1982	-88.80	-40.80
May 1982	-106.43	-35.93
June 1982	-137.10	-36.57
July 1982	-123.27	-35.93
August 1982	-167.33	-43.40
September 1982	-142.83	-37.80
October 1982	-183.10	-28.67
November 1982	-166.57	-35.53
December 1982	-129.43	-25.90
January 1983	6.87	-5.63
February 1983	31.47	7.60
March 1983	53.23	29.57
April 1983	54.73	51.63

<b>Period</b>	<b>High</b>	<b>Moderate</b>
May 1983	121.83	74.57
June 1983	173.87	82.83
July 1983	207.60	92.60
August 1983	210.80	89.15
September 1983	237.27	106.30
October 1983	222.53	90.67
November 1983	244.13	92.88
December 1983	216.83	73.57
January 1984	231.80	99.03
February 1984	253.30	111.37
March 1984	230.00	112.07
April 1984	204.80	89.53
May 1984	155.43	76.30
June 1984	180.80	76.27
July 1984	178.40	68.20
August 1984	167.03	58.80
September 1984	148.77	48.63
October 1984	134.80	60.07
November 1984	157.60	75.17
December 1984	134.17	67.77
January 1985	119.00	56.40
February 1985	63.30	45.13
March 1985	99.80	48.10
April 1985	91.33	47.83
May 1985	122.17	52.00
June 1985	69.40	53.73
July 1985	48.33	47.03
August 1985	46.33	31.23
September 1985	50.67	47.10
October 1985	73.40	53.13
November 1985	63.40	69.27
December 1985	64.13	57.70
January 1986	52.17	56.60
February 1986	27.07	51.83
March 1986	26.87	44.00
April 1986	51.30	44.87
May 1986	60.67	49.97
June 1986	22.00	25.77
July 1986	23.23	59.67
August 1986	41.73	27.33
September 1986	81.23	99.10
October 1986	55.37	63.23
November 1986	43.77	96.43

<b>Period</b>	<b>High</b>	<b>Moderate</b>
December 1986	51.50	59.13
January 1987	54.30	61.83
February 1987	81.67	64.70
March 1987	87.47	63.17
April 1987	113.73	80.33
May 1987	104.80	70.77
June 1987	96.97	65.20
July 1987	91.23	65.20
August 1987	100.07	30.10
September 1987	107.20	75.30
October 1987	138.70	73.53
November 1987	129.40	115.73
December 1987	139.50	77.47
January 1988	45.87	77.83
February 1988	101.27	88.43
March 1988	105.30	75.20
April 1988	180.27	50.90
May 1988	127.67	25.23
June 1988	143.00	24.93
July 1988	137.00	24.07
August 1988	121.30	-13.43
September 1988	89.77	34.20
October 1988	73.53	62.57
November 1988	90.00	126.83
December 1988	99.00	112.20
January 1989	118.90	92.57
February 1989	114.47	83.37
March 1989	110.97	42.23
April 1989	89.47	24.63
May 1989	73.17	-11.40
June 1989	42.70	-30.33
July 1989	21.73	-30.53
August 1989	25.43	-91.97
September 1989	8.40	16.53
October 1989	-1.30	64.90
November 1989	1.60	183.57
December 1989	-16.60	141.63
January 1990	72.30	99.73
February 1990	97.33	62.33
March 1990	127.87	27.43
April 1990	27.10	13.77
May 1990	-55.13	-10.27
June 1990	-63.57	-13.17

<b>Period</b>	<b>High</b>	<b>Moderate</b>
July 1990	-69.60	-2.80
August 1990	-84.13	10.17
September 1990	-112.10	2.23
October 1990	-140.47	-16.70
November 1990	-156.70	-13.67
December 1990	-166.03	-12.20
January 1991	-166.70	-4.37
February 1991	-187.00	-31.53
March 1991	-199.93	-42.77
April 1991	-195.03	-62.70
May 1991	-148.50	-48.63
June 1991	-102.37	-34.23
July 1991	-70.07	-19.80
August 1991	-38.63	0.13
September 1991	-25.80	-0.37
October 1991	-33.33	14.13
November 1991	-65.33	10.73
December 1991	-71.67	8.23
January 1992	-58.73	10.27
February 1992	-32.70	-2.33
March 1992	-17.73	-7.00
April 1992	8.50	7.97
May 1992	38.30	33.70
June 1992	27.47	42.43
July 1992	-8.13	36.07
August 1992	-17.47	25.73
September 1992	-11.83	38.60
October 1992	28.93	50.53
November 1992	41.37	54.00
December 1992	68.13	48.27
January 1993	99.70	49.43
February 1993	129.20	55.50
March 1993	89.20	26.23
April 1993	63.50	48.20
May 1993	59.33	57.33
June 1993	86.30	86.60
July 1993	96.53	59.97
August 1993	82.77	52.27
September 1993	110.73	61.20
October 1993	136.13	65.47
November 1993	143.30	73.87
December 1993	144.93	72.93
January 1994	121.33	77.43

<b>Period</b>	<b>High</b>	<b>Moderate</b>
February 1994	126.37	66.40
March 1994	168.67	76.90
April 1994	212.17	56.63
May 1994	222.87	68.73
June 1994	196.63	52.13
July 1994	187.97	60.50
August 1994	195.70	49.73
September 1994	207.53	43.57
October 1994	183.57	32.03
November 1994	209.23	43.97
December 1994	172.30	60.60
January 1995	183.63	85.93
February 1995	131.80	70.17
March 1995	127.67	58.77
April 1995	102.53	37.40
May 1995	59.67	25.50
June 1995	62.20	27.60
July 1995	48.77	22.33
August 1995	104.33	43.67
September 1995	119.57	39.20
October 1995	115.80	47.07
November 1995	90.70	37.43
December 1995	71.37	20.10
January 1996	51.17	15.10
February 1996	111.00	27.73
March 1996	110.23	52.60
April 1996	149.63	57.57
May 1996	130.37	57.53
June 1996	154.30	59.10
July 1996	157.53	66.53
August 1996	147.27	55.77
September 1996	131.50	38.30
October 1996	136.77	39.37
November 1996	142.17	43.57
December 1996	144.03	45.07
January 1997	118.90	54.67
February 1997	123.07	57.47
March 1997	148.17	73.90
April 1997	183.57	65.87
May 1997	168.37	66.73
June 1997	142.50	59.23
July 1997	145.23	39.00
August 1997	141.43	-14.30



<b>Period</b>	<b>High</b>	<b>Moderate</b>
September 1997	151.30	50.80
October 1997	153.50	68.53
November 1997	177.27	116.90
December 1997	190.80	51.30
January 1998	185.93	51.53
February 1998	143.70	56.50
March 1998	95.77	61.20
April 1998	97.00	60.00
May 1998	134.80	72.23
June 1998	160.87	63.00
July 1998	86.93	66.37
August 1998	115.67	51.07
September 1998	91.07	71.50
October 1998	150.23	50.87
November 1998	105.83	52.60
December 1998	155.10	44.83
January 1999	133.00	57.70
February 1999	155.80	58.50
March 1999	107.10	41.27
April 1999	159.90	49.03
May 1999	133.80	54.60
June 1999	155.43	66.13
July 1999	143.27	57.93
August 1999	124.57	46.73
September 1999	108.80	50.30
October 1999	126.30	65.63
November 1999	148.07	74.03
December 1999	181.90	66.80
January 2000	157.37	47.27
February 2000	123.60	32.63
March 2000	138.60	49.17
April 2000	127.93	62.53
May 2000	77.43	40.90
June 2000	44.03	34.47
July 2000	38.60	32.77
August 2000	77.93	29.20
September 2000	53.60	36.67
October 2000	20.87	-0.07
November 2000	40.87	44.17
December 2000	14.03	44.27
January 2001	-11.40	48.83
February 2001	-49.90	23.33
March 2001	-87.97	-6.93

<b>Period</b>	<b>High</b>	<b>Moderate</b>
April 2001	-185.00	-9.80
May 2001	-215.43	-21.33
June 2001	-236.57	-45.60
July 2001	-184.77	-43.73
August 2001	-199.07	-60.33
September 2001	-195.67	-84.13
October 2001	-218.87	-115.27
November 2001	-253.40	-133.13
December 2001	-243.90	-114.67
January 2002	-211.07	-80.63
February 2002	-148.83	-70.27
March 2002	-113.17	-59.53
April 2002	-83.27	-73.43
May 2002	-78.63	-52.10
June 2002	-66.40	-46.77
July 2002	-74.47	-26.80
August 2002	-73.27	-14.00
September 2002	-89.57	2.83
October 2002	-66.87	38.17
November 2002	-67.60	38.00
December 2002	-75.80	17.47
January 2003	-68.80	-3.67
February 2003	-74.23	-32.90
March 2003	-86.93	-34.87
April 2003	-92.80	-66.73
May 2003	-59.73	-43.77
June 2003	-19.27	-31.73
July 2003	-13.73	-12.30
August 2003	-13.20	-7.63
September 2003	24.87	10.47
October 2003	52.13	22.23
November 2003	64.10	24.07
December 2003	56.43	20.13
January 2004	67.77	16.03
February 2004	60.23	18.97
March 2004	90.13	33.00
April 2004	117.50	28.00
May 2004	168.27	51.93
June 2004	135.03	37.10
July 2004	87.87	25.47
August 2004	53.77	-3.43
September 2004	63.13	9.70
October 2004	113.43	33.87

Period	High	Moderate
November 2004	111.77	42.03
December 2004	112.27	32.33
January 2005	50.90	29.17
February 2005	96.93	30.97
March 2005	95.30	29.60
April 2005	130.63	37.90
May 2005	84.73	28.03
June 2005	81.23	27.17
July 2005	81.93	27.27
August 2005	85.10	39.17
September 2005	68.70	24.27
October 2005	41.77	13.47
November 2005	81.80	29.77
December 2005	102.27	44.07
January 2006	116.27	56.53
February 2006	75.13	47.40
March 2006	75.17	45.60
April 2006	53.57	40.37
May 2006	42.60	30.80
June 2006	34.57	29.87
July 2006	40.43	30.37
August 2006	45.37	38.83
September 2006	30.67	53.80
October 2006	15.30	55.30
November 2006	18.03	54.47
December 2006	25.17	54.50

Note: Shading indicates NBER periods of cyclical contraction (November 1973 to March 1975, January 1980 to July 1980, July 1981 to November 1982, July 1990 to March 1991, and March 2001 to November 2001).

ND No data [Return to table](#)

## Exhibit 3 Forecast Summary

### Top panel GDP Projection

(Percent change, annual rate\*)

		2006		2007		2008
		H2	H1	H2	H1	
1.	Real GDP	2.3	2.2	2.4	2.5	2.5
2.	(Dec. GB)	(1.7)	(2.0)	(2.4)	(2.5)	(2.5)
3.	PDFP**	2.1	2.1	2.5	2.8	2.8
4.	(Dec. GB)	(1.6)	(1.7)	(2.4)	(2.7)	(2.7)

\* 2008 is Q4/Q4; half years are either Q4/Q2 or Q2/Q4. [Return to table](#)

\*\* Private domestic final purchases is the sum of PCE, business fixed investment, and residential investment. [Return to table](#)

## Middle panel

### Major Forces Shaping the Outlook

- Restraint from housing diminishes this year, and the contribution from housing turns slightly positive next year.
- Recent declines in oil prices boost real income; the lagged effects support consumption growth this year and into next year.
- Fiscal policy remains somewhat stimulative, although the impetus ebbs over the projection period.
- Monetary policy: Given our conditioning assumptions, the assumed path of the nominal federal funds rate is consistent with a real funds rate that closes the output gap over time.

## Bottom-left panel

### Crude Oil Prices

Quarterly average

Dollars per barrel

Period	West Texas Intermediate	Dec. GB	WTI Forecast
2004:Q1	35.25	ND	ND
2004:Q2	38.34	ND	ND
2004:Q3	43.89	ND	ND
2004:Q4	48.31	ND	ND
2005:Q1	49.68	ND	ND
2005:Q2	53.09	ND	ND
2005:Q3	63.08	ND	ND
2005:Q4	60.03	ND	ND
2006:Q1	63.34	ND	ND
2006:Q2	70.53	ND	ND
2006:Q3	70.44	70.44	ND
2006:Q4	60.04	60.18	ND
2007:Q1	ND	63.87	54.28
2007:Q2	ND	66.62	56.59
2007:Q3	ND	68.09	58.28
2007:Q4	ND	69.04	59.48
2008:Q1	ND	69.63	60.28
2008:Q2	ND	69.93	60.70
2008:Q3	ND	70.06	60.91
2008:Q4	ND	70.03	60.97
2009:Q1	ND	69.89	60.97

## Bottom-right panel

### Fiscal Impetus

Percent of GDP

Period	Impetus	Impetus Forecast
2003	0.95	ND
2004	0.72	ND
2005	0.25	ND
2006	0.35	ND

Period	Impetus	Impetus Forecast
2007	ND	0.26
2008	ND	0.07

## Exhibit 4 Private Domestic Final Demand

### Top panel Single-Family Starts and New Home Sales

Thousands of units, annual rate

Period	Single-family starts	New home sales	Single-family starts forecast	New home sales forecast
1970:Q1	687.33	407.67	ND	ND
1970:Q2	758.33	465.33	ND	ND
1970:Q3	839.00	520.00	ND	ND
1970:Q4	972.33	565.67	ND	ND
1971:Q1	1030.33	642.00	ND	ND
1971:Q2	1148.00	643.00	ND	ND
1971:Q3	1159.00	660.33	ND	ND
1971:Q4	1246.33	682.33	ND	ND
1972:Q1	1326.00	683.00	ND	ND
1972:Q2	1262.33	682.67	ND	ND
1972:Q3	1344.67	740.33	ND	ND
1972:Q4	1310.67	783.33	ND	ND
1973:Q1	1336.33	747.67	ND	ND
1973:Q2	1180.67	657.00	ND	ND
1973:Q3	1101.00	576.00	ND	ND
1973:Q4	918.00	543.67	ND	ND
1974:Q1	924.67	544.67	ND	ND
1974:Q2	964.00	556.00	ND	ND
1974:Q3	861.00	512.33	ND	ND
1974:Q4	779.33	438.33	ND	ND
1975:Q1	733.67	438.33	ND	ND
1975:Q2	848.00	559.67	ND	ND
1975:Q3	949.67	563.67	ND	ND
1975:Q4	1033.00	652.67	ND	ND
1976:Q1	1141.33	612.67	ND	ND
1976:Q2	1098.67	590.67	ND	ND
1976:Q3	1176.33	669.33	ND	ND
1976:Q4	1249.67	742.67	ND	ND
1977:Q1	1363.00	845.33	ND	ND
1977:Q2	1425.33	803.67	ND	ND
1977:Q3	1455.67	801.67	ND	ND
1977:Q4	1505.33	827.67	ND	ND

