

ECB Interest-Rate Smoothing

Since launching the euro in 1999, the European Central Bank (ECB) has conducted monetary policy in a cautious, predictable manner, making small changes in targeted interest rates. Such a policy of cautious moves is called *interest-rate smoothing*. Researchers have noticed that central banks do tend to smooth interest rates and have offered theoretical justifications for doing so (Woodford, 2003, chap. 6). One such reason is that volatile monetary policy increases the probability of reaching the zero lower bound of nominal interest rates (e.g., as in Japan) preventing additional easing.

The chart tracks the ECB's policy of interest rate smoothing as well as the Fed's policy moves over the 2000-06 period. ECB interest rates slowly fell from 4.5 percent to 2 percent in 2000-03, remained unchanged for more than two years, and then started to gently climb. Most recently, the ECB has raised interest rates 25 basis points in each of the previous two quarters. This contrasts strongly with Federal Reserve policy that made the federal funds rate swing much more markedly. The federal funds rate was cut from 6.5 percent to 1.0 percent in 2000-03 and rebounded strongly to reach 4.75 percent in March 2006.

Why has the ECB adhered to interest-rate smoothing in its monetary policy? Because the ECB does not have a long track record, pure caution might lead it to desire smooth interest rates. Two other factors might explain the practice:

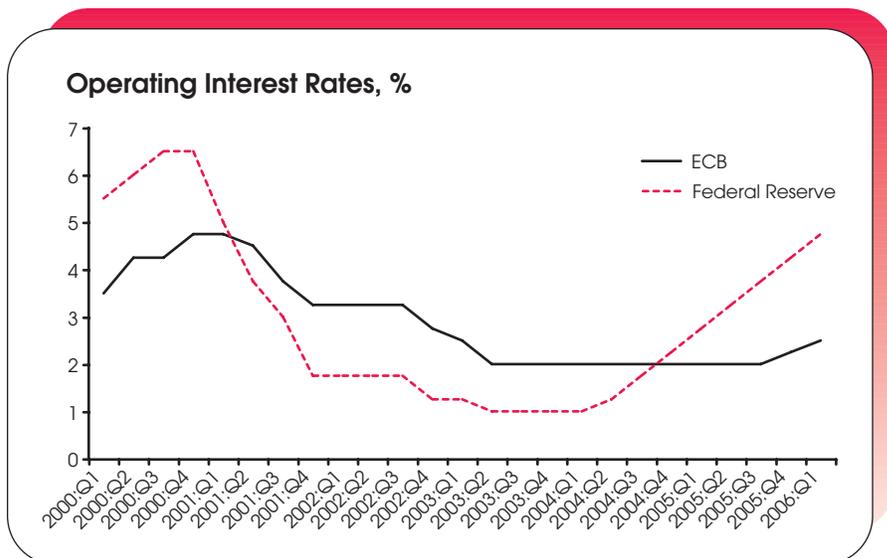
- The Euro Area economy might be more sensitive to interest rate changes than the U.S. economy, allowing smaller interest rate changes to achieve monetary policy objectives. Why might this be so? First, there is a higher percentage of adjustable rate mortgages in the Euro Area. Jean Claude Trichet, governor of the ECB, recently expressed concern about the Euro Area real estate boom and the risk of a hard landing as mortgage payments rise with short-term interest rates. Second, many Euro Area governments have high debt-to-GDP ratios (remarkably high in Belgium and Italy) and large amounts of short-term debt. Hence, they are similarly exposed to interest rate fluctuations. Third, interest-rate

changes might have more influence in Europe than in the United States because the Euro Area is a more open economy. In the Euro Area, exports represent around 15 percent of GDP; in the United States, it is only 10 percent. Increased interest-rate volatility could generate wider fluctuations of the euro that may have a negative impact on Euro Area trade with the rest of the world.

- Another factor in the smoothness of ECB interest rates is that growth in the Euro Area has been less variable than that in the United States. In fact, the standard deviation of Euro Area quarterly real GDP growth has been only 1.1 percent during 2000-05, while that of the United States has been 1.4 percent over the same period. Because growth rates in Euro Area countries have been unsynchronized recently—some countries have boomed while others have stagnated—average Euro Area growth has been relatively stable over time. As a result, the ECB policy actions may have been too loose for fast-growing periphery countries (Ireland, Greece, or Spain) and too tight for slow-growing core countries (France and Germany), but adequate for the Euro Area as a whole.

—Miguel Casares

Woodford, Michael. *Interest and Prices: Foundations of a Theory of Monetary Policy*. Princeton, NJ: Princeton University Press, 2003.



Views expressed do not necessarily reflect official positions of the Federal Reserve System.

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Conventions used in this publication:

1. Charts and tables contain data that were current through April 2006. Unless otherwise indicated, data are quarterly.
2. The *percent change* refers to the percent change from the same period in the previous year. For example, the percent change in x between quarter $t-4$ and the current quarter t is: $[(x_t/x_{t-4})-1] \times 100$.
3. All data with significant seasonal patterns are adjusted accordingly.

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Please keep in mind that we must make some difficult choices with respect to the material we include.

Thank you in advance for your help in making *International Economic Trends* a great publication.

Sincerely,

Christopher J. Neely

Editor, *International Economic Trends*

Real Gross Domestic Product

Percent change from year ago

	03.1	03.2	03.3	03.4	04.1	04.2	04.3	04.4	05.1	05.2	05.3	05.4
Canada	3.13	1.95	1.34	1.67	1.56	3.14	3.70	3.33	3.19	2.82	2.82	2.92
Euro Area	0.91	0.39	0.53	0.96	1.59	2.15	1.87	1.56	1.20	1.18	1.60	1.76
France	1.13	0.21	0.94	1.42	1.68	2.78	1.78	1.95	1.68	0.99	1.67	1.45
Germany	-0.06	-0.34	-0.53	0.19	1.23	1.56	1.15	0.44	0.61	0.76	1.46	1.55
Italy	0.78	0.00	0.38	0.38	0.77	1.54	1.15	0.77	-0.38	0.00	0.00	.
Japan	1.69	1.57	1.40	2.60	3.61	2.67	2.28	0.54	1.11	2.68	2.78	4.34
United Kingdom	2.20	2.21	2.55	3.11	3.38	3.61	2.91	2.62	1.92	1.67	1.89	1.82
United States	1.62	1.98	3.17	4.03	4.67	4.63	3.82	3.76	3.64	3.60	3.64	3.22

Nominal Gross Domestic Product

Percent change from year ago

	03.1	03.2	03.3	03.4	04.1	04.2	04.3	04.4	05.1	05.2	05.3	05.4
Canada	8.40	4.72	4.52	3.97	3.26	6.79	7.27	7.00	6.18	5.10	6.00	7.06
Euro Area	2.81	2.53	2.75	2.85	3.74	4.32	3.48	3.37	3.06	2.75	3.24	3.72
France	2.61	1.52	2.28	2.97	3.28	4.63	3.39	3.43	3.13	2.12	2.94	2.81
Germany	0.77	1.03	0.76	0.83	2.21	2.54	1.68	1.12	1.36	1.09	1.68	2.06
Italy	3.22	2.87	3.79	3.13	3.74	4.64	3.34	3.04	2.10	1.78	1.76	.
Japan	-0.75	0.39	0.27	0.92	2.30	1.04	0.93	0.09	0.04	1.57	1.42	2.56
United Kingdom	5.28	4.96	5.64	6.02	5.42	5.69	4.76	5.35	4.29	3.88	3.70	3.53
United States	3.71	4.01	5.32	6.09	6.91	7.58	6.60	6.76	6.47	6.10	6.66	6.43

Consumer Price Index

Percent change from year ago

	03.2	03.3	03.4	04.1	04.2	04.3	04.4	05.1	05.2	05.3	05.4	06.1
Canada	2.81	2.15	1.68	0.86	2.20	2.01	2.26	2.12	1.91	2.66	2.23	.
Euro Area	1.95	2.03	2.03	1.74	2.25	2.30	2.29	2.05	2.04	2.26	2.33	2.33
France	1.88	2.09	2.37	2.01	2.63	2.44	2.29	1.87	1.84	2.06	1.83	2.00
Germany	0.84	1.02	1.13	1.06	1.91	2.04	2.15	1.73	1.64	2.10	2.21	2.07
Italy	2.88	2.84	2.65	2.36	2.29	2.30	2.15	2.07	2.21	2.17	2.39	2.24
Japan	-0.23	-0.23	-0.31	-0.14	-0.30	-0.09	0.50	-0.21	-0.10	-0.30	-0.55	.
United Kingdom	3.05	2.93	2.65	2.55	2.79	3.09	3.40	3.15	3.03	2.78	2.38	.
United States	2.15	2.22	1.89	1.82	2.80	2.71	3.34	3.04	2.95	3.80	3.73	3.68

Employment

Percent change from year ago

	03.2	03.3	03.4	04.1	04.2	04.3	04.4	05.1	05.2	05.3	05.4	06.1
Canada	2.46	1.71	1.81	1.50	2.10	1.95	1.53	1.37	1.15	1.38	1.62	1.82
Euro Area	0.19	0.28	0.33	0.46	0.62	0.81	0.99	0.88	0.79	0.76	.	.
France	-0.23	-0.41	-0.38	-0.34	-0.00	0.13	0.10	0.36	0.18	0.30	0.34	.
Germany	-1.20	-0.81	-0.48	-0.01	0.43	0.50	0.57	0.03	-0.32	-0.29	-0.33	.
Italy	0.48	0.30	0.47	0.70	0.49	1.03	0.92	0.54	0.42	0.13	.	.
Japan	0.08	-0.05	-0.13	0.25	0.21	0.26	0.07	0.19	0.46	0.60	0.46	.
United Kingdom	0.26	0.26	0.39	0.77	0.79	0.86	1.08	1.25	1.02	0.95	0.40	.
United States	0.95	0.53	1.20	0.74	0.90	1.46	1.29	1.37	1.88	1.99	1.87	2.10

Unemployment Rate

Percent

	03.1	03.2	03.3	03.4	04.1	04.2	04.3	04.4	05.1	05.2	05.3	05.4
Canada	7.40	7.73	7.77	7.47	7.35	7.20	7.06	7.13	6.97	6.80	6.76	6.50
Euro Area	8.63	8.70	8.73	8.87	8.90	8.90	8.90	8.80	8.80	8.63	8.43	8.33
France	9.20	9.41	9.54	9.69	9.65	9.53	9.53	9.57	9.65	9.63	9.48	9.27
Germany	8.80	8.97	9.07	9.40	9.40	9.47	9.63	9.63	9.73	9.63	9.23	9.30
Italy	8.60	8.55	8.31	8.20	8.18	8.12	7.91	7.95	7.80	7.64	7.52	.
Japan	5.38	5.38	5.17	5.07	4.91	4.64	4.78	4.54	4.56	4.35	4.33	4.48
United Kingdom	5.06	4.93	4.95	4.83	4.74	4.70	4.59	4.63	4.63	4.64	4.69	.
United States	5.86	6.14	6.11	5.83	5.66	5.56	5.46	5.42	5.25	5.09	5.01	4.96

Reserve Money

Percent change from year ago

	03.2	03.3	03.4	04.1	04.2	04.3	04.4	05.1	05.2	05.3	05.4	06.1
Canada	3.17	0.84	1.16	1.99	3.87	3.28	4.92	5.29	2.66	4.12	3.44	.
Japan	16.21	20.29	16.69	14.11	6.23	4.46	4.27	2.57	2.41	1.29	1.65	0.97
United Kingdom	7.70	7.89	7.52	7.15	5.94	5.35	5.49	5.46	4.15	5.52	5.31	6.57
United States	6.57	5.92	5.84	4.74	4.43	5.17	4.97	4.84	4.08	3.27	3.09	3.96

Narrow Money

Percent change from year ago

	03.2	03.3	03.4	04.1	04.2	04.3	04.4	05.1	05.2	05.3	05.4	06.1
Canada	7.72	8.81	6.46	9.47	12.94	11.14	13.40	13.02	10.25	7.51	9.48	.
Euro Area	11.08	10.56	9.61	10.33	9.16	9.34	8.63	9.05	16.56	16.79	17.33	.
Japan	5.56	5.15	4.02	4.16	4.14	3.80	3.92	4.82	4.87	4.76	5.51	.
United Kingdom	8.86	9.07	9.85	9.81	10.26	9.86	9.07	9.09	8.97	9.29	9.10	.
United States	7.82	8.71	5.44	4.07	4.95	2.76	3.97	3.46	1.18	1.59	2.31	3.54

Broad Money

Percent change from year ago

	03.2	03.3	03.4	04.1	04.2	04.3	04.4	05.1	05.2	05.3	05.4	06.1
Canada	6.02	6.24	5.29	5.70	6.30	6.04	6.45	6.63	5.86	4.39	5.11	.
Euro Area	8.23	7.02	6.46	5.93	5.32	5.96	6.39	6.46	7.75	8.59	8.01	.
Japan	1.76	1.74	1.61	1.83	1.84	1.90	2.04	2.09	1.61	2.02	1.98	.
United Kingdom	7.55	6.24	7.17	8.01	8.14	9.27	8.76	10.39	10.27	11.07	12.65	.
United States	7.86	7.96	5.47	4.58	4.74	3.64	5.21	5.29	3.73	3.90	3.93	4.69

Short-Term Interest Rates

Percent

	03.2	03.3	03.4	04.1	04.2	04.3	04.4	05.1	05.2	05.3	05.4	06.1
Canada	3.22	2.72	2.70	2.16	2.10	2.40	2.58	2.64	2.58	2.90	3.48	3.93
Euro Area	2.37	2.14	2.15	2.06	2.08	2.12	2.16	2.14	2.13	2.13	2.34	.
Japan	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.05
United Kingdom	3.57	3.50	3.86	4.11	4.51	4.85	4.82	4.85	4.83	4.55	4.56	4.53
United States	1.17	1.07	1.10	1.05	1.25	1.70	2.25	2.78	3.23	3.74	4.30	4.72

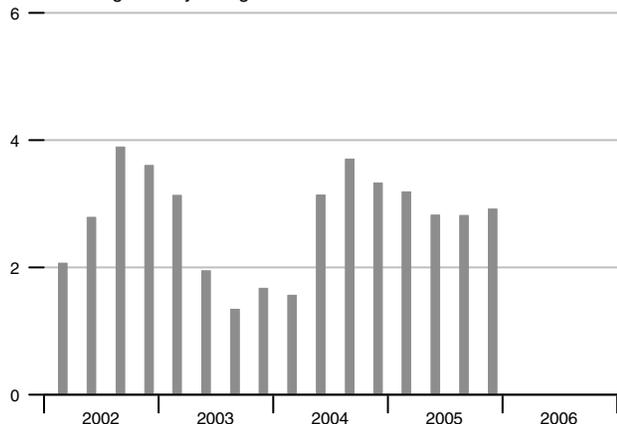
Long-Term Interest Rates

Percent

	03.2	03.3	03.4	04.1	04.2	04.3	04.4	05.1	05.2	05.3	05.4	06.1
Canada	4.66	4.79	4.79	4.43	4.78	4.68	4.46	4.28	4.03	3.90	4.06	4.13
Euro Area	3.96	4.16	4.37	4.15	4.32	4.19	3.83	3.65	3.38	3.24	3.40	.
France	3.93	4.13	4.34	4.11	4.31	4.16	3.83	3.64	3.37	3.23	3.39	.
Germany	3.86	4.09	4.29	4.06	4.22	4.11	3.75	3.60	3.30	3.17	3.34	.
Italy	4.16	4.33	4.45	4.28	4.46	4.32	3.97	3.74	3.54	3.39	3.55	3.72
Japan	0.53	1.17	1.38	1.31	1.59	1.64	1.45	1.40	1.28	1.36	1.53	1.58
United Kingdom	4.27	4.55	4.94	4.77	5.08	4.99	4.65	4.63	4.44	4.28	4.30	4.09
United States	4.44	5.01	5.00	4.71	5.22	4.91	4.72	4.65	4.46	4.45	4.73	4.74

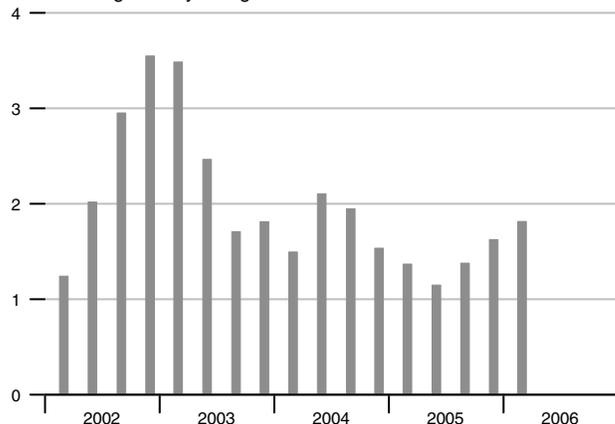
Real GDP

Percent change from year ago



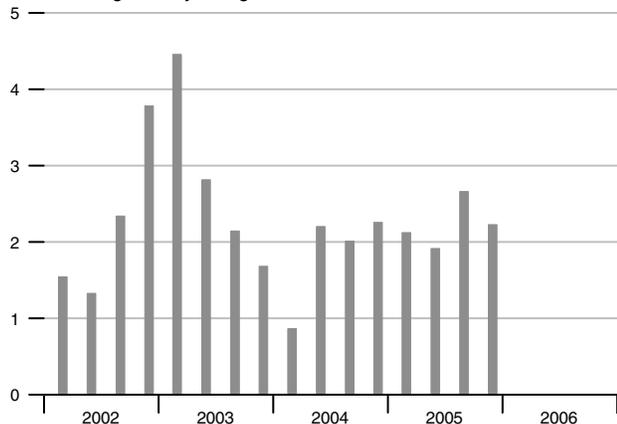
Employment

Percent change from year ago



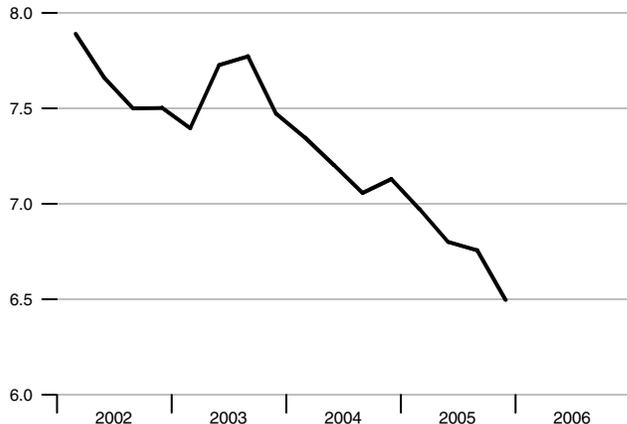
Consumer Price Index

Percent change from year ago



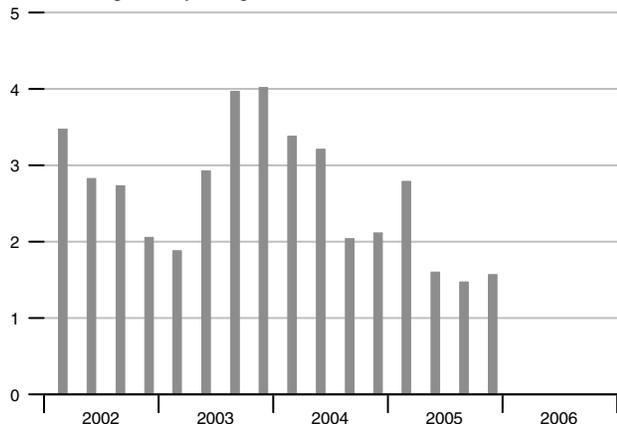
Unemployment Rate

Percent



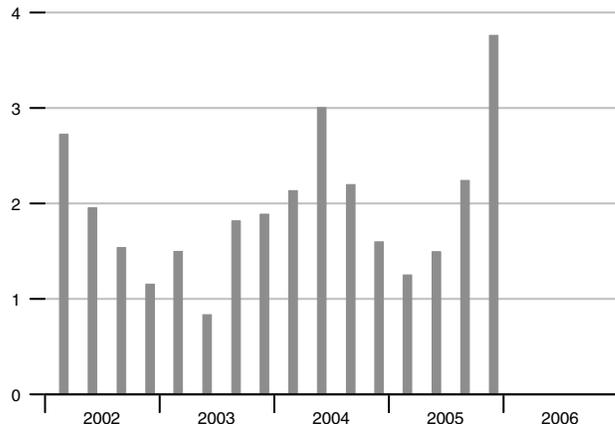
Hourly Earnings

Percent change from year ago*



Current Account Balance

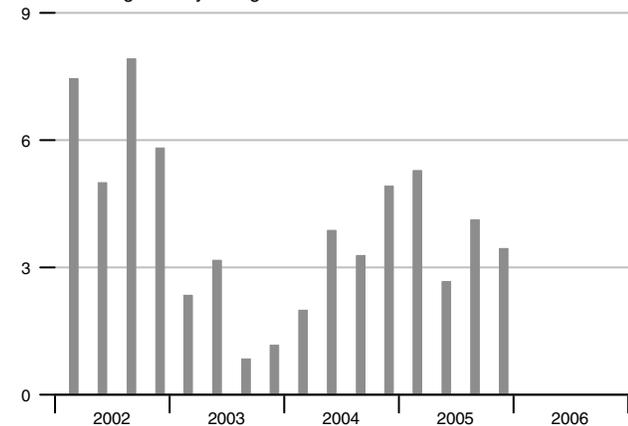
Percent of GDP



* Hourly earnings are seasonally adjusted.

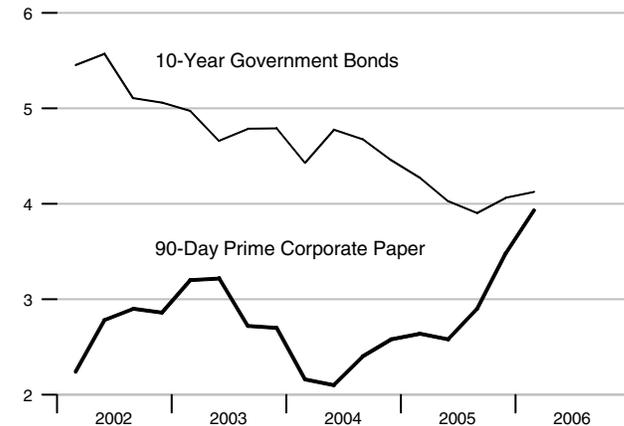
Reserve Money

Percent change from year ago



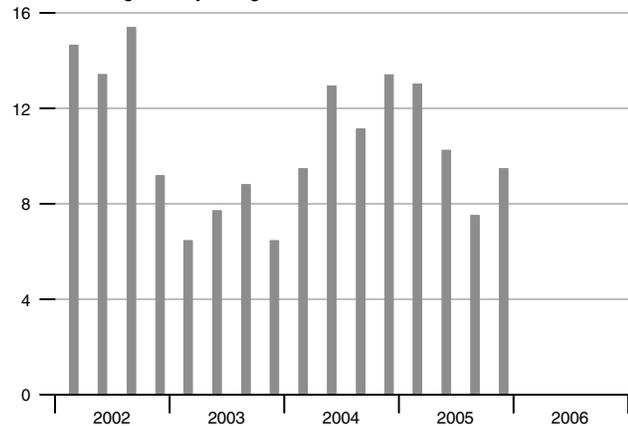
Interest Rates

Percent



M1

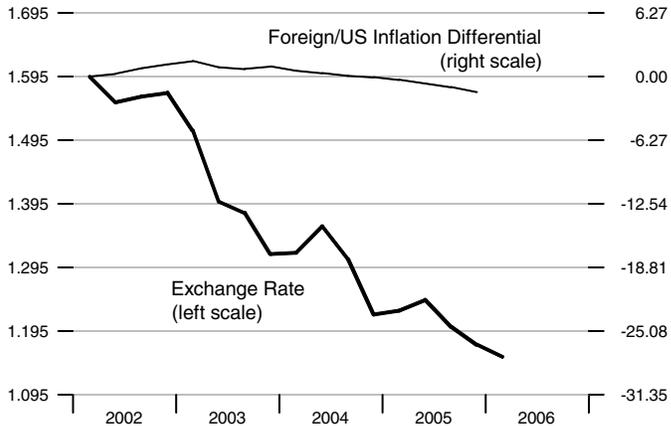
Percent change from year ago



Exchange Rate and Inflation Differential

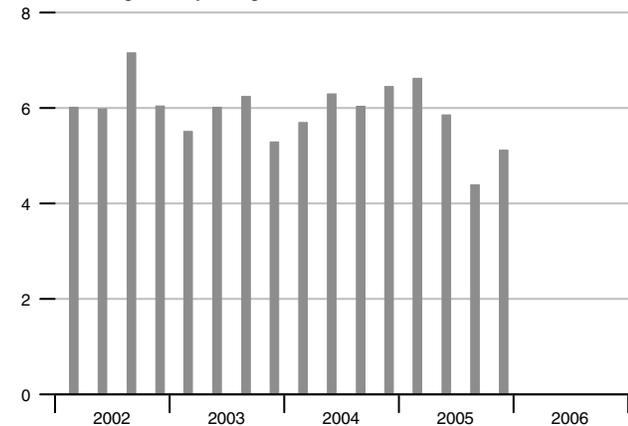
C\$/US\$

Percent



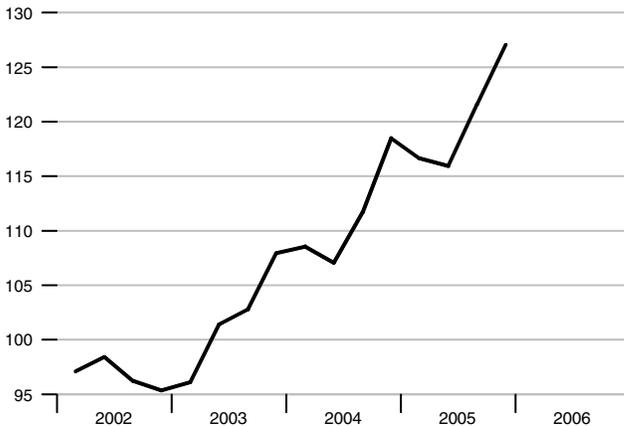
M2

Percent change from year ago



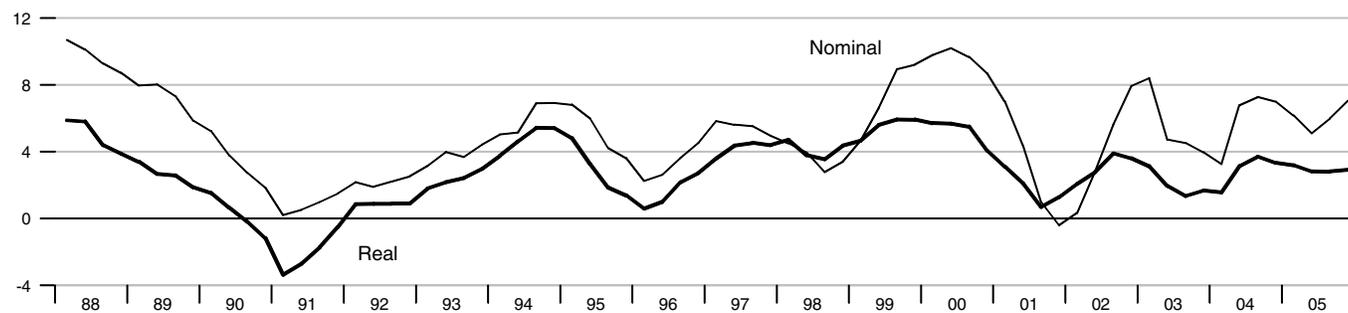
Real Effective Exchange Rate

Index 2000 = 100



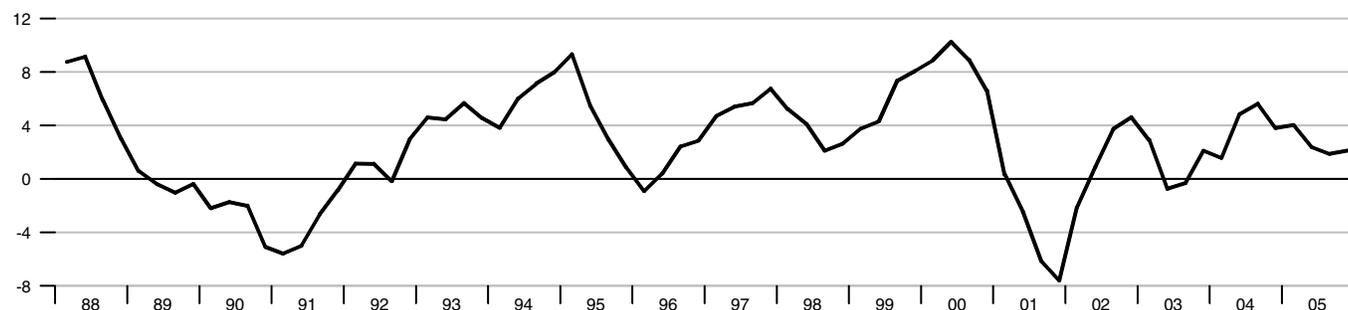
GDP

Percent change from year ago



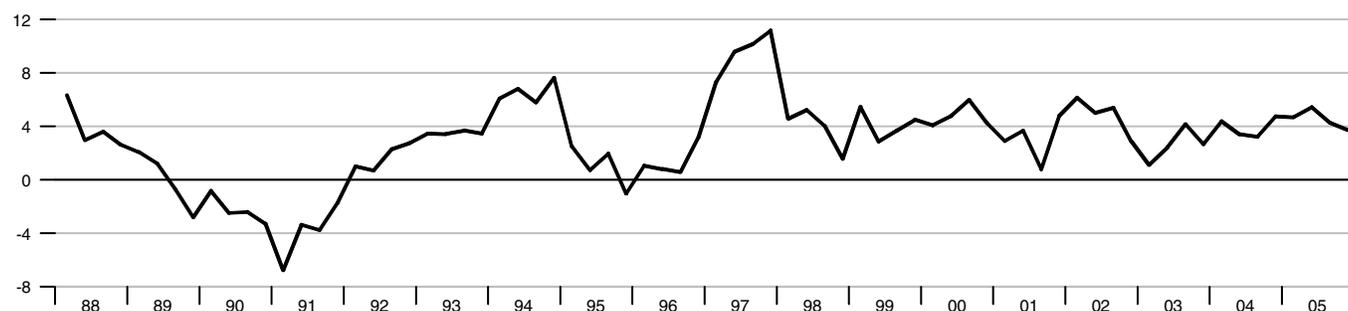
Industrial Production

Percent change from year ago



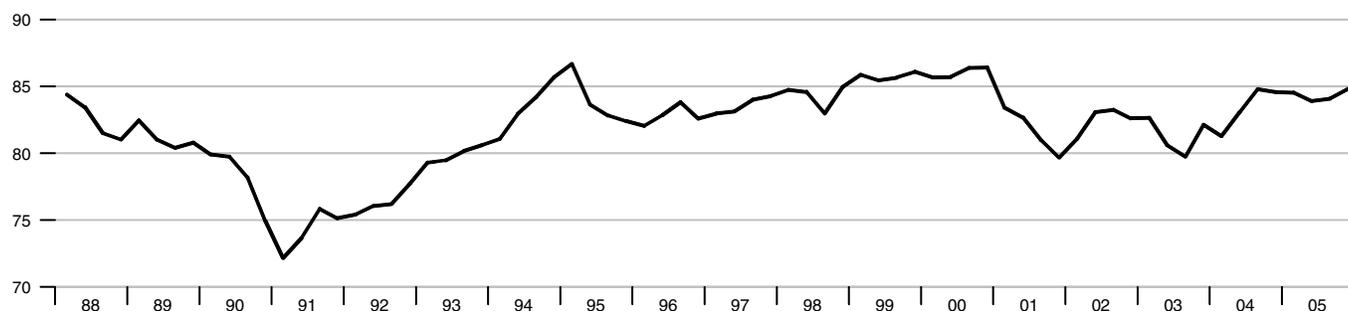
Retail Sales

Percent change from year ago



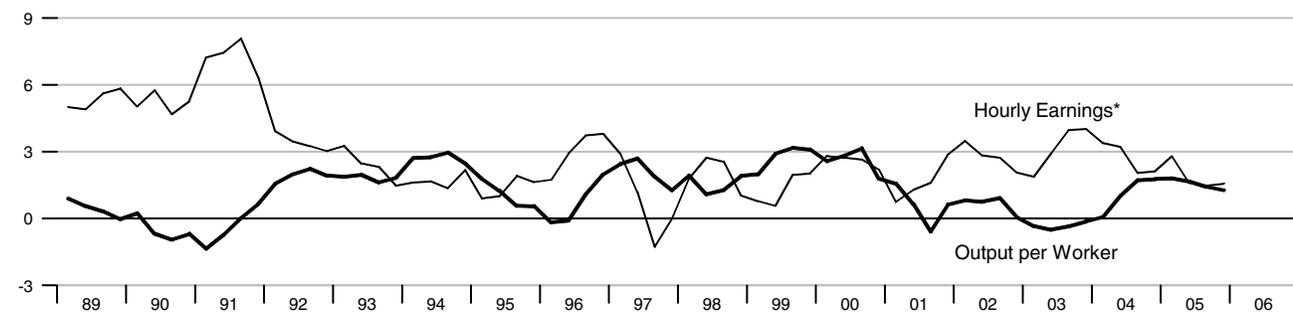
Capacity Utilization

Percent



Hourly Earnings and Output per Worker

Percent change from year ago

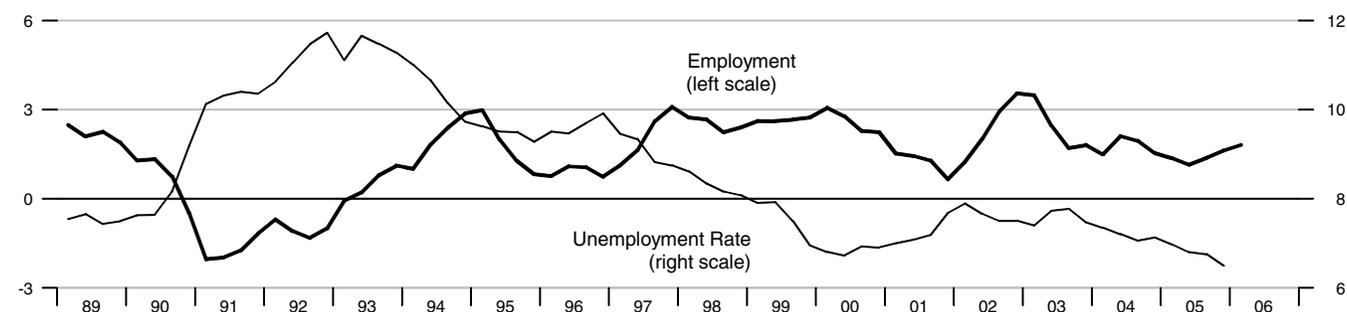


* Hourly earnings are seasonally adjusted.

