

Meeting of the Federal Open Market Committee January 27-28, 2004 Presentation Materials -- Text Version

[Presentation Materials \(2.74 MB PDF\)](#)

Pages 195 to 238 of the Transcript

Appendix 1: Materials used by Mr. Kos

Page 1

Top panel

Title: Outstanding Debt 1997 - Q3 2003

Series: Outstanding MBS, corporate debt, Treasuries, and agency debt

Horizon: 1997-2003

Description: The amount of MBS, corporate debt and agencies outstanding has been increasing, while the amount of Treasuries outstanding has remained relatively constant.

Source: BMA

Middle panel

Title: Ginnie Mae I 30-Yr Issuance & Outstanding

Series: Monthly issuance and total outstanding amount of 30-year Ginnie Maes

Horizon: May 1997-November 2003

Description: While monthly issuance of 30-year Ginnie Maes has been increasing, the total outstanding has been decreasing.

Source: Lehman Brothers

Bottom panel

Title: 30-Yr Fixed Rate MBS Outstanding: Fannie Mae, Freddie Mac, and Ginnie Mae I

Series: Amount of Fannie Mae, Freddie Mac and Ginnie Mae I 30-year fixed rate MBS outstanding, indexed to 5/1/1997

Horizon: May 1997-November 2003

Description: The amount of Ginnie Mae I fixed rate MBS outstanding has declined since 1997, while the amount of Fannie Mae and Freddie Mac 30-year fixed rate MBS outstanding has increased significantly.

Source: Lehman Brothers

Appendix 2: Materials used by Mr. Reinhart

Page 1

The Committee's Communications Strategy

Vincent Reinhart
January 27, 2004

Class I--FOMC
Strictly Confidential (FR)

Page 2

Estimated Effects of Committee Communications

This exhibit displays the estimated market effects of various types of Federal Reserve communications including FOMC policy statements (top-left panel), the semiannual Monetary Policy Report (top-right panel), and the FOMC minutes (bottom-left panel), 1997 to present, in basis points. For each of these types of announcements, a bar chart displays the change in the two-year Treasury yield in a narrow time interval bracketing the time of the announcement. As summarized in a table (bottom-right panel), FOMC statements tend to have the most significant market impact.

Note: Estimated effects are measured as changes in the on-the-run two-year Treasury yield over an interval surrounding the release or the start of the Chairman's testimony. Effects of policy statements are adjusted to remove the estimated direct effect of policy surprises.

Top-left panel FOMC Policy Statements

See description above.

Top-right panel Monetary Policy Testimony

See description above.

Bottom-left panel FOMC Minutes Releases

See description above.

Bottom-right panel Average Absolute Effects

Basis points

1. FOMC Statements	6.4
2. FOMC Minutes	2.3
3. Chairman's Testimony	5.0
Memo:	
4. Employment Reports	5.2
5. ISM Releases	2.3
6. CPI Releases	3.0

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Roadmap for Today's Discussion

The options confronting the Committee are interrelated. To facilitate the discussion, this briefing will have five parts:

- Overview of options
- Alternative formulas for the risk assessment
- Expedited release of the FOMC minutes
- An enhanced role for the FOMC projections
- How the pieces might fit together

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Options Across the Three Communications Issues

Risk assessment	Release of the Minutes	Role of the Projections
<ul style="list-style-type: none">• Status quo• Gradual evolution<ul style="list-style-type: none">- Greater flexibility in assessing risks- Include explicit alternative statement language in the Bluebook.• New formulaic language:<ul style="list-style-type: none">- Levels - A- Levels - B- Changes• Discontinue the assessment of risks portion of the statement.	<ul style="list-style-type: none">• Status quo• Release approximately<ul style="list-style-type: none">- <i>two</i> weeks after the meeting- <i>three</i> weeks after the meeting- <i>four</i> weeks after the meeting	<ul style="list-style-type: none">• Status quo• Increase the frequency of the projections.<ul style="list-style-type: none">- Quarterly- Every regular meeting• Increase the length of the projection period.• Increase the number of variables in the projections.• Release of the projections<ul style="list-style-type: none">- In the MPR- In the minutes- In a separate document

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Lessons from the Working Group: Formulas for the Risk Assessment

Design Principles for the Risk Assessment	Key Questions that were Left Unanswered
<ol style="list-style-type: none">1. The Committee should vote on the exact wording of the risk assessment.2. The statement should not hamper the policy discussion.3. The statement should be flexible enough to encompass the Committee members' views about the operation of the economy and the concepts that can be usefully measured.4. The statement should be clear to the public.5. The statement should cover the range of feasible contingencies.	<ol style="list-style-type: none">1. Should the wording of the risk assessment be in terms of the levels of output and inflation or their changes?2. What conditioning assumption for monetary policy should be employed?3. Over what period should the outlook and risks be considered?

6. The statement should avoid the use of potentially charged terms.

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The "Levels - A" Alternative

[Note: For Pages 6, 7, and 8, emphasis (italic) and strong emphasis (bold) have been added to indicate red and blue text, respectively, in the original document.]

The Committee's assessment of the outlook **over the next several quarters** is that real *economic activity* may well [fall short of / be about on / exceed] a path consistent with the long-run trend of its potential. Over the same period, *inflation* may well [fall short of / be about on / exceed] a path consistent with price stability in the long run.

In light of these assessments and its goals of maximum sustainable growth and price stability, the Committee judges that the risk(s)

- of [*weak economic activity / unsustainable economic activity*] / (and) / [*undesirably low inflation / undesirably high inflation*] [*is a concern / is of greater concern / are both concerns*].
- to both of its long-run goals are balanced.

- *Stated in terms of levels, with explicit reference to benchmarks for inflation and output.*
- Silent about the conditioning assumption for policy, but based on an assumption of "normal" policy.
- **Horizon is "several quarters," but outcomes are described relative to paths that continue further into the future.**

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The "Levels - B" Alternative

The Committee's assessment of the outlook is that *the level of economic activity* will likely [fall short of / about attain / remain near / exceed] the long-run trend of its potential **in the foreseeable future**. Over the same period, *inflation* will likely [fall below / about attain / remain within / exceed] the range consistent with price stability in the long run.

In light of these assessments and its goals of maximum sustainable growth and price stability, the Committee judges that the risk(s)

- of [*undesirably weak economic activity / unsustainably strong economic activity*] / (and) / [*undesirably low inflation / undesirably high inflation*] [*is a concern / is the greater concern / are both concerns*]
- to both of its long-run goals are balanced

- *Stated in terms of levels, with explicit reference to benchmarks for inflation and output.*
- Silent about the conditioning assumption for policy, but based on an assumption of an unchanged policy stance.
- **Horizon is "the foreseeable future."**

for the foreseeable future.

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The "Changes" Alternative

The Committee's assessment of the outlook is that *economic growth* will likely [fall short of / about attain / remain near / exceed] its long-run sustainable pace **in the foreseeable future**. Over the same period, *inflation* will likely [fall / remain about the same / rise].

In light of these assessments and its goals of maximum sustainable growth and price stability, the Committee judges that

- *economic growth* [below / equal to / above] its long-run sustainable pace / (and) / [falling / stable / rising] inflation [is the greater concern / is a concern / are both concerns]
- the risks to the achievement of both of its long-run goals are balanced

for the foreseeable future.

- *Stated in terms of changes in output relative to potential and changes in inflation.*
- References to levels and benchmarks would be in the first paragraph.
- Silent about the conditioning assumption for policy, but based on an assumption of an unchanged policy stance.
- **Horizon is "the foreseeable future."**

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Some Possible Pitfalls

Measurement

- "Long-run trend of potential"
- "Level of potential output"
- "Long-run sustainable pace"
- "Price stability"

Clarity

- "Path consistent with..."
- "Foreseeable future"

Conditioning assumption

- "Normal" policy
- "Appropriate" policy
- Unchanged policy

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Expedited Release of the FOMC Minutes

Pros

- Providing more timely information to the public
- Increasing transparency and accountability
- Potential for shortening the policy announcement

Cons

- Possible effects on Committee deliberations
- Possible effects on the minutes
 - Quality
 - Ability to make conditional statements
 - Temptation to send signals
- Possible inappropriate market responses
- Adverse interactions with other aspects of Committee communications
 - Interaction with the MPR and testimony
 - Creating additional news events
- Blackout periods

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Enhanced Role for the FOMC Projections

There are several margins over which the Committee can choose:

Pros:

- Increased frequency (every meeting or every quarter).
- Increased length of projection periods.
- Increased number of variables in the projections
 - e.g., core PCE inflation, potential output growth, the "working definition of price stability," or the width of uncertainty bands for the projections.
- Separate projections from the Monetary Policy Report and testimony.

Cons:

- Providing more timely information to the public.
 - Both about the central tendencies and the range of opinions.
- Increasing transparency and accountability.
- Possible substitute for the risk assessment in the statement.

- As a matter of process, should the forecasts be:
 - Included in the minutes of the meetings?
 - Revised after the meetings?
 - Augmented by explanatory text?
- The public might not understand the conditional nature of the projections.
- Separate publication would create additional news events.
- The Committee's credibility could be impaired if the forecasts turn out to be wrong.

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Options Across the Three Communications Issues

Risk assessment

- Status quo
- Gradual evolution
 - Greater flexibility in

Release of the Minutes

- Status quo
- Release approximately
 - *two* weeks after the

Role of the Projections

- Status quo
- Increase the frequency of the projections.

Risk assessment

- assessing risks
 - Include explicit alternative statement language in the Bluebook.
- New formulaic language:
 - Levels - A
 - Levels - B
 - Changes
- Discontinue the assessment of risks portion of the statement.

Release of the Minutes

- meeting
 - *three* weeks after the meeting
 - *four* weeks after the meeting

Role of the Projections

- Quarterly
- Every regular meeting
- Increase the length of the projection period.
- Increase the number of variables in the projections.
- Release of the projections
 - In the MPR
 - In the minutes
 - In a separate document

Appendix 3: 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: 3-month USD Libor, USD 3-month forward rate agreement, USD 6-month forward rate agreement, USD 9-month forward rate agreement

Horizon: October 1, 2003 - January 26, 2004

Description: Forward rate agreements decline.

Middle panel

Title: Treasury Note Yields

Series: Yields for 10-year and 2-year Treasury notes

Horizon: January 1, 2003 - January 26, 2004

Description: Treasury yields decline slightly.

Bottom-left panel

Title: Investment Grade Corporate Debt Spread

Series: Investment grade corporate debt spread

Horizon: September 1, 2003 - January 26, 2004

Description: Investment grade corporate debt spread narrows.

Source: Lehman Brothers

Bottom-right panel

Title: High Yield and EMBI+ Spreads

Series: Merrill Lynch High Yield Bond Index spread and JP Morgan EMBI Plus Sovereign spread

Horizon: September 1, 2003 - January 26, 2004

Description: High yield and EMBI+ spreads narrow.

Source: Merrill Lynch, JP Morgan

Page 2

Top panel

Title: Select Foreign Currencies Versus U.S. Dollar

Series: Spot exchange rates for British Pound Sterling, Euro, Canadian Dollar, Australian Dollar, and Japanese Yen

Horizon: August 1, 2003 - January 26, 2004

Description: Dollar appreciates slightly versus foreign currencies.

Middle panel

Title: Global Equity Returns

Series: Index, Euro, Dollar, and Yen returns for the S&P 500 Index, Nasdaq, DJ Euro Stoxx, and Nikkei

Horizon: January 1, 2003 - January 26, 2004

Description: Global equity returns.

