Appendix 1: Materials used by Mr. Kos

Current Deposit Rates and Rates Implied by Traded Forward Rate Agreements

January 29-30, 2002

October 1, 2001 to January 28, 2002

	LIBOR Fixing	3M Forward	9M Forward
United States			
Euro-area			
Japan			

United States and Euro-area

Percent — Percent

FOMC -50bp 10/2

FOMC -25bp 11/6

ECB -50bp 11/9

FOMC -25bp 12/11

Chairman Greenspan's speech 1/11

Source: Bloomberg

Japan

Percent — Percent

BOJ changes target reserves 12/19

BOJ expands collateral 1/16

Source: Bloomberg
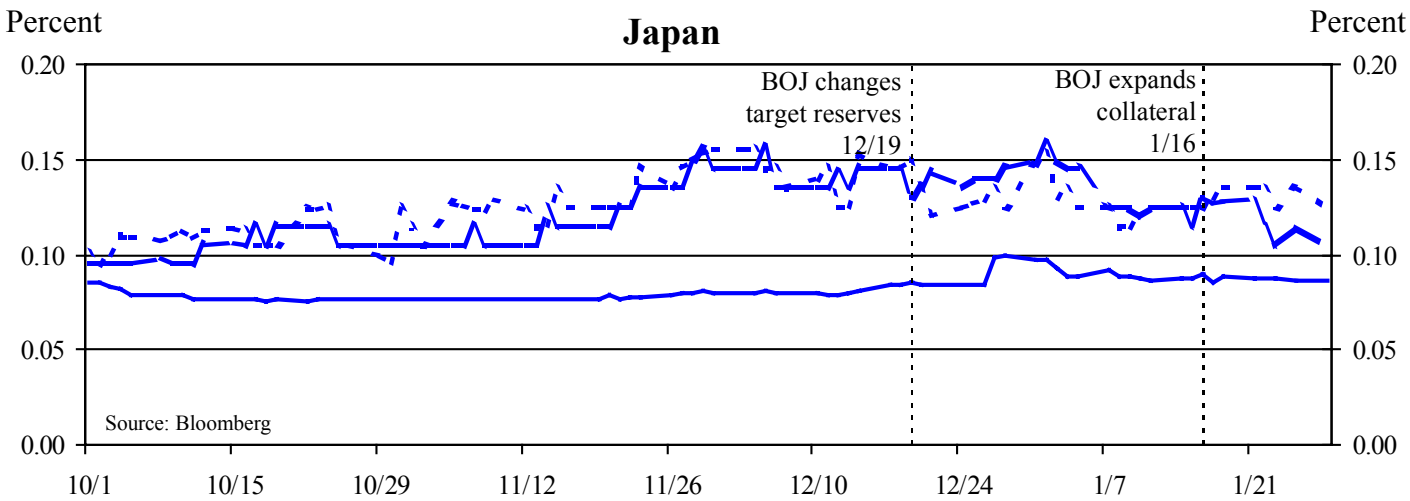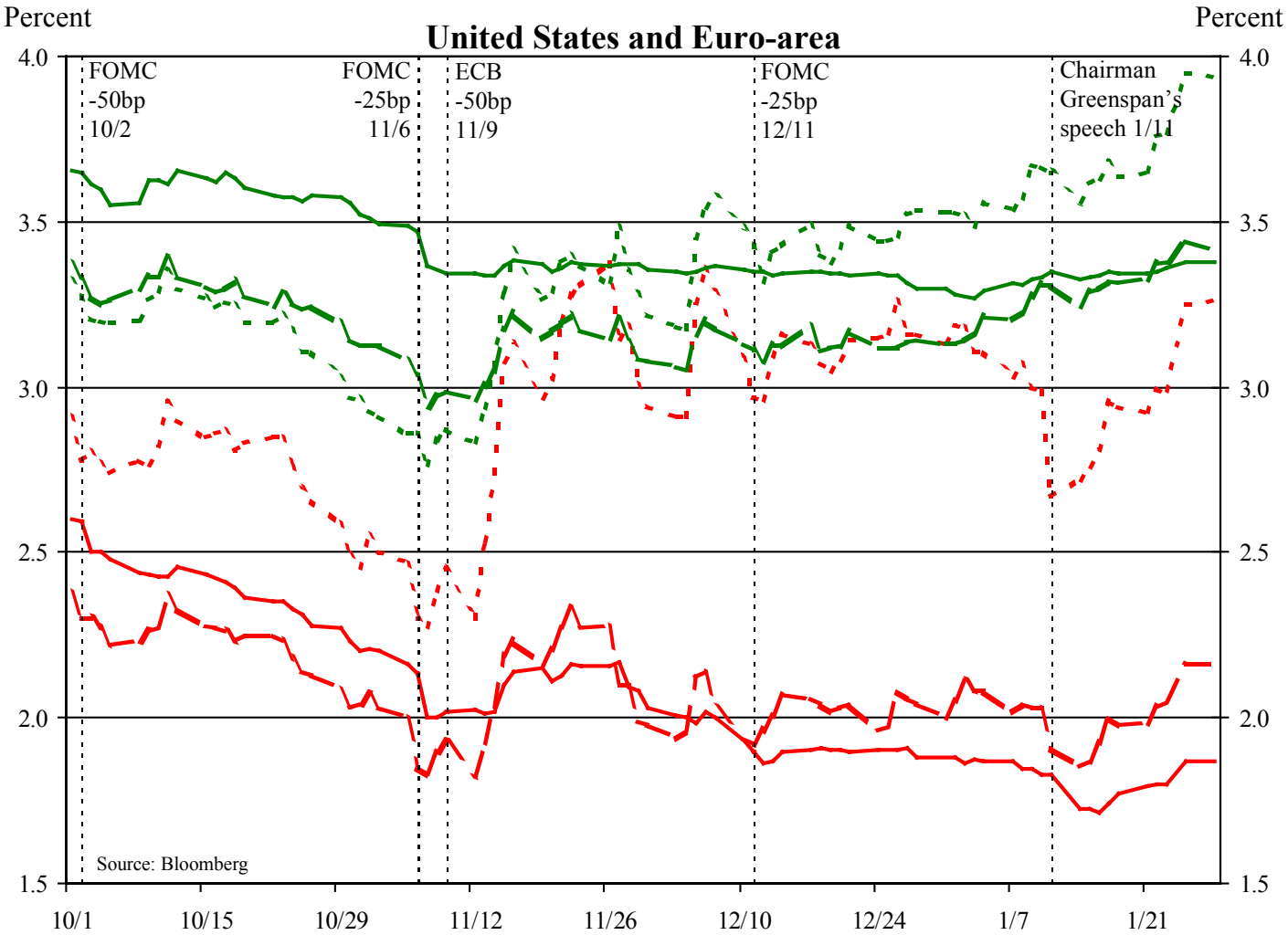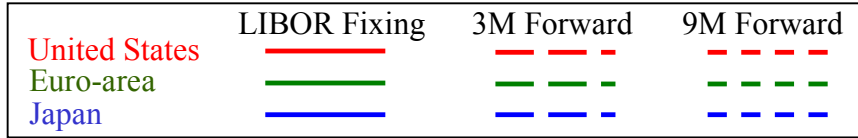
Fed Funds and Treasury Coupon Yields
October 1, 2001 to January 28, 2002

Percent

Percent

30-year

10-year

2-year

Fed funds target rate

FOMC
-25bp
12/11

Chairman
Greenspan's
speech 1/11

Source: Bloomberg

10/1   10/15   10/29   11/12   11/26   12/10   12/24   1/7   1/21
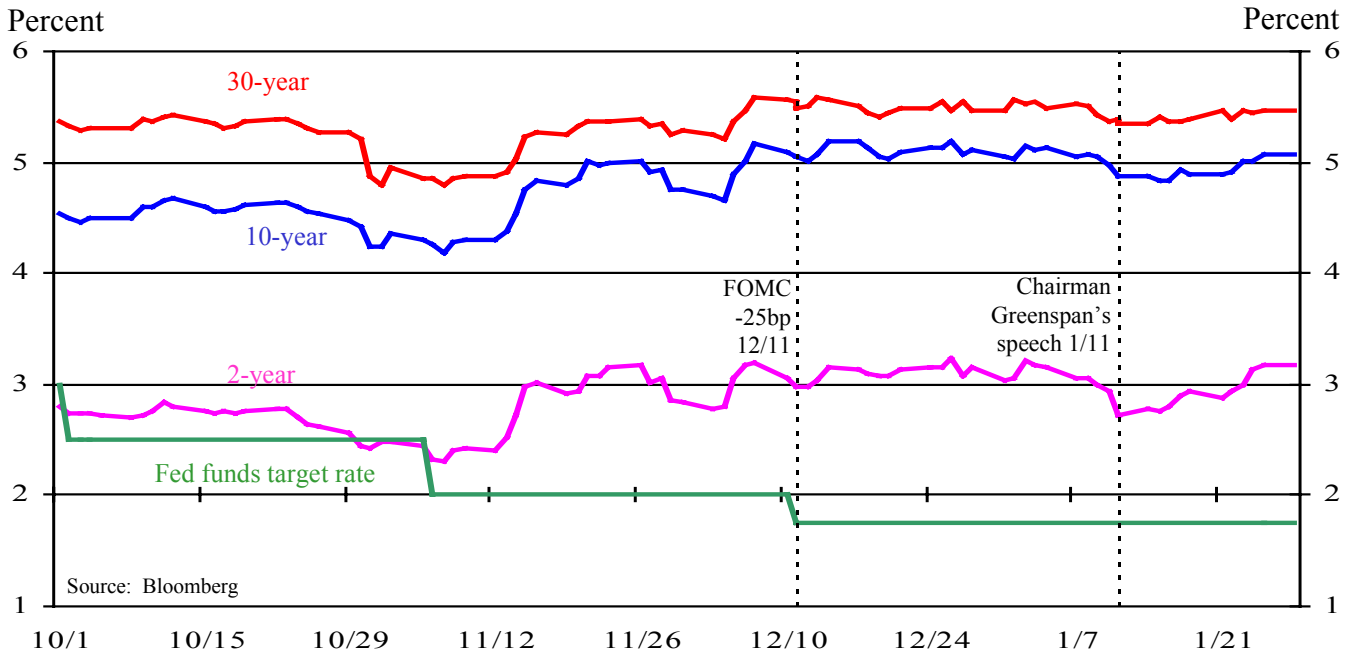
Performance of U.S. Equity Indices
October 1, 2001 to January 28, 2002

Index
10/01=100

Index
10/01=100

NASDAQ Composite Index

FOMC
-25bp
12/11

Chairman
Greenspan's
speech 1/11

Dow Jones Industrial Average

S&P 500

Source: Bloomberg

10/1   10/15   10/29   11/12   11/26   12/10   12/24   1/7   1/21
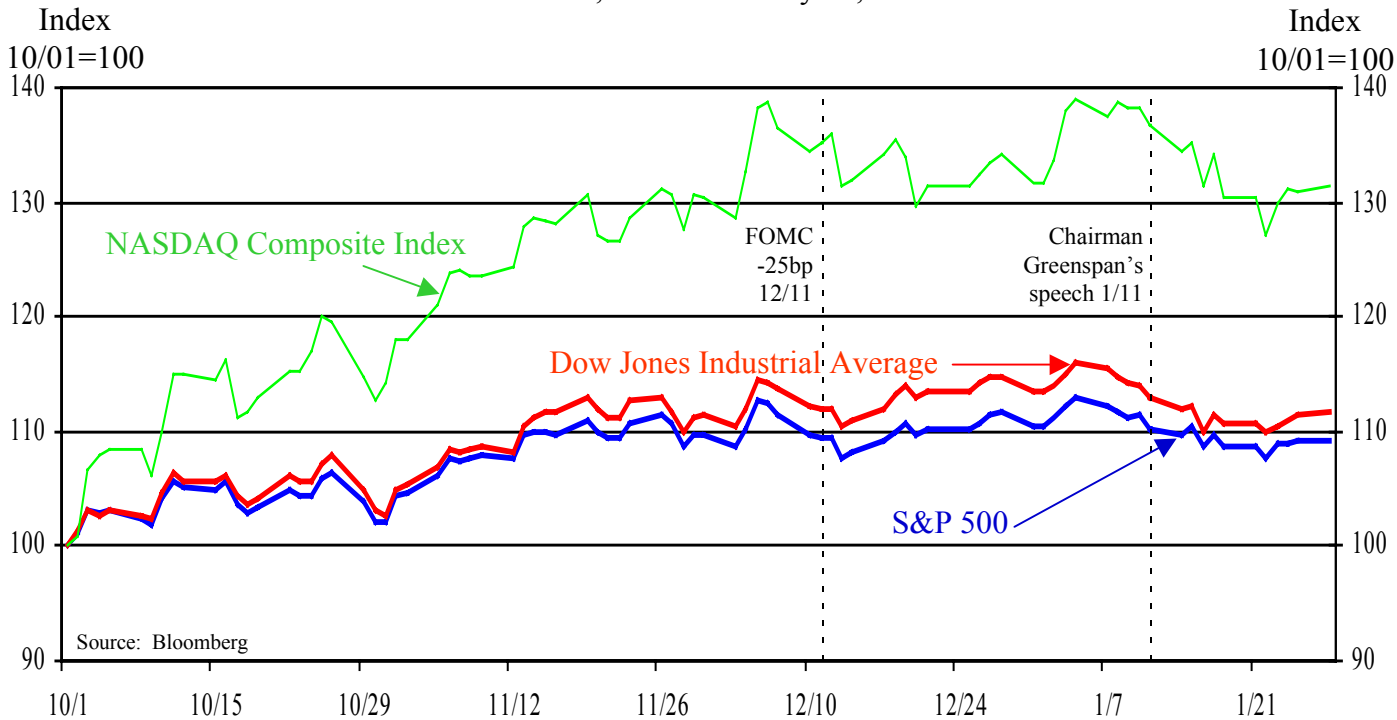
The Euro Against the U.S. Dollar
October 1, 2001 to January 28, 2002

U.S Dollar
per Euro

U.S. Dollar
per Euro

Source: Bloomberg
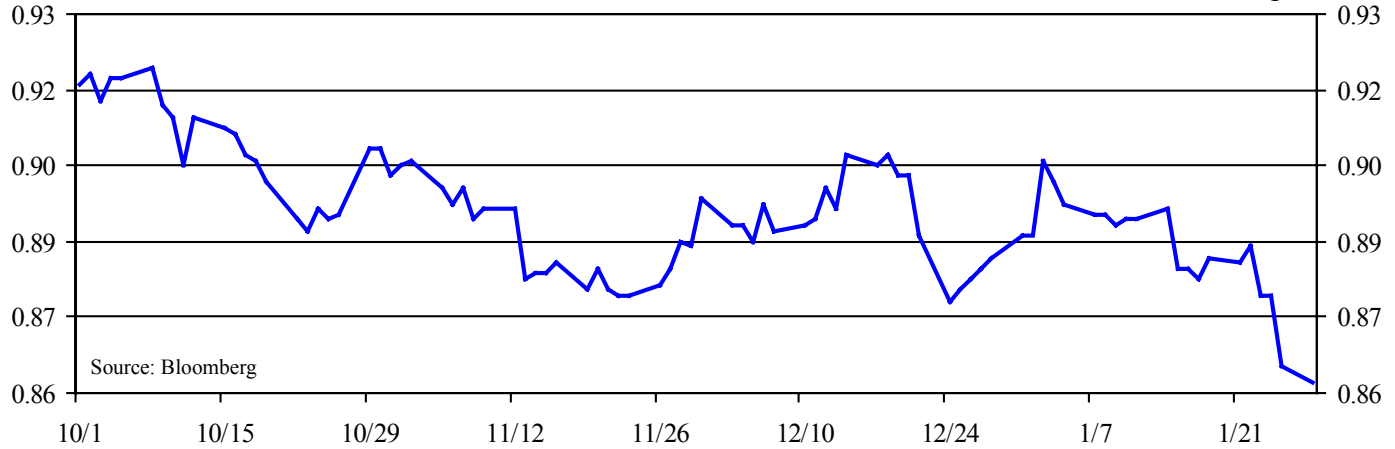
Japanese Yen Against Major Currencies
October 1, 2001 to January 28, 2002