<b>Period</b>	<b>Single-family starts</b>	<b>New home sales</b>	<b>Single-family starts forecast</b>	<b>New home sales forecast</b>
1978:Q1	1307.00	800.00	ND	ND
1978:Q2	1485.00	851.67	ND	ND
1978:Q3	1424.33	785.67	ND	ND
1978:Q4	1456.33	825.00	ND	ND
1979:Q1	1161.33	756.67	ND	ND
1979:Q2	1293.33	725.00	ND	ND
1979:Q3	1201.00	723.67	ND	ND
1979:Q4	1030.67	608.67	ND	ND
1980:Q1	794.00	535.67	ND	ND
1980:Q2	691.00	463.67	ND	ND
1980:Q3	956.00	630.33	ND	ND
1980:Q4	979.00	551.67	ND	ND
1981:Q1	867.67	511.67	ND	ND
1981:Q2	786.33	450.67	ND	ND
1981:Q3	648.00	382.33	ND	ND
1981:Q4	541.33	398.33	ND	ND
1982:Q1	569.00	369.00	ND	ND
1982:Q2	601.00	364.33	ND	ND
1982:Q3	660.67	421.00	ND	ND
1982:Q4	821.33	518.33	ND	ND
1983:Q1	1028.67	580.00	ND	ND
1983:Q2	1085.33	651.00	ND	ND
1983:Q3	1093.00	595.33	ND	ND
1983:Q4	1052.67	683.00	ND	ND
1984:Q1	1221.00	676.00	ND	ND
1984:Q2	1103.33	628.00	ND	ND
1984:Q3	1003.67	616.00	ND	ND
1984:Q4	1065.67	627.00	ND	ND
1985:Q1	1064.00	666.00	ND	ND
1985:Q2	1053.00	673.33	ND	ND
1985:Q3	1059.00	723.33	ND	ND
1985:Q4	1107.67	703.00	ND	ND
1986:Q1	1197.67	780.33	ND	ND
1986:Q2	1215.33	791.33	ND	ND
1986:Q3	1161.33	694.00	ND	ND
1986:Q4	1155.33	720.00	ND	ND
1987:Q1	1237.00	718.00	ND	ND
1987:Q2	1138.00	674.33	ND	ND
1987:Q3	1163.00	660.33	ND	ND
1987:Q4	1078.67	623.33	ND	ND
1988:Q1	1057.00	639.00	ND	ND
1988:Q2	1066.00	700.00	ND	ND
1988:Q3	1071.33	690.00	ND	ND

<b>Period</b>	<b>Single-family starts</b>	<b>New home sales</b>	<b>Single-family starts forecast</b>	<b>New home sales forecast</b>
1988:Q4	1137.00	668.00	ND	ND
1989:Q1	1044.33	636.00	ND	ND
1989:Q2	997.33	635.33	ND	ND
1989:Q3	997.67	689.00	ND	ND
1989:Q4	985.67	653.00	ND	ND
1990:Q1	1057.67	595.00	ND	ND
1990:Q2	900.00	540.33	ND	ND
1990:Q3	856.00	522.00	ND	ND
1990:Q4	788.67	474.00	ND	ND
1991:Q1	703.00	463.33	ND	ND
1991:Q2	844.00	513.67	ND	ND
1991:Q3	879.00	508.00	ND	ND
1991:Q4	913.67	552.33	ND	ND
1992:Q1	1036.00	623.00	ND	ND
1992:Q2	994.00	565.33	ND	ND
1992:Q3	1015.00	637.67	ND	ND
1992:Q4	1082.00	628.33	ND	ND
1993:Q1	1034.67	600.67	ND	ND
1993:Q2	1106.33	660.00	ND	ND
1993:Q3	1130.33	675.33	ND	ND
1993:Q4	1251.00	761.67	ND	ND
1994:Q1	1193.00	684.00	ND	ND
1994:Q2	1214.33	668.00	ND	ND
1994:Q3	1193.67	653.67	ND	ND
1994:Q4	1163.33	663.33	ND	ND
1995:Q1	1044.00	600.33	ND	ND
1995:Q2	1019.67	673.33	ND	ND
1995:Q3	1122.00	714.67	ND	ND
1995:Q4	1142.33	689.67	ND	ND
1996:Q1	1149.33	734.67	ND	ND
1996:Q2	1186.33	734.33	ND	ND
1996:Q3	1183.67	788.67	ND	ND
1996:Q4	1098.00	765.33	ND	ND
1997:Q1	1139.67	820.67	ND	ND
1997:Q2	1116.33	765.67	ND	ND
1997:Q3	1146.00	820.00	ND	ND
1997:Q4	1143.33	819.00	ND	ND
1998:Q1	1228.33	858.00	ND	ND
1998:Q2	1239.00	892.00	ND	ND
1998:Q3	1278.67	862.00	ND	ND
1998:Q4	1364.33	945.67	ND	ND
1999:Q1	1337.00	862.00	ND	ND
1999:Q2	1266.00	909.67	ND	ND

Period	Single-family starts	New home sales	Single-family starts forecast	New home sales forecast
1999:Q3	1286.33	873.00	ND	ND
1999:Q4	1335.33	869.33	ND	ND
2000:Q1	1278.67	876.33	ND	ND
2000:Q2	1235.67	830.33	ND	ND
2000:Q3	1189.33	882.33	ND	ND
2000:Q4	1224.33	932.00	ND	ND
2001:Q1	1257.67	946.00	ND	ND
2001:Q2	1297.00	892.00	ND	ND
2001:Q3	1275.67	866.33	ND	ND
2001:Q4	1256.33	924.67	ND	ND
2002:Q1	1360.67	917.00	ND	ND
2002:Q2	1341.00	957.00	ND	ND
2002:Q3	1342.33	1004.67	ND	ND
2002:Q4	1410.33	1026.00	ND	ND
2003:Q1	1412.33	978.00	ND	ND
2003:Q2	1426.00	1094.33	ND	ND
2003:Q3	1524.67	1168.33	ND	ND
2003:Q4	1657.33	1122.00	ND	ND
2004:Q1	1557.67	1200.00	ND	ND
2004:Q2	1608.00	1202.33	ND	ND
2004:Q3	1640.33	1159.00	ND	ND
2004:Q4	1610.67	1242.00	ND	ND
2005:Q1	1703.33	1256.33	ND	ND
2005:Q2	1707.00	1284.33	ND	ND
2005:Q3	1747.67	1297.00	ND	ND
2005:Q4	1718.00	1280.33	ND	ND
2006:Q1	1747.00	1110.67	ND	ND
2006:Q2	1529.67	1100.00	ND	ND
2006:Q3	1401.00	1007.33	ND	ND
2006:Q4	1233.00	1061.33	ND	ND
2007:Q1	ND	ND	1175.00	1080.00
2007:Q2	ND	ND	1190.00	1036.69
2007:Q3	ND	ND	1204.00	1044.97
2007:Q4	ND	ND	1214.67	1049.71
2008:Q1	ND	ND	1243.00	1057.00
2008:Q2	ND	ND	1255.00	1065.00
2008:Q3	ND	ND	1271.00	1079.15
2008:Q4	ND	ND	1295.00	1089.11

Note: Shading indicates periods of cyclical contraction in single-family starts (1972:Q3 to 1975:Q1, 1977:Q4 to 1981:Q4, 1990:Q1 to 1991:Q1, 1993:Q4 to 1995:Q2, and 2005:Q3 to 2007:Q1).

**Middle-left panel**  
**Real PCE and DPI**



Percent change, Q4/Q4

Period	DPI*	PCE	DPI Forecast	PCE Forecast
2004	2.61	3.96	ND	ND
2005	1.76	2.90	ND	ND
2006	3.40	3.71	ND	ND
2007	ND	ND	3.69	2.76
2008	ND	ND	3.53	2.68

Note: 2006:Q4 is a projection.

\* Excluding December 2004 Microsoft dividend. [Return to table](#)

### Middle-right panel

#### Saving Rate and Wealth-to-Income Ratio

Period	Personal saving rate (Percent)	Wealth to income ratio	Personal saving rate Forecast	Wealth to income ratio Forecast
2004:Q1	2.11	5.28	ND	ND
2004:Q2	1.96	5.29	ND	ND
2004:Q3	1.62	5.28	ND	ND
2004:Q4	1.24	5.43	ND	ND
2005:Q1	0.59	5.44	ND	ND
2005:Q2	-0.34	5.50	ND	ND
2005:Q3	-1.47	5.60	ND	ND
2005:Q4	-0.31	5.60	ND	ND
2006:Q1	-0.32	5.67	ND	ND
2006:Q2	-1.38	5.64	ND	ND
2006:Q3	-1.16	5.65	ND	ND
2006:Q4	-0.74	5.70	ND	ND
2007:Q1	ND	ND	-0.40	5.65
2007:Q2	ND	ND	-0.24	5.62
2007:Q3	ND	ND	-0.05	5.59
2007:Q4	ND	ND	0.16	5.56
2008:Q1	ND	ND	0.50	5.52
2008:Q2	ND	ND	0.63	5.49
2008:Q3	ND	ND	0.83	5.46
2008:Q4	ND	ND	1.01	5.44

Note: Excluding December 2004 Microsoft dividend.

### Bottom-left panel

#### E&S Spending excluding Transportation

Percent change, Q4/Q4

Period	High Tech (contribution)	Other (contribution)	High Tech (contribution) Forecast	Other (contribution) Forecast	Total
2004	3.41	1.46	ND	ND	4.87
2005	4.73	3.75	ND	ND	8.48
2006	4.14	1.76	ND	ND	5.90
2007	ND	ND	4.74	0.95	5.69

Period	High Tech (contribution)	Other (contribution)	High Tech (contribution) Forecast	Other (contribution) Forecast	Total
2008	ND	ND	4.96	1.16	6.12

Note: 2006:Q4 is a projection.

### Bottom-right panel Nonresidential Structures\*

Percent change, Q4/Q4

Period	Structures	Structures Forecast
1959-2005 avg.	1.60	ND
2004	0.52	ND
2005	-1.20	ND
2006	12.79	ND
2007	ND	5.56
2008	ND	1.64

Note: 2006:Q4 is a projection.

\* Excluding mining exploration, shafts, and wells. [Return to text](#)

## Exhibit 5 Potential Output

### Top panel Staff Assumptions

(Percent change, Q4/Q4)

		2000 - 2005	2006	2007	2008
1.	Potential output	3.0	2.7	2.6	2.5
2.	Total hours	0.9	0.8	0.7	0.5
3.	Working-age population	1.2	1.2	1.2	1.1
4.	Labor-force participation	-0.1	-0.3	-0.3	-0.4
5.	Average workweek	-0.3	-0.2	-0.2	-0.2
6.	Structural productivity	2.9	2.6	2.5	2.5
7.	Technical factors	-0.8	-0.7	-0.6	-0.5

Note: Components may not add to totals due to rounding.

### Middle-left panel Outside Estimates of Potential Output Growth

Percent	
1. Blue Chip	3.0
2. Macro Advisers	3.3
3. Global Insight	3.0
4. CBO	2.8

### Middle-right panel Labor Force Participation Rate

## Percent

<b>Period</b>	<b>Actual</b>	<b>Trend</b>	<b>Actual Forecast</b>	<b>Trend Forecast</b>
1985:Q1	65.16	65.04	ND	ND
1985:Q2	65.12	65.09	ND	ND
1985:Q3	65.14	65.14	ND	ND
1985:Q4	65.35	65.20	ND	ND
1986:Q1	65.43	65.30	ND	ND
1986:Q2	65.65	65.36	ND	ND
1986:Q3	65.79	65.41	ND	ND
1986:Q4	65.81	65.46	ND	ND
1987:Q1	65.85	65.53	ND	ND
1987:Q2	65.99	65.58	ND	ND
1987:Q3	66.04	65.63	ND	ND
1987:Q4	66.17	65.68	ND	ND
1988:Q1	66.22	65.77	ND	ND
1988:Q2	66.21	65.83	ND	ND
1988:Q3	66.41	65.90	ND	ND
1988:Q4	66.58	65.97	ND	ND
1989:Q1	66.81	66.07	ND	ND
1989:Q2	66.90	66.14	ND	ND
1989:Q3	66.94	66.23	ND	ND
1989:Q4	67.02	66.32	ND	ND
1990:Q1	67.03	66.42	ND	ND
1990:Q2	66.85	66.48	ND	ND
1990:Q3	66.78	66.51	ND	ND
1990:Q4	66.70	66.53	ND	ND
1991:Q1	66.56	66.57	ND	ND
1991:Q2	66.57	66.59	ND	ND
1991:Q3	66.38	66.61	ND	ND
1991:Q4	66.38	66.63	ND	ND
1992:Q1	66.59	66.66	ND	ND
1992:Q2	66.84	66.67	ND	ND
1992:Q3	66.88	66.69	ND	ND
1992:Q4	66.56	66.71	ND	ND
1993:Q1	66.46	66.73	ND	ND
1993:Q2	66.61	66.74	ND	ND
1993:Q3	66.61	66.75	ND	ND
1993:Q4	66.58	66.77	ND	ND
1994:Q1	66.41	66.79	ND	ND
1994:Q2	66.31	66.79	ND	ND
1994:Q3	66.36	66.79	ND	ND
1994:Q4	66.55	66.77	ND	ND
1995:Q1	66.56	66.78	ND	ND