Bottom-left panel

Title: Interest Rate Differentials: Select 3-Month Government Spreads to U.S. Treasuries

Series: 3-month sovereign debt spreads to Treasury for Australia, Great Britain, Canada, and Germany

Horizon: January 1, 2003 - January 26, 2004

Description: Interest rate differentials on 3-month bills narrow for Canada and Germany and widen for Australia and Great Britain.

Bottom-right panel

Title: Interest Rate Differentials: Select 10-Year Government Yields less U.S. Treasury Yields

Series: 10-year sovereign debt spreads to Treasury for Australia, Great Britain, Canada, and Germany

Horizon: January 1, 2003 - January 26, 2004

Description: Interest rate differentials on 10-year bonds narrow for Canada and Germany and widen for Australia and Great Britain.

Page 3

Top panel

Title: Japanese Yen Versus U.S. Dollar

Series: Japanese yen per dollar

Horizon: August 1, 2003 - January 26, 2004

Description: Yen appreciates versus the U.S dollar.

Japanese Intervention in the Intermeeting Period: \$80.5 billion

Middle panel

Title: Japanese Net Yearly Intervention in Dollar-Yen

Series: Japanese yearly intervention in dollar-yen

Horizon: 1989 - 2004

Description: Year-to-date Japanese intervention \$60 billion as of January 24.

Bottom-left panel

Title: TIC Data: Cumulative Foreign Treasury Note and Bill Purchases

Series: Private and official foreign purchases of Treasury notes and bills

Horizon: January 2003 - January 2004

Description: Foreign purchases of Treasuries increase.

Bottom-right panel

Title: FRBNY Custody Holdings of Treasury and Agency Securities

Series: Federal Reserve Bank of New York custody holdings of Treasury and agency securities

Horizon: January 2003 - January 2004

Description: Custody holdings of Treasuries and agencies increase.

Page 4

Top panel

Title: Current Euro Area 3-Month Deposit Rates and Rates Implied by Traded Forward Rate Agreements

Series: 3-month Euro Libor, Euro 3-month forward rate agreement, Euro 6-month forward rate agreement, Euro 9-month forward rate agreement

Horizon: October 1, 2003 - January 26, 2004

Description: Euro forward rate agreements decline.

Middle panel

Title: Japanese Yield Curve

Series: Japanese government yields for 3-month to 10-year securities

Horizon: N/A

Description: Japanese yield curve steepens.

Bottom panel

Title: Japanese Topix Index and Select Sub-Indices

Series: Japanese Topix Index, Topix Electronics Sub-Index, Topix Bank Sub-Index

Horizon: January 1, 2003 - January 26, 2004

Description: Topix and selected sub-indices increase.

Appendix 4: Materials used by Mr. Slifman

Orders and Shipments of Durable Goods

(Percent change from comparable previous period, seasonally adjusted)

Category	2003			2003		
	Q2	Q3	Q4	Oct.	Nov. ^r	Dec. ^a
	Annual rate			Monthly rate		
<i>Nondefense capital goods</i>						
Orders	12.9	17.9	5.0	2.4	-6.0	0.2
Aircraft	2140.8	36.1	1.1	31.1	-14.5	13.7
Excluding aircraft	3.2	17.1	5.1	1.4	-5.6	-.4
Computers and peripherals	65.1	26.6	0.9	-.8	0.1	2.0
Communications equipment	-31.2	80.8	-56.2	16.3	-48.5	-21.3
All other	1.0	7.6	21.0	-.8	2.4	1.4
Shipments	5.7	16.4	7.4	0.3	0.4	-.2
Aircraft	8.6	32.6	-8.5	-9.6	18.8	-13.2
Excluding aircraft	5.6	15.6	8.3	0.8	-.4	0.5
Computers and peripherals	35.8	43.5	3.4	4.6	-2.4	-1.3
Communications equipment	-6.5	35.2	7.9	2.8	-1.3	-1.0
All other	2.7	8.4	9.3	-.3	0.2	1.0
<i>Supplementary orders series</i>						
Durable goods [*]	-.8	17.1	15.9	3.9	-2.3	-.0
Real adjusted durable goods	-1.6	17.8		3.1	-2.4	
Capital goods	10.8	14.9	9.7	4.7	-5.3	0.2
Nondefense	12.9	17.9	5.0	2.4	-6.0	0.2
Defense	-2.1	-3.8	47.2	23.2	-1.3	0.1

r Revised. [Return to table](#)

a Advance. [Return to table](#)

* Contains industry detail not shown separately. [Return to table](#)

Appendix 5: Materials used by Messrs. Slifman, Struckmeyer, and Kamin

Material for Staff Presentation on the Economic Outlook
January 28, 2004

STRICTLY CONFIDENTIAL (FR) CLASS I-FOMC*

*Downgraded to Class II upon release of the February 2004 Monetary Policy Report.

Chart 1 Near-Term Developments

Top-left panel Private Nonfarm Payroll Employment

The period covered is 2001 through 2003:Q4. The data are represented as bars and expressed as thousands of employees, presented as an average monthly change. A horizontal line is drawn at zero.

There are five bars. Approximate values are as follows.

Period	Private Nonfarm Payroll Employment
2001	-200,000
2002	-10,000
2003:H1	-5,000
2003:Q3	5,000
2003:Q4	6,000

Top-right panel
Sales of Light Vehicles

The period covered is 2001 through December 2003. The data are in millions of units and are plotted on a curve.

In 2001:Q1, the curve starts at nearly 14 million, then fluctuates between about 13 million and 14 million in the second and third quarters. The curve climbs to about 17.5 million in 2001:Q4, then decreases to approximately 12.5 million by year-end. The curve increase to about 14 million in 2002:Q1; it then dips to about 12.5 million in 2002:Q2, increases to about 15.25 million in 2002:Q3, decreases to about 12 million at the start of 2002:Q4, and climbs to about 15 million by year-end 2002. In 2003:Q1, the curve drops to about 12 million, increases to about 15.25 million in 2003:Q2, falls to about 12.5 million in 2003:Q3, then increases to about 15 million by the end of the year.

Middle-left panel
Real Retail Sales

The figure shows real retail sales, excluding sales at automobile dealers and building material and supply stores. The data are represented as 12 bars and are expressed as a percent change at an annual rate. The period covered is 2001 through 2003:Q4, and a horizontal line is drawn at zero.

Approximate values are as follows.

Period	Real Retail Sales
2001:Q1	about 0.25 percent
2001:Q2	just under zero
2001:Q3	about 3 percent
2001:Q4	about 6 percent
2002:Q1	about 6.5 percent
2002:Q2	about 1 percent
2002:Q3	about 0.5 percent
2002:Q4	just under 6 percent
2003:Q1	just under 6 percent
2003:Q2	about 5 percent
2003:Q3	about 9.5 percent
2003:Q4	just under 6 percent

Middle-right panel
Orders and Shipments of Nondefense Capital Goods

The figure shows the orders and shipments of nondefense capital goods, excluding aircraft. The data are plotted on two curves and represent the three-month moving average, in billions of dollars. The period covered is 2001 through December 2003. One curve is for shipments, and the other curve is for orders.

The curve for shipments starts in 2001:Q1 at just above 62 billion dollars and falls to about 53 billion dollars in 2001:Q4. In the first quarter of 2002, the curve increases to just above 53 billion dollars, dips to about 53 billion dollars throughout the second quarter, and increases to just above 53 billion dollars in the third quarter. The curve then starts to decrease and drops to approximately 52 billion dollars in 2003:Q1; it then moves upward to end at about 56 billion dollars in December 2003.

The curve for orders starts at about 62 billion dollars in 2001:Q1 and drops to about 51 billion dollars in the fourth quarter. The curve increases to about 53 billion dollars in 2002:Q1 and dips to about 52 billion dollars in 2002:Q2 and remains at about that level through the fourth quarter. The curve moves generally upward through 2003, ending at about 57 billion dollars in December 2003.

Bottom-left panel

Nonfarm Business Productivity

Period	Percent change, annual rate*	Forecast
2001	2.88	ND
2002	4.13	ND
2003:H1	4.72	ND
2003:Q3	9.40	ND
2003:Q4	ND	3.28
2004:Q1	ND	3.66

* Percent changes are calculated from end of the preceding period to end of the period indicated. [Return to table](#)

Bottom-right panel

Real GDP

Percent change, annual rate

	2003:Q4	2004:Q1
1. Real GDP	4.8	5.0
<i>Contributions (percentage points):</i>		
2. Final sales	3.9	4.5
3. Inventories	.8	.5

Chart 2

The Longer-Run Outlook

Top-left panel

Real GDP

Period	Percent Change, Q4/Q4	Forecast
1998	4.51	ND

Period	Percent Change, Q4/Q4	Forecast
1999	4.70	ND
2000	2.24	ND
2001	-0.04	ND
2002	2.80	ND
2003	4.48	ND
2004	ND	5.28
2005	ND	4.00

Top-right panel

Major Forces Shaping the Outlook

- Fiscal policy - stimulative in 2004, slightly restrictive in 2005.
- Supportive monetary policy.
- Robust gains in structural productivity.
- Improved financial conditions for business.
- Higher stock market.

Middle-left panel

Fiscal Impetus

Period	Percent of GDP	Forecast
1998	-0.0	ND
1999	0.3	ND
2000	0.1	ND
2001	0.47	ND
2002	1.04	ND
2003	1.15	ND
2004	ND	1.06
2005	ND	-0.18

Middle-right panel

Federal Funds Rate

Period	Percent	Forecast
1998:Q1	5.50	ND
1998:Q2	5.50	ND
1998:Q3	5.49	ND
1998:Q4	4.91	ND
1999:Q1	4.75	ND
1999:Q2	4.75	ND
1999:Q3	5.10	ND
1999:Q4	5.38	ND
2000:Q1	5.69	ND
2000:Q2	6.25	ND

Period	Percent	Forecast
2000:Q3	6.50	ND
2000:Q4	6.50	ND
2001:Q1	5.61	ND
2001:Q2	4.33	ND
2001:Q3	3.56	ND
2001:Q4	2.14	ND
2002:Q1	1.75	ND
2002:Q2	1.75	ND
2002:Q3	1.75	ND
2002:Q4	1.44	ND
2003:Q1	1.25	ND
2003:Q2	1.23	ND
2003:Q3	1.00	ND
2003:Q4	1.00	ND
2004:Q1	ND	1.00
2004:Q2	ND	1.00
2004:Q3	ND	1.00
2004:Q4	ND	1.00
2005:Q1	ND	1.25
2005:Q2	ND	1.50
2005:Q3	ND	1.75
2005:Q4	ND	2.00

Bottom-left panel
Debt Ratios

The period covered is 1985 through 2003:Q3. The data are for nonfinancial corporations, represented as percents, and are plotted on two curves. One curve represents total debt over assets. The other curve represents short-term debt over assets; note that short-term debt equals short-term notes plus the current portion of long-term debt due in one year.

The curve for total debt over assets starts at about 28 percent in 1985 and continues generally upward. It reaches approximately 32.5 percent in 1990 and then decreases to about 28 percent in 1994. The curve increases to about 28.25 percent in 1995 and decreases to just below 28 percent in 1996; it then increases to about 30.5 percent in 1999, dips to just under 30 percent in 2000, increases to just above 30 percent in 2001, and decreases in 2003:Q3, ending at about 28.25 percent.

The curve for short-term debt over assets starts at nearly 5 percent in 1985, dips to just below 5 percent in 1986, and increases to almost 6.5 percent in 1990. The curve then decreases throughout the early to mid-1990s, dropping to about 4.75 percent in 1994. The curve increases to just above 5 percent in 1995, then decreases to about 4.5 percent in 1997. The curve increases to reach just below 6 percent in 2000, then declines, ending at about 3.75 percent in 2003:Q3.