Index
10/01=100

Index
10/01=100

BOJ changes
target reserves
12/19

BOJ expands
collateral 1/16

Euros per yen

U.K. pounds per yen

Taiwan dollars per yen

Korean won per yen

U.S. dollars per yen

Source: Bloomberg
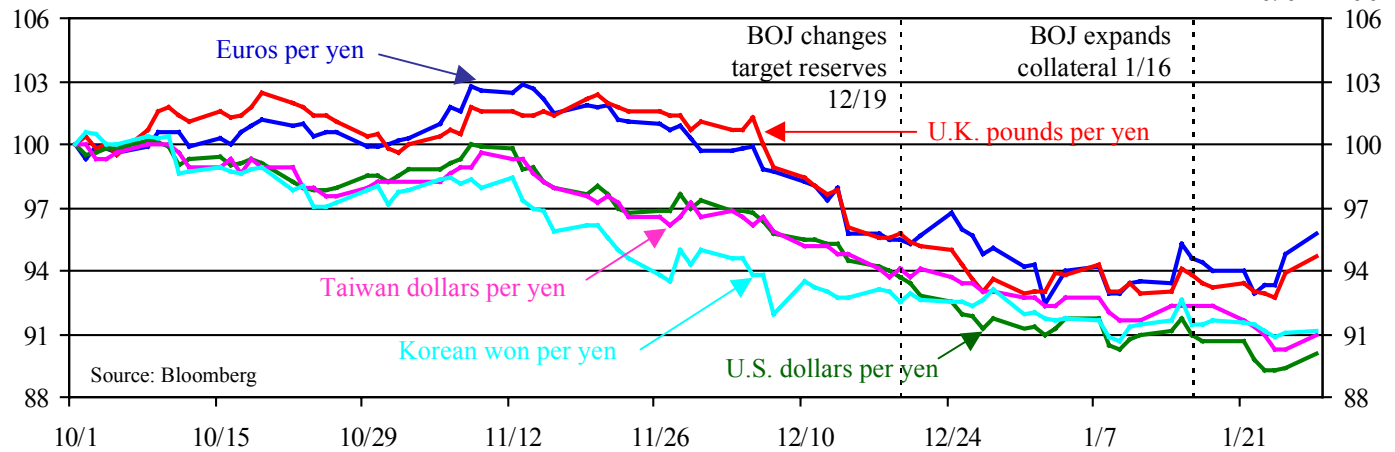
10-Year Japanese Government Bond Yield
October 1, 2001 to January 28, 2002

Percent

Percent

BOJ changes
target reserves
12/19

BOJ expands
collateral 1/16

Source: Bloomberg
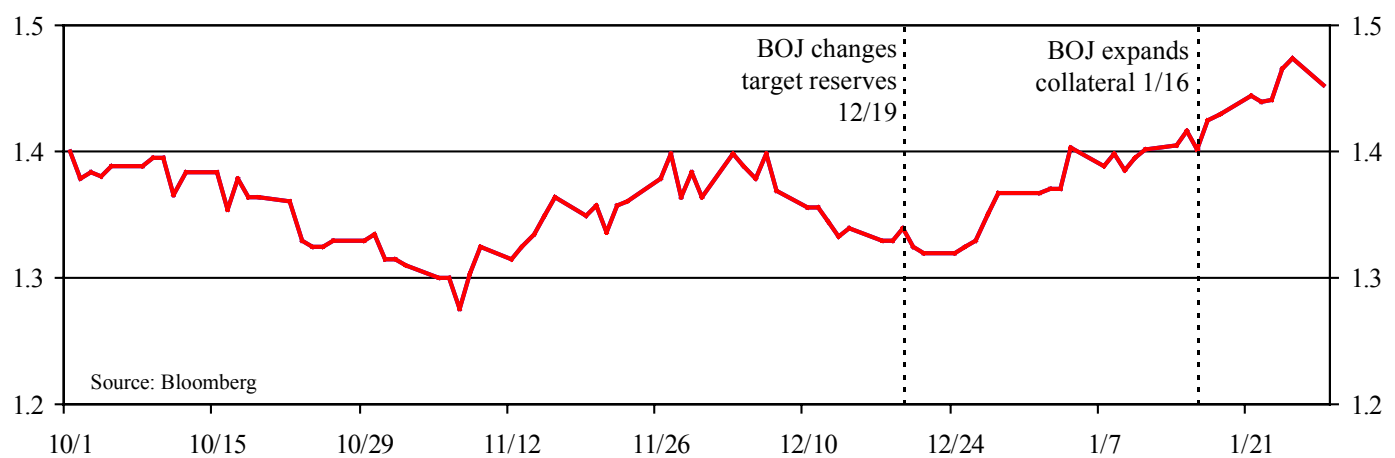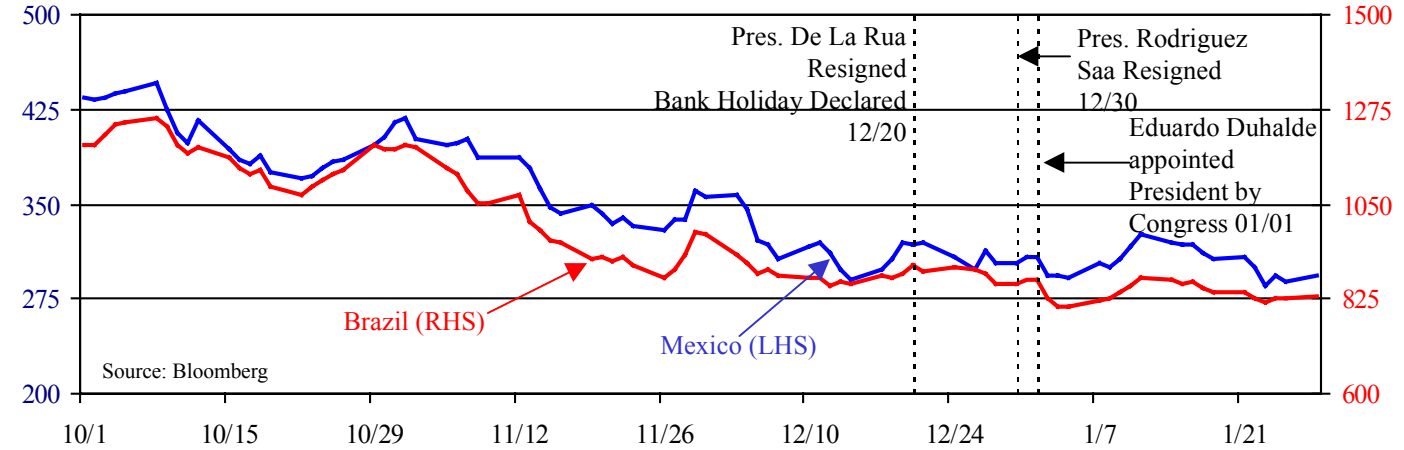
Sub-Components of the EMBI+ Spread
October 1, 2001 to January 28, 2002

Basis Points   Basis Points
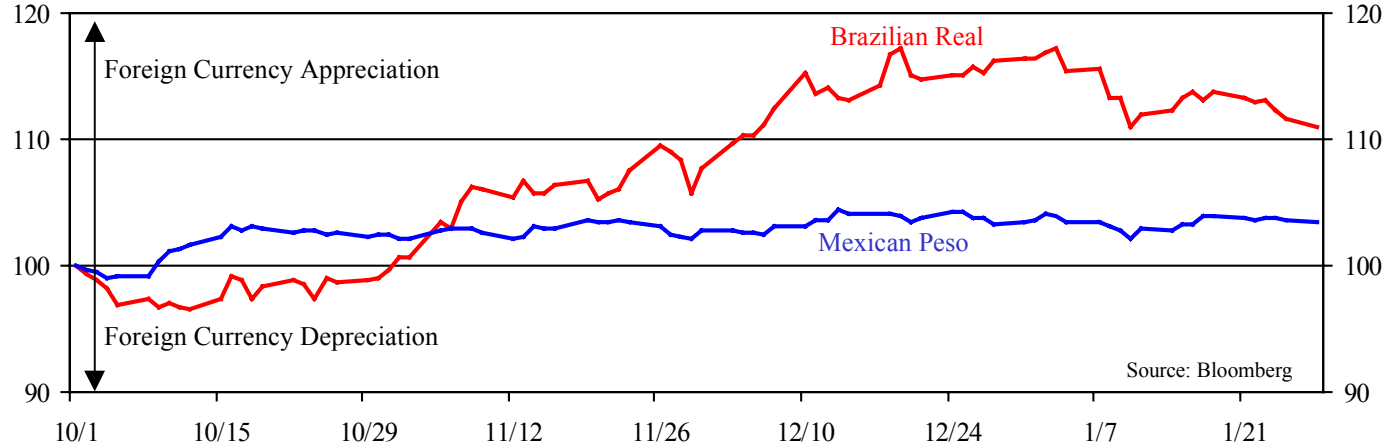
Pres. De La Rua
Resigned
Bank Holiday Declared
12/20

Pres. Rodriguez
Saa Resigned
12/30

Eduardo Duhalde
appointed
President by
Congress 01/01

Brazil (RHS)

Mexico (LHS)

Source: Bloomberg

Brazilian Real and Mexican Peso Against the Dollar
October 1, 2001 to January 28, 2002

Index
10/01=100

Index
10/01=100

Foreign Currency Appreciation

Brazilian Real

Mexican Peso

Foreign Currency Depreciation

Source: Bloomberg

30-Day Local Swap Rates
October 1, 2001 to January 28, 2002

Percent   Percent

Mexico (LHS)

Brazil (RHS)

Source: Bloomberg
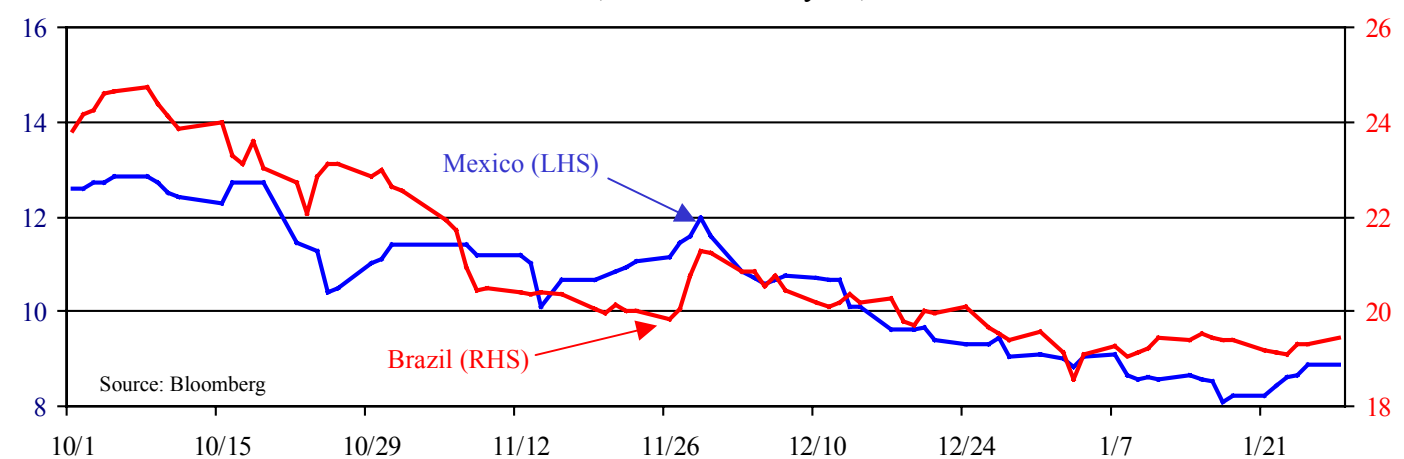
Average Daily Value of RPs Outstanding, by Collateral Tranche

billions of dollars

Legend:
- ■ Mortgage-backed eligible
- ■ Agency eligible
- ■ Treasury only

2001 Long-Term RPs
- 27%
- 25%
- 48%
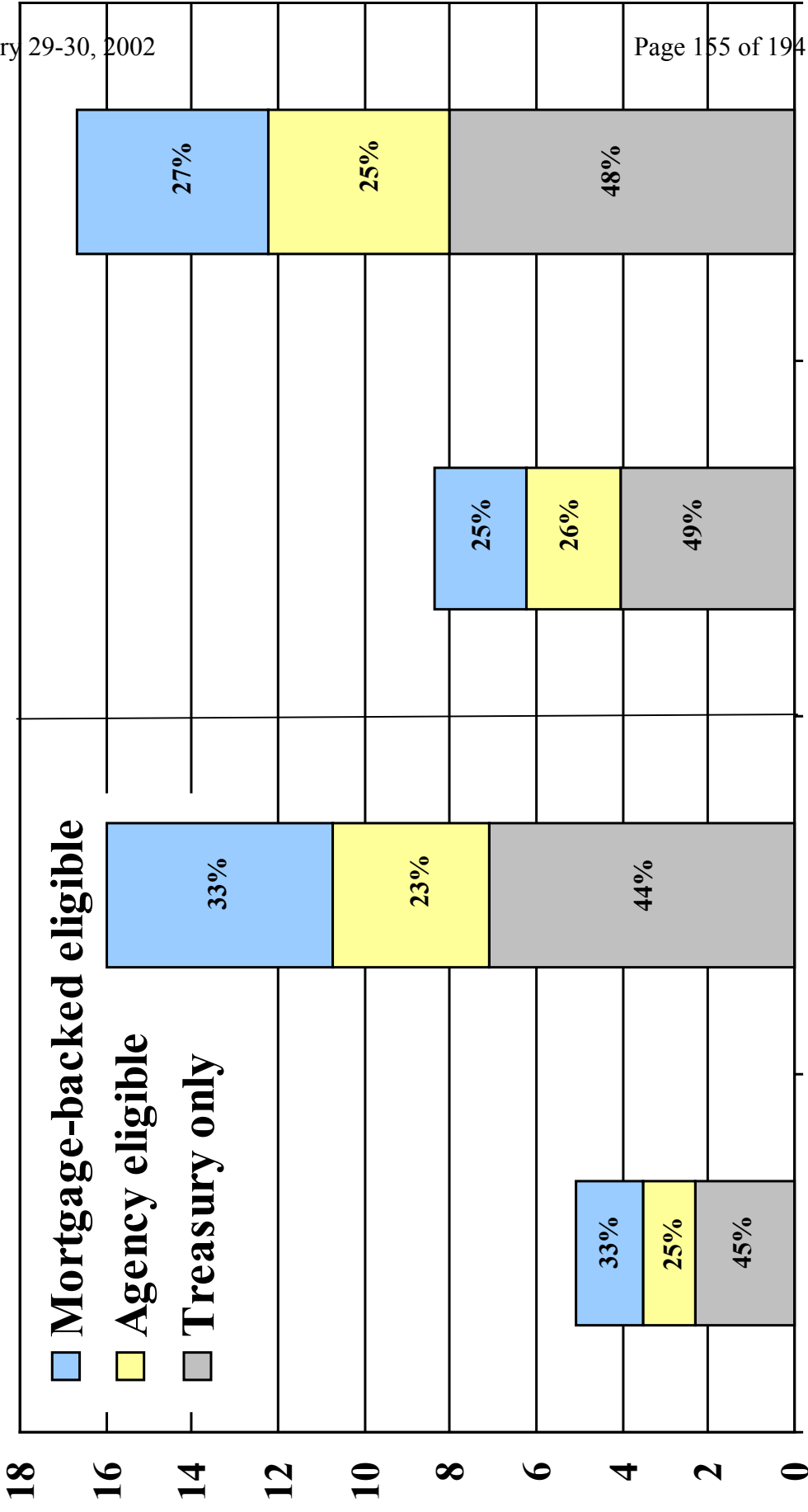
2001 Short-Term RPs; excludes RPs arranged from Sep. 12-19
- 25%
- 26%
- 49%

