



Options on Economic Data

On October 1, 2002, Goldman Sachs and Deutsche Bank began auctioning options on economic news releases. The first auction was for options on the September U.S. nonfarm payrolls report, released October 4, while later contracts will include U.S. retail sales, gross domestic product, measures of consumer confidence, inflation, and German data.

A call (put) option confers the right, but not the obligation, to buy (sell) an asset at a given time in the future for a given price, called the strike price or exercise price. For instance, a call option with strike price of 100 on September nonfarm payroll growth garners \$1 per thousand jobs created in excess of 100,000. That is, if nonfarm payroll growth is announced to be 135,000, the buyer of such a call would receive \$35 for each unit purchased. If the September nonfarm payroll change is less than 100,000, the buyer of the call option receives nothing and loses the initial investment. (Only the initial announcement determines the payoff.) Therefore the potential loss in buying an option is limited to the price of the option, but the potential payoff is much greater.

Goldman Sachs and Deutsche Bank match buyers and sellers with a double Dutch auction in which prices are determined by the lowest successful bid and all winning bidders pay the same price for the option. Higher bidders, however, have first claim on larger quantities of the option.

The seller of the option is obligated to pay the buyer if the option ends up “in-the-money”—having a positive payout. For regulatory reasons and to reduce the risk that options sellers might default on their obligation to the buyers, only institutional investors and hedge funds may participate in the auctions and Goldman Sachs and/or Deutsche Bank will be the official counterparties to the buyers.

What economic good do these options on economic statistics provide? They permit firms and individuals to hedge risk, to reduce the danger that bad (or good) economic statistics will reduce their profit/wealth. For example, a construction firm might buy a put option on housing starts to hedge its risk against a slowdown in the industry. If announced housing starts are less than the “strike price” of the firm’s put option, the firm will receive a payment that will make up for the reduced revenue that accompanies fewer housing starts. Similarly, a cruise line might hedge itself against a downturn in travel by using options on consumer confidence.

These options not only allow firms and individuals to share the risk of uncertain economic outcomes, they also provide publicly available information about the likelihood of these outcomes. In other words, the options prices could help forecast the distribution of the economic statistics. For example, the difference between the prices of call options on September payroll growth with strike prices of 100 and 120 might be used to predict how likely it is that employment growth will be between 100,000 and 120,000. Because such forecasts are generated by firms “putting their money where their mouth is,” they might be more accurate than free forecasts. If this market succeeds, such implied forecasts might help both private decisionmakers and policymakers. A Goldman Sachs press release reports that the October 1 auction implicitly predicted a drop of 38,000 in the September nonfarm payrolls. The October 3 auction predicted a drop of 18,000 jobs. In fact, the actual decline was 43,000. Thus, both predictions from the options market bested the consensus forecast of +20,000 published on September 30 in the *Wall Street Journal*. Only time will tell if such good predictions from the economic derivatives market are the exception or the rule.

—Christopher J. Neely



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Conventions used in this publication:

1. Charts and tables contain data that were current through October 2002. 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.

We welcome your comments addressed to:

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Real Gross Domestic Product

Percent change from year ago

	99.3	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2
Canada	5.81	5.70	5.20	4.81	4.62	3.53	2.64	1.97	0.59	0.83	2.19	3.21
Euro Area	2.99	3.83	3.84	4.16	3.24	2.75	2.41	1.57	1.36	0.44	0.29	0.68
France	3.21	4.10	4.59	4.46	3.87	3.78	2.97	2.04	2.03	0.21	0.40	0.97
Germany	2.28	3.35	2.93	4.50	3.03	1.92	1.78	0.69	0.45	0.08	-0.23	0.06
Italy	1.44	2.99	3.18	2.96	2.63	2.61	2.59	2.28	1.78	0.59	0.00	0.19
Japan	2.06	0.58	3.63	2.32	0.72	2.33	1.35	-0.60	-0.54	-1.53	-2.53	-0.74
United Kingdom	2.37	3.19	3.43	3.62	3.05	2.25	2.46	2.04	1.80	1.57	1.05	1.33
United States	4.20	4.29	4.17	4.90	3.73	2.25	1.46	-0.14	-0.35	0.05	1.44	2.17

