The Federal Reserve Board

Meeting of the Federal Open Market Committee
February 1-2, 2005 Presentation Materials -- Text Version

Presentation Materials (6.93 MB PDF)

Pages 137 to 177 of the Transcript

Appendix 1: Materials used by Messrs. Wilcox, Elmendorf, and Reinhart

Material for Board Staff Presentation on:
Considerations Pertaining to the Establishment of a Specific, Numerical, Price-Related Objective for Monetary Policy
Divisions of Research & Statistics and Monetary Affairs
February 1, 2005

RESTRICTED CONTROLLED (FR) CLASS I (FOMC)

Exhibit 1
A Specific, Numerical, Price-Related Objective for Monetary Policy?

Top panel
Inflation Rates

A time-series plot of three measures of inflation: the GDP chain price index, the PCE chain price index, and the CPI current methods index. All three indexes are shown in the form of four-quarter percent changes. The plot begins in 1950 and ends in 2004. The chart shows that the three series followed a similar pattern. All three show a burst of inflation in the early 1950s. Inflation was low and stable during the first half of the 1960s but then increased sharply and was very volatile through the early 1980s. Beginning in the early 1980s, inflation generally trended downward. From the early 1990s through the end of the sample period, inflation was low and stable by historical standards, fluctuating in the neighborhood of 2 percent.

Middle panel
Key characteristics of a specific, numerical, price-related objective:

- Numerical rather than qualitative;
- Stated in terms of a particular published index; and
- Either inflation control or price-level control.

Bottom panel
A premise of the paper:

- A price objective should be chosen to minimize the costs of deviations from price stability.
- The premise suggests that the objective should be defined with respect to the price index most closely related to such costs.

Exhibit 2
Potential Benefits and Costs of Adopting a Specific Price-Related Objective

Top panel
Potential Benefits:

- Could help preserve the present commitment to price stability.
- Could better anchor long-run inflation expectations and thereby reduce the volatility of both inflation and real activity.
- Could improve public understanding of monetary policy.
- Could help focus policy debates within the FOMC.

Middle panel
Potential Costs:

- Could mislead the public into believing that emphasis had shifted toward the price objective.
- Could cause the FOMC inadvertently to place more emphasis on the price objective.
- Could diminish the FOMC's credibility when inflation differed from the stated objective.
- Could constrain future actions of the FOMC in an unhelpful manner.

Bottom panel
Empirical Evidence:

- Little to no evidence regarding the likely influence on FOMC decision-making or the quality of communications with the public.
- Some hints from foreign experience that specific price objectives have helped anchor long-term inflation expectations.
- Disputed evidence that the reduced volatility of inflation and real output owes to improved conduct of U.S. monetary policy.
- Simulation-based evidence that better-anchored inflation expectations would reduce the volatility of inflation and real output.

Exhibit 3
Operational Issues Related to Specifying a Numerical Price-Related Objective

Top-left panel
A checklist for policymakers:

- Which price index?
- The inflation rate or the price level?
- What average rate?
- Point objective or range?

Top-right panel
For index, we favor consumer prices on the grounds of:

- Familiarity.
- Quality of measurement.

- Empirical result that inflation rates move together in the long run.

Middle panel
If an inflation objective, at what rate?

- Measurement bias: Nearly 1 percentage point for CPI; about ½ percentage point for PCE prices.
- Rationales for aiming for zero true inflation: Traditional costs of inflation.
- Rationales for aiming for positive true inflation: Downward nominal wage rigidity; zero lower bound on nominal interest rates.

Bottom panel
Effect of zero lower bound under an updated Taylor rule:

	Target PCE inflation rate (measured rate, with bias-adjusted rate in parentheses)		
	½ (0)	1½ (1)	2½ (2)
Fraction of time with funds rate at zero	.16	.10	.06
Standard deviation of output gap*	2.53	2.31	2.21
Standard deviation of unemployment rate*	1.40	1.27	1.22

* *measured in percentage points* Return to table

Exhibit 4
Accuracy in Achieving an Inflation Objective

Top panel
Imperfect controllability:

- Inflation is volatile, and monetary policy influences it only indirectly and with a lag.
- The FOMC could not hit a point objective precisely or guarantee a narrow range.

Middle panel
Percent of time that PCE inflation averaged over four quarters could be held within ± 1 percentage point of desired rate:

	Total	Core
Volatility of economic shocks matters:		
1. Drawn from 1968 to 2004 experience	59	64
2. Drawn from 1984 to 2004 experience	68	73
Expectations formation matters:		
3. VAR-based expectations with imperfect credibility	68	73
4. VAR-based expectations with perfect credibility	80	89

Bottom panel
Summary:

- The FOMC could likely keep four-quarter total PCE inflation within a ± 1-percentage-point band about 2/3 to 3/4 of the time.

Exhibit 5
Governance Issues Related to the Specification of Price Stability

A decision tree with five steps.

Step 1

[text box] Is an explicit numerical specification of price stability helpful? (YES or NO)

Step 2

NO	YES
[text box with **blue** border] Continue the status quo. At the margin, the FOMC could: • encourage participants to be more specific about preferences; • use the minutes, testimonies, and the MPR to provide additional guidance to the public. [Stop]	[text box] Should the objective be made public? (YES or NO)

Step 3

NO	YES
[text box with **red** border] Agreement on a private objective may facilitate internal communications, but • how can the FOMC justify keeping it secret? • how will the FOMC keep it secret? [Stop]	[text box] Should the objective be decided by the Congress (by amending the Federal Reserve Act) or by the FOMC? (CONGRESS or FOMC)

Step 4

FOMC	CONGRESS
[text box] How will the FOMC choose an inflation objective? (as a group decision or as individual decisions)	[text box with **red** border] Is the FOMC: • comfortable in seeking amendment to the FRA? • confident that the Congress would pick an appropriate inflation objective? And will this lead to the creation of a numerical objective for output growth or employment as well? [Stop]

Step 5

As a group decision	As individual decisions
[text box with **blue** border] As a group decision, similar to choosing a range for a monetary aggregate. [Stop]	[text box with **blue** border] As individual decisions, summarized by announcing the range and central tendency of participants' views. [Stop]

Exhibit 6
Key Questions for Today's Discussion

Top panel
How do you define price stability?

- Is it known by inference about behavior or by a numerical specification?
- If the latter,
  - What price index do you prefer?
  - Should the objective be stated in terms of a path for the price level or as the rate of inflation?
  - What are the desired point estimates or ranges for the inflation objective?

Bottom panel
What role should the price objective play in the Committee's policy process?

- Alternative I: Maintain the status quo
  - Perhaps provide more information to the public over time as to your attitudes toward prevailing and prospective inflation
- Alternative II: Vote formally on a numerical inflation goal
- Alternative III: Survey participants as to the appropriate inflation objective

Appendix 2: Materials used by Mr. Kos

Page 1

Top panel

Title: Current U.S. 3-Month Deposit Rates and Rates Implied by Traded Forward Rate Agreements
Series: LIBOR Fixed, 3-month forward, 6-month forward, and 9-month forward
Horizon: December 1, 2004 - January 31, 2005
Description: US forward rate agreements and LIBOR increased slightly.

Middle-left panel

Title: 2-Year Treasury Yield
Series: 2-Year Treasury Yield
Horizon: December 1, 2004 - January 31, 2005
Description: The 2-year Treasury yield has increased slightly.

Middle-right panel

Title: 10-Year Treasury Yield
Series: 10-Year Treasury Yield
Horizon: December 1, 2004 - January 31, 2005
Description: The 10-year Treasury yield has decreased slightly.

Bottom-left panel

Title: Yield Spread Between 2- and 10-Year Treasury Notes
Series: 2-year and 10-year Treasury Notes
Horizon: December 1, 2004 - January 31, 2005
Description: Treasury yield curve flattened.

Bottom-right panel

Title: Yield Spread Between 10- and 30-Year Treasury Notes
Series: 10-year and 30-year Treasury Notes
Horizon: December 1, 2004 - January 31, 2005
Description: Treasury yield curve flattened.

Page 2

Top-left panel

Title: 10-Year Swap Spread
Series: 10-Year Swap Spread
Horizon: June 30, 2004 - January 28, 2005
Description: 10-Year swap spread narrowed.

Top-right panel

Title: MBS Spreads
Series: Option-Adjusted Spread of 30-year MBS Index
Horizon: June 30, 2004 - January 28, 2005
Description: The MBS spread narrowed.

Source: Lehman Brothers

Middle-left panel

Title: Investment Grade Corporate Debt Spreads
Series: Investment grade corporate index option-adjusted spread
Horizon: June 30, 2004 - January 28, 2005
Description: Investment grade corporate debt spreads narrowed.

Source: Lehman Brothers

Middle-right panel

Title: High Yield and EMBI+ Spreads
Series: High yield bond index option-adjusted spread and EMBI+ spread
Horizon: June 30, 2004 - January 28, 2005

Description: EMBI+ and high yield bond indices declined.

Source: Merrill Lynch, JP Morgan

Bottom panel

Title: Implied Swaption Volatility
Series: 1-month volatility on 10-year swaption and 1-month volatility on 2-year swaption
Horizon: May 3, 1999 - January 28, 2005
Description: Implied swaption volatility has returned to its May 1999 levels.

Page 3

Top panel

Title: Euro-Area 3-Month Deposit Rates and Rated Implied by Traded Forward Rate Agreements
Series: LIBOR Fixed, 3-month forward, 6-month forward, and 9-month forward
Horizon: December 1, 2004 - January 31, 2005
Description: Euro-area rates have remained relatively constant.

Middle-left panel

Title: Euro-Dollar Currency Pair
Series: Dollar Euro
Horizon: December 1, 2004 - January 31, 2005
Description: The dollar appreciated against the Euro.

Middle-right panel

Title: Dollar-Yen Currency Pair
Series: Yen Dollar
Horizon: December 1, 2004 - January 31, 2005
Description: The dollar appreciated against the Yen.

Bottom-left panel

Title: Dollar-Yuan Exchange Value Implied by the NDF Market
Series: Dollar-Yuan 1-month NDF, 6-month NDF, and 12-month NDF
Horizon: July 1, 2004 - January 31, 2005
Description: Implied dollar-Yuan exchange rate declined in the 6-month and 12-month terms.

Bottom-right panel

Title: Foreign Exchange Reserves of China & Japan
Series: Japanese and Chinese reserves
Horizon: December 31, 2003 - December 31, 2004
Description: Japanese and Chinese reserves rose.

Page 4

Top-left panel

Title: Current Account Balances (CAB) at the Bank of Japan and the Overnight Call Rate
Series: CAB and Uncollateralized overnight call rate
Horizon: April 30, 1998 - December 31, 2004
Description: The CAB increased while the uncollateralized o/n call rate decreased.

Source: BoJ

Top-right panel

Title: Japanese Call Market Uncollateralized Amount Outstanding
Series: Yen holdings
Horizon: January 4, 1999 - January 28, 2005
Description: The uncollateralized yen outstanding declined.

Middle-left panel

Title: 1-month Rolling Average of the 3-month Bill Auction History
Series: Issue size and Bid-to-Cover ratio
Horizon: April 30, 2002 - January 19, 2005
Description: The issue size and the bid-to-cover ratio increased.

Source: Ministry of Finance

Middle-right panel

Title: BoJ Securities Holdings
Series: JGBs-outright, TB/FB-outright, Tegata bills*-outright, CP under repo, and JGS* under repo
Horizon: July 31, 1996 - December 31, 2004
Description: BoJ securities holdings increased.

* Source: BoJ
* Tegata Bills from financial institutions incl. bills utilizing corp debt obligations
* Japanese Government Securities (JGS): amount outstanding of JGBs, TBs, and FBs purchased from financial institutions Return to text

Bottom-left panel

Title: Bid-to-Cover on BoJ Outright Purchases of FB/TBs
Series: Bid-to-cover ratio
Horizon: April 8, 2004 - January 13, 2005
Description: The bid-to-cover ratio has declined.

Source: BoJ

Bottom-right panel

Title: Changes in the Japanese Government Bill Curve Since the Start of Quantitative Easing
Series: Japanese government bill curve for 3-month, 6-month, 12-month, and 2-year horizon
Horizon: 3/19/2001, 1/31/2004, and 1/31/2005
Description: The 3-month, 6-month, and 12-month value has decreased, while the 2-year value has increased.

Top panel

Title: Daily Intra-Day Standard Deviations of the Federal Funds Rate
Series: Annual average of daily values and annual medians of daily values
Horizon: 1987-2004
Description: The average and median have decreased.

Bottom panel

Title: Average Intraday Standard Deviation of Federal Funds Rates (Maintenance Period Averages)
Series: Standard deviation of federal funds rates
Horizon: January 21, 2004 - January 19, 2005
Description: The standard deviation has declined.

Appendix 3: Materials used by Messrs. Slifman and Struckmeyer, and Ms. Johnson

Material for **Staff Presentation on the Economic Outlook**
February 2, 2005

STRICTLY CONFIDENTIAL (FR) CLASS I-FOMC*
*Downgraded to Class II upon release of the February 2005 Monetary Policy Report.

Chart 1
Recent Indicators

Top-left panel
Private Payroll Employment

	Average monthly change, thousands
2002	-68
2003:H1	-34
2003:H2	33
2004:H1	218
2004:Q3	93
2004:Q4	181

Top-right panel
Manufacturing Industrial Production

	Percent change, a.r.
2002:Q1	2.78
2002:Q2	3.41
2002:Q3	2.18
2002:Q4	-3.19

	Percent change, a.r.
2003:Q1	-0.62
2003:Q2	-3.33
2003:Q3	3.92
2003:Q4	6.50
2004:Q1	5.63
2004:Q2	6.04
2004:Q3	4.02
2004:Q4	4.15

1972-2003 average: 2.80

Middle-left panel
Real PCE exc. Motor Vehicles*

	Percent change, a.r.
2002:Q1	4.07
2002:Q2	2.82
2002:Q3	1.41
2002:Q4	3.43
2003:Q1	3.17
2003:Q2	2.81
2003:Q3	4.55
2003:Q4	3.91
2004:Q1	4.78
2004:Q2	2.02
2004:Q3	3.92
2004:Q4	4.84

* In this and subsequent charts, NIPA series in 2004:Q4 are from the January Greenbook. Return to text

Middle-right panel
Sales of Light Vehicles

	Millions of units, a.r.
Jan 2002	16.22
Feb 2002	17.00
Mar 2002	16.78
Apr 2002	17.34
May 2002	15.84
Jun 2002	16.63
Jul 2002	17.83

	Millions of units, a.r.
Aug 2002	18.10
Sep 2002	16.32
Oct 2002	15.93
Nov 2002	16.20
Dec 2002	17.60
Jan 2003	16.42
Feb 2003	15.84
Mar 2003	16.21
Apr 2003	16.43
May 2003	16.15
Jun 2003	16.69
Jul 2003	16.78
Aug 2003	17.93
Sep 2003	16.95
Oct 2003	16.14
Nov 2003	17.20
Dec 2003	16.99
Jan 2004	16.30
Feb 2004	16.63
Mar 2004	16.84
Apr 2004	16.49
May 2004	17.76
Jun 2004	15.76
Jul 2004	16.87
Aug 2004	16.71
Sep 2004	17.43
Oct 2004	16.9
Nov 2004	16.3
Dec 2004	18.3

Bottom-left panel

Title: Orders and Shipments of Nondefense Capital Goods (excluding aircraft)
Series: Orders and Shipments
Horizon: 2002 to 2004
Description: The data are plotted on two curves and represent the three-month moving average. Units are billions of dollars.