Labor Force Indicators

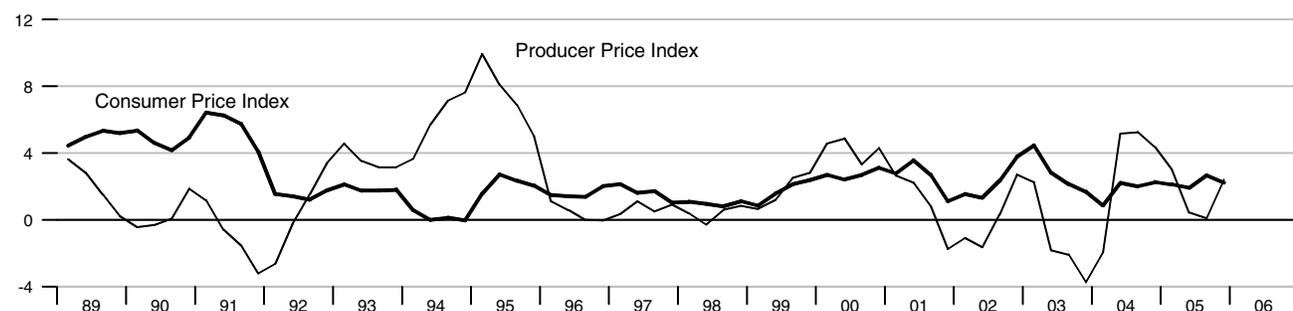
Percent change from year ago

Percent



Inflation

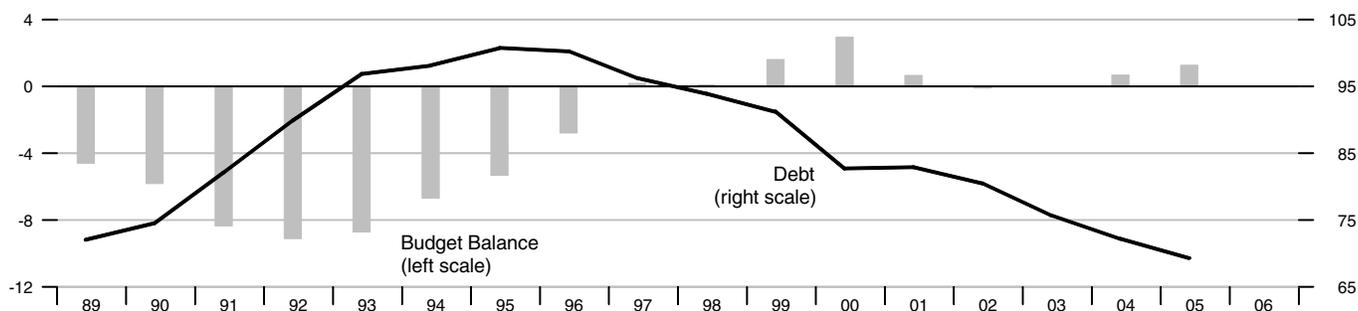
Percent change from year ago



Government Debt and Budget Balance

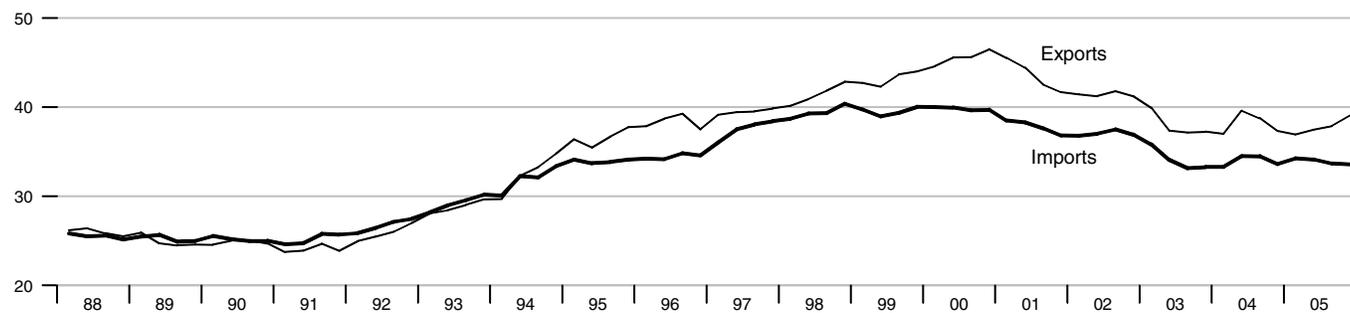
Percent of GDP, annual data

Percent of GDP, annual data



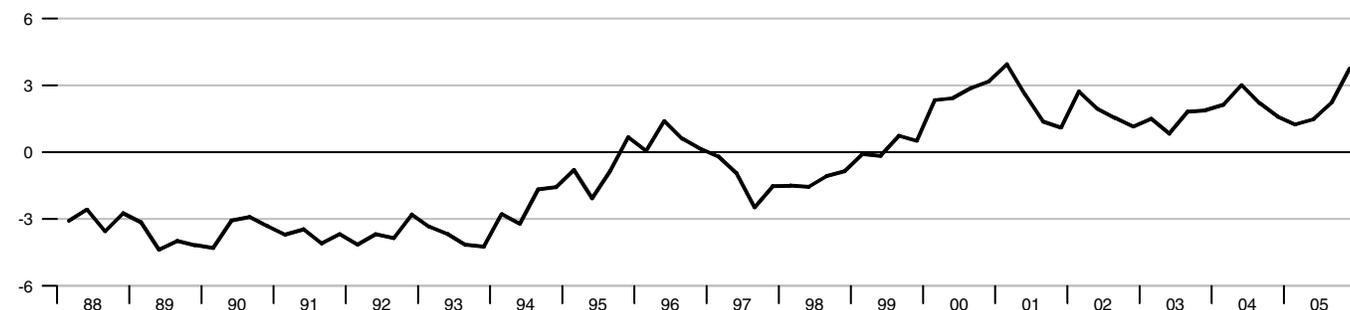
International Trade - Goods and Services

Percent of GDP



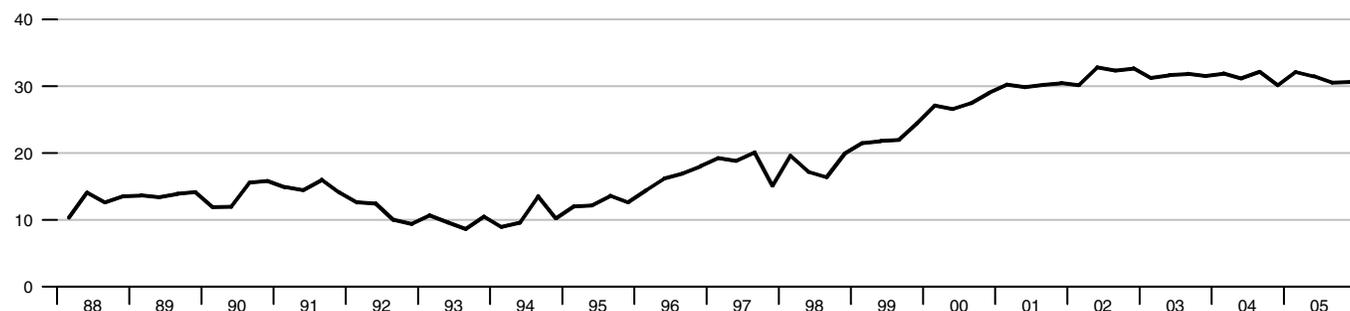
Current Account Balance

Percent of GDP



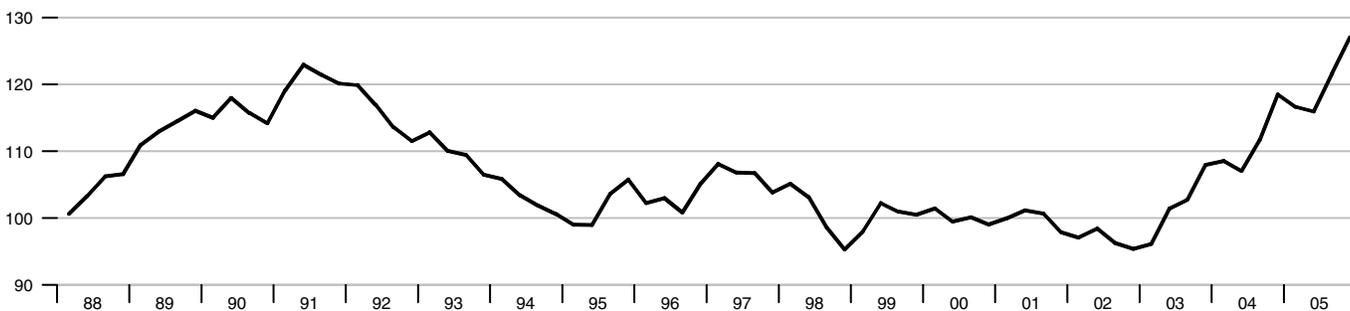
Foreign Exchange Reserves

Billions of US\$



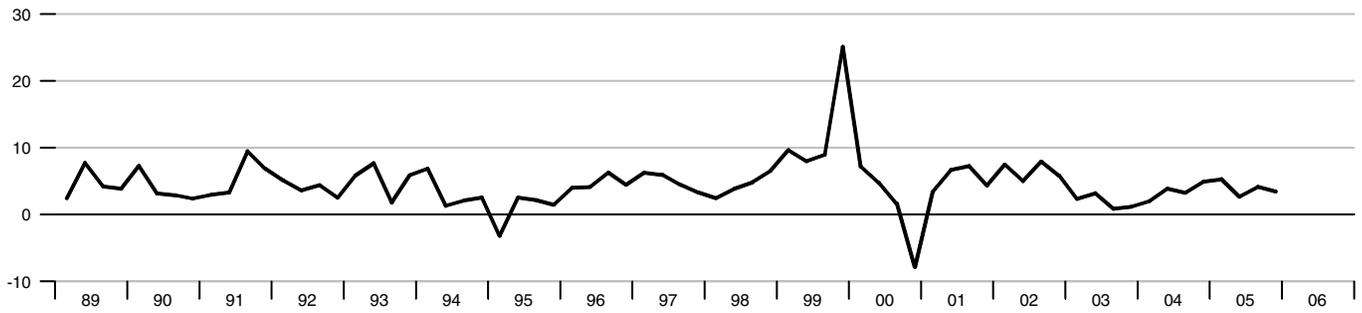
Real Effective Exchange Rate

Index 2000 = 100



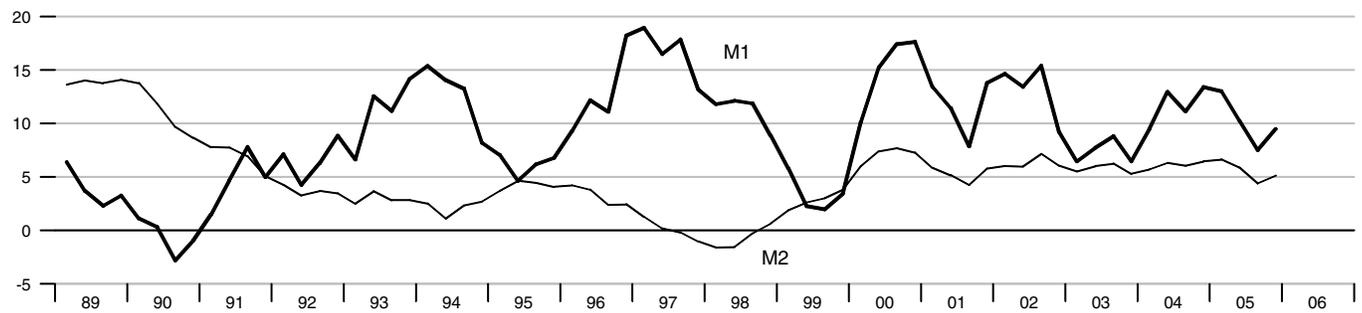
Reserve Money

Percent change from year ago



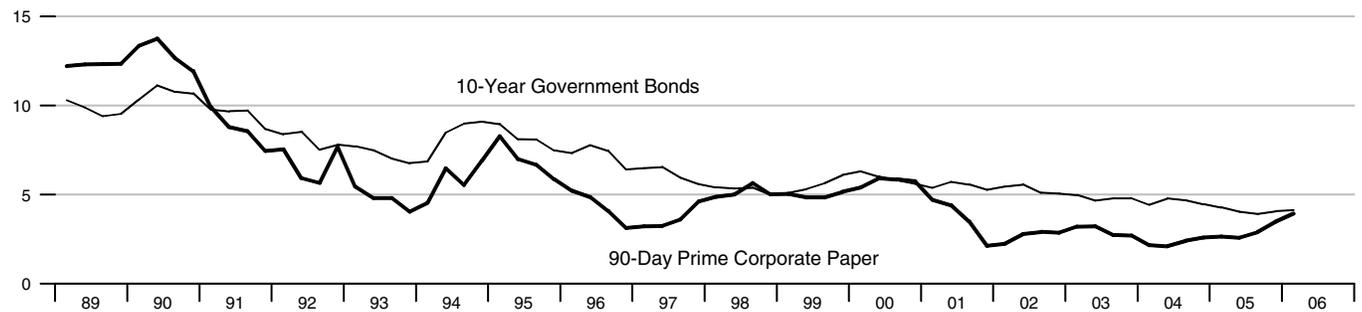
Monetary Aggregates

Percent change from year ago



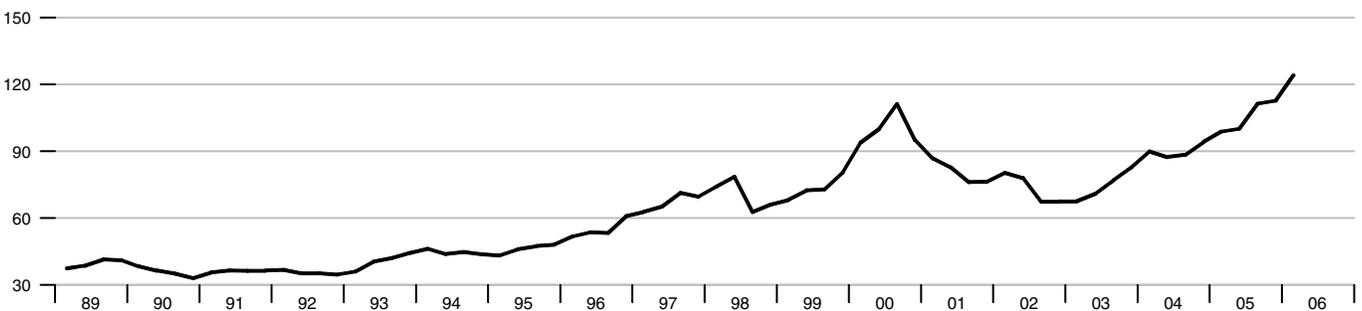
Interest Rates

Percent



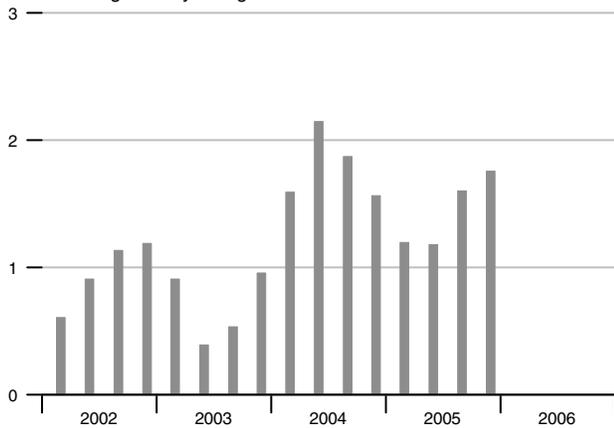
Stock Exchange Index - Toronto Stock Exchange

2000 = 100



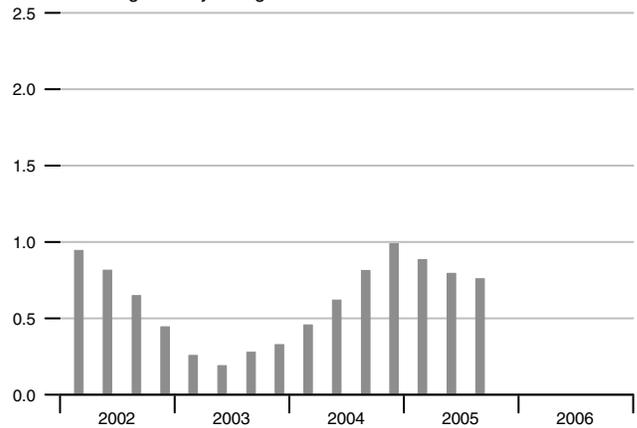
Real GDP

Percent change from year ago



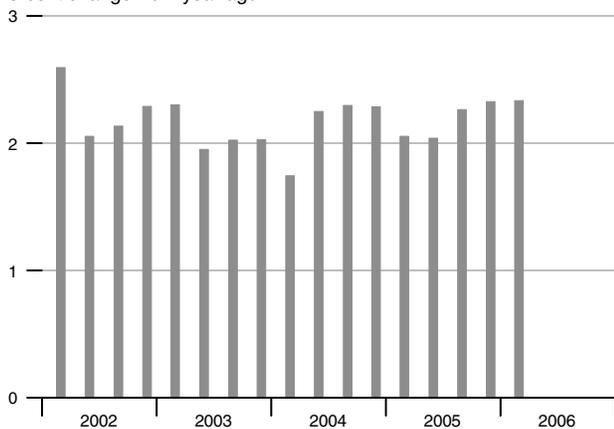
Employment

Percent change from year ago



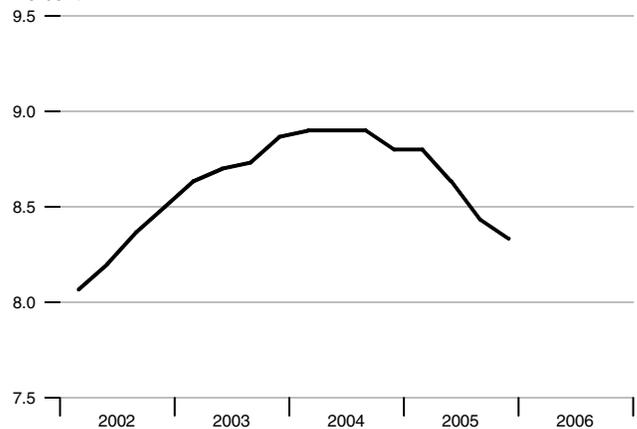
Consumer Price Index

Percent change from year ago



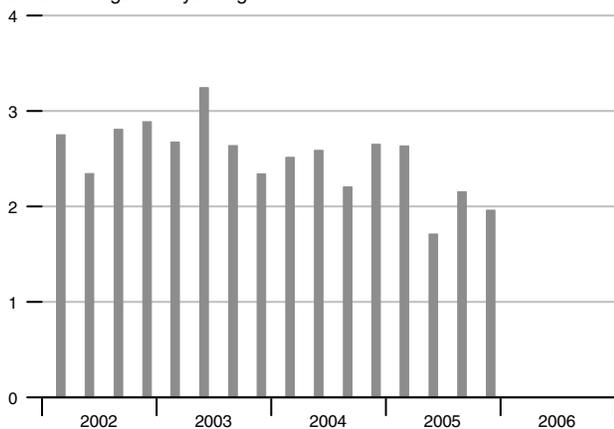
Unemployment Rate

Percent



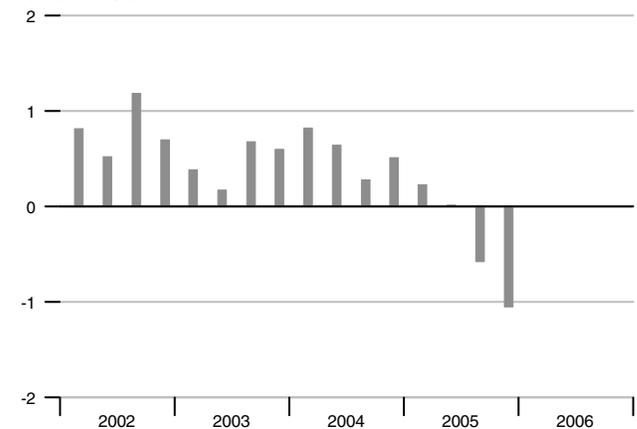
Hourly Earnings

Percent change from year ago*



Current Account Balance

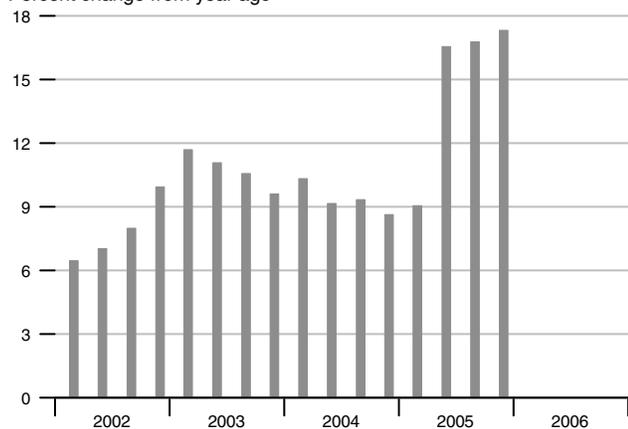
Percent of GDP



* Hourly earnings are seasonally adjusted.

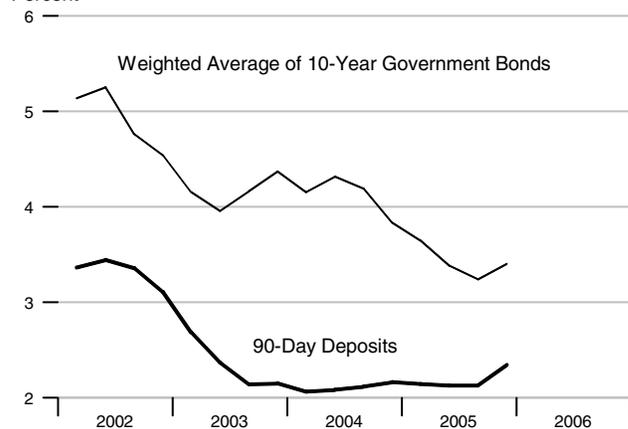
M1

Percent change from year ago



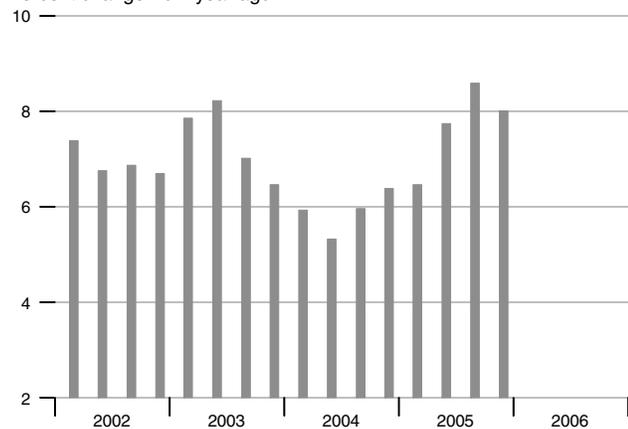
Interest Rates

Percent

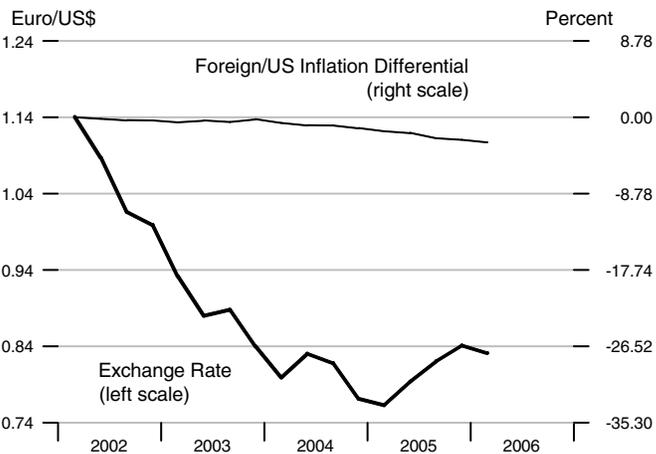


M3

Percent change from year ago

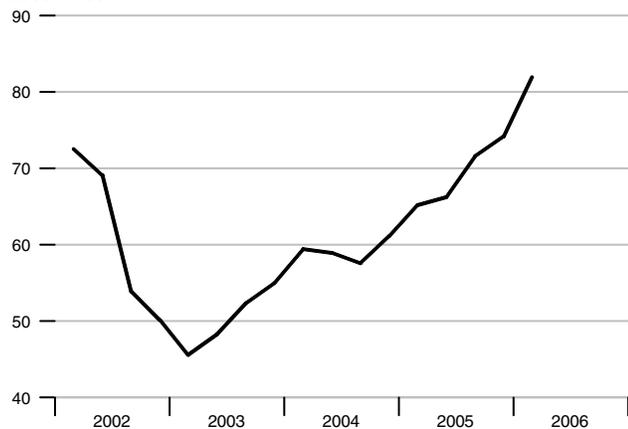


Exchange Rate and Inflation Differential



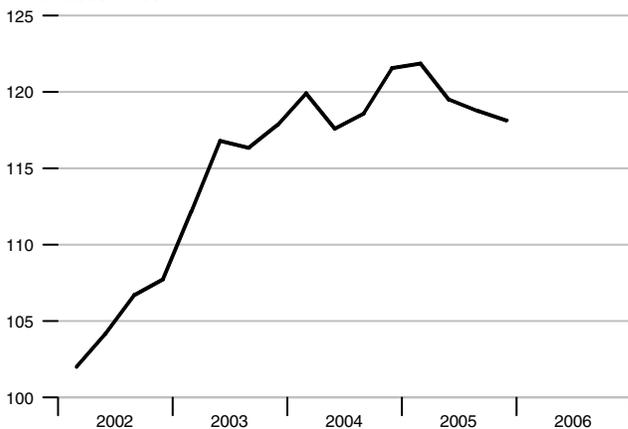
Stock Exchange Index - Dow Jones EURO STOXXSM

2000 = 100



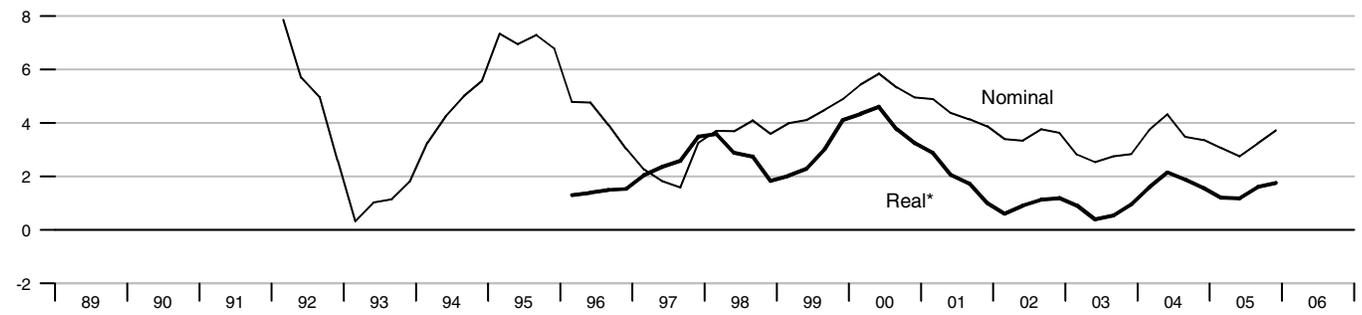
Real Effective Exchange Rate

Index 2000 = 100



GDP

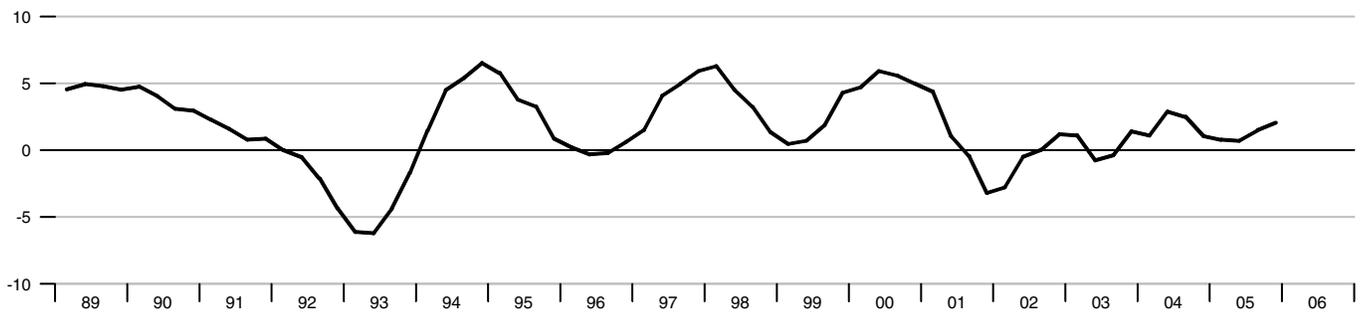
Percent change from year ago



* EUROSTAT has recently changed how it calculates GDP. Data are currently available back to 1995 but will soon be revised back to 1991.