Source: Compustat.

Bottom-right panel

Corporate Bond Spreads to Similar Maturity Treasury

The period covered is 1998 through January 26, 2004. The data are plotted on two curves. One curve represents the 5-year high-yield, and the other curve represents the 10-year BBB. The data are in basis points, presented weekly.

The 5-year high-yield curve begins at about 400 basis points at the beginning of 1998 and increases to just above 700 basis points by year-end. The curve continues generally downward and fluctuates between about 500 basis points and just above 500 basis points from midyear 1999 to the start of 2000. The curve then fluctuates in a general upward trend to reach about 950 basis points by year-end 2000. At the start of 2001, the curve declines and fluctuates between approximately 750 basis points and just below 900 basis points before increasing to about 1,000 basis points in 2001:Q3. The curve declines to about 675 basis points by the middle of 2002 and increases to just under 1,100 basis points in the second half of the year. The curve then fluctuates generally downward, ending at about 450 basis points on January 26, 2004.

The 10-year BBB curve begins at approximately 80 basis points at the beginning of 1998 and increases to almost 200 basis points in late 1998 and dips to about 150 basis points and stays there throughout 1999. The curve then reaches about 200 basis points by mid-2000 and stays near that point until year-end 2000. In 2001, the curve continues generally downward to about 175 basis points by midyear, increases to about 225 basis points, and decreases to about 175 basis points by the end of the year. The curve fluctuates in an upward trend to reach about 325 basis points by 2002:Q4. It then fluctuates downward, ending at about 125 basis points on January 26, 2004.

Chart 3

Household Sector

Top-left panel

Real DPI and PCE Growth

Percent

Period	PCE	PCE Forecast	DPI	DPI Forecast
2002	2.72	ND	3.52	ND
2003	3.96	ND	3.72	ND
2004	ND	4.23	ND	4.95
2005	ND	3.95	ND	4.23

Top-right panel

Saving Rate

The period covered is 1990 through 2005. The data are represented as a percent of DPI and are plotted on two curves. One curve represents pre-revision, and the other curve represents current estimates.

The pre-revision curve starts in 1990 just under 8 percent; it then moves generally upward to reach about 9 percent in 1992, dips to about 8 percent, and rises to about 9 percent at the end of 1993. The curve fluctuates downward to just below 6 percent in 1994, after which it increases to about 6.25 percent in 1995. The curve continues to fluctuate as it decreases to about 4 percent in 1997, then rises

in 1998 to approximately 5 percent. In 1999, the curve decreases to about 2 percent and increases to approximately 3 percent in 2000. The curves decreases in 2001 to about 2 percent, climbs to about 4 percent, then drops to about 1 percent at the end of 2001. In 2002, the curve rises to about 4 percent and decreases in 2003, ending the year at about 3.5 percent.

The current estimates curve starts in 1990 at about 7 percent; it then fluctuates between about 7 and 8 percent through 1992. The curve continues to fluctuate as it decreases to about 4 percent in 1994, then increases to reach just below 6 percent in 1995. The curve then decreases, fluctuating between about 3.5 and 4 percent in 1996 and 1997. It increases to about 4.5 percent in 1998, slides to just under 2 percent in 1999, and increases to about 3 percent in 2000. The curve then fluctuates in 2001 downward to about 1 percent, climbs to about 3 percent, and decreases to nearly 1 percent. In 2002, the curve increases to approximately 3 percent, then dips to just under 2 percent. In 2003, the curve increases to about 2.25 percent and decreases to just under 2 percent.

The current estimates curve then shows a forecast from 2003:Q4 through 2005, where it increases throughout the period, ending at about 3 percent.

Middle panel

Is The Saving Rate Too Low?

- The BEA, in effect, shifted the goal posts in its most recent comprehensive revision.
- The current saving rate still is well below the level that many observers often think of as a more normal rate.
- The target saving rate is a moving target.
 - It varies over time as the fundamental determinants, such as the wealth-income ratio, the composition of income, and real interest rates, change.
 - The current settings of those fundamentals point to a target saving rate for the next year or two in the neighborhood of 3 percent.
- The saving rate rises to 2.8 percent by the fourth quarter of 2005, eliminating the bulk of the gap between actual and target saving.

Bottom-left panel

Private Housing Starts

Period	Millions of units	Forecast
1980:Q1	1.25	ND
1980:Q2	1.06	ND
1980:Q3	1.39	ND
1980:Q4	1.51	ND
1981:Q1	1.37	ND
1981:Q2	1.18	ND
1981:Q3	0.96	ND
1981:Q4	0.87	ND
1982:Q1	0.88	ND
1982:Q2	0.95	ND
1982:Q3	1.12	ND
1982:Q4	1.28	ND
1983:Q1	1.63	ND

Period	Millions of units	Forecast
1983:Q2	1.66	ND
1983:Q3	1.80	ND
1983:Q4	1.73	ND
1984:Q1	1.94	ND
1984:Q2	1.82	ND
1984:Q3	1.67	ND
1984:Q4	1.63	ND
1985:Q1	1.71	ND
1985:Q2	1.73	ND
1985:Q3	1.70	ND
1985:Q4	1.83	ND
1986:Q1	1.90	ND
1986:Q2	1.88	ND
1986:Q3	1.76	ND
1986:Q4	1.71	ND
1987:Q1	1.76	ND
1987:Q2	1.61	ND
1987:Q3	1.63	ND
1987:Q4	1.52	ND
1988:Q1	1.43	ND
1988:Q2	1.49	ND
1988:Q3	1.48	ND
1988:Q4	1.55	ND
1989:Q1	1.49	ND
1989:Q2	1.36	ND
1989:Q3	1.35	ND
1989:Q4	1.34	ND
1990:Q1	1.43	ND
1990:Q2	1.21	ND
1990:Q3	1.13	ND
1990:Q4	1.04	ND
1991:Q1	0.90	ND
1991:Q2	1.01	ND
1991:Q3	1.04	ND
1991:Q4	1.09	ND
1992:Q1	1.24	ND
1992:Q2	1.15	ND
1992:Q3	1.18	ND
1992:Q4	1.23	ND

Period	Millions of units	Forecast
1993:Q1	1.17	ND
1993:Q2	1.27	ND
1993:Q3	1.30	ND
1993:Q4	1.43	ND
1994:Q1	1.39	ND
1994:Q2	1.47	ND
1994:Q3	1.45	ND
1994:Q4	1.47	ND
1995:Q1	1.32	ND
1995:Q2	1.29	ND
1995:Q3	1.42	ND
1995:Q4	1.42	ND
1996:Q1	1.46	ND
1996:Q2	1.50	ND
1996:Q3	1.50	ND
1996:Q4	1.42	ND
1997:Q1	1.43	ND
1997:Q2	1.48	ND
1997:Q3	1.46	ND
1997:Q4	1.53	ND
1998:Q1	1.56	ND
1998:Q2	1.57	ND
1998:Q3	1.63	ND
1998:Q4	1.72	ND
1999:Q1	1.71	ND
1999:Q2	1.57	ND
1999:Q3	1.65	ND
1999:Q4	1.66	ND
2000:Q1	1.66	ND
2000:Q2	1.59	ND
2000:Q3	1.50	ND
2000:Q4	1.54	ND
2001:Q1	1.61	ND
2001:Q2	1.63	ND
2001:Q3	1.60	ND
2001:Q4	1.57	ND
2002:Q1	1.72	ND
2002:Q2	1.68	ND
2002:Q3	1.70	ND

Period	Millions of units	Forecast
2002:Q4	1.74	ND
2003:Q1	1.74	ND
2003:Q2	1.74	ND
2003:Q3	1.88	ND
2003:Q4	2.04	ND
2004:Q1	ND	1.92
2004:Q2	ND	1.91
2004:Q3	ND	1.89
2004:Q4	ND	1.88
2005:Q1	ND	1.88
2005:Q2	ND	1.87
2005:Q3	ND	1.86
2005:Q4	ND	1.85

Bottom-right panel

Home Prices

The figure shows home prices as measured by the OFHEO repeat sales price index. The period covered is 1980 through 2005. The data are plotted on a curve and represent a four-quarter percent change. A horizontal line is drawn at zero.

The curve starts in 1980 at about 9 percent, fluctuates downward to about 1 percent in 1982, and continues generally upward to about 8 percent in 1986. After this increase, the curve fluctuates downward to approximately 5 percent in 1989, then climbs to about 6 percent in 1990. The curve drops toward the end of 1990 to just above zero. It fluctuates between about 1 percent and just under 3 percent from 1991 to 1994 and decreases to about 0.5 percent in 1995; it then increases to approximately 5.75 percent in 1996 and drops to nearly 3 percent in 1997. The curve increases in 1998 to about 5 percent and dips just below 5 percent in 1999; it then increases to reach about 8 percent in 2000, decreases to about 7 percent in 2001, and increases to about 7.25 percent in 2002. The curve then shows a forecast from about 2003:Q4 through 2005, where it decreases throughout the period and ends just below 3 percent.

Chart 4

Business Sector

Top panel

Real Outlays for Equipment and Software

The period covered is 1995 through 2005. The data are represented as bars and are expressed as a percent change at an annual rate; note that the percent changes are calculated from the preceding fourth quarter of the indicated period to the final fourth quarter of the period. A horizontal line is drawn at zero, and there are two bars within each time period. One bar represents "computers and software", and the second bar represents "other." Approximate values are as follows.

Period	Computers and	Computers and	Other	Other Forecast

	Software	Software Forecast		
1995-1999	29	ND	5	ND
2000-2002	4	ND	-2	ND
2003	18	ND	5	ND
2004	ND	38	ND	18
2005	ND	28	ND	just below 10 percent

Middle-left panel

Reserve Bank Queries On Capital Spending Plans

(Percent of respondents answering "yes")

	June 2003	Jan 2004
Plan to increase capital spending over the next 6 to 12 months	35	52
<i>Reasons for increase:</i>		
Expected sales growth	46	54
Replace IT	39	41
Partial expensing	6	16
Cash flow/balance sheets	16	25

Middle-right panel

Economic Profit Share

Period	Percent of GNP	Forecast
1989:Q1	8.11	ND
1989:Q2	7.82	ND
1989:Q3	7.58	ND
1989:Q4	7.48	ND
1990:Q1	7.54	ND
1990:Q2	7.85	ND
1990:Q3	7.32	ND
1990:Q4	7.28	ND
1991:Q1	7.69	ND
1991:Q2	7.50	ND
1991:Q3	7.39	ND
1991:Q4	7.37	ND
1992:Q1	7.91	ND
1992:Q2	7.83	ND
1992:Q3	6.69	ND
1992:Q4	7.70	ND
1993:Q1	7.68	ND
1993:Q2	8.07	ND

Period	Percent of GNP	Forecast
1993:Q3	8.03	ND
1993:Q4	8.60	ND
1994:Q1	7.59	ND
1994:Q2	8.46	ND
1994:Q3	8.76	ND
1994:Q4	8.99	ND
1995:Q1	8.96	ND
1995:Q2	9.27	ND
1995:Q3	9.66	ND
1995:Q4	9.59	ND
1996:Q1	10.02	ND
1996:Q2	10.00	ND
1996:Q3	9.97	ND
1996:Q4	10.06	ND
1997:Q1	10.26	ND
1997:Q2	10.39	ND
1997:Q3	10.64	ND
1997:Q4	10.38	ND
1998:Q1	9.42	ND
1998:Q2	9.14	ND
1998:Q3	9.17	ND
1998:Q4	8.84	ND
1999:Q1	9.28	ND
1999:Q2	9.22	ND
1999:Q3	9.01	ND
1999:Q4	9.09	ND
2000:Q1	8.62	ND
2000:Q2	8.45	ND
2000:Q3	8.21	ND
2000:Q4	7.94	ND
2001:Q1	7.52	ND
2001:Q2	7.40	ND
2001:Q3	7.06	ND
2001:Q4	8.41	ND
2002:Q1	8.50	ND
2002:Q2	8.64	ND
2002:Q3	8.52	ND
2002:Q4	8.77	ND
2003:Q1	8.61	ND

Period	Percent of GNP	Forecast
2003:Q2	9.40	ND
2003:Q3	10.09	ND
2003:Q4	10.29	ND
2004:Q1	ND	10.50
2004:Q2	ND	10.61
2004:Q3	ND	10.48
2004:Q4	ND	10.44
2005:Q1	ND	10.15
2005:Q2	ND	9.96
2005:Q3	ND	9.86
2005:Q4	ND	9.69

Bottom-left panel
PCs Sold in the U.S.