The curve for shipments starts in 2002:Q1 at about 53, followed by an increase to just above 53. The curve then dips to about 53 through 2002:Q2 and increases to just above 53 in 2002:Q3. The curve

decreases to about 52 by 2003:Q2, after which it moves generally upward until reaching about 63 in December 2004.

The curve for orders starts at nearly 53 in 2002:Q1; it decreases to about 52 in 2002:Q2, increases to just below 53 through 2002:Q3, and dips to about 51 by year-end. In 2003:Q1, the curve increases to just above 53, then continues upward to about 58 by year-end. The curve decreases to about 57 in 2004:Q1; it then climbs to about 61 in 2004:Q2, dips to a little under 61 in 2004:Q3, increases to a little above 63 in the middle of 2004:Q4, then decreases to end at about 63 in December 2004.

An inset box shows the December percent change at 2.2 percent for shipments and 1.8 percent for orders.

Bottom-right panel
Real GDP

Percent change, a.r.

		2004:Q4	
		Jan. GB	BEA
1.	Real GDP	3.5	3.1
Contributions (percentage points)			
2.	Final sales	2.7	2.7
3.	Inventories	.8	.4

Chart 2
Overview

Top panel
Key Background Factors

- **Monetary policy:** We assume a continuing withdrawal of monetary accommodation over the next two years. The federal funds rate reaches 3 percent in the fourth quarter of this year and 3-½ percent in the latter part of 2006 -- a path quite similar to that implied by futures quotes.
- **Fiscal policy:** FI is expected to be neutral in 2005 and provide only a small positive impetus to GDP growth in 2006.
- **Oil prices:** We continue to be guided in our forecast by futures markets, which expect prices to drift down over the next two years.
- **Dollar:** The foreign exchange value of the dollar is expected to drift down.
- **Stock market:** Prices are assumed to rise 6-½ percent per year, which would roughly maintain risk-adjusted parity with the yield on long-term bonds.
- **House prices:** The rate of increase is expected to slow from last year's torrid pace.

Bottom panel
Real Gross Domestic Product

Percent change, Q4/Q4

2004 **2005** **2006**

		2004	2005	2006
1.	GDP	3.8	3.9	3.6
	Contribution from:	*Percentage points*		
2.	Private consumption and fixed investment	4.1	3.4	3.5
3.	Imports	-1.4	-.8	-1.2
4.	Exports	.5	.9	.7
5.	Government	.2	.6	.5
6.	Inventory investment	.4	-.2	.1

Chart 3
What Keeps Growth Above Potential Through 2006?

Top panel

- **Monetary policy:** The real fed funds rate is projected to still be below its long-run average over the projection period and on the stimulative side of the short-run measures of r-star shown in the Bluebook.
- **Other financial market conditions:**
  - Nominal long-term rates are projected to be little changed, despite the assumed rise in short-term rates.
  - Corporate balance sheets are quite strong: Cash is abundant and interest expenses relative to cash flow are at low levels.
  - Defaults, delinquencies and risk spreads are quite low.
  - Banks continue to ease lending standards.
- **Oil prices:** Higher oil prices reduced GDP growth ¾ percentage point in 2004. The negative effects wane to -¼ percentage point in 2005 as oil prices begin to recede; the projected decline in prices boosts GDP growth slightly in 2006.

Middle-left panel
Real Federal Funds Rate*_

	Percent	Forecast
1990:Q1	4.44	ND
1990:Q2	3.95	ND
1990:Q3	3.63	ND
1990:Q4	3.35	ND
1991:Q1	2.08	ND
1991:Q2	2.09	ND
1991:Q3	1.92	ND
1991:Q4	1.00	ND
1992:Q1	0.38	ND
1992:Q2	0.19	ND

	Percent	Forecast
1992:Q3	-0.07	ND
1992:Q4	-0.04	ND
1993:Q1	0.34	ND
1993:Q2	0.26	ND
1993:Q3	0.56	ND
1993:Q4	0.70	ND
1994:Q1	1.01	ND
1994:Q2	1.82	ND
1994:Q3	2.03	ND
1994:Q4	2.71	ND
1995:Q1	3.34	ND
1995:Q2	3.67	ND
1995:Q3	3.74	ND
1995:Q4	3.66	ND
1996:Q1	3.35	ND
1996:Q2	3.37	ND
1996:Q3	3.52	ND
1996:Q4	3.44	ND
1997:Q1	3.52	ND
1997:Q2	3.75	ND
1997:Q3	3.96	ND
1997:Q4	4.15	ND
1998:Q1	4.19	ND
1998:Q2	4.34	ND
1998:Q3	4.22	ND
1998:Q4	3.43	ND
1999:Q1	3.35	ND
1999:Q2	3.22	ND
1999:Q3	3.58	ND
1999:Q4	3.76	ND
2000:Q1	3.82	ND
2000:Q2	4.53	ND
2000:Q3	4.90	ND
2000:Q4	4.94	ND
2001:Q1	3.97	ND
2001:Q2	2.51	ND
2001:Q3	1.54	ND

	Percent	Forecast
2001:Q4	-0.09	ND
2002:Q1	-0.09	ND
2002:Q2	-0.05	ND
2002:Q3	-0.19	ND
2002:Q4	-0.07	ND
2003:Q1	-0.33	ND
2003:Q2	-0.12	ND
2003:Q3	-0.09	ND
2003:Q4	-0.21	ND
2004:Q1	-0.37	ND
2004:Q2	-0.50	ND
2004:Q3	-0.07	ND
2004:Q4	0.44	ND
2005:Q1	ND	1.06
2005:Q2	ND	1.42
2005:Q3	ND	1.23
2005:Q4	ND	1.44
2006:Q1	ND	1.69
2006:Q2	ND	1.75
2006:Q3	ND	2.06
2006:Q4	ND	2.10

40-year average: 2.60

* Nominal federal funds rate less the percent change in the core PCE price index over the previous four quarters. Return to text

Middle-right panel

Title: Interest Expense to Cash Flow
Series: Interest expense to cash flow
Horizon: 1990 to 2006
Description: Data are plotted as a curve. Unit is percent. A forecast is provided for 2005 and 2006.

The curve begins in 1990 at about 20.75, dips to about 20 by the end of the year, increases to about 20.75 in early 1991 and then falls to about 17 by year-end. It then decreases to about 13 in 1992 and increases to about 13.5 in 1993. The curve decreases to about 11 in 1994, increases to just above 12 in 1995, then drops to about 10 in 1996 and 1997. The curve then continues generally upward to about 17 by 2002, after which it generally decreases through 2004 to end at about 11.

The curve then shows a forecast from 2005 through 2006, where it increases to about 12.

Source: Flow of Funds.

Bottom-left panel
Bank Lending Standards for C&I Loans

	Net percent*
1990:Q2	56.90
1990:Q3	39.45
1990:Q4	48.90
1991:Q1	36.00
1991:Q2	15.50
1991:Q3	12.25
1991:Q4	9.00
1992:Q1	5.25
1992:Q2	0.90
1992:Q3	-1.70
1992:Q4	4.35
1993:Q1	2.65
1993:Q2	-7.85
1993:Q3	-19.45
1993:Q4	-17.75
1994:Q1	-12.95
1994:Q2	-12.20
1994:Q3	-6.95
1994:Q4	-17.40
1995:Q1	-6.85
1995:Q2	-5.90
1995:Q3	-6.05
1995:Q4	-3.45
1996:Q1	6.95
1996:Q2	-0.90
1996:Q3	-3.70
1996:Q4	-7.80
1997:Q1	-5.45
1997:Q2	-6.95
1997:Q3	-5.70
1997:Q4	-7.00
1998:Q1	1.80
1998:Q2	-7.10
1998:Q3	0.00
1998:Q4	36.40
1999:Q1	7.40
1999:Q2	10.00

	Net percent*
1999:Q3	5.40
1999:Q4	9.10
2000:Q1	10.90
2000:Q2	24.60
2000:Q3	33.90
2000:Q4	43.80
2001:Q1	59.70
2001:Q2	50.90
2001:Q3	40.40
2001:Q4	50.90
2002:Q1	45.40
2002:Q2	25.00
2002:Q3	21.40
2002:Q4	20.00
2003:Q1	22.00
2003:Q2	8.90
2003:Q3	3.50
2003:Q4	0.00
2004:Q1	-17.90
2004:Q2	-23.20
2004:Q3	-20.00
2004:Q4	-21.10
2005:Q1	-23.60

* Percentage of banks reporting tighter standards less percentage of banks reporting easier standards. Return to table

Source: Sr. Loan Officer Survey.

Bottom-right panel
Crude Oil Prices - WTI

Quarterly average

	Dollars per barrel	Forecast
2003:Q4	31.14	ND
2004:Q1	35.35	ND
2004:Q2	38.31	ND
2004:Q3	43.91	ND
2004:Q4	48.31	ND
2005:Q1	ND	47.87
2005:Q2	ND	48.33

	Dollars per barrel	Forecast
2005:Q3	ND	47.26
2005:Q4	ND	46.26
2006:Q1	ND	45.31
2006:Q2	ND	44.48
2006:Q3	ND	43.80
2006:Q4	ND	43.19

Chart 4
Household Sector

Top-left panel
Real PCE and DPI

Percent change, Q4/Q4

	DPI	PCE	DPI Forecast	PCE Forecast
2003	3.9	3.8	ND	ND
2004*	2.6	3.9	ND	ND
2005	ND	ND	4.5	3.8
2006	ND	ND	4.7	3.7

* Excluding Microsoft dividend in 2004:Q4. Return to table

Top-right panel
Financial Obligations Ratio

	Percent of DPI	Forecast
1980:Q1	15.79	ND
1980:Q2	15.91	ND
1980:Q3	15.61	ND
1980:Q4	15.26	ND
1981:Q1	15.34	ND
1981:Q2	15.52	ND
1981:Q3	15.35	ND
1981:Q4	15.45	ND
1982:Q1	15.56	ND
1982:Q2	15.61	ND
1982:Q3	15.53	ND
1982:Q4	15.53	ND
1983:Q1	15.49	ND

	Percent of DPI	Forecast
1983:Q2	15.49	ND
1983:Q3	15.47	ND
1983:Q4	15.49	ND
1984:Q1	15.44	ND
1984:Q2	15.54	ND
1984:Q3	15.64	ND
1984:Q4	15.84	ND
1985:Q1	16.24	ND
1985:Q2	16.33	ND
1985:Q3	16.83	ND
1985:Q4	16.99	ND
1986:Q1	16.99	ND
1986:Q2	17.14	ND
1986:Q3	17.33	ND
1986:Q4	17.56	ND
1987:Q1	17.47	ND
1987:Q2	17.72	ND
1987:Q3	17.54	ND
1987:Q4	17.35	ND
1988:Q1	17.25	ND
1988:Q2	17.20	ND
1988:Q3	17.13	ND
1988:Q4	16.98	ND
1989:Q1	16.88	ND
1989:Q2	17.09	ND
1989:Q3	17.21	ND
1989:Q4	17.25	ND
1990:Q1	17.17	ND
1990:Q2	17.17	ND
1990:Q3	17.19	ND
1990:Q4	17.26	ND
1991:Q1	17.26	ND
1991:Q2	17.13	ND
1991:Q3	17.05	ND
1991:Q4	16.86	ND
1992:Q1	16.57	ND
1992:Q2	16.43	ND

	Percent of DPI	Forecast
1992:Q3	16.28	ND
1992:Q4	16.05	ND
1993:Q1	16.36	ND
1993:Q2	16.11	ND
1993:Q3	16.21	ND
1993:Q4	16.09	ND
1994:Q1	16.39	ND
1994:Q2	16.35	ND
1994:Q3	16.46	ND
1994:Q4	16.53	ND
1995:Q1	16.76	ND
1995:Q2	17.01	ND
1995:Q3	17.15	ND
1995:Q4	17.24	ND
1996:Q1	17.23	ND
1996:Q2	17.24	ND
1996:Q3	17.31	ND
1996:Q4	17.40	ND
1997:Q1	17.37	ND
1997:Q2	17.42	ND
1997:Q3	17.43	ND
1997:Q4	17.35	ND
1998:Q1	17.15	ND
1998:Q2	17.16	ND
1998:Q3	17.13	ND
1998:Q4	17.18	ND
1999:Q1	17.30	ND
1999:Q2	17.48	ND
1999:Q3	17.61	ND
1999:Q4	17.53	ND
2000:Q1	17.34	ND
2000:Q2	17.47	ND
2000:Q3	17.59	ND
2000:Q4	17.87	ND
2001:Q1	17.93	ND
2001:Q2	18.18	ND
2001:Q3	17.98	ND

	Percent of DPI	Forecast
2001:Q4	18.48	ND
2002:Q1	18.22	ND
2002:Q2	18.22	ND
2002:Q3	18.37	ND
2002:Q4	18.40	ND
2003:Q1	18.38	ND
2003:Q2	18.23	ND
2003:Q3	18.05	ND
2003:Q4	18.06	ND
2004:Q1	18.27	ND
2004:Q2	18.17	ND
2004:Q3	18.31	ND
2004:Q4	18.11	ND
2005:Q1	ND	18.27
2005:Q2	ND	18.27
2005:Q3	ND	18.26
2005:Q4	ND	18.24
2006:Q1	ND	18.19
2006:Q2	ND	18.17
2006:Q3	ND	18.15
2006:Q4	ND	18.13