2000 Long-Term RPs
- 33%
- 23%
- 44%

2000 Short-Term RPs
- 33%
- 25%
- 45%

Y-axis: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18

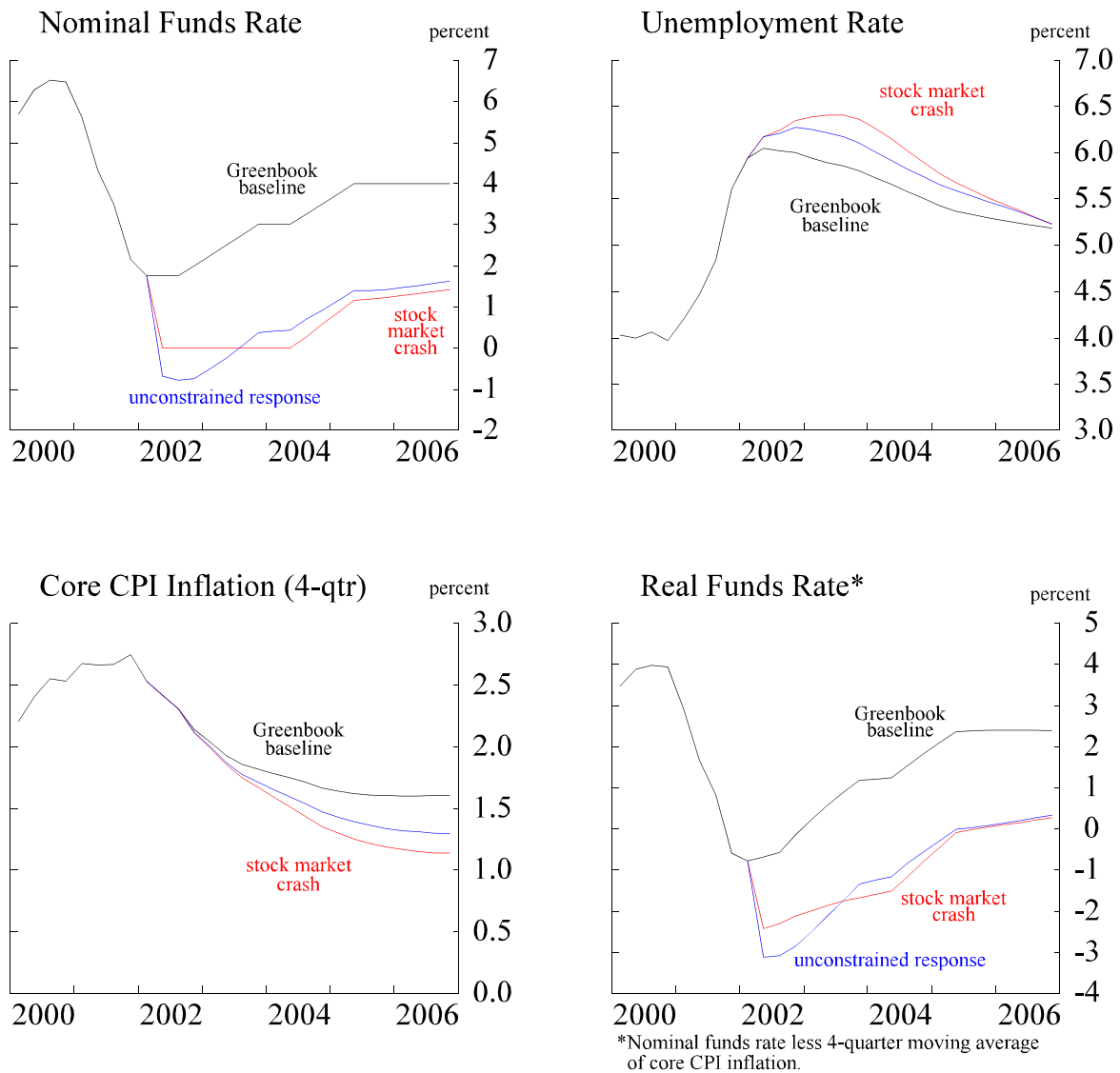**Appendix 2: Materials used by Mr. Reifschneider and Mr. Williams**

Material for

Board Staff Presentation on the Implications
of the Zero Bound on Nominal Interest Rates

Division of Research and Statistics

January 29, 2002

Exhibit 1
An Illustration of How the Funds Rate Could Hit Zero

Nominal Funds Rate

Unemployment Rate

Core CPI Inflation (4-qtr)

Real Funds Rate*

*Nominal funds rate less 4-quarter moving average of core CPI inflation.

- If the stock market crashes, the extent of monetary stimulus that could be put in place immediately might be less than desired.

- Worse, falling inflation would cause real rates to rise while the nominal funds rate is stuck at zero, exacerbating the situation.

- In this example the economy can recover because the baseline path incorporates enough potential stimulus to offset a major shock.

- But if the baseline outlook for the funds rate had been flat at its current level, the unemployment rate would have remained high and deflation would have set in.

Exhibit 2
The Economics of the Zero Bound

- Key assumptions for our analysis:

  ▸ monetary policy affects real activity primarily through its ability to alter the real funds rate, and thereby influence asset prices through arbitrage

  ▸ "quantity" effects of monetary policy are not that important

  ▸ inflation displays inertia and depends on expectations and resource utilization

- Under such conditions, the zero bound:

  ▸ limits the magnitude of the monetary stimulus immediately available to offset shocks

  ▸ leads to an erosion in monetary stimulus as inflation falls

  ▸ destabilizes the economy if the erosion problem is severe enough – a deflationary trap

- Practical importance of the stability threat depends on several factors:

  ▸ responsiveness of output and inflation to changes in the real funds rate

  ▸ magnitude and persistence of disturbances to the economy

  ▸ responsiveness of monetary policy to changes in output and inflation

  ▸ extent of average maneuvering room – inflation target plus R*

Exhibit 3
Quantitative Implications of the Zero Bound for Economic Stability

- Goal – estimate the effect on average economic performance of lowering the target rate of inflation (which makes the zero bound more of a constraint on policy)

- Approach – simulate the FRB/US model under rational expectations, subject to shocks like those experienced over the past 35 years

- Policy assumption – the Taylor rule

  ▸ $I_t = R^*_t + \pi_t + .5\, GAP_t + .5\, (\pi_t - \pi^*)$

  ▸ I is the nominal funds rate, R* is the equilibrium real rate, GAP is the output gap, π is the four-quarter rate of core inflation, and π^* is the inflation target.

Main Lessons from Stochastic Simulation Analysis

- At low target rates of inflation, the funds rate falls to zero frequently.

- Because policy is often constrained, economic performance deteriorates for inflation targets below 2 percent or so.

Average Macroeconomic Performance Under the Taylor Rule

	core CPI inflation target		
	0	**2**	**4**
1. Percent of time funds rate bounded at zero	28	**9**	3
2. Standard deviation of the unemployment rate (percent)	1.8	**1.5**	1.4
3. Frequency of deep recessions (number per 100 years) [1]	5.2	**4.6**	4.4

1. Deep recessions defined as downturns during which the unemployment rate peaks at or above 7-1/2 percent (2-1/4 percentage points above the long-run NAIRU in the simulations).

Exhibit 4
Policy Design in a Low Inflation Environment – More Responsive Rules

More responsive rules:

- Adjust the funds rate by more than the Taylor rule following a change in output.

- May also be more responsive to movements in inflation, if desired.

Advantages:

- Inflation tends to be closer to target when shocks hit, making deflation less likely.

- Policy moves more quickly and thereby limits the severity of recessions, making deflation less likely.

Economic Performance Under Rules With Alternative Degrees of Responsiveness [1]

	Core CPI inflation target		
	0	**2**	4
Standard deviation of the unemployment rate (percent)			
1. Taylor rule	1.8	**1.5**	1.4
2. More responsive rule	1.3	**1.1**	1.1
Frequency of deep recessions (number per 100 years)			
3. Taylor rule	5.2	**4.6**	4.4
4. More responsive rule	3.1	**2.6**	2.3

1. Output gap coefficient equals 1.0 in the more responsive rule, 0.5 in the Taylor rule.

Potential Drawbacks of More Responsive Rules

- Heightened funds rate variability and more frequent policy reversals

- Greater risk of policy mistakes because of data errors and supply-side mismeasurement

- Increased risk of confidence crisis if investors become unnerved by Fed "impotence"

Exhibit 5
Another Policy Option – Asymmetric Responsiveness

Asymmetric rules (illustrative example):

- Under most conditions respond according to the Taylor rule.

- But if the Taylor rule wants a funds rate below 1 percent, drop immediately to zero.

Advantages:

- Reduces the stabilization costs associated with the zero bound.

- Minimizes funds rate variability and the frequency of policy reversals.

Economic Performance Under the Taylor and Asymmetric Funds Rate Rules

	Core CPI inflation target		
	0	**2**	4
Standard deviation of the unemployment rate (percent)			
1. Taylor rule	1.8	**1.5**	1.4
2. Asymmetric rule [1]	1.5	**1.4**	1.4
Frequency of deep recessions (number per 100 years)			
3. Taylor rule	5.2	**4.6**	4.4
4. Asymmetric rule [1]	4.8	**4.5**	4.4

1. Asymmetric rule is the same as the Taylor rule, except that when the Taylor rule prescribes a nominal funds rate below 1 percent, the asymmetric rule reduces the funds rate immediately to zero.

Potential Drawbacks of Asymmetric Rules

- To be effective, investor expectations must correctly incorporate the implications of asymmetric behavior.

- But asymmetric rules may be difficult to understand in practice.

Exhibit 6
Price-Level Targeting and Other Policies that Promise Above-Average Inflation in the Future

Price-level targeting and similar strategies:

- Pledge to keep the funds rate unusually low following a zero bound episode in order to keep inflation above average for a time.

- Automatic under price-level targeting, because bygones are not bygones – any fall in the price level below target must be made up later.

Advantages:

- By creating the expectation that the *future* stance of policy will be "easy" for a time, real bond rates *today* are reduced during zero bound episodes.

- As a result, the severity of recessions and the risk of deflation decreases.

- Research indicates potential effectiveness.

Disadvantages:

- Such strategies imply periodically taking "unusual" actions, such as allowing inflation to drift well above its long-run target.

- For this reason, the public may doubt the likelihood that the central bank will actually deliver on its promises, rendering the strategy ineffective.

Exhibit 7
Main Lessons

- In low inflation environments, the nominal funds rate falls to zero frequently.

- Usually this only delays economic recovery because most disturbances are sufficiently transitory and moderate in magnitude.

- But the economy can become severely destabilized if significant deflation sets in.

- Monetary policy can mitigate the effects of the zero bound in several ways:

  ‣ Aim for a long-run average rate of CPI inflation that is not too low.

  ‣ Respond relatively aggressively to movements in output and inflation.

  ‣ Pursue policies that promise higher inflation following zero bound episodes.

- FRB/US analysis suggests no advantage in "keeping your powder dry."

Appendix 3: Materials used by Mr. Goodfriend

Monetary Policy at the Zero Bound on Nominal Interest Rates

Marvin Goodfriend

Federal Reserve Bank of Richmond

January 29, 2002

Quantitative Monetary Policy at the Zero Bound

- Usually, open market operations constrained to accommodate demand for monetary base at opportunity cost spread between intended funds rate and zero bound

- Monetary base free to expand further at the zero bound

- Central bank can pursue quantitative monetary policy at the zero bound

2

1

Narrow and Broad Liquidity

- To appreciate power of quantitative policy at the zero bound--distinguish between narrow and broad liquidity services
- Narrow liquidity services provided by the medium of exchange allow banks and the public to economize on transactions costs
- At zero interest, narrow liquidity is no longer scarce and that channel of monetary transmission is exhausted

3

Broad Liquidity Services

- Broad liquidity services are not exhausted, and provide the leverage for quantitative monetary policy
- Broad liquidity is a service yield provided by assets according to how easily they can be turned into cash either by sale or by serving as collateral for external finance

4

Broad Liquidity Services (2)

- Broad liquidity services are valued because they minimize the exposure of households and firms to the external finance premium
- The existence of an external finance premium gives rise to a demand for broadly liquid assets variously referred to as-- precautionary savings, a liquid buffer stock, or self-insurance

5

Expanding Broad Liquidity

- Quantitative policy must expand broad liquidity to be stimulative at the zero bound
- Open market purchases of short-term bonds would not expand broad liquidity much
- Open market purchases of long-term bonds, other assets could increase broad liquidity
- Broad liquidity could be created by monetizing a government budget deficit

6

The Transmission Mechanism

- The portfolio rebalancing channel--
- Increase in broad liquidity reduces the marginal implicit broad liquidity services yield on monetary assets
- Portfolio balance requires a similar fall in the explicit yield on non-monetary assets
- Prices of non-monetary assets bid up to restore the required return differential.

7

The Transmission Mechanism (2)

- Higher asset prices raise desired consumption out of current income
- Higher asset prices relative to their cost of production revive investment
- Reduced saving rate and increased investment demand raise employment
- Higher utilization rates and profits raise asset prices further

8

4

The Transmission Mechanism (3)

- The credit channel--
- Higher asset prices raise collateral values, increase net worth, and raise bank capital
- The external finance premium comes down
- Credit spreads narrow, bank lending revives, spending rises as cost of borrowing against future income prospects falls

9

Implementation Problems

- Injection of monetary base can provide impulse to get recovery going
- Self-sustaining recovery requires confidence that base money will be expanded as much and for as long as needed
- To acquire such credibility, must overcome perception of central bank concern with inflationary risk of high money growth

10

Implementation Problems (2)

- Relatively small changes in bank reserves suffice to support interest rate policy
- At the zero bound, policy must exert its effect through broad liquidity
- This will require large-scale injections of base money, substantially increasing the size of the central bank balance sheet

11

Fiscal Support for Quantitative Policy

- Full credibility for quantitative policy at the zero bound requires more support from the fiscal authorities than usual
- There might not be enough long bonds to buy in order to expand the monetary base; central bank could buy other assets, but...
- Either way, capital losses might leave central bank with insufficient assets to reverse excess base money

12

Fiscal Support for Quantitative Policy (2)

- Fiscal authorities could provide the central bank with additional government debt to sell to drain excess base money
- Alternatively, fiscal authorities could agree to run a budget deficit at the central bank's request as means of injecting broad liquidity

13

Fiscal Support for Quantitative Policy (3)

- Central bank could monetize short-term debt issued to finance the deficit, and withdraw excess base money later by selling that debt to the public
- In any case, the government must accept that quantitative policy actions at the zero bound could significantly increase government debt in the hands of the public

14

Fiscal Support for Quantitative Policy (4)

- An inadequate commitment by the fiscal authorities to support the central bank could block the use of quantitative policy at the zero bound
- A prearranged agreement could enable quantitative policy to act credibly, flexibly, and effectively at the zero bound

15

Other Policy Options

- Do nothing unusual
- Commit to holding the funds rate at zero
- Buy foreign exchange/depreciate the exchange rate
- Expand credit policy
- Pursue deliberately inflationary policy

16

Do Nothing Unusual

- Keep funds rate at zero without increasing the monetary base more than necessary
- Contraction likely deeper than usual
- Two risks of more protracted downturn--
- Distressed banking system, less elastic inside supply of broad liquidity than usual
- Policy vacuum encourages ill-advised fiscal actions

17

Commit to Holding the Funds Rate at Zero

- Central bank would write options on future short rates to give itself an incentive to keep rates down
- Advantage, acts directly on long rates
- Disadvantage, at best small effect
- Credibility doubtful given overwhelming pressure to take interest rate policy actions deemed correct at a point in time

18

Buy Foreign Assets/Depreciate the Exchange Rate

- Different, but both make use of openness
- Could buy foreign government securities to help increase broad liquidity--
- Authorized to do so, but exchange rate risk
- Depreciate exchange rate--
- Conventional policy instrument, but US large, not that open, might export deflation and recession without helping itself much