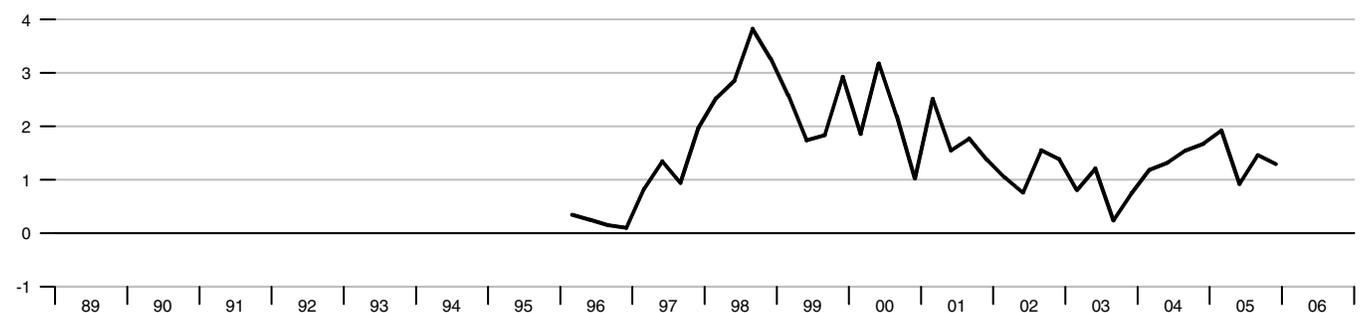
Industrial Production

Percent change from year ago



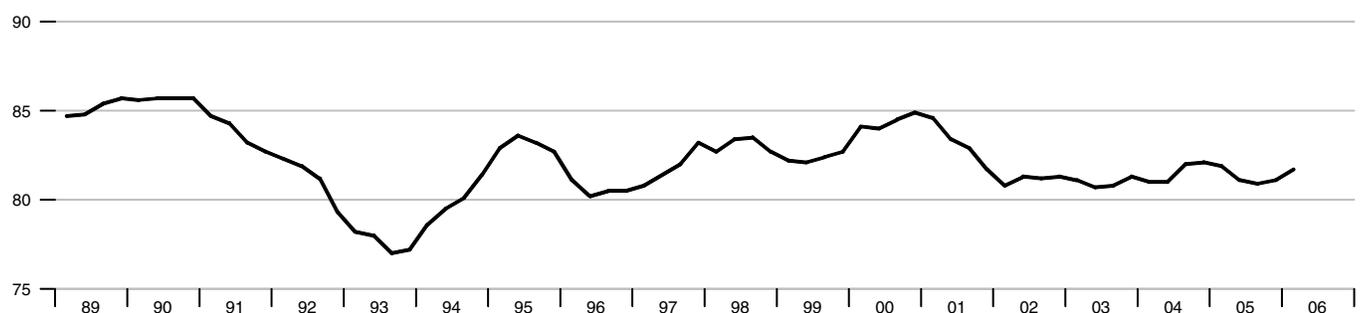
Retail Sales

Percent change from year ago

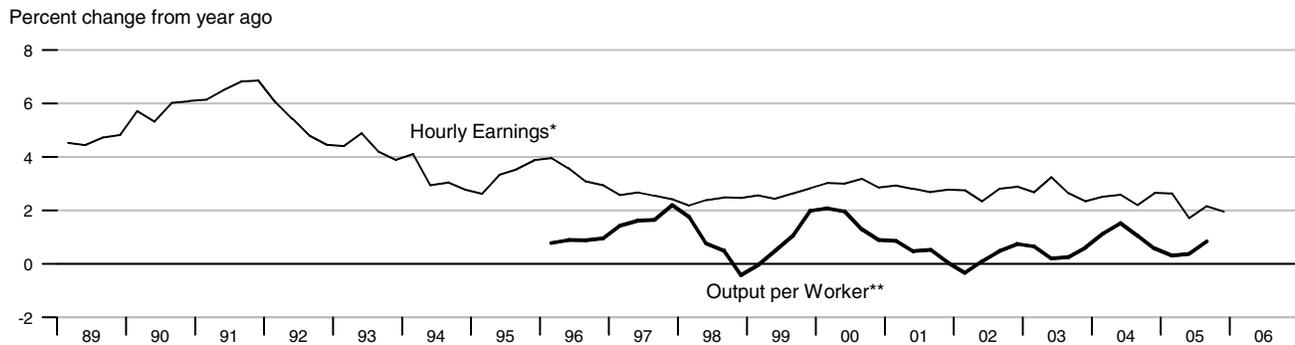


Capacity Utilization

Percent

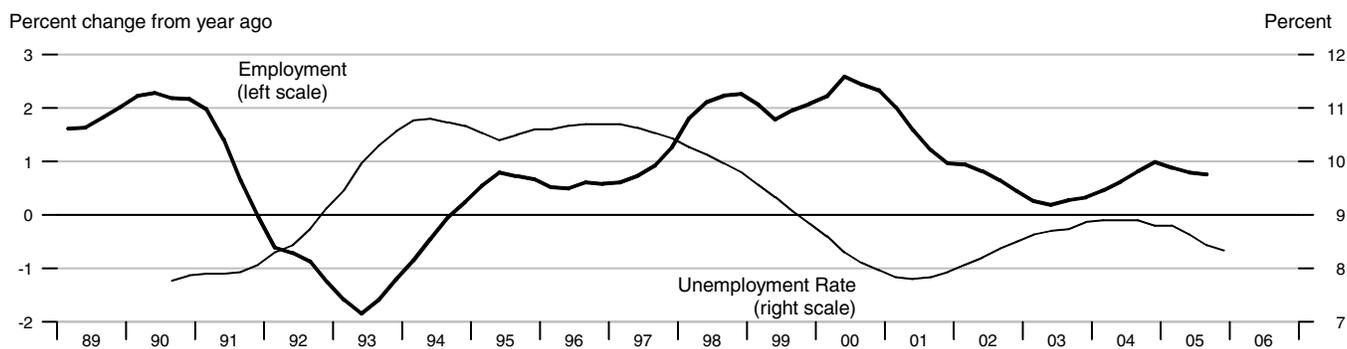


Hourly Earnings and Output per Worker

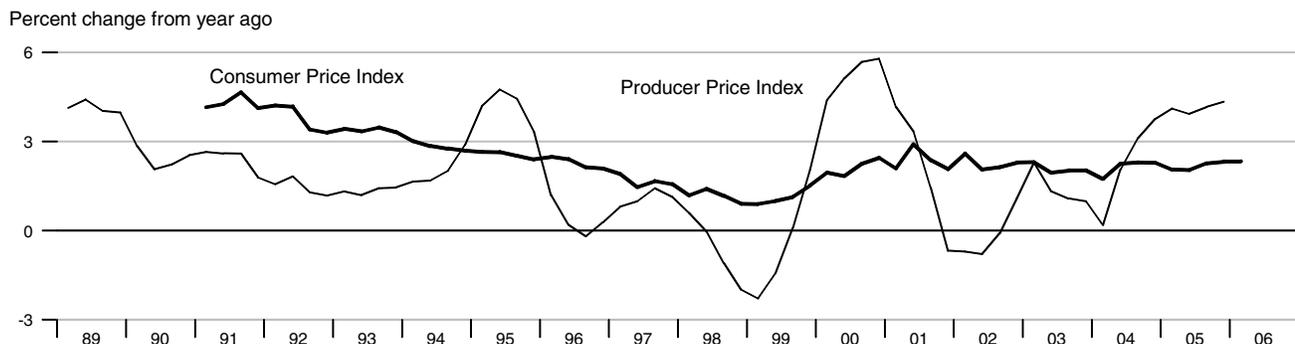


* Hourly earnings are seasonally adjusted. ** EUROSTAT is currently revising output data. Output per worker data are available only back to 1995.

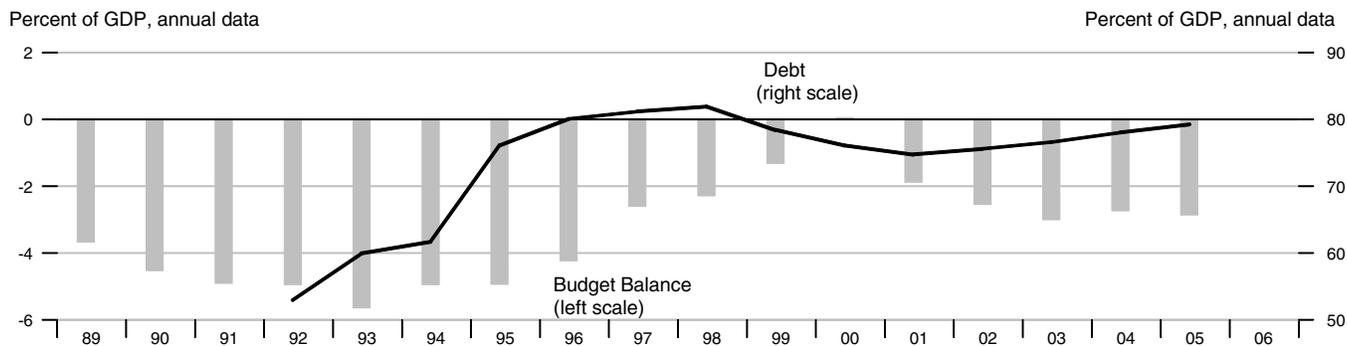
Labor Force Indicators



Inflation

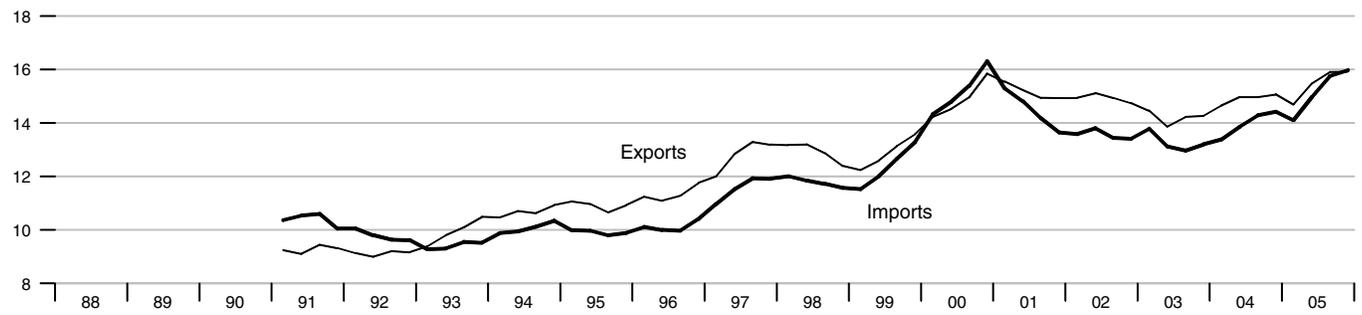


Government Debt and Budget Balance



International Trade - Goods

Percent of GDP



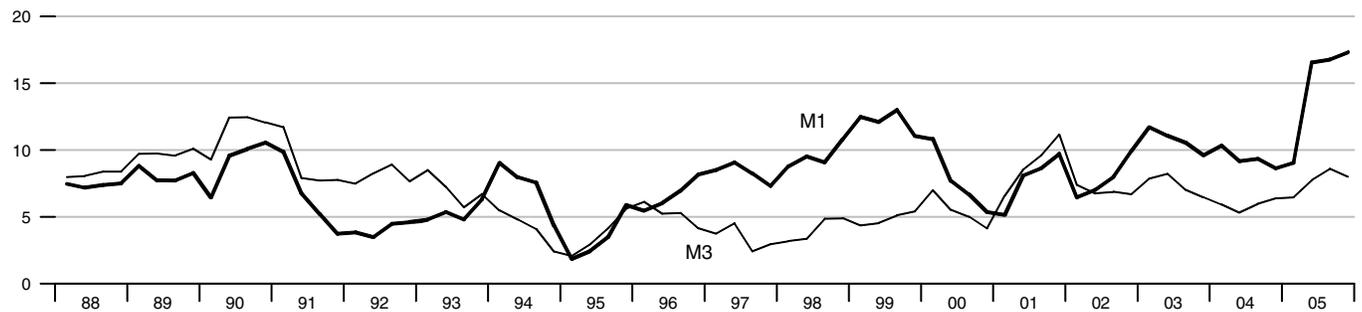
Real Effective Exchange Rate

Index 2000 = 100



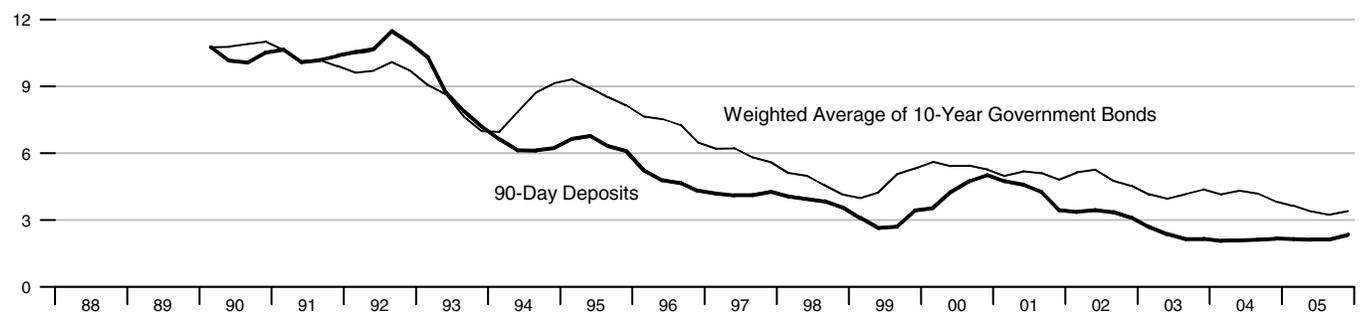
Monetary Aggregates

Percent change from year ago



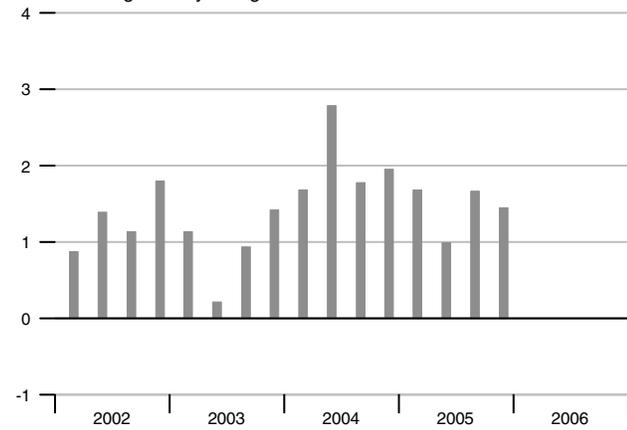
Interest Rates

Percent



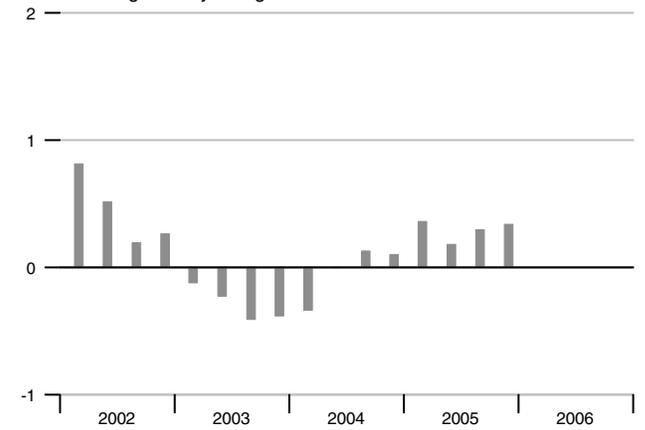
Real GDP

Percent change from year ago



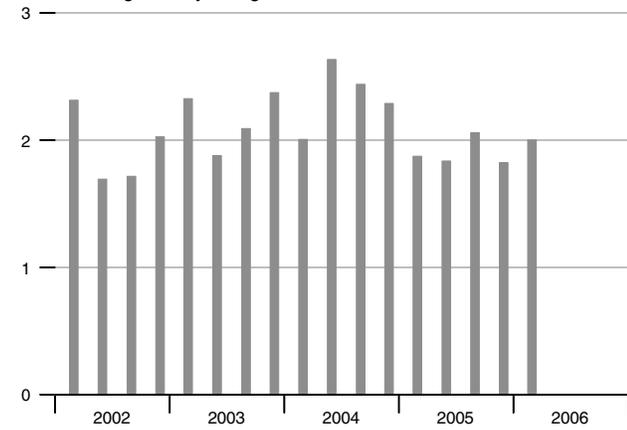
Employment

Percent change from year ago



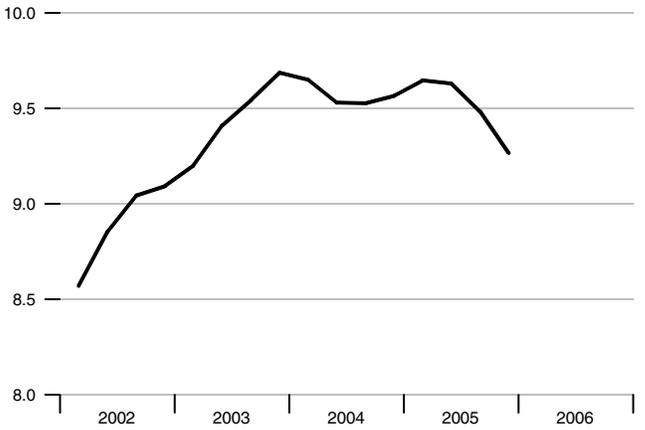
Consumer Price Index

Percent change from year ago



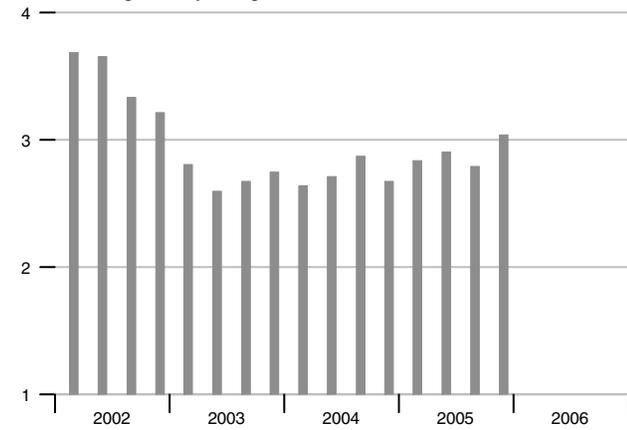
Unemployment Rate

Percent



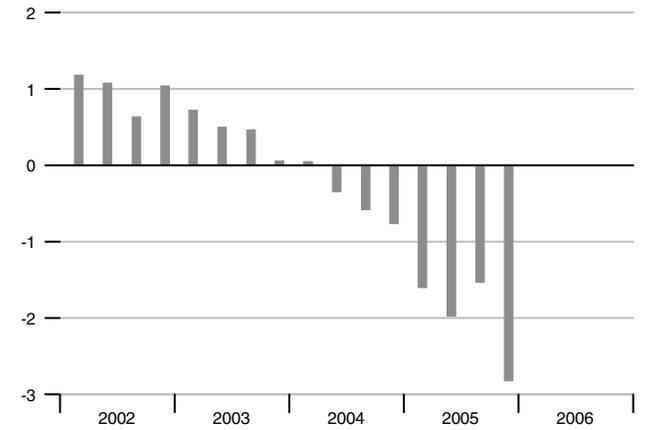
Hourly Earnings

Percent change from year ago*



Current Account Balance

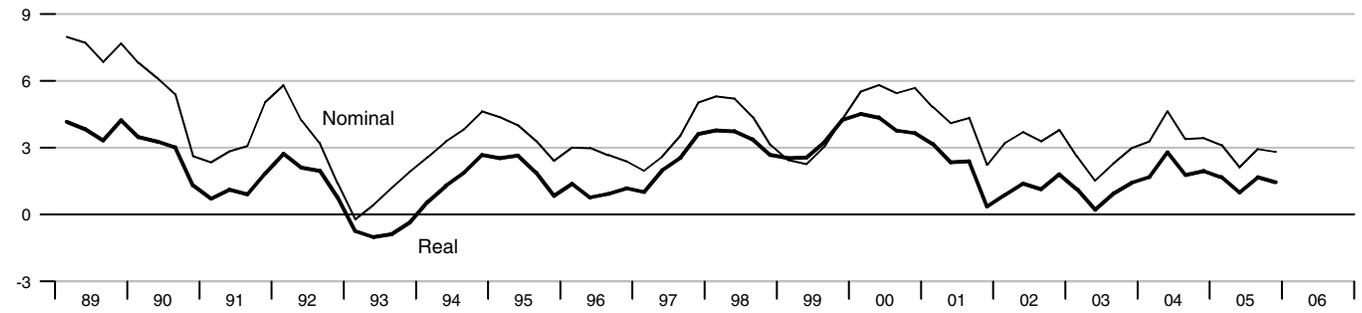
Percent of GDP



* Hourly earnings are seasonally adjusted.

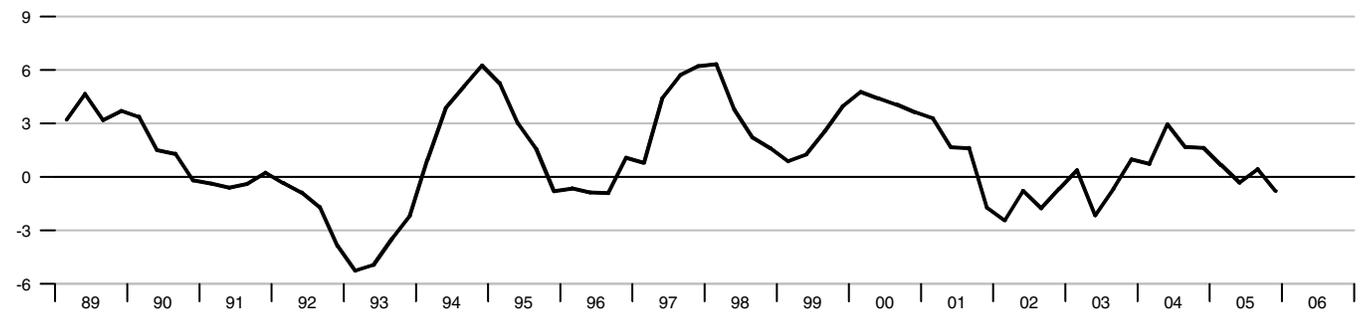
GDP

Percent change from year ago



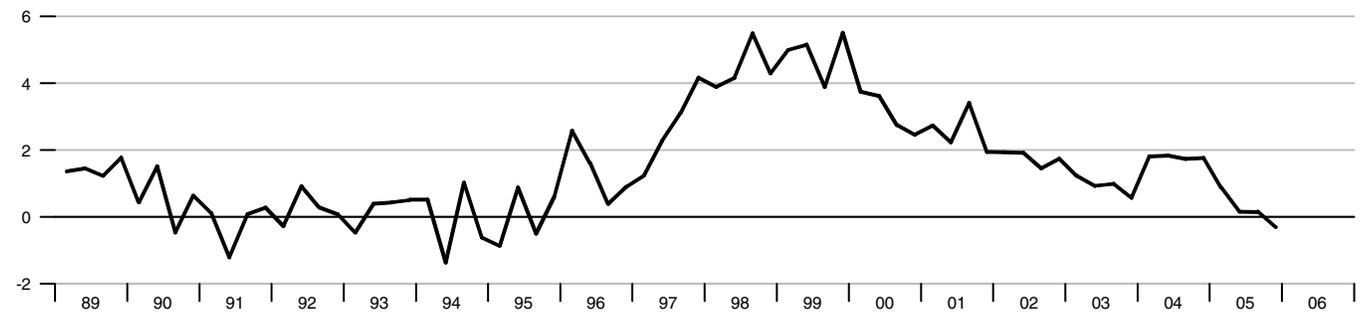
Industrial Production

Percent change from year ago



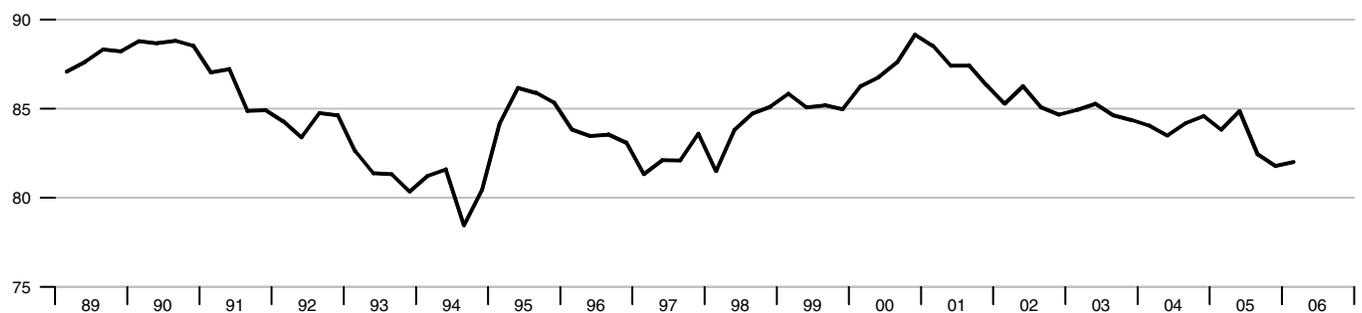
Retail Sales

Percent change from year ago



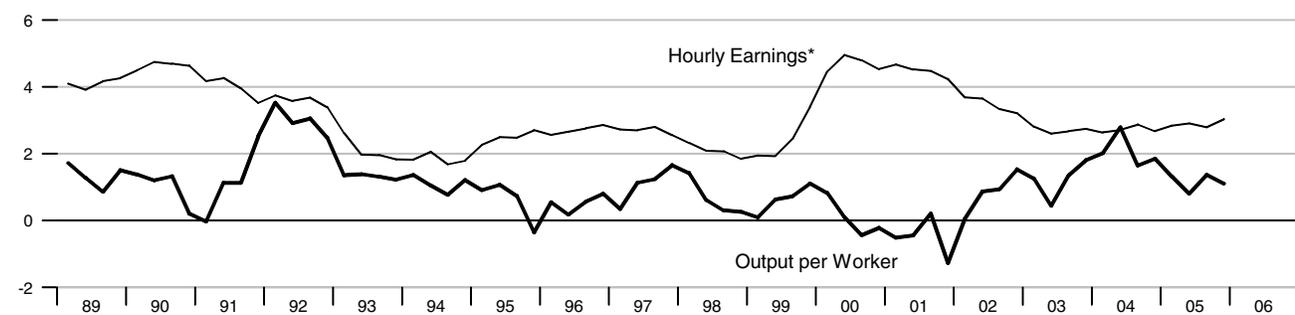
Capacity Utilization

Percent



Hourly Earnings and Output per Worker

Percent change from year ago

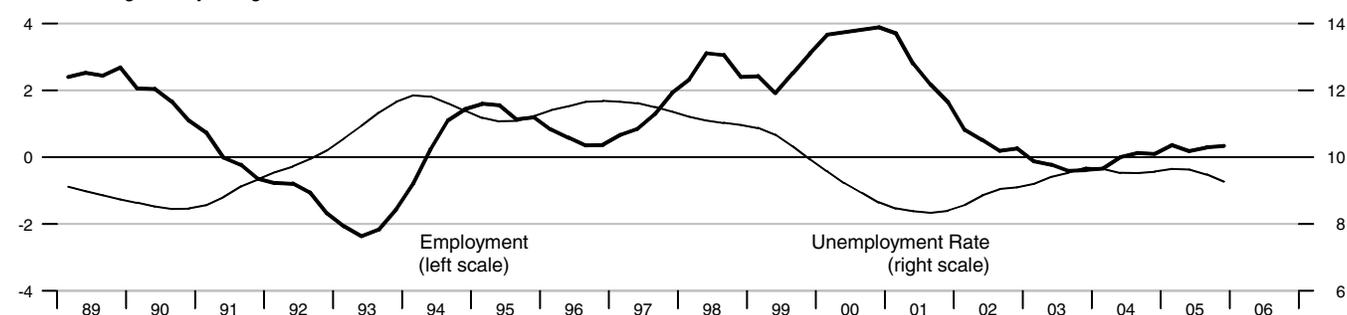


* Hourly earnings are seasonally adjusted.

Labor Force Indicators

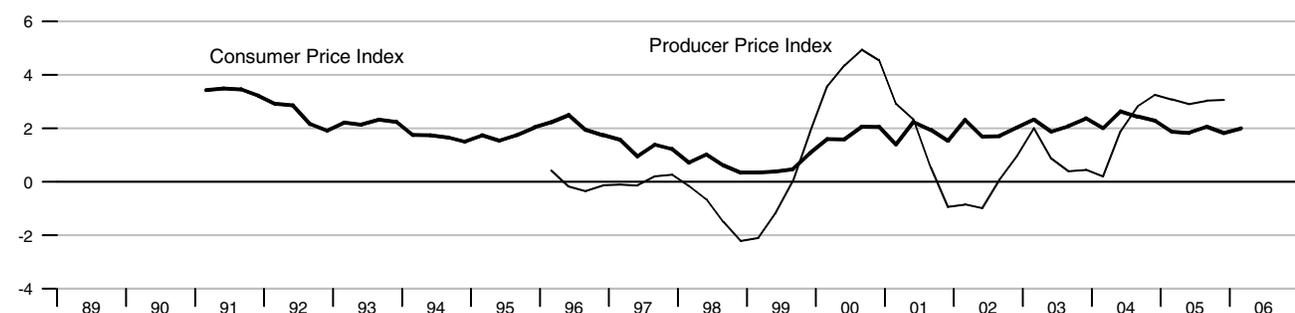
Percent change from year ago

Percent



Inflation

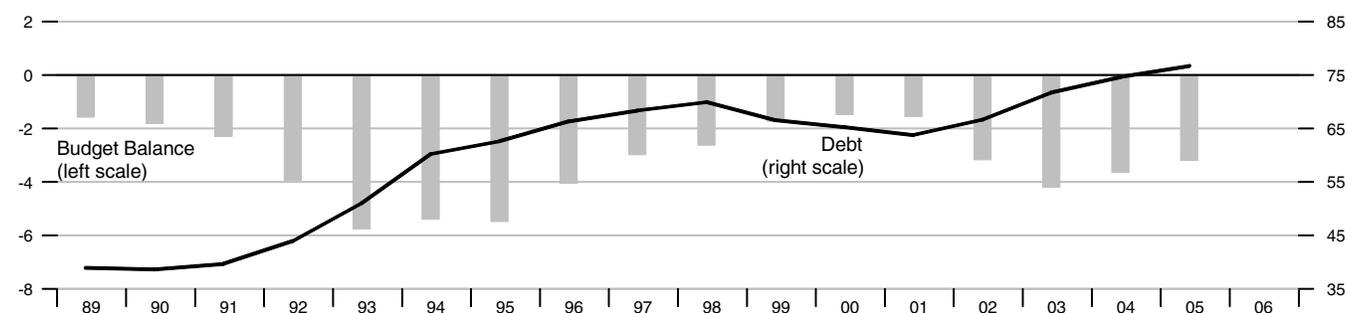
Percent change from year ago



Government Debt and Budget Balance

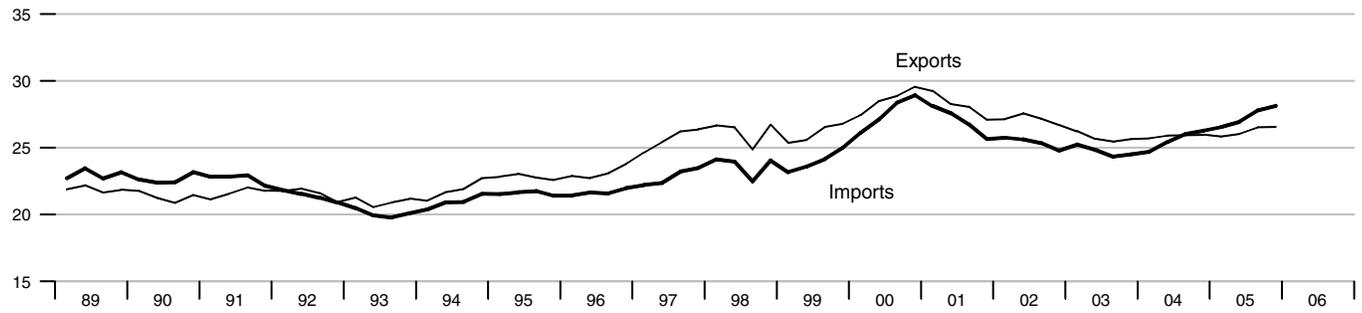
Percent of GDP, annual data

Percent of GDP, annual data



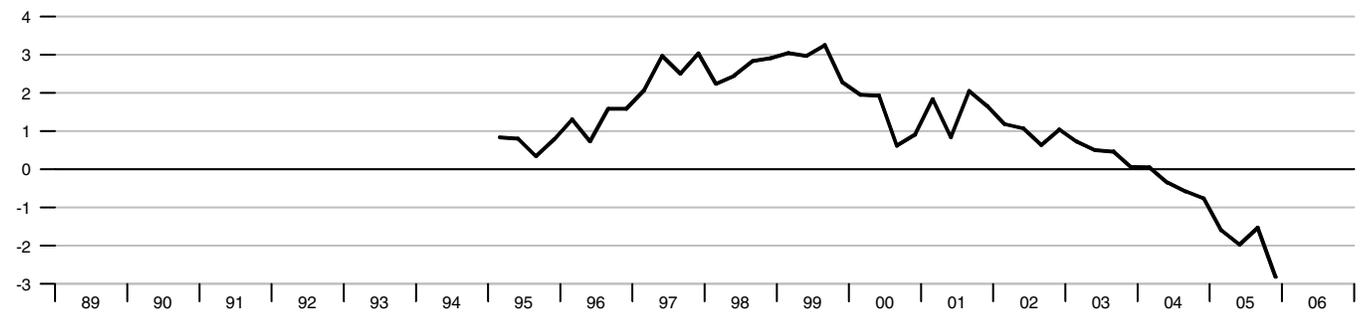
International Trade - Goods and Services