Middle-left panel
Household Net Worth to DPI

	Ratio	Forecast	Real estate slump scenario
1975:Q1	4.23	ND	ND
1975:Q2	4.20	ND	ND
1975:Q3	4.14	ND	ND
1975:Q4	4.16	ND	ND
1976:Q1	4.22	ND	ND
1976:Q2	4.29	ND	ND
1976:Q3	4.26	ND	ND
1976:Q4	4.29	ND	ND
1977:Q1	4.27	ND	ND
1977:Q2	4.29	ND	ND
1977:Q3	4.25	ND	ND
1977:Q4	4.19	ND	ND

	Ratio	Forecast	Real estate slump scenario
1978:Q1	4.19	ND	ND
1978:Q2	4.22	ND	ND
1978:Q3	4.27	ND	ND
1978:Q4	4.25	ND	ND
1979:Q1	4.30	ND	ND
1979:Q2	4.37	ND	ND
1979:Q3	4.40	ND	ND
1979:Q4	4.38	ND	ND
1980:Q1	4.31	ND	ND
1980:Q2	4.47	ND	ND
1980:Q3	4.51	ND	ND
1980:Q4	4.45	ND	ND
1981:Q1	4.44	ND	ND
1981:Q2	4.48	ND	ND
1981:Q3	4.32	ND	ND
1981:Q4	4.36	ND	ND
1982:Q1	4.35	ND	ND
1982:Q2	4.33	ND	ND
1982:Q3	4.34	ND	ND
1982:Q4	4.40	ND	ND
1983:Q1	4.47	ND	ND
1983:Q2	4.52	ND	ND
1983:Q3	4.44	ND	ND
1983:Q4	4.33	ND	ND
1984:Q1	4.25	ND	ND
1984:Q2	4.20	ND	ND
1984:Q3	4.21	ND	ND
1984:Q4	4.22	ND	ND
1985:Q1	4.32	ND	ND
1985:Q2	4.31	ND	ND
1985:Q3	4.35	ND	ND
1985:Q4	4.46	ND	ND
1986:Q1	4.54	ND	ND
1986:Q2	4.61	ND	ND
1986:Q3	4.57	ND	ND
1986:Q4	4.68	ND	ND
1987:Q1	4.82	ND	ND

	Ratio	Forecast	Real estate slump scenario
1987:Q2	4.93	ND	ND
1987:Q3	4.91	ND	ND
1987:Q4	4.67	ND	ND
1988:Q1	4.70	ND	ND
1988:Q2	4.73	ND	ND
1988:Q3	4.69	ND	ND
1988:Q4	4.71	ND	ND
1989:Q1	4.70	ND	ND
1989:Q2	4.77	ND	ND
1989:Q3	4.86	ND	ND
1989:Q4	4.85	ND	ND
1990:Q1	4.73	ND	ND
1990:Q2	4.73	ND	ND
1990:Q3	4.58	ND	ND
1990:Q4	4.65	ND	ND
1991:Q1	4.77	ND	ND
1991:Q2	4.72	ND	ND
1991:Q3	4.74	ND	ND
1991:Q4	4.80	ND	ND
1992:Q1	4.70	ND	ND
1992:Q2	4.65	ND	ND
1992:Q3	4.65	ND	ND
1992:Q4	4.68	ND	ND
1993:Q1	4.80	ND	ND
1993:Q2	4.75	ND	ND
1993:Q3	4.81	ND	ND
1993:Q4	4.79	ND	ND
1994:Q1	4.79	ND	ND
1994:Q2	4.71	ND	ND
1994:Q3	4.72	ND	ND
1994:Q4	4.66	ND	ND
1995:Q1	4.73	ND	ND
1995:Q2	4.85	ND	ND
1995:Q3	4.96	ND	ND
1995:Q4	5.03	ND	ND
1996:Q1	5.06	ND	ND
1996:Q2	5.09	ND	ND

	Ratio	Forecast	Real estate slump scenario
1996:Q3	5.09	ND	ND
1996:Q4	5.20	ND	ND
1997:Q1	5.16	ND	ND
1997:Q2	5.41	ND	ND
1997:Q3	5.53	ND	ND
1997:Q4	5.54	ND	ND
1998:Q1	5.72	ND	ND
1998:Q2	5.73	ND	ND
1998:Q3	5.43	ND	ND
1998:Q4	5.74	ND	ND
1999:Q1	5.79	ND	ND
1999:Q2	5.94	ND	ND
1999:Q3	5.80	ND	ND
1999:Q4	6.19	ND	ND
2000:Q1	6.14	ND	ND
2000:Q2	6.02	ND	ND
2000:Q3	5.95	ND	ND
2000:Q4	5.75	ND	ND
2001:Q1	5.47	ND	ND
2001:Q2	5.61	ND	ND
2001:Q3	5.21	ND	ND
2001:Q4	5.48	ND	ND
2002:Q1	5.38	ND	ND
2002:Q2	5.14	ND	ND
2002:Q3	4.94	ND	ND
2002:Q4	5.04	ND	ND
2003:Q1	4.97	ND	ND
2003:Q2	5.14	ND	ND
2003:Q3	5.14	ND	ND
2003:Q4	5.37	ND	ND
2004:Q1	5.37	ND	ND
2004:Q2	5.39	ND	ND
2004:Q3	5.42	ND	ND
2004:Q4	ND	5.49	5.49
2005:Q1	ND	5.48	5.43
2005:Q2	ND	5.48	5.38
2005:Q3	ND	5.46	5.33

	Ratio	Forecast	Real estate slump scenario
2005:Q4	ND	5.44	5.27
2006:Q1	ND	5.41	5.20
2006:Q2	ND	5.40	5.15
2006:Q3	ND	5.38	5.10
2006:Q4	ND	5.37	5.05

Middle-right panel
House Prices*

	Four-quarter percent change	Forecast	Real estate slump scenario
1976:Q1	4.17	ND	ND
1976:Q2	5.61	ND	ND
1976:Q3	7.45	ND	ND
1976:Q4	7.49	ND	ND
1977:Q1	9.03	ND	ND
1977:Q2	9.90	ND	ND
1977:Q3	11.62	ND	ND
1977:Q4	13.22	ND	ND
1978:Q1	13.40	ND	ND
1978:Q2	13.05	ND	ND
1978:Q3	13.52	ND	ND
1978:Q4	13.27	ND	ND
1979:Q1	14.91	ND	ND
1979:Q2	14.05	ND	ND
1979:Q3	13.14	ND	ND
1979:Q4	12.02	ND	ND
1980:Q1	9.16	ND	ND
1980:Q2	7.43	ND	ND
1980:Q3	8.52	ND	ND
1980:Q4	6.94	ND	ND
1981:Q1	5.87	ND	ND
1981:Q2	6.63	ND	ND
1981:Q3	4.67	ND	ND
1981:Q4	4.37	ND	ND
1982:Q1	4.85	ND	ND
1982:Q2	3.46	ND	ND
1982:Q3	1.61	ND	ND
1982:Q4	2.21	ND	ND

	Four-quarter percent change	Forecast	Real estate slump scenario
1983:Q1	2.75	ND	ND
1983:Q2	3.39	ND	ND
1983:Q3	4.62	ND	ND
1983:Q4	4.25	ND	ND
1984:Q1	3.89	ND	ND
1984:Q2	4.43	ND	ND
1984:Q3	4.76	ND	ND
1984:Q4	5.36	ND	ND
1985:Q1	5.29	ND	ND
1985:Q2	5.35	ND	ND
1985:Q3	6.25	ND	ND
1985:Q4	6.67	ND	ND
1986:Q1	7.18	ND	ND
1986:Q2	7.71	ND	ND
1986:Q3	7.80	ND	ND
1986:Q4	8.27	ND	ND
1987:Q1	8.53	ND	ND
1987:Q2	8.18	ND	ND
1987:Q3	7.88	ND	ND
1987:Q4	6.87	ND	ND
1988:Q1	6.43	ND	ND
1988:Q2	6.68	ND	ND
1988:Q3	6.03	ND	ND
1988:Q4	6.19	ND	ND
1989:Q1	5.73	ND	ND
1989:Q2	4.89	ND	ND
1989:Q3	6.15	ND	ND
1989:Q4	6.02	ND	ND
1990:Q1	5.05	ND	ND
1990:Q2	3.59	ND	ND
1990:Q3	1.63	ND	ND
1990:Q4	0.20	ND	ND
1991:Q1	0.54	ND	ND
1991:Q2	1.02	ND	ND
1991:Q3	0.69	ND	ND
1991:Q4	2.53	ND	ND
1992:Q1	2.45	ND	ND

	Four-quarter percent change	Forecast	Real estate slump scenario
1992:Q2	1.78	ND	ND
1992:Q3	2.80	ND	ND
1992:Q4	1.85	ND	ND
1993:Q1	1.01	ND	ND
1993:Q2	2.08	ND	ND
1993:Q3	1.67	ND	ND
1993:Q4	2.02	ND	ND
1994:Q1	2.66	ND	ND
1994:Q2	2.13	ND	ND
1994:Q3	1.78	ND	ND
1994:Q4	0.76	ND	ND
1995:Q1	0.67	ND	ND
1995:Q2	2.09	ND	ND
1995:Q3	3.42	ND	ND
1995:Q4	4.50	ND	ND
1996:Q1	5.38	ND	ND
1996:Q2	3.68	ND	ND
1996:Q3	2.49	ND	ND
1996:Q4	2.58	ND	ND
1997:Q1	2.26	ND	ND
1997:Q2	3.00	ND	ND
1997:Q3	4.14	ND	ND
1997:Q4	4.59	ND	ND
1998:Q1	5.23	ND	ND
1998:Q2	5.21	ND	ND
1998:Q3	5.10	ND	ND
1998:Q4	4.98	ND	ND
1999:Q1	4.49	ND	ND
1999:Q2	5.07	ND	ND
1999:Q3	5.31	ND	ND
1999:Q4	5.26	ND	ND
2000:Q1	6.33	ND	ND
2000:Q2	6.71	ND	ND
2000:Q3	7.09	ND	ND
2000:Q4	7.61	ND	ND
2001:Q1	8.12	ND	ND
2001:Q2	8.22	ND	ND

	Four-quarter percent change	Forecast	Real estate slump scenario
2001:Q3	7.92	ND	ND
2001:Q4	7.54	ND	ND
2002:Q1	6.62	ND	ND
2002:Q2	6.71	ND	ND
2002:Q3	7.24	ND	ND
2002:Q4	7.58	ND	ND
2003:Q1	7.23	ND	ND
2003:Q2	6.54	ND	ND
2003:Q3	6.03	ND	ND
2003:Q4	8.24	ND	ND
2004:Q1	8.41	ND	ND
2004:Q2	9.81	ND	ND
2004:Q3	12.97	ND	ND
2004:Q4	ND	10.95	10.95
2005:Q1	ND	11.21	8.10
2005:Q2	ND	10.00	4.00
2005:Q3	ND	6.46	-2.10
2005:Q4	ND	5.55	-5.60
2006:Q1	ND	4.71	-6.30
2006:Q2	ND	4.12	-6.90
2006:Q3	ND	3.67	-7.30
2006:Q4	ND	3.42	-7.50

* OFHEO Repeat Sales Price Index. Return to text

Bottom-left panel
Single-family Housing Starts

	Millions of units, a.r.	Forecast
1975:Q1	0.73	ND
1975:Q2	0.85	ND
1975:Q3	0.95	ND
1975:Q4	1.03	ND
1976:Q1	1.14	ND
1976:Q2	1.10	ND
1976:Q3	1.18	ND
1976:Q4	1.25	ND
1977:Q1	1.36	ND
1977:Q2	1.43	ND

	Millions of units, a.r.	Forecast
1977:Q3	1.46	ND
1977:Q4	1.51	ND
1978:Q1	1.31	ND
1978:Q2	1.49	ND
1978:Q3	1.42	ND
1978:Q4	1.46	ND
1979:Q1	1.16	ND
1979:Q2	1.29	ND
1979:Q3	1.20	ND
1979:Q4	1.03	ND
1980:Q1	0.79	ND
1980:Q2	0.69	ND
1980:Q3	0.96	ND
1980:Q4	0.98	ND
1981:Q1	0.87	ND
1981:Q2	0.79	ND
1981:Q3	0.65	ND
1981:Q4	0.54	ND
1982:Q1	0.57	ND
1982:Q2	0.60	ND
1982:Q3	0.66	ND
1982:Q4	0.82	ND
1983:Q1	1.03	ND
1983:Q2	1.09	ND
1983:Q3	1.09	ND
1983:Q4	1.05	ND
1984:Q1	1.22	ND
1984:Q2	1.10	ND
1984:Q3	1.00	ND
1984:Q4	1.07	ND
1985:Q1	1.06	ND
1985:Q2	1.05	ND
1985:Q3	1.06	ND
1985:Q4	1.11	ND
1986:Q1	1.20	ND
1986:Q2	1.22	ND
1986:Q3	1.16	ND

	Millions of units, a.r.	Forecast
1986:Q4	1.16	ND
1987:Q1	1.24	ND
1987:Q2	1.14	ND
1987:Q3	1.16	ND
1987:Q4	1.08	ND
1988:Q1	1.06	ND
1988:Q2	1.07	ND
1988:Q3	1.07	ND
1988:Q4	1.14	ND
1989:Q1	1.04	ND
1989:Q2	1.00	ND
1989:Q3	1.00	ND
1989:Q4	0.99	ND
1990:Q1	1.06	ND
1990:Q2	0.90	ND
1990:Q3	0.86	ND
1990:Q4	0.79	ND
1991:Q1	0.70	ND
1991:Q2	0.84	ND
1991:Q3	0.88	ND
1991:Q4	0.91	ND
1992:Q1	1.04	ND
1992:Q2	0.99	ND
1992:Q3	1.02	ND
1992:Q4	1.08	ND
1993:Q1	1.04	ND
1993:Q2	1.11	ND
1993:Q3	1.13	ND
1993:Q4	1.25	ND
1994:Q1	1.19	ND
1994:Q2	1.21	ND
1994:Q3	1.19	ND
1994:Q4	1.16	ND
1995:Q1	1.04	ND
1995:Q2	1.02	ND
1995:Q3	1.12	ND
1995:Q4	1.14	ND

	Millions of units, a.r.	Forecast
1996:Q1	1.15	ND
1996:Q2	1.19	ND
1996:Q3	1.18	ND
1996:Q4	1.10	ND
1997:Q1	1.14	ND
1997:Q2	1.12	ND
1997:Q3	1.15	ND
1997:Q4	1.14	ND
1998:Q1	1.23	ND
1998:Q2	1.24	ND
1998:Q3	1.28	ND
1998:Q4	1.36	ND
1999:Q1	1.34	ND
1999:Q2	1.27	ND
1999:Q3	1.29	ND
1999:Q4	1.34	ND
2000:Q1	1.28	ND
2000:Q2	1.24	ND
2000:Q3	1.19	ND
2000:Q4	1.22	ND
2001:Q1	1.26	ND
2001:Q2	1.30	ND
2001:Q3	1.28	ND
2001:Q4	1.26	ND
2002:Q1	1.36	ND
2002:Q2	1.34	ND
2002:Q3	1.34	ND
2002:Q4	1.41	ND
2003:Q1	1.41	ND
2003:Q2	1.42	ND
2003:Q3	1.52	ND
2003:Q4	1.66	ND
2004:Q1	1.57	ND
2004:Q2	1.60	ND
2004:Q3	1.63	ND
2004:Q4	ND	1.61
2005:Q1	ND	1.62

	Millions of units, a.r.	Forecast
2005:Q2	ND	1.61
2005:Q3	ND	1.60
2005:Q4	ND	1.60
2006:Q1	ND	1.60
2006:Q2	ND	1.59
2006:Q3	ND	1.59
2006:Q4	ND	1.59

Bottom-right panel

Title: Weighted Average Mortgage Rate (weighted average of a 30-year fixed-rate mortgage and a 1-year adjustable-rate mortgage)
Series: Weighted average mortgage rate
Horizon: 1975 to 2006
Description: Data are plotted as a curve. Unit is percent. A forecast is provided for 2005 and 2006.