<b>Period</b>	<b>Actual</b>	<b>Trend</b>	<b>Actual Forecast</b>	<b>Trend Forecast</b>
1995:Q2	66.44	66.78	ND	ND
1995:Q3	66.42	66.78	ND	ND
1995:Q4	66.33	66.77	ND	ND
1996:Q1	66.33	66.78	ND	ND
1996:Q2	66.50	66.79	ND	ND
1996:Q3	66.65	66.78	ND	ND
1996:Q4	66.80	66.77	ND	ND
1997:Q1	66.83	66.77	ND	ND
1997:Q2	66.89	66.77	ND	ND
1997:Q3	66.92	66.77	ND	ND
1997:Q4	66.86	66.75	ND	ND
1998:Q1	66.98	66.75	ND	ND
1998:Q2	66.90	66.74	ND	ND
1998:Q3	66.94	66.73	ND	ND
1998:Q4	67.04	66.73	ND	ND
1999:Q1	67.08	66.73	ND	ND
1999:Q2	67.01	66.71	ND	ND
1999:Q3	66.99	66.70	ND	ND
1999:Q4	67.03	66.70	ND	ND
2000:Q1	67.29	66.70	ND	ND
2000:Q2	67.17	66.70	ND	ND
2000:Q3	66.89	66.70	ND	ND
2000:Q4	66.92	66.70	ND	ND
2001:Q1	67.15	66.70	ND	ND
2001:Q2	66.76	66.71	ND	ND
2001:Q3	66.65	66.70	ND	ND
2001:Q4	66.70	66.67	ND	ND
2002:Q1	66.58	66.65	ND	ND
2002:Q2	66.64	66.64	ND	ND
2002:Q3	66.56	66.62	ND	ND
2002:Q4	66.36	66.59	ND	ND
2003:Q1	66.28	66.55	ND	ND
2003:Q2	66.37	66.51	ND	ND
2003:Q3	66.06	66.48	ND	ND
2003:Q4	65.99	66.44	ND	ND
2004:Q1	65.98	66.41	ND	ND
2004:Q2	65.92	66.38	ND	ND
2004:Q3	65.93	66.34	ND	ND
2004:Q4	65.92	66.31	ND	ND
2005:Q1	65.82	66.26	ND	ND
2005:Q2	66.04	66.22	ND	ND
2005:Q3	66.12	66.18	ND	ND

Period	Actual	Trend	Actual Forecast	Trend Forecast
2005:Q4	66.03	66.14	ND	ND
2006:Q1	66.05	66.09	ND	ND
2006:Q2	66.14	66.05	ND	ND
2006:Q3	66.20	66.01	ND	ND
2006:Q4	66.30	65.97	ND	ND
2007:Q1	ND	ND	66.29	65.91
2007:Q2	ND	ND	66.20	65.86
2007:Q3	ND	ND	66.12	65.80
2007:Q4	ND	ND	66.03	65.74
2008:Q1	ND	ND	65.95	65.68
2008:Q2	ND	ND	65.86	65.62
2008:Q3	ND	ND	65.78	65.56
2008:Q4	ND	ND	65.69	65.50

Note: Shading indicates periods when the unemployment rate was below the NAIRU (1988:Q1 to 1990:Q2, 1997:Q1 to 2001:Q3, and 2005:Q3 to 2008:Q4).

### Bottom-left panel Flows from Nonparticipation to Employment\*

Six-month moving average

Period	Percent
June 1985	4.65
July 1985	4.67
August 1985	4.66
September 1985	4.69
October 1985	4.68
November 1985	4.62
December 1985	4.60
January 1986	4.65
February 1986	4.56
March 1986	4.55
April 1986	4.54
May 1986	4.59
June 1986	4.65
July 1986	4.57
August 1986	4.62
September 1986	4.58
October 1986	4.66
November 1986	4.61
December 1986	4.61
January 1987	4.59
February 1987	4.54
March 1987	4.58
April 1987	4.58

<b>Period</b>	<b>Percent</b>
May 1987	4.59
June 1987	4.56
July 1987	4.64
August 1987	4.68
September 1987	4.66
October 1987	4.74
November 1987	4.71
December 1987	4.80
January 1988	4.77
February 1988	4.83
March 1988	4.86
April 1988	4.83
May 1988	4.88
June 1988	4.91
July 1988	4.88
August 1988	4.84
September 1988	4.87
October 1988	4.81
November 1988	4.84
December 1988	4.77
January 1989	4.86
February 1989	4.90
March 1989	4.89
April 1989	4.86
May 1989	4.83
June 1989	4.87
July 1989	4.79
August 1989	4.77
September 1989	4.83
October 1989	4.89
November 1989	4.98
December 1989	4.89
January 1990	4.89
February 1990	4.94
March 1990	4.91
April 1990	4.89
May 1990	4.79
June 1990	4.89
July 1990	4.87
August 1990	4.81
September 1990	4.73
October 1990	4.70
November 1990	4.75

<b>Period</b>	<b>Percent</b>
December 1990	4.70
January 1991	4.58
February 1991	4.55
March 1991	4.53
April 1991	4.46
May 1991	4.37
June 1991	4.31
July 1991	4.37
August 1991	4.36
September 1991	4.36
October 1991	4.37
November 1991	4.32
December 1991	4.25
January 1992	4.28
February 1992	4.17
March 1992	4.13
April 1992	4.16
May 1992	4.16
June 1992	4.18
July 1992	4.20
August 1992	4.27
September 1992	4.25
October 1992	4.30
November 1992	4.32
December 1992	4.36
January 1993	4.27
February 1993	4.32
March 1993	4.34
April 1993	4.27
May 1993	4.31
June 1993	4.30
July 1993	4.35
August 1993	4.34
September 1993	4.39
October 1993	4.38
November 1993	4.32
December 1993	ND
January 1994	ND
February 1994	ND
March 1994	ND
April 1994	ND
May 1994	ND
June 1994	ND

<b>Period</b>	<b>Percent</b>
July 1994	4.60
August 1994	4.57
September 1994	4.58
October 1994	4.57
November 1994	4.59
December 1994	4.53
January 1995	4.56
February 1995	4.55
March 1995	4.51
April 1995	4.52
May 1995	4.40
June 1995	4.52
July 1995	4.49
August 1995	4.44
September 1995	4.55
October 1995	4.55
November 1995	4.68
December 1995	4.47
January 1996	4.42
February 1996	4.59
March 1996	4.46
April 1996	4.41
May 1996	4.41
June 1996	4.50
July 1996	4.57
August 1996	4.47
September 1996	4.49
October 1996	4.51
November 1996	4.48
December 1996	4.37
January 1997	4.35
February 1997	4.32
March 1997	4.38
April 1997	4.42
May 1997	4.46
June 1997	4.55
July 1997	4.53
August 1997	4.55
September 1997	4.47
October 1997	4.49
November 1997	4.49
December 1997	4.55
January 1998	4.64



<b>Period</b>	<b>Percent</b>
February 1998	4.63
March 1998	4.69
April 1998	4.75
May 1998	4.75
June 1998	4.70
July 1998	4.74
August 1998	4.81
September 1998	4.91
October 1998	4.96
November 1998	5.00
December 1998	5.11
January 1999	5.13
February 1999	5.10
March 1999	5.03
April 1999	5.08
May 1999	5.15
June 1999	5.10
July 1999	5.15
August 1999	5.16
September 1999	5.18
October 1999	5.11
November 1999	5.02
December 1999	5.04
January 2000	4.96
February 2000	5.01
March 2000	5.13
April 2000	5.11
May 2000	5.09
June 2000	5.14
July 2000	5.08
August 2000	5.04
September 2000	4.97
October 2000	4.97
November 2000	5.06
December 2000	5.04
January 2001	5.17
February 2001	5.28
March 2001	5.30
April 2001	5.28
May 2001	5.24
June 2001	5.27
July 2001	5.26
August 2001	5.19

<b>Period</b>	<b>Percent</b>
September 2001	5.14
October 2001	5.10
November 2001	5.09
December 2001	5.00
January 2002	4.89
February 2002	4.88
March 2002	4.78
April 2002	4.78
May 2002	4.87
June 2002	4.88
July 2002	4.89
August 2002	4.87
September 2002	4.86
October 2002	4.87
November 2002	4.82
December 2002	4.79
January 2003	4.83
February 2003	4.76
March 2003	4.83
April 2003	4.81
May 2003	4.75
June 2003	4.76
July 2003	4.71
August 2003	4.79
September 2003	4.75
October 2003	4.81
November 2003	4.82
December 2003	4.80
January 2004	4.83
February 2004	4.72
March 2004	4.76
April 2004	4.74
May 2004	4.70
June 2004	4.67
July 2004	4.71
August 2004	4.75
September 2004	4.74
October 2004	4.75
November 2004	4.75
December 2004	4.80
January 2005	4.76
February 2005	4.78
March 2005	4.75

Period	Percent
April 2005	4.79
May 2005	4.83
June 2005	4.84
July 2005	4.86
August 2005	4.84
September 2005	4.90
October 2005	4.85
November 2005	4.77
December 2005	4.81
January 2006	4.79
February 2006	4.88
March 2006	4.88
April 2006	4.90
May 2006	5.01
June 2006	5.02
July 2006	5.03
August 2006	4.98
September 2006	5.00
October 2006	5.00
November 2006	5.01
December 2006	5.04

Note: Shading indicates periods when the unemployment rate was below the NAIRU (1988:Q1 to 1990:Q2, 1997:Q1 to 2001:Q3, and 2005:Q3 to 2006:Q4). The series has a statistical break in January 1994.

\* As a percent of persons not in labor force last month. [Return to text](#)

## Bottom-right panel Labor Force Participation Rates

Percent

Period	Age 16-19	Age 62+
1985:Q1	55.62	16.53
1985:Q2	54.90	16.31
1985:Q3	54.87	16.25
1985:Q4	54.79	16.32
1986:Q1	55.04	16.50
1986:Q2	55.92	16.55
1986:Q3	55.16	16.46
1986:Q4	54.80	16.12
1987:Q1	55.23	16.19
1987:Q2	54.93	16.18
1987:Q3	55.14	16.46
1987:Q4	55.77	16.68
1988:Q1	55.62	16.68
1988:Q2	55.26	16.55
1988:Q3	56.60	16.55

<b>Period</b>	<b>Age 16-19</b>	<b>Age 62+</b>
1988:Q4	55.78	16.81
1989:Q1	55.70	17.00
1989:Q2	56.15	17.04
1989:Q3	56.74	16.96
1989:Q4	57.09	17.04
1990:Q1	55.81	17.23
1990:Q2	54.64	17.28
1990:Q3	53.56	17.28
1990:Q4	53.20	17.01
1991:Q1	53.08	16.70
1991:Q2	52.16	16.73
1991:Q3	51.57	16.58
1991:Q4	52.01	16.62
1992:Q1	51.46	16.97
1992:Q2	51.06	16.81
1992:Q3	52.67	16.58
1992:Q4	51.87	16.73
1993:Q1	51.72	16.39
1993:Q2	51.84	16.38
1993:Q3	52.33	16.66
1993:Q4	51.98	16.66
1994:Q1	52.21	16.38
1994:Q2	52.54	16.41
1994:Q3	51.99	16.61
1994:Q4	52.54	16.56
1995:Q1	53.16	16.19
1995:Q2	53.30	15.96
1995:Q3	53.33	16.27
1995:Q4	52.61	16.07
1996:Q1	51.76	15.97
1996:Q2	52.06	15.88
1996:Q3	51.75	15.81
1996:Q4	51.99	16.03
1997:Q1	51.83	16.21
1997:Q2	51.52	16.22
1997:Q3	50.65	16.09
1997:Q4	51.13	16.30
1998:Q1	52.92	16.32
1998:Q2	52.41	16.23
1998:Q3	53.09	16.37
1998:Q4	52.66	16.69
1999:Q1	52.49	16.57
1999:Q2	51.86	16.84

Period	Age 16-19	Age 62+
1999:Q3	51.61	17.24
1999:Q4	52.09	16.89
2000:Q1	52.06	17.16
2000:Q2	52.41	17.09
2000:Q3	51.72	17.30
2000:Q4	51.83	17.34
2001:Q1	51.17	17.34
2001:Q2	49.71	17.46
2001:Q3	48.88	17.79
2001:Q4	48.83	17.88
2002:Q1	47.84	17.90
2002:Q2	47.56	18.07
2002:Q3	47.61	18.35
2002:Q4	46.75	18.34
2003:Q1	45.50	18.95
2003:Q2	45.06	18.82
2003:Q3	44.15	18.83
2003:Q4	43.58	19.05
2004:Q1	43.75	19.30
2004:Q2	43.63	19.18
2004:Q3	44.03	19.73
2004:Q4	44.15	19.76
2005:Q1	43.62	19.80
2005:Q2	43.84	20.40
2005:Q3	43.89	20.84
2005:Q4	43.44	20.79
2006:Q1	43.84	20.60
2006:Q2	43.73	20.86
2006:Q3	43.64	20.94
2006:Q4	43.29	21.67

## Exhibit 6 Okun's Law and Productivity

### Top-left panel Okun's Law\*

Percent

Period	Actual rate of unemployment	Simulated rate of unemployment	Using GDI growth in 2006
1999:Q1	4.27	4.37	ND
1999:Q2	4.24	4.33	ND
1999:Q3	4.23	4.25	ND
1999:Q4	4.07	4.03	ND

