



Telephone Conference Meeting of the Federal Open Market Committee

April 1, 2003 Presentation Materials -- Text Version

[Presentation Materials \(715 KB PDF\)](#)

Pages 16 to 34 of the Transcript

Appendix 1: Materials used by Mr. Reinhart

Exhibit 1

Treasury Securities Market

Exhibit 1 contains three charts and a table that contain information on developments in the Treasury securities market during the first quarter of 2003.

Top panel

Two- and Ten-year Treasury Yields

A line chart displays the yields on the on-the-run two- and ten-year Treasury notes from March 13, 2003 through April 1, 2003 at 5-minute intervals. Two vertical lines are included in the chart. The first denotes the March 19, 2003 8:00 p.m. deadline to Iraq and the second denotes 4:00 p.m. on March 24, 2003 (the end of available data for the March 25, 2003 conference call). Two-year yields rise from around 1.5 percent to over 1.7 percent as the March 19 deadline approaches. Ten-year yields rise from around 3.7 percent to over 4.0 percent during the same period. Volatility in the yields increases between the deadline and March 24 after which yields slowly decline to earlier levels and the spread between two and ten-year yields widens.

Middle-left panel

Treasury Yield Curve

A line chart shows the Treasury yield curve at 4:00 p.m. on March 19, 2003 and at 12:00 p.m. on April 1, 2003. The plot displays a small parallel downward shift of the yield curve from March 19, 2003 to April 1, 2003.

Middle-right panel

Ten-year TIPS Yield

A line chart displays the yield on the ten-year Treasury Inflation Indexed note (TIPS) at a daily frequency from January 2003 through March 31, 2003. A plus sign denotes the yield on April 1, 2003, at approximately 12:00 p.m. The yield declines steadily from 2.4 percent to 1.6 percent from the beginning of January through early March. The yield then rises sharply in the middle of March to around 2.2 percent before declining again to below 2 percent by the end of the period.

Bottom panel

Selected Treasury Yields

	Today 4/1/03* (1)	Wednesday 3/19/03 (2)	Change (1)-(2)
Nominal			-basis points-
1. Two-year	1.48	1.70	-22
2. Five-year	2.71	2.97	-26
3. Ten-year	3.82	3.98	-16
Indexed			-basis points-
4. Ten-year	1.94	2.10	-16

* Quotes taken at approximately 12:00 pm. [Return to table](#)

Exhibit 2 Equity Market

Exhibit 2 includes two charts and a table that provide information on recent developments in equity markets.

Top panel Major Stock Indexes

A line chart shows the movements in the Wilshire 5000, the S&P 500 and the Nasdaq stock indexes at five-minute intervals from March 13, 2003 to 12 p.m. on April 1, 2003. The chart is indexed from March 13 at 9:30 a.m. and illustrates that since March 24 at 4:00 p.m. (denoted by a vertical line in the chart and the end of the available data for the March 25, 2003 conference call) there was a general modest reversal of the market rally that occurred in the run-up to the March 19 8:00 p.m. deadline to Iraq.

Middle panel S&P 100 Implied Volatility (VIX)

A line chart shows the implied volatility of the S&P 100 (VIX) at five-minute intervals from March 13, 2003 to April 1, 2003. There was an overall downward trend over this time period, from 38 percent to 32 percent. From March 24 at 4:00 p.m. (denoted by a vertical line), the VIX declined approximately three percentage points.

Bottom panel Selected Equity Market Quotes

	Today 4/1/03* (1)	Wednesday 3/19/03 (2)	Change (1)-(2)
Major Indexes			-percent-
1. Wilshire 5000	8082.23	8258.42	-2.1
2. S&P 500	851.94	874.02	-2.5
3. Nasdaq	1343.92	1397.08	-3.8

	Today 4/1/03* (1)	Wednesday 3/19/03 (2)	Change (1)-(2)
Option-Implied Volatility			-percentage points-
4. S&P 100 (VIX)	32.45	35.74	-3.29

* Quotes taken at approximately 12:00 pm. [Return to table](#)

Exhibit 3

Monetary Policy Expectations

Exhibit 3 includes four charts that provide information about recent movements in monetary policy expectations.

Top panel

Interest Rate Futures

A line chart shows the May 2003 federal funds futures rate and the March 2004 Eurodollar futures rate at five-minute intervals from March 13, 2003 to April 1, 2003. A vertical line denotes 4:00 p.m. on March 24, the end of the available data for the March 25 conference call. From March 24, the May 2003 federal funds futures rate edged down, on net, from 1.14 percent to below 1.10 percent. The March 2004 Eurodollar futures rate decreases from about 2.2 percent to approximately 2.0 percent.

Middle-left panel

Expected Federal Funds Rates

A line chart presents the expected path of the federal funds rate as of March 19, 2003 at 3:30 p.m. and as of April 1, 2003 at 12:00 p.m., derived from federal funds and Eurodollar futures with an allowance for term premia and other adjustments. The horizontal axis denotes the horizon of the expectation, and has a range from March 2003 to July 2005. The expected funds rate path shifted down over the period from March 19 to April 1. As of April 1, the expected funds rate path falls a bit below 1.00 percent in the summer of 2003 before rising to about 3 percent in July 2005.

Middle-right panel

Short-term Eurodollar Implied Volatility

A line chart plots the short-term Eurodollar implied volatility, a measure of uncertainty about the federal funds rate approximately three-months ahead, at a daily frequency from January 2003 through March 2003. Amid significant fluctuations, implied volatility rose from 30 percent in early January to above 50 percent at the end of March.

Bottom panel

Probability of 1.00% target as opposed to 1.25% target

A line chart displays, at five-minute intervals from March 13, 2003 to 12 p.m. on April 1, 2003, the probability that the federal funds rate will be 1 percent following the May 6 FOMC meeting as opposed to remaining at 1.25 percent, using data from the May 2003 federal funds futures contract. From March 24 at 4:00 p.m. (denoted by a vertical line) until midday on March 31, this probability rose from about 60 percent to near 100 percent, but then retraced slightly to about 85 percent at the

end of the period.

Exhibit 4
Selected Credit Market Indicators

Exhibit 4 includes two charts and a table that provide information on a number of credit market indicators.

Top panel
Ten-year Swap Spread

A line chart shows the ten-year swap spread over Treasuries at five-minute intervals from March 13, 2003 to April 1, 2003. This spread generally increased over the first part of this period, rising from 41 basis points on March 13 to nearly 46 basis points on March 21. The spread subsequently decreased to about 41 basis points at the end of the period. A vertical line is placed at March 24, 2003 at 4:00 p.m., denoting the available information at the time of the previous conference call on March 25.

Middle panel
Stock Prices and Credit Default Swap Premia for Selected Financial Intermediaries

	Stock Prices			CDS Premia		
	Today 4/1/03* (1)	Wednesday 3/19/03 (2)	Change (1)-(2)	Today 4/1/03* (3)	Wednesday 3/19/03 (4)	Change (3)-(4)
			-percent-			-basis points-
1. Bank of America	67.54	69.50	-2.8	28.0	31.0	-3.0
2. Citigroup	35.05	35.46	-1.2	28.0	34.0	-6.0
3. Goldman Sachs	69.07	70.27	-1.7	48.0	56.8	-8.8
4. Lehman Brothers	58.75	59.69	-1.6	43.0	54.2	-11.2
5. Merrill Lynch	35.95	36.74	-2.2	53.0	56.8	-3.8

* Quotes taken at approximately 12:00 pm. [Return to table](#)

Bottom panel
Swaption Implied Volatility (Ten-year Swap Rate)

A line chart shows two implied volatilities at a daily frequency derived from options on the ten-year swap rate between January and March 2003: one is for the three-months-ahead horizon and one is for the one-year-ahead horizon. Plus signs denote the values on April 1, 2003 at approximately 12:00 p.m. The three-months ahead implied volatility generally declined from 31.5 percent to about 29 percent. The one-year ahead implied volatility fluctuated in a narrow range around 27 percent.