The curve begins in 1975 at about 9. It then generally rises to about 18 in 1981. The curve then fluctuates generally downward through 2004 to end at about 5.

The forecast starts in 2005 at about 5. The curve then rises to a little above 5 by year-end 2006.

Chart 5
Business Sector

Top-left panel
Equipment and Software exc. Transportation

Percent change, a.r.

	High-tech	Other	High-tech Forecast	Other Forecast
1993-2004	17.2	4.4	ND	ND
2004	15.4	10.9	ND	ND
2005	ND	ND	12.7	1.2
2006	ND	ND	17.2	4.6

Top-right panel
Capacity Utilization Rate

Manufacturing

	Percent	Forecast
1972:Q1	81.80	ND
1972:Q2	82.86	ND
1972:Q3	83.42	ND
1972:Q4	85.71	ND

	Percent	Forecast
1973:Q1	87.65	ND
1973:Q2	87.54	ND
1973:Q3	87.32	ND
1973:Q4	88.08	ND
1974:Q1	86.55	ND
1974:Q2	85.73	ND
1974:Q3	84.73	ND
1974:Q4	80.51	ND
1975:Q1	73.25	ND
1975:Q2	71.54	ND
1975:Q3	73.53	ND
1975:Q4	74.95	ND
1976:Q1	76.88	ND
1976:Q2	77.64	ND
1976:Q3	78.20	ND
1976:Q4	78.93	ND
1977:Q1	80.34	ND
1977:Q2	82.46	ND
1977:Q3	82.96	ND
1977:Q4	83.20	ND
1978:Q1	82.54	ND
1978:Q2	84.50	ND
1978:Q3	84.67	ND
1978:Q4	85.78	ND
1979:Q1	85.43	ND
1979:Q2	84.55	ND
1979:Q3	83.70	ND
1979:Q4	83.06	ND
1980:Q1	82.65	ND
1980:Q2	77.93	ND
1980:Q3	75.84	ND
1980:Q4	78.58	ND
1981:Q1	78.10	ND
1981:Q2	78.11	ND
1981:Q3	77.55	ND
1981:Q4	75.01	ND
1982:Q1	72.81	ND

	Percent	Forecast
1982:Q2	71.98	ND
1982:Q3	70.85	ND
1982:Q4	68.99	ND
1983:Q1	70.26	ND
1983:Q2	72.19	ND
1983:Q3	74.71	ND
1983:Q4	76.72	ND
1984:Q1	78.75	ND
1984:Q2	79.49	ND
1984:Q3	79.69	ND
1984:Q4	79.64	ND
1985:Q1	79.03	ND
1985:Q2	78.64	ND
1985:Q3	78.12	ND
1985:Q4	78.15	ND
1986:Q1	78.66	ND
1986:Q2	78.29	ND
1986:Q3	78.43	ND
1986:Q4	78.98	ND
1987:Q1	79.67	ND
1987:Q2	80.47	ND
1987:Q3	81.35	ND
1987:Q4	83.16	ND
1988:Q1	83.40	ND
1988:Q2	84.09	ND
1988:Q3	84.19	ND
1988:Q4	84.90	ND
1989:Q1	84.83	ND
1989:Q2	83.59	ND
1989:Q3	82.37	ND
1989:Q4	81.94	ND
1990:Q1	82.21	ND
1990:Q2	82.19	ND
1990:Q3	81.81	ND
1990:Q4	80.01	ND
1991:Q1	77.80	ND
1991:Q2	77.87	ND

	Percent	Forecast
1991:Q3	78.90	ND
1991:Q4	78.83	ND
1992:Q1	78.60	ND
1992:Q2	79.60	ND
1992:Q3	79.78	ND
1992:Q4	79.77	ND
1993:Q1	80.20	ND
1993:Q2	80.09	ND
1993:Q3	79.93	ND
1993:Q4	80.83	ND
1994:Q1	81.27	ND
1994:Q2	82.44	ND
1994:Q3	82.84	ND
1994:Q4	83.84	ND
1995:Q1	83.94	ND
1995:Q2	82.87	ND
1995:Q3	82.30	ND
1995:Q4	81.95	ND
1996:Q1	80.80	ND
1996:Q2	81.35	ND
1996:Q3	81.66	ND
1996:Q4	81.78	ND
1997:Q1	82.49	ND
1997:Q2	82.49	ND
1997:Q3	82.87	ND
1997:Q4	83.23	ND
1998:Q1	82.79	ND
1998:Q2	81.95	ND
1998:Q3	81.23	ND
1998:Q4	81.26	ND
1999:Q1	81.06	ND
1999:Q2	80.96	ND
1999:Q3	80.80	ND
1999:Q4	81.47	ND
2000:Q1	81.42	ND
2000:Q2	81.71	ND
2000:Q3	80.36	ND

	Percent	Forecast
2000:Q4	78.76	ND
2001:Q1	76.53	ND
2001:Q2	75.04	ND
2001:Q3	73.65	ND
2001:Q4	72.65	ND
2002:Q1	73.00	ND
2002:Q2	73.59	ND
2002:Q3	74.04	ND
2002:Q4	73.54	ND
2003:Q1	73.52	ND
2003:Q2	72.97	ND
2003:Q3	73.68	ND
2003:Q4	74.76	ND
2004:Q1	75.62	ND
2004:Q2	76.51	ND
2004:Q3	77.03	ND
2004:Q4	77.57	ND
2005:Q1	ND	78.41
2005:Q2	ND	78.81
2005:Q3	ND	79.42
2005:Q4	ND	80.08
2006:Q1	ND	80.69
2006:Q2	ND	81.11
2006:Q3	ND	81.45
2006:Q4	ND	81.78

1972-2003 average: 79.90

Middle-left panel

Title: Rate of Return on Capital for Nonfinancial Corporate Business (nonfinancial corporate profits with IVA and CADJ plus interest, divided by nonfinancial stock of fixed assets)
Series: Rate of return on capital for nonfinancial corporate business
Horizon: 1972 to 2006
Description: Data are plotted as a curve. Unit is percent. A forecast is provided for 2004:Q4 through 2006.

The curve starts in 1972 at about 6. It increases to about 7 in 1973, drops to about 4 in 1974, and rises to about 6 in 1975. It then fluctuates from that point between a bit below 5 and about 6.5 through 1978. The curve decreases to about 3.25 in 1980, increases to about 4.75 in 1981, then decreases to about 3.25 by 1983. The curve increases to about 5.75 in 1984, then moves generally downward to about 4 by 1987. The curve increases to reach about 5.75 in early 1989, then fluctuates

downward through 1992 to about 4. The curve fluctuates in an upward trend to about 8 by 1998, then decreases to about 3.25 by 2002. It then increases, reaching nearly 7 by the beginning of the forecast period in 2004:Q4. The curve then decreases through 2006 to end at about 6.

Middle-right panel
Reserve Bank Queries on Capital Spending Plans

(Percent)

	Jan 2004	Jan 2005
Plan to increase spending over next 6 to 12 months	51.7	47.3
*Reasons cited for increase:**		
Expected sales growth	53.6	47.7
Replace IT equip.	41.1	39.9
Replace other equip.	42.3	41.5

* Percent of respondents planning to increase spending. Return to table

Bottom-left panel
Equipment and Software

Percent change, Q4/Q4

	GB Baseline	No pothole scenario	GB Forecast	No pothole Forecast
2004	12.78	12.78	ND	ND
2005	ND	ND	6.61	13.13
2006	ND	ND	9.82	12.67

Bottom-right panel

Title: Price Index for Desktop Computers
Series: Production process improvements and Technological improvements
Horizon: 1994 to 2004
Description: Data are plotted as three stacked bars. Unit is percent change, annual rate. Note that the percent changes for the first three quarters of 2004 are calculated from the latest data available. A horizontal line is drawn at zero. The top part of each bar denotes production process improvements, and the bottom part of each bar denotes technological improvements. The bars for each period show the following:

1994-2002: The bar for production process improvements is from 0 to about negative 5, and the bar for technological improvements is from about negative 5 to about negative 35.

2003: The bar for production process improvements is from 0 to about negative 6, and the bar for technological improvements is from about negative 6 to about negative 30.

2004, first three quarters (latest data available): The bar for production process improvements is from 0 to about negative 10, and the bar for technological improvements is from about negative 10 to about negative 18.

Source: Staff estimates.

Chart 6
Labor Markets

Top-left panel
Nonfarm Payroll Employment

	Avg. monthly change, thousands	Forecast
2000:H1	263.50	ND
2000:H2	79.11	ND
2001:H1	-18.44	ND
2001:H2	-212.61	ND
2002:H1	-87.06	ND
2002:H2	-23.50	ND
2003:H1	-61.67	ND
2003:H2	20.72	ND
2004:H1	187.11	ND
2004:H2	165.17	ND
2005:H1	ND	217.77
2005:H2	ND	238.63
2006:H1	ND	213.23
2006:H2	ND	198.11

Top-right panel
Structural Labor Productivity

Percent change, Q4/Q4

	Structural MFP	Capital deepening	Structural MFP Forecast	Capital deepening Forecast
2000	1.00	1.40	ND	ND
2001	2.20	1.10	ND	ND
2002	2.40	0.60	ND	ND
2003	2.80	0.60	ND	ND
2004	2.00	0.80	ND	ND
2005	ND	ND	1.60	0.90
2006	ND	ND	1.50	0.90

Middle-left panel
Labor Productivity

Chained (2000) dollars per hour

	Actual	Forecast
2000:Q1	38.37	ND
2000:Q2	39.08	ND

	Actual	Forecast
2000:Q3	38.98	ND
2000:Q4	39.35	ND
2001:Q1	39.32	ND
2001:Q2	39.86	ND
2001:Q3	39.99	ND
2001:Q4	40.63	ND
2002:Q1	41.31	ND
2002:Q2	41.44	ND
2002:Q3	41.88	ND
2002:Q4	42.05	ND
2003:Q1	42.45	ND
2003:Q2	43.13	ND
2003:Q3	44.07	ND
2003:Q4	44.45	ND
2004:Q1	44.82	ND
2004:Q2	45.26	ND
2004:Q3	45.45	ND
2004:Q4	ND	45.69
2005:Q1	ND	45.87
2005:Q2	ND	46.07
2005:Q3	ND	46.27
2005:Q4	ND	46.46
2006:Q1	ND	46.68
2006:Q2	ND	46.93
2006:Q3	ND	47.19
2006:Q4	ND	47.46

Middle-right panel
Labor Force Participation Rate

Percent

	Actual	Trend	Actual Forecast	Trend Forecast
1980:Q1	64.21	63.59	ND	ND
1980:Q2	64.08	63.67	ND	ND
1980:Q3	64.03	63.75	ND	ND
1980:Q4	64.00	63.83	ND	ND
1981:Q1	64.28	63.91	ND	ND
1981:Q2	64.41	63.99	ND	ND

	Actual	Trend	Actual Forecast	Trend Forecast
1981:Q3	64.01	64.08	ND	ND
1981:Q4	64.11	64.16	ND	ND
1982:Q1	64.11	64.24	ND	ND
1982:Q2	64.35	64.32	ND	ND
1982:Q3	64.41	64.40	ND	ND
1982:Q4	64.47	64.48	ND	ND
1983:Q1	64.12	64.56	ND	ND
1983:Q2	64.26	64.65	ND	ND
1983:Q3	64.62	64.73	ND	ND
1983:Q4	64.47	64.81	ND	ND
1984:Q1	64.41	64.89	ND	ND
1984:Q2	64.83	64.97	ND	ND
1984:Q3	64.84	65.05	ND	ND
1984:Q4	64.89	65.13	ND	ND
1985:Q1	65.15	65.22	ND	ND
1985:Q2	65.12	65.30	ND	ND
1985:Q3	65.14	65.38	ND	ND
1985:Q4	65.35	65.46	ND	ND
1986:Q1	65.43	65.54	ND	ND
1986:Q2	65.65	65.62	ND	ND
1986:Q3	65.79	65.70	ND	ND
1986:Q4	65.81	65.79	ND	ND
1987:Q1	65.85	65.87	ND	ND
1987:Q2	65.99	65.95	ND	ND
1987:Q3	66.04	66.03	ND	ND
1987:Q4	66.17	66.11	ND	ND
1988:Q1	66.22	66.19	ND	ND
1988:Q2	66.21	66.27	ND	ND
1988:Q3	66.41	66.36	ND	ND
1988:Q4	66.58	66.44	ND	ND
1989:Q1	66.81	66.52	ND	ND
1989:Q2	66.90	66.60	ND	ND
1989:Q3	66.94	66.60	ND	ND
1989:Q4	67.02	66.60	ND	ND
1990:Q1	67.03	66.60	ND	ND
1990:Q2	66.85	66.60	ND	ND
1990:Q3	66.78	66.60	ND	ND