Percent of GDP



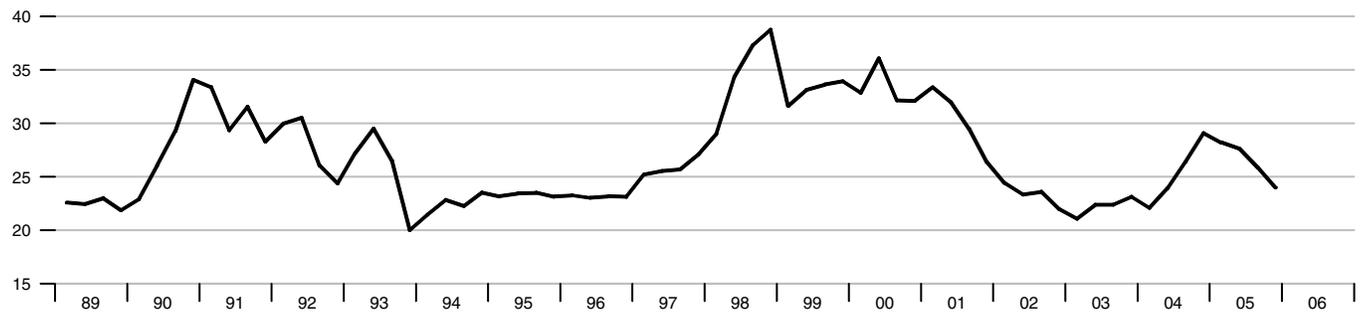
Current Account Balance

Percent of GDP



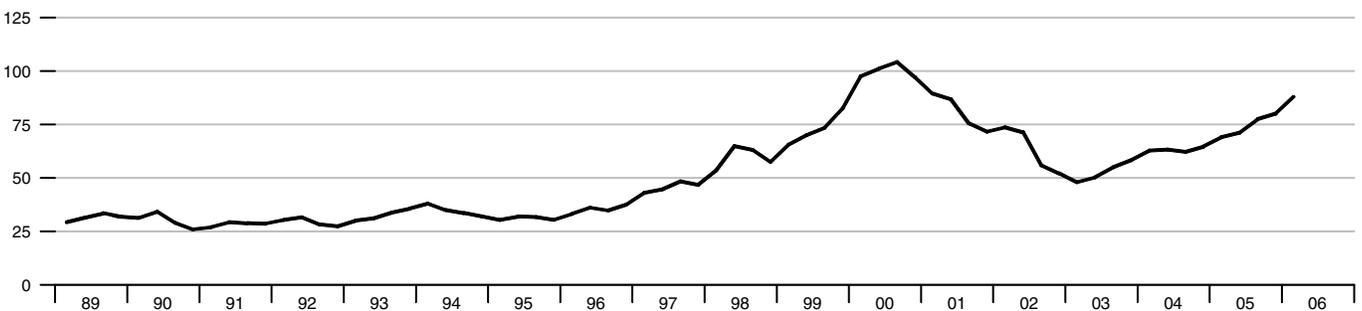
Foreign Exchange Reserves

Billions of US\$



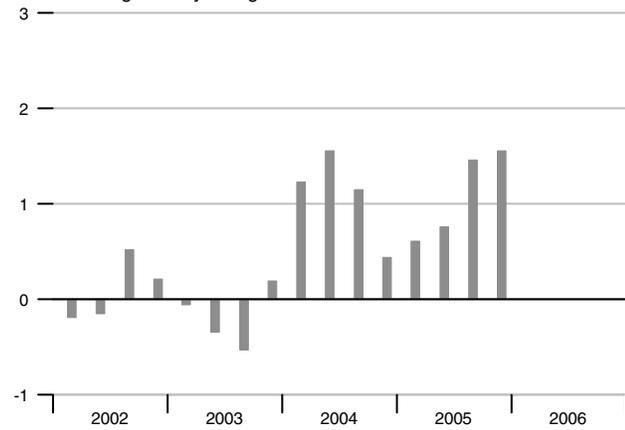
Stock Exchange Index - SBF 250

2000 = 100



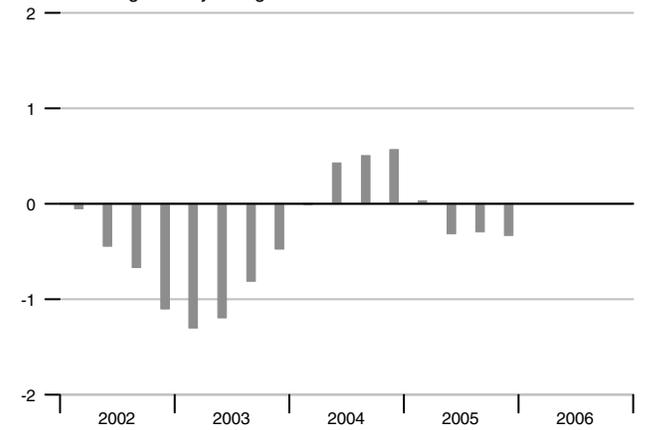
Real GDP

Percent change from year ago



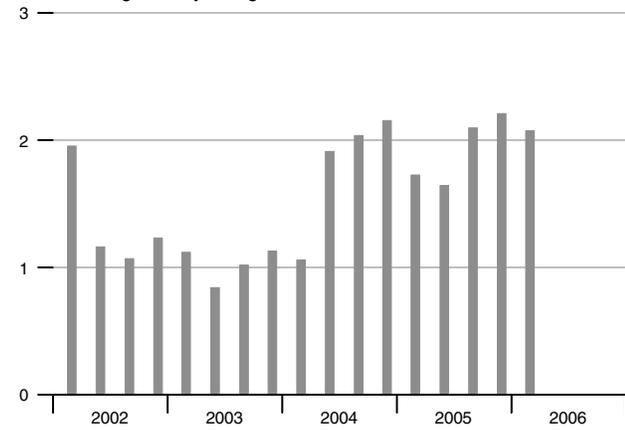
Employment

Percent change from year ago



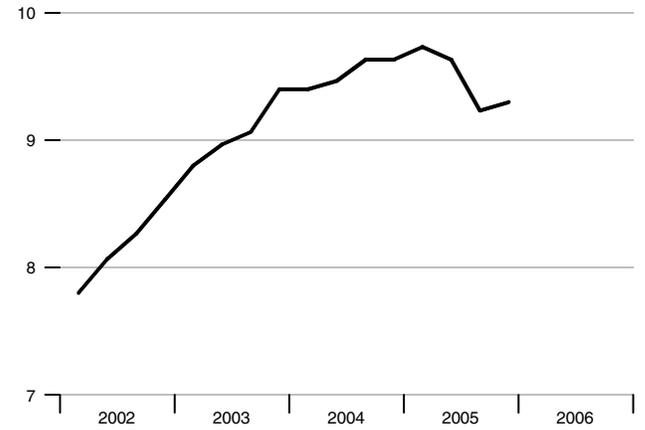
Consumer Price Index

Percent change from year ago



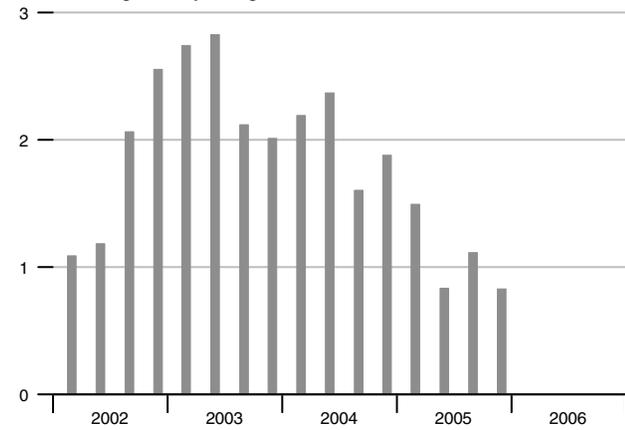
Unemployment Rate

Percent



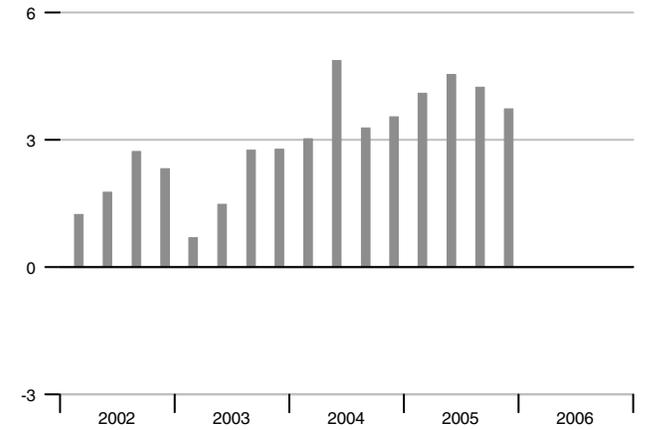
Hourly Earnings

Percent change from year ago*



Current Account Balance

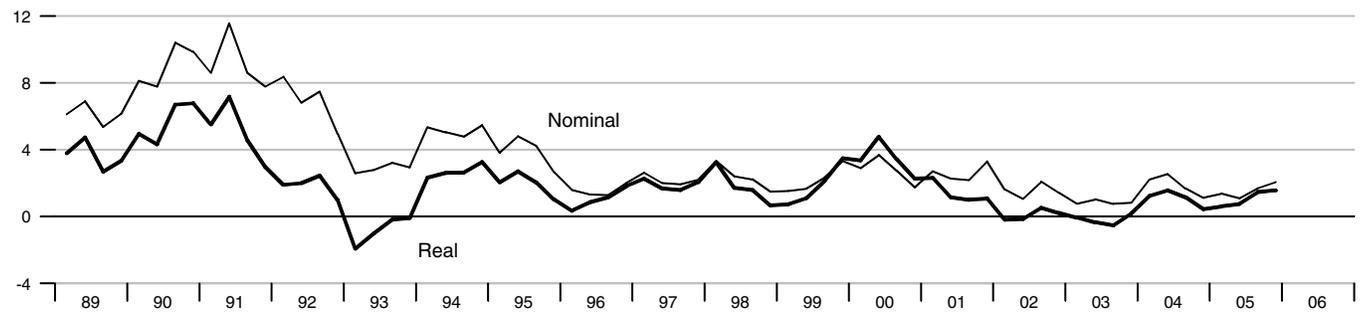
Percent of GDP



* Hourly earnings are seasonally adjusted.

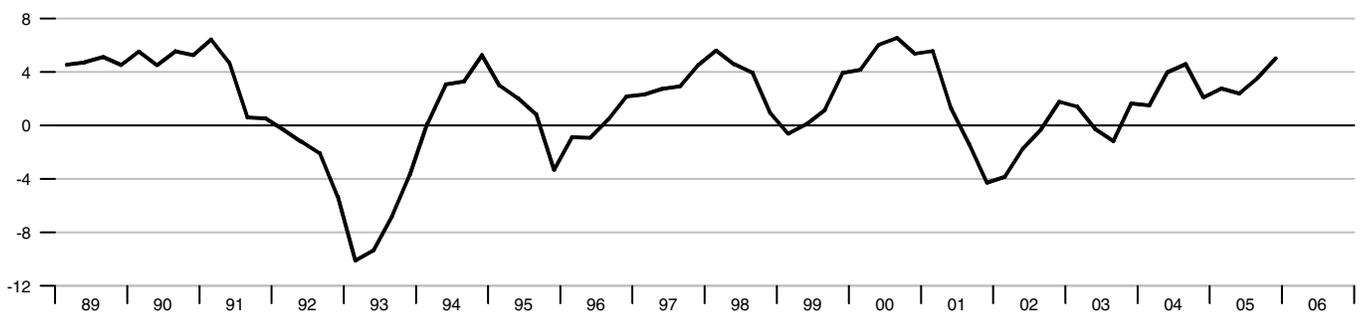
GDP

Percent change from year ago



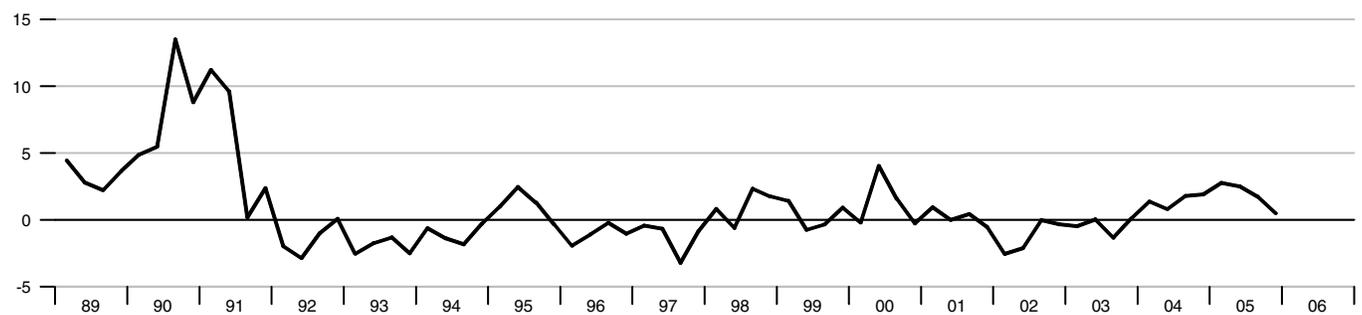
Industrial Production

Percent change from year ago



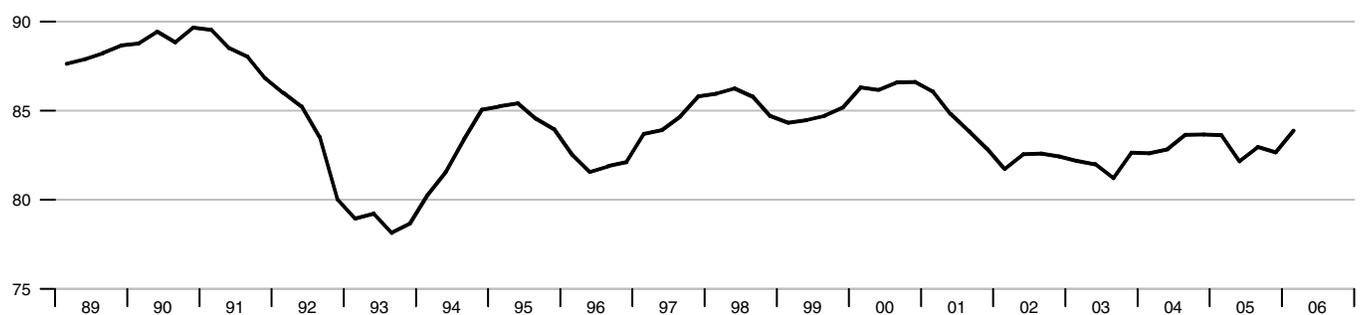
Retail Sales

Percent change from year ago



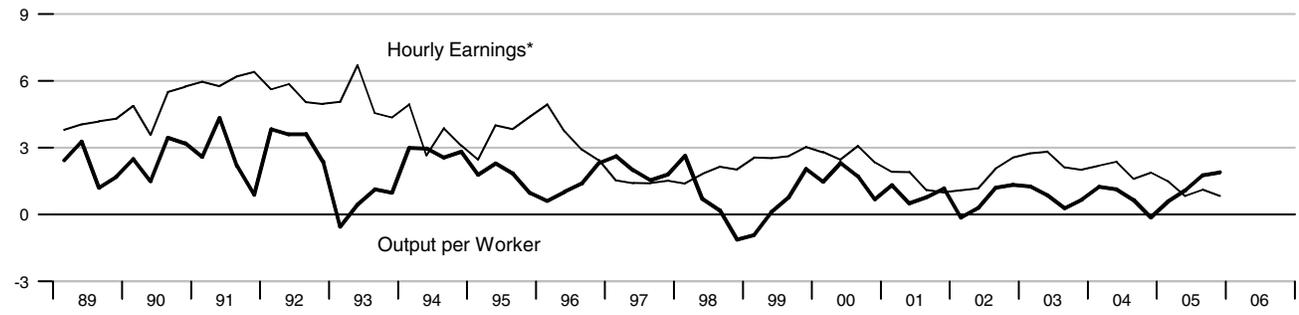
Capacity Utilization

Percent



Hourly Earnings and Output per Worker

Percent change from year ago

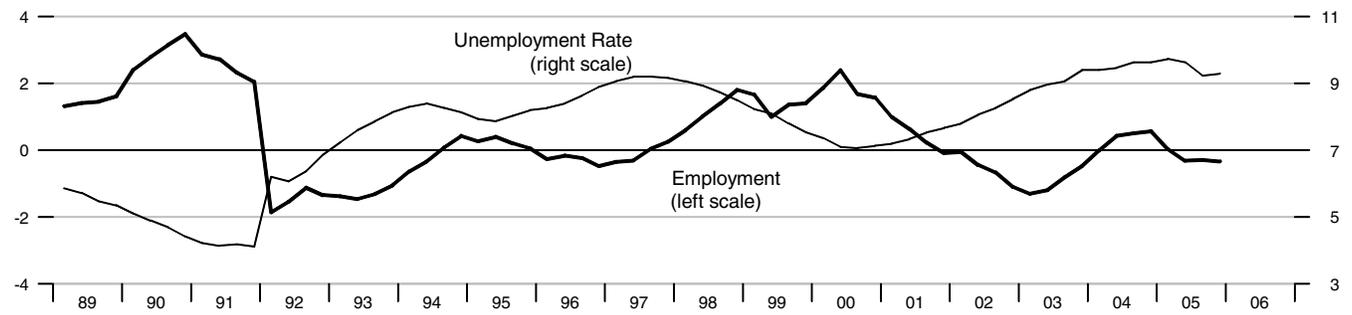


* Hourly earnings are seasonally adjusted.

Labor Force Indicators

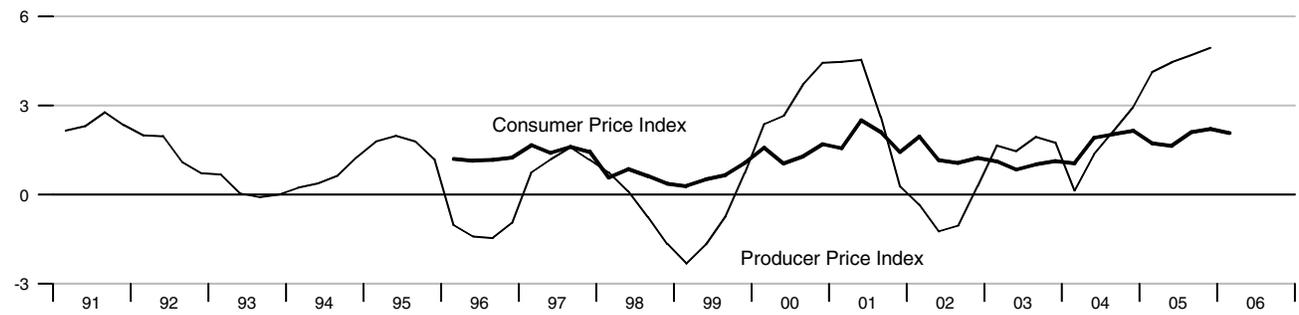
Percent change from year ago

Percent



Inflation

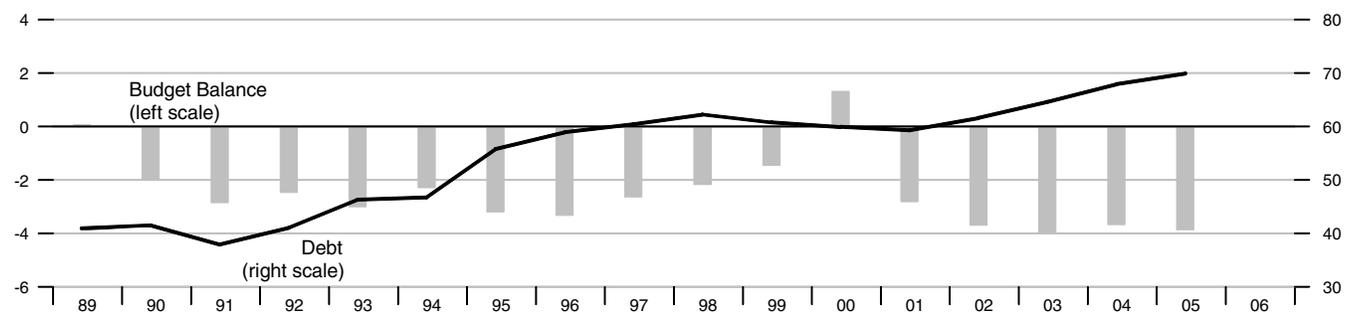
Percent change from year ago



Government Debt and Budget Balance

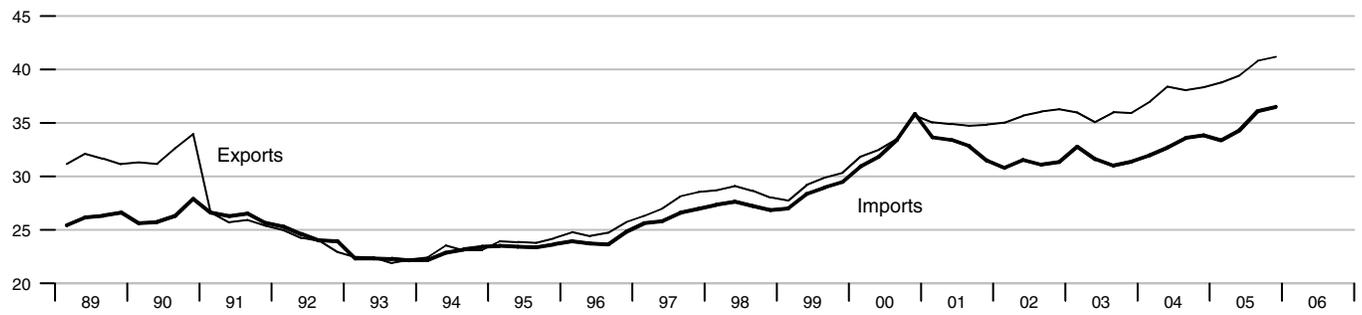
Percent of GDP, annual data

Percent of GDP, annual data



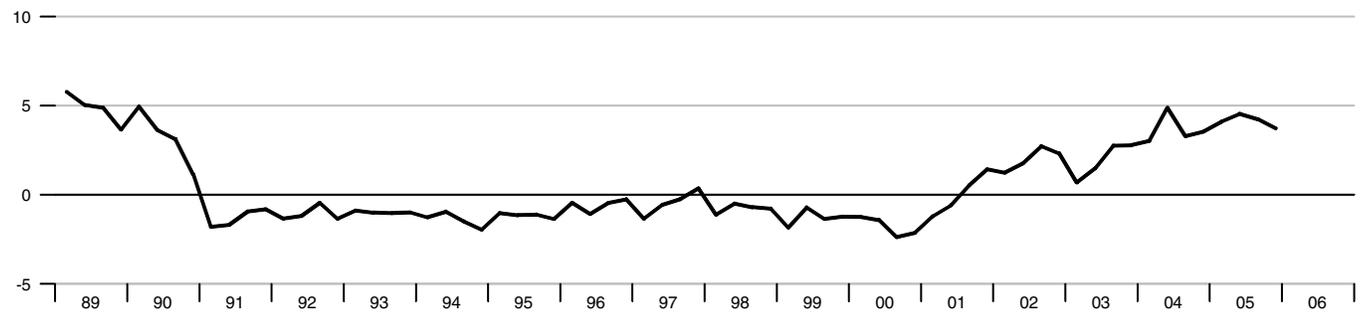
International Trade - Goods and Services

Percent of GDP



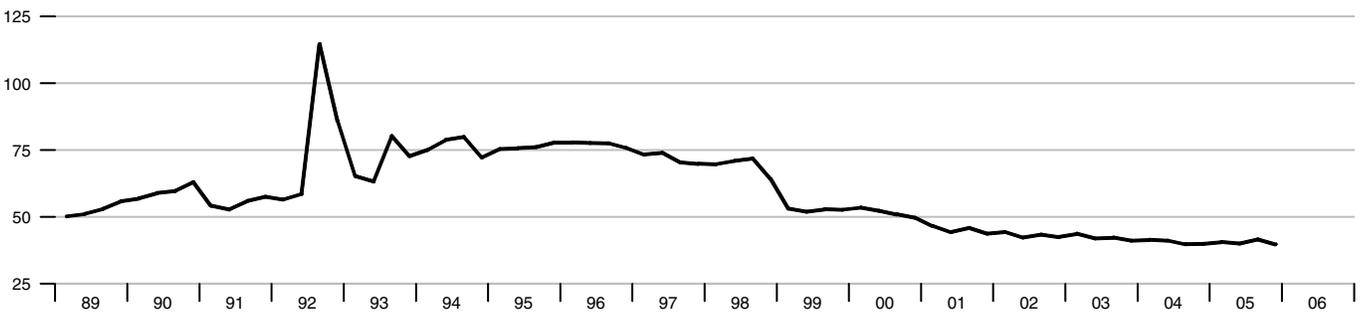
Current Account Balance

Percent of GDP



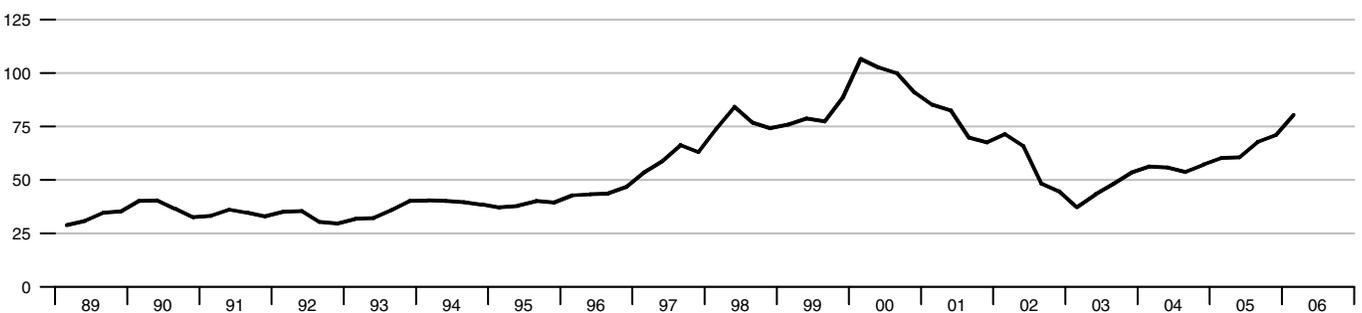
Foreign Exchange Reserves

Billions of US\$



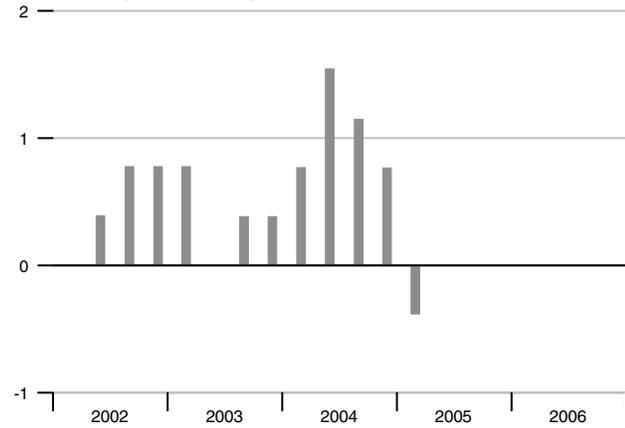
Stock Exchange Index - CDAX

2000 = 100



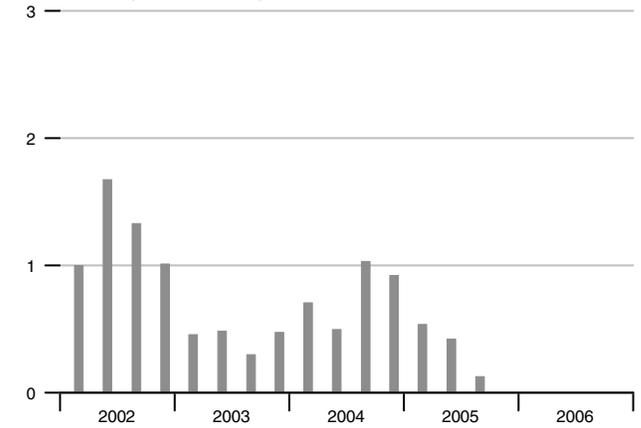
Real GDP

Percent change from year ago



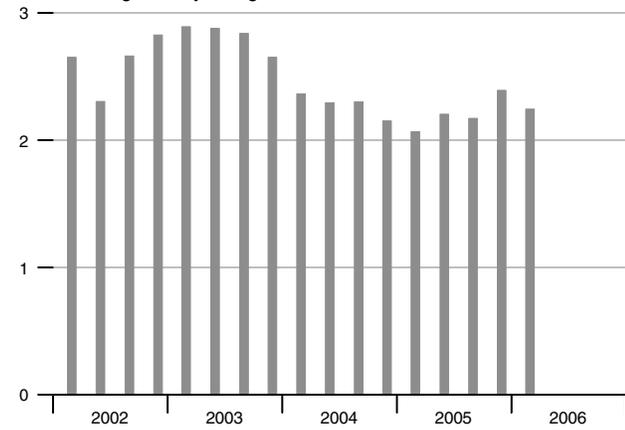
Employment

Percent change from year ago



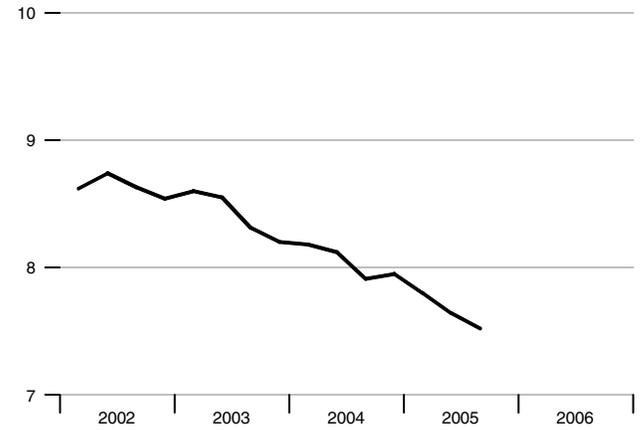
Consumer Price Index

Percent change from year ago



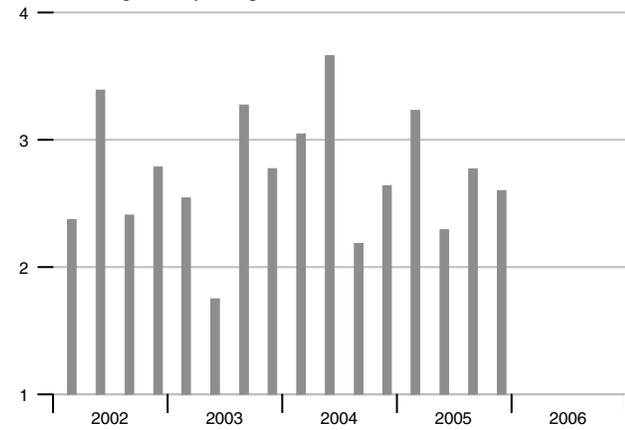
Unemployment Rate

Percent



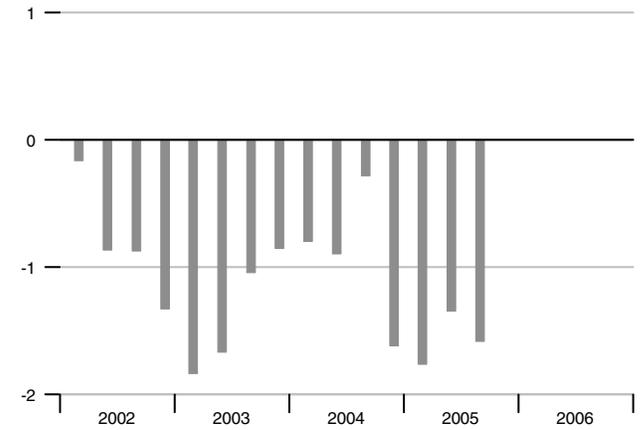
Hourly Earnings

Percent change from year ago*



Current Account Balance

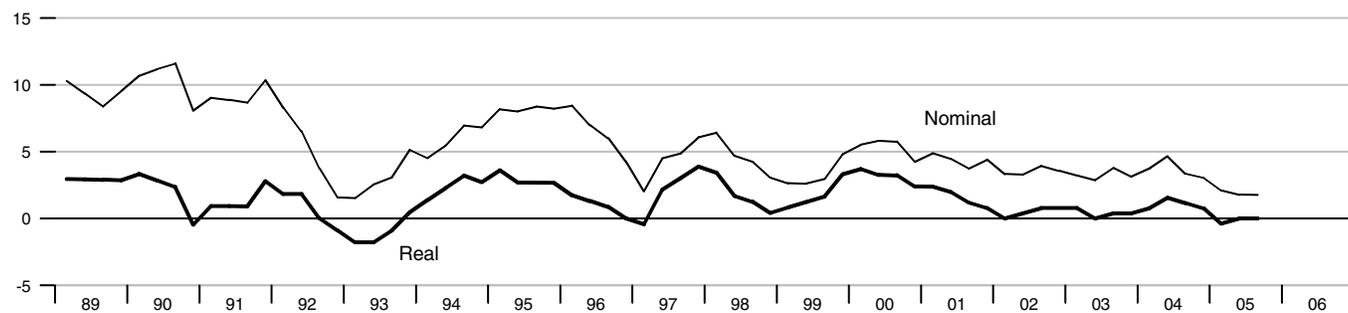
Percent of GDP



* Hourly earnings are seasonally adjusted.