Exhibit 5
Actual and Implied Volatilities

Exhibit 5 has four panels, each of which contains two line charts. The exhibit conveys information

about actual volatility in a number of financial markets as well as implied volatility (based on options prices) in those same markets. In each panel, the chart on the left displays the volatilities in percent at a daily frequency from May 1998 to March 31, 2003. The chart on the right provides more detail about the recent movements in volatilities, running from February 1, 2002 to March 31, 2003.

Top panel

Two-Year Swap Volatilities

The line charts plot implied and actual volatilities of the two-year swap rate. In the left chart, implied and actual volatility generally move together and rose from about 10 percent in October 2000 to about 60 percent in March 2003. In the right chart, there was a sharp rise in volatility from about 30 percent to 60 percent between May and August 2002, after which volatility fluctuated between 45 and 60 percent. Actual volatility was below implied volatility in February and early March 2003, but rose back to near implied volatility by the end of March.

Upper middle panel

Ten-Year Swap Volatilities

The line charts plot implied and actual volatilities of the ten-year swap rate. In the left chart, implied and actual volatility generally move together through the five-year period. After a modest downtrend from October 1998 through October 2000, these volatilities generally rose from about 10 percent in October 2000 to about 30 percent in March 2003. In the right chart, there was a sharp rise in volatility from about 20 percent to 30 percent between May and August 2002, after which volatility remained near that level. Actual volatility was below implied volatility in February and early March 2003, but rose back to near implied volatility by the end of March.

Lower middle panel

S&P 100 Volatilities

The line charts plot implied and actual volatilities of the S&P 100 equity price index. In the left chart, implied and actual volatility generally move together through the five-year period, although actual volatility shows larger fluctuations. Implied volatility fluctuated between 20 and 50 percent in the May 1998-March 2003 period, while actual volatility fluctuated between 10 and 60 percent. In the right chart, there was a notable increase in volatility from about 20 percent to 40 percent between May and August 2002, after which volatilities fluctuated in a narrow range, ending the period modestly above 30 percent. Actual volatility was below implied volatility in February and early March 2003, but rose back to near implied volatility by the end of March.

Bottom panel

Nasdaq Volatilities

The line charts plot implied and actual volatilities of the Nasdaq equity price index. In the left chart, implied and actual volatility generally move together through the five-year period, although actual volatility shows some larger spikes in 2000 and 2001. Implied volatility fluctuated between 20 and 60 percent in the May 1998-March 2003 period, while actual volatility fluctuated between 20 and 100 percent. In the right chart, there was an increase in volatility from about 30 percent to 50 percent between May and August 2002, followed by a modest decline to about 40 percent at the end of March 2003. Actual volatility was below implied volatility in January through early March 2003, but rose back to near implied volatility by the end of March.

Exhibit 6

Term Structure of Forward Swap Rate Volatilities

This exhibit includes four line charts that display the term structure of forward swap rate volatilities implied by swaptions for the underlying swap rates at the 1-, 2-, 5- and 10-year horizons. The term structure is shown as of two dates: March 17, 2003 and March 31, 2003. The implied volatility is the annual yield volatilities in percent, shown on the vertical axis. The swaption maturity, measured in years and ranging from $\frac{1}{4}$ of a year to 10 years, is plotted on the horizontal axis. The term structure of implied volatilities is downward sloping for all four terms of the underlying swap rates, but it is flatter for the longer terms.

Top-left panel

One-year Swap Rate

The chart of the term-structure of forward swap rate volatilities for the one-year swap rate indicates little change of volatilities between March 17 and March 31 for horizons of two years and beyond. At horizons up to $\frac{1}{2}$ year, forward swap rate volatilities were somewhat higher on March 31 than on March 17 while for horizons between $\frac{1}{2}$ and two years forward swap rate volatilities were somewhat lower on March 31. The volatilities range from about 60 percent at short horizons to somewhat below 20 percent at the ten-year horizon.

Top-right panel

Two-year Swap Rate

The chart of the term-structure of forward swap rate volatilities for the two-year swap rate indicates little change of volatilities between March 17 and March 31 for horizons of two years and beyond. At shorter horizons, forward swap rate volatilities were somewhat higher on March 31 than on March 17. The volatilities range from about 55-60 percent at short horizons to somewhat below 20 percent at the ten-year horizon.

Bottom-left panel

Five-year Swap Rate

The chart of the term-structure of forward swap rate volatilities for the five-year swap rate indicates little change between March 17 and March 31. The volatilities range from about 40 percent at short horizons to approximately 15 percent at the ten-year horizon.

Bottom-right panel

Ten-year Swap Rate

The chart of the term-structure of forward swap rate volatilities for the ten-year swap rate indicates little change between March 17 and March 31. The volatilities range from about 30 percent at short horizons to approximately 15 percent at the ten-year horizon.

Appendix 2: Material used by Ms. Johnson

Recent Developments in International Financial Markets

April 1, 2003

Note: Data for April 1 are as of 10 a.m. EST.

STRICTLY CONFIDENTIAL (FR) CLASS II-FOMC

Chart 1

04-01-03

Top panel

Selected Exchange Rates

(Foreign currency per dollar)

Index, March 12, 2003 = 100

Date	Canadian Dollar	Swiss Franc	Euro	Yen	Sterling
1-Jan-2003	ND	ND	ND	ND	ND
2-Jan-2003	106.94	105.26	106.39	102.29	100.96
3-Jan-2003	106.36	104.96	105.81	102.28	100.52
6-Jan-2003	105.91	104.60	105.29	101.60	100.30
7-Jan-2003	105.85	105.02	105.80	102.56	100.46
8-Jan-2003	106.01	104.87	105.51	101.85	100.41
9-Jan-2003	105.52	104.72	105.31	102.04	100.59
10-Jan-2003	105.26	104.09	104.63	101.93	100.31
13-Jan-2003	104.72	104.15	104.63	101.58	100.62
14-Jan-2003	104.54	103.94	104.28	100.67	100.37
15-Jan-2003	104.24	103.86	104.23	100.62	100.62
16-Jan-2003	104.33	103.85	104.30	100.72	100.35
17-Jan-2003	104.26	102.73	103.41	100.60	99.73
20-Jan-2003	ND	ND	ND	ND	ND
21-Jan-2003	104.10	102.79	103.24	101.19	100.04
22-Jan-2003	104.05	102.36	102.74	100.83	99.80
23-Jan-2003	103.48	101.99	102.38	100.55	99.36
24-Jan-2003	103.34	101.60	101.83	100.53	98.83
27-Jan-2003	103.52	101.80	101.71	101.25	98.64
28-Jan-2003	104.28	101.84	101.75	101.27	98.35
29-Jan-2003*	103.44	101.48	101.49	100.81	98.01
30-Jan-2003	103.95	102.36	102.29	101.74	97.86
31-Jan-2003	103.79	102.76	102.64	102.37	98.06
3-Feb-2003	103.25	102.37	102.43	102.81	98.32
4-Feb-2003	102.84	101.34	101.36	102.19	97.87
5-Feb-2003	103.17	101.69	101.67	102.22	98.02
6-Feb-2003	103.29	101.70	101.80	102.35	98.62
7-Feb-2003	103.31	102.02	102.06	102.75	99.05
10-Feb-2003	103.99	102.59	102.64	103.47	99.10
11-Feb-2003	103.90	102.54	102.57	103.42	99.60