The period covered is 1998 through 2005. The data are expressed as millions of unit sales and are plotted on two curves. One curve is for net additions, and the other is for replacement.

The net additions curve starts in 1998 at about 33 million. It continues to move generally upward, reaching about 48 million in the first quarter of 2001. The curve decreases to about 42 million in 2002 and increases to about 44 million at the end of 2003. A forecast period starts in 2004, and the curve increases through 2005 to end the year at about 58 million.

The replacement curve starts just below 20 million in 1998. It then moves generally upward, reaching about 35 million near the start of 2001. The curve remains at about that level in 2002, then increases to reach about 35 million by year-end 2003. A forecast period starts in 2004, and the curve increases through 2005 and ends the year at about 46 million.

Source: Gartner Group.

Bottom-right panel
Domestic Cost Share of PCs Sold in the U.S.

The period covered is 1999 through 2005. The data are represented as bars and are expressed as a percent of total cost. There are seven bars. The top part of each bar denotes other domestic costs, and the bottom part of each bar denotes micro processor costs. Approximate values are as follows.

Period	Micro Processor Costs	Micro Processor Costs Forecast	Other Domestic Costs	Other Domestic Costs Forecast	Total Domestic Costs	Total Domestic Costs Forecast
1999	19	ND	14	ND	33	ND
2000	21	ND	13	ND	34	ND
2001	18	ND	14	ND	32	ND
2002	17	ND	14	ND	31	ND
2003	17	ND	14	ND	31	ND
2004	ND	17	ND	13	ND	30
2005	ND	20	ND	12	ND	32

Chart 5 Financial Developments

Chart 5 is a three-by-two array of graphs for nominal dollar indexes, dollar exchange rates, ten-year government bond yields, stock price indexes, bond spreads, and cross-border debt issuance.

Top-left panel

Nominal Dollar Indexes

Nominal Dollar Indexes on a weekly basis for 2002 to early 2004. The range of the y-axis is [75, 115]; index, Jan. 4, 2002 = 100. There is a vertical line in the graph that indicates the time of the June 2003 FOMC. The three series are the broad index, which is the trade-weighted average against major currencies and currencies of other important trading partners, the major currencies index, and an index for other important trading partners. All the series begin at 100. The broad index moves generally downward to about 92 by the June 2003 FOMC, and then declines further to about 89 by early 2004. The major currencies index moves generally downward to about 82 by the June 2003 FOMC, and then declines further to about 77 by early 2004. The index of the currencies of other important trading partners moves generally upward to about 107 by early 2003, declines a bit to about 104 by the June 2003 FOMC, and then fluctuates around 105 through early 2004.

Top-right panel

Dollar Exchange Rates

Dollar Exchange Rates, foreign currency/dollar, on a weekly basis for 2002 to early 2004. The range of the y-axis is [60, 130]; index, Jan. 4, 2002 = 100. There is a vertical line in the graph that indicates the time of the June 2003 FOMC. The five series are exchange rate indexes for Mexico, Korea, the UK, Japan, and the euro area. All the series begin at 100. The exchange rate index for Mexico rises generally to about 115 by the June 2003 FOMC, and then rises further to about 120 by early 2004. The exchange rate index for Korea declines to just below 90 by mid 2002, and then fluctuates around 90 through early 2004. The exchange rate index for the UK declines generally to about 88 by the June 2003 FOMC, and then falls further to about 80 by early 2004. The exchange rate index for Japan declines to about 90 by the June 2003 FOMC, and then falls further to about 80 by early 2004. The exchange rate index for the euro area declines to about 78 by the June 2003 FOMC, and then falls further to about 72 by early 2004.

Middle-left panel

Ten-Year Government Bond Yields

Ten-Year Government Bond Yields on a weekly basis for the UK, Germany, the United States, and Japan for 2002 through early 2004. The range of the y-axis is [0, 6]; unit is percent. There is a vertical line in the graph that indicates the time of the June 2003 FOMC. The yields for the UK, Germany, and the United States all start at about 5 percent and track closely for the entire period. The yields for the United States rise to about 5½ percent by early 2002, decline to about 3¾ percent by the June 2003 FOMC, quickly rise to about 4½ percent, and then decline a bit to about 4 percent by the end of the period. The yields for the UK rise to about 5½ percent by early 2002, decline to about 4 percent by the June 2003 FOMC, rise to about 5 percent by late 2003, and then decline a bit to about 4¾ percent by the end of the period. The yields for Germany rise to about 5½ percent by early 2002, decline to about 3¾ percent by the June 2003 FOMC, rise to about 4½ percent by late 2003,

and then decline slightly to just over 4 percent by the end of the period. The yields for Japan start at about 1½ percent, decline to about ½ percent by the June 2003 FOMC, quickly rise to about 1½ percent, and then decline slightly to about 1¼ percent by the end of the period.

Middle-right panel

Stock Price Indexes

Stock Price Indexes on a weekly basis for emerging markets and industrial countries for 2002 through early 2004. The source for the indexes is MSCI. The range of the y-axis is [40, 140]; index, Jan. 4, 2002 = 100. Both series start at 100. The emerging markets index rises to about 115 by early 2002, declines to about 80 by late 2002, fluctuates between 80 and 90 through early 2003, then rises to nearly 100 by the June 2003 FOMC and continues to rise to about 130 by the end of the period. The industrial countries index declines to about 70 by late 2002, fluctuates around 70 through early 2003, then rises to about 80 by the June 2003 FOMC and continues to rise to about 95 by the end of the period.

Bottom-left panel

Bond Spreads

Bond Spreads on a weekly basis for 2002 through early 2004 for US BBB, EMBI+, and euro-area BBB. U.S BBB and euro-area BBB are defined as corporate over government debt. For EMBI+, the range of the left y-axis is [300, 1200]; unit is basis points. For US BBB and euro-area BBB, the range of the right y-axis is [50, 350]; unit is basis points. The spreads for US BBB start at just under 200 basis points, rise to about 320 basis points by late 2002, fall to about 165 basis points by the June 2003 FOMC, and decline further to about 130 basis points by the end of the period. The spreads for EMBI+ start at about 725 basis points, rise to just over 1000 basis points by late 2002, fall to about 550 basis points by the June 2003 FOMC, and decline further to about 400 basis points by the end of the period. The spreads for euro-area BBB start at just about 170 basis points, rise to about 240 basis points by late 2002, fall to just over 100 basis points by the June 2003 FOMC, and decline further to about 80 basis points by the end of the period.

Bottom-right panel

Cross-border Debt Issuance

Cross-border Debt Issuance on a quarterly basis for industrial countries and emerging markets for 1996-2003. The source for the series is Dealogic (Bondware, Loanware). The range of the right y-axis, which measures industrial countries, is [300, 900]; unit is billions of dollars. The range of the left y-axis, which measures emerging markets, is [15,75]; unit is billions of dollars.. The series for industrial countries starts at about \$350 billion, and, with considerable volatility, rises to about \$800 billion dollars by end-2003. The series for emerging markets starts at about \$35 billion, rises to highs of about \$60-\$65 billion dollars in late 1996 through late 1997, and then, with considerable volatility, declines to about \$30 billion dollars by end-2003.

Chart 6

Foreign Outlook

Chart 6 is a three-by-two array of panels including a table on real GDP growth for industrial countries, and graphs on global trade and IP, oil and non-fuel commodity prices, consumer price inflation, euro-area industrial sector indicators, and Japanese unemployment and core machinery orders.

Top-left panel

Real GDP Growth: Industrial Countries

Real GDP Growth: Industrial Countries (Percent, SAAR) for 2003:H1 (actual), 2003:H2 (estimated), 2004 (forecast) and 2005 (forecast).

Percent, SAAR^{*}

	2003		2004	2005
	H1	H2		
1. Total foreign ^{**}	0.6	3.9	3.8	3.5
2. Indust. countries	0.7	2.4	2.9	2.8
<i>of which:</i>				
3. Euro Area	-0.2	1.8	2.4	2.2
4. Japan	2.0	2.4	2.0	1.8
5. Canada	0.6	2.4	3.4	3.3
6. United Kingdom	1.5	3.4	3.0	2.5

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

** Aggregates weighted by shares of U.S. exports. [Return to table](#)

Top-right panel

Global Trade and IP^{*}

Global Trade and IP on a monthly basis for 2001 through October 2003. The range of the left y-axis, which measures IP as an index, Jan. 2001=100, is [95, 102]. The range of the right y-axis, which measures exports in billions of dollars, is [280, 400]. The index for IP begins at 100, falls to about 96 by end-2001, and then rises to slightly over 101 by October 2003. Exports start at about \$330 billion, fall to about \$290 billion by end-2001, and then rise to about \$390 billion by October 2003. The two series track fairly closely for the entire period.

* United States and 32 trading partners. IP weighted by 2002 GDP in dollars. Hong Kong and Indonesia IP through September. [Return to text](#)

Middle-left panel

Oil and Non-fuel Commodity Prices

Oil and Non-fuel Commodity Prices on a monthly basis for 2001-2003 (actual) and for 2004-2005 (forecast). The range of the left y-axis, which measures non-fuel commodities as an index, Jan. 2001=100, is [80, 130]. The range of the right y-axis, which measures the WTI spot price in dollars per barrel, is [16, 40]. The non-fuel commodities index is comprised of IMF component indexes weighted by U.S. import shares. The index for non-fuel commodities begins at 100, falls to about 90 by late 2001, rises to about 117 by end-2003, and then declines slightly to about 114 by the end of the forecast period. The WTI spot price starts at about \$30 per barrel, falls to just below \$20 per barrel by end-2001, rises with marked volatility to nearly \$34 per barrel by end-2003 (the rise includes a spike to about \$36 per barrel at the beginning of 2003); the WTI spot price then declines to just under \$28 per barrel by the end of the forecast period. The two series track reasonably closely for 2001-2003, although the WTI spot price is much more volatile; the series then diverge somewhat during the forecast period, with the WTI spot price showing more of a decline than the non-fuel commodities.

Middle-right panel

Consumer Price Inflation

Consumer Price Inflation (four-quarter percent change) on a quarterly basis for 2001-2003 (actual) and 2004-2005 (forecast) for Latin America, the industrial countries, and Asia. The three aggregates are weighted by shares in U.S. non-oil imports. The range of the y-axis is [-1, 8]. The percent change for Latin America starts at just over 7 percent, falls to just over 5 percent by early 2002, rises to about 7 percent by early 2003, declines to about 4½ percent by end-2003, and then further declines to about 3½ percent by the end of the forecast period. The percent change for industrial countries starts at just over 1½ percent, immediately rises to just over 2 percent, falls to about 1 percent by late 2001, rises to about 2½ percent by early 2003, falls to about 1 percent by end-2003, further declines to about ¾ percent by early 2004, and then rises to about 1¼ percent by mid-2004 and stays there through the end of the forecast period. The percent change for Asia starts at just under 1½ percent, falls to 0 percent by early 2002, rises to about 1½ percent by end-2003, further rises to about 2 percent by mid-2004, declines to about 1½ percent by early 2005, and stays there through the end of the forecast period.