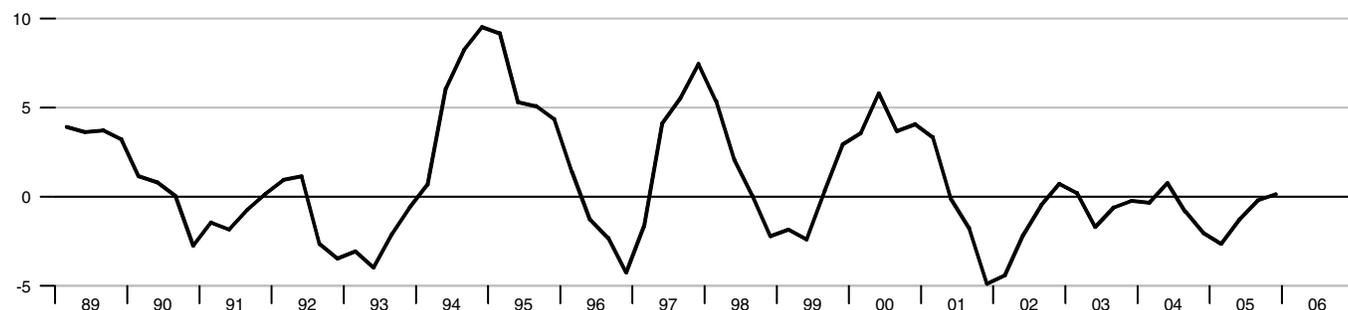
GDP

Percent change from year ago



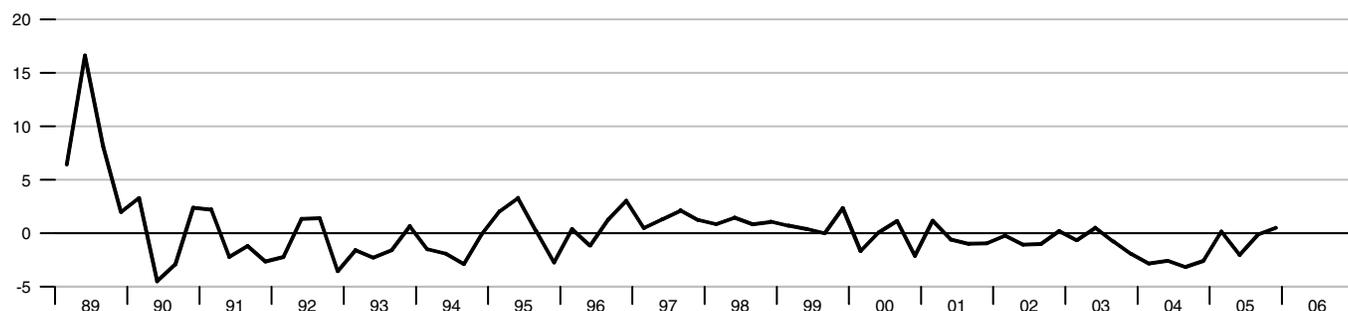
Industrial Production

Percent change from year ago



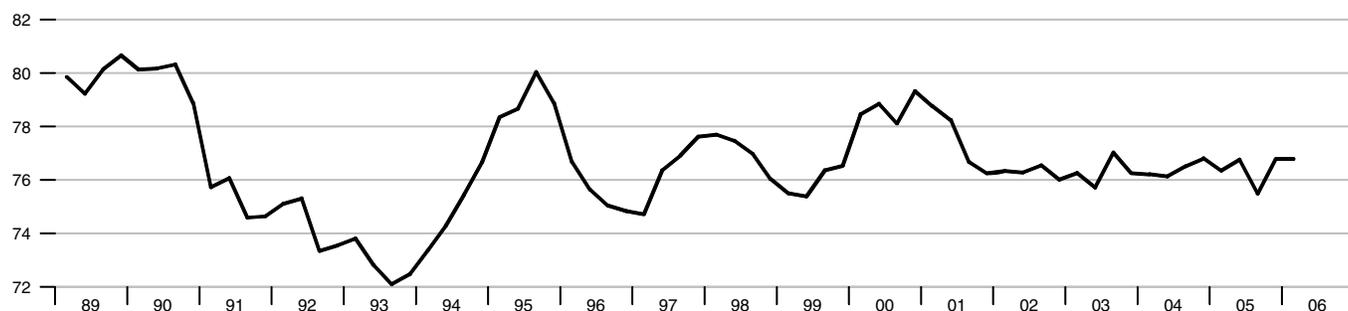
Retail Sales

Percent change from year ago



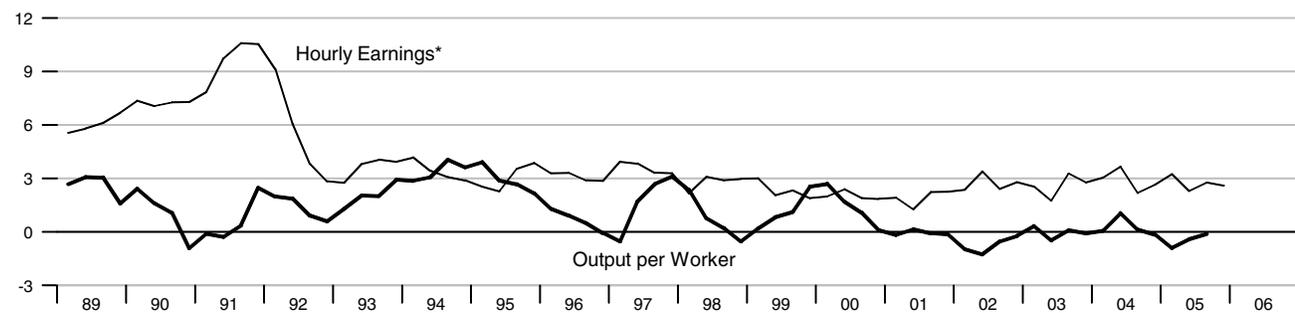
Capacity Utilization

Percent



Hourly Earnings and Output per Worker

Percent change from year ago

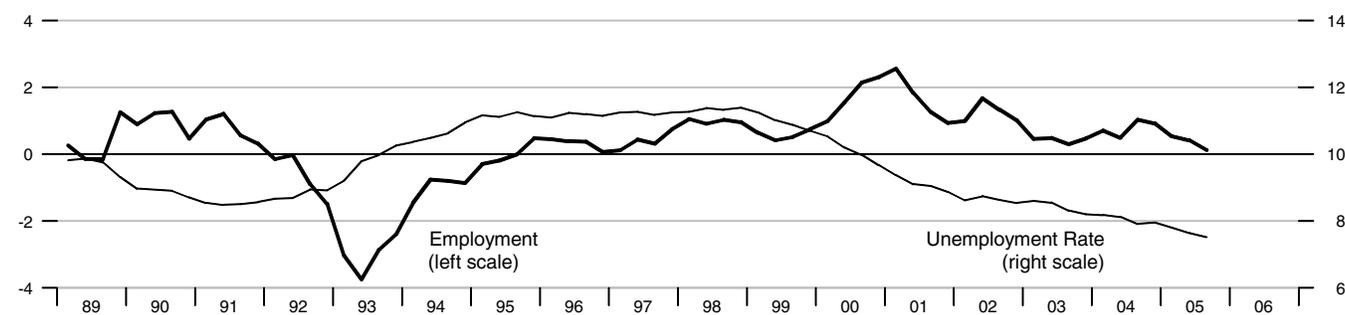


* Hourly earnings are seasonally adjusted.

Labor Force Indicators

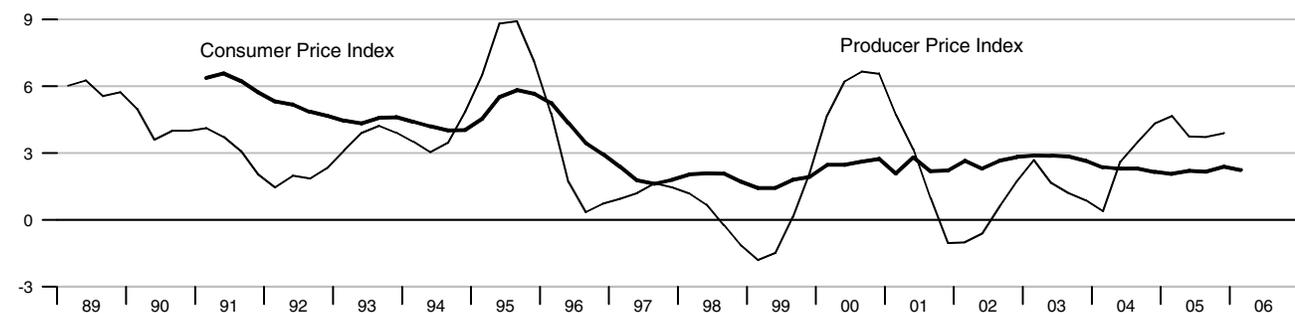
Percent change from year ago

Percent



Inflation

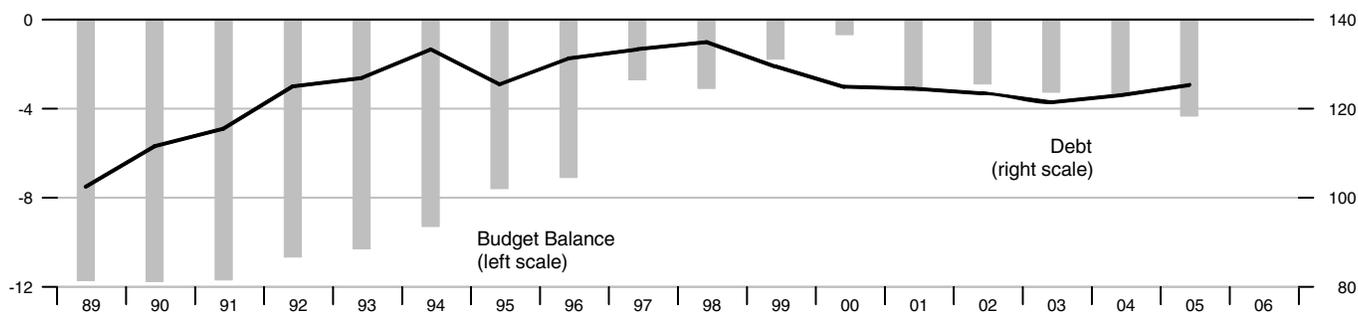
Percent change from year ago



Government Debt and Budget Balance

Percent of GDP, annual data

Percent of GDP, annual data



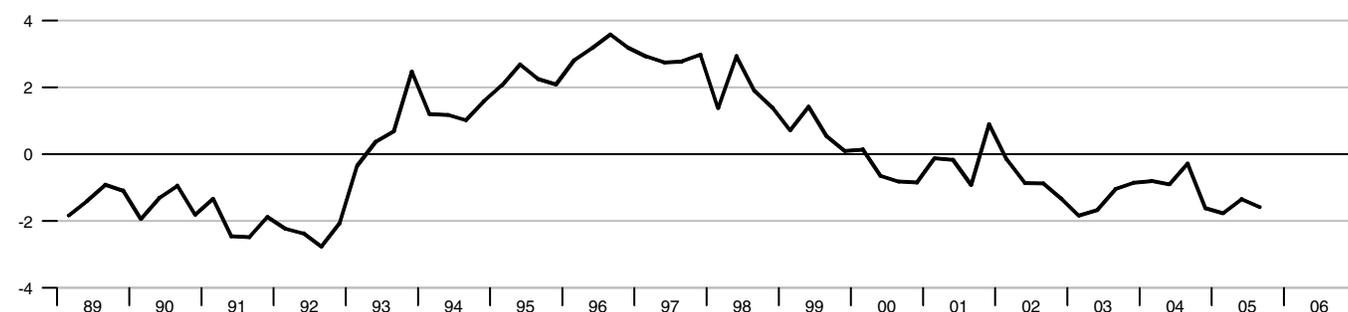
International Trade - Goods and Services

Percent of GDP



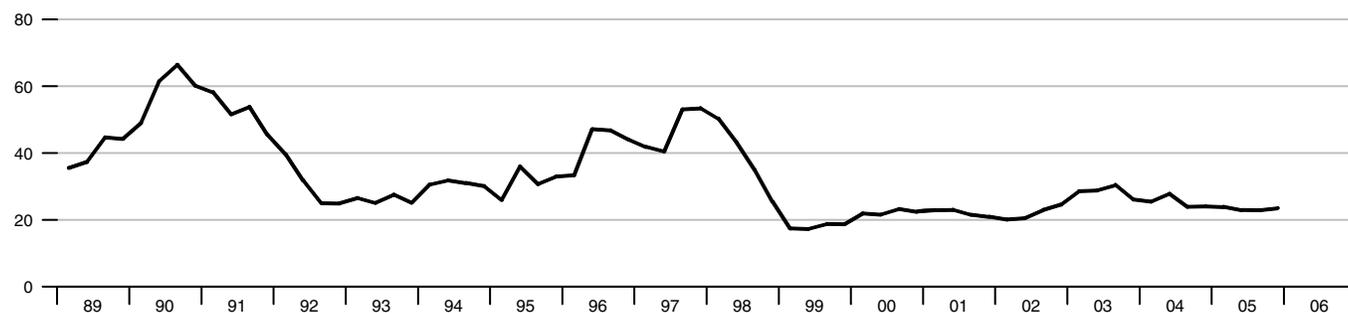
Current Account Balance

Percent of GDP



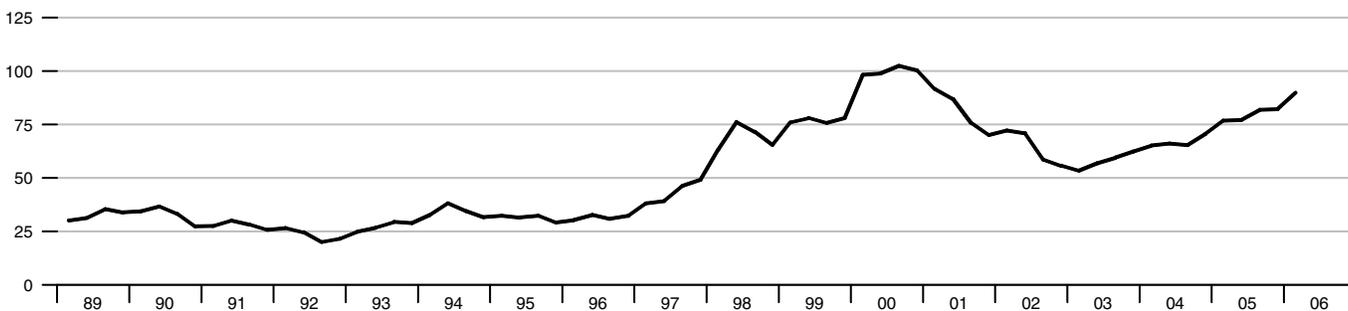
Foreign Exchange Reserves

Billions of US\$



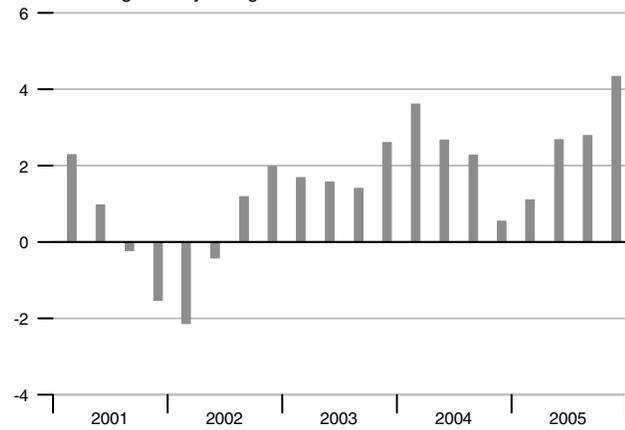
Stock Exchange Index - Milan Stock Exchange

2000 = 100



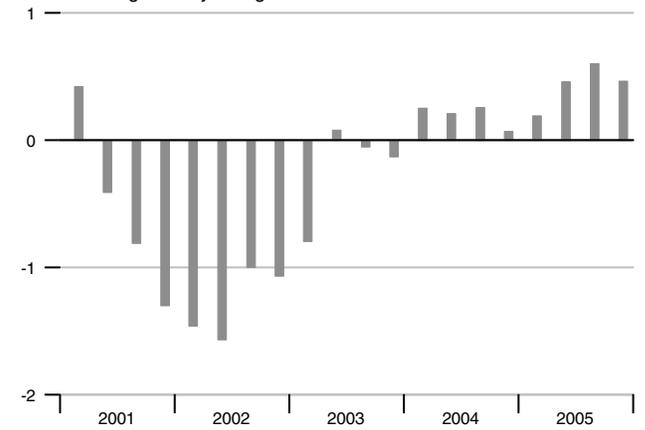
Real GDP

Percent change from year ago



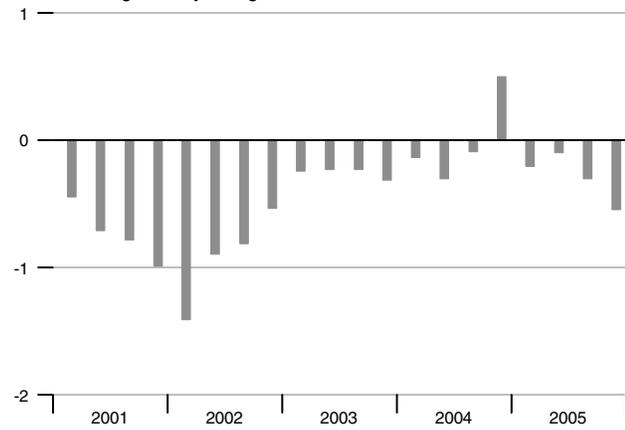
Employment

Percent change from year ago



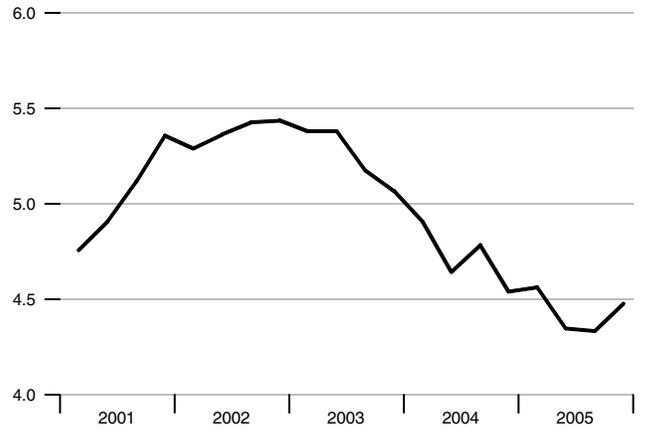
Consumer Price Index

Percent change from year ago



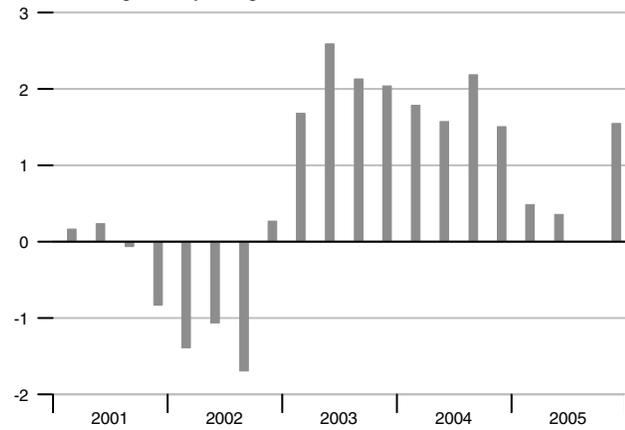
Unemployment Rate

Percent



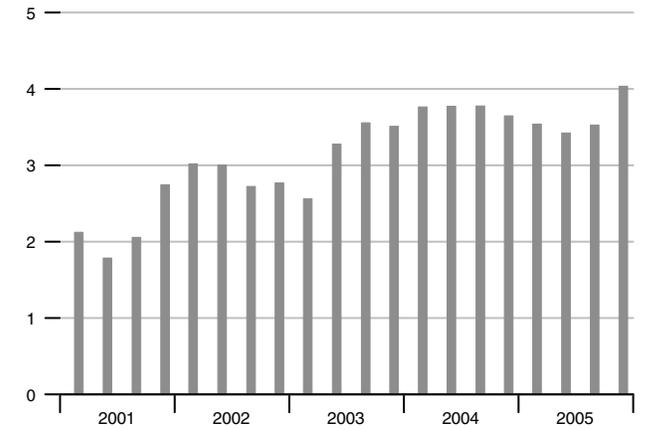
Monthly Earnings

Percent change from year ago*



Current Account Balance

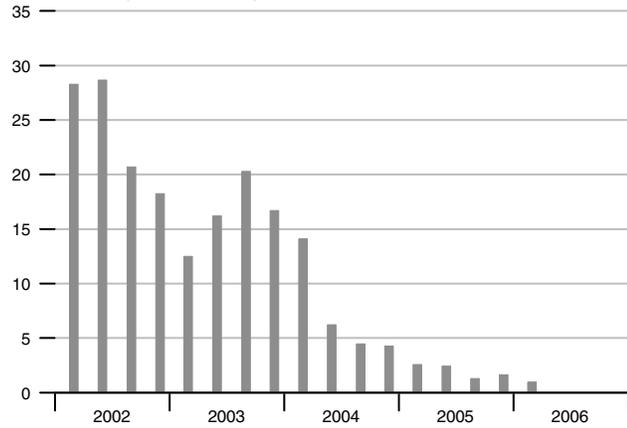
Percent of GDP



* Monthly earnings are seasonally adjusted.

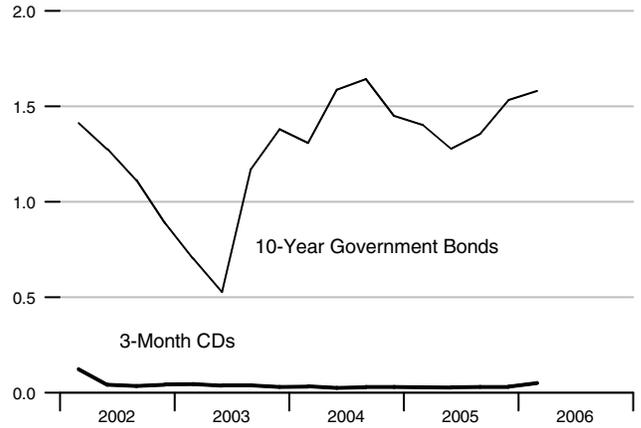
Adjusted Monetary Base

Percent change from year ago



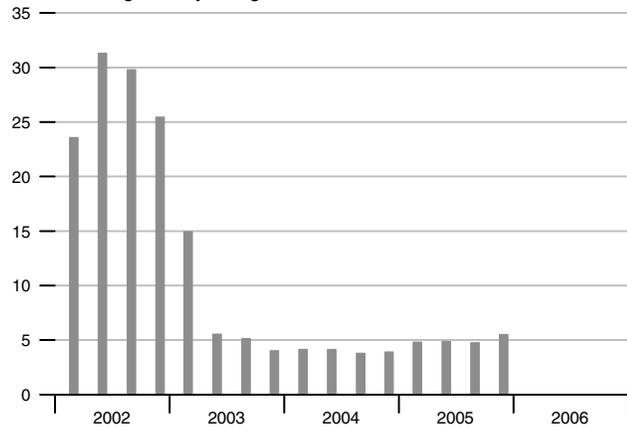
Interest Rates

Percent



M1

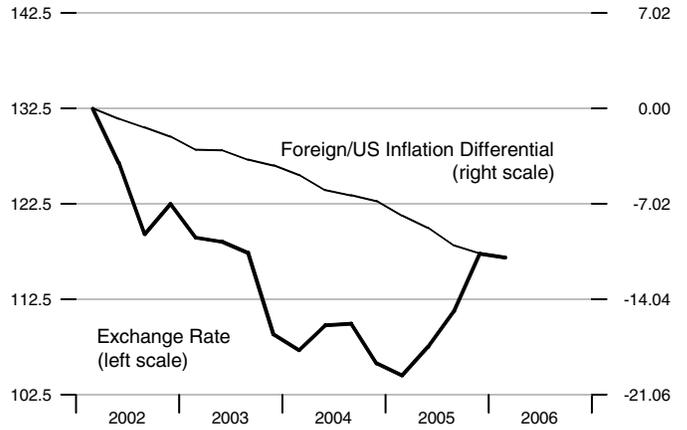
Percent change from year ago



Exchange Rate and Inflation Differential

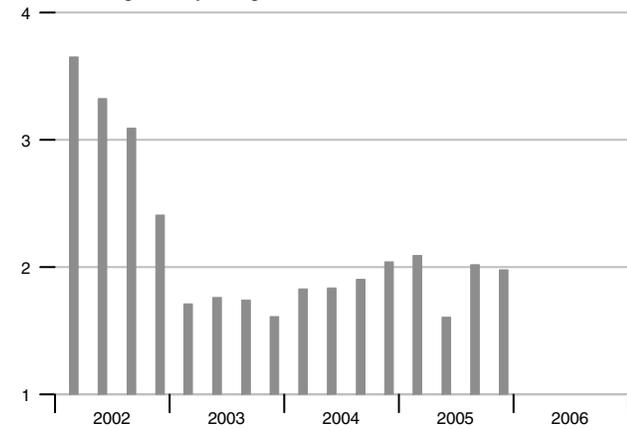
Yen/US\$

Percent



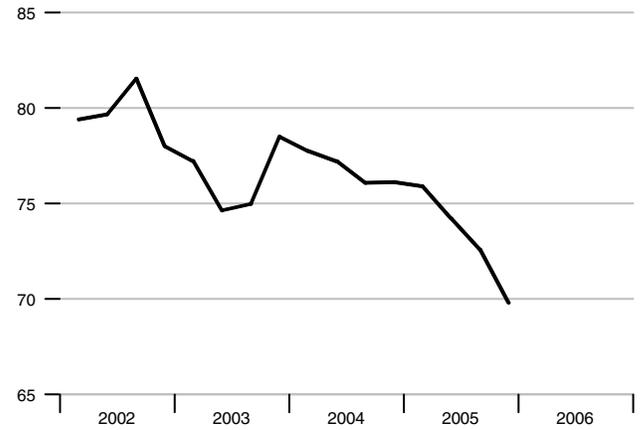
M2

Percent change from year ago



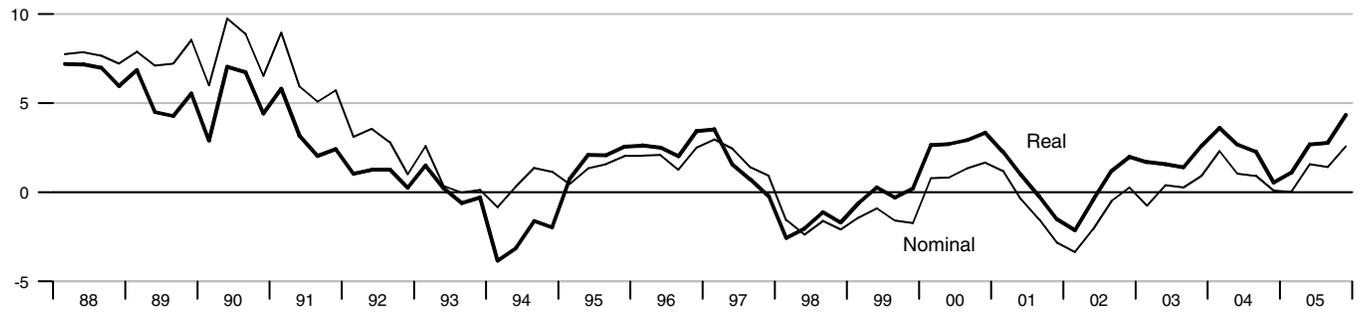
Real Effective Exchange Rate

Index 2000 = 100



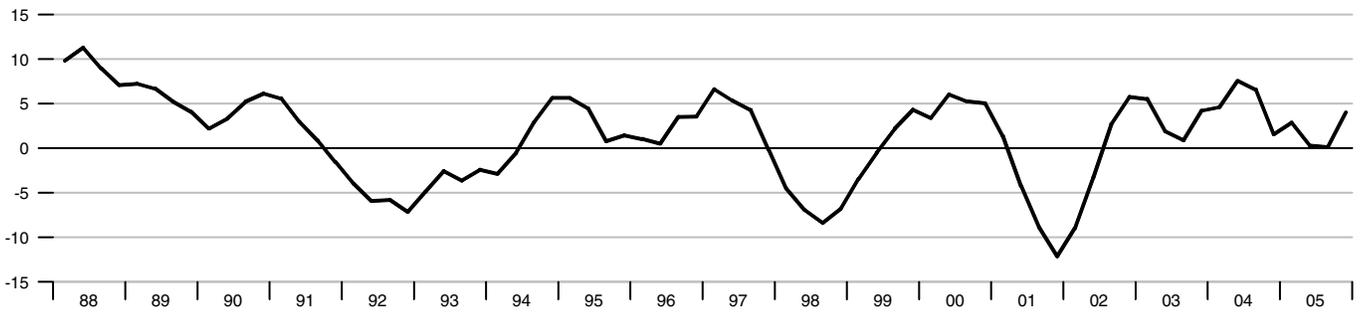
GDP

Percent change from year ago



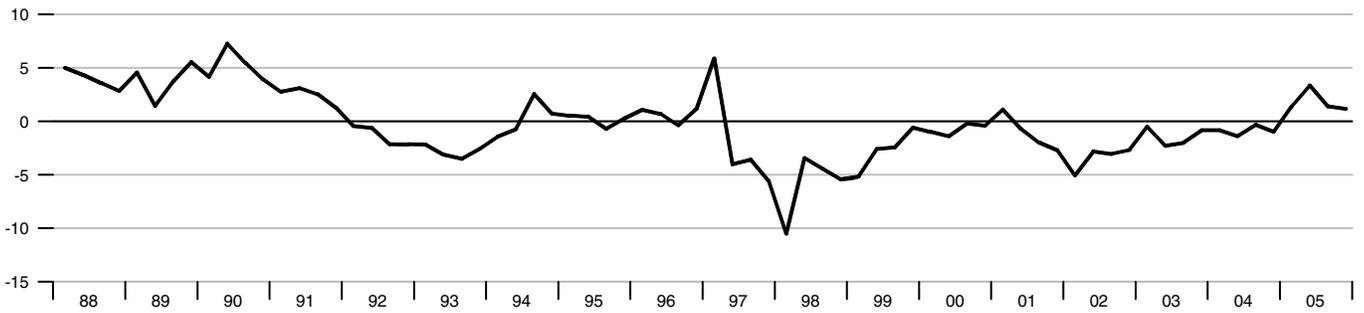
Industrial Production

Percent change from year ago



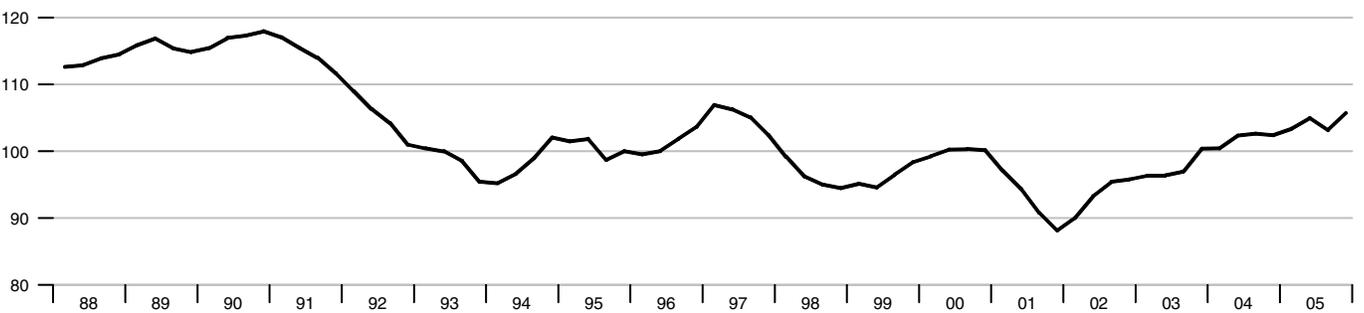
Retail Sales

Percent change from year ago



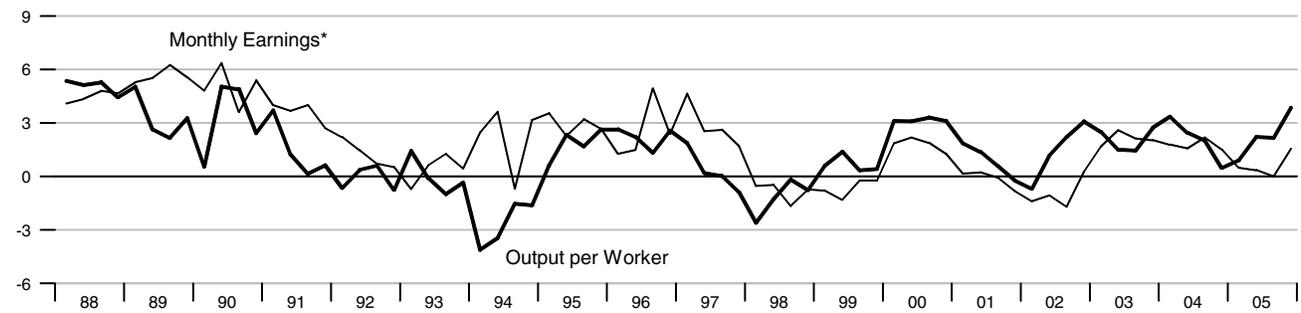
Capacity Utilization

2000 = 100



Monthly Earnings and Output per Worker

Percent change from year ago

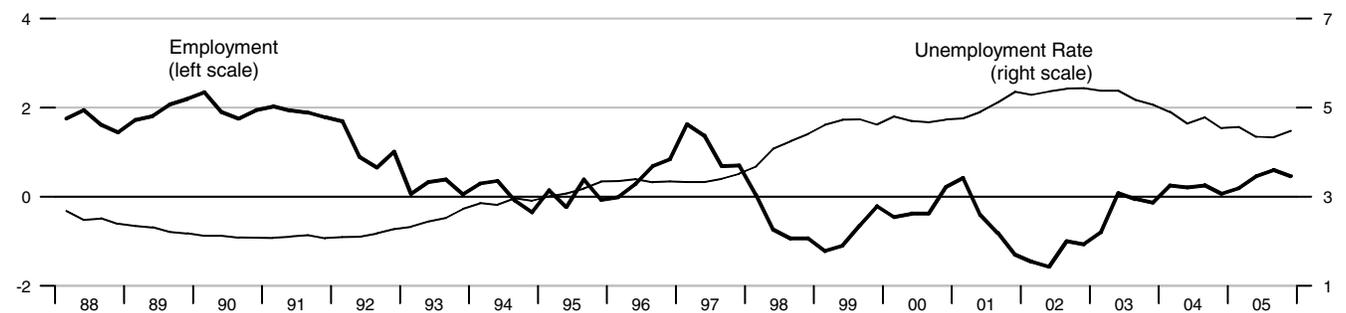


* Monthly earnings are seasonally adjusted.