Nominal Gross Domestic Product

Percent change from year ago

	99.3	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2
Canada	8.66	8.81	9.25	9.18	8.63	7.46	6.15	4.00	0.69	-0.42	0.60	3.38
Euro Area	4.65	4.92	4.99	5.35	4.72	4.34	4.56	3.99	3.69	3.24	2.80	2.80
France	3.70	4.42	5.11	4.80	4.36	4.59	3.90	3.50	3.83	1.88	2.43	2.95
Germany	2.51	3.50	2.76	3.88	2.86	1.85	2.76	2.14	1.50	2.43	1.84	1.66
Italy	3.05	4.34	4.85	5.55	5.30	4.51	5.24	4.66	4.09	3.90	2.66	2.22
Japan	0.42	-1.26	1.68	0.14	-1.02	0.31	-0.54	-2.10	-1.73	-2.51	-3.09	-1.77
United Kingdom	5.01	5.56	5.66	6.03	5.28	4.33	4.87	4.00	2.86	4.00	4.32	4.00
United States	5.67	5.92	6.12	7.08	5.99	4.59	3.92	2.33	2.26	2.00	2.84	3.25

Consumer Price Index

Percent change from year ago

	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2	02.3
Canada	2.37	2.72	2.40	2.71	3.09	2.81	3.56	2.69	1.10	1.54	1.32	.
Euro Area	1.55	2.15	2.01	2.49	2.68	2.28	3.11	2.52	2.24	2.59	2.11	2.10
France	0.99	1.58	1.57	2.02	2.06	1.45	2.31	1.99	1.53	2.18	1.70	1.68
Germany	1.09	1.96	1.74	2.14	2.45	2.38	3.15	2.48	1.72	1.95	1.11	1.03
Italy	1.98	2.42	2.56	2.63	2.80	2.08	2.86	2.20	2.28	2.48	2.33	2.61
Japan	-0.99	-0.62	-0.66	-0.64	-0.77	-0.45	-0.72	-0.77	-1.00	-1.41	-0.89	.
United Kingdom	1.45	2.32	3.14	3.19	3.08	2.55	1.92	1.79	1.05	1.21	1.23	1.53
United States	2.62	3.22	3.31	3.53	3.38	3.41	3.38	2.66	1.89	1.25	1.30	1.58

Employment

Percent change from year ago

	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2	02.3
Canada	2.73	3.02	2.76	2.34	2.30	1.64	1.48	1.11	0.47	0.91	1.58	2.56
Euro Area	1.64	1.75	2.06	2.09	2.13	1.90	1.39	1.12	0.88	.	.	.
France	3.13	3.36	3.78	3.95	3.90	3.55	2.86	2.08	1.52	0.82	0.54	.
Germany	1.28	1.67	2.25	1.68	1.50	0.99	0.62	0.23	-0.12	-0.32	-0.55	.
Italy	0.98	1.15	1.46	2.05	2.30	2.05	1.45	1.39	1.35	1.76	1.67	.
Japan	-0.22	-0.46	-0.38	-0.37	0.22	0.43	-0.42	-0.82	-1.30	-1.46	-1.56	.
United Kingdom	2.11	1.87	1.67	1.01	1.27	1.05	0.92	0.70	0.28	0.26	-0.20	.
United States	1.50	1.58	1.51	1.05	1.01	0.60	-0.02	-0.11	-0.99	-1.41	-0.79	-0.20