	Actual	Trend	Actual Forecast	Trend Forecast
1990:Q4	66.70	66.60	ND	ND
1991:Q1	66.56	66.60	ND	ND
1991:Q2	66.57	66.60	ND	ND
1991:Q3	66.38	66.60	ND	ND
1991:Q4	66.38	66.60	ND	ND
1992:Q1	66.59	66.60	ND	ND
1992:Q2	66.84	66.60	ND	ND
1992:Q3	66.88	66.60	ND	ND
1992:Q4	66.56	66.60	ND	ND
1993:Q1	66.46	66.60	ND	ND
1993:Q2	66.61	66.60	ND	ND
1993:Q3	66.61	66.60	ND	ND
1993:Q4	66.58	66.60	ND	ND
1994:Q1	66.41	66.60	ND	ND
1994:Q2	66.31	66.60	ND	ND
1994:Q3	66.36	66.60	ND	ND
1994:Q4	66.55	66.60	ND	ND
1995:Q1	66.56	66.60	ND	ND
1995:Q2	66.44	66.60	ND	ND
1995:Q3	66.42	66.60	ND	ND
1995:Q4	66.33	66.60	ND	ND
1996:Q1	66.33	66.60	ND	ND
1996:Q2	66.50	66.60	ND	ND
1996:Q3	66.65	66.60	ND	ND
1996:Q4	66.80	66.60	ND	ND
1997:Q1	66.83	66.60	ND	ND
1997:Q2	66.89	66.60	ND	ND
1997:Q3	66.92	66.60	ND	ND
1997:Q4	66.86	66.60	ND	ND
1998:Q1	66.98	66.60	ND	ND
1998:Q2	66.90	66.60	ND	ND
1998:Q3	66.94	66.60	ND	ND
1998:Q4	67.04	66.60	ND	ND
1999:Q1	67.08	66.60	ND	ND
1999:Q2	67.01	66.60	ND	ND
1999:Q3	66.99	66.60	ND	ND
1999:Q4	67.03	66.60	ND	ND

	Actual	Trend	Actual Forecast	Trend Forecast
2000:Q1	67.29	66.60	ND	ND
2000:Q2	67.17	66.60	ND	ND
2000:Q3	66.89	66.60	ND	ND
2000:Q4	66.92	66.60	ND	ND
2001:Q1	67.15	66.60	ND	ND
2001:Q2	66.76	66.60	ND	ND
2001:Q3	66.65	66.60	ND	ND
2001:Q4	66.70	66.60	ND	ND
2002:Q1	66.58	66.60	ND	ND
2002:Q2	66.64	66.60	ND	ND
2002:Q3	66.56	66.60	ND	ND
2002:Q4	66.36	66.60	ND	ND
2003:Q1	66.28	66.60	ND	ND
2003:Q2	66.37	66.60	ND	ND
2003:Q3	66.06	66.60	ND	ND
2003:Q4	65.99	66.60	ND	ND
2004:Q1	65.98	66.60	ND	ND
2004:Q2	65.92	66.60	ND	ND
2004:Q3	65.93	66.60	ND	ND
2004:Q4	ND	ND	66.01	66.60
2005:Q1	ND	ND	66.08	66.58
2005:Q2	ND	ND	66.16	66.57
2005:Q3	ND	ND	66.23	66.55
2005:Q4	ND	ND	66.30	66.53
2006:Q1	ND	ND	66.35	66.52
2006:Q2	ND	ND	66.38	66.50
2006:Q3	ND	ND	66.39	66.48
2006:Q4	ND	ND	66.39	66.47

Trend rate of change 1980:Q1-1989:Q2: 0.5%, 1989:Q2-2004:Q3: 0%, 2004:Q3-2006:Q4: -0.1%.

Bottom-left panel
Unemployment Rate

	Percent	Forecast
2000:Q1	4.00	ND
2000:Q2	3.90	ND
2000:Q3	4.00	ND
2000:Q4	3.90	ND

	Percent	Forecast
2001:Q1	4.20	ND
2001:Q2	4.40	ND
2001:Q3	4.80	ND
2001:Q4	5.50	ND
2002:Q1	5.70	ND
2002:Q2	5.80	ND
2002:Q3	5.70	ND
2002:Q4	5.90	ND
2003:Q1	5.80	ND
2003:Q2	6.10	ND
2003:Q3	6.10	ND
2003:Q4	5.90	ND
2004:Q1	5.60	ND
2004:Q2	5.60	ND
2004:Q3	5.50	ND
2004:Q4	5.43	ND
2005:Q1	ND	5.39
2005:Q2	ND	5.35
2005:Q3	ND	5.32
2005:Q4	ND	5.29
2006:Q1	ND	5.26
2006:Q2	ND	5.23
2006:Q3	ND	5.19
2006:Q4	ND	5.15

Bottom-right panel
Employment-Population Ratio

	Percent	Forecast
2000:Q1	64.57	ND
2000:Q2	64.52	ND
2000:Q3	64.20	ND
2000:Q4	64.31	ND
2001:Q1	64.32	ND
2001:Q2	63.84	ND
2001:Q3	63.47	ND
2001:Q4	63.03	ND
2002:Q1	62.81	ND

	Percent	Forecast
2002:Q2	62.78	ND
2002:Q3	62.80	ND
2002:Q4	62.52	ND
2003:Q1	62.43	ND
2003:Q2	62.35	ND
2003:Q3	62.11	ND
2003:Q4	62.22	ND
2004:Q1	62.25	ND
2004:Q2	62.29	ND
2004:Q3	62.41	ND
2004:Q4	62.42	ND
2005:Q1	ND	62.52
2005:Q2	ND	62.62
2005:Q3	ND	62.71
2005:Q4	ND	62.79
2006:Q1	ND	62.85
2006:Q2	ND	62.90
2006:Q3	ND	62.95
2006:Q4	ND	62.98

Chart 7
Compensation

Top panel
Hourly Labor Compensation

Four-quarter percent change

	Employment cost index	P&C compensation per hour	Employment cost index Forecast	P&C compensation per hour Forecast
1997:Q1	2.89	2.77	ND	ND
1997:Q2	2.87	2.56	ND	ND
1997:Q3	3.00	2.82	ND	ND
1997:Q4	3.44	4.16	ND	ND
1998:Q1	3.42	5.40	ND	ND
1998:Q2	3.54	6.16	ND	ND
1998:Q3	3.74	6.72	ND	ND
1998:Q4	3.40	5.47	ND	ND

	Employment cost index	P&C compensation per hour	Employment cost index Forecast	P&C compensation per hour Forecast
1999:Q1	3.01	5.46	ND	ND
1999:Q2	3.20	4.29	ND	ND
1999:Q3	3.17	3.65	ND	ND
1999:Q4	3.51	5.19	ND	ND
2000:Q1	4.56	6.88	ND	ND
2000:Q2	4.59	6.85	ND	ND
2000:Q3	4.68	7.99	ND	ND
2000:Q4	4.42	6.42	ND	ND
2001:Q1	4.16	4.54	ND	ND
2001:Q2	4.05	4.83	ND	ND
2001:Q3	3.94	3.33	ND	ND
2001:Q4	4.17	3.53	ND	ND
2002:Q1	3.99	3.26	ND	ND
2002:Q2	4.09	3.53	ND	ND
2002:Q3	3.73	3.37	ND	ND
2002:Q4	3.43	2.84	ND	ND
2003:Q1	3.90	2.81	ND	ND
2003:Q2	3.68	3.41	ND	ND
2003:Q3	4.15	4.57	ND	ND
2003:Q4	4.12	5.39	ND	ND
2004:Q1	3.82	4.57	ND	ND
2004:Q2	3.97	4.55	ND	ND
2004:Q3	3.75	3.94	ND	ND
2004:Q4	ND	ND	3.99	3.96
2005:Q1	ND	ND	3.98	4.39
2005:Q2	ND	ND	4.03	4.02
2005:Q3	ND	ND	4.22	4.19
2005:Q4	ND	ND	4.25	4.17
2006:Q1	ND	ND	4.22	4.27
2006:Q2	ND	ND	4.20	4.23
2006:Q3	ND	ND	4.18	4.20
2006:Q4	ND	ND	4.15	4.17

[inset box] 2004:Q4

(Percent change, a.r.)

	Predicted	Actual
ECI	4.1	3.0

	Predicted	Actual
CPH	4.4	3.6*

* Staff estimate. Return to table

Middle-left panel
Inflation Expectations

Percent

	Michigan SRC One year ahead, median
Jan 2000	3.00
Feb 2000	2.90
Mar 2000	3.20
Apr 2000	3.20
May 2000	3.00
Jun 2000	2.90
Jul 2000	3.00
Aug 2000	2.70
Sep 2000	2.90
Oct 2000	3.20
Nov 2000	2.90
Dec 2000	2.80
Jan 2001	3.00
Feb 2001	2.80
Mar 2001	2.80
Apr 2001	3.10
May 2001	3.20
Jun 2001	3.00
Jul 2001	2.60
Aug 2001	2.70
Sep 2001	2.80
Oct 2001	1.00
Nov 2001	0.40
Dec 2001	1.80
Jan 2002	1.90
Feb 2002	2.10
Mar 2002	2.70
Apr 2002	2.80
May 2002	2.70
Jun 2002	2.70

	Michigan SRC One year ahead, median
Jul 2002	2.60
Aug 2002	2.60
Sep 2002	2.50
Oct 2002	2.50
Nov 2002	2.40
Dec 2002	2.50
Jan 2003	2.50
Feb 2003	2.70
Mar 2003	3.10
Apr 2003	2.40
May 2003	2.00
Jun 2003	2.10
Jul 2003	1.70
Aug 2003	2.50
Sep 2003	2.80
Oct 2003	2.60
Nov 2003	2.70
Dec 2003	2.60
Jan 2004	2.70
Feb 2004	2.60
Mar 2004	2.90
Apr 2004	3.20
May 2004	3.30
Jun 2004	3.30
Jul 2004	3.00
Aug 2004	2.80
Sep 2004	2.80
Oct 2004	3.10
Nov 2004	2.80
Dec 2004	3.00
Jan 2005	2.90

Percent

	FRB Philadelphia One-year ahead
2000:Q1	2.46
2000:Q2	2.61
2000:Q3	2.71

	FRB Philadelphia One-year ahead
2000:Q4	2.67
2001:Q1	2.49
2001:Q2	2.51
2001:Q3	2.60
2001:Q4	2.15
2002:Q1	2.20
2002:Q2	2.35
2002:Q3	2.29
2002:Q4	2.19
2003:Q1	2.12
2003:Q2	2.09
2003:Q3	1.82
2003:Q4	2.12
2004:Q1	1.63
2004:Q2	2.13
2004:Q3	2.30
2004:Q4	2.26

Middle-right panel
Unemployment Gap

As shown in the chart, NAIRU remained constant at 5.00 percent.

Percent

	Unemployment rate	Forecast
2001:Q1	4.20	ND
2001:Q2	4.40	ND
2001:Q3	4.80	ND
2001:Q4	5.50	ND
2002:Q1	5.70	ND
2002:Q2	5.80	ND
2002:Q3	5.70	ND
2002:Q4	5.90	ND
2003:Q1	5.80	ND
2003:Q2	6.10	ND
2003:Q3	6.10	ND
2003:Q4	5.90	ND
2004:Q1	5.60	ND
2004:Q2	5.60	ND

	Unemployment rate	Forecast
2004:Q3	5.50	ND
2004:Q4	5.43	ND
2005:Q1	ND	5.39
2005:Q2	ND	5.35
2005:Q3	ND	5.32
2005:Q4	ND	5.29
2006:Q1	ND	5.26
2006:Q2	ND	5.23
2006:Q3	ND	5.19
2006:Q4	ND	5.15

Bottom-left panel
ECI Wages and Salaries

	Percent Change, Q4/Q4	Forecast
2002	2.70	ND
2003	3.00	ND
2004	2.89	ND
2005	ND	3.80
2006	ND	3.67

Bottom-right panel
ECI Benefits

	Percent Change, Q4/Q4	Forecast
2002	4.70	ND
2003	6.40	ND
2004	6.90	ND
2005	ND	5.32
2006	ND	5.28

Chart 8
Recent Price Developments

Top-left panel

Title: Consumer Prices
Series: CPI and PCE
Horizon: 1999 to 2004
Description: Data are plotted on two curves. Units are 12-month percent change.

The CPI curve begins in 1999 at about 1.6. It then moves generally upward to about 3.75 in the first quarter of 2000, decreases to about 3, then fluctuates between about 3.5 and 3.75 until early 2001. Then the curve drops to just below 3 before increasing to about 3.75 toward midyear. The curve generally falls to just above 1 near the start of 2002, then fluctuates between about 1 and almost 2 through year-end. The curve then increases to just above 3 in the first quarter of 2003 and falls to about 1.75 in the fourth quarter. The curve then increases to about 3.25 by midyear 2004, drops to about 2.5, then increases to about 3.75 toward year-end. The curve then decreases to about 3.3 at the end of 2004.

The PCE curve begins 1999 at just below 1. It then increases to about 3 at the start of 2000. The curve goes generally down to about 1 by the first quarter of 2002 and stays near there until midyear. The curve then increases to about 2.5 in the first half of 2003, then fluctuates downward to about 1.75 by year-end. The curve then increases to about 2.5 by midyear 2004 and drops to near 2 in about the third quarter. The curve then increases to about 2.75 before decreasing and ending at about 2.3 in December 2004.

Top-right panel

Title: PCE Energy Prices
Series: PCE energy prices
Horizon: 2001 to 2004
Description: Data are plotted as seven bars; 2001, 2002, and 2003 each have one bar representing a full year, and 2004 has four bars that each represent a quarter of a year. A horizontal line is drawn at zero. Approximate values for the seven periods are as follows.