Date	Canadian Dollar	Swiss Franc	Euro	Yen	Sterling
12-Feb-2003	103.82	102.89	102.86	103.52	99.84
13-Feb-2003	103.20	101.83	101.74	102.82	99.51
14-Feb-2003	103.14	102.28	102.07	102.76	100.15
17-Feb-2003	ND	ND	ND	ND	ND
18-Feb-2003	102.87	103.23	102.94	101.49	101.31
19-Feb-2003	102.80	102.87	102.60	101.25	101.08
20-Feb-2003	102.17	101.84	101.87	100.85	101.28
21-Feb-2003	102.20	102.28	102.19	101.37	101.67
24-Feb-2003	101.47	102.08	102.23	100.51	101.70
25-Feb-2003	101.36	101.67	102.24	99.97	102.56
26-Feb-2003	101.43	101.76	102.09	100.01	102.04
27-Feb-2003	101.53	102.13	102.42	100.34	102.10
28-Feb-2003	101.03	101.82	102.26	100.89	102.49
3-Mar-2003	100.85	101.15	101.74	100.64	102.37
4-Mar-2003	100.32	100.64	101.29	100.67	101.95
5-Mar-2003	99.99	99.88	100.51	100.12	100.79
6-Mar-2003	99.90	99.99	100.24	100.03	100.50
7-Mar-2003	99.57	100.17	100.08	99.39	100.68
10-Mar-2003	99.53	99.49	99.65	99.46	100.76
11-Mar-2003	99.98	100.01	99.95	99.91	100.57
12-Mar-2003*	100.00	100.00	100.00	100.00	100.00
13-Mar-2003	100.86	101.31	101.41	100.96	100.45
14-Mar-2003	100.64	102.82	102.78	101.20	101.95
17-Mar-2003	100.73	103.98	103.93	101.08	102.85
18-Mar-2003*	100.41	103.97	103.76	101.47	103.23
19-Mar-2003	100.52	104.42	104.09	102.52	103.07
20-Mar-2003	100.41	104.17	103.86	102.45	102.93
21-Mar-2003	101.20	105.14	104.53	103.62	102.99
24-Mar-2003	100.52	104.00	103.56	103.00	102.42
25-Mar-2003	100.29	103.68	103.28	102.43	102.69
26-Mar-2003	99.88	103.85	103.24	102.52	102.46
27-Mar-2003	99.63	103.70	102.94	102.22	102.89
28-Mar-2003	99.67	103.07	102.43	102.56	102.91
31-Mar-2003	99.78	101.67	101.13	100.76	102.15

* As shown in the chart, dashed vertical lines mark FOMC meeting dates of January 29 and March 18, 2003, and a solid vertical line marks March 12, 2003. [Return to table](#)

ND No data [Return to table](#)

Change since 3/12

Canadian dollar	-0.2%
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Swiss franc	1.7%
Euro	1.1%
Yen	0.9%
Sterling	2.5%

Bottom panel

Indexes of Trade-Weighted Value of the Dollar

Index, March 12, 2003 = 100

Date	Major currencies	Broad	Other Important Trading Partners
1-Jan-2003	ND	ND	ND
2-Jan-2003	105.15	102.05	98.46
3-Jan-2003	104.70	101.78	98.40
6-Jan-2003	104.17	101.44	98.27
7-Jan-2003	104.55	101.53	98.04
8-Jan-2003	104.35	101.50	98.20
9-Jan-2003	104.19	101.44	98.26
10-Jan-2003	103.78	101.26	98.32
13-Jan-2003	103.58	101.23	98.48
14-Jan-2003	103.19	100.98	98.40
15-Jan-2003	103.10	100.92	98.38
16-Jan-2003	103.13	100.93	98.36
17-Jan-2003	102.67	100.82	98.66
20-Jan-2003	ND	ND	ND
21-Jan-2003	102.73	101.06	99.09
22-Jan-2003	102.44	101.08	99.47
23-Jan-2003	102.01	100.76	99.27
24-Jan-2003	101.70	100.69	99.49
27-Jan-2003	101.84	100.86	99.70
28-Jan-2003	102.07	101.01	99.76
29-Jan-2003*	101.57	100.77	99.82
30-Jan-2003	102.21	100.98	99.53
31-Jan-2003	102.47	101.11	99.52
3-Feb-2003	102.33	101.12	99.70
4-Feb-2003	101.60	100.82	99.90
5-Feb-2003	101.85	100.85	99.66
6-Feb-2003	101.99	100.87	99.54
7-Feb-2003	102.22	101.06	99.69
10-Feb-2003	102.80	101.53	100.03

Date	Major currencies	Broad	Other Important Trading Partners
11-Feb-2003	102.78	101.49	99.97
12-Feb-2003	102.90	101.58	100.01
13-Feb-2003	102.09	101.18	100.10
14-Feb-2003	102.27	101.20	99.93
17-Feb-2003	ND	ND	ND
18-Feb-2003	102.40	101.09	99.55
19-Feb-2003	102.16	101.03	99.68
20-Feb-2003	101.61	100.80	99.84
21-Feb-2003	101.89	101.02	99.98
24-Feb-2003	101.49	100.76	99.90
25-Feb-2003	101.42	100.80	100.07
26-Feb-2003	101.34	100.71	99.96
27-Feb-2003	101.58	100.81	99.90
28-Feb-2003	101.51	100.81	99.98
3-Mar-2003	101.17	100.57	99.86
4-Mar-2003	100.79	100.51	100.18
5-Mar-2003	100.18	100.25	100.33
6-Mar-2003	100.02	100.24	100.51
7-Mar-2003	99.77	99.98	100.22
10-Mar-2003	99.60	99.96	100.39
11-Mar-2003	99.99	100.00	100.02
12-Mar-2003 [*]	100.00	100.00	100.00
13-Mar-2003	101.03	100.45	99.75
14-Mar-2003	101.66	100.78	99.73
17-Mar-2003	102.21	101.14	99.88
18-Mar-2003 [*]	102.17	101.10	99.84
19-Mar-2003	102.51	101.38	100.05
20-Mar-2003	102.35	101.24	99.93
21-Mar-2003	103.10	101.54	99.69
24-Mar-2003	102.34	101.14	99.73
25-Mar-2003	102.07	100.87	99.45
26-Mar-2003	101.93	100.81	99.48
27-Mar-2003	101.72	100.69	99.48
28-Mar-2003	101.58	100.58	99.39
31-Mar-2003	100.69	100.14	99.49

* As shown in the chart, dashed vertical lines mark FOMC meeting dates of January 29 and March 18, 2003, and a solid vertical line marks March 12, 2003. [Return to table](#)

Change since 3/12

Major currencies	0.7%
Broad	0.1%
OITP	-0.7%

Chart 2
Selected Yield Curves

04-01-03

Left panels
3-Month Eurocurrency Futures Rates

Yen

Percent

	April 1, 2003	March 24, 2003	March 17, 2003
Jun 2003	0.08	0.08	0.08
Sep 2003	0.09	0.09	0.09
Dec 2003	0.11	0.11	0.10
Mar 2004	0.14	0.14	0.14
Jun 2004	0.14	0.14	0.13
Sep 2004	0.17	0.17	0.16
Dec 2004	0.21	0.20	0.19
Mar 2005	0.26	0.25	0.25

Euro

Percent

	April 1, 2003	March 24, 2003	March 17, 2003
Jun 2003	2.31	2.38	2.41
Sep 2003	2.22	2.36	2.41
Dec 2003	2.27	2.46	2.50
Mar 2004	2.37	2.61	2.63
Jun 2004	2.57	2.85	2.82
Sep 2004	2.78	3.08	3.01
Dec 2004	3.02	3.32	3.22
Mar 2005	3.20	3.49	3.38