Labor Force Indicators

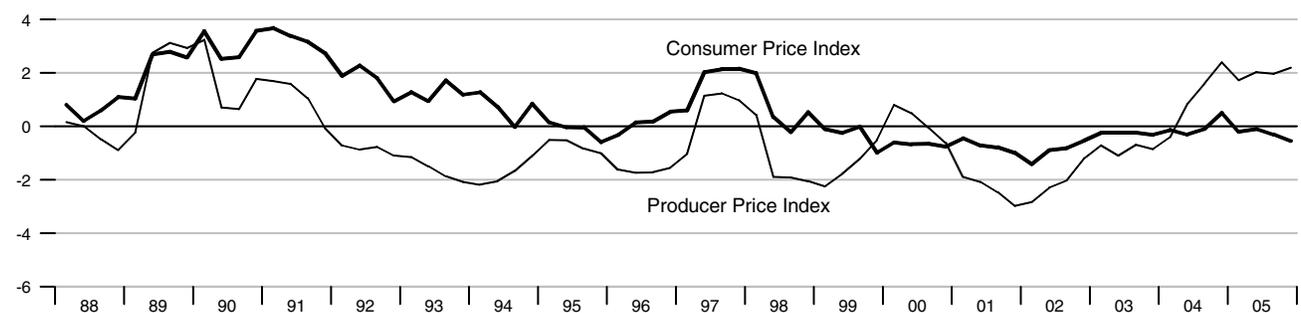
Percent change from year ago

Percent



Inflation

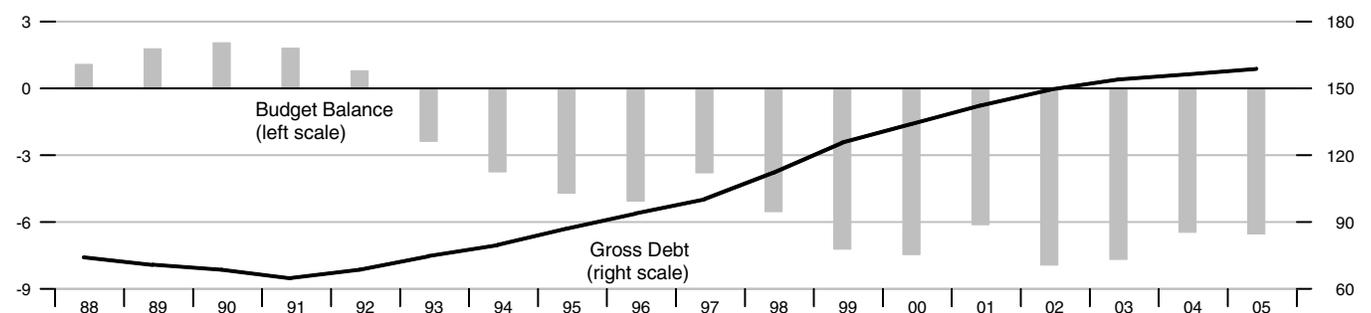
Percent change from year ago



Government Debt and Budget Balance

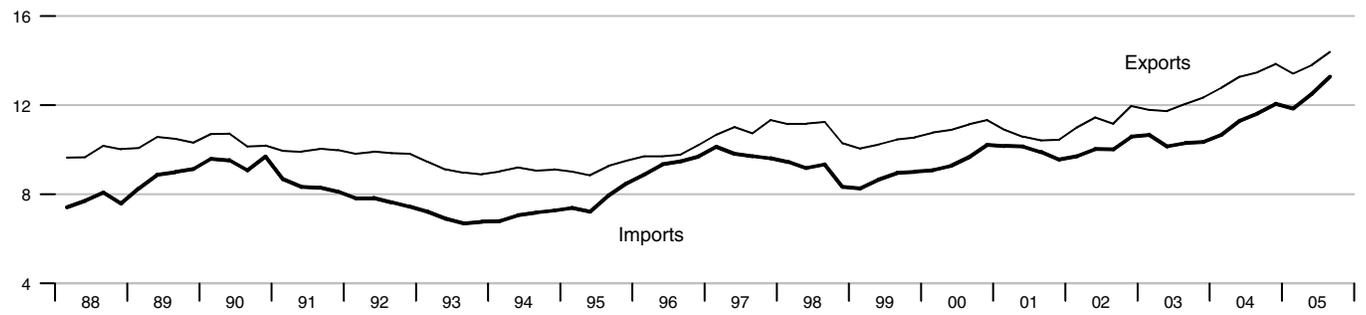
Percent of GDP, annual data

Percent of GDP, annual data



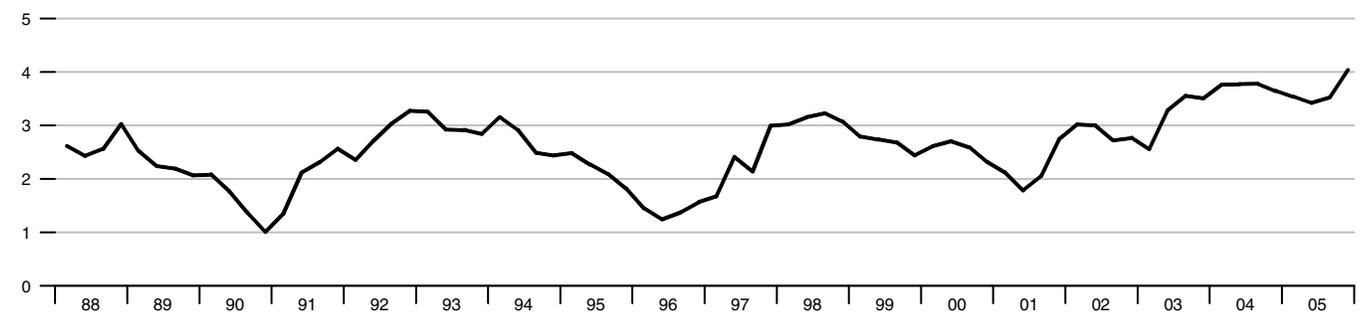
International Trade - Goods and Services

Percent of GDP



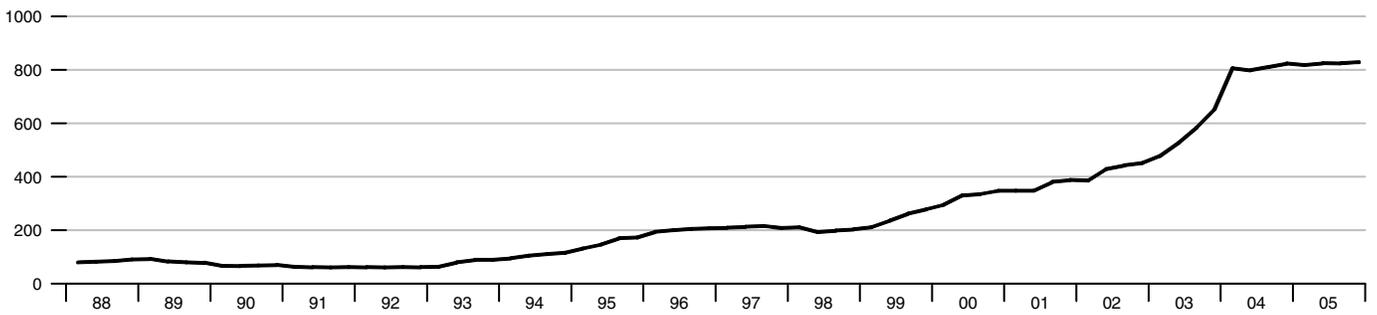
Current Account Balance

Percent of GDP



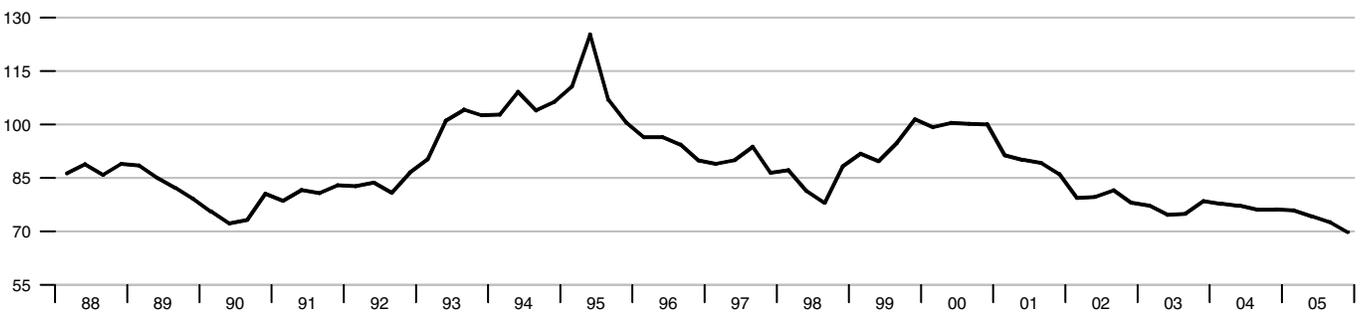
Foreign Exchange Reserves

Billions of US\$



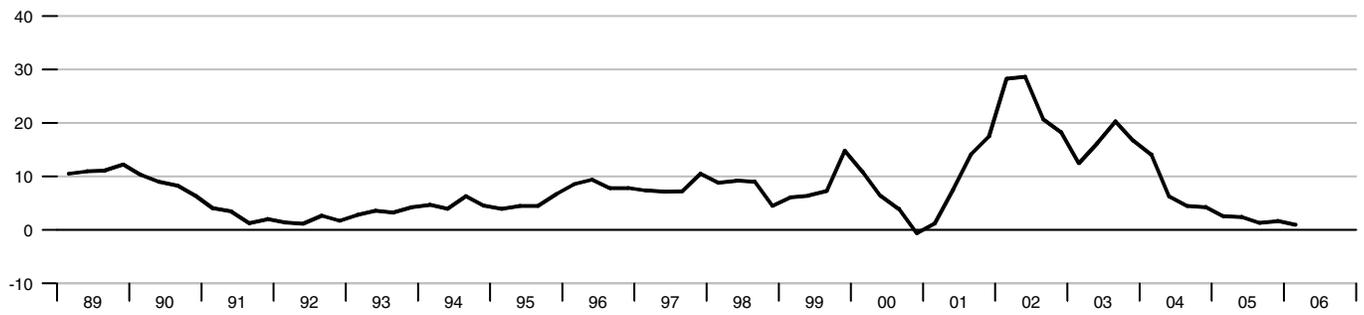
Real Effective Exchange Rate

Index 2000 = 100



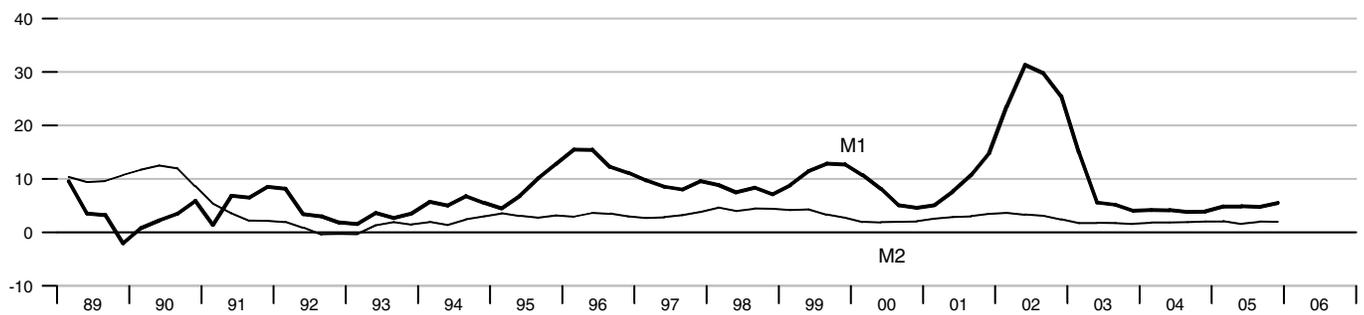
Adjusted Monetary Base

Percent change from year ago



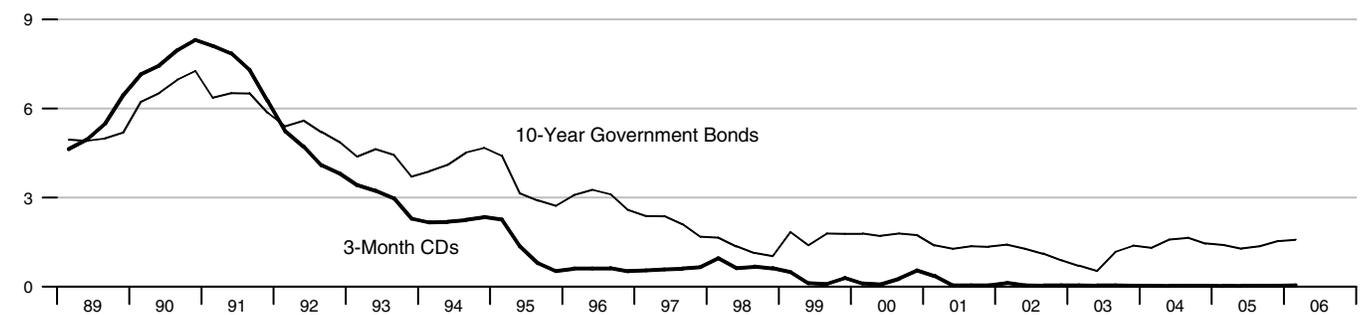
Monetary Aggregates

Percent change from year ago



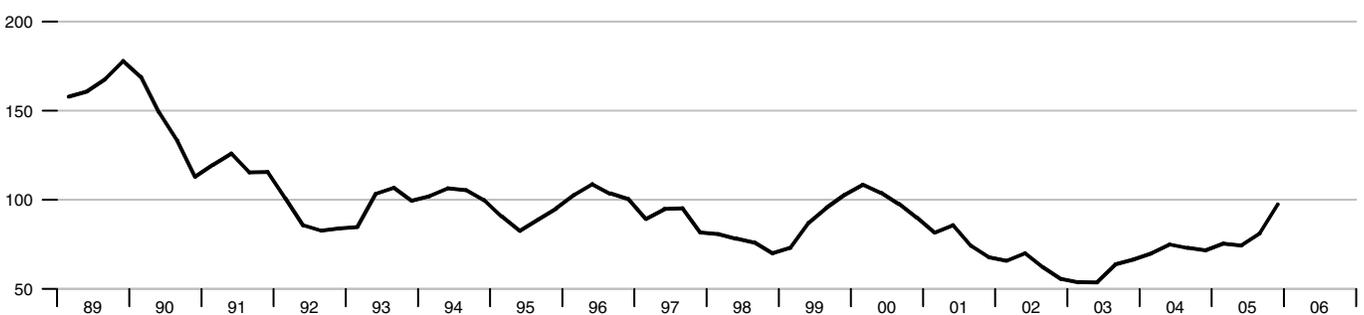
Interest Rates

Percent



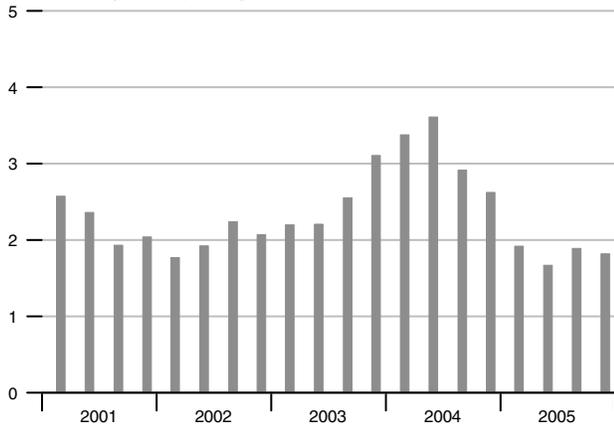
Stock Exchange Index - Tokyo Stock Exchange

2000 = 100



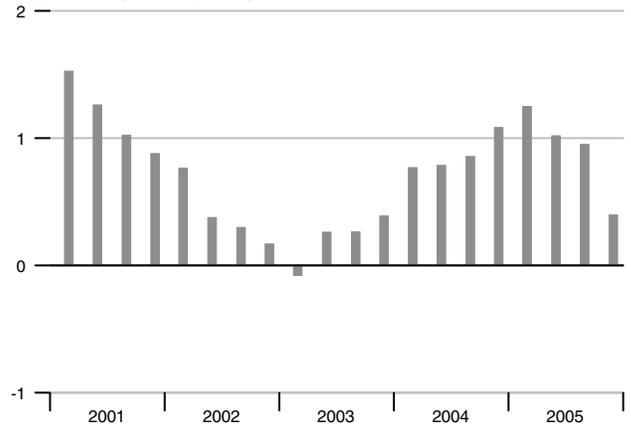
Real GDP

Percent change from year ago



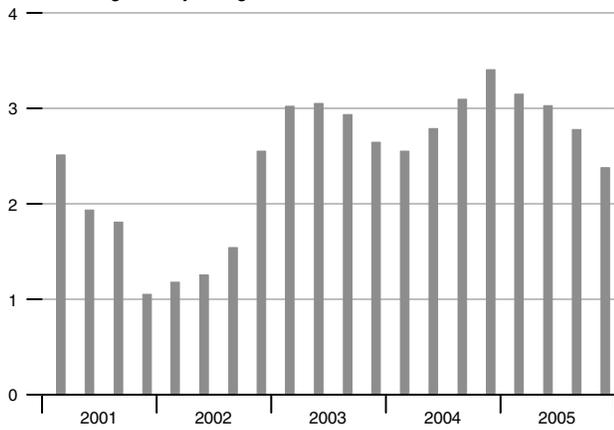
Employment

Percent change from year ago



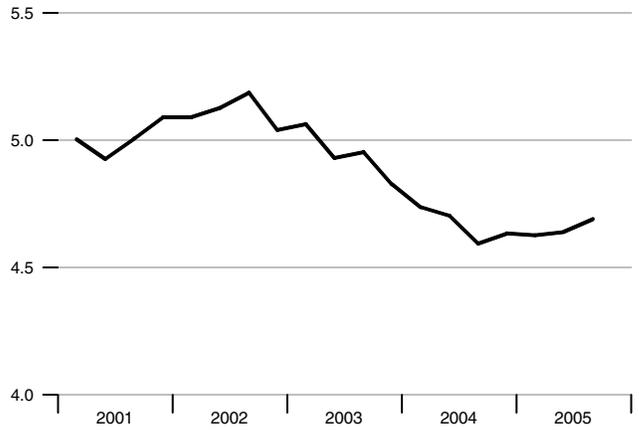
Consumer Price Index

Percent change from year ago



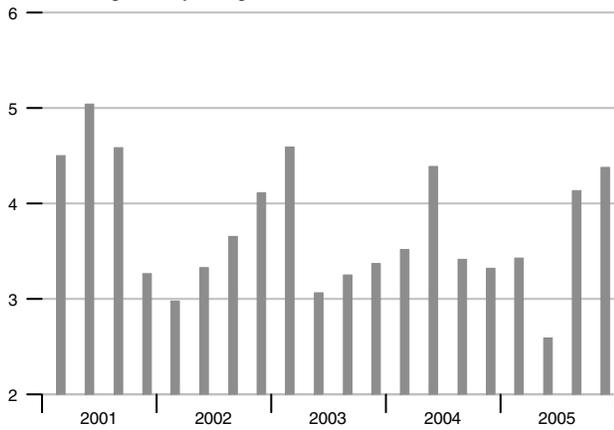
Unemployment Rate

Percent



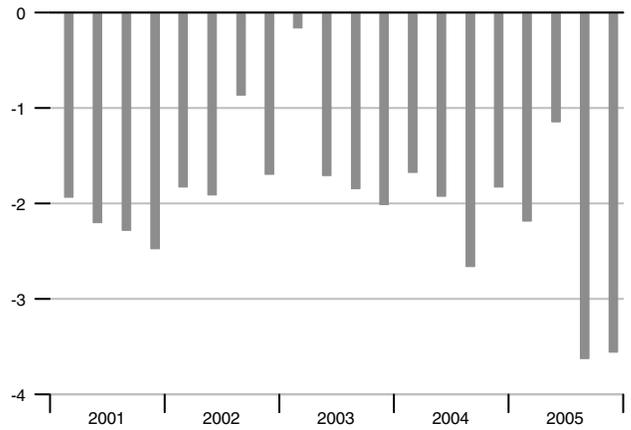
Weekly Earnings

Percent change from year ago*



Current Account Balance

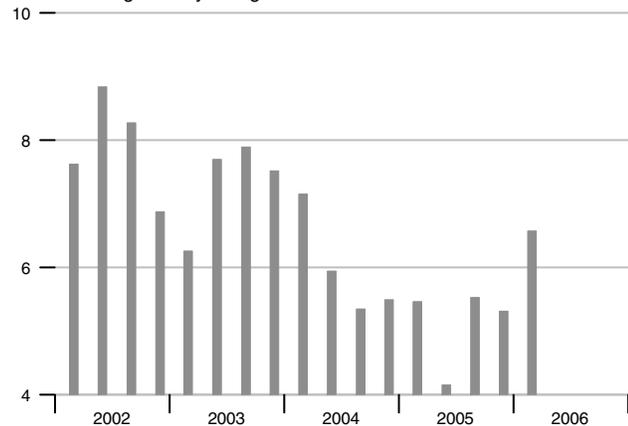
Percent of GDP



* Weekly earnings are seasonally adjusted.

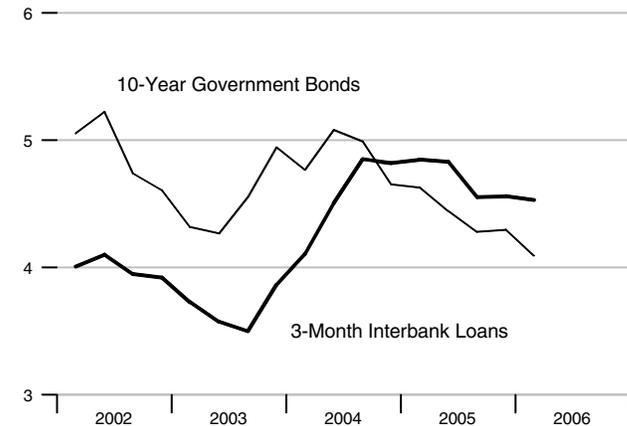
M0

Percent change from year ago



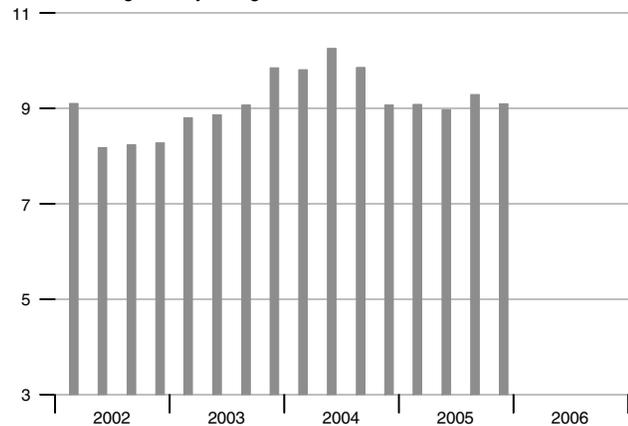
Interest Rates

Percent



M2

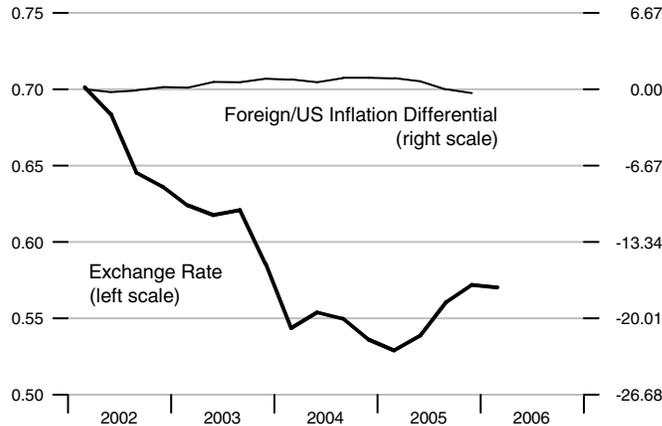
Percent change from year ago



Exchange Rate and Inflation Differential

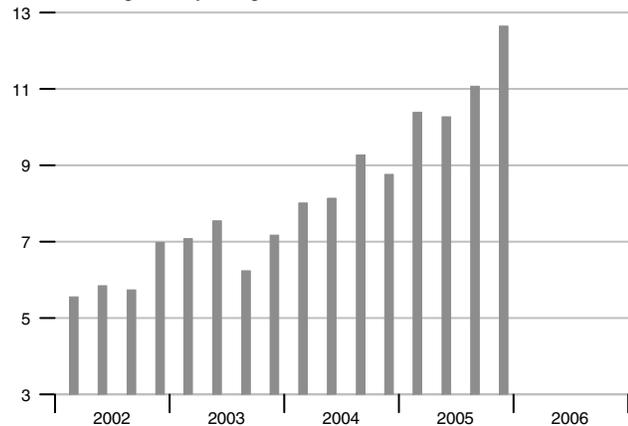
Pounds/US\$

Percent



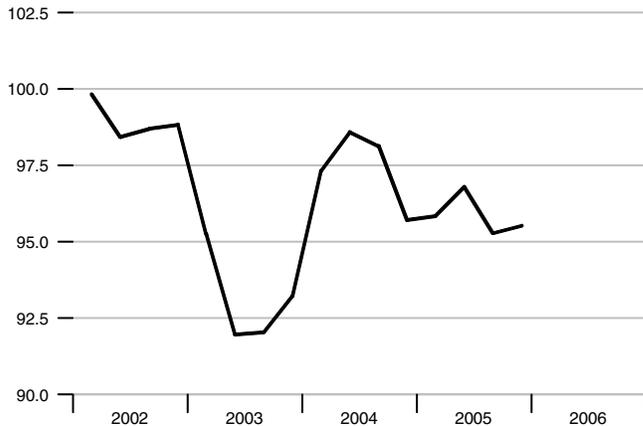
M4

Percent change from year ago



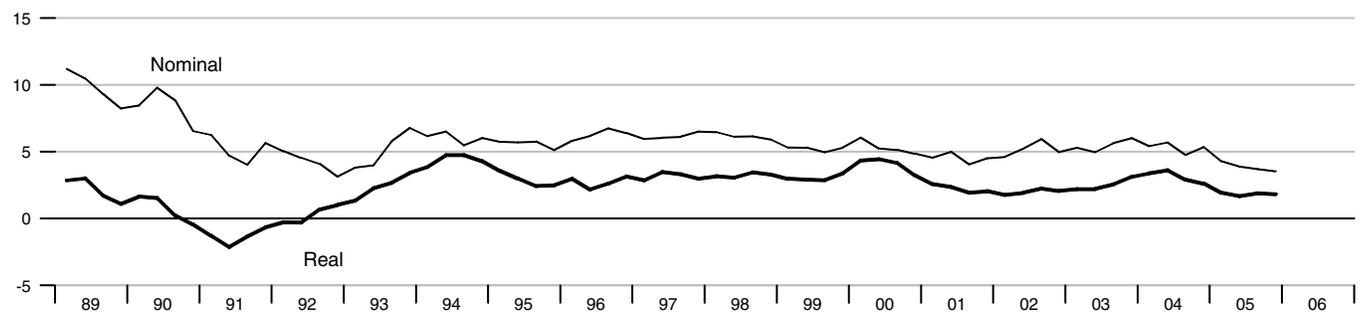
Real Effective Exchange Rate

Index 2000 = 100



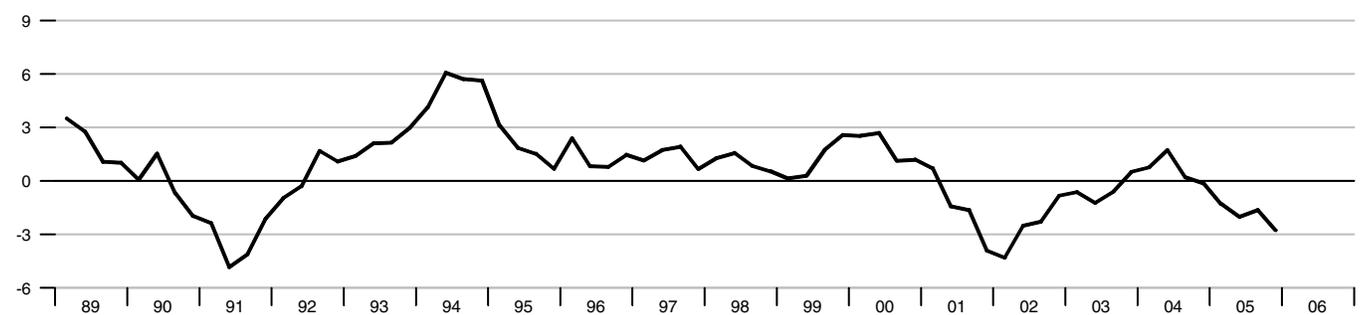
GDP

Percent change from year ago



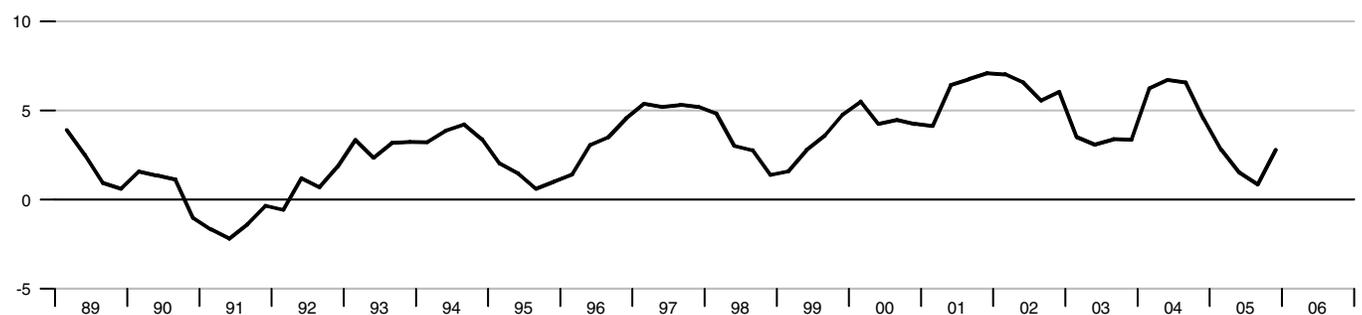
Industrial Production

Percent change from year ago



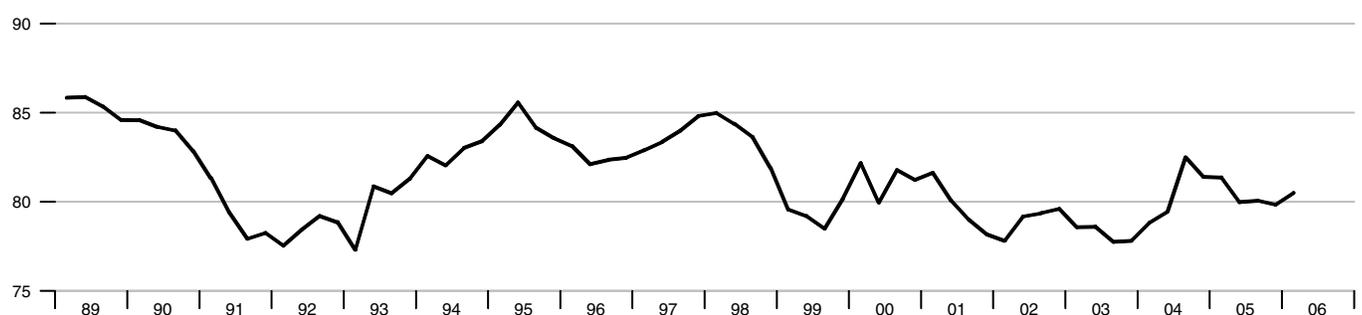
Retail Sales

Percent change from year ago



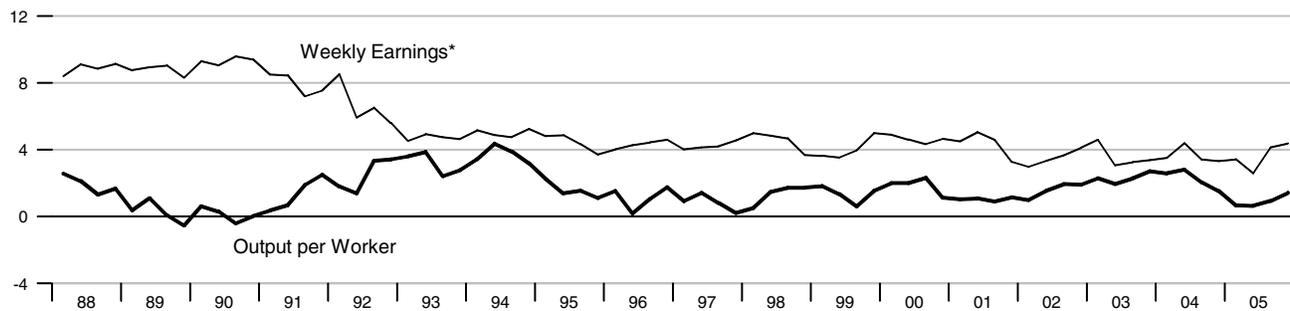
Capacity Utilization

Percent



Weekly Earnings and Output per Worker

Percent change from year ago

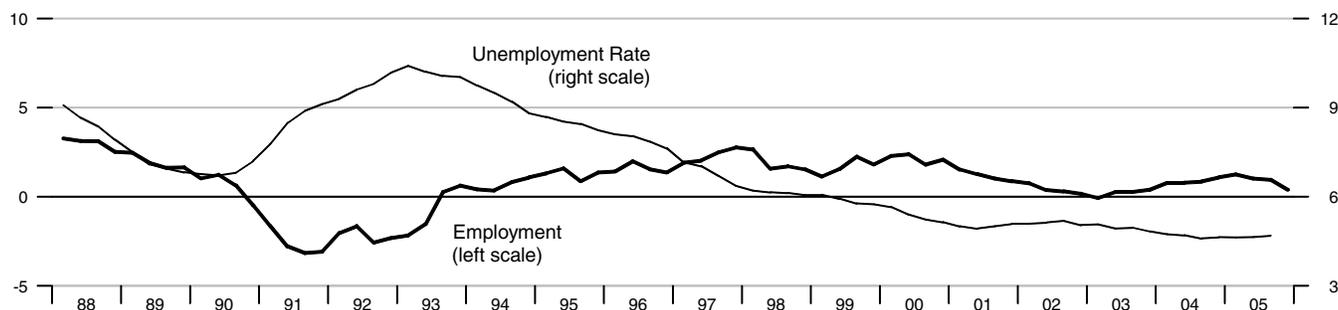


* Weekly earnings are seasonally adjusted.