Bottom-left panel

Euro Area - Industrial Sector Indicators

Euro Area - Industrial Sector Indicators on a monthly basis for 2001 through late 2003/early 2004. The range of the left y-axis, which measures euro-area IP as an index, Jan. 2001=100, is [96, 101]. The range of the right y-axis, which measures German Ifo as an index, Jan. 2001=100, is [85, 103]. The euro-area IP index is a three-month moving average. The index for euro-area IP begins at 100, rises marginally and then falls to just below 97 by end-2001, rises to about 98½ by end-2002, declines to about 97¾ by mid-2003, and then rises to about 98¾ by November 2003. German Ifo starts at 100, falls to about 87 by late 2001, rises to about 94 by mid-2002, falls to about 89 by early 2003, and then rises to nearly 100 by January 2004.

Bottom-right panel

Japan

Graph "Japan" plots the unemployment rate and core machinery orders on a monthly basis for 2001 through November 2003. The range of the left y-axis, which measures the unemployment rate in percent, is [4.6, 5.6]. The range of the right y-axis, which measures core machinery orders as an index, Jan. 2001=100, is [75, 105]. The unemployment rate starts at 4.8 percent, immediately falls to about 4.7 percent, rises to about 5.4 percent by late 2001, fluctuates between about 5.3-5.5 percent through early 2003, and then declines to about 5.2 percent by November 2003. Core machinery orders start at 100, and, with marked volatility, rise to about 103 by mid-2001, fall steeply to about 77 by early 2002, and rise to about 95 by November 2003.

Chart 7

Emerging Market Countries

Chart 7 is a three-by-two array of panels including a table on real GDP growth, and graphs on worldwide semiconductor shipments and Asian IP, China, exports by developing Asia excluding China, U.S. imports from Asia, and Mexico.

Top-left panel

Real GDP Growth

Real GDP Growth (Percent, SAAR) for 2003:H1 (actual), 2003:H2 (estimated), 2004 (forecast), and 2005 (forecast).

Percent, SAAR*

	2003		2004	2005
	H1	H2		
1. Total developing**	0.5	6.1	5.1	4.6
2. Developing Asia	-0.6	11.0	5.7	5.4
<i>of which:</i>				
3. China	6.3	13.6	8.3	7.7
4. Korea	-2.2	4.8	5.2	5.2
5. Latin America	0.9	2.0	4.8	4.0
<i>of which:</i>				
6. Mexico	1.6	1.0	5.2	4.2
7. Brazil	-4.0	2.8	3.5	3.5

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

** Aggregates weighted by U.S. exports. [Return to table](#)

Top-right panel

Worldwide Semiconductor Shipments and Asian IP

Worldwide Semiconductor Shipments and Asian IP on a monthly basis for 1999 through late 2003. The range of the left y-axis, which measures total semiconductor shipments in billions of chips, is [0, 40]. The range of the right y-axis, which measures Asian IP as an index, June 1996=100, is [100, 140]. Asian IP is weighted by U.S. exports and includes Malaysia, the Philippines, Singapore, South Korea, Taiwan, and Thailand. Total semiconductor shipments start at about 22 billion chips, rise to about 32 billion chips by late 2000, fall to about 23 billion chips by late 2001, and then rise to about 33 billion chips by November 2003. Asian IP starts at about 102, rises to nearly 130 by late 2000, falls to about 118 by late 2001, and then rises to about 138 by October 2003. From late 2000 on, the two series track fairly closely.

Middle-left panel

China

Graph "China" plots CPI inflation as a line chart on a quarterly basis for 1999-2003, and it plots the trade balance as a bar chart on an annual basis for 1999-2003. The range of the left y-axis, which measures the trade balance in billions of dollars, is [-12, 36]. The range of the right y-axis, which measures CPI inflation in terms of four-quarter percent change, is [-3.0, 9.0]. CPI inflation starts at about -1.5 percent, falls immediately to about -2 percent, rises to 0 percent in early 2000, rises further to just over 1.5 percent in early 2001, declines to 0 percent in late 2001, falls further to about -1.3 percent in early 2002, rises to 0 percent in late 2002, and rises further to nearly 3 percent by end-2003. Approximate values for the annual trade balance figures, in billions of dollars, for 1999-2003 are as follows: 29, 24, 23, 30, 25.

Middle-right panel

Exports by Developing Asia ex. China

Exports by Developing Asia excluding China, on a quarterly basis for 1999-2003; Developing Asia

excluding China includes Hong Kong, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand. The graph shows exports to the U.S., to the European Union (EU), and to China. 2003:Q4 data are through November for exports to the U.S. and to China and through October for exports to the EU. The range of the y-axis is [70, 210]; unit is billions of dollars, AR. Exports to the U.S. start at just over \$150 billion, rise to about \$200 billion by late 2000, decline to about \$150 billion by late 2001, and then range from about \$150-\$170 billion, ending just below \$170 billion at the end of the period. Exports to the EU start just below \$110 billion, rise to about \$130 billion by late 2000, decline to about \$100 billion by late 2001, and then rise to just under \$130 billion by the end of the period. Exports to China start at just under \$80 billion, rise to about \$110 billion by mid-2000, fluctuate between \$100-\$110 billion through end-2001, and then rise steeply to just over \$200 billion by the end of the period.

Bottom-left panel

U.S. Imports from Asia

U.S. Imports from Asia on a quarterly basis for 2000-2003. The graph shows total U.S. imports from Asia as a line graph, with shaded areas beneath the line to show the proportion of imports from China (orange shading), Developing Asia excluding China (tan shading), and Japan (blue shading). 2003:Q4 data are through October and November. Developing Asia excluding China includes Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand. The range of the y-axis is [0, 550]; unit is billions of dollars, AR. Total U.S. imports from Asia start at about \$375 billion, rise to about \$460 billion by mid-2000, fall to about \$350 billion by early 2002, rise to about \$425 billion by mid-2002, decline to about \$375 billion in early 2003, and then rise to about \$460 billion by the end of the period. The shading beneath the line for total exports shows imports from China, Developing Asia excluding China, and Japan to each comprise about 1/3 of the total throughout the entire period. From the beginning of the period to the end of the period, the proportion of imports from China increases slightly, the proportion of imports from Japan decreases slightly, and the proportion of imports from Developing Asia excluding China remains about the same.

Bottom-right panel

Mexico

Graph "Mexico" plots Mexican exports, Mexican IP, and U.S. IP on a monthly basis for 2000 through late 2003. The range of the left y-axis, which measures Mexican exports in billions of dollars, is [12.0, 15.0]. The range of the right y-axis, which measures Mexican IP and U.S. IP each as an index, Jan. 2000=100, is [95, 105]. Mexican exports, with some volatility, start at just over \$13 billion, rise to about \$14.7 billion by late 2000, fall to about \$12.3 billion by late 2001, rise to about \$13.8 billion by early 2002, fluctuate between \$13.3-\$13.9 billion through mid-2003, and then rise to about \$14.5 billion by November 2003. U.S. IP starts at 100, rises to about 102 by mid-2000, falls to about 96 by late 2001, rises to about 98 by mid-2002, declines to about 97 by mid-2003, and then rises to nearly 100 in December 2003. Mexican IP starts at 100, immediately dips to about 99, rises to nearly 103 by late 2000, falls to about 96 by late 2001, rises to nearly 99 by early 2002, declines to about 96 by late 2003, and then rises to about 98 in November 2003.

Chart 8

U.S. External Outlook

Chart 8 consists of five panels including graphs on real exports and imports, real GDP of U.S. and

total foreign countries, the real exchange rate outlook, and the current account, and a table on financial flows.

Top-left panel

Real Exports and Imports

Real Exports and Imports as a bar chart for 2002 (actual), 2003:H1 (actual), 2003:H2 (projected), 2004 (projected), and 2005 (projected). The range of the y-axis is [-5, 15]; unit is percent change, SAAR. Years are Q4/Q4; half years are Q2/Q4 or Q4/Q2. Approximate values for the five periods are as follows.

Percent change, SAAR

	2002	2003		2004	2005
		H1	H2		
Exports (blue)	3	-2	13	12	11
Imports (red)	9	1	6	9	8

Top-right panel

Real GDP

Real GDP for the U.S. and total foreign countries as a bar chart for 2002 (actual), 2003:H1 (actual), 2003:H2 (projected), 2004 (projected), and 2005 (projected). Real GDP for total foreign countries is calculated using U.S. export weights. The range of the y-axis is [0, 7]; unit is percent change, SAAR. Years are Q4/Q4; half years are Q2/Q4 or Q4/Q2. Approximate values for the five periods are as follows.

Percent change, SAAR

	2002	2003		2004	2005
		H1	H2		
U.S. (red)	2.9	2.5	6.4	5.3	4.0
Foreign (blue)	2.8	0.5	3.8	3.7	3.5

Middle-left panel

Real Exchange Rate Outlook

Real Exchange Rate Outlook for 2002 through 2003 (actual), along with the January 2004 Greenbook forecast from early 2004 through 2005 and the June 2003 Greenbook forecast for mid-2003 through 2004. The range of the y-axis is [85, 105]; index, 2001:Q1 = 100. The actual broad real exchange rate starts at about 103, and declines to about 90 by end-2003. The January 2004 Greenbook forecast starts at about 90 in early 2004 and declines to about 88 by the end of 2005. The June 2003 Greenbook forecast starts at about 95 in mid-2003 and declines to about 93 by the end of 2004.

Middle-right panel

Current Account

Current Account in terms of percent of GDP and in terms of level (billions of dollars) for 1995 through late 2003 (actual) and for late 2003 through 2005 (forecast). The range of the left y-axis, measured in terms of percent of GDP, is [-7, 1]. The range of the right y-axis, measured in terms of level or billions of dollars, is [-700, 100]. The graph shows the current account to be in deficit for the

entire period, and the two series track closely for the entire period. The current account in terms of level starts at a deficit of about \$100 billion, which widens to about \$550 billion by late 2003. The forecast shows the deficit widening further, to about \$600 billion by end-2005. The current account in terms of percent of GDP starts at a deficit of about 1½ percent of GDP, which widens to a deficit of about 5 percent of GDP by end-2002. The forecast shows the deficit remaining at about 5 percent of GDP through end-2005.

Bottom panel Financial Flows

Billions of Dollars, SAAR

	2002	2003:H1	2003:Q3	2003:Q4*
1. Current account	-481	-556	-540	NA
2. Official capital, net	88	194	170	247
3. Private capital, net	440	387	323	NA
<i>Of which:</i>				
4. Foreign purchases of U.S. securities	408	418	246	309
5. U.S. purchases of foreign securities	16	-37	-116	-62
6. Foreign DI in U.S.	40	114	33	NA
7. U.S. DI abroad	-138	-129	-150	NA

* October and November. [Return to table](#)

Chart 9 Alternative Dollar Scenarios

Chart 9 consists of five panels including a graph of the real exchange rate, a panel with word descriptions of the three different dollar scenarios, and graphs of real U.S. GDP growth, foreign real GDP growth, and the U.S. current account balance. In all the panels in this chart, Scenario 1 is a solid red line, Scenario 2 is a dashed red line, and Scenario 3 is a dotted blue line.