Sterling

Percent

	April 1, 2003	March 24, 2003	March 17, 2003
Jun 2003	3.44	3.61	3.50

	April 1, 2003	March 24, 2003	March 17, 2003
Sep 2003	3.35	3.62	3.48
Dec 2003	3.37	3.73	3.56
Mar 2004	3.50	3.91	3.71
Jun 2004	3.69	4.11	3.87
Sep 2004	3.90	4.29	4.02
Dec 2004	4.09	4.43	4.15
Mar 2005	4.23	4.53	4.27

Dollar

Percent

	April 1, 2003	March 24, 2003	March 17, 2003
Jun 2003	1.13	1.24	1.19
Sep 2003	1.18	1.33	1.33
Dec 2003	1.36	1.57	1.59
Mar 2004	1.65	1.90	1.92
Jun 2004	2.00	2.30	2.27
Sep 2004	2.37	2.72	2.63
Dec 2004	2.74	3.09	2.96
Mar 2005	3.04	3.38	3.23

Right panels

1-Year Forward Rates Derived From Swaps

Yen

Percent

	April 1, 2003	March 24, 2003	March 17, 2003
2003	0.06	0.07	0.06
2004	0.14	0.15	0.13
2005	0.24	0.24	0.22
2006	0.36	0.35	0.33
2007	0.49	0.49	0.47
2008	0.66	0.67	0.65
2009	0.84	0.88	0.86
2010	1.03	1.09	1.07
2011	1.21	1.30	1.27
2012	1.38	1.50	1.48

Euro

Percent

	April 1, 2003	March 24, 2003	March 17, 2003
2003	2.34	2.52	2.60
2004	2.92	3.16	3.21
2005	3.49	3.76	3.73
2006	4.02	4.28	4.18
2007	4.46	4.70	4.60
2008	4.83	5.02	4.95
2009	5.12	5.28	5.22
2010	5.35	5.48	5.43
2011	5.53	5.63	5.59
2012	5.68	5.76	5.74

Sterling

Percent

	April 1, 2003	March 24, 2003	March 17, 2003
2003	3.53	3.82	3.61
2004	3.91	4.22	4.03
2005	4.27	4.56	4.41
2006	4.57	4.83	4.72
2007	4.80	5.02	4.95
2008	4.97	5.15	5.12
2009	5.10	5.26	5.25
2010	5.20	5.34	5.34
2011	5.28	5.41	5.41
2012	5.35	5.46	5.48

Dollar

Percent

	April 1, 2003	March 24, 2003	March 17, 2003
2003	1.35	1.54	1.48
2004	2.40	2.62	2.54
2005	3.39	3.62	3.49
2006	4.24	4.44	4.26
2007	4.87	5.03	4.84
2008	5.30	5.42	5.25
2009	5.61	5.69	5.54
2010	5.84	5.88	5.76
2011	6.05	6.05	5.93

	April 1, 2003	March 24, 2003	March 17, 2003
2012	6.26	6.22	6.07

Chart 3

Stock Market Indexes

04-01-03

Top-left panel

Euro Area

(Ratio scale, Index, March 12, 2003 = 100, daily data)

Date	DJ Euro	DJ Euro Tech	DJ Euro Bank
2-Jan-2003	130.73	127.42	126.22
3-Jan-2003	130.39	128.21	125.58
6-Jan-2003	131.46	130.50	126.02
7-Jan-2003	130.41	129.24	125.64
8-Jan-2003	127.88	122.97	124.15
9-Jan-2003	129.67	127.33	125.11
10-Jan-2003	129.65	128.52	125.55
13-Jan-2003	130.14	128.25	127.02
14-Jan-2003	130.76	131.23	127.23
15-Jan-2003	129.29	128.85	126.02
16-Jan-2003	129.32	125.11	125.97
17-Jan-2003	125.54	118.88	121.31
20-Jan-2003	124.09	117.53	120.07
21-Jan-2003	122.83	ND	118.04
22-Jan-2003	120.62	117.38	115.67
23-Jan-2003	120.16	117.05	116.08
24-Jan-2003	118.71	114.21	114.23
27-Jan-2003	114.97	110.38	111.20
28-Jan-2003	114.99	110.16	110.41
29-Jan-2003*	115.80	111.99	110.40
30-Jan-2003	117.97	115.51	112.91
31-Jan-2003	118.50	113.09	113.07
3-Feb-2003	119.66	114.48	114.50
4-Feb-2003	115.78	110.06	110.62
5-Feb-2003	117.54	112.14	113.18
6-Feb-2003	115.26	109.52	111.49
7-Feb-2003	113.58	108.15	110.37
10-Feb-2003	113.00	107.57	109.17

Date	DJ Euro	DJ Euro Tech	DJ Euro Bank
11-Feb-2003	115.75	112.10	112.10
12-Feb-2003	113.30	109.17	109.73
13-Feb-2003	112.66	106.91	110.50
14-Feb-2003	115.71	110.19	114.31
17-Feb-2003	117.61	113.16	ND
18-Feb-2003	119.32	116.20	117.19
19-Feb-2003	116.30	113.66	114.53
20-Feb-2003	114.93	110.48	113.18
21-Feb-2003	116.09	110.60	114.25
24-Feb-2003	114.05	110.56	111.57
25-Feb-2003	110.39	105.57	108.36
26-Feb-2003	109.26	104.64	107.67
27-Feb-2003	111.22	105.10	109.74
28-Feb-2003	113.06	107.78	112.44
3-Mar-2003	113.08	108.12	112.54
4-Mar-2003	110.57	105.22	109.71
5-Mar-2003	109.83	104.44	109.33
6-Mar-2003	108.30	104.12	107.20
7-Mar-2003	106.15	101.00	105.51
10-Mar-2003	103.68	99.31	103.20
11-Mar-2003	103.35	99.31	102.68
12-Mar-2003*	100.00	100.00	100.00
13-Mar-2003	105.57	105.59	104.63
14-Mar-2003	110.49	111.99	110.85
17-Mar-2003	113.80	116.73	113.30
18-Mar-2003*	114.02	117.97	ND
19-Mar-2003	115.56	119.04	115.15
20-Mar-2003	114.22	118.47	113.55
21-Mar-2003	118.32	119.13	118.92
24-Mar-2003	112.60	115.92	113.25
25-Mar-2003	115.02	117.72	114.94
26-Mar-2003	114.57	117.21	114.85
27-Mar-2003	112.84	115.97	112.65
28-Mar-2003	112.62	114.09	112.58
31-Mar-2003	108.40	107.66	108.80
1-Apr-2003	109.76	109.69	110.41

* As shown in the chart, dashed vertical lines mark FOMC meeting dates of January 29 and March 18, 2003, and a solid vertical line marks March 12, 2003. [Return to table](#)

Change since 3/12

DJ Euro	9.1%
DJ Euro Tech	8.6%
DJ Euro Bank	9.9%

Top-right panel
United Kingdom

(Ratio scale, Index, March 12, 2003 = 100, daily data)