	Percent change, a.r.
2001	-10
2002	7
2003	6
2004:Q1	26
2004:Q2	25
2004:Q3	4
2004:Q4	16

Middle-left panel

Title: PCE Food Prices
Series: PCE food prices
Horizon: 2001 to 2004
Description: Data are plotted as seven bars; 2001, 2002, and 2003 each have one bar representing a full year, and 2004 has four bars that each represent a quarter of a year. Approximate values for the seven periods are as follows.

	Percent change, a.r.
2001	3.0
2002	1.5
2003	2.5

	Percent change, a.r.
2004:Q1	2.4
2004:Q2	3.9
2004:Q3	2.4
2004:Q4	2.5

Middle-right panel

Title: Core PCE Prices
Series: PCE and Market PCE
Horizon: 1999 to 2004
Description: Data are plotted as two curves. Units are 12-month percent change.

The personal consumption expenditures (PCE) curve starts at about 1.4 at the beginning of 1999, then fluctuates between approximately 1.3 and 1.7 through the end of the year. The curve increases to about 2 near the beginning of 2000 and decreases to about 1.5 by the end of the year. It then increases to approximately 2.2 in about midyear 2001, drops to about 1.5 in the third quarter, and climbs to about 2.2 in the fourth quarter. The PCE curve then generally decreases to about 1.5 by midyear 2002, after which it increases to about 2.4 in the third quarter, and drops to approximately 1.4 by the end of the year. In 2003, the curve increases to about 1.7 in the first quarter, generally decreases to just below 1 in the third quarter, increases to about 1.4 and then falls to about 1 by the end of the year. The curve increases to about 1.6 near the second quarter of 2004, decreases slightly to about 1.5 in the third quarter, and increases to about 1.6 in the fourth quarter. By year-end, the curve decreases to about 1.4.

The market PCE curve begins at just above 1 at the start of 1999, then fluctuates between 0.75 and 1.25 through the year to end at just above 1 by year-end. In 2000, the curve increases to about 1.5 in the first quarter, dips to about 1.25 in the second quarter, then increases to end at about 1.5 by the end of the year. The curve moves generally upward in 2001, reaching about 1.75 by midyear; it then dips to about 1.6 in the third quarter and increases to about 1.75 by the end of the year. The curve decreases to about 1.5 in the first quarter of 2002, then fluctuates downward to end at about 0.9 near the end of 2003. In 2004, the curve increases to about 1.6 by midyear, dips to about 1.4 in the third quarter, then increases to about 1.8. By the end of the year, the curve decreases to end at about 1.7.

Bottom-left panel
Core PCE Components

12-month percent change

	2002	2003	2004
Core PCE	1.7	1.1	1.5
Market based	1.4	1.0	1.7
Goods	-1.6	-2.3	0.0
Services	3.0	2.9	2.6
Nonmarket based	3.6	1.3	0.5

Bottom-right panel
PPI-Intermediate Materials less Food and Energy

	Percent change, a.r.
2001	-1.363
2002	1.209
2003	1.902
2004:Q1	6.9
2004:Q2	11.1
2004:Q3	7.8
2004:Q4	6.4

Chart 9
Inflation Outlook

Top-left panel
PCE Prices

	Percent change, Q4/Q4	Forecast
2002	1.77	ND
2003	1.68	ND
2004	2.47	ND
2005	ND	1.35
2006	ND	1.32

Top-right panel
PCE Energy Prices

	Percent change, Q4/Q4	Forecast
2002	7.86	ND
2003	7.18	ND
2004	17.84	ND
2005	ND	-3.41
2006	ND	-1.24

Middle-left panel
Core PCE Prices

	Percent change, Q4/Q4	Forecast
2002	1.52	ND
2003	1.21	ND
2004	1.51	ND
2005	ND	1.56

	Percent change, Q4/Q4	Forecast
2006	ND	1.40

Middle-right panel
Core Non-fuel Import Prices

	Four-quarter percent change	Forecast
2002:Q1	-2.70	ND
2002:Q2	-1.95	ND
2002:Q3	-0.66	ND
2002:Q4	0.12	ND
2003:Q1	1.20	ND
2003:Q2	1.20	ND
2003:Q3	1.12	ND
2003:Q4	1.57	ND
2004:Q1	2.28	ND
2004:Q2	3.12	ND
2004:Q3	3.45	ND
2004:Q4	ND	3.81
2005:Q1	ND	3.27
2005:Q2	ND	2.41
2005:Q3	ND	1.94
2005:Q4	ND	1.16
2006:Q1	ND	0.47
2006:Q2	ND	0.31
2006:Q3	ND	0.22
2006:Q4	ND	0.17

Bottom-left panel
Price Markup over Trend Unit Labor Costs

	Ratio	Forecast	Higher inflation scenario
2002:Q1	1.572	ND	ND
2002:Q2	1.578	ND	ND
2002:Q3	1.589	ND	ND
2002:Q4	1.602	ND	ND
2003:Q1	1.603	ND	ND
2003:Q2	1.597	ND	ND
2003:Q3	1.590	ND	ND
2003:Q4	1.588	ND	ND

	Ratio	Forecast	Higher inflation scenario
2004:Q1	1.600	ND	ND
2004:Q2	1.602	ND	ND
2004:Q3	1.607	ND	ND
2004:Q4	1.610	ND	ND
2005:Q1	ND	1.607	1.607
2005:Q2	ND	1.606	1.607
2005:Q3	ND	1.605	1.607
2005:Q4	ND	1.604	1.607
2006:Q1	ND	1.602	1.607
2006:Q2	ND	1.601	1.607
2006:Q3	ND	1.599	1.607
2006:Q4	ND	1.597	1.607

Bottom-right panel

Title: Alternative Projections of Core PCE Prices
Series: Alternative projections of core personal consumption expenditures (PCE) prices
Horizon: 2002 to 2006
Description: Data are plotted as a curve (projected curves for higher inflation and lower inflation begin toward the end of 2004; area representing the 70 percent confidence level is indicated by shading). Unit is percent change, Q4 over Q4. A forecast is provided for late 2004 as well as for 2005 and 2006.

The curve starts in 2002 at about 1.8 percent. It climbs to about 1.9 in the third quarter, then decreases to about 1.5 near year-end. The curve increases to about 1.6 at the start of 2003 and drops to about 1.2 by midyear; it then increases to reach about 1.5 around the third quarter of 2004.

The curve then enters a forecast period around the third quarter of 2004 at about 1.5 and decreases to about 1.4 in 2005. It then increases to about 1.5 by year-end 2005, then decreases slightly through 2006 to end the year at about 1.3.

The figure also shows a forecast for higher and lower inflation. The higher inflation curve starts around the third quarter of 2004 at about 1.5, then increases to end at about 2.4 at year-end 2006. The lower inflation curve starts around the third quarter of 2004 at about 1.5, then decreases to end at about 1 by year-end 2006.

The figure also has a shaded area that represents a 70 percent confidence interval. The interval starts around the third quarter of 2004 at 1.5 and ends in 2006; the shaded area expands from a starting point of 1.5 in 2004:Q3 to a range of between about 0.7 to 2.3 at year-end 2006.

Chart 10
Financial Developments

Chart 10 is a three-by-two array of panels showing monthly data for nominal exchange rates, three-month interest rates, term structure of three-month euro futures, term structure of three-month

yen futures, ten-year interest rates, and broad stock price indexes.

Top-left panel
Nominal Exchange Rates

Nominal Exchange Rates, foreign currency/U.S. dollar, for 2002 through early 2005. The range of the y-axis is [60, 110]; index, Jan. 2002 = 100. The three series are exchange rate indexes for major currencies, the yen, and the euro. The major currencies index is the trade-weighted average against major currencies. All the series begin at 100. The major currencies index rises immediately to about 101, falls to about 76 by the beginning of 2004, rises to about 80 by early 2004, declines slightly to about 78 by late 2004, falls to about 72 by end-2004, and then rises to about 74 by the end of the period. The exchange rate index for the yen rises immediately to about 101, falls to about 80 by the beginning of 2004, rises to about 85 by early 2004, declines slightly to about 83 by late 2004, falls to about 78 by end-2004, and then rises slightly to about 79 by the end of the period. The exchange rate index for the euro rises immediately to about 102, falls to about 69 by the beginning of 2004, rises to about 73 by early 2004, declines slightly to about 72 by late 2004, falls to about 66 by end-2004, and then rises to about 68 by the end of the period.

Top-right panel
Three-Month Interest Rates

Three-Month Interest Rates for the euro, the dollar, and the yen for 2002 through early 2005. The range of the y-axis is [0, 4]; unit is percent. The euro rate starts at around 3-1/3 percent, increases to about 3½ percent by mid-2002, declines to about 2¼ percent by mid-2003 and stays at about that rate through the end of the period. The dollar rate starts at about 1¾ percent, falls to about 1 percent by mid-2003, stays at about that rate through early 2004, and then rises to about 2¾ percent by early 2005. The yen rate remains just above 0 percent throughout.

Middle-left panel
Term Structure of Three-Month Euro Futures

Term Structure of Three-Month Euro Futures as of January 27, 2004, as of June 29, 2004, and as of February 1, 2005, for 2004 through early 2007. Each series begins at the "as of" date and ends in early 2007. The range of the y-axis is [1, 5]; unit is percent. The series as of January 27, 2004, begins at about 2 percent and rises smoothly to about 4 percent by the end of the period. The series as of June 29, 2004, begins at about 2¼ percent and rises smoothly to about 4¼ percent by the end of the period. The series as of February 1, 2005, begins just above 2 percent and rises smoothly to about 3 percent by the end of the period.

Middle-right panel
Term Structure of Three-Month Yen Futures

Term Structure of Three-Month Yen Futures as of January 27, 2004, as of June 29, 2004, and as of February 1, 2005, for 2004 through early 2007. Each series begins at the "as of" date and ends in early 2007. The range of the y-axis is [-1, 3]; unit is percent. The series as of January 27, 2004, begins just above 0 percent, stays at about that level through 2004 and then rises smoothly to just under 1 percent by the end of the period. The series as of June 29, 2004, begins just above 0 percent, stays at about that level through 2004 and then rises smoothly to about 1¼ percent by the end of the period. The series as of February 1, 2005, begins just above 0 percent and rises smoothly to about ½ percent by the end of the period.

Bottom-left panel

Ten-Year Interest Rates

Ten-Year Interest Rates for Germany, the United States, and Japan for 2002 through early 2005. The range of the y-axis is [0, 6]; unit is percent. The yields for Germany and the United States start at about 5 percent and track fairly closely for the entire period, though they diverge a bit by early 2005. The rate for Germany rises to about 5¼ percent by early 2002, declines to about 3½ percent by mid-2003, rises to about 4¼ percent by late 2003, declines to about 3¾ percent by early 2004, rises to about 4¼ percent by mid-2004, and then declines to about 3½ percent by the end of the period. The rate for the United States rises to about 5-1/3 percent by early 2002, declines to about 3¼ percent by mid-2003, quickly rises to about 4½ percent, declines to about 3¾ percent by early 2004, rises to about 4¾ percent by mid-2004, and then declines to just above 4 percent by the end of the period. The rate for Japan starts at about 1½ percent, declines to about ½ percent by mid-2003, rises to about 1¾ percent by mid-2004, and then declines to about 1¼ percent by the end of the period.

Bottom-right panel
Broad Stock Price Indexes

Broad Stock Price Indexes for TOPIX, the S&P 500, and the DJ Euro Stoxx indexes for 2002 through early 2005. The range of the y-axis is [50, 130]; index, Jan. 2002 = 100. All the series begin at 100 and are somewhat volatile. The TOPIX index rises to about 115 by mid-2002, declines to about 80 by early 2003, and then rises to about 118 by the end of the period. The S&P 500 index falls to about 73 by early 2003, and then rises to about 100 by early 2004, fluctuates around that level through late 2004, and then rises to about 104 by the end of the period. The DJ Euro index falls to about 60 by early 2003, rises to about 83 by early 2004, declines to about 78 by late 2004, and then rises to nearly 90 by the end of the period.

Chart 11
Foreign Outlook

Chart 11 comprises four panels, including a table on foreign real GDP and graphs on business confidence, consumer confidence, and exports.

Top panel
Foreign Real GDP*

Percent change, a.r.**

		2004		2005			2006
		Q3	Q4	Q1	Q2	H2	
1.	**Total Foreign**	**2.6**	**3.1**	**3.0**	**3.3**	**3.4**	**3.3**
2.	**Industrial Countries**	**1.9**	**2.0**	**2.1**	**2.4**	**2.5**	**2.4**
	of which:						
3.	Japan	0.2	1.0	1.2	1.4	1.6	1.8
4.	Euro Area	1.1	1.4	1.4	1.5	1.6	1.6
5.	United Kingdom	1.8	3.0	2.1	2.6	2.6	2.2
6.	Canada	3.2	2.2	2.6	2.9	3.2	3.0

		2004		2005			2006
		Q3	Q4	Q1	Q2	H2	
7.	**Emerging Economies**	**3.8**	**4.8**	**4.4**	**4.6**	**4.6**	**4.5**
	of which:						
8.	China	10.1	11.2	7.1	7.1	7.1	7.5
9.	Emerging Asia exc. China	3.2	3.9	4.2	4.6	4.4	4.2
10.	Mexico	2.6	4.0	4.0	4.1	4.2	4.3
11.	South America	4.1	3.8	3.8	3.8	3.7	3.6

* Aggregates weighted by shares of U.S. exports. Return to text

** Year is Q4/Q4; half year is Q4/Q2; quarters are percent change from previous quarter. Return to table

Bottom-left panel
Business Confidence

Business Confidence on a quarterly basis for the United Kingdom, the euro area, and Japan for 2003-2004. The range of the right y-axis, which measures consumer confidence as percent balance, is [-30, 20]. The series for the United Kingdom starts at about -1 percent, falls to about -7 percent by mid-2003, rises to about 17 percent by early 2004, and falls to about 4 percent by the end of the period. The series for the euro area starts at about -10 percent, dips to about -12 percent by mid-2003, rises to about -6 percent by mid-2004, and then rises further to about -3 percent by the end of the period. The series for Japan starts at about -27 percent, rises to about 0 percent by mid-2004, and then rises a bit more to about 1 percent by the end of the period.