19

Expand Credit Policy

- Expand DW lending or buy private debt
- Reduce private credit spreads and help finance credit-constrained firms
- Wide latitude to lend to banks on collateral, need legislation to buy private debt
- Central bank would make a poor financial intermediary--use to stabilize financial markets but not for general policy stimulus

20

Expand Credit Policy (2)

- Quantitative monetary policy would facilitate intermediation
- Would reduce external finance premium by raising collateral values and net worth
- Central bank could improve the flow of credit without becoming financial intermediary itself

21

Pursue Deliberately Inflationary Policy

- Quantitative monetary policy could stimulate economy at zero bound without creating inflation or expected inflation
- Unleashing inflation would buy little and could be counterproductive
- Temporary inflation would be desirable to reverse prior deflation that raised real value of nominal debt

22

Pursue Deliberately Deflationary Policy (2)

- Committing to a path for the price level could help avoid deflation, and build credibility for reflation if deflation occurs

23

Appendix 4: Materials used by Mr. Wilcox, Mr. Slifman, and Ms. Johnson

Material for

Staff Presentation on the Economic Outlook

January 29, 2002

Chart 1
Forecast Overview

Real GDP

Four-quarter percent change

NBER peak

Real GDP (percent change, annual rate)	
2001:Q4	-.3
2002:Q1	1.5
2002:Q2	2.5
2002:H2	3.4
2003	3.6

Unemployment Rate

Percent

PCE Price Indexes

Four-quarter percent change

Core

Total
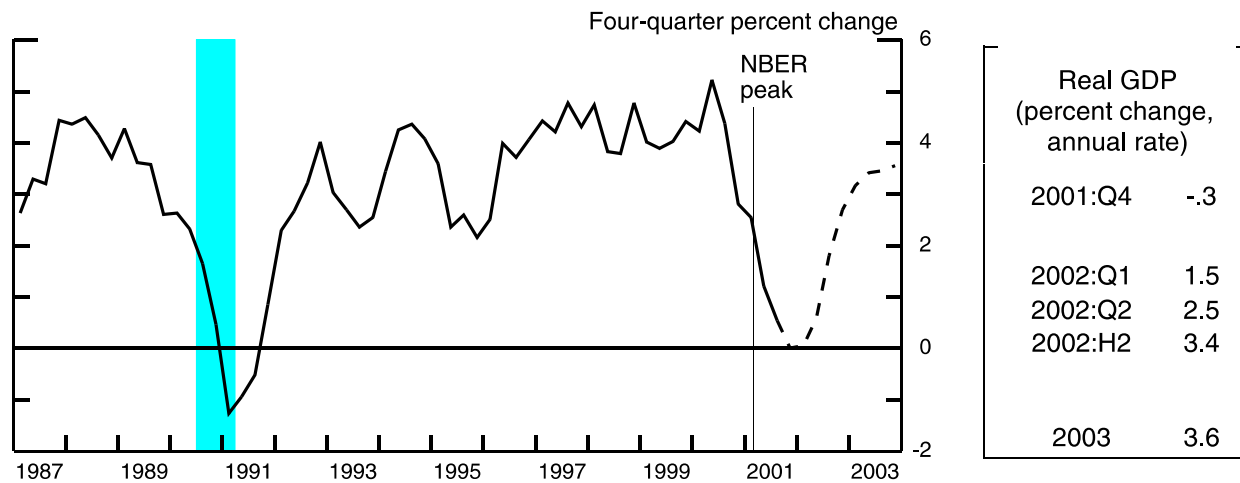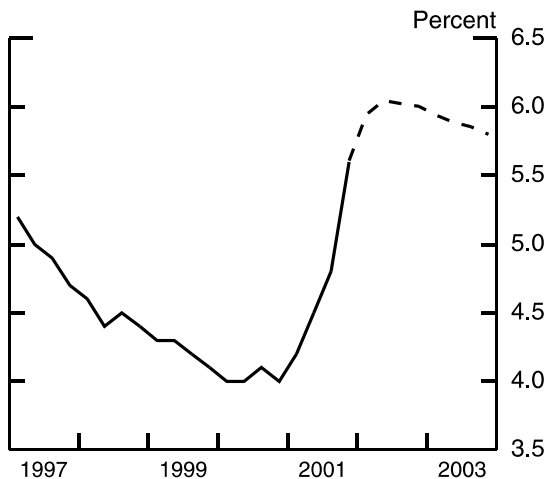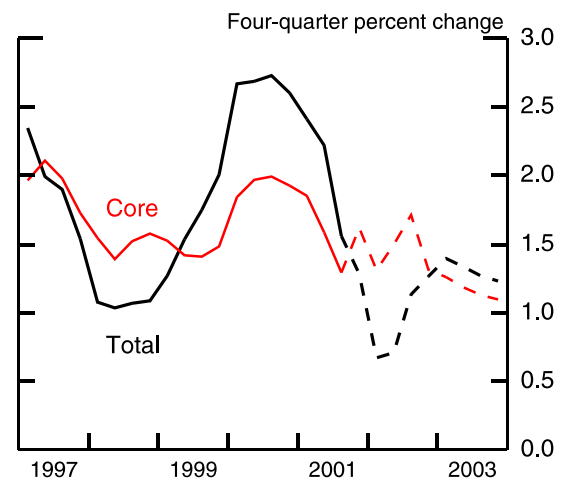
Major Forces Shaping the Outlook

- Monetary and fiscal stimulus will be substantial enough to offset restraint from the stock market and the dollar.

- The inventory correction should be coming to an end.

- Excess capacity is likely to weigh on the strength of the recovery in equipment spending.

- Inflationary pressures remain in check.

Chart 2
Perspectives on the Recession

Length of Postwar Recessions

Depth of Postwar Recessions

Change from own peak to own trough in:	Average in previous recessions	This recession
1. Real GDP (percent)	-2.2	-.4
2. GDP gap[a] (percentage points)	-6.4	-4.0
3. Unemployment rate[b] (percentage points)	3.1	2.1
4. Industrial production (percent)	-9.4	-7.1

a. GDP gap is defined as actual GDP less potential GDP, divided by potential GDP.
b. Change from own low point to own high point.

Three-month Diffusion Index for Payroll Employment*
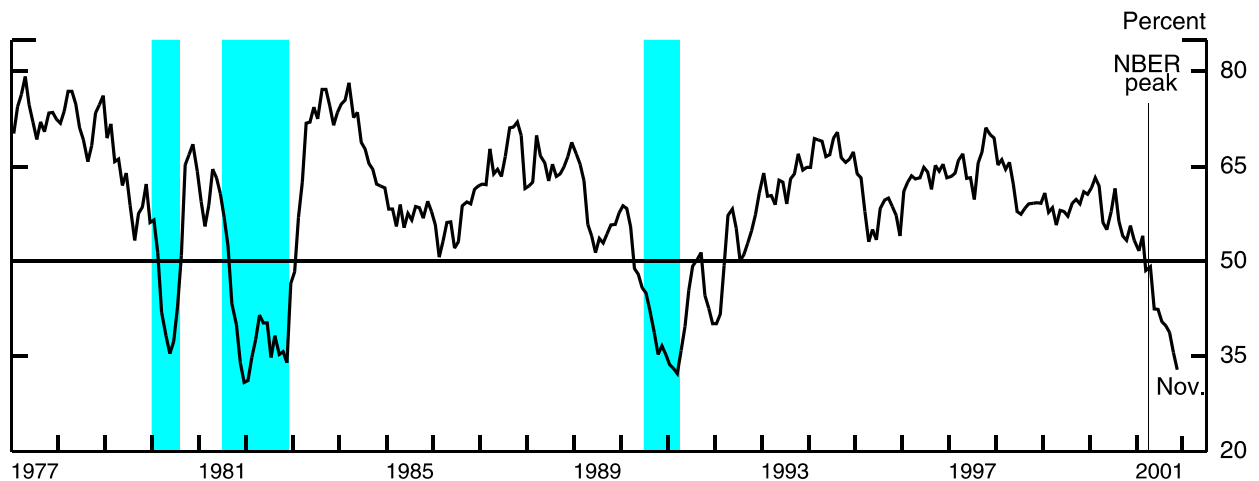
*Total private nonfarm.

Chart 3
Key Assumptions

Real Federal Funds Rate*
Quarterly

Percent

NBER peak
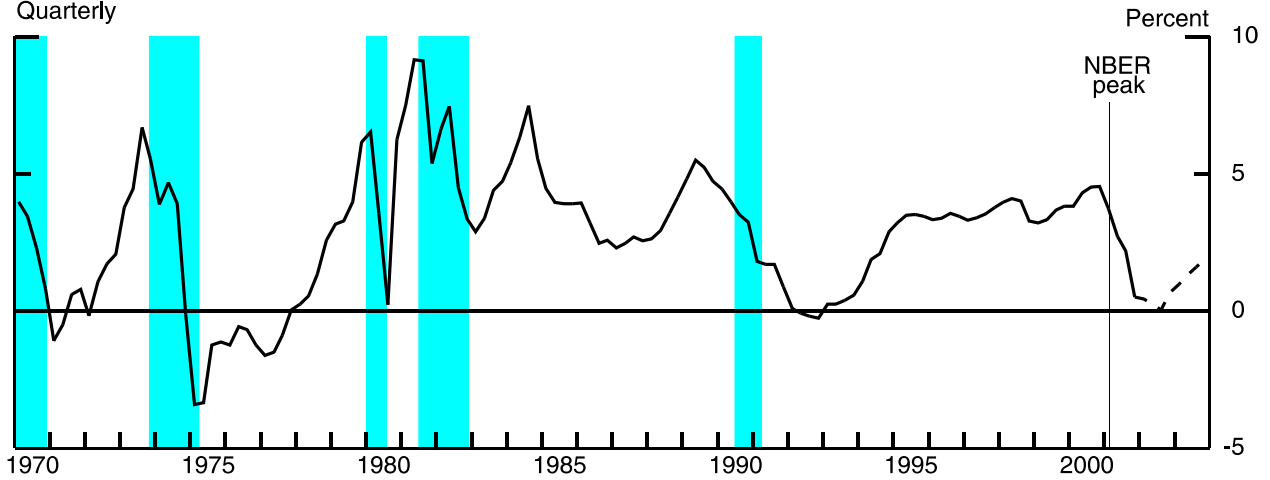
*Nominal federal funds rate less the percent change in the core PCE price index over the previous four quarters.

Cyclical Comparison:
Real Federal Funds Rate

Percent

— Current
— Average
▮ Historical range

P-8　P-4　Peak quarter　P+4　P+8
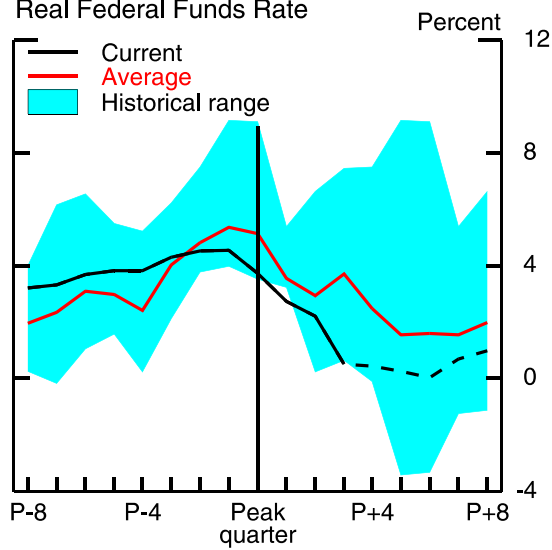
Sources of Projected Fiscal Impetus in 2002

	Percent of GDP
• Last year's tax cuts	0.4
• Enacted spending increases	0.6
• Assumed additional spending initiatives	0.2
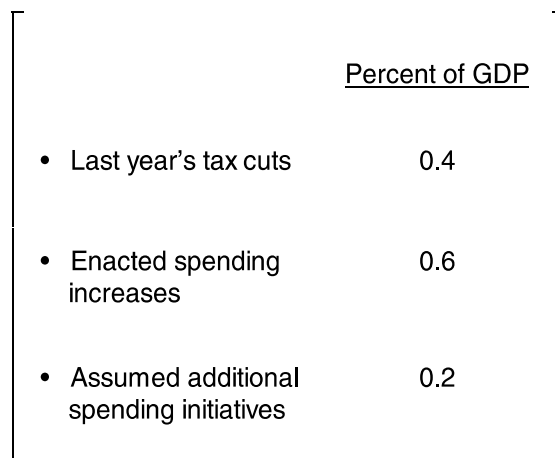
Fiscal Impetus
Annual

Percent of GDP

NBER peak
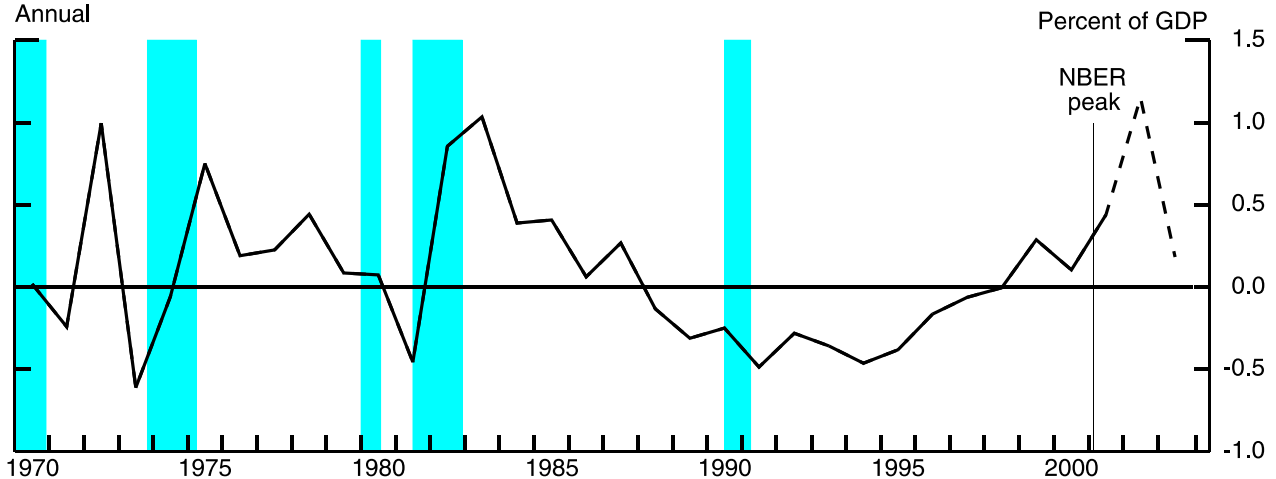
Chart 4
Key Assumptions, Continued

Broad Real Exchange Value of the Dollar
Quarterly

Index, 1996=100

NBER peak
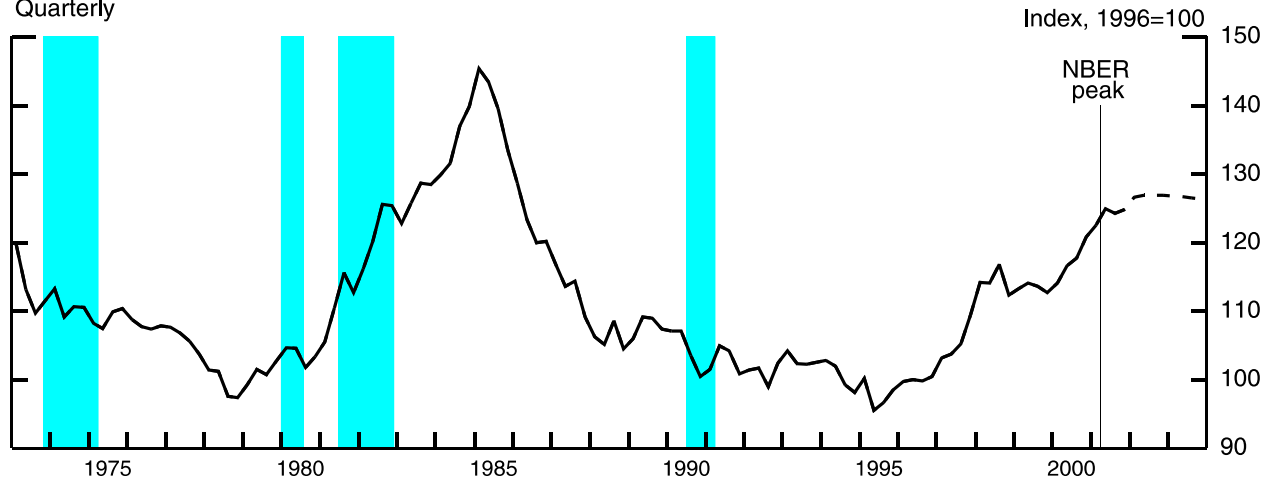
Cyclical Comparison:
Real Exchange Rate