Unemployment Rate

Percent

	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2	02.3
Canada	6.97	6.77	6.69	6.92	6.87	6.95	7.04	7.20	7.66	7.82	7.62	.
Euro Area	9.10	8.80	8.50	8.40	8.10	8.00	8.00	8.00	8.10	8.10	8.20	.
France	10.17	9.77	9.40	9.08	8.78	8.57	8.51	8.51	8.61	8.72	8.83	.
Germany	8.20	7.94	7.79	7.69	7.58	7.63	7.70	7.77	7.90	7.98	8.16	.
Italy	11.05	10.91	10.52	10.25	9.93	9.70	9.47	9.41	9.21	9.05	9.01	.
Japan	4.64	4.80	4.68	4.66	4.78	4.74	4.88	5.11	5.43	5.28	5.33	.
United Kingdom	5.67	5.59	5.35	5.22	5.12	5.01	4.94	5.04	5.08	5.06	5.11	.
United States	4.10	4.02	4.00	4.06	3.97	4.19	4.47	4.84	5.61	5.62	5.93	5.74

Reserve Money

Percent change from year ago

	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2	02.3
Canada	25.02	7.04	4.87	1.77	-7.98	3.16	6.88	7.31	4.22	7.21	5.32	.
Japan	14.92	10.72	6.36	4.09	-1.18	1.00	7.54	13.87	17.76	32.71	26.92	20.80
United Kingdom	9.37	9.69	8.06	7.72	6.45	6.78	6.88	7.04	7.55	7.54	8.87	.
United States	12.87	10.57	7.36	5.56	0.64	1.97	4.25	7.61	8.49	9.67	10.33	8.03

Narrow Money

Percent change from year ago

	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2	02.3
Canada	3.47	9.94	15.21	17.71	17.59	13.13	11.37	8.18	13.76	14.35	13.78	.
Euro Area	11.12	10.66	7.48	6.65	5.33	2.76	5.42	5.94	6.79	5.79	6.47	.
Japan	12.29	10.63	8.17	5.20	4.12	5.06	7.53	11.08	14.32	23.60	31.13	.
United Kingdom	7.43	6.92	6.87	6.88	7.21	8.56	9.62	10.01	9.90	9.28	8.37	.
United States	9.62	8.47	7.76	8.00	8.17	10.78	14.45	16.98	20.54	17.94	13.85	11.85

Broad Money

Percent change from year ago

	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2	02.3
Canada	3.76	5.65	7.09	7.52	7.12	5.72	5.16	4.37	5.66	5.90	5.89	.
Euro Area	5.39	6.95	5.52	5.19	4.12	6.57	8.50	9.53	11.25	7.17	6.62	.
Japan	2.71	1.93	1.85	1.98	1.96	2.51	2.90	3.18	3.37	3.69	3.27	.
United Kingdom	4.23	5.49	6.85	8.93	8.49	8.37	7.58	7.80	6.49	5.83	6.13	.
United States	6.33	6.03	6.14	6.05	6.10	7.10	8.06	9.39	10.31	9.25	7.58	7.39

Short-Term Interest Rates

Percent

	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2	02.3
Canada	5.04	5.28	6.12	5.90	5.81	5.10	4.48	3.95	2.39	2.11	2.58	2.89
Euro Area	3.43	3.54	4.26	4.74	5.02	4.75	4.59	4.27	3.44	3.36	3.44	3.36
Japan	0.29	0.11	0.08	0.27	0.54	0.36	0.04	0.04	0.04	0.12	0.04	.
United Kingdom	5.90	6.12	6.19	6.12	5.99	5.64	5.23	4.92	4.09	4.01	4.10	.
United States	6.06	6.03	6.57	6.63	6.59	5.26	4.10	3.34	2.06	1.82	1.83	1.76