Top panel Real Exchange Rate

Real Exchange Rate as a broad index for 1983-2003 (actual) and 2004-2005 (forecast). The range of the y-axis is [70, 115]; index, 2002:Q1 = 100. The broad index begins just below 100, rises to about 113 by early 1985, declines to about 77 by early 1995, rises to about 98 by early 2001, stays there through 2002, and then declines to about 89 by end-2003. The January 2004 Greenbook forecast shows the broad index declining further to about 85 by the end of the period. Scenario 1 forecasts the broad index dropping sharply to about 78 in early 2004 and then declining further to about 75 by the end of the period. Scenario 2 forecasts the broad index dropping sharply to about 78 in early 2004 and remaining at that level through the end of the period. Scenario 3 forecasts the broad index rising to about 94 in early 2004 and then declining to about 92 by the end of the period.

Middle-left panel Dollar Scenarios

Scenario 1: Dollar decline triggered by higher foreign growth

Scenario 2: "Disorderly correction"

- Same dollar shock as above
- Stock prices fall 12%
- 10-year Treasury yields rise 50 bp

Scenario 3: Dollar appreciation triggered by strong U.S. growth

Middle-right panel

Real U.S. GDP Growth

Real U.S. GDP Growth on a semi-annual basis for 2003 (actual) and 2004-2005 (forecast). The range of the y-axis is [2, 7]; unit is percent. GDP growth starts at about 2½ percent in 2003:H1 and rises sharply to about 6½ percent in 2003:H2. The January 2004 Greenbook forecast shows GDP growth declining to just under 4 percent by 2005:H2. Scenario 1 forecasts GDP growth to decline to about 4¾ percent by 2005:H2. Scenario 2 and Scenario 3, tracking closely but not exactly, forecast GDP growth to decline to about 3¾ percent by 2005:H2.

Half years are Q2/Q4 or Q4/Q2.

Bottom-left panel

Foreign Real GDP Growth

Foreign Real GDP Growth on a semi-annual basis for 2003 (actual) and 2004-2005 (forecast). The range of the y-axis is [0, 5½]; unit is percent. GDP growth starts at about ½ percent in 2003:H1 and rises sharply to nearly 4 percent in 2003:H2. The January 2004 Greenbook forecast shows GDP growth declining slightly to about 3½ percent by 2005:H2. Scenario 1 forecasts GDP growth to rise to about 5¼ percent by 2005:H1 and then to decline to about 4¾ percent by 2005:H2. Scenario 2 forecasts GDP growth to decline to about 3 percent by 2005:H2. Scenario 3 forecasts GDP growth to rise slightly to about 4 percent by 2004:H1 and then to decline to about 3¾ percent by 2005:H2.

Half years are Q2/Q4 or Q4/Q2.

Bottom-right panel

U.S. Current Account Balance

U.S. Current Account Balance on a semi-annual basis for 2003 (actual) and 2004-2005 (forecast). The range of the y-axis is [-700, -450]; unit is billions of dollars. The graph shows the U.S. current account to be in deficit for the entire period. The deficit starts at about \$550 billion in 2003:H1 and narrows to about \$525 billion by 2003:H2. The January 2004 Greenbook forecast shows the deficit widening to nearly \$600 billion by 2005:H2. Scenario 1 forecasts the deficit to widen to about \$550 billion in 2004:H1 and then to narrow to about \$450 billion by 2005:H2. Scenario 2 forecasts the deficit to widen to about \$560 billion in 2004:H1 and then to narrow to about \$510 billion by 2005:H2. Scenario 3 forecasts the deficit to widen to about \$625 billion by 2005:H2.

Chart 10

Labor Markets

Top-left panel

Cyclical Comparison of Nonfarm Payroll Employment

The figure's x-axis shows periods from negative 8 to positive 16, with a trough shown at zero. The y-axis represents an index (trough equals 100). The data are plotted on three curves. The first curve

represents the average history and includes 1954:Q2, 1958:Q2, 1961:Q1, 1970:Q4, 1975:Q1, and 1982:Q4 troughs. The second curve represents the 1991:Q1 recession, and the third curve represents the 2001:Q4 recession.

The average history curve starts at about 100 on the index on the y-axis in the negative 8 period; it then increases to just above 102 at about negative 4, dips to about 100 at zero, and increases to about 106 at about positive 8. The average history curve then enters a forecast period and increases to just above 110 at positive 16.

The curve for the 1991:Q1 recession starts just above 98 on the index on the y-axis in the negative 8 period. It then increases to about 101 at negative 3, dips to 99 at positive 3, then increases to about 101 at positive 8. The 1991:Q1 recession curve then enters a forecast period and increases to about 107 at positive 16.

The curve for the 2001:Q4 recession starts at just below 100 on the index on the y-axis at about negative 8. It then increases to about 101 at negative 3 and decreases to about 99 at positive 1 and remains at about that level through positive 8. The 2001:Q4 recession curve then enters a forecast period and increases to about 104 at positive 16.

Top-right panel Structural Multifactor Productivity

Percent change, Q4/Q4

Period	Dec. GB	Dec. GB Forecast	Jan. GB	Jan. GB Forecast
2002	2.0	ND	2.4	ND
2003	2.4	ND	2.9	ND
2004	ND	1.6	ND	2.1
2005	ND	1.6	ND	1.7

Middle-left panel Actual Labor Productivity

Chained (2000) dollars per hour

Period	Structural: Jan. GB	Jan. GB Forecast	Structural: Dec. GB	Dec. GB Forecast	Actual	Actual Forecast
2000:Q1	39.78	ND	39.70	ND	39.61	ND
2000:Q2	40.05	ND	39.98	ND	40.33	ND
2000:Q3	40.33	ND	40.24	ND	40.31	ND
2000:Q4	40.61	ND	40.54	ND	40.63	ND
2001:Q1	40.96	ND	40.92	ND	40.62	ND
2001:Q2	41.31	ND	41.13	ND	40.96	ND
2001:Q3	41.67	ND	41.55	ND	41.11	ND
2001:Q4	42.03	ND	41.62	ND	41.80	ND
2002:Q1	42.37	ND	41.93	ND	42.78	ND
2002:Q2	42.71	ND	42.16	ND	42.86	ND
2002:Q3	43.05	ND	42.33	ND	43.36	ND
2002:Q4	43.40	ND	42.57	ND	43.53	ND

Period	Structural: Jan. GB	Jan. GB Forecast	Structural: Dec. GB	Dec. GB Forecast	Actual	Actual Forecast
2003:Q1	43.80	ND	42.88	ND	43.87	ND
2003:Q2	44.21	ND	43.21	ND	44.54	ND
2003:Q3	44.61	ND	43.58	ND	45.56	ND
2003:Q4	ND	45.03	ND	43.91	ND	45.92
2004:Q1	ND	45.39	ND	44.13	ND	46.34
2004:Q2	ND	45.76	ND	44.49	ND	46.66
2004:Q3	ND	46.14	ND	44.85	ND	46.87
2004:Q4	ND	46.52	ND	45.20	ND	47.11
2005:Q1	ND	46.87	ND	45.56	ND	47.22
2005:Q2	ND	47.22	ND	45.90	ND	47.41
2005:Q3	ND	47.58	ND	46.25	ND	47.66
2005:Q4	ND	47.93	ND	46.60	ND	47.93

Middle-right panel

Nonfarm Payroll Employment

Period	Average monthly change, thousands	Forecast
2002:H1	-45	ND
2002:H2	-30	ND
2003:H1	-49	ND
2003:H2	37	ND
2004:H1	ND	185
2004:H2	ND	365
2005:H1	ND	312
2005:H2	ND	245

Bottom-left panel

Unemployment and Labor Force Participation Rates

Percent

Period	Unemployment Rate	Labor Force Participation Rate
January 2000	4.00	67.29
February 2000	4.10	67.33
March 2000	4.00	67.26
April 2000	3.80	67.33
May 2000	4.00	67.09
June 2000	4.00	67.11
July 2000	4.00	66.90
August 2000	4.10	66.93
September 2000	3.90	66.86
October 2000	3.90	66.83

Period	Unemployment Rate	Labor Force Participation Rate
November 2000	3.90	66.95
December 2000	3.90	67.02
January 2001	4.20	67.23
February 2001	4.20	67.12
March 2001	4.30	67.16
April 2001	4.40	66.92
May 2001	4.30	66.74
June 2001	4.50	66.69
July 2001	4.60	66.76
August 2001	4.90	66.51
September 2001	5.00	66.77
October 2001	5.30	66.74
November 2001	5.50	66.74
December 2001	5.70	66.71
January 2002	5.70	66.46
February 2002	5.70	66.76
March 2002	5.70	66.64
April 2002	5.90	66.69
May 2002	5.80	66.73
June 2002	5.80	66.61
July 2002	5.80	66.54
August 2002	5.70	66.56
September 2002	5.70	66.73
October 2002	5.70	66.55
November 2002	5.90	66.37
December 2002	6.00	66.32
January 2003	5.80	66.37
February 2003	5.90	66.37
March 2003	5.90	66.28
April 2003	6.00	66.42
May 2003	6.10	66.36
June 2003	6.30	66.54
July 2003	6.20	66.21
August 2003	6.10	66.11
September 2003	6.10	66.07
October 2003	6.00	66.08
November 2003	5.80	66.13
December 2003	5.70	65.94

Bottom-right panel
Labor Force Participation Rate

Percent

Period	Actual	Forecast	Trend
1978:Q1	62.76	ND	
1978:Q2	63.12	ND	
1978:Q3	63.21	ND	
1978:Q4	63.48	ND	63.1
1979:Q1	63.74	ND	
1979:Q2	63.44	ND	
1979:Q3	63.69	ND	
1979:Q4	63.79	ND	63.4
1980:Q1	63.90	ND	
1980:Q2	63.77	ND	
1980:Q3	63.72	ND	
1980:Q4	63.69	ND	63.8
1981:Q1	63.96	ND	
1981:Q2	64.09	ND	
1981:Q3	63.68	ND	
1981:Q4	63.78	ND	64.1
1982:Q1	63.78	ND	
1982:Q2	64.01	ND	
1982:Q3	64.06	ND	
1982:Q4	64.12	ND	64.4
1983:Q1	63.77	ND	
1983:Q2	63.91	ND	
1983:Q3	64.26	ND	
1983:Q4	64.11	ND	64.7
1984:Q1	64.04	ND	
1984:Q2	64.45	ND	
1984:Q3	64.46	ND	
1984:Q4	64.50	ND	65.0
1985:Q1	64.77	ND	
1985:Q2	64.73	ND	
1985:Q3	64.74	ND	
1985:Q4	64.94	ND	65.5
1986:Q1	65.02	ND	
1986:Q2	65.24	ND	
1986:Q3	65.38	ND	
1986:Q4	65.39	ND	65.7

Period	Actual	Forecast	Trend
1987:Q1	65.43	ND	
1987:Q2	65.56	ND	
1987:Q3	65.61	ND	
1987:Q4	65.73	ND	66.0
1988:Q1	65.78	ND	
1988:Q2	65.77	ND	
1988:Q3	65.96	ND	
1988:Q4	66.12	ND	66.3
1989:Q1	66.34	ND	
1989:Q2	66.43	ND	
1989:Q3	66.47	ND	
1989:Q4	66.54	ND	66.7
1990:Q1	66.68	ND	
1990:Q2	66.54	ND	
1990:Q3	66.47	ND	
1990:Q4	66.40	ND	66.7
1991:Q1	66.26	ND	
1991:Q2	66.27	ND	
1991:Q3	66.09	ND	
1991:Q4	66.09	ND	66.7
1992:Q1	66.31	ND	
1992:Q2	66.56	ND	
1992:Q3	66.60	ND	
1992:Q4	66.29	ND	66.7
1993:Q1	66.19	ND	
1993:Q2	66.17	ND	
1993:Q3	66.35	ND	
1993:Q4	66.32	ND	66.7
1994:Q1	66.58	ND	
1994:Q2	66.48	ND	
1994:Q3	66.54	ND	
1994:Q4	66.73	ND	66.7
1995:Q1	66.75	ND	
1995:Q2	66.63	ND	
1995:Q3	66.61	ND	
1995:Q4	66.52	ND	66.7
1996:Q1	66.53	ND	
1996:Q2	66.70	ND	
1996:Q3	66.86	ND	