Index, peak=100

- Current
- Average
- Historical range

P-8   P-4   Peak quarter   P+4   P+8
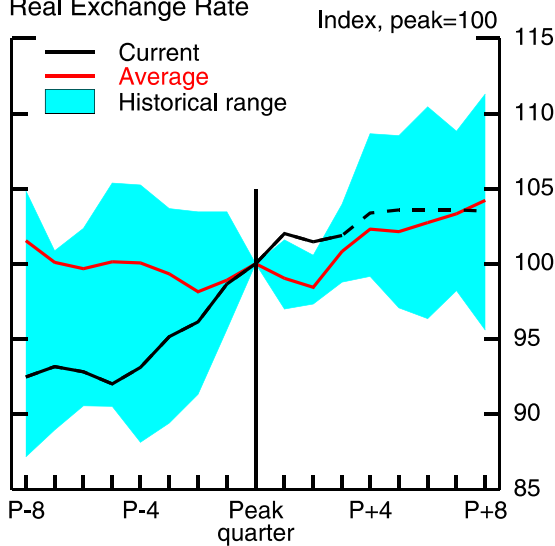
Cyclical Comparison:
S&P 500 Price Index

Index, peak=100

- Current
- Average
- Historical range

P-8   P-4   Peak quarter   P+4   P+8
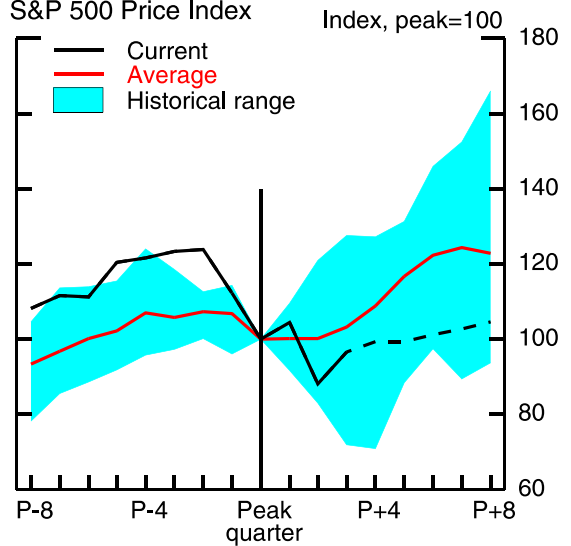
S&P 500 Price-Earnings Ratio*
Quarterly

Ratio

Q4
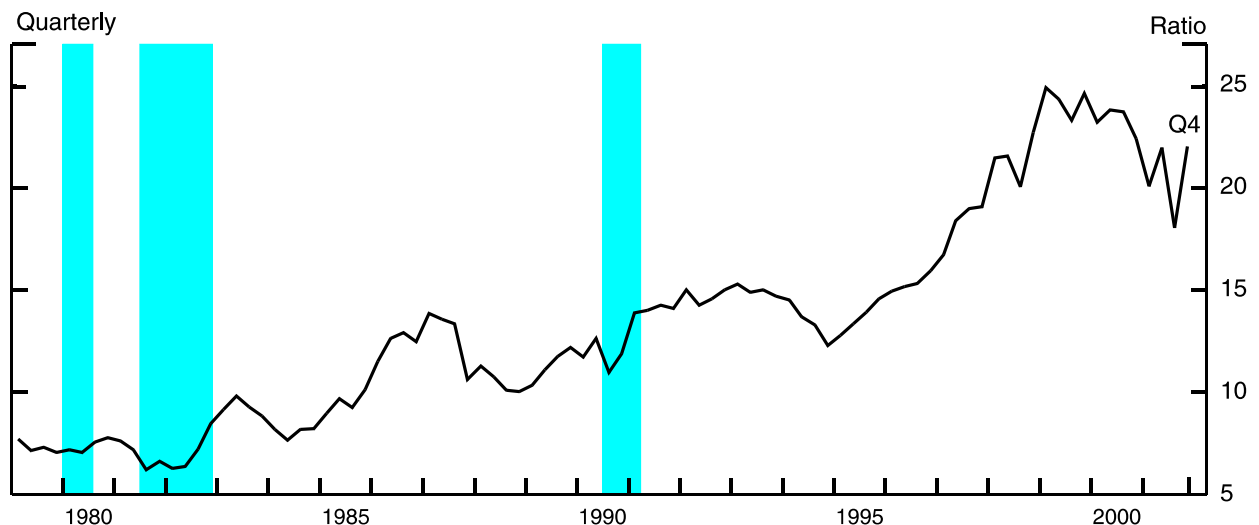
*Price over I/B/E/S year-ahead earnings. Quarterly observations are last month of quarter.

Chart 5
Perspectives on the Projected Recovery

Speed of Postwar Recoveries

Change over the first four quarters after the NBER trough in:	Average in previous recoveries	Projected recovery
1. Real GDP (percent	7.0	3.2
2. GDP gap (percentage points)	1.9	.5
3. Unemployment rate (percentage points)	-1.1	.0
4. Industrial production (percent)	11.7	3.7

GDP Gap at the NBER Trough
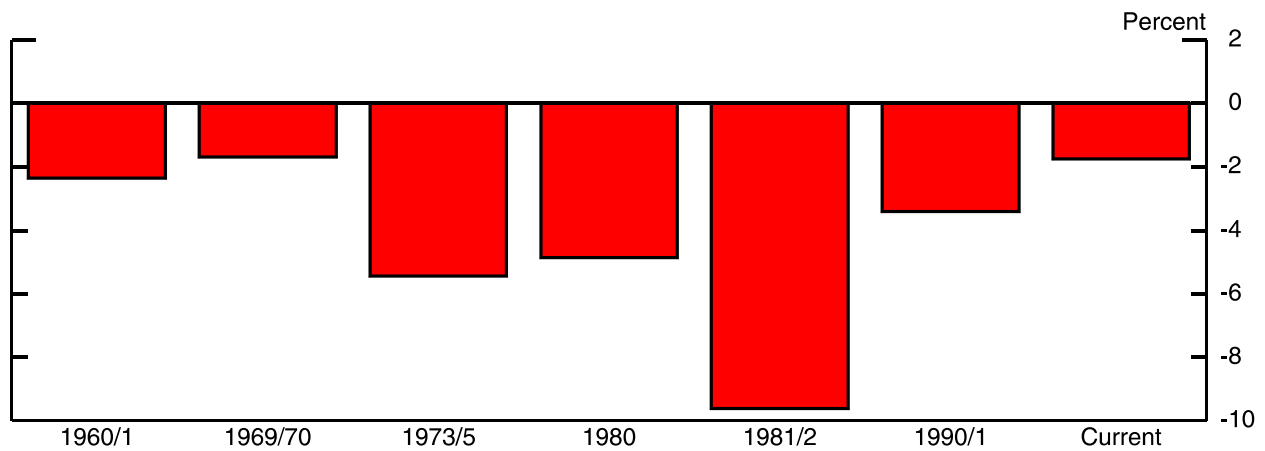
Contributions to the Initial Recovery in Real GDP

PCE Durables and Residential Investment
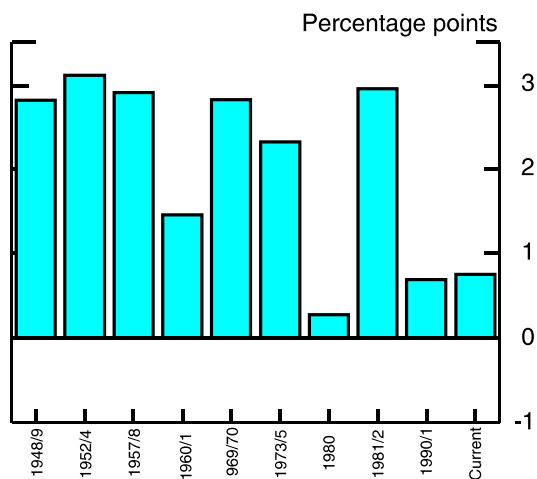
Business Fixed Investment
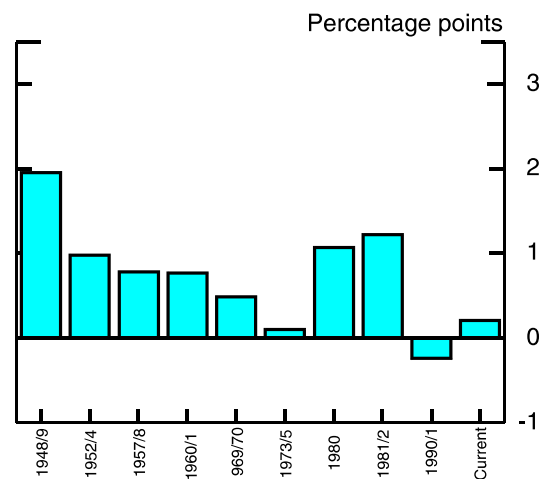
Chart 6
Near Term Production Indicators

Private Nonfarm Payroll Employment
Average monthly change, thousands
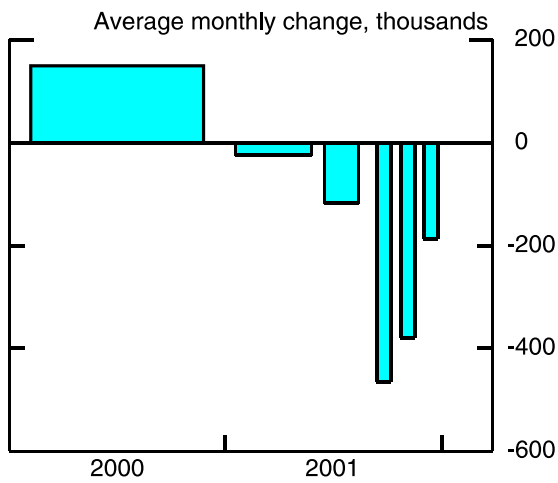
Initial Claims (FRB Seasonals)
Thousands

— 4-week moving average

Jan. 19
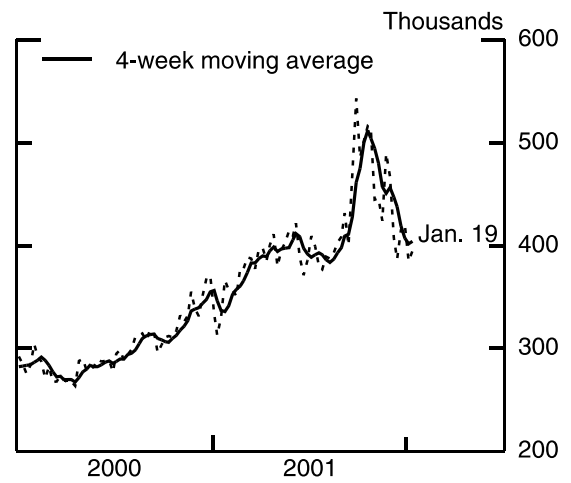
Motor Vehicle Assemblies
Millions of units, annual rate

Feb.ᴾ

Industrial Production
(Average monthly percent change)
Percent

Manufacturing, ex. motor vehicles
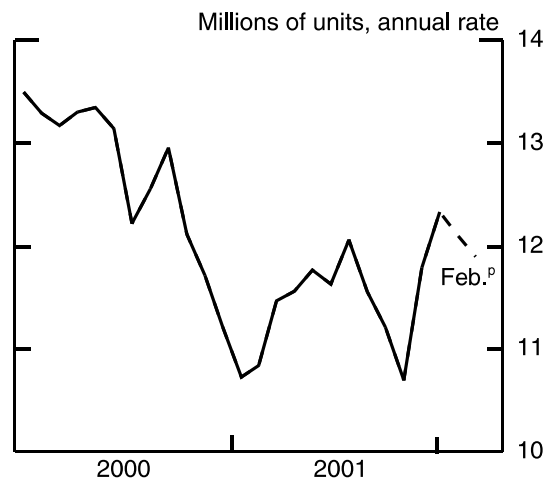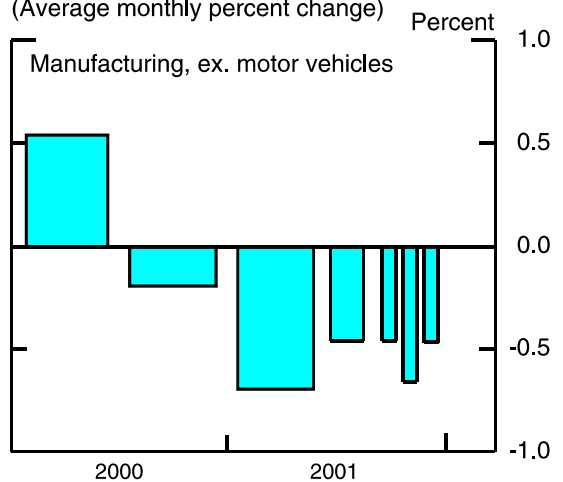
Index of Weekly Physical Product Data
IP index points

Ex. motor vehicles and elec. generation

Monthly aggregate of weekly index
Weekly Index--total IP points of 13 components

J A S O N D J
        2001   2002

ISM New Orders Index
Percent

Diffusion Index

Dec.
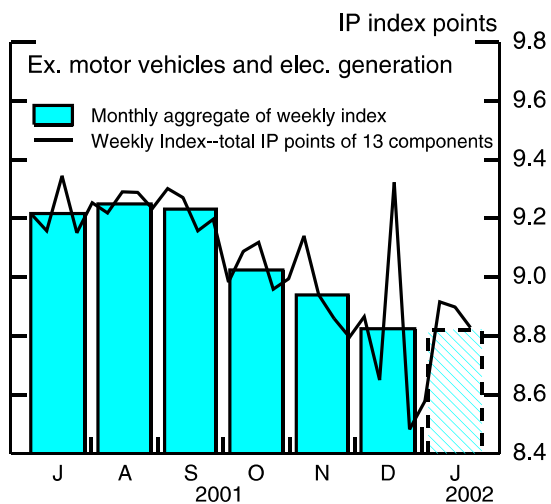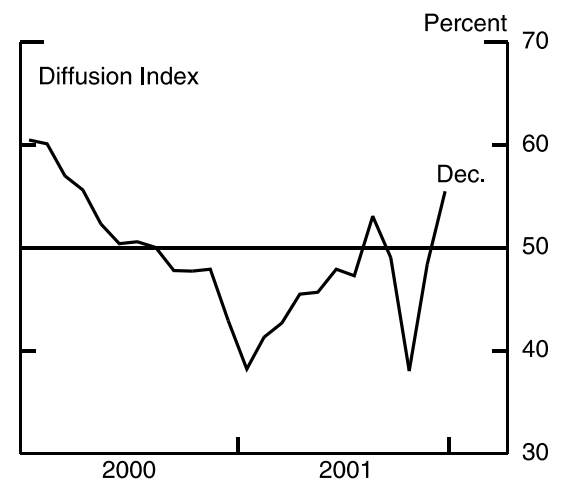
Chart 7
The Near Term Outlook for Sales, Inventories and Output

	2001			2002
	October	November	December	January
Final demand indicators				
1. MV sales (millions of units)	21.6	18.3	16.8	15.4^e
2. Real PCE control (percent change)	1.5	.6	.9	
3. Single family housing starts (millions of units)	1.23	1.25	1.29	
4. Shipments of nondefense capital goods, ex. aircraft and IT (percent change)	3.0	-2.9	.2	
5. Orders of nondefense capital goods, ex. aircraft and IT (percent change)	-.3	3.0	1.5	

e. Estimate.