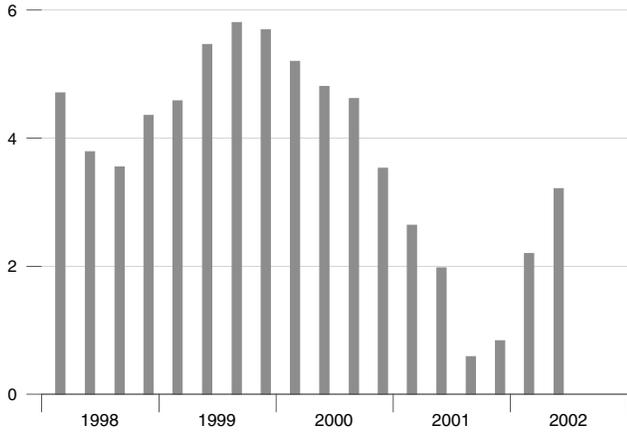
Long-Term Interest Rates

Percent

	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2	02.3
Canada	6.21	6.20	5.96	5.81	5.72	5.67	5.95	5.90	5.64	5.77	5.85	.
Euro Area	5.32	5.62	5.43	5.44	5.28	4.99	5.19	5.12	4.82	5.14	5.25	4.76
France	5.71	5.93	5.90	5.99	5.75	5.48	5.55	5.34	5.15	5.46	5.53	5.12
Germany	5.17	5.43	5.27	5.27	5.10	4.77	4.97	4.87	4.60	5.00	5.13	4.61
Italy	5.38	5.69	5.55	5.59	5.48	5.16	5.37	5.27	4.94	5.25	5.36	4.85
Japan	1.78	1.79	1.71	1.79	1.74	1.39	1.28	1.36	1.35	1.41	1.28	1.11
United Kingdom	5.50	5.60	5.30	5.28	5.05	4.81	5.10	5.05	4.79	5.05	5.22	.
United States	6.55	6.54	6.29	6.06	5.85	5.56	5.81	5.59	5.44	5.70	5.72	5.09