Labor Force Indicators

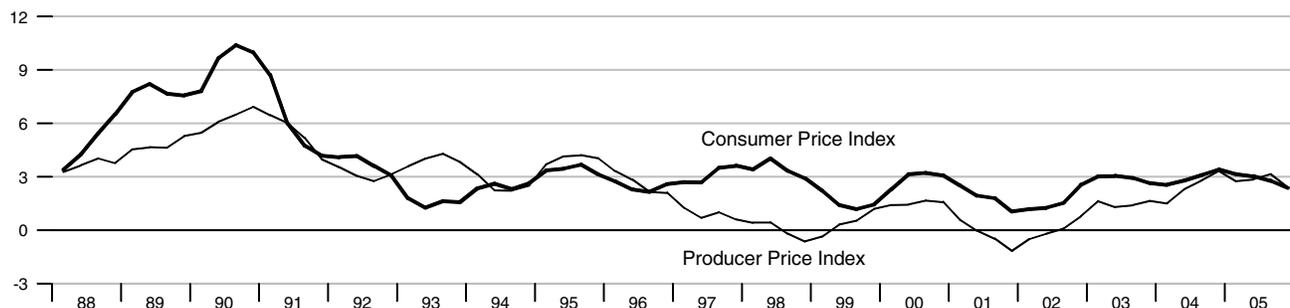
Percent change from year ago

Percent



Inflation

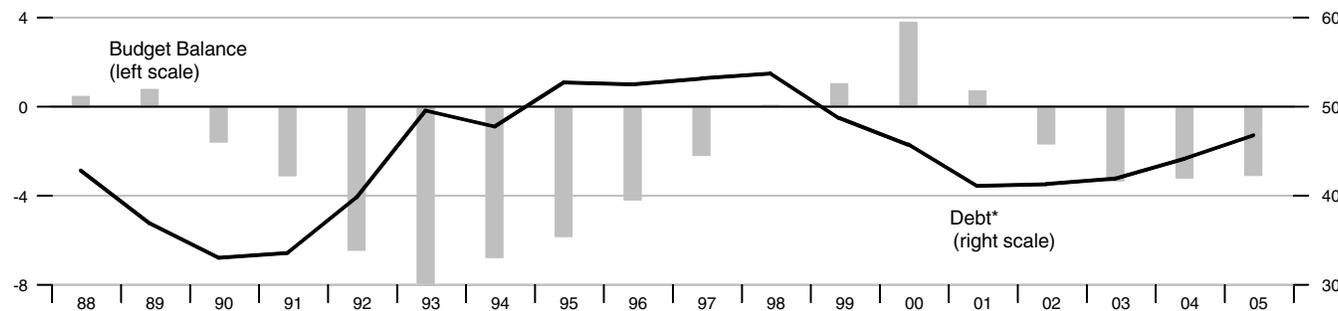
Percent change from year ago



Government Debt and Budget Balance

Percent of GDP, annual data

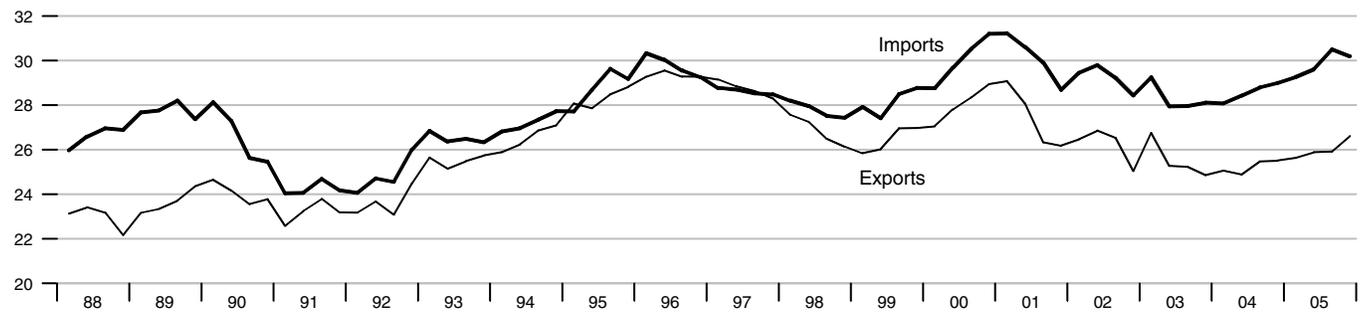
Percent of GDP, annual data



* The series has been revised by the OECD from unconsolidated to consolidated debt at market prices.

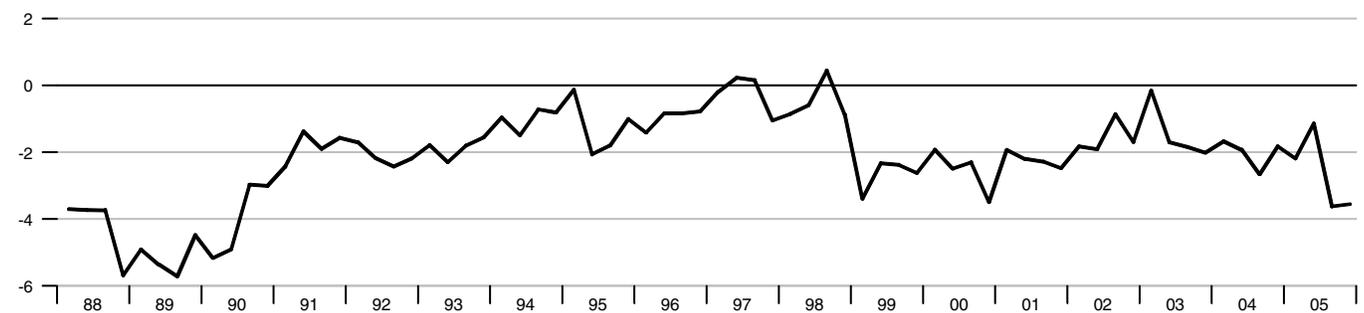
International Trade - Goods and Services

Percent of GDP



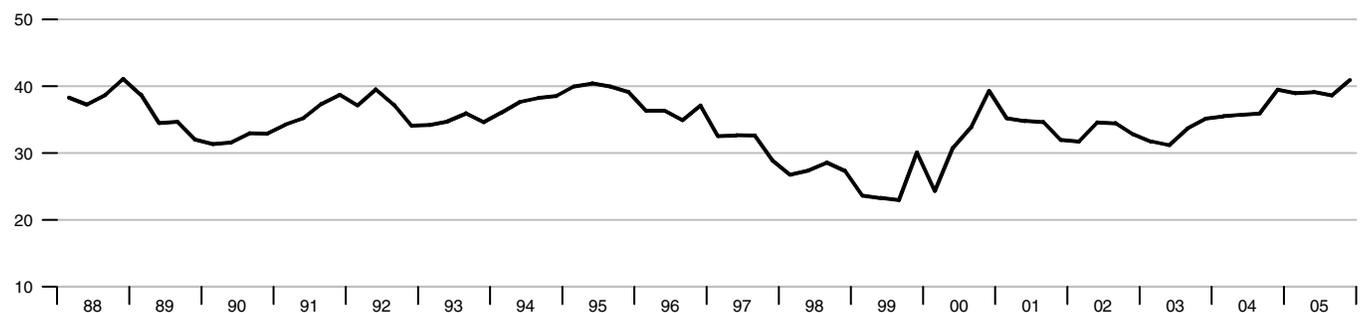
Current Account Balance

Percent of GDP



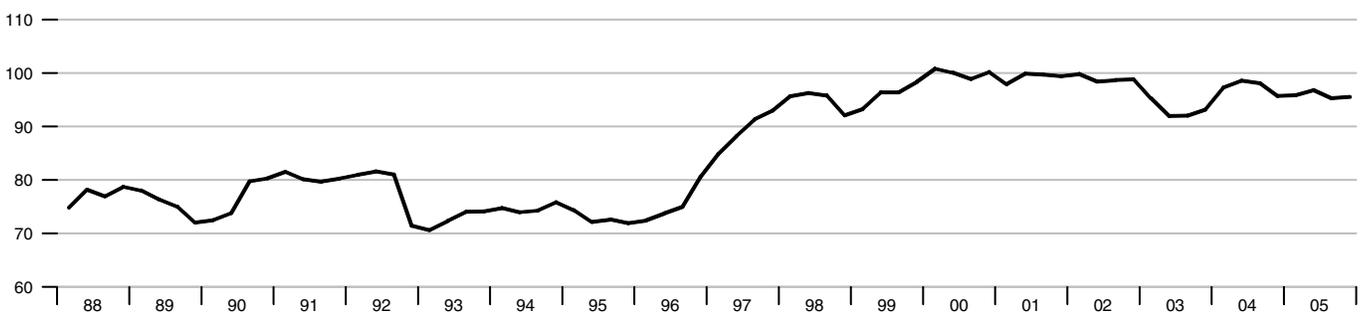
Foreign Exchange Reserves

Billions of US\$



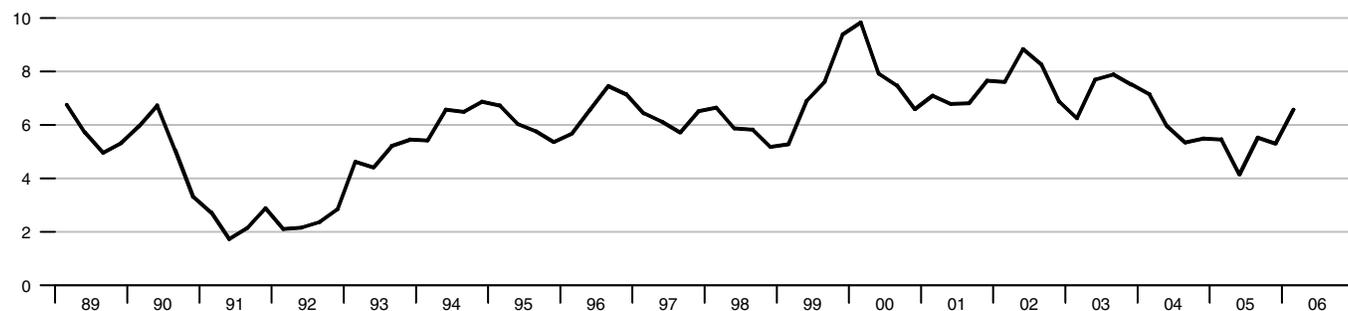
Real Effective Exchange Rate

Index 2000 = 100



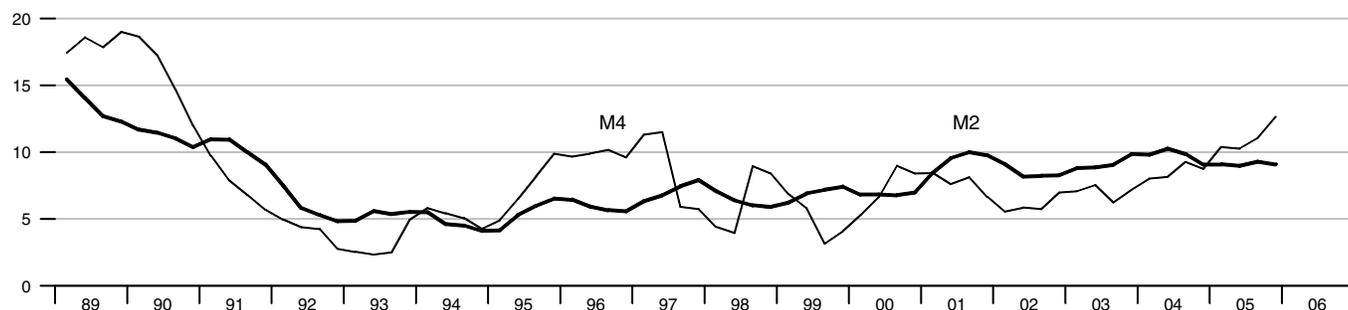
M0

Percent change from year ago



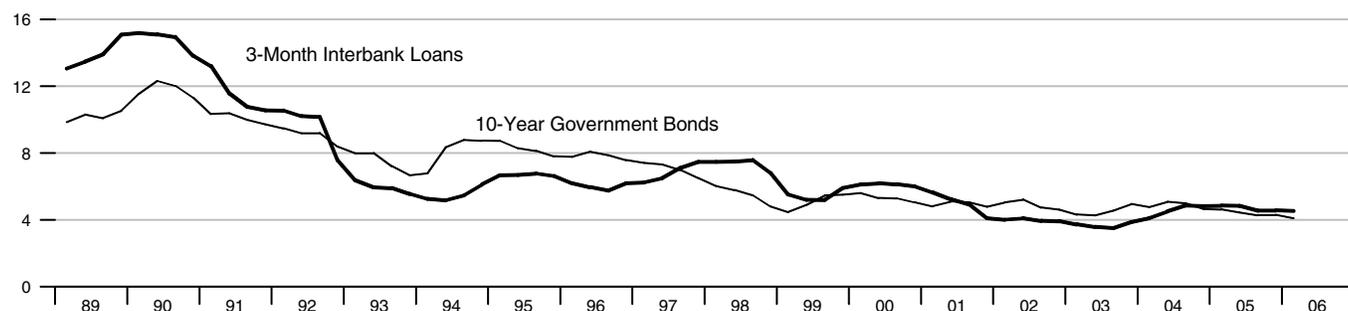
Monetary Aggregates

Percent change from year ago



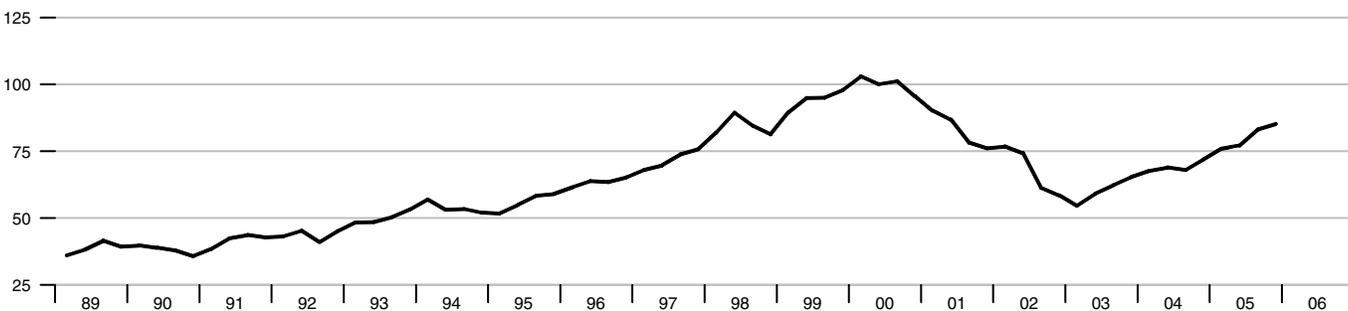
Interest Rates

Percent



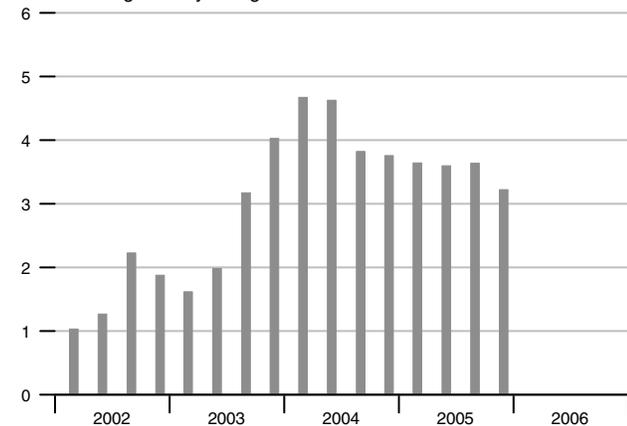
Stock Exchange Index - Financial Times Stock Exchange

2000 = 100



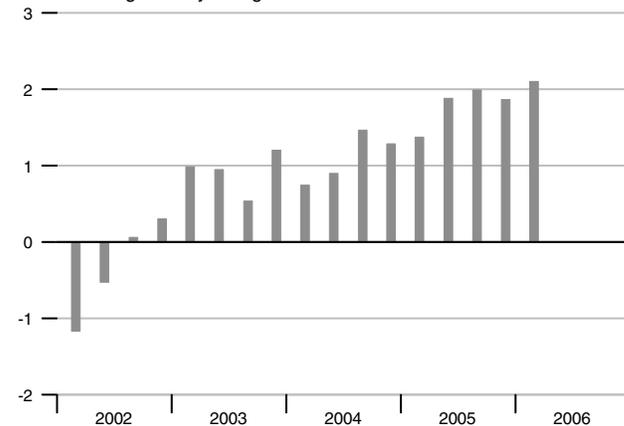
Real GDP

Percent change from year ago



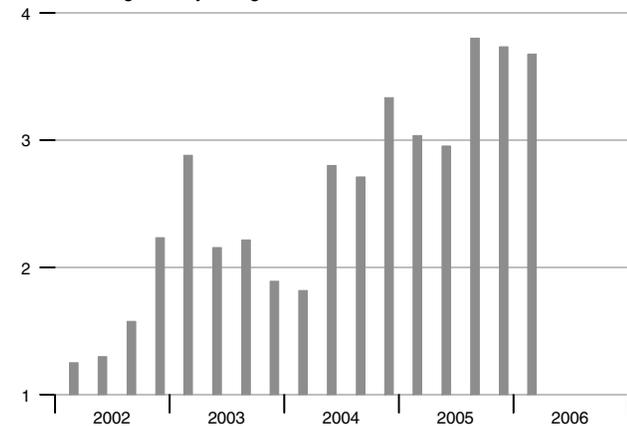
Employment

Percent change from year ago



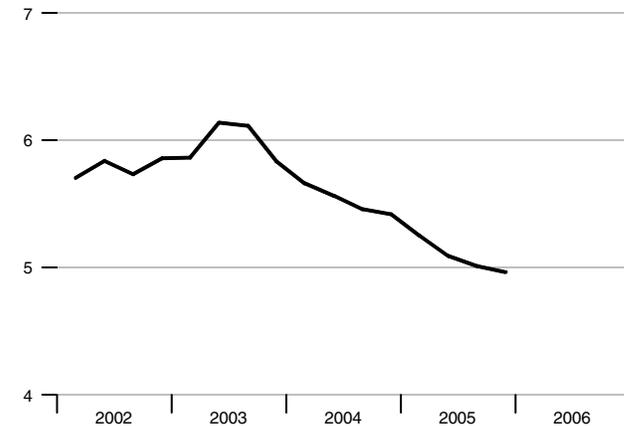
Consumer Price Index

Percent change from year ago



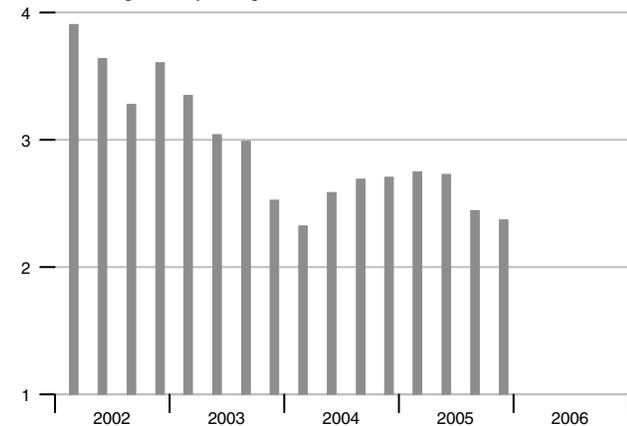
Unemployment Rate

Percent



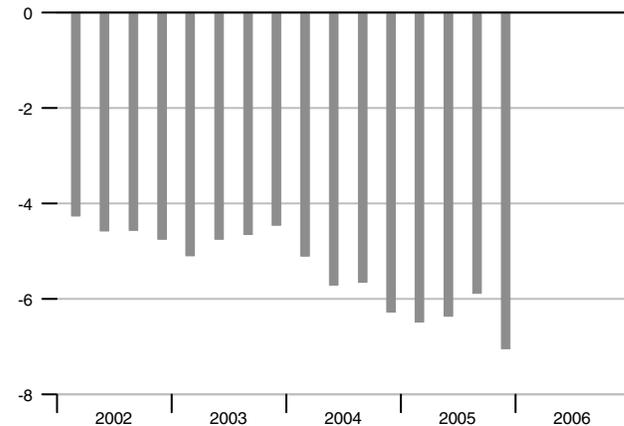
Hourly Earnings

Percent change from year ago*



Current Account Balance

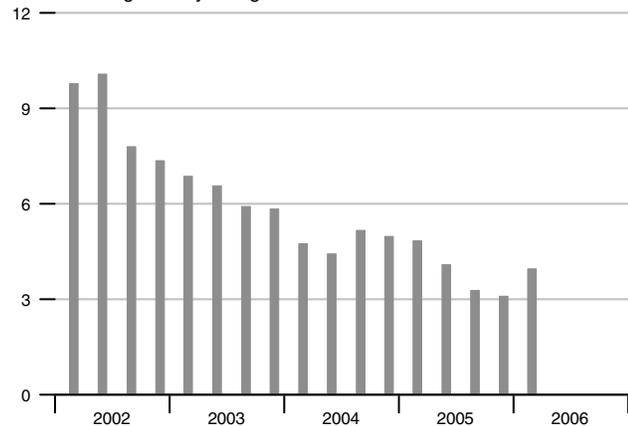
Percent of GDP



* Hourly earnings are seasonally adjusted.

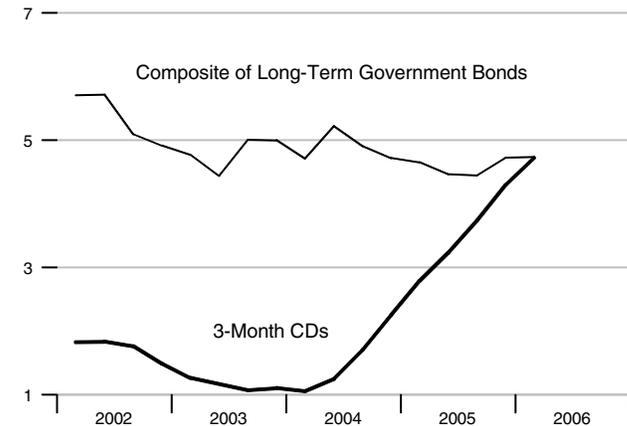
Adjusted Monetary Base

Percent change from year ago



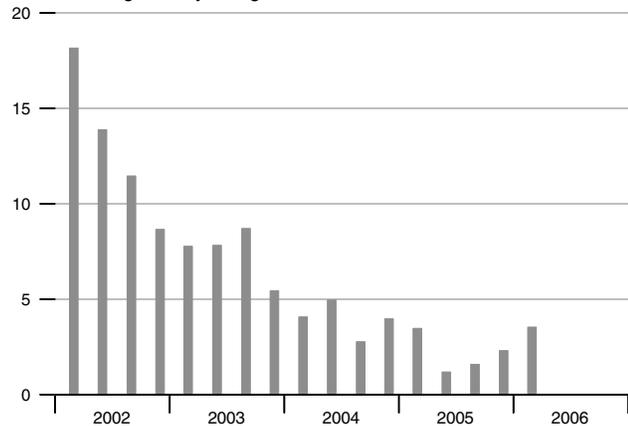
Interest Rates

Percent



MZM

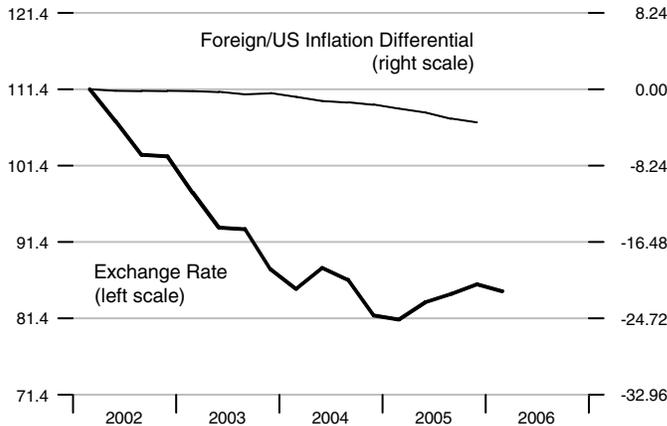
Percent change from year ago



Exchange Rate and Inflation Differential

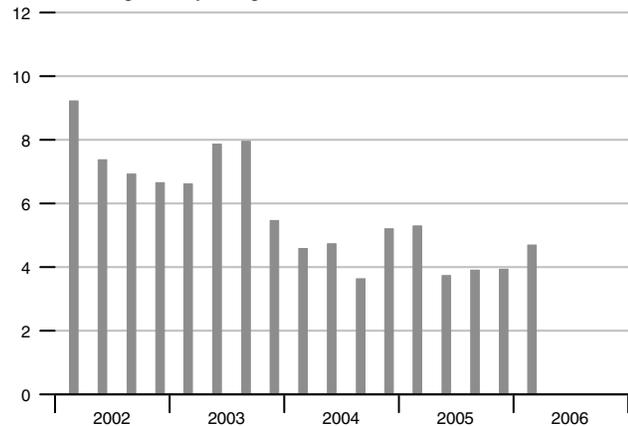
TWEX, March 1973 = 100

Percent



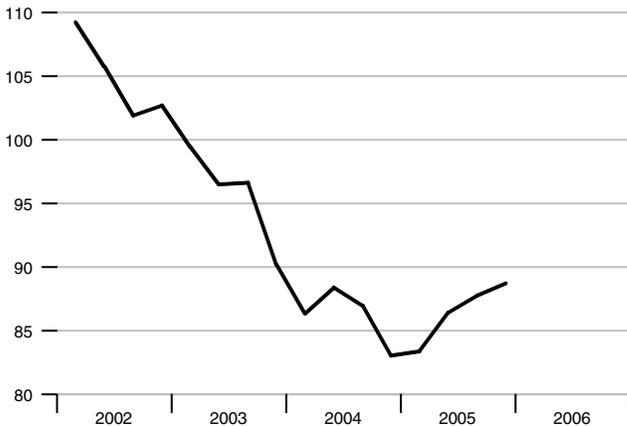
M2

Percent change from year ago



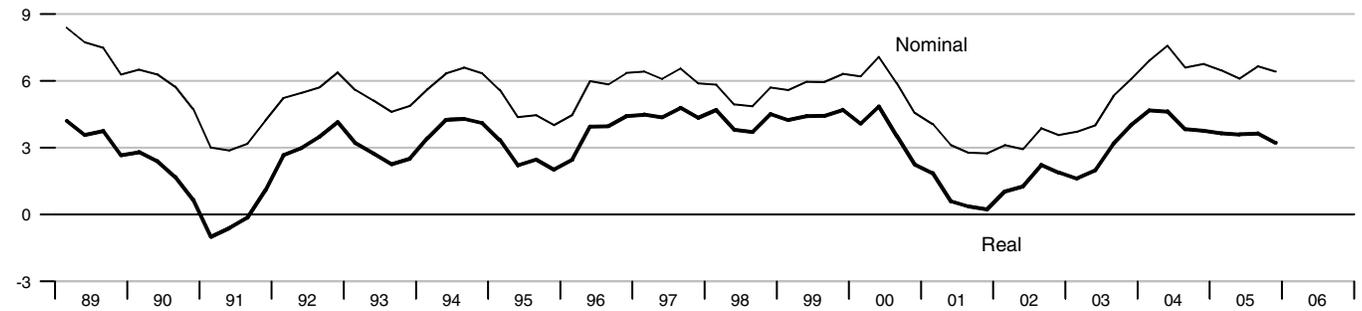
Real Effective Exchange Rate

Index 2000 = 100



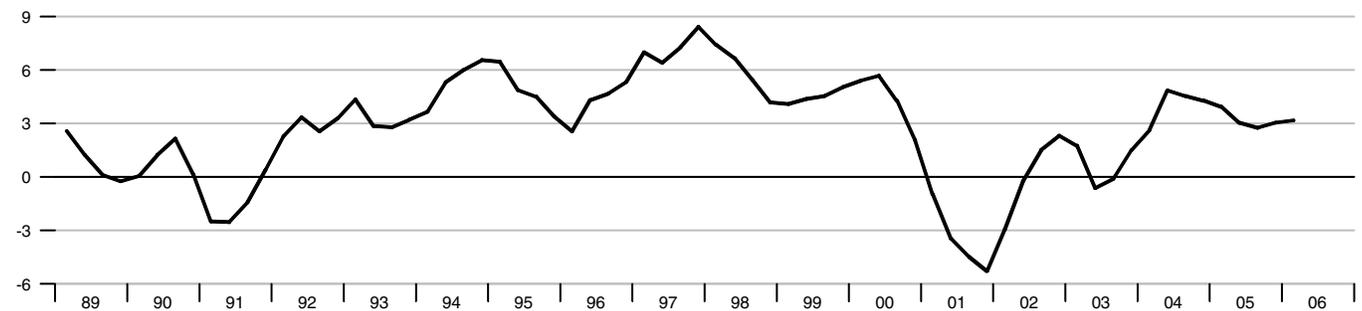
GDP

Percent change from year ago



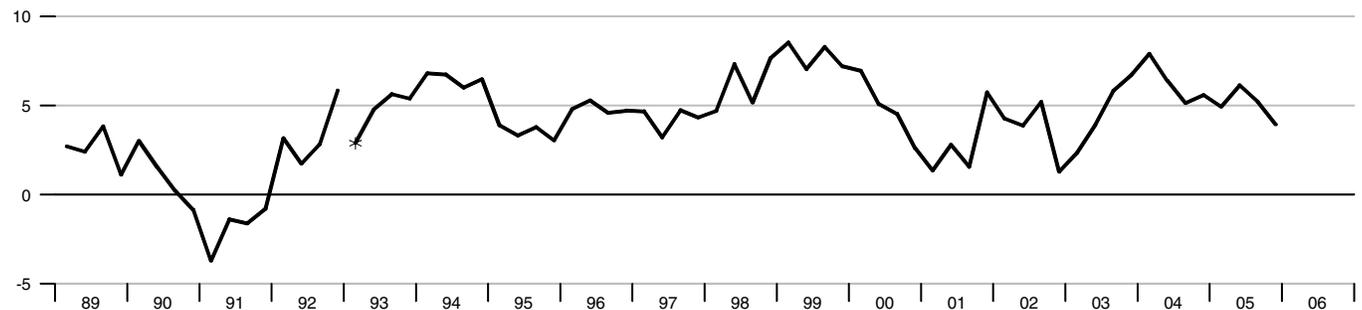
Industrial Production

Percent change from year ago



Retail Sales

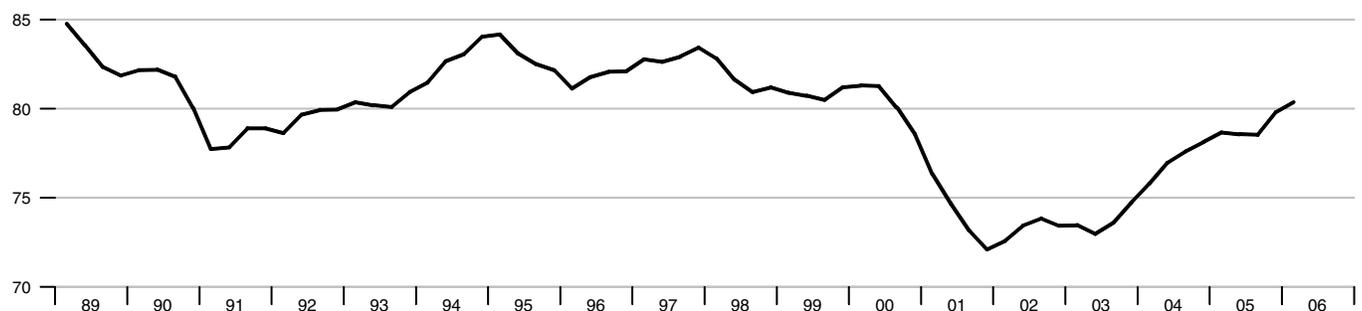
Percent change from year ago



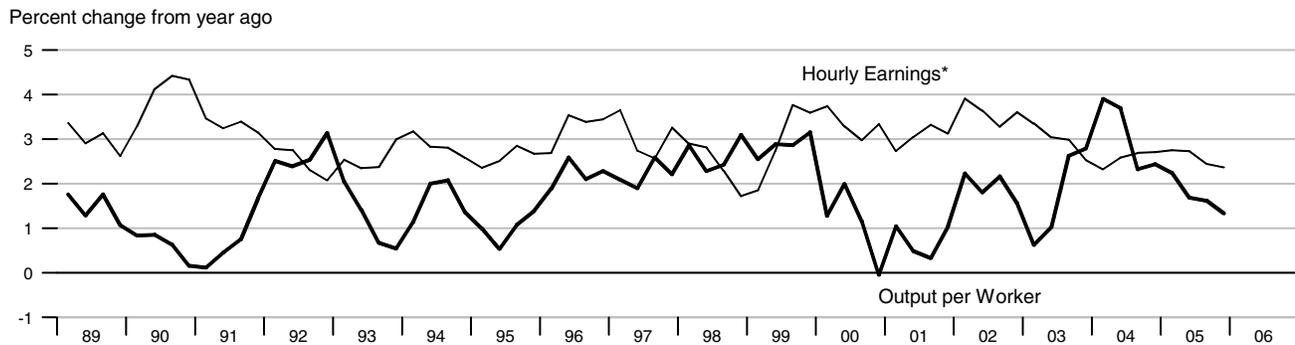
*Data prior to 1993 may not be strictly comparable with later figures (see Notes).