Days' Supply*
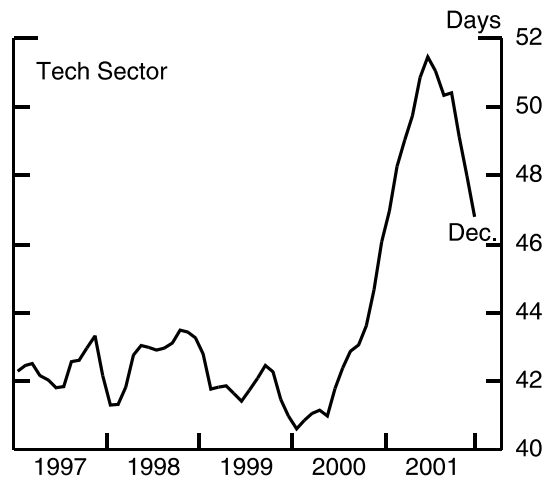
Days' Supply

*IP system.
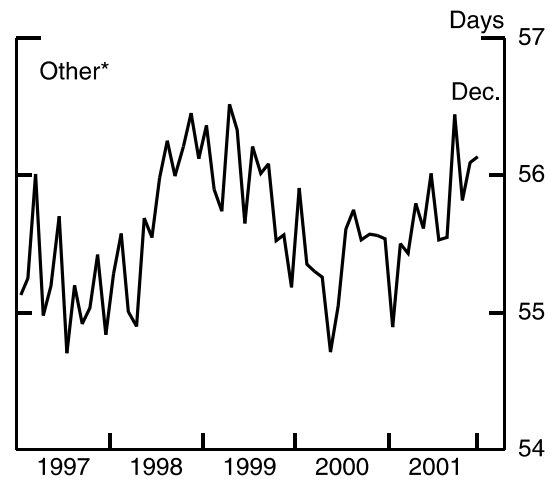
*IP system, excluding transportation.

Output and Final Sales
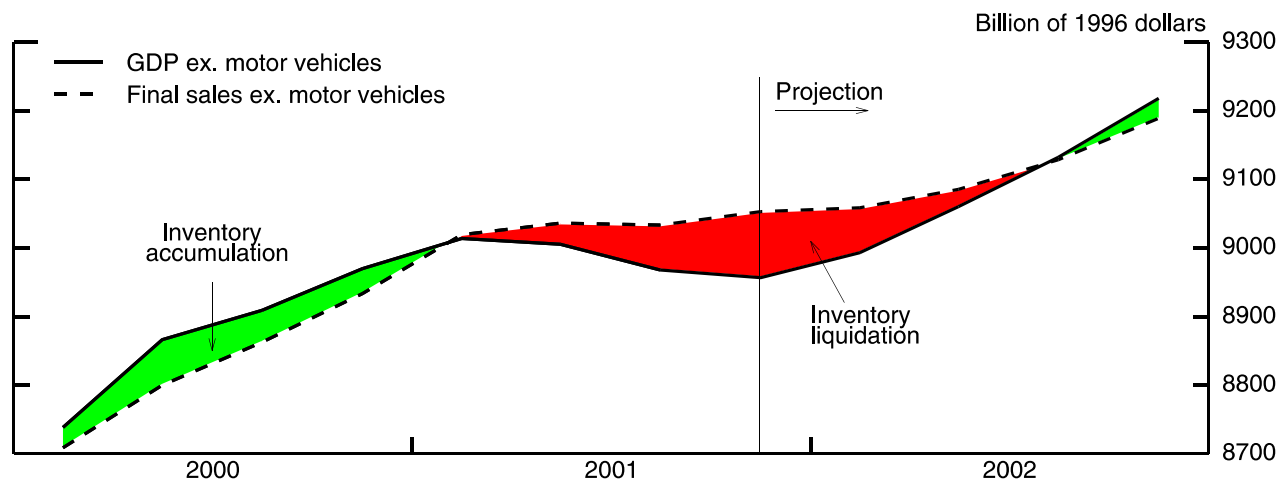
Chart 8
Outlook for Business and Household Spending

Real Equipment and Software Investment
(Percent change, annual rate)

	2001 Q4	2002 H1	2002 H2	2003
1. Equip. & software	.1	-4.9	6.0	12.0
2. Info. technology	1.4	4.8	13.4	23.9
3. Computers	30.2	20.2	33.2	49.0
4. Software	6.7	6.3	10.0	17.7
5. Comm. equip.	-28.9	-12.5	4.0	17.3
6. Other (ex. trans. equip)	-8.0	-4.2	-.6	4.8

Percent changes are calculated from final quarter of preceding period to final quarter of period indicated.

Real Computer Shipments*
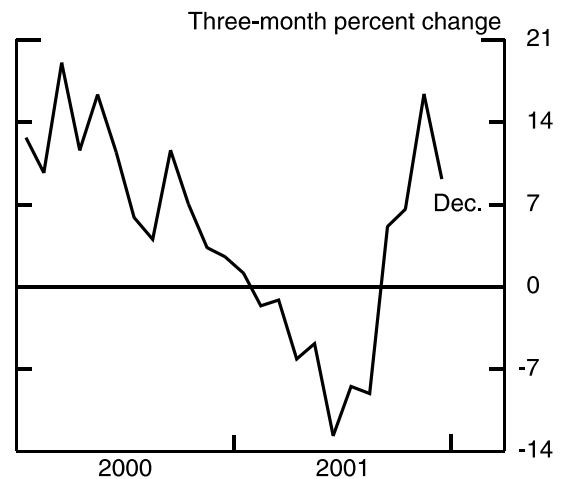
*Includes storage devices and other peripherals. Deflated by PPI for computers.

Semiconductor Production
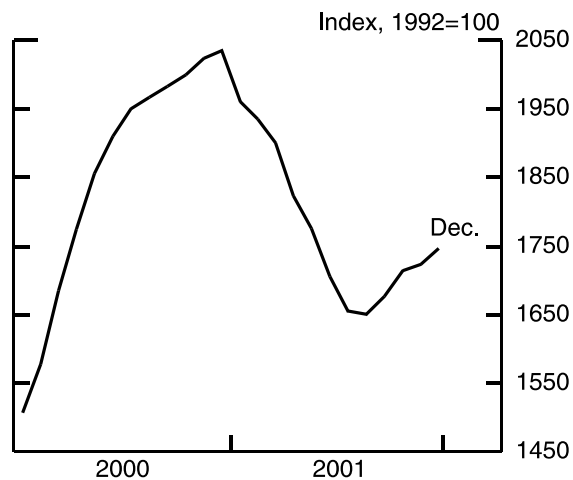
Capacity Utilization Rate
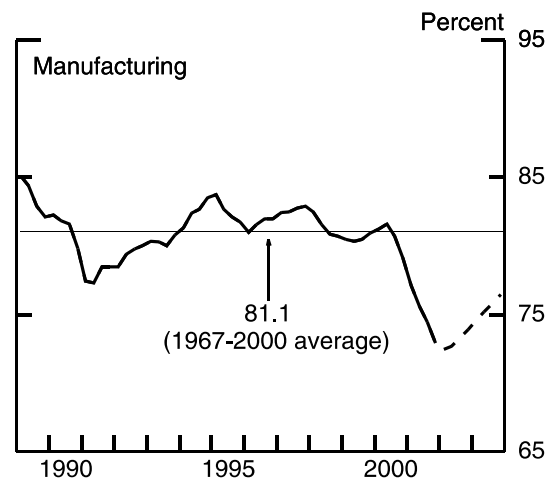
Household Net Worth and PCE
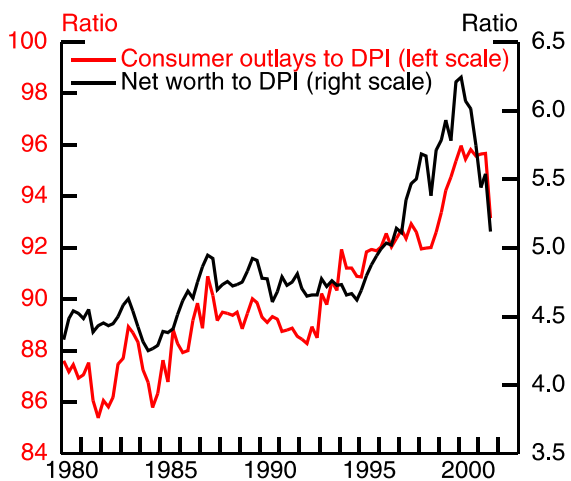
Real DPI and PCE Growth
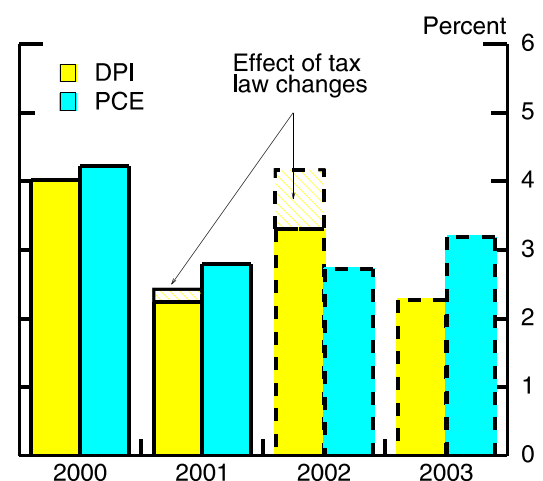
Chart 9
Outlook for Inflation

Core PCE Price Index
Four-quarter percent change

Energy Input Prices*
Index, 1996=100

Dec.

*Weighted input price to nonfinancial
corporations, ex. energy producers.

GDP Gap
Billions of 1996 dollars

— Potential GDP
--- Actual GDP

Unit Labor Costs
Four-quarter percent change

▢ Based on actual productivity
— Based on structural productivity

Profit Share
Percent

Nonfinancial Corporations
(Economic profits)

NBER
peak
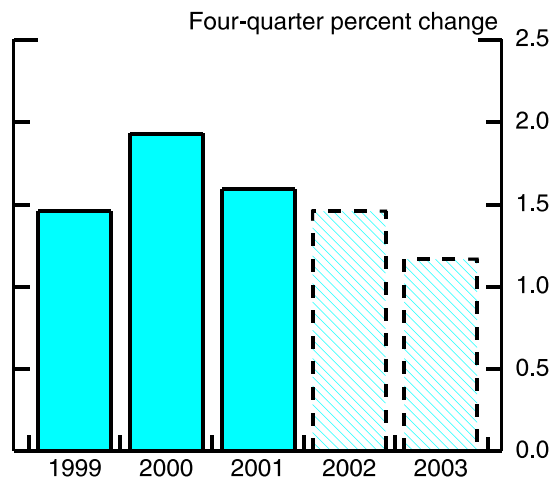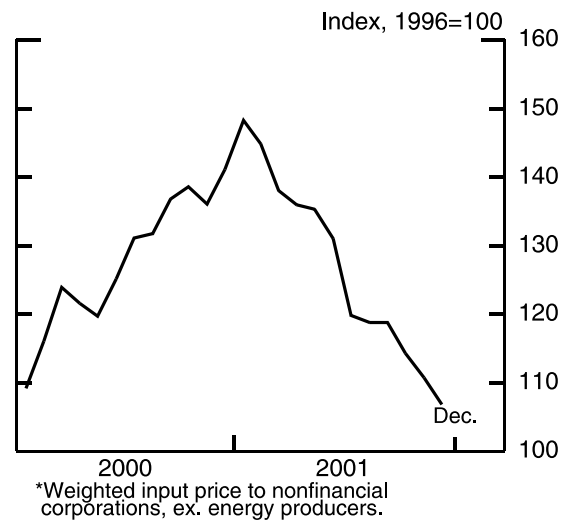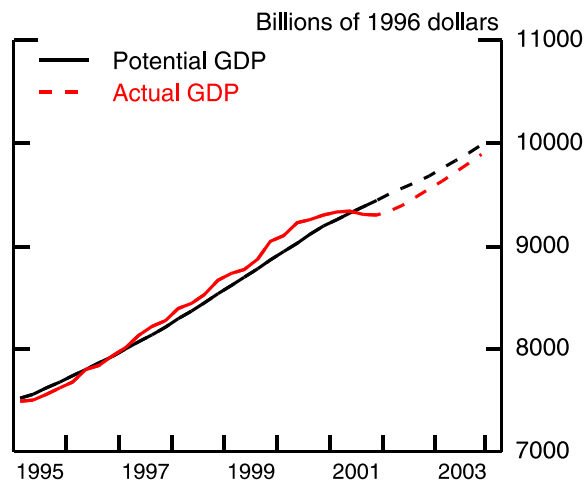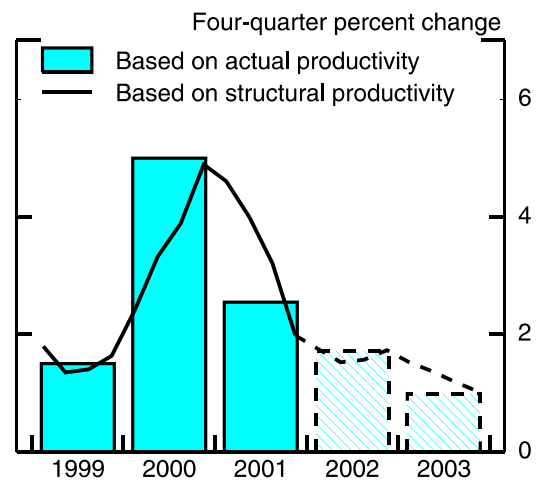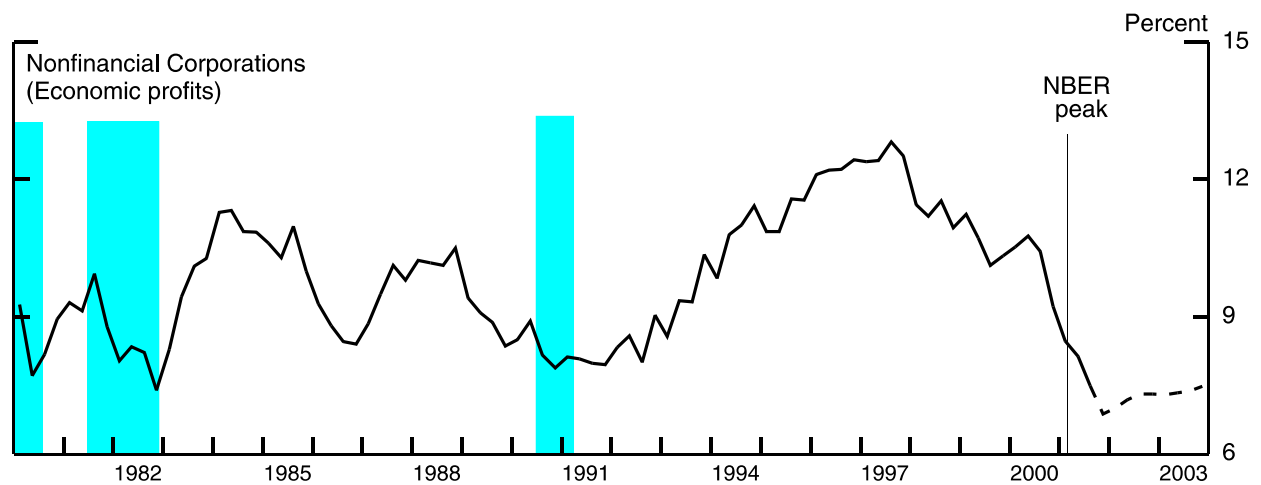
Chart 10

Financial Developments

(Weekly data)

Nominal Exchange Rates
Foreign currency/U.S. dollar   Index, Jan. 3, 2000 = 100

Euro

Yen
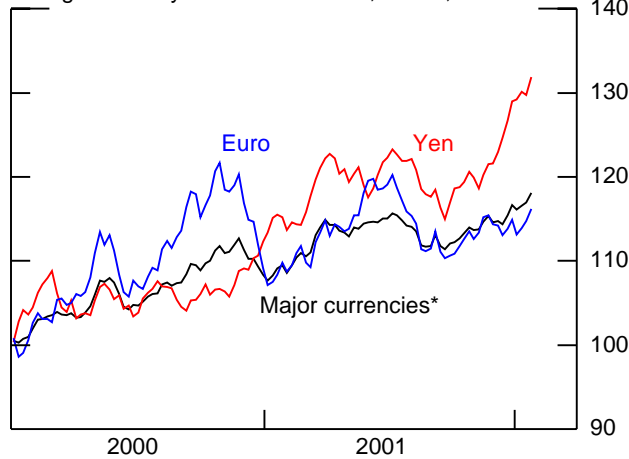
Major currencies*

*Trade-weighted average against major currencies.