Period	Actual rate of unemployment	Simulated rate of unemployment	Using GDI growth in 2006
2000:Q1	4.05	4.06	ND
2000:Q2	3.95	3.90	ND
2000:Q3	4.03	4.04	ND
2000:Q4	3.92	4.16	ND
2001:Q1	4.23	4.42	ND
2001:Q2	4.41	4.62	ND
2001:Q3	4.82	4.99	ND
2001:Q4	5.53	5.23	ND
2002:Q1	5.70	5.40	ND
2002:Q2	5.84	5.86	ND
2002:Q3	5.72	5.90	ND
2002:Q4	5.84	6.00	ND
2003:Q1	5.87	6.10	ND
2003:Q2	6.14	6.17	ND
2003:Q3	6.11	5.96	ND
2003:Q4	5.82	5.89	ND
2004:Q1	5.67	5.64	ND
2004:Q2	5.58	5.41	ND
2004:Q3	5.44	5.29	ND
2004:Q4	5.40	5.25	ND
2005:Q1	5.26	5.17	ND
2005:Q2	5.10	5.09	ND
2005:Q3	4.99	5.00	5.00
2005:Q4	4.96	4.98	4.96
2006:Q1	4.70	4.81	4.55
2006:Q2	4.65	4.77	4.58
2006:Q3	4.67	4.75	4.49
2006:Q4	4.46	4.76	4.45

\* Dynamic simulation beginning in 1990:Q3. [Return to text](#)

### Top-right panel GDP and GDI

Percent change, Q4/Q4

Period	GDP	GDI	GDP Forecast	GDI Forecast
2004	3.40	3.32	ND	ND
2005	3.15	3.13	ND	ND
2006	ND	ND	3.17	4.01

### Middle-left panel Labor Productivity: Nonfarm Business Sector

Percent change, annual rate

Period	Actual	Simulation	Actual Forecast
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Period	Actual	Simulation	Actual Forecast
2006:Q1	4.25	ND	ND
2006:Q2	1.21	1.35	ND
2006:Q3	-0.16	1.40	ND
2006:Q4	ND	2.56	0.90
2007:Q1	ND	1.95	1.53
2007:Q2	ND	2.61	2.50
2007:Q3	ND	2.80	2.69
2007:Q4	ND	2.61	2.82
2008:Q1	ND	2.58	2.75
2008:Q2	ND	2.49	2.63
2008:Q3	ND	2.44	2.64
2008:Q4	ND	2.44	2.53

**Middle-right panel**  
**Evolution of Structural Productivity Estimates**

(Percent change)

GB	Staff	Kalman Filter
Mar.	3.1	3.0
Aug.	2.7	2.5
Oct.	2.5	2.2
Jan.	2.5	2.0

**Bottom-left panel**  
**Productivity: Nonfinancial Corporate Sector**

Period	Percent change, annual rate
2003:H1	3.01
2003:H2	4.46
2004:H1	2.99
2004:H2	3.54
2005:H1	4.96
2005:H2	3.10
2006:H1	3.13
2006:Q3	5.65

**Bottom-right panel**  
**Productivity: Nonfarm Business Excluding Residential Construction**

Period	Percent change, annual rate	Forecast
2003:H1	4.36	ND
2003:H2	4.23	ND
2004:H1	3.20	ND
2004:H2	0.64	ND
2005:H1	2.28	ND
2005:H2	2.34	ND

Period	Percent change, annual rate	Forecast
2006:H1	3.66	ND
2006:H2	ND	2.01

## Exhibit 7 Labor Market and Measures of Slack

### Top-left panel Payroll Employment

Average monthly change  
Thousands

Period	Payroll Employment	Forecast
2001:Q1	6.67	ND
2001:Q2	-152.33	ND
2001:Q3	-175.33	ND
2001:Q4	-266.67	ND
2002:Q1	-93.33	ND
2002:Q2	-26.00	ND
2002:Q3	-50.67	ND
2002:Q4	-8.33	ND
2003:Q1	-88.67	ND
2003:Q2	-26.33	ND
2003:Q3	18.00	ND
2003:Q4	134.33	ND
2004:Q1	174.33	ND
2004:Q2	199.00	ND
2004:Q3	115.33	ND
2004:Q4	210.33	ND
2005:Q1	160.33	ND
2005:Q2	166.67	ND
2005:Q3	154.67	ND
2005:Q4	178.67	ND
2006:Q1	176.33	ND
2006:Q2	115.33	ND
2006:Q3	185.33	ND
2006:Q4	135.67	ND
2007:Q1	ND	118.00
2007:Q2	ND	65.00
2007:Q3	ND	52.78
2007:Q4	ND	52.85
2008:Q1	ND	56.81
2008:Q2	ND	60.76
2008:Q3	ND	60.83



<b>Period</b>	<b>Payroll Employment</b>	<b>Forecast</b>
2008:Q4	ND	62.86

### **Payroll Employment: Trend**

Average monthly change

Thousands

<b>Period</b>	<b>Trend</b>	<b>Forecast</b>
January 2001	140.95	ND
February 2001	140.81	ND
March 2001	140.48	ND
April 2001	140.30	ND
May 2001	139.80	ND
June 2001	138.83	ND
July 2001	138.23	ND
August 2001	137.10	ND
September 2001	135.35	ND
October 2001	132.86	ND
November 2001	130.52	ND
December 2001	128.77	ND
January 2002	126.79	ND
February 2002	125.05	ND
March 2002	123.40	ND
April 2002	122.20	ND
May 2002	121.12	ND
June 2002	120.01	ND
July 2002	119.60	ND
August 2002	119.08	ND
September 2002	118.34	ND
October 2002	117.15	ND
November 2002	116.26	ND
December 2002	116.01	ND
January 2003	115.61	ND
February 2003	115.37	ND
March 2003	115.10	ND
April 2003	115.04	ND
May 2003	114.80	ND
June 2003	114.26	ND
July 2003	114.16	ND
August 2003	113.79	ND
September 2003	113.01	ND
October 2003	111.79	ND
November 2003	110.65	ND
December 2003	109.81	ND
January 2004	108.86	ND

<b>Period</b>	<b>Trend</b>	<b>Forecast</b>
February 2004	108.22	ND
March 2004	107.73	ND
April 2004	107.60	ND
May 2004	107.47	ND
June 2004	107.28	ND
July 2004	107.54	ND
August 2004	107.82	ND
September 2004	108.17	ND
October 2004	108.06	ND
November 2004	108.13	ND
December 2004	108.74	ND
January 2005	109.17	ND
February 2005	109.75	ND
March 2005	110.29	ND
April 2005	111.05	ND
May 2005	111.62	ND
June 2005	111.88	ND
July 2005	112.48	ND
August 2005	112.73	ND
September 2005	112.55	ND
October 2005	111.74	ND
November 2005	111.03	ND
December 2005	110.78	ND
January 2006	110.26	ND
February 2006	109.81	ND
March 2006	109.30	ND
April 2006	109.00	ND
May 2006	108.58	ND
June 2006	107.92	ND
July 2006	107.64	ND
August 2006	107.07	ND
September 2006	106.10	ND
October 2006	104.58	ND
November 2006	103.19	ND
December 2006	102.26	ND
January 2007	ND	101.10
February 2007	ND	100.06
March 2007	ND	98.97
April 2007	ND	98.07
May 2007	ND	97.05
June 2007	ND	95.83
July 2007	ND	95.03
August 2007	ND	94.03

Period	Trend	Forecast
September 2007	ND	92.68
October 2007	ND	90.98
November 2007	ND	89.31
December 2007	ND	87.84
January 2008	ND	86.20
February 2008	ND	84.72
March 2008	ND	83.24
April 2008	ND	81.87
May 2008	ND	80.35
June 2008	ND	78.63
July 2008	ND	77.13
August 2008	ND	75.51
September 2008	ND	74.69
October 2008	ND	73.83
November 2008	ND	72.93
December 2008	ND	72.00

## Top-right panel Unemployment Rate

Percent

Period	Unemployment Rate	NAIRU	Unemployment Rate Forecast	NAIRU Forecast
2001:Q1	4.20	5.15	ND	ND
2001:Q2	4.40	5.13	ND	ND
2001:Q3	4.80	5.11	ND	ND
2001:Q4	5.50	5.10	ND	ND
2002:Q1	5.70	5.09	ND	ND
2002:Q2	5.80	5.09	ND	ND
2002:Q3	5.70	5.08	ND	ND
2002:Q4	5.80	5.06	ND	ND
2003:Q1	5.90	5.04	ND	ND
2003:Q2	6.10	5.02	ND	ND
2003:Q3	6.10	5.01	ND	ND
2003:Q4	5.80	5.01	ND	ND
2004:Q1	5.70	5.02	ND	ND
2004:Q2	5.60	5.02	ND	ND
2004:Q3	5.40	5.02	ND	ND
2004:Q4	5.40	5.01	ND	ND
2005:Q1	5.30	5.01	ND	ND
2005:Q2	5.10	5.00	ND	ND
2005:Q3	5.00	5.00	ND	ND
2005:Q4	5.00	5.00	ND	ND
2006:Q1	4.70	5.00	ND	ND
2006:Q2	4.70	5.00	ND	ND

Period	Unemployment Rate	NAIRU	Unemployment Rate Forecast	NAIRU Forecast
2006:Q3	4.70	5.00	ND	ND
2006:Q4	4.46	5.00	ND	ND
2007:Q1	ND	ND	4.56	5.00
2007:Q2	ND	ND	4.69	5.00
2007:Q3	ND	ND	4.77	5.00
2007:Q4	ND	ND	4.85	5.00
2008:Q1	ND	ND	4.87	5.00
2008:Q2	ND	ND	4.88	5.00
2008:Q3	ND	ND	4.89	5.00
2008:Q4	ND	ND	4.90	5.00

**Middle-left panel**  
**Job Openings Rate\***

Period	Percent
January 2001	3.5
February 2001	3.4
March 2001	3.1
April 2001	3.1
May 2001	3.0
June 2001	2.9
July 2001	2.8
August 2001	2.6
September 2001	2.6
October 2001	2.4
November 2001	2.4
December 2001	2.3
January 2002	2.3
February 2002	2.3
March 2002	2.3
April 2002	2.3
May 2002	2.3
June 2002	2.3
July 2002	2.3
August 2002	2.3
September 2002	2.3
October 2002	2.4
November 2002	2.3
December 2002	2.1
January 2003	2.2
February 2003	2.2
March 2003	2.1
April 2003	2.2

<b>Period</b>	<b>Percent</b>
May 2003	2.2
June 2003	2.3
July 2003	2.2
August 2003	2.2
September 2003	2.1
October 2003	2.2
November 2003	2.3
December 2003	2.4
January 2004	2.3
February 2004	2.3
March 2004	2.5
April 2004	2.5
May 2004	2.5
June 2004	2.5
July 2004	2.6
August 2004	2.6
September 2004	2.6
October 2004	2.6
November 2004	2.5
December 2004	2.7
January 2005	2.6
February 2005	2.7
March 2005	2.9
April 2005	2.8
May 2005	2.6
June 2005	2.8
July 2005	2.8
August 2005	2.8
September 2005	2.8
October 2005	3.0
November 2005	3.1
December 2005	3.0
January 2006	3.0
February 2006	3.0
March 2006	3.1
April 2006	3.1
May 2006	3.0
June 2006	3.0
July 2006	2.9
August 2006	3.1
September 2006	3.1
October 2006	3.2
November 2006	3.2

\* Number of job openings as a percent of the sum of private employment and job openings. [Return to text](#)

## Middle-right panel Beveridge Curve

[Scatterplot and fitted curve]

Percent

Job openings rate	Unemployment rate	Fitted unemployment rate
3.33	4.23	4.36
3.00	4.41	4.71
3.20*	4.46	4.49
3.03	4.65	4.67
3.03	4.67	4.67
3.03	4.70	4.67
2.67	4.82	5.16
3.03	4.96	4.67
2.80	4.99	4.97
2.73	5.10	5.06
2.73	5.27	5.06
2.60	5.40	5.26
2.60	5.45	5.26
2.37	5.53	5.67
2.50	5.58	5.43
2.37	5.67	5.67
2.30	5.70	5.80
2.30	5.73	5.80
2.30	5.82	5.80
2.30	5.84	5.80
2.27	5.84	5.87
2.17	5.87	6.08
2.17	6.11	6.08
2.23	6.14	5.94

Note: The data cover 2001:Q1 to 2006:Q4. A vertical line at an unemployment rate of approximately 5.00 percent intersects the fitted curve at a job openings rate of approximately 2.78 percent.

\* The openings rate for 2006:Q4 is the average of October and November. [Return to table](#)

## Bottom-left panel Persons Working Part-Time for Economic Reasons

Period	Percent of household employment
1996:Q1	3.24
1996:Q2	3.30
1996:Q3	3.29
1996:Q4	3.19
1997:Q1	3.10
1997:Q2	3.04
1997:Q3	2.97
1997:Q4	2.87

<b>Period</b>	<b>Percent of household employment</b>
1998:Q1	2.84
1998:Q2	2.76
1998:Q3	2.62
1998:Q4	2.48
1999:Q1	2.51
1999:Q2	2.46
1999:Q3	2.39
1999:Q4	2.32
2000:Q1	2.26
2000:Q2	2.28
2000:Q3	2.27
2000:Q4	2.33
2001:Q1	2.33
2001:Q2	2.49
2001:Q3	2.67
2001:Q4	3.15
2002:Q1	2.99
2002:Q2	2.95
2002:Q3	3.03
2002:Q4	3.11
2003:Q1	3.33
2003:Q2	3.31
2003:Q3	3.32
2003:Q4	3.40
2004:Q1	3.29
2004:Q2	3.22
2004:Q3	3.12
2004:Q4	3.20
2005:Q1	3.04
2005:Q2	3.03
2005:Q3	3.11
2005:Q4	2.87
2006:Q1	2.80
2006:Q2	2.80
2006:Q3	2.81
2006:Q4	2.86

Note: As shown in the chart, a horizontal line marks the average for 1996:H2, approximately 3.24 percent.