Bottom-center panel
Consumer Confidence

Consumer Confidence on a quarterly basis for the United Kingdom, the euro area, and Japan for 2003-2004. The range of the right y-axis, which measures consumer confidence as percent balance for the United Kingdom and the euro area, is [-20, 0]. The range of the left y-axis, which measures consumer confidence as a diffusion index for Japan, is [30,50]. The series for the United Kingdom starts at about -10 percent, rises to about -2 percent by early 2004, falls to about -4 percent by mid-2004, and then rises to about -½ percent by the end of the period. The series for the euro area starts at about -19 percent, rises to about -14 percent by mid-2004, and rises a bit more to about -13 percent by the end of the period. The index for Japan starts at about 35 percent, rises to about 43 percent by mid-2004, and then rises further to about 46 percent by the end of the period.

Bottom-right panel
Exports

Exports on a monthly basis for the United Kingdom, the euro area, and Japan for 2003-2004. The range of the y-axis is [85, 125]; index, Jan. 2003 = 100. All the indexes start at 100 and are volatile. The index for the United Kingdom falls to about 89 by early 2004, and rises to about 104 by the end of the period. The index for the euro area falls to about 93 by mid-2003, rises to about 105 by mid-2004, and then rises further to about 108 by the end of the period. The series for Japan rises to about 122 by late 2004, and then falls back to about 115 by the end of the period.

Chart 12

Emerging Market Economies

Chart 12 is a three-by-two array of panels of spreads, stock prices indexes, industrial production of selected Asian countries, exports of selected Asian countries, industrial production of selected Latin American countries, and exports of selected Latin American countries.

Top-left panel
Spreads

Spreads on a weekly basis for 2002 through early 2005 for Brazil, Indonesia, and Thailand. The series shown are the EMBI+ Brazil sub-index, the EMBI Global Thailand sub-index, and the Indonesian Yankee Bond Spread. For Brazil, the range of the left y-axis is [0, 2500]; units are basis points. For Indonesia and Thailand, the range of the right y-axis is [0, 600]; units are basis points. The spreads for Brazil start at about 800 basis points, rise to about 2300 basis points by late 2002, and then fall, with some volatility, to about 500 basis points by the end of the period. The spreads for Indonesia start at just about 500 basis points and fall, with some volatility, to about 125 basis points by the end of the period. The spreads for Thailand start at just about 100 basis points and fall, with some volatility, to about 50 basis points by the end of the period.

Top-right panel
Stock Price Indexes

Stock Price Indexes on a weekly basis for Brazil, Korea, and Singapore for 2002 through early 2005. The range of the y-axis is [50, 200]; index, Jan. 4, 2002 = 100. All the series begin at about 100 and are somewhat volatile. The index for Brazil falls to about 62 by late 2002, rises to about 185 by late 2004, and then falls back to about 175 by the end of the period. The index for Korea rises to about 125 by early 2002, falls to about 80 by early 2003, and then rises to about 125 by the end of the period. The index for Singapore falls to about 75 by early 2003, and then rises to about 125 by the end of the period.

Middle-left panel
Industrial Production

Industrial Production for China, Korea, and Thailand for 2003-2004. The range of the y-axis is [95, 135]; index, Jan. 2003 = 100. The series all begin at 100. The index for China rises fairly steadily to about 132 by the end of the period. The index for Korea stays around 100 through mid-2003, and then rises, with some volatility, to about 113 by early 2004 and fluctuates around that level through the end of the period. The index for Thailand rises, with some volatility, to about 115 by early 2004 and fluctuates around that level through the end of the period.

Middle-right panel
Exports

Exports for China, Korea, and Thailand for 2003-2004. The range of the y-axis is [90, 190]; index, Jan. 2003 = 100. The series all begin at 100 and are somewhat volatile. The index for China rises to about 173 by the end of the period. The index for Korea rises to about 150 by the end of the period. The index for Thailand rises to about 135 by the end of the period.

Bottom-left panel
Industrial Production

Industrial Production for Brazil and Mexico for 2003-2004. The range of the y-axis is [95, 115]; index, Jan. 2003 = 100. The series both begin at 100. The index for Brazil declines to about 97 by

mid-2003, rises to about 113 by mid-2004, and then eases to about 112 by the end of the period. The index for Mexico declines to about 98 by late 2003, and then rises to about 104 by the end of the period.

Bottom-right panel
Exports

Exports for Mexico for 2003-2004, and for Brazil for 2003 through early 2005. The range of the y-axis is [80, 180]; index, Jan. 2003 = 100. The series both begin at 100. The index for Brazil, with some volatility, rises to about 153 by the end of the period. The index for Mexico declines to about 95 by late 2003 and then rises to about 115 by the end of the period.

Chart 13

Chart 13, titled "Trade Developments" and "Trade Prices," is comprised of four panels. "Trade Developments" comprises the top two panels, including a table on trade in goods and services, and four small graphs on goods exports by region. "Trade Prices" comprises the bottom two panels, which are graphs on oil prices and core import prices.

Trade Developments

Top-left panel
Trade in Goods and Services

Billions of dollars, a.r.

		Q3	O-N**	Change
1.	Balance	-621	-698	-77
Imports:				
2.	G&S	1780	1858	78
3.	Cons. Gds.	365	386	21
4.	Machinery	180	182	2
5.	Ind. Sup.*	241	244	3
6.	Oil	180	220	40
7.	Other	814	826	12
Exports:				
8.	G&S	1158	1160	2
9.	Machinery	169	165	-4
10.	Ind. Sup.	190	195	5
11.	Other	799	800	1

* Excludes oil. Return to table

** Average of October and November data. Return to table

Top-right panel
Goods Exports By Region

Four small graphs; units are billions of dollars, s.a.a.r.

The first graph plots goods exports to Canada and Western Europe for 2002-2004. The range of the y-axis is [120, 220]. Exports to Canada start at about $155 billion, and rise to nearly $200 billion by the end of the period. Exports to Western Europe start at about $155 billion and rise to about $185 billion by the end of the period.

The second graph plots goods exports to Mexico and other Latin America for 2002-2004. The range of the y-axis is [20, 120]. Exports to Mexico start at about $95 billion, and rise to nearly $120 billion by the end of the period. Exports to other Latin America start at about $50 billion and rise to about $65 billion by the end of the period.

The third graph plots goods exports to Japan and to China and Hong Kong for 2002-2004. The range of the y-axis is [0, 100]. Exports to Japan start at about $50 billion, and rise to about $55 billion by the end of the period. Exports to China and Hong Kong start at about $30 billion and rise to about $50 billion by the end of the period.

The fourth graph plots goods exports to Other Asia for 2002-2004. The range of the y-axis is [60, 160]. Exports to Other Asia start at about $100 billion, and rise to about 130 by mid-2004, and then decline to just over $120 billion by the end of the period.

Trade Prices

Bottom-left panel
Oil Prices

Oil Prices for the WTI spot price and for the U.S. import price for 2002-2004 (actual) and for 2005-2006 (forecast). The range of the y-axis is [10, 60]; unit is dollars per barrel. The WTI spot price starts at about $20 per barrel, rises to about $53 per barrel by late 2004, falls to about $43 per barrel by end-2004, rises to about $48 per barrel by early 2005 and then declines to about $43 per barrel by the end of the period. The U.S. import price starts at about $17 per barrel, rises to about $44 per barrel by late 2004, falls to about $37 per barrel by end-2004, rises to about $42 per barrel by early 2005 and then declines to just under $40 per barrel by the end of the period.

Bottom-right panel
Core Import Prices

The panel plots the core import price as a line chart on a quarterly basis for 2002-2004 (actual) and for 2005-2006 (forecast). It also plots, as a stacked bar chart, the contribution of foreign prices in US$ and the contribution of commodity prices on a quarterly basis for 2002-2004 (actual) and for 2005-2006 (forecast). The range of the y-axis is [-4, 8]; unit is percent change, a.r. The core import price change starts at about
-2¼ percent, rises to about 5½ percent by early 2003, falls to about -¼ percent by mid-2003, rises to about 6½ percent by early 2004, falls to about 4½ percent by end-2004, falls to about -¼ percent by mid-2006 and rises to about ½ percent by the end of the period. Approximate values for the quarterly figures in the bar chart are as follows.

	2002				2003				2004				2005				2006			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Contribution	-1	1¼	2¼	¾	1¾	3¾	1¼	2¼	2½	-¼	1	3½	2¼	¾	¾	¾	¾	¾	¾	¾

	2002				2003				2004				2005				2006			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
of foreign prices in US$ (red)																				
Contribution of commodity prices (blue)	-1½	-¾	-½	2½	3	1½	¼	½	1¾	3	3¼	3	½	¼	¼	½	¼	-½	-¼	¼

Chart 14
External Sector

Chart 14 is a three-by-two array of panels, including tables on real export growth and real import growth, graphs on contributions to U.S. GDP growth, external balances, and the broad real dollar, and a table on simulation results.

Top-left panel
Real Export Growth

Percent, Q4/Q4

		2003	2004	2005	2006
1.	**Goods and services**	**6.1**	**4.9**	**8.7**	**7.2**
Percentage point contribution:					
2.	Services	1.2	1.4	2.0	1.8
3.	Goods	4.9	3.5	6.6	5.4
	of which				
4.	Core*	3.0	3.5	5.1	3.9

* Excludes computers and semiconductors. Return to table

Top-right panel
Real Import Growth

Percent, Q4/Q4

		2003	2004	2005	2006
1.	**Goods and services**	**4.9**	**9.3**	**5.2**	**7.6**
Percentage point contribution:					
2.	Services	0.6	0.3	0.6	0.7
3.	Goods	4.2	9.0	4.6	6.9
	of which				
4.	Core*	3.3	6.7	4.5	5.6

* Excludes computers, semiconductors, and oil. Return to table

Middle-left panel
Contributions to U.S. GDP Growth

Contribution to U.S. GDP Growth of exports and imports as a bar chart for 2004:H1 (actual), 2004:H2 (actual), 2005:H1 (projected), 2005:H2 (projected), 2006:H1 (projected), and 2006:H2 (projected). The range of the y-axis is [-3, 3]; units are percentage points. Approximate values for the six periods are as follows.

Percentage points

	2004		2005		2006	
	H1	H2	H1	H2	H1	H2
Exports (red)	3/4	1/4	7/8	1	3/4	3/4
Imports (blue)	-1-2/3	-1	-1/2	-1-1/4	-1	-1-1/3

Middle-right panel
External Balances

External Balances for the current account balance and the trade balance for 2002 through 2004:Q3 (actual) and for 2004:Q4 through 2006 (forecast). The range of the y-axis is [-900, -300]; units are billions of dollars. The graph shows the current account balance and the trade balance to be in deficit for the entire period; the two series track fairly closely for the actual data but diverge more over the forecast period. The current account balance starts at a deficit of about $450 billion, which widens to about $650 billion by 2004:Q3; the forecast shows the deficit widening further, from an estimate of about $775 billion in 2004:Q4 to about $880 billion by end-2006. The trade balance starts at a deficit of about $375 billion, which widens to about $620 billion by 2004:Q3; the forecast shows the deficit widening further, from an estimate of about $690 billion in 2004:Q4 to about $720 billion by end-2006.

Bottom-left panel
Broad Real Dollar

Broad Real Dollar for 2002-2004 (actual), along with the Greenbook baseline forecast for 2005-2006 and an alternative simulation for 2005-2006. The range of the y-axis is [65, 105]; index, 2002:Q1 = 100. The actual broad real dollar starts at 100, and declines to about 86 by end-2004. The Greenbook baseline forecast declines slightly to about 84 by the end of 2006. The alternative simulation declines to about 67 by the end of 2006.

Bottom-right panel
Simulation Results

Billions of dollars

	2004Q4	2006Q4	Change
Trade balance			
baseline	-689	-720	-31
weaker dollar	-689	-689	0
Current account balance			

	2004Q4	2006Q4	Change
baseline	-774	-881	-107
weaker dollar	-774	-863	-89

Chart 15

Top panel
ECONOMIC PROJECTIONS FOR 2005

	FOMC		Staff
	Range	Central Tendency	
	Percentage change, Q4 to Q4		
Nominal GDP	**5 to 6**	**5½ to 5¾**	**5.4**
July 2004	(4¾ to 6½)	(5¼ to 6)	(5.0)
Real GDP	**3½ to 4**	**3¾ to 4**	**3.9**
July 2004	(3½ to 4)	(3½ to 4)	(3.6)
Core PCE Prices	**1½ to 2**	**1½ to 1¾**	**1.6**
July 2004	(1½ to 2½)	(1½ to 2)	(1.6)
	Average level, Q4, percent		
Unemployment rate	**5 to 5½**	**5¼**	**5.3**
July 2004	(5 to 5½)	(5 to 5¼)	(5.3)

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

Bottom panel
ECONOMIC PROJECTIONS FOR 2006

	FOMC		Staff
	Range	Central Tendency	
	Percentage change, Q4 to Q4		
Nominal GDP	**5 to 5¾**	**5 to 5½**	**5.3**
Real GDP	**3¼ to 3¾**	**3½**	**3.6**
Core PCE Prices	**1½ to 2**	**1½ to 1¾**	**1.4**
	Average level, Q4, percent		
Unemployment rate	**5 to 5¼**	**5 to 5¼**	**5.1**

Appendix 4: Materials used by Mr. Olson

Page 1

Top panel

Title: Nonperforming Assets, All Insured Commercial Banks
Series: GDP SA and NPA Ratio SA
Horizon: March 31, 1990 to June 30, 2004 (dates are plotted on the X-axis)
Description: Data are plotted as two curves. The left-hand Y-axis label for the GDP SA series is "Real GDP Growth (Qtr)"; the right-hand Y-axis label for the NPA ratio SA curve is "NPA Ratio." GDP troughs occur in March 1991 and December 2001. NPA peaks occur in June 1991 and September 2002.

The series for GDP SA begins in early 1990 at a little more than 1, falls to about negative 0.8 in late 1990, and rises generally to about 1 in early 1992. The series remains at about that level until early 1993, falls to a little more than zero in mid-1993, and then generally rises to about 1.25 in late 1993. The series fluctuates between that point and about 0.5 until early 1995, falls to about 0.1 in mid-1995, and generally rises to about 1.8 in mid-1996. The series fluctuates between that point and about 0.75 until mid-1999. The series then rises to about 1.8 in late 1999, fluctuates between that point and 0.25 until early 2000, and then falls to a little less than zero in mid-2000. The series fluctuates between that point and about 0.75 until mid-2001, falls to about negative 0.5 in late 2001, and rises to about 0.9 in early 2002. The series falls to about 0.25 in late 2002 and rises to about 1.8 in late 2003. The series generally falls to about 0.95 in mid-2004 and rises to end at about 1 in that period.