Period	Actual	Forecast	Trend
1996:Q4	67.02	ND	66.7
1997:Q1	66.99	ND	
1997:Q2	67.11	ND	
1997:Q3	67.16	ND	
1997:Q4	67.14	ND	66.7
1998:Q1	67.10	ND	
1998:Q2	67.02	ND	
1998:Q3	67.07	ND	
1998:Q4	67.17	ND	66.7
1999:Q1	67.14	ND	
1999:Q2	67.08	ND	
1999:Q3	67.05	ND	
1999:Q4	67.09	ND	66.7
2000:Q1	67.29	ND	
2000:Q2	67.18	ND	
2000:Q3	66.90	ND	
2000:Q4	66.94	ND	66.7
2001:Q1	67.15	ND	
2001:Q2	66.80	ND	
2001:Q3	66.69	ND	
2001:Q4	66.76	ND	66.7
2002:Q1	66.58	ND	
2002:Q2	66.65	ND	
2002:Q3	66.65	ND	
2002:Q4	66.46	ND	66.7
2003:Q1	66.27	ND	
2003:Q2	66.40	ND	
2003:Q3	66.19	ND	
2003:Q4	ND	66.13	66.7
2004:Q1	ND	66.22	
2004:Q2	ND	66.26	
2004:Q3	ND	66.35	
2004:Q4	ND	66.51	66.7
2005:Q1	ND	66.64	
2005:Q2	ND	66.70	
2005:Q3	ND	66.78	
2005:Q4	ND	66.80	66.7

Chart 11 Aggregate Supply

Top panel Potential GDP

Percent change, annual rate

	1995-2001	2002	2003	2004	2005
1. Potential GDP	3.4	3.6	4.0	3.7	3.7
<i>(Previous)</i>	3.4	3.5	3.9	3.5	3.7
2. Potential labor hours	1.0	1.1	1.1	1.1	1.1
3. Structural Labor Productivity	2.8	3.3	3.7	3.3	3.1
<i>(Previous)</i>	2.7	2.6	3.1	2.7	2.9
4. Technical factors	-.4	-.8	-.8	-.6	-.4
5. Output	-.4	-.4	-.4	-.4	-.4
6. Hours	.0	-.4	-.4	-.2	.0
<i>(Previous)</i>	.2	.3	.3	.3	.3

Middle panel Okun's Law

Percent

Period	Actual Unemployment Rate	Forecast	NAIRU	Simulated
2000:Q1	4.02	ND	5.00	3.8
2000:Q2	3.96	ND	5.00	3.6
2000:Q3	4.04	ND	5.00	3.8
2000:Q4	3.94	ND	5.00	4.0
2001:Q1	4.19	ND	5.00	4.3
2001:Q2	4.43	ND	5.00	4.5
2001:Q3	4.84	ND	5.00	5.0
2001:Q4	5.58	ND	5.00	5.5
2002:Q1	5.68	ND	5.00	5.6
2002:Q2	5.84	ND	5.00	5.7
2002:Q3	5.74	ND	5.00	5.8
2002:Q4	5.88	ND	5.00	6.0
2003:Q1	5.83	ND	5.00	6.1
2003:Q2	6.14	ND	5.00	6.3
2003:Q3	6.13	ND	5.00	6.1
2003:Q4	5.86	5.86	5.00	6.0
2004:Q1	ND	5.79	5.00	5.9
2004:Q2	ND	5.60	5.00	5.7
2004:Q3	ND	5.37	5.00	5.5
2004:Q4	ND	5.25	5.00	5.3

Period	Actual Unemployment Rate	Forecast	NAIRU	Simulated
2005:Q1	ND	5.19	5.00	5.2
2005:Q2	ND	5.10	5.00	5.1
2005:Q3	ND	5.08	5.00	5.0
2005:Q4	ND	5.03	5.00	5.0

Bottom panel

GDP Gap*

Percent

Period	Jan. GB	Jan. GB Forecast	Dec. GB	Dec. GB Forecast
2000:Q1	2.40	ND	2.52	ND
2000:Q2	3.09	ND	2.81	ND
2000:Q3	2.07	ND	2.04	ND
2000:Q4	1.69	ND	1.40	ND
2001:Q1	0.80	ND	0.43	ND
2001:Q2	-0.19	ND	-0.79	ND
2001:Q3	-1.34	ND	-1.66	ND
2001:Q4	-1.66	ND	-1.80	ND
2002:Q1	-1.39	ND	-1.43	ND
2002:Q2	-1.78	ND	-1.96	ND
2002:Q3	-1.83	ND	-1.83	ND
2002:Q4	-2.37	ND	-2.33	ND
2003:Q1	-2.84	ND	-2.91	ND
2003:Q2	-3.05	ND	-3.05	ND
2003:Q3	-2.07	ND	-2.05	ND
2003:Q4	ND	-1.88	ND	-1.94
2004:Q1	ND	-1.59	ND	-1.50
2004:Q2	ND	-1.20	ND	-1.03
2004:Q3	ND	-0.81	ND	-0.58
2004:Q4	ND	-0.42	ND	-0.23
2005:Q1	ND	-0.32	ND	-0.20
2005:Q2	ND	-0.23	ND	-0.13
2005:Q3	ND	-0.14	ND	-0.09
2005:Q4	ND	-0.10	ND	-0.09

* The GDP gap is defined as actual GDP less potential GDP, divided by potential GDP. [Return to text](#)

Chart 12

Recent Price Developments

Top-left panel

Consumer Prices

The data are represented as a 12-month percent change and are plotted on two curves. One curve represents CPI and covers 1999 through December 2003. The other curve represents PCE and covers 1999 through November 2003.

The CPI curve begins 1999 at about 1.75 and continues upward to about 3.75 in the first quarter of 2000; it then fluctuates between just below 3 and about 3.75 through midyear 2001. The curve then decreases to just above 1 near the beginning of 2002, then fluctuates between just under 1 and nearly 2 throughout the year before ending at about 1.75 in the fourth quarter. The curve increases to just above 3 in the first quarter of 2003 and slides to approximately 2 before increasing to about 2.25 in the third quarter. It then decreases to about 1.75 in the fourth quarter and gains slightly to end at just under 2 by December 2003.

The PCE curve begins at just above 1 at the beginning of 1999. It then increases to about 1.5, continues generally upward to about 3 at the start of 2000. It then decreases to about 2.5, then fluctuates between about 2.25 and 2.7 until the end of the year. In the first quarter of 2001, the curve decreases to just under 2; it then increases to about 2.5 and fluctuates downward to just below 1 by year-end. The curve increases to about 1.25 at about the second quarter of 2002, drops to just under 1 at midyear, increases to about 1.75 in the third quarter, then decreases to about 1.5 toward the end of 2002. The curve increases to about 2.5 near the beginning of 2003, drops to about 1.75 at about the end of the first quarter, then continues downward to end at about 1.25 in November 2003.

Top-right panel

Core Consumer Prices

The data are represented as a 12-month percent change and are plotted on three curves. The first curve represents CPI and covers 1999 through December 2003. The second curve represents PCE and covers 1999 through November 2003. The third curve represents market PCE and covers 1999 through 2003.

The CPI curve is at about 2.4 at the beginning of 1999, dips to just above 2 in the first quarter, and fluctuates between about 2.1 and 1.9 throughout the year. The curve then increases to about 2.4 in the first quarter of 2000 and increases generally upward through the first quarter of 2001, reaching about 2.8; it then fluctuates a bit and dips to approximately 2.6 by year-end 2001. The curve increases to about 2.8 in the first quarter of 2002, then continues generally downward through 2003 and ends at about 1.2 in December 2003.

The PCE curve starts at about 1.5 at the beginning of 1999, then fluctuates slightly to end at about 1.6 by the end of the year. In 2000, the curve increases to about 2 and decreases to about 1.5 by the end of the year. It then increases to just above 2 at about midyear 2001, slides to about 1.5 in the third quarter, and climbs to about 2.1 in the fourth quarter. The PCE curve then generally decreases to about 1.5 by midyear 2002, after which it increases to about 2.3 in the third quarter and then drops to approximately 1.5 by the end of the year. In 2003, the curve increases to about 1.7 in the first quarter, then generally decreases to end at about 0.75 in November 2003.

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, then fluctuates slightly before ending at approximately 1.4 by the end of the year. The curve moves generally upward in 2001, reaching about 1.75 by midyear; it then dips to about 1.5 in the third quarter and increases to about 1.75 by the end of the year. The curve decreases to about 1.5 at the start of 2002, then moves generally downward through 2003 to end at about 1.

Middle-left panel
CPI Food Prices

Period	Percent change, annual rate
2000	2.48
2001	3.19
2002	1.20
2003:Q1	2.00
2003:Q2	2.50
2003:Q3	2.90
2003:Q4	5.40

Middle-right panel
Live Cattle Prices

The period covered is August 2003 through January 26, 2004. The data are represented as dollars per hundred pounds and are plotted on two curves. The first curve represents spot, and the second curve represents futures five months ahead. A vertical line, drawn toward the end of December 2003, indicates when mad cow disease was discovered in the United States.

The spot curve starts just below 80 dollars in August 2003 and fluctuates between about 79 dollars and 80 dollars through the end of the month. In September, the curve increases to about 85 dollars in the first half of the month and remains at about that level until month-end. The curve climbs to about 110 dollars in mid-October and drops to about 92 dollars by the end of the month. In November, the curve increases to about 102 dollars in the first quarter of the month, dips to about 99 dollars at mid-month, and increases to about 100 dollars by month-end. It then decreases to about 75 dollars toward the end of December and stays at about that level through the beginning of January. The spot curve then increases to about 82 dollars by January 26, 2004.

The futures curve begins in August 2003 at about 79 dollars and fluctuates between about 79 dollars and 82 dollars through the third quarter of November. The curve then drops to about 78 dollars at the end of November and fluctuates downward in December, reaching about 70 dollars by month-end. The curve moves upward in January, ending at about 72 dollars on January 26, 2004.

Bottom-left panel
Labor Costs

The figure shows labor costs for production or nonsupervisory workers. The data are represented as a 12-month percent change and are plotted on two curves. The first curve represents average hourly earnings and covers 2000 through December 2003. The second curve represents ECI wages and salaries and covers 2000 through September 2003.

The average hourly earnings curve starts just above 3.5 in 2000 and fluctuates between 3.6 and 3.7 through the fourth quarter, then increases to about 4.4 by year-end. It then decreases to about 3.9 at the start of 2001. The curve fluctuates downward to just above 2.5 in the first half of 2002, increases to about 3.0 in the third quarter, and fluctuates between about 2.9 and 3.1 for the remainder of the year. In 2003, the curve increases to about 3.5 at the beginning of the year, then generally continues downward to end at about 2.0 in December 2003.

The ECI wages and salaries curve begins at about 3.9 in 2000 and increases to about 4.0 in the third quarter. The curve then decreases to about 3.6 in mid-2001 and increases to about 3.7 by year-end.