**Bottom-right panel**  
**Manufacturing Capacity Utilization**

<b>Period</b>	<b>Percent</b>
January 1996	80.98
February 1996	81.81

<b>Period</b>	<b>Percent</b>
March 1996	81.17
April 1996	81.68
May 1996	81.82
June 1996	82.26
July 1996	82.05
August 1996	82.15
September 1996	82.27
October 1996	81.83
November 1996	82.15
December 1996	82.49
January 1997	82.14
February 1997	82.82
March 1997	83.29
April 1997	82.53
May 1997	82.67
June 1997	82.67
July 1997	82.45
August 1997	83.15
September 1997	83.34
October 1997	83.37
November 1997	83.75
December 1997	83.58
January 1998	83.62
February 1998	83.04
March 1998	82.30
April 1998	82.22
May 1998	82.07
June 1998	81.02
July 1998	80.22
August 1998	81.80
September 1998	81.08
October 1998	81.36
November 1998	81.05
December 1998	81.06
January 1999	80.97
February 1999	81.25
March 1999	80.78
April 1999	80.68
May 1999	81.08
June 1999	80.48
July 1999	80.51
August 1999	80.72
September 1999	80.05



<b>Period</b>	<b>Percent</b>
October 1999	80.90
November 1999	81.13
December 1999	81.38
January 2000	81.13
February 2000	80.99
March 2000	81.16
April 2000	81.37
May 2000	81.02
June 2000	80.84
July 2000	80.42
August 2000	79.62
September 2000	79.66
October 2000	79.01
November 2000	78.41
December 2000	77.63
January 2001	76.93
February 2001	76.23
March 2001	75.68
April 2001	75.26
May 2001	74.55
June 2001	73.92
July 2001	73.52
August 2001	72.86
September 2001	72.51
October 2001	71.89
November 2001	71.59
December 2001	71.67
January 2002	71.88
February 2002	71.87
March 2002	72.38
April 2002	72.43
May 2002	72.81
June 2002	73.57
July 2002	73.25
August 2002	73.55
September 2002	73.63
October 2002	73.27
November 2002	73.61
December 2002	73.34
January 2003	73.75
February 2003	73.82
March 2003	74.05
April 2003	73.46

<b>Period</b>	<b>Percent</b>
May 2003	73.49
June 2003	73.96
July 2003	74.09
August 2003	73.97
September 2003	74.56
October 2003	74.53
November 2003	75.28
December 2003	75.21
January 2004	75.26
February 2004	75.82
March 2004	75.75
April 2004	76.20
May 2004	76.62
June 2004	76.11
July 2004	76.72
August 2004	77.16
September 2004	76.91
October 2004	77.44
November 2004	77.42
December 2004	77.81
January 2005	78.18
February 2005	78.55
March 2005	78.32
April 2005	78.38
May 2005	78.73
June 2005	78.89
July 2005	78.83
August 2005	78.96
September 2005	78.13
October 2005	79.15
November 2005	79.68
December 2005	79.83
January 2006	80.26
February 2006	79.88
March 2006	80.05
April 2006	80.66
May 2006	80.30
June 2006	80.82
July 2006	80.93
August 2006	81.05
September 2006	80.86
October 2006	80.18
November 2006	79.98

Period	Percent
December 2006	80.39

Note: As shown in the chart, a horizontal line marks the average from 1972 to 2006, approximately 79.55 percent.

## Exhibit 8 Inflation Outlook

### Top-left panel Recent Price Data

(Percent change)

	Q3	Q4	Nov.	Dec.
Core CPI	3.0	1.8	0.0	0.2
<i>Dec. GB</i>		(2.3)		
Core PCE	2.2	2.1 <sup>e</sup>	0.0	0.2 <sup>e</sup>
<i>Dec. GB</i>		(2.6)		

Note: Quarterly figures are at annual rates.

e - staff estimate. [Return to table](#)

### Top-right panel PCE Energy Prices

Four-quarter percent change

Period	PCE Energy Prices	Dec. GB	PCE Energy Prices Forecast
2000:Q4	15.24	ND	ND
2001:Q1	10.91	ND	ND
2001:Q2	10.34	ND	ND
2001:Q3	1.13	ND	ND
2001:Q4	-9.94	ND	ND
2002:Q1	-14.12	ND	ND
2002:Q2	-10.54	ND	ND
2002:Q3	-4.89	ND	ND
2002:Q4	7.67	ND	ND
2003:Q1	21.22	ND	ND
2003:Q2	9.81	ND	ND
2003:Q3	12.11	ND	ND
2003:Q4	7.62	ND	ND
2004:Q1	4.07	ND	ND
2004:Q2	13.15	ND	ND
2004:Q3	10.99	ND	ND
2004:Q4	17.81	ND	ND
2005:Q1	11.50	ND	ND
2005:Q2	11.55	ND	ND
2005:Q3	23.63	ND	ND
2005:Q4	21.20	ND	ND

Period	PCE Energy Prices	Dec. GB	PCE Energy Prices Forecast
2006:Q1	20.34	ND	ND
2006:Q2	22.17	ND	ND
2006:Q3	10.25	10.25	ND
2006:Q4	ND	-4.75	-3.91
2007:Q1	ND	0.92	-5.32
2007:Q2	ND	-4.05	-10.59
2007:Q3	ND	-3.81	-10.07
2007:Q4	ND	9.53	1.79
2008:Q1	ND	3.84	4.10
2008:Q2	ND	2.69	3.89
2008:Q3	ND	1.72	2.84
2008:Q4	ND	1.10	2.20

### Middle-left panel Core Nonfuel Import Prices

Four-quarter percent change

Period	Core Nonfuel Import Prices	Dec. GB	Core Nonfuel Import Prices Forecast
2002:Q1	-2.71	ND	ND
2002:Q2	-1.95	ND	ND
2002:Q3	-0.67	ND	ND
2002:Q4	0.12	ND	ND
2003:Q1	1.20	ND	ND
2003:Q2	1.23	ND	ND
2003:Q3	1.16	ND	ND
2003:Q4	1.60	ND	ND
2004:Q1	2.36	ND	ND
2004:Q2	3.16	ND	ND
2004:Q3	3.55	ND	ND
2004:Q4	3.66	ND	ND
2005:Q1	3.51	ND	ND
2005:Q2	2.89	ND	ND
2005:Q3	2.17	ND	ND
2005:Q4	2.16	ND	ND
2006:Q1	1.40	ND	ND
2006:Q2	1.94	ND	ND
2006:Q3	3.04	3.04	ND
2006:Q4	2.86	2.92	ND
2007:Q1	ND	3.32	2.96
2007:Q2	ND	2.93	2.41
2007:Q3	ND	2.26	1.69
2007:Q4	ND	2.11	1.55

Period	Core Nonfuel Import Prices	Dec. GB	Core Nonfuel Import Prices Forecast
2008:Q1	ND	1.58	1.32
2008:Q2	ND	1.27	1.17
2008:Q3	ND	1.13	1.08
2008:Q4	ND	1.04	1.04

### Middle-right panel PCE Price Projection

(Percent Change, Q4/Q4)

		2006	2007	2008
1.	PCE price index	1.9	2.2	2.1
2.	<i>Dec. GB</i>	(2.0)	(2.8)	(2.1)
4.	Core	2.3	2.2	2.0
5.	<i>Dec. GB</i>	(2.4)	(2.3)	(2.1)

### Alternative Simulation

#### Bottom-left panel Unemployment Rate

Percent

Period	70% confidence interval lower bound	Baseline	Lower prod, higher LFPR	70% confidence interval upper bound
2005:Q1	ND	5.30	ND	ND
2005:Q2	ND	5.10	ND	ND
2005:Q3	ND	5.00	ND	ND
2005:Q4	ND	5.00	ND	ND
2006:Q1	ND	4.70	ND	ND
2006:Q2	ND	4.70	ND	ND
2006:Q3	ND	4.70	ND	ND
2006:Q4	4.46	4.46	4.46	4.46
2007:Q1	4.45	4.56	4.56	4.66
2007:Q2	4.50	4.69	4.67	4.86
2007:Q3	4.50	4.77	4.76	5.02
2007:Q4	4.50	4.85	4.84	5.16
2008:Q1	4.44	4.87	4.87	5.22
2008:Q2	4.39	4.88	4.89	5.27
2008:Q3	4.37	4.89	4.92	5.33
2008:Q4	4.32	4.90	4.95	5.38

#### Bottom-center panel Core PCE Prices

Four-quarter percent change

Period	70% confidence interval lower bound	Baseline	Lower prod, higher LFPR	70% confidence interval upper bound
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Period	70% confidence interval lower bound	Baseline	Lower prod, higher LFPR	70% confidence interval upper bound
2005:Q1	ND	2.19	ND	ND
2005:Q2	ND	2.05	ND	ND
2005:Q3	ND	2.03	ND	ND
2005:Q4	ND	2.10	ND	ND
2006:Q1	ND	2.02	ND	ND
2006:Q2	ND	2.23	ND	ND
2006:Q3	2.37	2.37	2.37	2.37
2006:Q4	2.23	2.27	2.27	2.31
2007:Q1	2.16	2.30	2.30	2.46
2007:Q2	1.94	2.17	2.23	2.44
2007:Q3	1.83	2.17	2.30	2.55
2007:Q4	1.70	2.16	2.37	2.67
2008:Q1	1.59	2.13	2.43	2.73
2008:Q2	1.47	2.08	2.42	2.75
2008:Q3	1.39	2.04	2.43	2.75
2008:Q4	1.33	2.02	2.44	2.76

**Bottom-right panel  
Federal Funds Rate**

Percent

Period	70% confidence interval lower bound	Baseline	Lower prod, higher LFPR	70% confidence interval upper bound
2005:Q1	ND	2.48	ND	ND
2005:Q2	ND	2.94	ND	ND
2005:Q3	ND	3.46	ND	ND
2005:Q4	ND	3.98	ND	ND
2006:Q1	ND	4.47	ND	ND
2006:Q2	ND	4.90	ND	ND
2006:Q3	ND	5.25	ND	ND
2006:Q4	5.25	5.25	5.25	5.25
2007:Q1	5.05	5.25	5.26	5.46
2007:Q2	4.80	5.25	5.28	5.72
2007:Q3	4.56	5.25	5.32	5.99
2007:Q4	4.37	5.25	5.37	6.24
2008:Q1	4.24	5.25	5.44	6.44
2008:Q2	4.13	5.25	5.50	6.59
2008:Q3	4.08	5.25	5.55	6.67
2008:Q4	4.00	5.25	5.59	6.78

**Exhibit 9  
Recent Market Developments**

Exhibit 9 is a two-by-two array of panels, including graphs on the primary commodity prices, the real trade-weighted dollar, equity prices of industrial countries, and equity prices of emerging markets.

### **Top-left panel**

#### **Primary Commodity Prices**

Primary Commodity Prices on a monthly basis for oil and the IMF nonfuel index for 2005 through early 2007 (actual) and for early 2007 through 2008 (forecast). The range of the right y-axis, which measures the IMF nonfuel index, January 2005 = 100, is [90, 160]. The range of the left y-axis, which measures the oil price in dollars per barrel, is [45, 80]. The oil price is the West Texas Intermediate spot price. The oil price starts at about \$47 per barrel, rises to nearly \$75 per barrel by mid-2006, and falls to about \$54 dollars per barrel by early 2007; over the forecast horizon, the oil price rises to about \$62 by the end of the period. The IMF nonfuel index starts at 100, rises to about 149 by end-2006, and then declines slightly to about 147 by early 2007; over the forecast horizon, the index rises to about 150 by mid-2007, and then eases to about 148 by the end of the forecast period.

### **Top-right panel**

#### **Real Trade-Weighted Dollar**

Real Trade-Weighted Dollar on a quarterly basis for the major currencies index, the broad dollar index, and the index for other important trading partners for 2005 through early 2007 (actual) and for early 2007 through 2008 (forecast). The range of the y-axis is [90, 110]; index, Q1 2005 = 100. All three series begin at 100. The major currencies index rises to about 107 by late 2005, falls to about 102½ by late 2006, rises to about 103½ by early 2007, and falls to about 102 by the end of the period. The broad dollar index rises to about 103 by late 2005, falls to about 98½ by late 2006, and falls further to about 97½ by the end of the period. The index for other important trading partners falls to about 94 by early 2007, and declines further to about 93 by the end of the period.

### **Bottom-left panel**

#### **Equity Prices: Industrial Countries**

Equity Prices: Industrial Countries on a daily basis for the United States (Wilshire 5000), the United Kingdom (FTSE 350), Japan (TOPIX), and the euro area (DJ Euro Stoxx) for 2005 through early 2007. The range of the y-axis is [50, 120], ratio scale; index, March 2000 = 100. All the series are somewhat volatile. The United States' Wilshire 5000 index starts at about 85 and rises to about 102 by the end of the period. The United Kingdom's FTSE 350 index starts at about 77 and rises to about 103 by the end of the period. Japan's TOPIX index starts at about 68 and rises to about 104 by the end of the period. The euro-area's DJ Euro Stoxx index starts at about 59 and rises to about 89 by the end of the period.

### **Bottom-right panel**

#### **Equity Prices: Emerging Markets**

Equity Prices: Emerging Markets on a daily basis for Mexico, Brazil, Thailand, and Korea for 2005 through early 2007. The range of the y-axis is [90, 340], ratio scale; index, March 2000 = 100. All the series are somewhat volatile. The index for Mexico starts at about 163 and rises to about 340 by the end of the period. The index for Brazil starts at about 138 and rises to about 240 by the end of the period. The index for Thailand starts at about 175 and declines to about 168 by the end of the period. The index for Korea starts at about 105 and rises to about 159 by the end of the period.

## **Exhibit 10**

### **Emerging-Market Debt and Capital Flows**

Exhibit 10 is comprised of four panels, including graphs on gross external debt, yield spreads over U.S. Treasuries, official capital outflows and current account balances, and emerging-market official flows and industrial country interest rates.