Date	FTSE-350	FTSE-techMark	FTSE-Bank
2-Jan-2003	121.02	118.48	121.73
3-Jan-2003	121.01	119.15	121.91
6-Jan-2003	120.86	119.36	120.54
7-Jan-2003	119.66	117.96	118.53
8-Jan-2003	118.72	117.47	118.27
9-Jan-2003	119.01	118.27	118.85
10-Jan-2003	120.20	120.14	120.53
13-Jan-2003	119.52	121.17	119.86
14-Jan-2003	119.42	122.18	119.71
15-Jan-2003	117.77	120.83	117.84
16-Jan-2003	117.64	120.45	116.92
17-Jan-2003	115.92	117.72	114.92
20-Jan-2003	114.77	116.58	113.14
21-Jan-2003	113.64	116.53	111.63
22-Jan-2003	111.95	116.25	109.85
23-Jan-2003	110.39	115.88	108.35
24-Jan-2003	109.81	115.24	108.69
27-Jan-2003	106.14	111.00	105.72
28-Jan-2003	106.24	110.82	104.60
29-Jan-2003*	105.84	109.19	103.30
30-Jan-2003	108.49	111.04	106.67
31-Jan-2003	108.17	109.71	105.65
3-Feb-2003	111.60	113.19	110.87
4-Feb-2003	108.88	110.71	108.41
5-Feb-2003	111.32	111.39	111.15
6-Feb-2003	109.09	109.74	108.69
7-Feb-2003	109.17	110.92	110.04
10-Feb-2003	108.65	110.50	107.99
11-Feb-2003	111.12	112.13	111.04
12-Feb-2003	109.56	110.61	110.82

Date	FTSE-350	FTSE-techMark	FTSE-Bank
13-Feb-2003	109.37	109.52	113.86
14-Feb-2003	109.38	109.72	111.65
17-Feb-2003	ND	111.80	ND
18-Feb-2003	112.69	111.72	115.58
19-Feb-2003	110.80	111.54	114.34
20-Feb-2003	111.55	111.51	113.92
21-Feb-2003	112.59	111.23	113.23
24-Feb-2003	111.99	110.24	112.86
25-Feb-2003	109.62	107.34	111.72
26-Feb-2003	108.81	106.63	110.51
27-Feb-2003	108.18	104.68	109.72
28-Feb-2003	110.59	107.84	113.53
3-Mar-2003	111.49	109.22	113.96
4-Mar-2003	109.84	107.70	111.32
5-Mar-2003	108.02	106.25	109.48
6-Mar-2003	107.76	106.15	109.23
7-Mar-2003	105.85	104.97	107.14
10-Mar-2003	104.29	103.01	104.65
11-Mar-2003	104.57	103.59	105.48
12-Mar-2003*	100.00	100.00	100.00
13-Mar-2003	105.39	103.45	105.52
14-Mar-2003	108.68	106.99	109.32
17-Mar-2003	112.03	109.34	113.09
18-Mar-2003*	ND	110.63	ND
19-Mar-2003	113.51	110.00	114.26
20-Mar-2003	113.57	108.67	114.29
21-Mar-2003	116.26	109.78	117.54
24-Mar-2003	112.92	107.67	113.99
25-Mar-2003	113.38	108.90	113.36
26-Mar-2003	114.27	109.04	114.60
27-Mar-2003	112.48	108.10	112.53
28-Mar-2003	111.93	108.14	111.57
31-Mar-2003	109.21	105.73	109.05
1-Apr-2003	111.14	107.18	111.01

* As shown in the chart, dashed vertical lines mark FOMC meeting dates of January 29 and March 18, 2003, and a solid vertical line marks March 12, 2003. [Return to table](#)

Change since 3/12

FTSE-350	10.8%
FTSE-Tech	7.1%

FTSE-Bank	10.5%
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Bottom-left panel

Japan

(Ratio scale, Index, March 12, 2003 = 100, daily data)

Date	TOPIX	TOPIX-EM	TOPIX-Bank
2-Jan-2003	ND	ND	ND
3-Jan-2003	ND	ND	ND
6-Jan-2003	109.93	111.44	116.30
7-Jan-2003	109.15	111.68	113.70
8-Jan-2003	107.31	109.79	111.00
9-Jan-2003	107.28	109.37	110.77
10-Jan-2003	107.07	109.73	111.11
13-Jan-2003	ND	ND	ND
14-Jan-2003	108.12	111.11	113.06
15-Jan-2003	109.37	111.70	116.58
16-Jan-2003	109.45	111.67	118.21
17-Jan-2003	109.83	112.88	119.28
20-Jan-2003	109.14	111.09	119.46
21-Jan-2003	110.39	112.61	120.86
22-Jan-2003	109.16	112.02	119.14
23-Jan-2003	110.62	114.56	121.24
24-Jan-2003	110.10	113.32	120.99
27-Jan-2003	108.65	110.57	118.39
28-Jan-2003	107.51	109.35	116.54
29-Jan-2003*	105.54	106.66	113.07
30-Jan-2003	105.47	107.15	112.12
31-Jan-2003	104.96	106.59	111.13
3-Feb-2003	107.07	109.13	115.74
4-Feb-2003	107.91	109.09	116.97
5-Feb-2003	108.04	109.30	115.93
6-Feb-2003	107.36	107.92	114.92
7-Feb-2003	107.25	107.13	114.51
10-Feb-2003	107.71	107.71	114.74
11-Feb-2003	ND	ND	ND
12-Feb-2003	109.57	109.72	118.13
13-Feb-2003	109.03	108.55	119.55
14-Feb-2003	109.67	109.76	119.44
17-Feb-2003	110.14	111.02	118.79

Date	TOPIX	TOPIX-EM	TOPIX-Bank
18-Feb-2003	109.50	110.01	116.18
19-Feb-2003	109.10	110.08	113.67
20-Feb-2003	108.56	109.94	110.08
21-Feb-2003	107.38	108.69	109.23
24-Feb-2003	107.23	109.02	108.94
25-Feb-2003	104.71	106.69	105.17
26-Feb-2003	104.60	106.51	104.23
27-Feb-2003	104.71	105.93	105.20
28-Feb-2003	104.65	105.91	104.06
3-Mar-2003	105.53	107.52	101.72
4-Mar-2003	105.84	107.64	103.85
5-Mar-2003	105.17	106.90	103.34
6-Mar-2003	104.33	105.64	103.99
7-Mar-2003	101.77	103.27	101.54
10-Mar-2003	100.28	101.08	99.39
11-Mar-2003	98.50	98.37	98.36
12-Mar-2003*	100.00	100.00	100.00
13-Mar-2003	99.51	99.51	100.43
14-Mar-2003	100.47	102.40	99.46
17-Mar-2003	99.34	100.71	96.62
18-Mar-2003*	100.15	102.76	97.43
19-Mar-2003	100.86	103.65	98.10
20-Mar-2003	103.21	105.36	99.76
21-Mar-2003	ND	ND	ND
24-Mar-2003	106.27	108.83	102.37
25-Mar-2003	103.83	105.53	100.80
26-Mar-2003	104.99	106.47	101.53
27-Mar-2003	105.25	106.63	102.51
28-Mar-2003	104.55	104.73	101.20
31-Mar-2003	100.72	100.93	97.72
1-Apr-2003	100.84	100.66	96.43

* As shown in the chart, dashed vertical lines mark FOMC meeting dates of January 29 and March 18, 2003, and a solid vertical line marks March 12, 2003. [Return to table](#)

Change since 3/12

TOPIX	0.8%
TOPIX-EM	0.7%
TOPIX-Bank	-3.6%

Bottom-right panel**United States**

(Ratio scale, Index, March 12, 2003 = 100, daily data)