Capacity Utilization

Percent

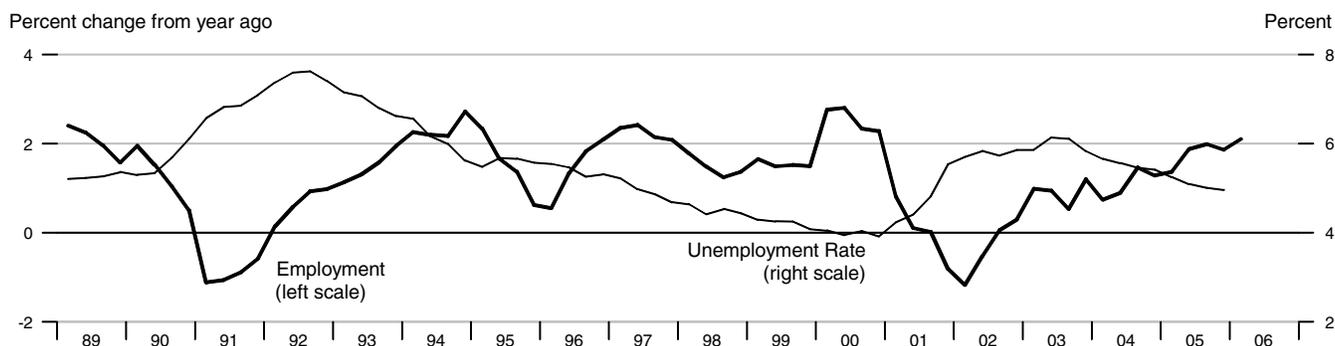


Hourly Earnings and Output per Worker

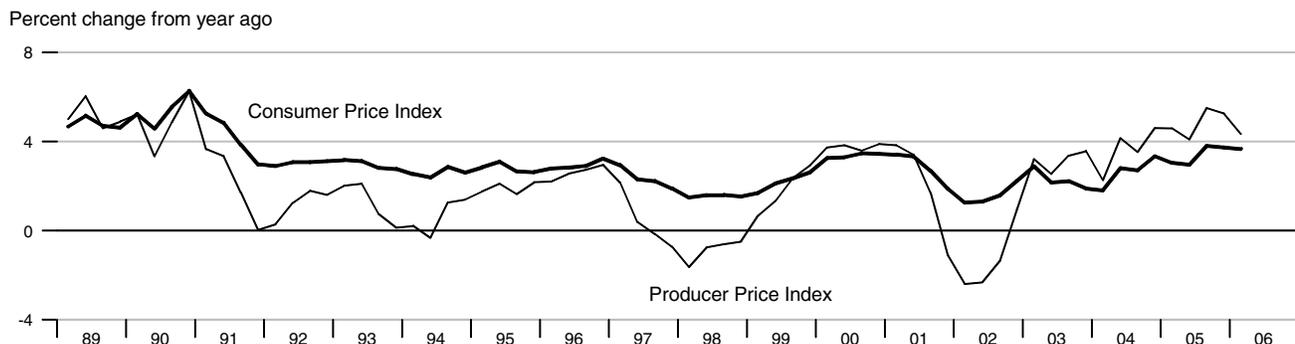


* Hourly earnings are seasonally adjusted.

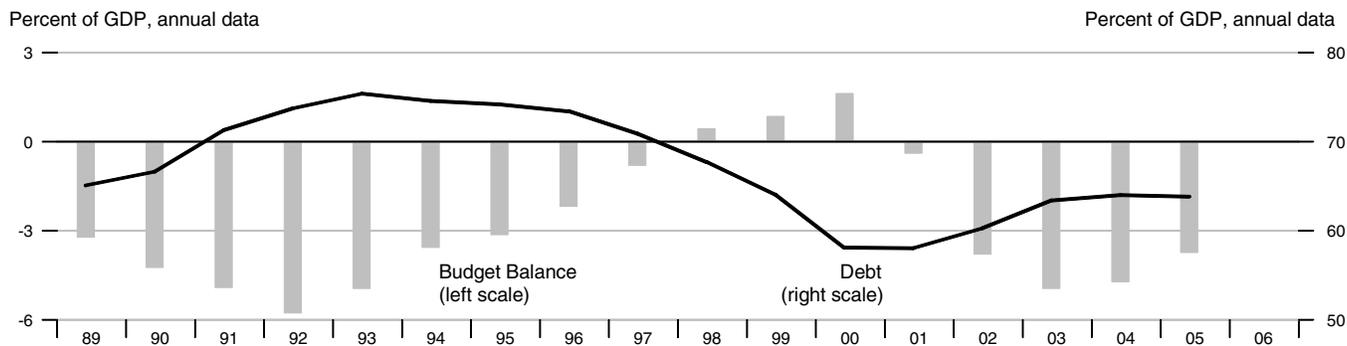
Labor Force Indicators



Inflation

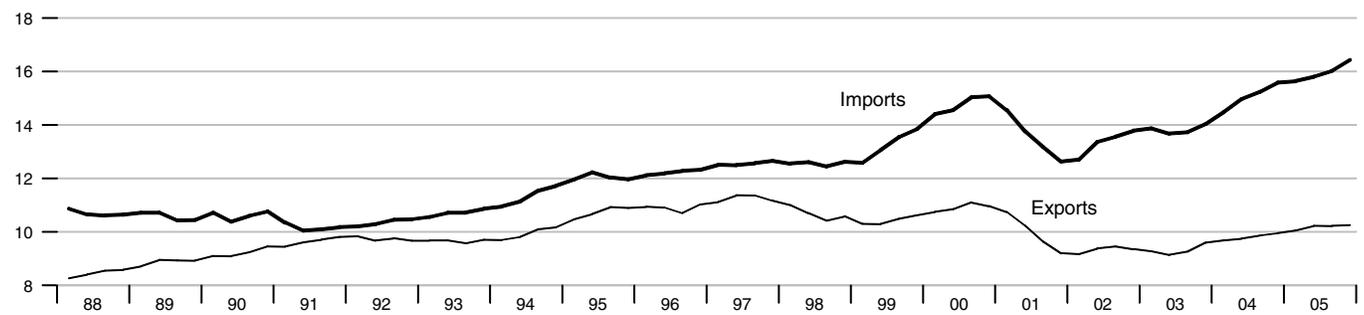


Government Debt and Budget Balance



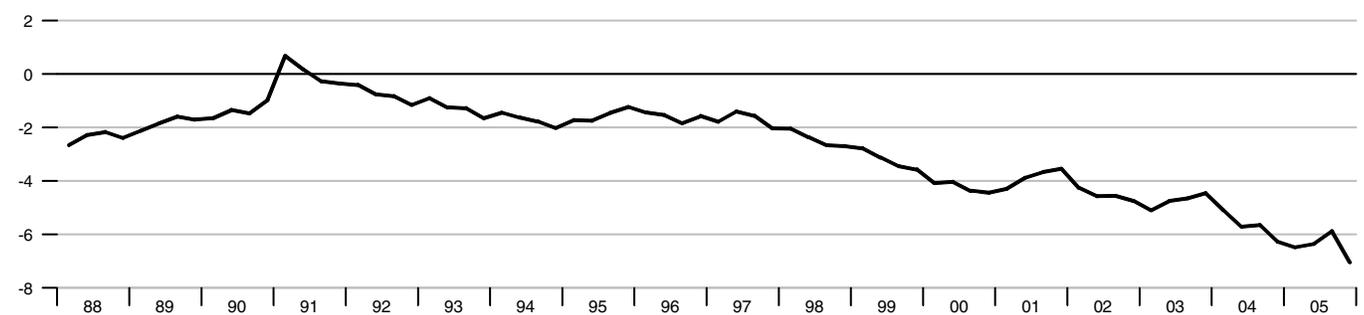
International Trade - Goods and Services

Percent of GDP



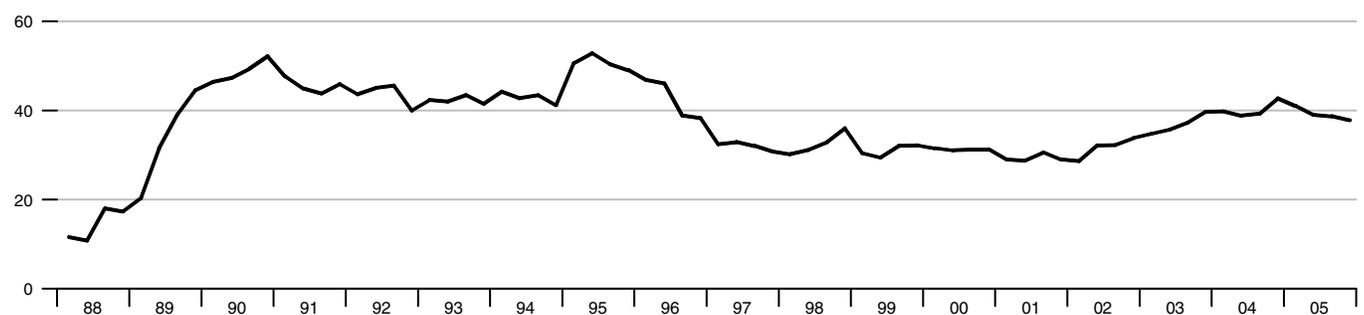
Current Account Balance

Percent of GDP



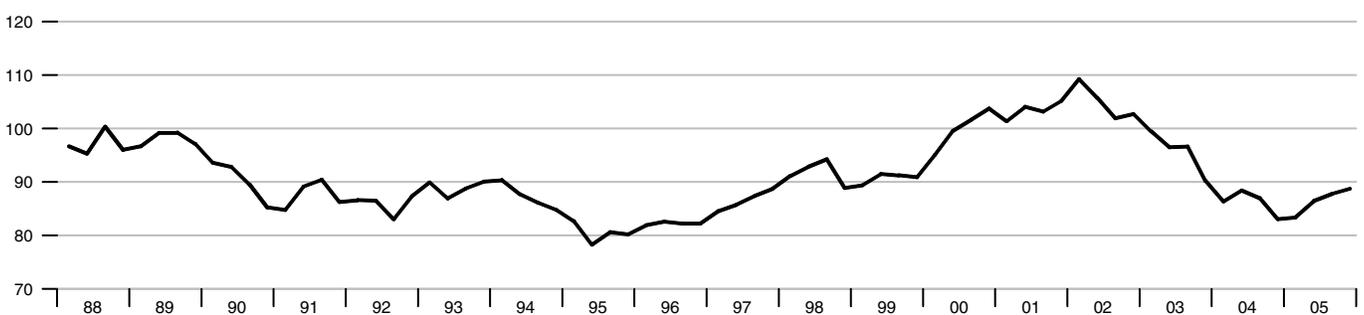
Foreign Exchange Reserves

Billions of US\$



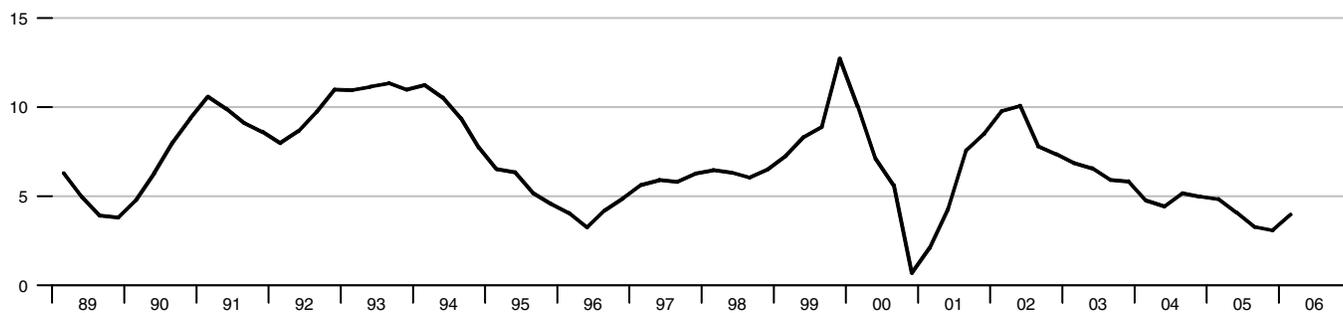
Real Effective Exchange Rate

Index 2000 = 100



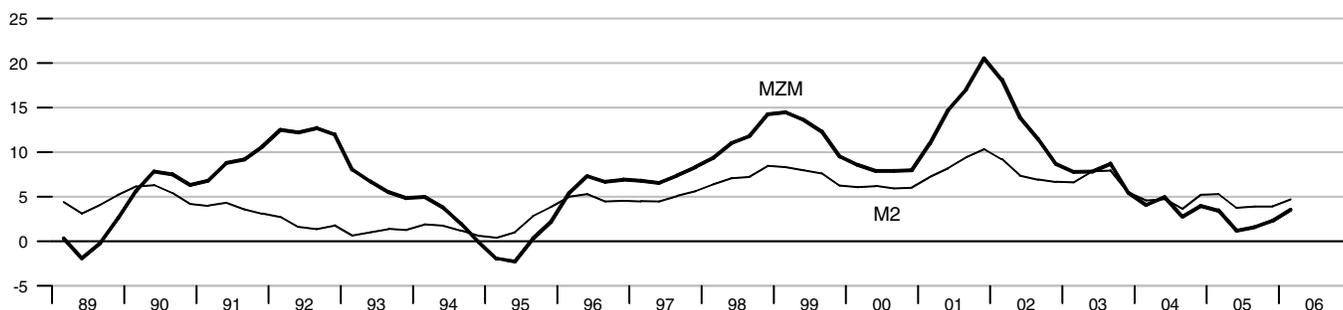
Adjusted Monetary Base

Percent change from year ago



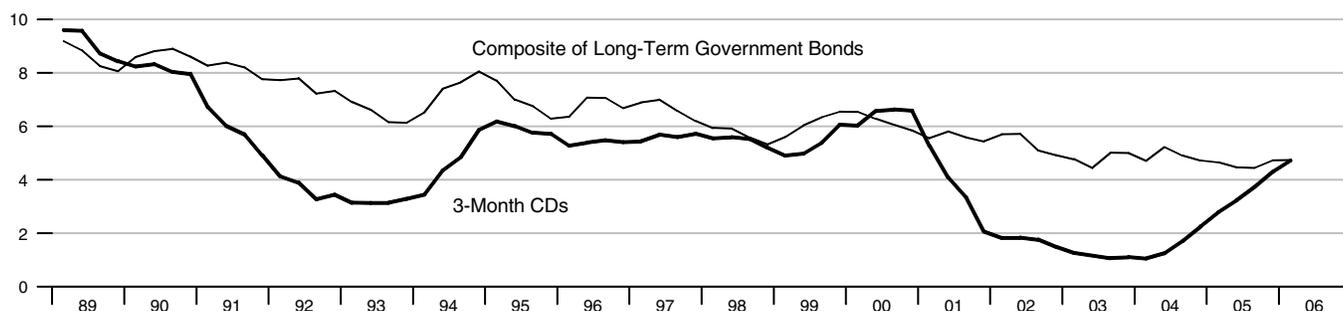
Monetary Aggregates

Percent change from year ago



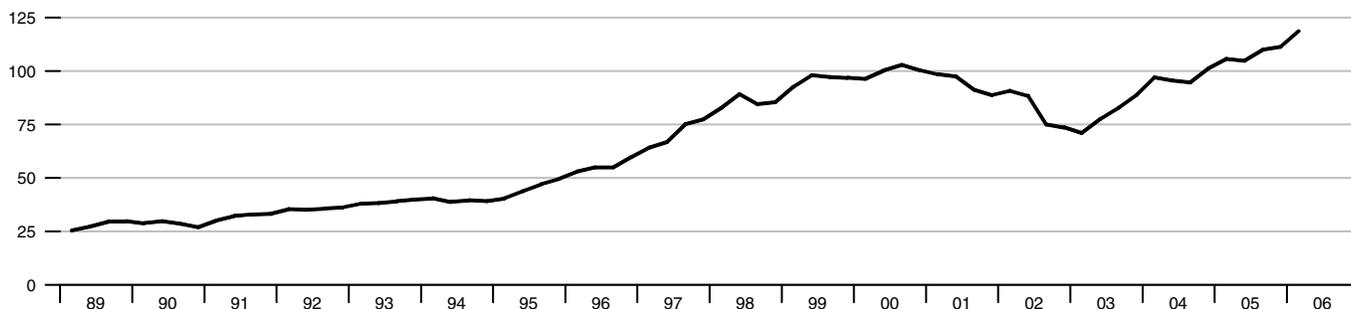
Interest Rates

Percent



Stock Exchange Index - New York Stock Exchange

2000 = 100



Notes

Euro-Area Data: On January 1, 2001, the euro area was enlarged to include Greece as its 12th member country. Historical euro area series for capacity utilization, the consumer price index, current account balance, earnings, employment, government debt and budget balance, gross domestic product (GDP), industrial production, merchandise trade, the producer price index, and unemployment include Greece. The series for interest rates, monetary aggregates, the real effective exchange rate, retail sales, and the stock exchange index incorporate Greece starting in January 2001.

Euro-area interest rates prior to December 1998 are calculated on the basis of national government yields weighted by GDP. Starting in 1999, short-term rates are euro interbank offered rates. Long-term rates are calculated on the basis of national government bond yields weighted by the nominal outstanding amounts of government bonds in each maturity band.

The euro/dollar exchange rate used in the chart on page 12 is a synthetic rate prior to January 1999. This is constructed by calculating a weighted average of the exchange rates of the euro-area countries, excluding Greece and Luxembourg, against the dollar. The weights are based on 1997 GDP shares.

German Data: As a result of reunification, data for all of Germany are now incorporated in the statistical series. The starting periods for unified German data are listed below. Care should be exercised when interpreting the data around these break periods.

Third quarter 1990: current account balance, international trade, and unemployment.

First quarter 1991: consumer price index, GDP, industrial production, output per worker.

Third quarter 1992: capacity utilization.

First quarter 1993: stock exchange index.

Third quarter 1993: employment.

First quarter 1995: hourly earnings.

Capacity Utilization covers the manufacturing sector for Canada, France, Japan, the United Kingdom, the United States, and the euro area; manufacturing excluding food, beverage, and tobacco for Germany; and mining and manufacturing for Italy.

Consumer Price Index is for all items. The current index is based on goods and services consumed by all individuals for Canada; all multi-person households excluding those mainly engaged in agriculture, forestry, and fisheries for Japan; all households except pensioners dependent on state pension and high income households for the United Kingdom; and all urban households for the United States. Data for the euro area, France, Germany, and Italy are based on the harmonized index of consumer prices.

Current Account Balance is the sum of merchandise and service exports and income receipts on domestic assets abroad minus the sum of merchandise and service imports and income payments from foreign assets in the domestic economy plus net unilateral transfers.

Earnings are based on hourly earnings in manufacturing for Canada, Germany, the United States, and the euro area; hourly earnings in manufacturing excluding construction for France, hourly earnings in industry for Italy; monthly earnings in manufacturing for Japan; and weekly earnings in manufacturing for the United Kingdom.

The **Exchange Rate** for all countries except the United States is expressed as units of local currency per U.S. dollar. For the United States the trade-weighted exchange rate, **TWEX**, is used. This is a weighted average of the exchange value of the U.S. dollar relative to the major international currencies—the euro, Canadian dollar, Japanese yen, British pound, Swiss franc, Australian dollar, and Swedish kronor. Prior to 1999, the currencies of the euro-area countries (with the exception of Greece) are used instead of the euro.

Real Effective Exchange Rate uses normalized unit labor costs in manufacturing. The weighting scheme used to construct the rates, for all except the euro area, is based on disaggregated data for trade among 21 industrial countries in manufactured goods for 2000. For the euro area the weights relate to the trade of the euro area with the other countries. The weights reflect the relative importance of a country's trading partners in its direct bilateral trade relations

and competition in third markets. Normalized unit labor costs in manufacturing are calculated by dividing an index of actual hourly compensation per worker by a five-year moving average index of output per man-hour.

Employment data refer to civilian employment for Canada, Germany, Italy, Japan, and the United States; industrial employment for France; and total employment for the euro area and the United Kingdom.

Foreign Exchange Reserve data are end of period. The dollar value of reserves may fluctuate as a result of changes in reserve holdings and/or changes in the value of the currencies held vis-à-vis the U.S. dollar.

Government Budget Balance is the difference between general government current receipts and total outlays. Total outlays consist of current expenditures and net capital expenditures. **Government Debt** incorporates all financial liabilities of the general government sector. The general government sector consolidates the accounts of the central, state, local, and social security sectors.

Cumulative Inflation Differential is the cumulative change in the foreign consumer price index (CPI) over the change in the U.S. CPI, in percentage terms. The base period for the cumulative rate of change is taken to be the first period of the chart. For example, if the base period is 1999:Q1, then the cumulative inflation differential for Japan for 2003:Q3 is as follows:

$$\text{inflation differential} = 100 \cdot \left(\frac{P_{2003Q3}^J / P_{1999Q1}^J}{P_{2003Q3}^{US} / P_{1999Q1}^{US}} - 1 \right)$$

where P_{2003Q3}^J is the Japanese CPI in the third quarter of 2003. For the U.S. chart on page 41, foreign CPI is calculated as the weighted average of the CPIs of countries whose currencies are used in the major currency trade-weighted exchange rate index. Starting in 1999, the euro-area harmonized consumer price index is used for the euro area. Prior to 1999, the price levels for the individual euro area countries (excluding Greece and Luxembourg) are used. The cumulative inflation differential is shown because the theory of purchasing power parity states that exchange rate changes should be systematically positively related to this variable.

Industrial Production measures the change in the volume of output in the mining, manufacturing, oil, electricity, gas, and water industries.

The **Short-Term Interest Rate** table on page 4 uses the relevant 3-month interest rate shown in the country pages.

The **Long-Term Interest Rate** table on page 4 uses the government bond rate. The government bond rate is a composite of yields on federal government bonds with maturities of more than 10 years for the United States; 10-year benchmark bonds for France; 7- to 15-year public sector bonds for Germany; 15- to 20-year government bonds through 1990 and 10-year government bonds starting in 1991 for Italy; and 10-year government bonds for Canada, the euro area, Japan, and the United Kingdom.

The **Reserve Money** table on page 4 refers to the adjusted monetary base for Japan and the United States; reserve money for Canada; and M0 for the United Kingdom. **Reserve Money** is currency in circulation, deposits of the deposit money banks, and demand deposits of other residents (with the exception of the central government) with the monetary authority.

Adjusted Monetary Base

Japan: currency in circulation and current deposits at the Bank of Japan.

United States: the sum of currency in circulation outside Federal Reserve banks and the U.S. Treasury, deposits of depository financial institutions at Federal Reserve banks, and an adjustment for the effects of changes in statutory reserve requirements on the quantity of base money held by depositories.

M0

United Kingdom: notes and coins in circulation outside the Bank of England and bankers' operational deposits at the Bank of England.

M1

Canada: currency in circulation and chartered bank net demand deposits.

Japan: cash, currency in circulation, and deposit money.

Euro area: currency in circulation and overnight deposits.

MZM

United States: currency in circulation, travelers' checks, total publicly-held checkable deposits minus cash items in the process of collection and Federal Reserve float, savings deposits, shares in retail money market mutual funds (funds with initial investments of less than \$50,000), net of retirement accounts, and institutional money market mutual funds.

M2

Canada: M1 plus all checkable notice deposits and personal term deposits.
United Kingdom: currency in circulation and sterling retail deposits with the U.K. banks and building societies.
United States: MZM less institutional money market mutual funds plus small denomination (less than \$100,000) time deposits.

M2 + CDs

Japan: M1 plus private deposits, public deposits less demand deposits, and certificates of deposit.

M3

Euro area: M1 plus deposits with a maturity up to 2 years, deposits redeemable at notice up to 3 months, repurchase agreements, money market funds, and debt securities up to 2 years.

M4

United Kingdom: M2 plus wholesale deposits with the U.K. banks and building societies.

Output Per Worker is the ratio of real GDP to employment.

Producer Price Index covers manufacturing for Canada and the United Kingdom; and total industry for Japan and the United States. Data for the euro area, France, Germany, and Italy are based on the harmonized index of total industry excluding construction.

Retail Sales are based on a volume index. The percent change in retail sales for the United States is based on the Standard Industrial Classification system through 1992 and the North American Industrial Classification System from 1993 on.

Stock Exchange Index refers to all share prices except for the United Kingdom, which excludes financial firms.

Unemployment Rate is the standardized unemployment rate. It is the percentage of the civilian labor force that is unemployed. The unemployed are all persons of working age who are without work, readily available for work, and actively seeking work. The standardized rate may differ from the national unemployment rate calculations.

Sources

Abbreviations

Board of Governors of the Federal Reserve System (BOG)
Bureau of Economic Analysis, U.S. Department of Commerce (BEA)
Bureau of Labor Statistics, U.S. Department of Labor (BLS)
International Monetary Fund, *International Financial Statistics* (IMF)
Organization for Economic Cooperation and Development,
Economic Outlook (OECD1)
Main Economic Indicators (OECD2)
National Accounts Quarterly (OECD3)

Canada

Bank of Canada: M1 and M2.
BOG: exchange rate.
IMF: foreign exchange reserves, merchandise and service trade, real effective exchange rate, and reserve money.
OECD1: government debt and budget balance.
OECD2: capacity utilization, consumer price index, current account balance, GDP, hourly earnings, industrial production, interest rates, producer price index, retail sales, stock exchange index, and unemployment rate.
Statistics Canada: employment.

Euro Area

European Central Bank: current account balance and employment.
Eurostat: capacity utilization, consumer price index, GDP, interest rates, merchandise trade, producer price index, and retail sales.

Haver Analytics: synthetic euro exchange rate.
IMF: real effective exchange rate.
OECD1: government debt and budget balance.
OECD2: hourly earnings, industrial production, M1, M3, stock exchange index, and unemployment.

France

BOG: exchange rate.
Eurostat: capacity utilization, consumer price index, and producer price index.
IMF: foreign exchange reserves, merchandise and service trade, and real effective exchange rate.
Institut National de la Statistique et des Etudes Economiques: employment.
OECD1: government debt and budget balance.
OECD2: current account balance, GDP, hourly earnings, industrial production, retail sales, interest rates, stock exchange index, and unemployment.

Germany

BOG: exchange rate.
Bundesanstalt Fur Arbeit: employment.
Eurostat: capacity utilization, consumer price index, and producer price index.
IMF: foreign exchange reserves, merchandise and service trade, and real effective exchange rate.
OECD1: government debt and budget balance.
OECD2: current account balance, GDP, hourly earnings, industrial production, M1, M3, retail sales, interest rates, stock exchange index, and unemployment.

Italy

BOG: exchange rate.
Eurostat: capacity utilization, consumer price index, and producer price index.
IMF: foreign exchange reserves, merchandise and service trade, and real effective exchange rate.
Istituto Nazionale di Statistica: employment.
OECD1: government debt and budget balance.
OECD2: current account balance, GDP, hourly earnings, industrial production, long-term interest rates, retail sales, stock exchange index, and unemployment.

Japan

Bank of Japan: adjusted monetary base and long-term interest rate.
BOG: exchange rate.
IMF: foreign exchange reserves, merchandise and service trade, and real effective exchange rate.
OECD1: government debt and budget balance.
OECD2: capacity utilization, consumer price index, current account balance, employment, GDP, hourly earnings, industrial production, M1, M2, producer price index, retail sales, short-term interest rate, stock exchange index, and unemployment.

United Kingdom

Bank of England: M2.
BOG: exchange rate.
IMF: foreign exchange reserves, merchandise and service trade, and real effective exchange rate.
OECD1: government debt and budget balance.
OECD2: capacity utilization, consumer price index, current account balance, GDP, industrial production, interest rates, M4, producer price index, retail sales, stock exchange index, unemployment, and weekly earnings.
U.K. Office for National Statistics: employment and M0.

United States

BOG: capacity utilization, exchange rate, industrial production index, M2, and interest rates.
BEA: GDP, current account balance, merchandise and service trade, and retail sales.
BLS: employment, consumer price index, and producer price index.
Federal Reserve Bank of St. Louis: adjusted monetary base and MZM.
IMF: foreign exchange reserves and real effective exchange rate.
OECD1: government debt and budget balance.
OECD2: hourly earnings, stock exchange index, and unemployment.