### Top-left panel

#### Gross External Debt

Gross External Debt on a yearly basis for Latin America and Asia for 1990-2006. The range of the y-axis is [15, 55]; unit is percent of GDP. The source of the data is the IMF World Economic Outlook database. The gross external debt of Latin America starts at about 41 percent of GDP, falls to about 34 percent of GDP by 1997, rises to about 46 percent of GDP by 2002, and falls to about 27 percent of GDP by the end of the period. The gross external debt of Asia starts at about 30 percent of GDP, rises to about 35 percent of GDP by 1998, and falls to about 20 percent of GDP by the end of the period.

### Top-right panel

#### Yield Spreads over U.S. Treasuries

Yield Spreads over U.S. Treasuries on a monthly basis for Latin America and Asia for 1992-2006. The range of the y-axis is [0, 1800]; unit is basis points. The source of the data is Merrill Lynch. Both series show considerable volatility. The spread for Latin America starts at about 600 basis points, rises to about 1600 basis points by early 1995, falls to about 300 basis points by late 1997, rises to about 1450 basis points by mid-1998, and falls to about 150 basis points by the end of the period. The spread for Asia starts at about 900 basis points, falls to about 100 basis points by early 1997, rises to about 800 basis points by mid-1998, and falls to about 150 basis points by the end of the period.

### Middle panel

#### Official Capital Outflows and Current Account Balances

Official Capital Outflows and Current Account Balances for emerging Asia, Africa and the Middle East, Eastern Europe, and Latin America as a bar chart for 2005-2006e. The range of the y-axis is [0, 400]; unit is billions of dollars. Net official capital outflows are defined as changes in foreign exchange reserves, external public debt, and assets of government-run investment funds. The source of the data is the IMF World Economic Outlook database. Approximate values for the two periods are as follows:

Billions of dollars

	2005		2006e	
	Net official outflows	Current account	Net official outflows	Current account
Emerging Asia	225	170	270	185
Africa and Middle East	230	200	330	320
Eastern Europe	160	25	170	60
Latin America	70	40	60	40

### Bottom panel

#### Emerging-Market Official Flows and Industrial Country Interest Rates

Emerging-Market Official Flows and Industrial Country Interest Rates. On a yearly basis, the panel plots the real interest rate and GDP growth rate for industrial countries as a line chart and plots emerging-market net official flows as a bar chart for 1985-2006. The range of the y-axis is [-4, 6]; unit is percent. Emerging-market net official flows are defined as the net official capital flows of emerging markets as a share of aggregate industrial-country GDP. The GDP growth rate and the real interest rate for industrial countries are defined as the real GDP growth rate and three-month interest rate minus CPI inflation rate for the G-10 countries (including the United States) plus Australia and Spain, weighted by GDP. The sources for the data are the IMF World Economic Outlook database and the IFS database. 2006 data are estimates. The real GDP growth rate for industrial countries starts at nearly 4 percent, rises to about 4¾ percent by 1988, falls to about ¾ percent by 1993, rises to about 3½ percent by 2000, falls to about 1 percent by 2001, and rises to about 3 percent by 2006. The real interest rate for industrial countries starts at about 4¾ percent, rises to about 5 percent by 1990, falls to about 3¼ percent by 2000, falls more sharply to about -¼ percent in 2003-2004, and then



risers to about 1½ percent by 2006. Emerging-market net official flows start at about ¼ percent, fluctuate between about ¼ percent and -1 percent through 2002, and then decline from about -1½ percent in 2003 to about -2½ percent by 2006; approximate values for emerging-market net official flows for the twenty-two periods are as follows:

Percent

<b>EM net official flows</b>	
1985	0.2
1986	0.2
1987	-0.1
1988	0.1
1989	0
1990	0
1991	-0.1
1992	-0.2
1993	-0.2
1994	-0.3
1995	-0.4
1996	-0.5
1997	-0.4
1998	0.1
1999	-0.3
2000	-0.8
2001	-0.5
2002	-0.9
2003	-1.5
2004	-1.9
2005	-2.2
2006	-2.6

## **Exhibit 11** **Bond Markets, Inflation Compensation, and Monetary Policy**

Exhibit 11 is a three-by-four array of panels. The four top panels plot "Indexed Bond Yields, 10-Year" for the United States and France, the United Kingdom, Japan, and Canada. The four middle panels plot "Inflation Compensation, 10-Year" for the United States and the euro area, the United Kingdom, Japan, and Canada. The four bottom panels plot "Policy Interest Rates" for the United States and the euro area, the United Kingdom, Japan, and Canada. Data are monthly. Unit is percent.

### **Top panels**

#### **Indexed Bond Yields, 10-Year**

Indexed Bond Yields, 10-Year for the United States and France for 2003 through early 2007. The range of the y-axis is [0, 3½]. The yields for the United States start at about 2 percent, and, with considerable volatility, fall to about 1½ percent by late 2005, rise to about 2½ percent by mid-2006, decline to about 2¼ percent by early 2007, and then rise back to nearly 2½ percent by the end of the period. The yields for France start at about 2-1/3 percent, and, with considerable volatility, fall to about 7/8 percent by late 2005, rise to about 1¾ percent by mid-2006, fall to about 1½ percent by early 2007, and then rise to about 1-7/8 percent by the end of the period.

Indexed Bond Yields, 10-Year for the United Kingdom for 2003 through early 2007. The range of the y-axis is  $[0, 3\frac{1}{2}]$ . The yields for the United Kingdom start at just above 2 percent, and, with considerable volatility, fall to about 1-1/3 percent by late 2005, rise to about 1¾ percent by mid-2006, decline to about 1½ percent by early 2007, and then rise back to about 1¾ percent by the end of the period.

Indexed Bond Yields, 10-Year for Japan. Although the dates on the chart are set for 2003 through early 2007, the data actually begin in early 2004, because Japan first issued an inflation-linked bond in March 2004. The range of the y-axis is  $[0, 3\frac{1}{2}]$ . The yields for Japan start at just above 1 percent, and, with some volatility, fall to about 1/3 percent by mid-2005, and then rise to about 1¼ percent by the end of the period.

Indexed Bond Yields, 10-Year for Canada\*\* for 2003 through early 2007. The range of the y-axis is  $[0, 3\frac{1}{2}]$ . The yields for Canada start at about 3¼ percent, and, with some volatility, fall to about 1½ percent by late 2005, rise to about 1¾ percent by mid-2006, decline to about 1-2/3 percent by early 2007, and then rise back to about 1¾ percent by the end of the period.

\*\* Bond maturing in 2021. [Return to text](#)

## Middle panels

### Inflation Compensation, 10-Year

Inflation Compensation, 10-Year for the United States and the euro area for 2003 through early 2007. The range of the y-axis is  $[0, 3\frac{1}{2}]$ . Inflation compensation for the United States starts at about 2 percent, and, with some volatility, rises to about 2¾ percent by mid-2006, declines to about 2-1/3 percent by early 2007, and then rises to about 2½ percent by the end of the period. Inflation compensation for the euro area starts at about 1-7/8 percent, and, with some volatility, rises to about 2-2/3 percent by mid-2004, falls to about 2 percent by mid-2005, and then rises to about 2¼ percent by the end of the period.

Inflation Compensation, 10-Year for the United Kingdom for 2003 through early 2007. The range of the y-axis is  $[0, 3\frac{1}{2}]$ . Inflation compensation for the United Kingdom starts at about 2-1/3 percent, and, with some volatility, rises to about 3 percent by mid-2004, declines to about 2½ percent by early 2005, and then rises to nearly 3 percent by the end of the period.

Inflation Compensation, 10-Year for Japan. Although the dates on the chart are set for 2003 through early 2007, the data actually begin in early 2004, because Japan first issued an inflation-linked bond in March 2004. The range of the y-axis is  $[0, 3\frac{1}{2}]$ . Inflation compensation for Japan starts at about 1/3 percent, and, with some volatility, rises immediately to about 7/8 percent, stays at about that rate through early 2005, falls to about ½ percent by mid-2005, rises to about 1 percent by early 2006, and falls to about ½ percent by the end of the period.

Inflation Compensation, 10-Year for Canada\*\* for 2003 through early 2007. The range of the y-axis is  $[0, 3\frac{1}{2}]$ . Inflation compensation for Canada starts at about 2¼ percent, and, with some volatility, rises to nearly 3 percent by mid-2006, and then falls to about 2½ percent by the end of the period.

\*\* Bond maturing in 2021. [Return to text](#)

## Bottom panels

### Policy Interest Rates

Policy Interest Rates for the euro-area refinancing rate and the U.S. federal funds rate for 2005-2006 (actual) and for 2007-early 2009 (forecast). The range of the y-axis is  $[0, 6]$ . The euro-area refinance rate starts at 2 percent, stays at that rate through 2005, rises to about 3¾ percent by late 2006, rises in early 2007 to 4 percent, and remains there through the end of the period. The U.S. federal funds rate starts at 2¼ percent, rises to 5¼ percent by mid-2006, and remains there through the end of the period.

Policy Interest Rates for the U.K. bank rate for 2005-2006 (actual) and for 2007-early 2009 (forecast). The range of the y-axis is  $[0, 6]$ . The U.K. bank rate starts at 4¾ percent, stays at that rate through mid-2005, declines to 4½ percent in mid-2005, stays there through mid-2006, then rises to 5¼ percent by late 2006, rises in early 2007 to 5½ percent, stays there through early 2008, declines

to 5¼ percent in early 2008, and remains there through the end of the period.

Policy Interest Rates for the Japanese call rate target for 2005-2006 (actual) and for 2007-early 2009 (forecast). The range of the y-axis is [0, 6]. The Japanese call rate target starts in early 2006 at 0 percent, rises to ¼ percent in mid-2006, stays at that rate until early 2007, rises in early 2007 to ½ percent, and then, in several small steps, rises to 1¼ percent by the end of the period.

Policy Interest Rates for the Canadian overnight rate target for 2005-2006 (actual) and for 2007-early 2009 (forecast). The range of the y-axis is [0, 6]. The Canadian overnight rate target starts at 2½ percent, stays at that rate until late 2005, rises to 4¼ percent by mid-2006, and remains there through the end of the period.

## **Exhibit 12**

### **Housing Sectors**

Exhibit 12 is comprised of four panels, including graphs on real house prices, Australia, and the United Kingdom, and a table on real GDP.

#### **Top panel**

##### **Real House Prices**

Real House Prices on a quarterly basis for the Netherlands, France, Canada, and Japan for 1992-2006. The range of the y-axis is [-10, 20]; unit is four-quarter percent change. Real house prices are defined as the house price index deflated by CPI. The house price index for France begins in 1996. The series for Japan is semi-annual. Real house prices for the Netherlands start at about 6 percent, rise to about 17 percent by 2000, decline to about 5 percent by mid-2001, and then slow to about 2 percent by the end of the period. Real house prices for France start at about -3 percent, rise to about 13 percent by early 2004, remain there until early 2006, and then decline to about 10 percent by the end of the period. Real house prices for Canada start at about -2 percent, rise to about 0 percent by early 1993, remain there until late 1994, fall to about -4 percent by early 1995, rise to about 0 percent by late 1997, fluctuate around 0 percent through mid-2001, rise to about 2 percent by mid-2005, rise sharply to about 12 percent by mid-2006, and decline to about 8 percent by the end of the period. Real house prices for Japan start at about -5 percent, fall to about -7 percent by mid-1992, rise to about -1 percent by early 1995, decline to about -7 percent by early 2004, and then rise to about -3 percent by the end of the period.

#### **Middle-left panel**

##### **Australia**

A line chart plots real house prices and residential investment for Australia on a quarterly basis for 1992-2006. The range of the right y-axis, which measures residential investment as percent of GDP, is [0, 10]. The range of the left y-axis, which measures real house prices as an index, 1992Q1=100, is [50, 250], ratio scale. Real house prices are defined as the house price index deflated by CPI. Real house prices start at 100, remain around 100 through 1996, then rise to about 180 by late 2003 and remain at about that level through the end of the period. Residential investment starts at about 5 percent, rises to about 7 percent by early 2004, and then declines to just above 6 percent by the end of the period.

#### **Middle-right panel**

##### **United Kingdom**

A line chart plots real house prices and residential investment for the United Kingdom on a quarterly basis for 1992-2006. The range of the right y-axis, which measures residential investment as percent of GDP, is [0, 10]. The range of the left y-axis, which measures real house prices as an index, 1992Q1=100, is [50, 250], ratio scale. Real house prices are defined as the house price index deflated by CPI. Real house prices start at 100, fall to about 90 by mid-1995, rise to about 210 by mid-2004, stay at about that level through late 2005, and then rise to about 230 by the end of the period. Residential investment starts at about 2¾ percent, fluctuates around 2¾ percent through 2001, and then rises to about 4 percent by the end of the period.

## Bottom panel

### Real GDP\*

(Percent change, annual rate\*\*)

		2006		2007p	2008p
		H1	H2e		
1.	<b>Total Foreign</b>	<b>4.4</b>	<b>3.4</b>	<b>3.4</b>	<b>3.5</b>
2.	<b>Industrial Countries</b>	<b>3.0</b>	<b>2.3</b>	<b>2.4</b>	<b>2.5</b>
<i>of which:</i>					
3.	Europe	3.4	2.8	2.3	2.1
4.	Japan	1.9	2.2	1.9	1.7
5.	Canada	2.9	2.0	2.6	2.9
6.	<b>Emerging Markets</b>	<b>6.4</b>	<b>5.0</b>	<b>4.8</b>	<b>4.9</b>
<i>of which:</i>					
7.	Emerging Asia	6.7	6.5	6.0	6.2
8.	Latin America	6.0	3.7	3.5	3.5
memo:	United States	4.1	2.3	2.3	2.5

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

\*\* Years are Q4/Q4; half years are Q2/Q4 or Q4/Q2. [Return to table](#)

## Exhibit 13

### U.S. External Sector

Exhibit 13 is comprised of three panels, including a graph on import prices, a table on U.S. real goods exports, and a graph on contributions to U.S. GDP growth by imports, exports, and net exports.