Date	S&P 500	NASDAQ	S&P Banks
2-Jan-2003	113.04	108.26	117.39
3-Jan-2003	112.98	108.43	117.79
6-Jan-2003	115.52	111.11	121.69
7-Jan-2003	114.77	111.91	120.66
8-Jan-2003	113.15	109.52	119.29
9-Jan-2003	115.34	112.45	121.26
10-Jan-2003	115.34	113.17	121.94
13-Jan-2003	115.18	113.04	121.97
14-Jan-2003	115.85	114.21	123.31
15-Jan-2003	114.18	112.47	121.41
16-Jan-2003	113.73	111.15	120.52
17-Jan-2003	112.14	107.58	119.69
20-Jan-2003	ND	ND	119.69
21-Jan-2003	110.37	106.65	116.92
22-Jan-2003	109.22	106.27	114.63
23-Jan-2003	110.34	108.52	116.27
24-Jan-2003	107.11	104.92	111.99
27-Jan-2003	105.38	103.60	109.94
28-Jan-2003	106.76	104.92	111.70
29-Jan-2003*	107.48	106.16	112.02
30-Jan-2003	105.03	103.37	108.86
31-Jan-2003	106.41	103.26	110.17
3-Feb-2003	106.98	103.48	111.00
4-Feb-2003	105.47	102.10	108.44
5-Feb-2003	104.90	101.74	108.07
6-Feb-2003	104.22	101.76	106.32
7-Feb-2003	103.17	100.25	105.45
10-Feb-2003	103.95	101.36	105.97
11-Feb-2003	103.11	101.27	104.29
12-Feb-2003	101.80	99.98	102.81
13-Feb-2003	101.64	99.86	103.09
14-Feb-2003	103.82	102.42	105.63
17-Feb-2003	ND	ND	105.63
18-Feb-2003	105.84	105.26	107.74
19-Feb-2003	105.09	104.31	107.43
20-Feb-2003	104.09	104.06	106.17

Date	S&P 500	NASDAQ	S&P Banks
21-Feb-2003	105.47	105.45	107.18
24-Feb-2003	103.53	103.37	104.56
25-Feb-2003	104.28	103.89	105.42
26-Feb-2003	102.90	101.91	104.17
27-Feb-2003	104.11	103.49	105.83
28-Feb-2003	104.60	104.56	106.89
3-Mar-2003	103.81	103.21	106.16
4-Mar-2003	102.21	102.23	104.08
5-Mar-2003	103.19	102.75	105.40
6-Mar-2003	102.23	101.85	103.85
7-Mar-2003	103.07	102.04	105.16
10-Mar-2003	100.41	99.93	101.06
11-Mar-2003	99.57	99.39	99.44
12-Mar-2003*	100.00	100.00	100.00
13-Mar-2003	103.45	104.81	105.00
14-Mar-2003	103.62	104.78	105.18
17-Mar-2003	107.29	108.84	109.19
18-Mar-2003*	107.74	109.48	110.55
19-Mar-2003	108.68	109.21	112.21
20-Mar-2003	108.89	109.66	112.49
21-Mar-2003	111.39	111.15	115.94
24-Mar-2003	107.47	107.08	111.94
25-Mar-2003	108.77	108.74	112.28
26-Mar-2003	108.18	108.46	112.55
27-Mar-2003	108.00	108.21	112.35
28-Mar-2003	107.38	107.06	111.67
31-Mar-2003	105.47	104.84	108.71
1-Apr-2003	106.75	105.40	111.69

* As shown in the chart, dashed vertical lines mark FOMC meeting dates of January 29 and March 18, 2003, and a solid vertical line marks March 12, 2003. [Return to table](#)

Change since 3/12

S&P 500	5.6%
NASDAQ	5.0%
S&P Bank	9.3%

Chart 4

04-01-03

Top panel

Crude Oil Futures Prices

\$/barrel

Date	WTI May	Brent May
2-Jan-2003	28.84	27.03
3-Jan-2003	29.62	27.79
6-Jan-2003	28.99	27.10
7-Jan-2003	28.73	26.90
8-Jan-2003	28.52	26.75
9-Jan-2003	29.38	27.59
10-Jan-2003	29.04	27.29
13-Jan-2003	29.64	27.87
14-Jan-2003	29.97	28.22
15-Jan-2003	30.48	28.64
16-Jan-2003	30.82	28.98
17-Jan-2003	30.95	29.05
20-Jan-2003	ND	29.07
21-Jan-2003	30.96	29.15
22-Jan-2003	30.77	28.94
23-Jan-2003	30.46	28.66
24-Jan-2003	31.12	29.29
27-Jan-2003	30.49	28.81
28-Jan-2003	30.94	29.26
29-Jan-2003*	31.72	30.02
30-Jan-2003	31.95	30.15
31-Jan-2003	31.80	30.03
3-Feb-2003	31.34	29.47
4-Feb-2003	32.04	30.18
5-Feb-2003	32.37	30.54
6-Feb-2003	32.40	30.51
7-Feb-2003	33.13	31.29
10-Feb-2003	32.60	30.68
11-Feb-2003	33.27	31.30
12-Feb-2003	33.35	31.29
13-Feb-2003	33.92	31.67
14-Feb-2003	34.04	31.67
17-Feb-2003	ND	31.06
18-Feb-2003	34.12	31.57
19-Feb-2003	34.21	31.56
20-Feb-2003	33.46	30.93

Date	WTI May	Brent May
21-Feb-2003	34.33	31.65
24-Feb-2003	35.04	32.49
25-Feb-2003	34.42	31.55
26-Feb-2003	35.34	32.18
27-Feb-2003	35.19	32.07
28-Feb-2003	34.83	31.82
3-Mar-2003	34.24	31.63
4-Mar-2003	34.91	32.11
5-Mar-2003	34.96	32.00
6-Mar-2003	35.54	32.52
7-Mar-2003	36.35	33.14
10-Mar-2003	36.28	32.92
11-Mar-2003	35.74	32.65
12-Mar-2003*	36.35	33.21
13-Mar-2003	34.67	31.77
14-Mar-2003	33.36	30.13
17-Mar-2003	32.54	29.48
18-Mar-2003*	30.05	27.25
19-Mar-2003	29.36	26.75
20-Mar-2003	28.12	25.50
21-Mar-2003	26.91	24.35
24-Mar-2003	28.66	26.09
25-Mar-2003	27.97	24.81
26-Mar-2003	28.63	25.29
27-Mar-2003	30.37	26.82
28-Mar-2003	30.16	26.35
31-Mar-2003	31.04	27.18
1-Apr-2003	29.78	26.36

* As shown in the chart, dashed vertical lines mark FOMC meeting dates of January 29 and March 18, 2003, and a solid vertical line marks March 12, 2003. [Return to table](#)

Change since 3/12

Brent May	-\$6.36
WTI May	-\$5.95

Bottom panel

Implied Distributions from Oil Futures Options

The bottom panel represents implied distributions from December 2003 and May 2003 West Texas Intermediate oil futures options on March 31, 2003. The May 2003 WTI distribution has a range

from approximately 17 to 50 dollars per barrel, and is roughly symmetric with noticeable peak at 31 dollars per barrel. The December 2003 WTI distribution has a range from approximately 5 to 50 dollars per barrel, with a peak at 26.4 dollars per barrel. The December 2003 WTI distribution is asymmetric, with greater weight placed on the likelihood of a price below 25 dollars per barrel than on the likelihood of a price greater than 30 dollars per barrel.

	Futures	Implied Volatility	2/3 Bounds	Skew1	Skew2
May 2003 Contract	31.0	62.60	[27.49,34.23]	+0.24	+0.01
Dec 2003 Contract	26.4	31.88	[19.55,31.65]	-0.72	-0.18

Appendix 3: Materials used by Mr. Stockton

April 1, 2003

NONFINANCIAL DEVELOPMENTS

Chart 1 Current Indicators

4-1-03

Top-left panel UI--Initial Claims

UI stands for Unemployment Insurance, and initial claims means weekly initial claims for unemployment insurance. The period covered is from 2002 to March 22, 2003, and the data represent thousands of claims. Note that the data are seasonally adjusted using FRB seasonals.