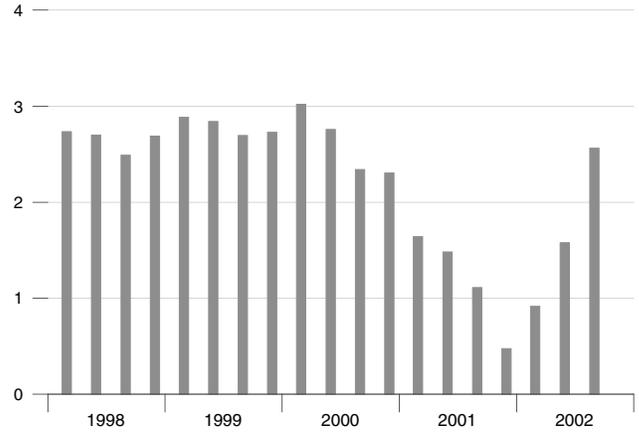
Real GDP

Percent change from year ago



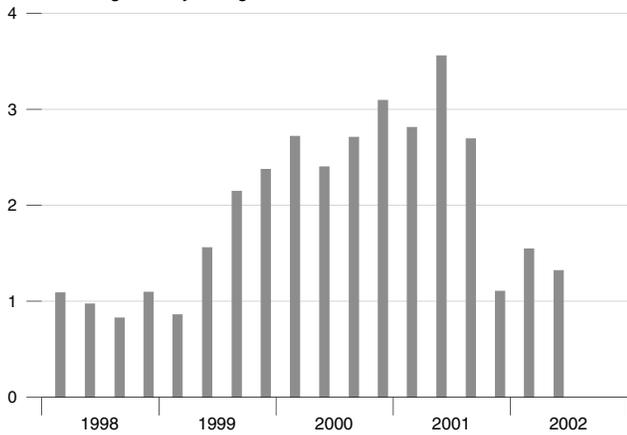
Employment

Percent change from year ago



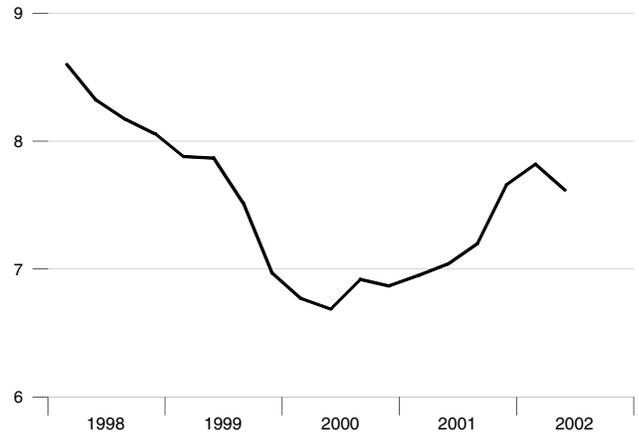
Consumer Price Index

Percent change from year ago



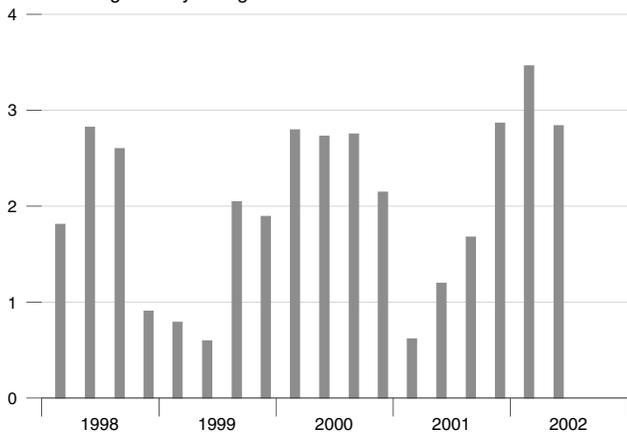
Unemployment Rate

Percent



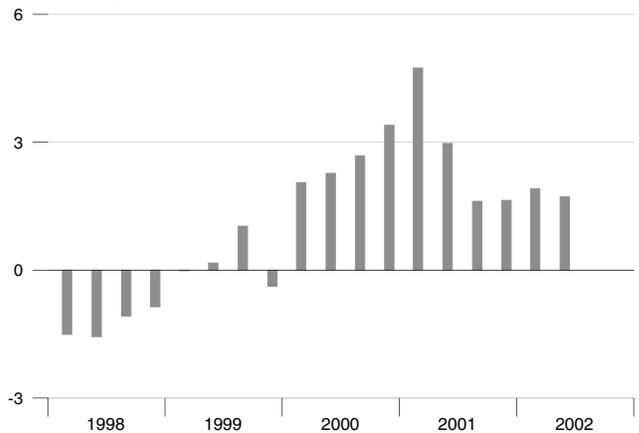
Hourly Earnings

Percent change from year ago