#### Top-left panel

##### Import Prices

Import Prices on a quarterly basis for core goods and for core goods and services for 2005-2006 (actual), and for 2007-2008 (forecast). The range of the y-axis is [-15, 15]; unit is percent change, annual rate. The import price of core goods and services starts at about 2½ percent, rises to about 11 percent by mid-2005, falls to about -1 percent by early 2006, rises to about 10 percent by mid-2006, falls to about -8 percent by late 2006, rises to about 2 percent by mid-2007, remains there through early 2008, and then eases to about 1 percent by the end of the period. The import price of core goods starts at about 5 percent, falls to about 0 percent by mid-2005, rises to nearly 4 percent by mid-2006, declines to about 2 percent by late 2006, and then declines further to about 1½ percent by the end of the period.

#### Top-right panel

##### U.S. Real Goods Exports\*

(Percent change)

		2006**
1.	<b>Total</b>	<b>10.5</b>
<i>selected contributions:</i>		
2.	Aircraft	1.1
3.	Machinery	2.3
4.	Semiconductors	1.3

\* Census data. [Return to text](#)

\*\* January-November at annual rate. [Return to table](#)

## Middle panel

### Contributions to U.S. GDP Growth

Contributions to U.S. GDP Growth of net exports as a line chart, and of exports and imports as a bar chart, for 2005:H1 through 2006:H2 (actual), and 2007:H1 through 2008:H2 (forecast). The range of the y-axis is [-1.5, 1.5]; unit is percentage points, annual rate. Approximate values for the eight periods are as follows:

Percentage points, annual rate\*

	2005		2006		2007		2008	
	H1	H2	H1	H2	H1	H2	H1	H2
Net exports	0.30	-0.60	0.20	0.50	-0.25	-0.25	-0.30	-0.25
Exports	0.70	0.60	1.10	0.80	0.60	0.50	0.50	0.60
Imports	-0.40	-1.20	-0.90	-0.30	-0.85	-0.75	-0.80	-0.85

\* Half years are Q2/Q4 or Q4/Q2. [Return to table](#)

## Exhibit 14 - Last Exhibit

### Top panel

#### ECONOMIC PROJECTIONS FOR 2007

	FOMC		Staff
	Range	Central Tendency	
Percentage change, Q4 to Q4			
<b>Nominal GDP</b>	<b>4¾ to 5½</b>	<b>5 to 5½</b>	<b>5.0</b>
July 2006	(4¾ to 6)	(5 to 5½)	(5.0)
<b>Real GDP</b>	<b>2¼ to 3¼</b>	<b>2½ to 3</b>	<b>2.3</b>
July 2006	(2½ to 3¼)	(3 to 3¼)	(2.7)
<b>Core PCE Prices</b>	<b>2 to 2¼</b>	<b>2 to 2¼</b>	<b>2.2</b>
July 2006	(2 to 2¼)	(2 to 2¼)	(2.2)
Average level, Q4, percent			
<b>Unemployment rate</b>	<b>4½ to 4¾</b>	<b>4½ to 4¾</b>	<b>4.8</b>
July 2006	(4¼ to 5¼)	(4¾ to 5)	(5.2)

Central tendencies calculated by dropping high and low three from ranges.

### Bottom panel

#### ECONOMIC PROJECTIONS FOR 2008

	FOMC		Staff
	Range	Central Tendency	
Percentage change, Q4 to Q4			
<b>Nominal GDP</b>	<b>4¾ to 5½</b>	<b>4¾ to 5¼</b>	<b>4.8</b>
<b>Real GDP</b>	<b>2½ to 3¼</b>	<b>2¾ to 3</b>	<b>2.5</b>
<b>Core PCE Prices</b>	<b>1½ to 2¼</b>	<b>1¾ to 2</b>	<b>2.0</b>
Average level, Q4, percent			

	FOMC		Staff
	Range	Central Tendency	
Unemployment rate	4½ to 5	4½ to 4¾	4.9

## Appendix 3: Materials used by Mr. Reinhart

### Material for FOMC Briefing on Monetary Policy Alternatives

Vincent Reinhart

January 31, 2007

### Class I FOMC - Restricted Controlled FR

#### Exhibit 1

Exhibit 1 includes charts and tables that provide information on policy expectations and interest rate developments over the intermeeting period.

#### Top-left panel

##### Estimated Expected Federal Funds Rate

A line chart displays the expected path of the federal funds rate derived from interest rate futures quotes as of the most recent date (January 30, 2007) and the date of the last FOMC meeting (December 11, 2006). The chart indicates that the expected path of policy has rotated up significantly over the intermeeting period. Currently, futures market participants anticipate only one quarter-point easing this year and a second easing sometime next year. Much of the change in the expected policy path over the intermeeting period occurred immediately following various economic releases.

Note. Estimates from federal funds and eurodollar futures, with an allowance for term premia and other adjustments.

#### Top-right panel

##### FRBNY Survey of Primary Dealers

- Dealers are unanimous in anticipating no change in policy rate at this meeting
- Nearly all dealers anticipate the funds rate at 5-1/4 percent through the May meeting
- Some anticipate a more upbeat assessment of the economic outlook
- Nearly unanimous in expecting no change in the assessment of risks

#### Bottom-left panel

##### Nominal and Inflation-Indexed Yields

A line chart displays the changes in the nominal and inflation-indexed Treasury yield curves over the intermeeting period. The nominal yield curve shifted up 20 to 30 basis points in roughly parallel fashion across maturities. The inflation-indexed yield curve shifted up as well, but not by quite as much as the nominal curve. As a consequence, inflation compensation--measured as the vertical difference between nominal yields and inflation-indexed yield curves--edged up a few basis points over the period.

#### Middle-right panel

##### Decomposition of Change in Ten-Year Yield

A bar chart parses the change in ten-year nominal yields over the intermeeting period into portions attributable to economic data releases, the December FOMC statement, the release of the December FOMC minutes, speeches by Federal Reserve officials, and a residual "other" category. This decomposition was produced by cumulating the changes in the ten-year yield over short time intervals following each type of event; unit is basis points. The results show that about half of the change in ten-year yields over the intermeeting period occurred immediately following economic data releases. Various FOMC communications including the December FOMC statement and

minutes as well as speeches by Federal Reserve officials had only a small net effect on yields over the period. All other changes in yields not directly attributable to economic releases or FOMC communications were grouped in the "other" category. This category accounted for about half of the net change in the ten-year yield over the period.

### **Bottom-right panel**

#### **Primary Dealer Expectations, 2007**

Q4/Q4, Percent

	FOMC Meeting	
	December	January
GDP Growth	2.5	2.6
Core PCE Inflation	2.3	2.1

### **Exhibit 2**

#### **Optimal Policy Under Alternative Inflation Goals**

Exhibit 2 includes six charts that summarize the results of optimal monetary policy simulations using the FRB/US model with an assumption that policymakers wish to minimize an objective function that includes squared deviations of output from potential, squared deviations of inflation from an inflation target, and squared values of changes in the target funds rate from one period to the next. This objective function is broadly consistent with the Federal Reserve's statutory objectives to pursue maximum sustainable employment and stable prices.

#### **1½ Percent Inflation Goal**

The left column of the exhibit displays three line charts showing simulation results for the federal funds rate, civilian unemployment rate, and core PCE inflation over the period from 2007 to 2012. These simulations assume that policymakers operate with a 1½ percent inflation goal. Each of these charts also displays the optimal policy simulations as of the time of the October and December FOMC meetings. In general, the evolution of these optimal policy simulations suggests the FOMC currently faces a more favorable policy outlook than at the last two meetings. Relative to the October and December simulations, the results suggest that the FOMC can run a somewhat firmer monetary policy that will be associated with both lower inflation and lower unemployment over much of the forecast period.

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

##### **Federal funds rate**

The chart shows that the optimal funds rate policy in this case would involve a tightening of monetary policy over the next year that would push the federal funds rate a little above 6 percent. Thereafter, the funds rate would gradually decline to about 3½ percent by the end of 2012.

#### **Middle-left panel**

##### **Civilian unemployment rate**

The chart shows that this funds rate path would be associated with a gradual rise in the unemployment rate from about 4½ percent currently to almost 5½ percent by early 2009. After 2009, the unemployment rate gradually edges lower to about 5¼ percent by 2012.

#### **Bottom-left panel**

##### **Core PCE inflation**

The chart shows that the path for core PCE inflation falls from about 2¼ percent currently to around 1¾ percent by the end of 2012.

#### **2 Percent Inflation Goal**

The right column of the exhibit displays the same basic set of charts shown in the left column but

assuming that policymakers operate with a 2 percent inflation goal. The general contour of the paths for all these variables are similar to those estimated at the time of the October and December FOMC meetings. However, the simulation results for the current meeting suggest that the FOMC can achieve both lower unemployment and lower inflation over much of the projection period than in the earlier simulation results.

**Top-right panel**  
**Federal funds rate**

The chart shows that in these simulations, the optimal path for the funds rate stays close to its current level of 5¼ percent through this year and into early 2008. Thereafter, the funds rate gradually falls to about 4 percent by the end of 2012.

**Middle-right panel**  
**Civilian unemployment rate**

The chart shows that the unemployment rate drifts up to about 5 percent by the end of 2008 and remains close to that level through the end of the projection period.

**Bottom-right panel**  
**Core PCE inflation**

The chart shows that core PCE inflation edges down to about 2 percent by mid-2009 and remains close to that level until the end of the projection period.

**Exhibit 3**  
**Policy Alternatives**

Exhibit 3 contains charts and bullet points that describe factors that the Committee might wish to consider in choosing between Alternative B (no change in the funds rate) and Alternative C (a quarter point tightening in the funds rate).

**Top-left panel**  
**Alternative C**

- 1.5 percent inflation goal.
- Concerned about cost pressures.
- Inflation expectations unchanged despite incoming data on prices.

**Top-right panel**  
**Alternative B**

- 2 percent inflation goal.
- Still concerned about housing and possible spillovers.
- Lower NAIRU.

**Middle panels**  
**Federal Funds Rate, Unemployment Rate, and Core PCE Prices**

Each of three line charts displays simulations from the FRB/US model: baseline; using a lower NAIRU; and "buoyant PCE", assuming that personal consumption expenditures are stronger than the staff anticipates.

Using a lower NAIRU, the fund rate can edge lower over the next two years with unemployment remaining below 5 percent and inflation gradually drifting lower toward 1½ percent. Even if the Committee was wary about inflation pressures, it might view financial markets as well positioned to provide restraint. Longer-term yields would likely backup appreciably on adverse news about inflation, providing necessary restraint and lessening the possibility that the FOMC would fall "behind the curve" in countering inflation.

If PCE is buoyant, these charts show that the FOMC would need to push the funds rate up to nearly 7



percent over the next two years to contain incipient inflation.

## Bottom-left panel

### Inflation Compensation\*

A line chart displays evidence of the third bullet point under Alternative C. Inflation compensation measures derived from the Treasury market, plotted as the solid line for the next five years\*\* and the dashed red line for the five-year, five-year-forward rate, each varied within a fairly wide range of nearly 40 basis points over recent months and rose a touch on net over the intermeeting period, perhaps undercutting some of the claim that longer-term inflation expectations are well anchored.

\* Estimates based on smoothed nominal and inflation-indexed Treasury yield curves. [Return to text](#)

\*\* Adjusted for the indexation-lag (carry) effect. [Return to text](#)

## Bottom-right panel

### Uncertainty Around Expected Policy Path

A line chart displays curves and confidence intervals. Actual and Greenbook assumptions begin in 2007:Q1 at about 5.25%, and remain at about that level through 2008:Q3. Expectations from forward contracts begin in 2007:Q1 at about 5.25%, decline to about 4.7% by 2008:Q4, then decline more gradually to about 4.5% by 2012:Q4. Market-based confidence intervals surrounding investors' expectations, derived from interest-rate caps and shown by a blue fan chart, are narrow in the near term but then widen markedly. By 2012:Q4, the 70 percent confidence interval widens to about 3.2% to 5.8%, and the 90 percent confidence interval widens to about 2.6% to 7.0%, consistent with the notion that market participants can envision a wide range of policy outcomes.

**Table 1:**  
**Alternative Language for the January FOMC Announcement**

Revised: January 29, 2007

[Note: In Appendix 3, Table 1, strong emphasis (bold) has been added to indicate red text in the original document.]

	December FOMC	Alternative A	Alternative B	Alternative C
<b>Policy Decision</b>	1. The Federal Open Market Committee decided today to keep its target for the federal funds rate at 5¼ percent.	The Federal Open Market Committee decided today to keep its target for the federal funds rate at 5¼ percent.	The Federal Open Market Committee decided today to keep its target for the federal funds rate at 5¼ percent.	The Federal Open Market Committee decided today to <b>raise</b> its target for the federal funds rate <b>by 25 basis points to 5½ percent.</b>
<b>Rationale</b>	2. Economic growth has slowed over the course of the year, partly reflecting a substantial cooling of the housing market. Although recent indicators have been mixed, the economy seems likely to expand at a moderate pace on balance over coming quarters.	The economy seems likely to <b>continue</b> to expand at a moderate pace on balance over coming quarters. <b>However, the substantial cooling of the housing market remains a drag on economic growth.</b>	<b>Recent indicators have suggested somewhat firmer economic growth, and some tentative signs of stabilization have appeared in the housing market.</b> Overall, the economy seems likely to expand at a moderate pace over coming quarters.	Economic growth <b>seems to be rebounding and some tentative signs of stabilization have appeared in the housing market.</b> <b>Going forward,</b> the economy seems likely to expand at a moderate pace over coming quarters.
	3. Readings on core inflation have been elevated, and the high level of resource utilization has the potential to sustain inflation pressures. However, inflation pressures seem likely to moderate over time, reflecting reduced impetus from energy prices, contained inflation expectations, and the cumulative effects of monetary policy actions and other factors restraining aggregate demand.	Readings on core inflation have <b>improved modestly in recent months, and</b> inflation pressures seem likely to moderate over time, <b>partly reflecting the recent decline in energy prices.</b>	Readings on core inflation have <b>improved modestly in recent months, and</b> inflation pressures seem likely to moderate over time. However, the high level of resource utilization has the potential to sustain inflation pressures.	Readings on core inflation have <b>improved modestly in recent months but remain</b> elevated. Inflation pressures seem likely to moderate over time, <b>but the extent and speed of that moderation remain uncertain.</b>
<b>Assessment of Risk</b>	4. Nonetheless, the Committee judges that some inflation risks remain. The extent and timing of any additional firming that may be	<b>In these circumstances, future policy adjustments</b> will depend on the evolution of the outlook for both inflation and economic	The Committee judges that some inflation risks remain. The extent and timing of any additional firming that may be needed to	The Committee judges that <b>inflation remains the predominant concern, and consequently that in the near</b>

**December FOMC**

needed to address these risks will depend on the evolution of the outlook for both inflation and economic growth, as implied by incoming information.