The data are plotted on two curves. One curve shows weekly claims; the other shows the four-week moving average of weekly claims.

The curve for weekly claims is more volatile. It starts at just above 400,000 at the beginning of 2002, moves down slightly, and increases sharply to about 470,000 by March. It then decreases sharply to about 360,000 by July, increases sharply to about 440,000 by September, swings erratically between 375,000 and 440,000 until declining to 360,000 in January 2003, spikes to about 435,000, and finally falls back to about 400,000 by March 22 2003.

The curve for the four-week moving average of weekly claims is smoother. It starts at just above 400,000 at the beginning of 2002, declines briefly, increases sharply to about 440,000 by March, and decreases sharply to about 370,000 by July. It increases sharply to about 430,000 by October, declines to about 380,000 in January 2003, and then increases sharply to about 420,000 by March 22 2003.

Top-right panel UI--Insured Unemployment

UI stands for Unemployment Insurance, and insured unemployment is continuing claims for unemployment insurance. The period covered is from 2002 to March 15, 2003. The data represent

millions of people collecting unemployment insurance. Note that the data are seasonally adjusted using FRB seasonals.

The data are plotted on two curves. One curve shows weekly insured unemployment; the other shows the four-week moving average of weekly insured unemployment.

The curve for weekly insured unemployment is more volatile. It starts at about 3.5 million at the beginning of 2002, moves up to about 3.75 million by May, falls to about 3.45 million by June, rises to about 3.85 million by September, falls to about 3.25 million in January 2003, and then rises to just below 3.5 million by March 15 2003.

The curve for the four-week moving average of weekly insured unemployment is smoother. It starts at about 3.5 million at the beginning of 2002, moves up to about 3.7 million by May, falls to about 3.5 million by July, rises to about 3.7 million by September, falls to about 3.3 million by January 2003, and then rises to about 3.45 million by March 15, 2003.

Middle-left panel

IP Weekly Production Index

The period covered is from the start of 2002 to March 2003 for monthly data and January 1, 2002, to March 22, 2003, for weekly data. The monthly aggregate of weekly index is represented by bars, and the weekly index--total IP points of 16 components is plotted as an overlaid curve.

The monthly bars start slightly above 19 at the beginning of 2002 increasing fairly steadily through June to near 20. In July the bar jumps to about 20.25 and the following months alternate above and below 20, hovering within around .25 index points, with January and February of 2003 both above 20 and March near 19.75.

The weekly curve starts a bit below 19 index points following the monthly data up to a peak of near 20.5 around July. The curve generally follows the monthly data but with a peak near the July high in November and a drop below to near 18.75 at the end of 2002. The data for the week of March 22 comes in around 19.5, which is below the March bar.

Middle-right panel

Production of Domestic Motor Vehicles

The time period of the figure is from the start of 2002 through mid-2003. The data are plotted on a curve with filled-in circles marking quarterly averages in 2002 and open circles marking schedules for the first two quarters of 2003, with Federal Reserve Board Seasonals. The data is presented in millions of units at an annual rate.

The curve starts slightly above 12 staying relatively flat through May 2002 when it starts to increase to slightly above 13 around July. The production curve decreases to near 12 in October, spikes up to 13 in November, back near 12 in December, then increases again near 13 in January 2003. A smooth decrease follows the January point nearing 11.25 in April 2003 and increasing to 12 in June.

The quarterly average for 2002:Q1 is faintly above 12, Q2 is slightly higher, Q3 is near 13, and Q4 lies slightly below 12.5. The schedule for 2003:Q1 is set at about 12.25 and 2003:Q2's schedule falls near 11.75.

Note: March through June are schedules.

Bottom-left panel

Chain Store Sales

This panel displays an index of chain stores sales, where an increase in the index indicates an increase in merchandise sold at selected chain stores and a decrease indicates a decrease in merchandise sold from one month to the next. The period covered is from January 2002 to March 29, 2003.

The curve starts at about 397 at the beginning of 2002, spikes to about 415 by February, falls to about 399 by April, rises steeply to about 416 by June, falls to about 393 by December, rises steeply to about 412 by January 2003, and moves down, on net, to about 405 by March 29, 2003.

Source: Bank of Tokyo-Mitsubishi.

Bottom-right panel

Michigan SRC Survey

	Feb:H2	Mar:H1	Mar:H2
1. Total	81.3	75.0	81.9
2. Current	95.6	87.1	94.8
3. Expected	72.1	67.2	73.6

Chart 2

Domestic Energy Markets

4-1-03

Top-left panel

Gasoline and Crude Oil Prices

The period covered is from 2002 to March 31, 2003, and the data represent the weekly retail price of gasoline and daily spot price of West Texas intermediate crude oil.

The data are plotted on two curves. One curve represents retail price of gasoline, and the other curve represents the price of West Texas intermediate crude oil. The data are not seasonally adjusted.

The curve for retail gasoline starts at about 110 cents per gallon at the beginning of 2002 and increases to about 140 cents per gallon by the end of March 2002. It remains steady through 2002, increases to a peak of about 175 cents per gallon in the first three months of 2003, then drops down to about 160 cents per gallon by March 31, 2003.

The curve for West Texas Intermediate Crude Oil starts around 50 cents per gallon, holds between 60 to 70 cents per gallon during the last 10 months of 2002, peaks at about 90 cents per gallon in March 2003, then ends at about 70 cents per gallon on March 31, 2003.

Top-right panel

Gasoline Inventories

The period covered is from 2002 to July 2003, and the data represent the weekly U.S. domestic gasoline inventories and the 5-year monthly average of U.S. domestic gasoline inventories. The 5-year monthly average of gasoline inventories is defined to be the monthly mean over the five most recent years for which we have data.

The data are plotted on two curves. One curve represents the gasoline inventories, and the other

curve represents the repeated 5-year monthly average of gasoline inventories. The data are not seasonally adjusted.

The curve for gasoline inventories starts at about 210 million barrels at the beginning of 2002, hits a minimum at about 192 million barrels by November 2002, retraces back to 215 million barrels by January 2003, then ends at approximately 198 million barrels on March 21, 2003.

The curve for the 5-year monthly average of gasoline inventories starts at about 218 million barrels in 2002, decreases to about 209 million barrels in March 2002, increases to 215 million barrels by May 2002, declines to its minimum at about 199 million barrels in August 2002, then ends 2002 at 205 million barrels. In 2003, the curve follows the same path as 2002, by definition.

Bottom-left panel

Natural Gas Spot Price

The period covered is from 2002 to March 31, 2003, and the data represent the daily Henry Hub Natural Gas Spot Price. The data are plotted on one curve.

The curve for natural gas starts at about 2 dollars per million British Thermal Units (MMBtU) at the beginning of 2002, climbs steadily to about 6 dollars per MMBtU in February 2003, then spikes to about 19 dollars per MMBtU in late February 2003, then retraces back to about 5 dollars per MMBtU by March 31, 2003.

Bottom-right panel

Natural Gas Inventories

The period covered is from January 1997 to March 21, 2003, and the data represent the end-of-month U.S. domestic Natural Gas Inventories, defined as working gas in storage.

The data are plotted on four curves and an open circle. One curve represents the 1997-2000 average of U.S. domestic natural gas inventories. The second curve represents the 2001 U.S. domestic natural gas inventories. The third curve represents the 2002 U.S. domestic natural gas inventories. The fourth and final curve represents the 2003 U.S. domestic natural gas inventories. The open circle represents U.S. domestic natural gas inventories on March 21, 2003.