Three-Month Eurocurrency Futures Rates
Percent

As of January 28, 2002

Dollar

Euro

Yen
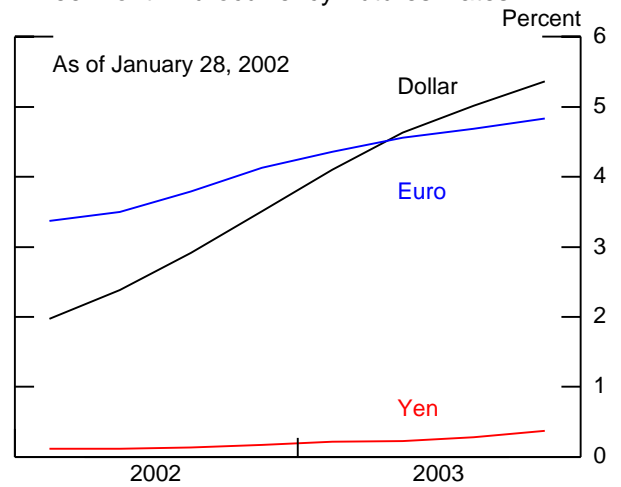
Three-Month Interest Rates
Percent

United States

Euro Area

Japan

Ten-Year Interest Rates
Percent

United States

Germany

Japan
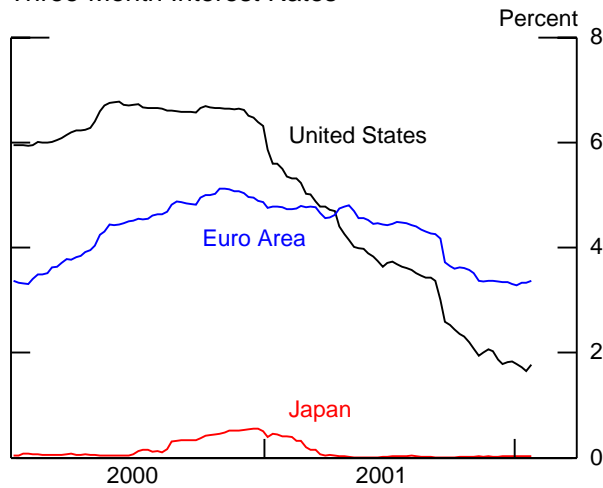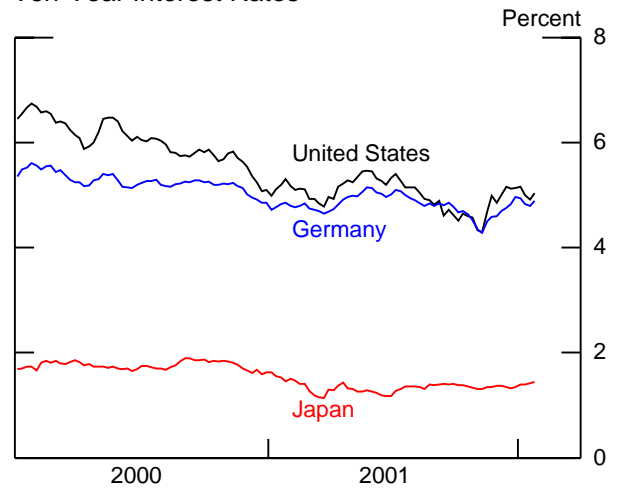
Broad Stock Price Indexes
Index, Jan. 3, 2000 = 100

MSCI Euro Area

S&P 500

TOPIX
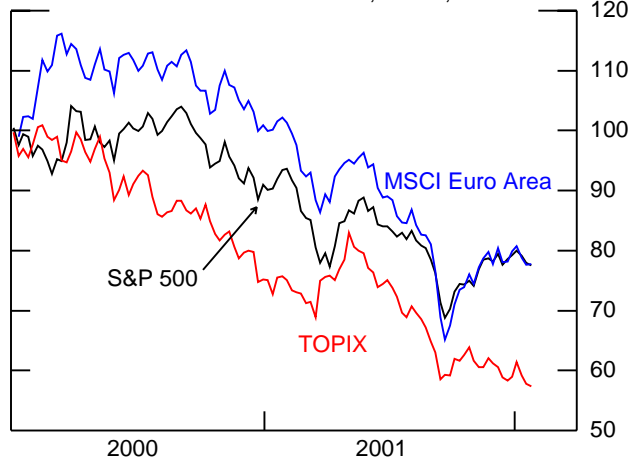
Expected 2002 Earnings*
Index, July 2001 = 100

S&P 500

MSCI Euro Area
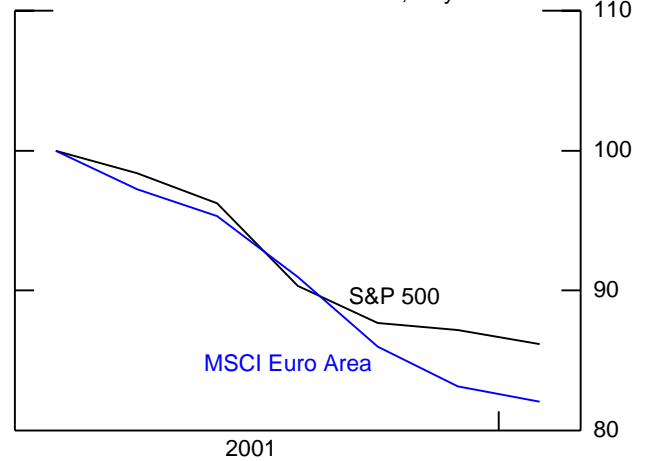
*Average of equity analysts' earnings forecasts for 2002
 company fiscal years from I/B/E/S mid-month surveys.
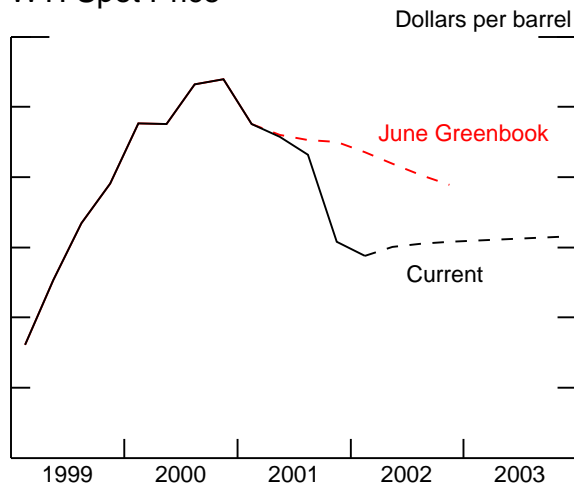
Chart 11

U.S. Trade

Exports by Region

$ Billions, SAAR

Europe

Canada

Latin America

Developing Asia*

Japan

1999 2000 2001
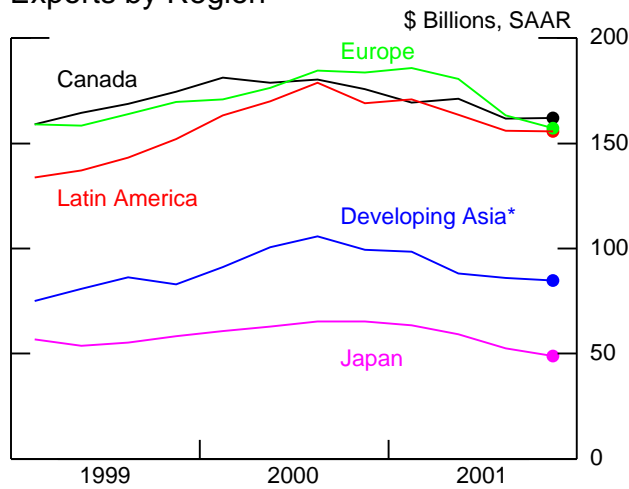
*Includes Korea, Hong Kong, Singapore, Taiwan, and China.

Imports by Region

$ Billions, SAAR

Europe

Canada

Developing Asia*

Latin America

Japan

1999 2000 2001
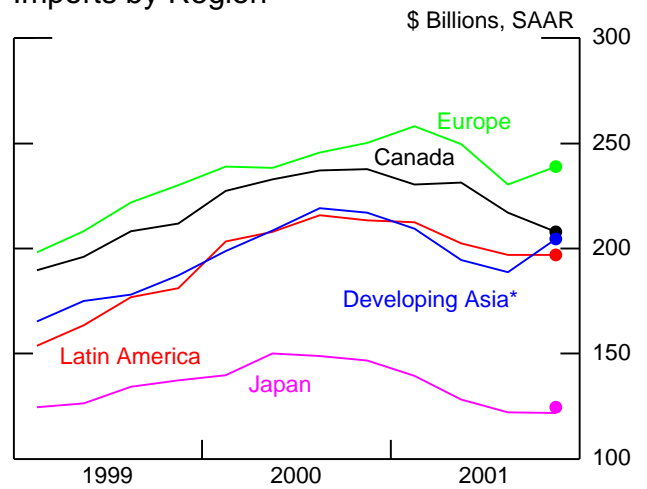
*Includes Korea, Hong Kong, Singapore, Taiwan, and China.

WTI Spot Price

Dollars per barrel

June Greenbook

Current

1999 2000 2001 2002 2003

Import Prices

Percent change, SAAR

Core Goods*

Total G&S

1999 2000 2001 2002 2003
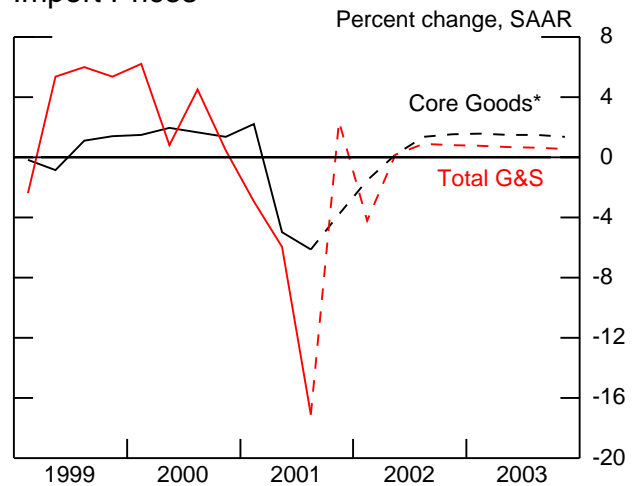
*Excludes computers, semiconductors, and oil.

Determinants of Core Exports*

Percent change, Q4/Q4

- Core export growth
- Contr. of for. GDP growth
- Ind. output gap growth
- Contr. of rel. prices

2001 2002 2003
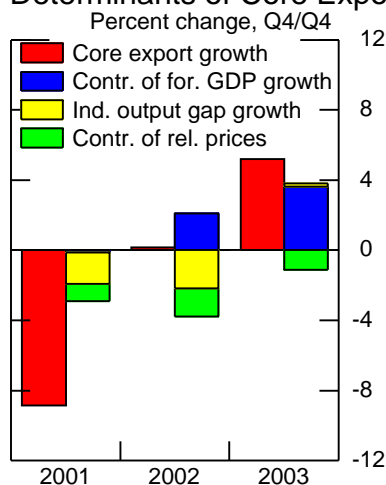
*Excludes computers and semiconductors.

Determinants of Core Imports*

Percent change, Q4/Q4

- Core import growth
- Contr. of GDP growth
- Contr. of rel. prices

2001 2002 2003
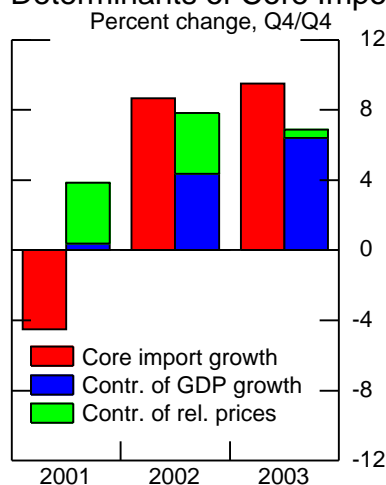
*Excludes computers, semiconductors, and oil.

Contribution to U.S. GDP Growth

Percentage points

- Exports
- Imports

2001 2002 2003
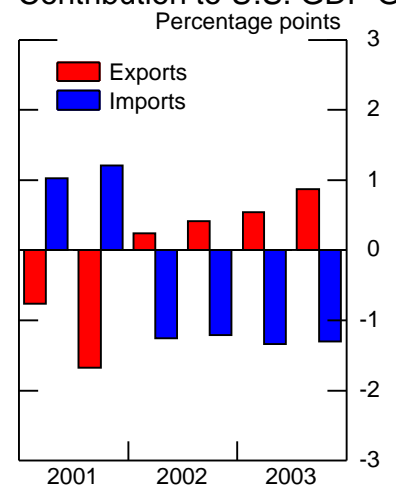
Chart 12

Foreign Outlook

Real GDP

Percent change, SAAR*
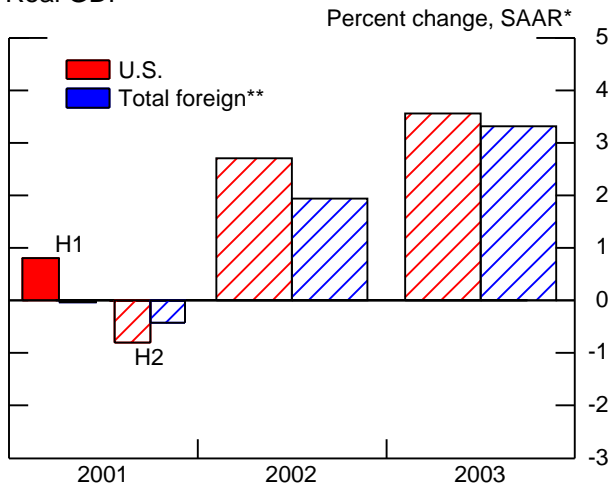
*Years are Q4/Q4; half years are Q2/Q4 or Q4/Q2.
**U.S. total export weights.

Foreign Real GDP*

Percent change, Q4/Q4
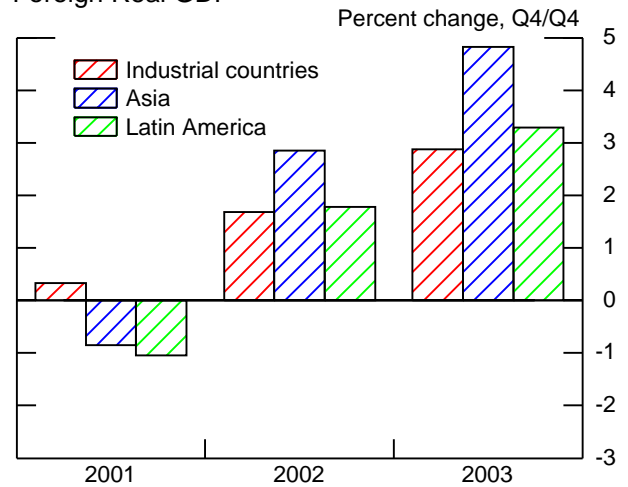
*U.S. total export weights.