The curve continues generally downward to about 2.4 by year-end 2002. The curve remains at about that level at the start of 2003, dips to about 2.3 at mid-year, and ends at about 2.6 in September 2003.

Bottom-right panel
Inflation Expectations

Michigan SRC, One-year ahead, median

Period	Percent
January 2000	3.00
February 2000	2.90
March 2000	3.20
April 2000	3.20
May 2000	3.00
June 2000	2.90
July 2000	3.00
August 2000	2.70
September 2000	2.90
October 2000	3.20
November 2000	2.90
December 2000	2.80
January 2001	3.00
February 2001	2.80
March 2001	2.80
April 2001	3.10
May 2001	3.20
June 2001	3.00
July 2001	2.60
August 2001	2.70
September 2001	2.80
October 2001	1.00
November 2001	0.40
December 2001	1.80
January 2002	1.90
February 2002	2.10
March 2002	2.70
April 2002	2.80
May 2002	2.70
June 2002	2.70
July 2002	2.60
August 2002	2.60
September 2002	2.50

Period	Percent
October 2002	2.50
November 2002	2.40
December 2002	2.50
January 2003	2.50
February 2003	2.70
March 2003	3.10
April 2003	2.40
May 2003	2.00
June 2003	2.10
July 2003	1.70
August 2003	2.50
September 2003	2.80
October 2003	2.60
November 2003	2.70
December 2003	2.60
January 2004	2.70

FRB Philadelphia, One-year ahead

Period	Percent
2000:Q1	2.46
2000:Q2	2.61
2000:Q3	2.71
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

Inflation Outlook

Top-left panel

PCE Prices

Period	Percent change, Q4/Q4	Forecast
2002	1.83	ND
2003	1.70	ND
2004	ND	1.00
2005	ND	1.00

Top-right panel

Core PCE Prices

Period	Percent change, Q4/Q4	Forecast
2002	1.58	ND
2003	0.80	ND
2004	ND	1.00
2005	ND	1.00

Middle-left panel

Core Non-oil Import Prices

Period	Four-quarter percent change	Forecast
2002:Q1	-4.09	ND
2002:Q2	-2.38	ND
2002:Q3	-0.65	ND
2002:Q4	0.47	ND
2003:Q1	2.38	ND
2003:Q2	1.82	ND
2003:Q3	1.66	ND
2003:Q4	ND	1.77
2004:Q1	ND	1.38
2004:Q2	ND	2.37
2004:Q3	ND	3.06
2004:Q4	ND	3.26
2005:Q1	ND	2.50
2005:Q2	ND	1.77
2005:Q3	ND	1.08
2005:Q4	ND	0.69

Middle-right panel

ECI Compensation per Hour

Percent change, annual rate*

Period	Contributions from Benefits	Contributions from Benefits: Forecast	Contributions from Wages and Salaries	Contributions from Wages and Salaries: Forecast
2002:H1	1.34	ND	2.67	ND
2002:H2	1.32	ND	1.68	ND
2003:H1	2.15	ND	2.29	ND
2003:H2	1.59	ND	2.11	ND
2004:H1	ND	1.64	ND	1.87
2004:H2	ND	1.71	ND	2.01
2005:H1	ND	1.76	ND	2.00
2005:H2	ND	1.81	ND	2.00

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

Bottom-left panel

Effective Deflation	Core PCE Inflation less than ½ percent
Pernicious Deflation	Core PCE Inflation less than ½ percent AND the unemployment rate above 6 percent

Bottom-right panel Probability of Deflation

Percent

	Effective Deflation	Pernicious Deflation
Jan. 2003	24	10
June 2003	30	10
Jan. 2004	22	5

Chart 14

Top panel ECONOMIC PROJECTIONS FOR 2004

	FOMC		Staff
	Range	Central Tendency	
Percentage change, Q4 to Q4			
Nominal GDP	5½ to 6½	5½ to 6¼	6.2
(June 2003)	(4¾ to 6½)	(5¼ to 6¼)	
Real GDP	4 to 5½	4½ to 5	5.3
(June 2003)	(3½ to 5¼)	(3¾ to 4¾)	
PCE Prices	1 to 1½	1 to 1¼	1.0

	FOMC		Staff
	Range	Central Tendency	
(June 2003)	(¾ to 2)	(1 to 1½)	
Average level, Q4, percent			
Unemployment rate	5¼ to 5½	5¼ to 5½	5.3
(June 2003)	(5½ to 6¼)	(5½ to 6)	

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

Appendix 6: Materials used by Mr. Reinhart

Material for Briefing on Monetary Policy Alternatives
January 28, 2004

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Exhibit 1

Top-left panel

Expected Federal Funds Rates*

A line chart displays the expected path of the federal funds rate embedded in futures quotes as of December 8, 2003 and January 27, 2004. The chart indicates a downward revision of the expected path of the federal funds rate over the intermeeting period. The most recent futures quotes suggest that the federal funds rate will rise to around 3.25 percent by the first quarter of 2006.

* Estimates from federal funds and eurodollar futures, with an allowance for term premia and other adjustments. [Return to text](#)

Top-right panel

Probability Distribution of Time to the Beginning of Tightening

A line chart shows a probability distribution of the time to the beginning of tightening of monetary policy as of December 8, 2003 and January 27, 2004. The distribution shifted to the right during the intermeeting period and suggests that expectations for the onset of policy tightening have shifted out five months into the future, from five months on average to nearly ten months.

Middle-left panel

Implied Distribution of Federal Funds Rate About 6 Months Ahead*

A bar graph shows the implied distribution of the federal funds rate six-months ahead as of December 8, 2003 and January 27, 2004. Over the intermeeting period the weight of this distribution shifted to the left slightly, with greater probability attached to a federal funds rate in the neighborhood of ¾ to 1 percent and less probability associated with federal funds rates in the neighborhood of 1½ to 2¼ percent.

* Based on the distribution of the three-month eurodollar rate five months ahead (adjusted for a risk premium), as implied by options on eurodollar futures contracts. [Return to text](#)

Middle-right panel

Desk Dealer Survey - Onset of Tightening

A bar graph reflects the views of primary dealers about when policy tightening would begin. No survey respondent expects the onset of tightening to begin in the first quarter of 2004, five survey respondents expect tightening to begin in the second quarter of 2004, nine survey respondents believe tightening to begin sometime in the second half of 2004, and seven primary dealers expect the first rate increase to occur during the first half of 2005.

Bottom-left panel

Desk Dealer Survey - FOMC Statement

Output Risk	21 Balanced 1 Upside
Inflation Risk	18 Balanced 4 Downside
Overall Risk	20 Balanced or None 2 Unwelcome Disinflation
Considerable Period	17 Retained 5 Removed

Bottom-right panel

Private Sector Forecasts

	2004		2005
	H1	H2	
GDP Growth	4.5	4.0	3.7
<i>Greenbook</i>	<i>5.4</i>	<i>5.1</i>	<i>3.8</i>
Inflation (Core PCE)	1.1	1.4	1.7
<i>Greenbook</i>	<i>1.2</i>	<i>1.1</i>	<i>1.1</i>
Unemployment	5.8	5.7	5.4
<i>Greenbook</i>	<i>5.9</i>	<i>5.4</i>	<i>5.1</i>

Exhibit 2

Top-left panel

TIIS Yield Curve

A line chart displays the real yield curve for inflation-indexed Treasury securities for maturities of one to thirty years as of December 8, 2003 (day before last FOMC) and January 27, 2004 (most recent). The yield curve shifted down slightly during the intermeeting period, mainly at maturities of five years and beyond, but remains steeply sloped.

Top-right panel

Implied One-Year Real Forward Rate

A line graph shows the weekly average of implied one-year real forward rates one year ahead, five years ahead, and ten years ahead from January 1, 1999 to January 27, 2004. Implied one-year

forward rates have continued to fall, consistent with recent trends, with the one-year forward rate one year ahead falling further than those at longer maturities.

Middle-left panel

The Case for Easier Policy

- Business confidence may remain impaired.
- Inflation is low and poised to go lower.

Middle-right panel

The Case for Firmer Policy

- Considerable financial accommodation is in place.
- Inflation pressures may emerge more quickly than in the staff forecast.

Bottom-left panel

Selected Money and Credit Aggregates

	2003			2004
	H1	Q3	Q4	Jan.
M2	7.7	7.0	-1.8	-1.5
Bank Credit	-9.7	4.6	-0.5	2.2
Business Loans	-6.4	-13.9	-9.7	-7.4

Bottom-right panel

Change in Selected Financial Market Conditions Since Last FOMC

	Basis Points
Ten-Year Treasury	-20
A Corporate	-22
	Percent
Wilshire	7.2
Major Currency Index	-1.7

Exhibit 3

Alternative Strategies for Removing Policy Accommodation

Top-left panel

Case for Keeping Policy on Hold

- Long-term inflation expectations seem well-anchored.
- Simulations suggest that policy can remain on hold for an extended period without fueling strong inflation pressures.

Top-right panel

Inflation Expectations

A line graph shows the Michigan Survey of ten-year expected inflation and five-year inflation compensation five years ahead from Treasury Inflation-Indexed Securities. Both measures were little changed at around 3 percent during the intermeeting period, indicating that longer-term inflation expectations remain subdued.

Middle-left panel

Nominal Federal Funds Rate

A line graph displays the future nominal federal funds rate resulting from simulations using an assumed inflation target of ½, 1, or 1½ percent. The line graphs for the nominal federal funds rate under the ½ and 1 percent inflation targets rise beginning in 2004 and peak around 4 percent in 2006 and 2007. The path under the 1½ percent target rises more sharply beginning in 2006 and peaks at around 4½ percent in 2007.

Middle-right panel

Real Federal Funds Rate¹

A line graph displays the future real federal funds rate resulting from simulations using an assumed inflation target of ½, 1, or 1½ percent. The line graphs for the real federal funds rate under the ½ and 1 percent inflation targets rise modestly beginning in 2004 and 2005, respectively, and peak around 3 percent in 2006 and 2007. The path under the 1½ percent target remains around zero until 2006, whereby it then rises rapidly to around 3 percent in 2007.

1. The real federal funds rate is calculated as the quarterly average nominal funds rate minus the four-quarter lagged core PCE inflation rate as a proxy for inflation expectations. [Return to text](#)

Bottom-left panel

Civilian Unemployment Rate

A line graph displays the civilian unemployment rate resulting from simulations using an assumed inflation target of ½, 1, or 1½ percent. The line graph under the ½ percent inflation target rises modestly through 2007 before declining towards 5 percent. The line graph under the 1 percent inflation target declines slightly through 2005 before stabilizing around 5 percent, while the line graph under the 1½ percent inflation target falls to around 4.5 percent in 2007 before gradually rising to 5 percent thereafter.

Bottom-right panel

PCE Inflation (ex. food and energy)

A line graph displays the four-quarter percent change in PCE inflation, excluding food and energy, resulting from simulations using an assumed inflation target of ½, 1, or 1½ percent. The line graphs gradually approach their respective target over the forecast horizon.

Exhibit 4

The Considerable Period Sentence

Top panel

December 2003 FOMC Statement

"With inflation quite low and resource use slack, the Committee believes that policy accommodation can be maintained for a considerable period."

Middle panels

Considerable Period Options

Middle-left panel

Retain

- Confident economy will evolve in a benign manner.
- Or inflation on low side of desired range.

Middle-center panel

Drop

- Tightening within next few meetings not ruled out.
- Costs of having to delay tightening or renege damaging.

Middle-right panel

Modify

- Outsized market reaction to dropping.
- "Patience" would imply gradual firming.

Bottom panel

Potential Alternative

"With inflation quite low and resource use slack, the Committee believes that it can be patient in removing its policy accommodation."

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