The GDP SA series curve is identical in the other two panels in Appendix 4, Page 1, and the three panels in Appendix 4, Page 2.

The series for NPA ratio begins in early 1990 at about 2.9, rises to about 4.25 in mid-1991 and remains at that level until mid-1992. The series then falls to about 0.9 in mid-2000 and rises to about 1.05 in late 2002. The series falls to end at about 0.85 in mid-2004.

The curves overlap in early 1990, late 1993, and mid-2001.

Source: Call Report/BS&R, BEA

Middle panel

Title: Net Chargeoffs, All Insured Commercial Banks
Series: GDP SA and Net Chargeoff Ratio SA
Horizon: March 31, 1990 to September 30, 2004 (dates are plotted on the X-axis)
Description: Data are plotted as two curves. The left-hand Y-axis label for the GDP SA series is "Real GDP Growth (Qtr)"; the right-hand Y-axis label for the net chargeoff ratio curve is "Net Chargeoff Ratio." Chargeoff peaks occur in September 1991 and March 2002.

The series for net chargeoff ratio begins in early 1990 at about 1.55, rises to about 1.6 later in that period, falls to about 1.2 in late 1990, and then rises to about 1.8 in late 1991. The series generally falls to about 1.1 in mid-1992, rises to about 1.48 later that year, and generally falls to about 0.47 in mid-1994. The series generally rises to about 0.6 in mid-1998, generally falls to about 0.58 in early 2000, and generally rises to about 1.25 in late 2001. The series remains at about that level until late 2002 and generally falls to end at about 0.55 in mid-2004.

For the GDP SA series curve, see the description for the top panel of Appendix 4, Page 1.

The curves overlap in 1992, 1993, 2000, 2001, 2002, and 2003.

Source: Call Report/BS&R, BEA

Bottom panel

Title: Loan Loss Provision, All Insured Commercial Banks
Series: GDP SA and Provisions to average loans SA
Horizon: March 31, 1990 to September 30, 2004 (dates are plotted on the X-axis)
Description: Data are plotted as two curves. The left-hand Y-axis label for the GDP SA series is "Real GDP Growth (Qtr)"; the right-hand Y-axis label for the provisions to average loans SA curve is "Provision/Avg Loans." Provision peaks occur in December 1990 and December 2001.

The series for provisions to average loans SA begins in early 1990 at about 1.35, rises to about 1.9 in late 1990, and generally falls to about 0.55 in early 1994. The series generally rises to about 0.75 in mid-1998, falls to about 0.6 in late 1998, and generally rises to about 1.4 in late 2001. The series then generally falls to end at about 0.51 in mid-2004.

For the GDP SA series curve, see the description for the top panel of Appendix 4, Page 1.

The curves overlap in 1990, 1992, 2000, 2001, and 2003.

Source: Call Report/BS&R, BEA

Page 2

Top panel

Title: Nonperforming Asset Ratio, Banks LT $1 billion
Series: GDP SA and NPA Ratio SA
Horizon: March 31, 1990 to June 30, 2004 (dates are plotted on the X-axis)
Description: Data are plotted as two curves. The left-hand Y-axis label for the GDP SA series is "Real GDP Growth"; the right-hand Y-axis label for the NPA ratio SA curve is "NPA Ratio." NPA peaks occur in early 1992 and early 2003.

The series for NPA ratio SA begins in early 1990 at about 2.3, rises to about 2.9 in late 1991, and generally falls to about 0.8 in mid-2000. The series generally rises to about 1 in mid-2003 and then falls to end at about 0.9 in mid-2004.

For the GDP SA series curve, see the description for the top panel of Appendix 4, Page 1.

The curves overlap in 1990, 1991, and 1993.

Middle panel

Title: Net Chargeoffs, Banks LT $1 billion
Series: GDP SA and Net Chargeoff Ratio SA
Horizon: March 31, 1990 to June 30, 2004 (dates are plotted on the X-axis)
Description: Data are plotted as two curves. The left-hand Y-axis label for the GDP SA series is "Real GDP Growth"; the right-hand Y-axis label for the net chargeoff ratio SA curve is "Net Chargeoff Ratio." Chargeoff peaks occur in early 1991 and late 2002.

The series for net chargeoff ratio begins in early 1990 at about 0.75, rises to about 0.9 in early 1991, and generally falls to about 0.4 in early 1994. The series fluctuates between that point and about 0.49 until mid-2003 and falls to end at about 0.35 in mid-2004.

For the GDP SA series curve, see the description for the top panel of Appendix 4, Page 1.

The curves overlap in 1990 and 1991.

Bottom panel

Title: Loan Loss Provision, Banks LT $1 billion
Series: GDP SA and Provision to avg loans SA
Horizon: March 31, 1990 to June 30, 2004 (dates are plotted on the X-axis)
Description: Data are plotted as two curves. The left-hand Y-axis label for the GDP SA series is "Real GDP Growth"; the right-hand Y-axis label for the provision to avg loans SA curve is "Provision/Avg Loans." Provision peaks occur in late 1990 and late 2001.

The series for provision to avg loans SA begins in early 1990 at about 0.8, rises to about 1.25 in late 1990, and falls to about 0.8 later in that period. The series then rises to about 1.1 in mid-1991, generally falls to about 0.3 in mid-1994, and fluctuates between that point and about 0.65 until late 2001. The series then generally falls to end at about 0.3 in mid-2004.

For the GDP SA series curve, see the description for the top panel of Appendix 4, Page 1.

The curves overlap in 1990, 1991, and 2001.

Page 3

Top panel

Seasonal Factors (Out of 100 percent)

	All Insured Commercial Banks					Banks LT $1 billion			
	1Q	2Q	3Q	4Q		1Q	2Q	3Q	4Q
NPA Ratio	101.3	100.2	100.6	97.9	NPA Ratio	101.7	99.9	100.5	97.8
Net Charge-off Ratio	90.2	96.6	96.3	116.7	Net Charge-off Ratio	76.0	92.4	91.7	139.7
Prov to Avg Loans	91.9	94.6	98.9	114.3	Prov to Avg Loans	85.3	92.5	97.7	124.4

Other Key Statistics

	Total	Mean	S.D.			Total	Mean	S.D.	
NPA Ratio	105.94	1.80	1.32		NPA Ratio	80.55	1.37	0.74	
Net Charge-off Ratio	51.75	0.88	0.35		Net Charge-off Ratio	26.54	0.45	0.18	
Prov to Avg Loans	54.21	0.92	0.38		Prov to Avg Loans	34.19	0.58	0.22	

Appendix 5: Materials used by Mr. Reinhart

Material for **FOMC Briefing on Monetary Policy Alternatives**
Vincent R. Reinhart
February 2, 2005

Restricted Controlled (FR) Class I (FOMC)

Exhibit 1
The Case for Tightening 25 Basis Points

Exhibit 1 presents information supporting the case for tightening policy by 25 basis points.

Top-left panel
Expected Federal Funds Rate

A line chart displays three curves for the expected path of the funds rate--one shows the funds rate path assumed in the Greenbook and two other lines display the expected funds rate path derived from futures quotes as of December 13, 2004 and February 1, 2005. All three paths slope upward, rising from about 2.5 percent at the front end of the curves to about 3.5 percent by the end of 2006. The market-based funds rate path revised up significantly over the intermeeting period.

Top-right panels
Unemployment Rate and Core PCE Inflation

Two stacked panels display the evolution of the unemployment rate and core PCE inflation over the period from 1990 to present along with the projections of these variables over 2005 and 2006. The unemployment rate (quarterly average) has declined significantly from its most recent peak and the projections suggest that the unemployment rate will gradually drift lower over the next year to a level of about 5 percent. Core PCE inflation (four-quarter moving average) edged up over the course of 2004, but is generally expected to remain near the current level over the course of 2005 and 2006.

Middle-left panel
Corporate and Sovereign Bond Spreads*[*]

A line chart plots the 5-year high yield corporate bond spread and the EMBI spread for emerging market sovereign debt. Both series declined sharply since 2002, reflecting improved conditions in financial markets and investors' greater willingness to take on risk.

* Spreads over yields on comparable maturity Treasuries. Return to text

Middle-right panel
Asset Prices and Monetary Policy

- Asset price misalignments are hard to identify with confidence.
- Appropriate monetary policy is not clear.
- Other instruments may be better suited to dealing with such problems.

Bottom panel
Values from Policy Rules and Futures Markets

A chart displays the actual and projected value of the federal funds rate along with a range of prescriptions from simple interest rate rules. In general, the policy rules suggest that the federal funds rate should rise in response to the improving economic outlook. The projected level of the federal

funds rate in the Greenbook rises over the course of 2005 and is within the range of prescriptions from the policy rules.

An explanatory note is provided in Chart 9 of the Bluebook.

Exhibit 2
When Will You Stop Tightening?

Exhibit 2 presents information on market anticipations about whether and when the FOMC might stop tightening policy.

Top-left panel
Market Participants Assume:

- Policy will be tightened 25 bps at every meeting.
- Until this tightening cycle ends.
- They are uncertain as to when tightening will end.

Middle-left panel
Median Path for Policy

A chart shows the median anticipated path for the funds rate reaching a plateau of about 3.5 percent by August of 2005.

Top-right panel
Cumulative Probability of First FOMC Meeting Without Tightening

A bar chart displays the cumulative probability of the first FOMC meeting without a tightening at various points in time. The probability distribution rises quickly over the course of 2005, reaching 50 percent by August of 2005 and nearly 75 percent by the end of the year.

Bottom panel
Range of Estimated Equilibrium Real Rates

A chart displays the actual real federal funds rate along with a range of estimates of the equilibrium real interest rate over the period from 1990 to present. The chart indicates that the current level of the real federal funds rate is appreciably below the range of model-based estimates of the equilibrium real interest rate.

Range (percent)	Range of dates of final tightening
Above 90 percent confidence band above range of model-based estimates	After Nov. 06
90 percent confidence band above range of model-based estimates	Aug. 06 - Nov. 06
70 percent confidence band above range of model-based estimates	Feb. 06 - Jun. 06
Range of model-based estimates	Aug. 05 - Dec. 05
70 percent confidence band below range of model-based estimates	Feb. 05 - Jun. 05
90 percent confidence band below range of model-based estimates	n.a.

An explanatory note is provided in Chart 8 of the Bluebook.

Exhibit 3
Assessing the Risk Assessment

Top panel
From the FOMC Statement released December 14th

[Note: In the original document, the first sentence of the following paragraph is green text, and the remainder is blue text.]

The Committee perceives the upside and downside risks to the attainment of both sustainable growth and price stability for the next few quarters to be roughly equal. With underlying inflation expected to be relatively low, the Committee believes that policy accommodation can be removed at a pace that is likely to be measured. Nonetheless, the Committee will respond to changes in economic prospects as needed to fulfill its obligation to maintain price stability.

Bottom panel
Three alternatives

1. Get out of the business of hinting--either obliquely or directly--about future actions by dropping the entire paragraph.
2. Revive the first sentence assessing risks by basing it on the assumption of an unchanged stance of policy for the next few quarters and couching it in terms of probabilities, not risks.
3. Rely on the gradual evolution of the latter part of the paragraph to convey a sense of the future path of interest rates.

Table 1: Alternative Language for the January FOMC Announcement

[Note: In Appendix 5, Table 1, emphasis (strike-through) has been added to indicate red strike-through text in the original document, and strong emphasis (bold) has been added to indicate normal red text in the original document.]

	December FOMC	Alternative A	Alternative B	Alternative C
Policy Decision	1. The Federal Open Market Committee decided today to raise its target for the federal funds rate by 25 basis points to 2¼ percent.	The Federal Open Market Committee decided today to **keep its target for the federal funds rate at 2¼ percent. The Committee's policy actions since mid-2004 have materially reduced the degree of monetary policy accommodation**.	The Federal Open Market Committee decided today to raise its target for the federal funds rate by 25 basis points to **2½ percent**.	The Federal Open Market Committee decided today to raise its target for the federal funds rate by 50 basis points to **2¾ percent**.
Rationale	2. The Committee believes that, even after this action, the stance of monetary policy remains accommodative and, coupled with robust underlying growth in productivity, is providing ongoing support to economic activity.	The Committee believes that the stance of monetary policy remains **somewhat** accommodative and, coupled with robust underlying growth in productivity, is providing ongoing support to economic activity.	[Unchanged from December statement]	The Committee believes that the stance of monetary policy remains accommodative and, coupled with ~~robust~~ **the** underlying growth in productivity, is providing ongoing support to economic activity.

	December FOMC	Alternative A	Alternative B	Alternative C
	3. Output appears to be growing at a moderate pace despite the earlier rise in energy prices, and labor market conditions continue to improve gradually.	Output appears to be growing at a moderate pace despite the ~~earlier~~ rise in energy prices, and labor market conditons **seem to be improving** gradually**.**	Output appears to be growing at a moderate pace despite the ~~earlier~~ rise in energy prices, and labor market conditions continue to improve gradually.	Output appears to be growing at a moderate pace despite the ~~earlier~~ rise in energy prices, and labor market conditions continue to improve ~~gradually~~.
	4. Inflation and longer-term inflation expectations remain well contained.	[Unchanged from December statement]	[Unchanged from December statement]	Inflation and ~~longer-term~~ inflation expectations remain well contained**, but rising business costs have the potential to put upward pressure on prices**.
Assessment of Risk	5. The Committee perceives the upside and downside risks to the attainment of both sustainable growth and price stability for the next few quarters to be roughly equal.	[Unchanged from December statement]	[Unchanged from December statement]	[Unchanged from December statement]
	6. With underlying inflation expected to be relatively low, the Committee believes that policy accommodation can be removed at a pace that is likely to be measured. Nonetheless, the Committee will respond to changes in economic prospects as needed to fulfill its obligation to maintain price stability.	With underlying inflation expected to be relatively low, the Committee believes that policy accommodation can be removed at a pace that is likely to be measured. Nonetheless, the Committee will respond to changes in economic prospects as needed to fulfill its obligation **to promote** price stability **and sustainable growth**.	[Unchanged from December statement]	**[None]**

▲ Return to top