Industrial Production

Index, Jan. 1999 = 100, SA
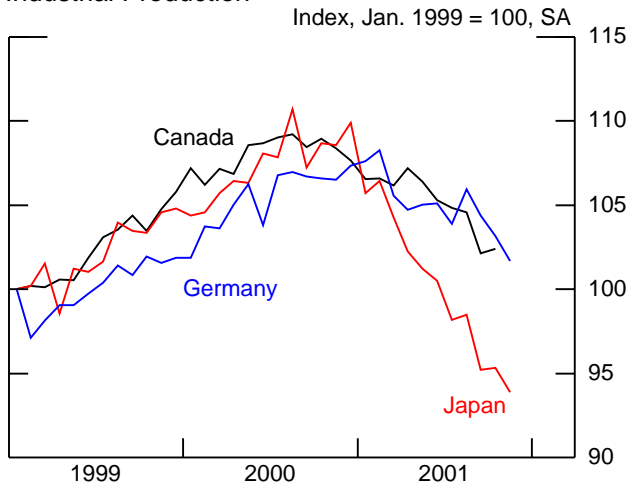
Real GDP
Percent change, SAAR*

	2001 H2	2002 H1	2002 H2	2003
1. Indust. countries**	-0.2	0.9	2.5	2.9
of which:				
2. Japan	-1.9	-1.4	-0.2	1.1
3. Euro Area	-0.1	0.6	2.5	2.8
4. United Kingdom	1.2	1.9	2.5	2.7
5. Canada	-0.5	1.4	3.1	3.4

*Years are Q4/Q4; half years are Q2/Q4 or Q4/Q2.
**U.S. total export weights.

Exports*

Index, Jan. 1999 = 100, SA

*Three-month moving average.
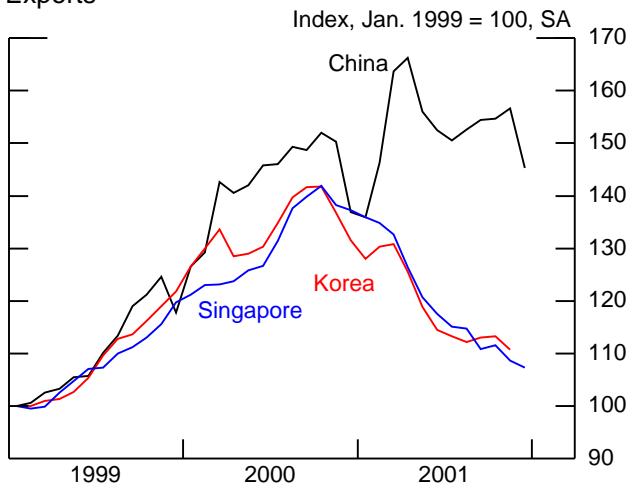
Real GDP
Percent change, SAAR*

	2001 H2	2002 H1	2002 H2	2003
1. Developing Asia**	0.2	1.9	3.8	4.8
of which:				
2. China	7.1	7.0	7.7	7.5
3. Korea	2.5	1.2	2.7	4.6
4. Taiwan	-2.1	1.2	3.5	4.5
5. Singapore	-6.2	1.2	3.5	4.7
6. Hong Kong	0.0	1.0	3.5	4.5

*Years are Q4/Q4; half years are Q2/Q4 or Q4/Q2.
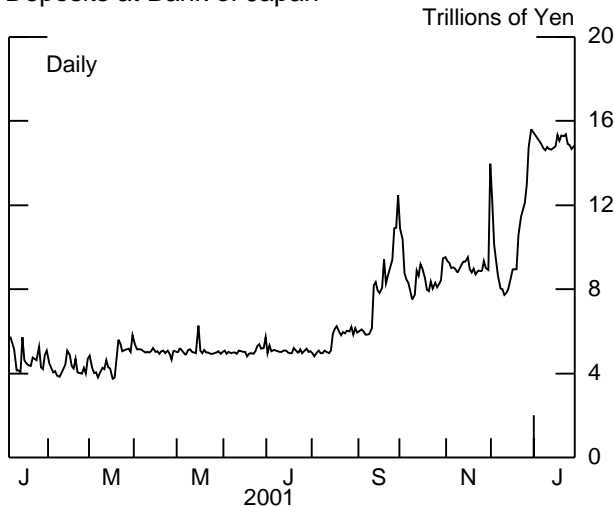**U.S. total export weights.
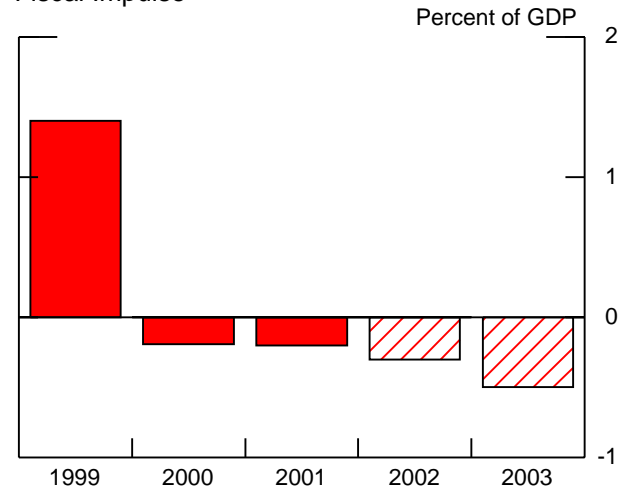
Chart 13

Japan

Real GDP

Percent change, SAAR*

- GDP (red)
- DD contribution (blue)
- Net Export contribution (green)

*Years are Q4/Q4; half years are Q2/Q4 or Q4/Q2.
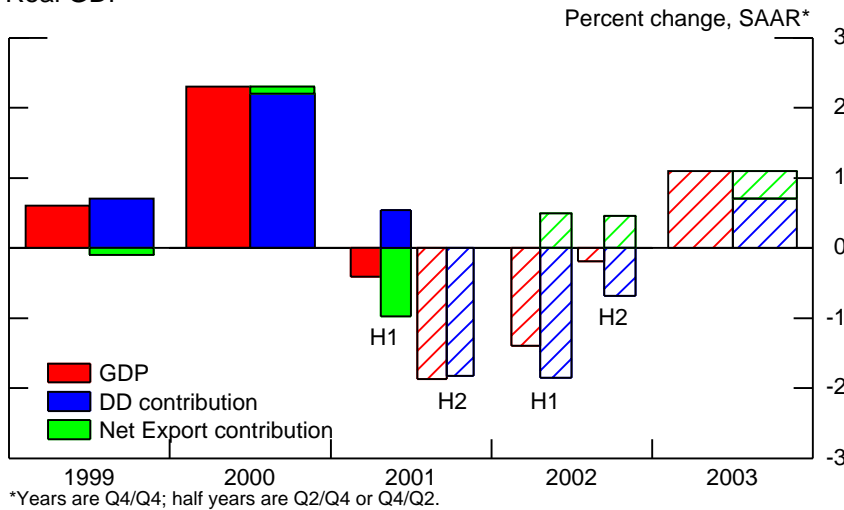
Consumer Prices

12-month percent change
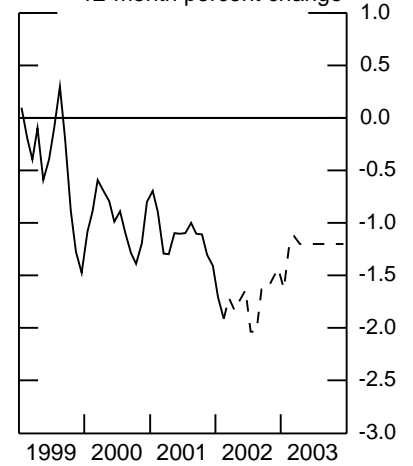
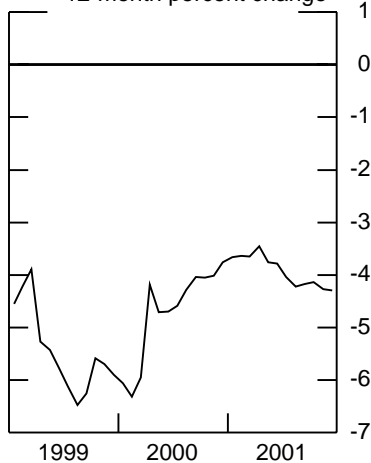## Deposits at Bank of Japan*

Trillions of Yen

Daily

*Current account balances at the Bank of Japan.
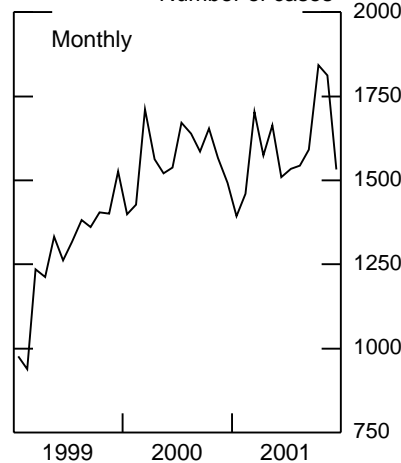
Fiscal Impulse*

Percent of GDP

*Change in the structural deficit. Positive entries indicate fiscal expansion; negative entries indicate contraction.

Bank Credit

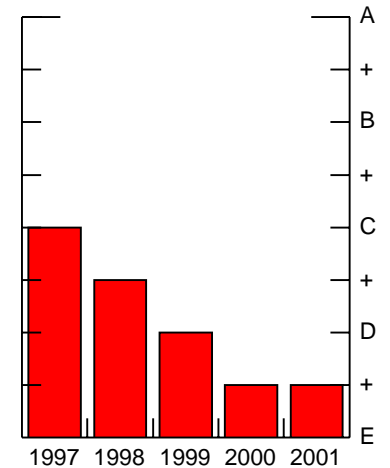12-month percent change

Corporate Bankruptcies
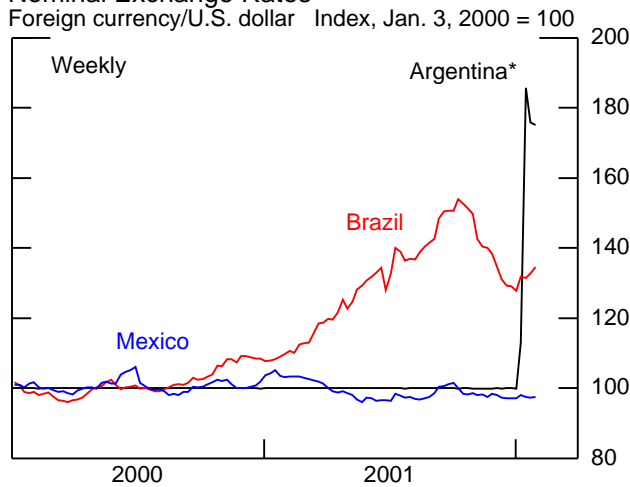
Number of cases

Monthly

Average Bank Financial Strength*

*Source: Moody's. Average financial strength rating of big four Japanese banks.

Chart 14

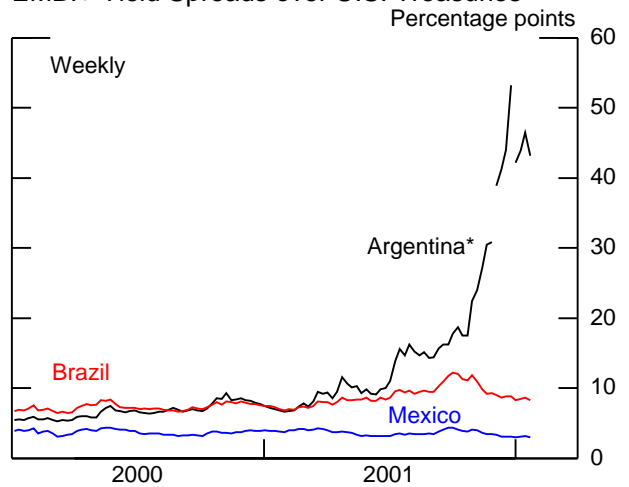# Argentina

Nominal Exchange Rates
Foreign currency/U.S. dollar   Index, Jan. 3, 2000 = 100

*Floating rate.

EMBI+ Yield Spreads over U.S. Treasuries
Percentage points

*Breaks in series reflect reweightings of index on December 4 and December 31, 2001.

Real GDP
Percent change, SAAR*

	2001 H2	2002 H1	2002 H2	2003
1. Latin America**	-1.1	0.9	2.7	3.3
of which:				
2. Argentina	-15.0	-8.5	-4.0	0.2
3. Brazil	0.2	1.5	2.7	2.6
4. Mexico	-0.9	1.1	3.1	3.7

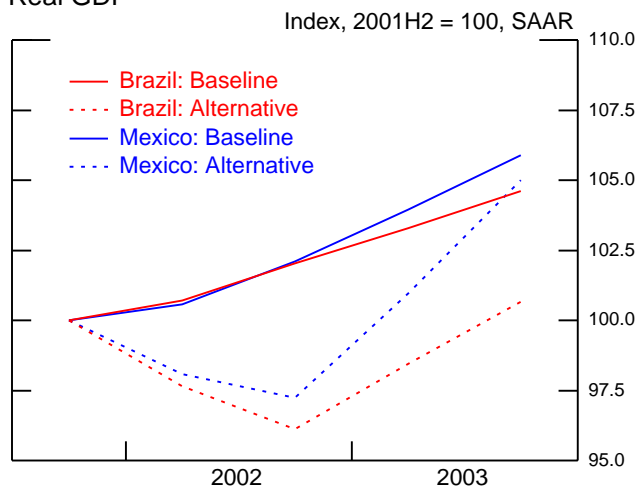*Years are Q4/Q4; half years are Q2/Q4 or Q4/Q2.
**U.S. total export weights.

Policy Issues
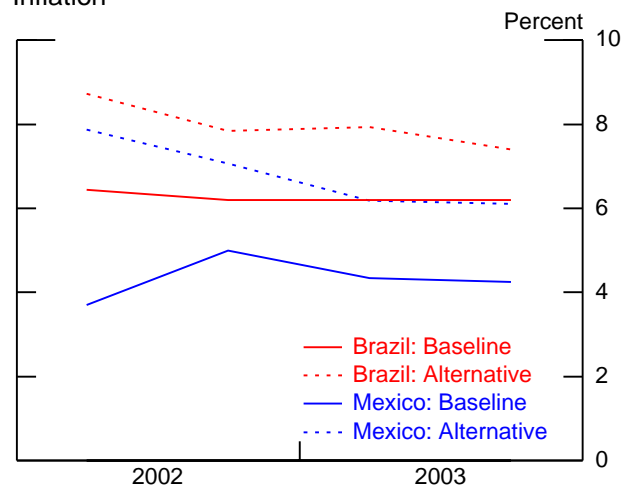
- Fiscal elements
  - Tax system
  - Federal / provincial
  - Public employment
- Banking system
- Exchange rate regime and monetary policy

Simulation

Real GDP
Index, 2001H2 = 100, SAAR

Inflation
Percent

Chart 15

1/29/02

ECONOMIC PROJECTIONS FOR 2002

	FOMC		Staff
	Range	Central Tendency	Staff
	-------------Percentage change, Q4 to Q4------------		
Nominal GDP	3¼ to 5½	4 to 4½	4.3
(July 2001)	(4¾ to 6)	(5 to 5½)	(5.3)
Real GDP	2 to 3½	2½ to 3	2.7
(July 2001)	(3 to 3½)	(3 to 3¼)	(3.5)
PCE Prices	1 to 2	about 1½	1.3
(July 2001)	(1½ to 3)	(1¾ to 2½)	(1.7)
	--------------Average level, Q4, percent--------------		
Unemployment rate	5¾ to 6½	6 to 6¼	6
(July 2001)	(4¾ to 5½)	(4¾ to 5¼)	(5.6)

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