**Alternative A**

growth, as implied by incoming information.

**Alternative B**

address these risks will depend on the evolution of the outlook for both inflation and economic growth, as implied by incoming information.

**Alternative C**

**term policy firming is more likely than policy easing. Future policy adjustments** will depend on the evolution of the outlook for both inflation and economic growth, as implied by incoming information

## Appendix 4: Materials used by Mr. Reifschneider, Mr. Doyle, and Mr. Reinhart

Material for the **Staff Presentation on Producing and Publishing Economic Forecasts**

January 31, 2007

**CLASS I FOMC--RESTRICTED CONTROLLED (FR)**

### Exhibit 1

#### Should the Committee Change Its Current Practices for the Production and Publication of Forecast-Related Material?

##### Top panel

##### Key Issue

- The Federal Reserve regularly provides information on the outlook to the public.
- Effort undertaken with an eye towards advancing the goals of economic performance, public discourse, internal discourse, and efficient operations.
- But would changing your practices advance these goals further, or achieve a better trade-off?

##### Bottom panel

##### Three Questions

1. What production and publication options are open to the Committee?
2. What can we learn from the international experience?
3. What governance issues would alternative approaches raise?

### Exhibit 2

#### Production Options and Their Implications

##### Top panel

##### Three Basic Options

- Independent (each participant responsible for his or her own forecast)
- Centralized (FOMC or a subcommittee produces a single forecast)
- Coordinated (each participant produces own forecast but conditions on a common set of assumptions for factors such as oil prices and fiscal policy)

##### Bottom panel

##### Implications for Communications and Operational Costs

	<b>Independent Option</b>	<b>Coordinated Option</b>	<b>Centralized Option</b>
<i>Communications</i>			
Telling the central story	difficult to distill message from multiple forecasts	might be simplified a bit	relatively easy
Conveying diversity	naturally reveals diversity	obscures some sources of diversity	no diversity without additional comments
<i>Operational costs</i>			

	<b>Independent Option</b>	<b>Coordinated Option</b>	<b>Centralized Option</b>
Forecast production	relatively low cost	more costly	very costly if task not delegated
Forecast publication	may be burdensome	also may be burdensome	could be less costly, especially under delegation

### Exhibit 3

#### Top panel

##### Publication Options

- Release more information about individual forecasts?
- Provide more forecast details?
- Lengthen the forecast period?
- Publish information about the outlook more frequently?
- Publish fan charts and confidence intervals?

#### Bottom panel

##### Two Options for Setting the Federal Funds Rate

1. Condition the outlook on "appropriate" monetary policy
  - Publishing details about the "appropriate" funds rate path could facilitate telling a more informative story
  - Forecast might be mistaken as a promise
  - Release might generate public criticism and create political pressures
2. Condition the outlook on a flat funds rate or market expectations
  - Might mitigate some of the problems of the "appropriate" option
  - Would alter nature of the outlook and create communication challenges
  - Would require statement about desirability of the projection
  - Might require providing guidance about a more "appropriate" path

### Exhibit 4

#### The Experience of Foreign Central Banks with Published Forecasts

##### Top panel

Central Bank	Publication Choices			Factors			
	(A) Type of Forecast	(B) Dissent	(C) Int. Rate Forecast	(D) Size of Comm.	(E) Same Location	(F) Head Resp.	(G) External Members
1. Reserve Bank of New Zealand	Centralized	No	Appropriate	1	Yes	Yes	0
2. Swiss National Bank	Centralized	No	Specified	3	Yes	No	0
3. Bank of Canada	Centralized	No	Not Stated	6	Yes	Yes	0
4. Reserve Bank of Australia	Centralized	No	Specified	7	Yes**	No	6
5. Norges Bank	Centralized	No*	Appropriate	7	Yes**	No	5
6. Sveriges Riksbank	Centralized	Yes	Appropriate	6	Yes	No	0
7. Bank of England	Centralized	Yes	Specified	9	Yes	No	4
8. Bank of Japan	Coordinated	Yes	Specified	9	Yes	No	0

	Publication Choices				Factors		
	(A) Type of Forecast	(B) Dissent	(C) Int. Rate Forecast	(D) Size of Comm.	(E) Same Location	(F) Head Resp.	(G) External Members
Central Bank							
9. European Central Bank	Staff	No	Specified	18	No	No	0

\* Dissents at the Norges Bank are not released until 12 years after publication. [Return to table](#)

\*\* External members at the RBA and the Norges Bank are not full-time employees of the central bank and do not necessarily live in the same city. [Return to table](#)

## Bottom panel

### Consequences of Publishing a Forecast

- Publication is regarded as useful by central banks and observers:
  - Central banks have increased the amount of detail.
  - Observers agree that forecasts have improved communications and accountability.
- We have found very little econometric work on whether publishing forecasts has improved monetary policy communications or economic outcomes:
  - Publication has nearly always been part of a package.
  - Econometric evidence does not provide a basis for deciding to publish a forecast.

## Exhibit 5 (Last page)

### The Role of Economic Forecasts in the Policymaking Process

[decision tree]

[orange box with red text] One or many? 1 ([single forecast](#) or [individual forecasts](#))

[single forecast]

[box] Which one?

[box] Committee (1) [[Stop](#)]

[box] Chairman (2) [[Stop](#)]

[box] Staff (3) [[Stop](#)]

[individual forecasts]

[red box with red text] Conditioned on what? 2

[box] Common assumption

[box] Aggregated (4) [[Stop](#)]

[box] Disaggregated (5) [[Stop](#)]

[box] Appropriate policy

[box] Aggregated (4) [[Stop](#)]

[box] Disaggregated (5) [[Stop](#)]

1. [number in red text] Does the Committee want to produce a joint forecast or conduct a survey of individual forecasts? [Return to decision tree](#)
2. [number in red text] If the forecasts are done individually, should they be based on common assumptions about some key conditioning factors? [Return to decision tree](#)
3. Should the forecasts be accompanied by a minutes-style narrative description?
4. Should the Committee jointly agree on the minutes-style description or delegate the release of it to the Chairman or the staff?
5. How frequently should forecasts be made?
6. How many years should the forecast cover?
7. How many variables should be forecasted?
8. Should there be some attempt to convey formally the uncertainty surrounding the forecasts?

**Table 1:**

## Details on Publicly Available Central Bank Forecasts

	<b>New Zealand</b>	<b>Canada</b>	<b>United Kingdom</b>	<b>Sweden</b>	<b>Australia</b>	<b>Norway</b>	<b>ECB</b>	<b>Switzerland</b>	<b>Japan</b>
Forecast first published	June 1988	May 1995	February 1993	October 1993	January 1995	December 1994	December 2000	December 1999	October 2000
Whose Forecast?	Governor	Governing Council	Monetary Policy Committee	Executive Board	Entire Bank	Executive Board	Staff	Entire Bank	Policy Board
# of members	1	6	9	6	7	7	18	3	9
Where forecasts are published	Monetary Policy Statement	Monetary Policy Report and Monetary Policy Report Update	Inflation Report	Inflation Report	Statement on Monetary Policy	Inflation Report	ECB Staff Macroeconomic Projections and Eurosystem Staff Macroeconomic Projections	Monetary Policy Report (in Quarterly Bulletin)	Outlook for Economic Activity and Prices
How Dissent of Forecast is Noted			In Minutes	In Minutes		In Proceedings (only released after 12 years)			Range, central tendency, and median of Board members' forecasts. In minutes.
Other commentary at release	Press conference and presentation to Bank's Board	Press conference, testimony to Parliament after Full Report	Press conference, testimony to Parliament	Press conference; Semi-annual testimony to Rikstag	Semi-annual testimony to Parliament	Press conference	Press conference	Press conference (2/year)	Press conference
Timing of release relative to policy meeting	Day of policy announcement	Within 1 week after policy announcement	6 days after policy announcement	Day of policy announcement	Monday following Tuesday of policy announcement	Day of policy announcement	Day of policy announcement	Day of policy announcement	Day of policy announcement
When is forecast finalized	In practice about 2 week prior to publication	At policy meeting (Friday before announcement)	At policy meeting	About 1 week before publication	2 days before publication	About 5 days prior to publication	About 2 weeks before publication	About 2 weeks prior to policy meeting	At policy meeting
Forecasting process (for policy makers)	Staff presents initial forecast to Governor and advisers; Revises after receiving comments	Council writes down after receiving staff forecast	Iterative process between staff and MPC	Staff forecast presented to Executive Board for approval	Governor comments on Staff forecast; Governor presents to Policy Board	Staff presents initial forecast to Governor; Revises after receiving comments	Staff forecast; 2 members of Gov. Council have joint responsibility to oversee	Staff forecast with only limited input from Board	Board members write down after receiving staff forecast
Frequency of forecast	Quarterly	Full report semi-annually, updates in remaining quarters	Quarterly	3 times a year	Quarterly	3 times a year	Quarterly (Both Semi-annually)	Quarterly	Semi-annual
Frequency of variables forecast	Annual in tables, higher frequency in charts	Quarterly in near-term, annual for later years	Quarterly	Annual in tables, higher frequency in charts	No precise numbers	Annual in tables, higher frequency in charts	Annual	Quarterly in chart, no precise data for GDP	Annual (fiscal years)
Variables forecasted in tables or charts									
Inflation measures	CPI, underlying inflation, import and export prices,	CPI; CPI excl. 8 volatile components and indirect taxes; CPI	CPI (HICP)	CPI; CPI excl. interest and indirect taxes, import and domestic	No (A qualitative forecast is provided)	CPI excluding energy and real taxes, CPI, import prices,	Euro-area CPI (HICP)	CPI	CPI excluding fresh food, Domestic Corporate Goods

	<b>New Zealand</b>	<b>Canada</b>	<b>United Kingdom</b>	<b>Sweden</b>	<b>Australia</b>	<b>Norway</b>	<b>ECB</b>	<b>Switzerland</b>	<b>Japan</b>
	terms of trade, foreign inflation	excl. ind. taxes		prices, foreign		domestic prices, foreign CPI			inflation
GDP growth	Yes and its components	Yes, and its components	Yes	Yes, and its components	No	Yes and some components	Yes, and components	Yes	Yes
Output gap	Yes	No	No	No	No	Yes	No	No	No
Other	Many including: exchange rate, productivity, foreign GDP, current account balance, fiscal balance, labor market variables.	Foreign GDP, oil prices conditioned on futures markets	None	Productivity, labor market variables, fiscal balance, Foreign GDP, oil prices, exchange rate.	None	Exchange rate, employment growth, unemployment rate, wage growth, foreign GDP	None	Foreign GDP, oil prices	None
Conditioning assumption for interest rate	Published forecast	Not specified	Market expectations and constant path	Published forecast (as of Jan. 17)	Constant path	Published forecast	Market expectations	Constant path	Market expectations
How forecasts are presented	Tables; charts for inflation and GDP	GDP and inflation in tables and charts; rest only described in text	"Fan" charts, data provided 2 weeks after publication	"Fan" charts for inflation, tables and charts	Qualitative description with a few numbers for reference	"Fan" charts for key variables, table of means	Range of values in table	Chart for inflation; description of GDP; rest tables	Range and median of individual members' forecasts
Forecast horizon	3 years	2 to 3 years	3 years; 2 years conditioned on unchanged policy	3 to 4 years	2 years	3 to 4 years	Current year and next	3 years	Current and next fiscal year

How risks to forecast are expressed

Distribution measures	No	No	"Fan" charts, data provided 2 weeks after publication	"Fan" chart for inflation	No	"Fan" charts	Range	No	No
Alternative scenarios	Yes	No	No	No	No	No	No	No	No
Discussion of risks	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes

## Appendix 5: Materials used by Ms. Yellen

### Prototype for FOMC fan charts - 1/29/07

Four prototype fan charts. Each chart displays quarterly historical values, and annual forecasts and confidence intervals. Historical values are plotted as a curve. The central tendencies of the FOMC participants' mean forecasts are denoted by vertical thick intervals. Approximate 70 percent confidence intervals, which are based on historical forecast accuracy, are denoted by vertical thin intervals which extend above and below each thick interval. Within each chart, a shaded region fans out from the last historical value to the endpoints of each confidence interval.

### FOMC Economic Projections for 2007 and 2008

#### Top-left panel Real GDP

Prototype fan chart for real GDP (4-quarter percent change) shows historical values for 2005:Q1 through 2006:Q3, and forecasts and confidence intervals for 2007:Q4 and 2008:Q4.

**Top-right panel**  
**Unemployment rate**

Prototype fan chart for unemployment rate (percent) shows historical values for 2005:Q1 through 2006:Q4, and forecasts and confidence intervals for 2007:Q4 and 2008:Q4.

**Bottom-left panel**  
**Core PCE price index**

Prototype fan chart for core PCE price index (4-quarter percent change) shows historical values for 2005:Q1 through 2006:Q3, and forecasts and confidence intervals for 2007:Q4 and 2008:Q4.

**Bottom-right panel**  
**Federal funds rate**

Prototype fan chart for federal funds rate (percent) shows historical values for 2005:Q1 through 2006:Q4, and forecasts and confidence intervals for 2007:Q4 and 2008:Q4.

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