The curve for 1997-2000 average U.S. domestic natural gas inventories starts at around 1750 billion cubic feet in January, decreases to about 1250 billion cubic feet in March, increases to about 3000 billion cubic feet in October, and ends at about 2250 billion cubic feet in December.

The curve for 2001 U.S. domestic natural gas inventories starts at around 1250 billion cubic feet in January, decreases to about 750 billion cubic feet in March, increases to about 3200 billion cubic feet in November, and ends at about 2900 billion cubic feet in December.

The curve for 2002 U.S. domestic natural gas inventories starts at around 2400 billion cubic feet in January, decreases to about 1500 billion cubic feet in March, increases to about 3100 billion cubic feet in October, and ends at about 2400 billion cubic feet in December.

The curve for 2003 U.S. domestic natural gas inventories starts at around 1500 billion cubic feet in January and ends at about 800 billion cubic feet in February. The open circle represents natural gas inventories, which stood at approximately 700 billion cubic feet on March 21, 2003.

New Orders and Shipments of Nondefense Capital Goods

4-1-03

Top panel

(Percent change from preceding period, seasonally adjusted)

	2002		2002	2003	
	Q3	Q4	Dec.	Jan.	Feb.
Shipments	---annual rate---		-----monthly rate-----		
1. Nondefense excl. aircraft	1.5	-6.4	-1.3	3.5	-3.0
2. Computers and peripherals	26.1	-8.6	-3.8	20.0	-13.1
3. Communications equipment	-25.9	-12.6	-5.9	9.4	-2.8
4. All other	2.1	-5.3	-.3	.2	-1.2
New Orders					
5. Nondefense excl. aircraft	-.6	-1.4	-.6	4.3	-2.8
6. Computers and peripherals	45.9	5.4	10.0	1.2	-12.3
7. Communications equipment	-61.5	26.3	-15.0	34.4	-5.5
8. All other	4.5	-5.0	-.6	1.8	-.7

Middle-left panel

Computers & Peripherals

The orders line represents manufacturers' new orders of computers and related products. The shipments line represents manufacturers' shipments of computers and related products. The period covered is from 1997 to February 2003, and the data represent billions of dollars.

The data are plotted on two curves. One curve represents orders, and the other represents shipments. Both curves are three-month moving averages.

The curve for orders begins at about 8.5 billion dollars at the beginning of 1997 and increases to above 10 billion dollars in mid-1999. It falls to about 8.5 billion dollars in early 2000 and rises to about 9.2 billion dollars in mid-2000. Orders then fall to around 6 billion dollars in 2001. After the drop, orders rises erratically to a level of about 7 billion dollars in February of 2003.

The curve for shipments starts at around 8.5 billion dollars in 1997, and then follows much of the same pattern as orders throughout the period. Shipments increase to just under 7 billion dollars in February 2003.

Middle-center panel

Communications Equipment

The orders line represents manufacturers' new orders of nondefense communication equipment. The shipments line represents manufacturers' shipments of nondefense communication equipment. The period covered is from 1997 to February 2003, and the data represent billions of dollars.

The data are plotted on two curves. One curve represents orders, and the other represents shipments. Both curves are three-month moving averages.

The curve for orders begins at about 5 billion dollars at the beginning of 1997 and increases to about

12 billion dollars in mid-2000. It falls to about 5 billion dollars in 2001 and has small movements around 5 billions dollars until the end of the series in February 2003.

The curve for shipments starts at about 5 billion dollars in 1997, then follows much of the same pattern as orders throughout the period. Shipments decrease to around 5 billion dollars in February 2003.

Middle-right panel

Other Equipment

The orders line represents manufacturers' new orders of nondefense capital goods excluding aircraft and parts, computers and peripherals, and communications equipment. The shipments line represents manufacturers' shipments of nondefense capital goods excluding aircraft and parts, computers and peripherals, and communications equipment. The period covered is from 1997 to February 2003, and the data represent billions of dollars.

The data are plotted on two curves. One curve represents orders, and the other represents shipments. Both curves are three-month moving averages.

The curve for orders begins at just above 38 billion dollars at the beginning of 1997 and increases to above 42 billion dollars at the beginning of 1998. It falls to about 41 billion dollars in late 1998 and rises to about 46 billion dollars in early 2000. Orders then fall to under 40 billion dollars in 2001. After this drop, orders rise erratically to a level of about 41 billion dollars in February 2003.

The curve for shipments starts at around 38 billion dollars in 1997, and then follows much of the same pattern as orders throughout the period. Shipments end at about 41 billion dollars in February 2003.

Bottom-left panel

ISM Survey--Total

This panel is the Institute for Supply Management survey index of the manufacturing economy. The period covered is from 1997 to March 2003, and the data is an index.

The curve begins at about 55 at the beginning of 1997 and decreases to just below 50 by the end of 1998. It increases to about 60 in late 1999 and falls to 40 in early 2001, remaining there through 2001. The survey rises to around 55 in 2002 before erratically falling to around 45 in March 2003.

Bottom-right panel

ISM Survey--New Orders

This panel is the Institute for Supply Management survey index of manufacturing's new orders. The period covered is from 1997 to March 2003, and the data is an index.

The curve begins at just below 60 at the beginning of 1997 and decreases to just below 50 at the end of 1998. It increases to above 60 in late 1999 and falls to 40 in early 2001. The survey erratically rises to around 60 in 2002 before sharply falling to about 45 in March 2003.

Chart 4

Household Sector

Top panel

Personal Consumption Expenditures

(Percent change; seasonally adjusted)

	2002		2002	2003	
	Q3	Q4	Dec.	Jan.	Feb.
	---annual rate---		-----monthly rate-----		
1. Real PCE	4.2	1.7	1.0	-.2	-.4
2. New autos and trucks	76.4	-34.3	24.0	-13.5	-4.4
3. Excluding new autos and trucks	2.2	3.4	.2	.3	-.3
4. Real DPI	1.8	2.4	.3	.2	-.2
<i>Memo:</i>					
5. Personal saving rate ¹	3.5	3.8	3.4	3.8	4.0
6. Core PCE prices	1.8	1.5	.1	.0	.1

1. Percent. [Return to table](#)

Bottom-left panel

New Home Sales and Starts

The starts line is the number of new single-family homes with construction started, usually counted when ground is broken. New homes sales are the number of homes sold, contract completed, in a given month. The period covered is from 1995 to February 2003, and the data represent millions of units at an annual rate.

The data are plotted on two curves. One curve represents starts, and the other represents new homes sales. Both curves are seasonally adjusted.

The curve for starts begins at about 1.4 million units at the beginning of 1995 and increases to about 1.5 million units in mid-1996 after a slight dip in 1995. It falls to below 1.4 million units in 1997 and slowly rises to a peak of about 1.8 million units in late 1998. Starts then fall to around 1.45 million units in 2000; after the drop, starts rise erratically to a level of about 1.6 million units in February 2003.

The curve for sales begins at about 0.6 million units in 1995, and increases to above 1.0 million units in 1999. Sales dip to about 0.8 million units in 2000, before increasing erratically to nearly 1.1 million units in 2002. Then sales fall to 0.9 million units in February 2003.

Bottom-right panel

Existing Home Sales

The sales curve is the number of already existing single-family homes sold, contract completed, in a given month. The period covered is from 1995 to February 2003. The data are seasonally adjusted using FRB seasonals and represent millions of units at an annual rate.

The curve begins at about 3.6 million units at the beginning of 1995 and increases to about 5.5 million units in mid-1999. It falls to below 5.0 million units in 2001 and rises erratically to a level of about 5.7 million units in February 2003.