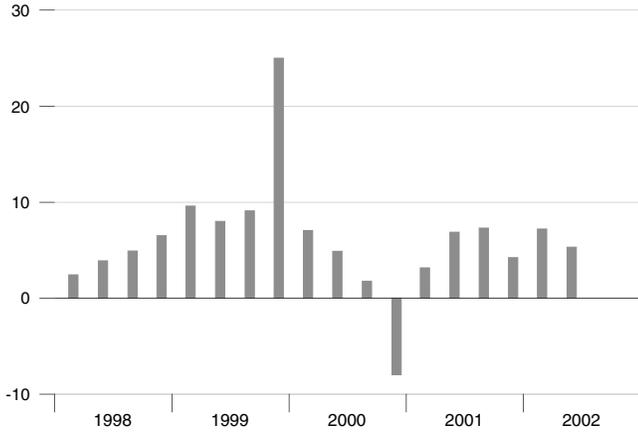
Current Account Balance

Percent of GDP



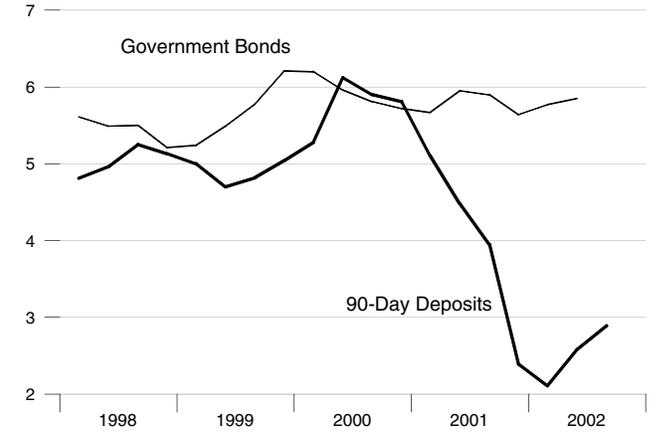
Reserve Money

Percent change from year ago



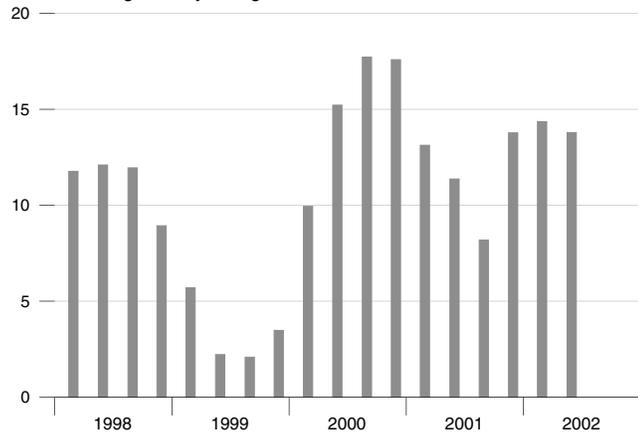
Interest Rates

Percent



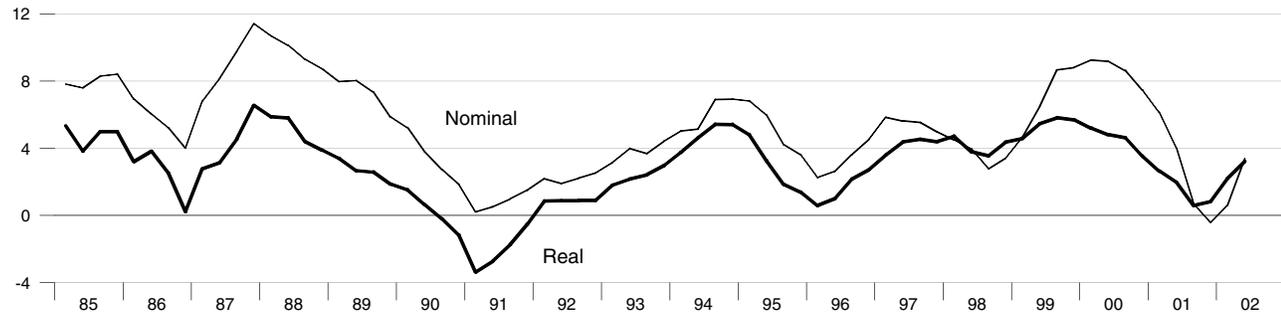
M1

Percent change from year ago



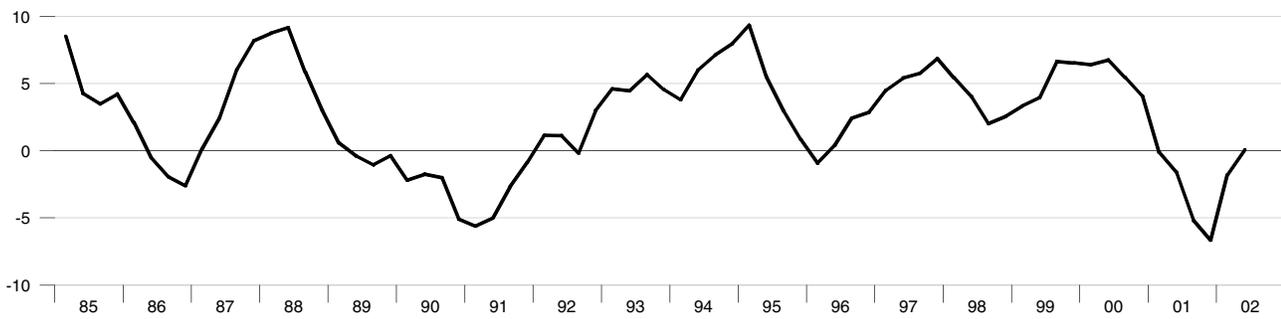
GDP

Percent change from year ago



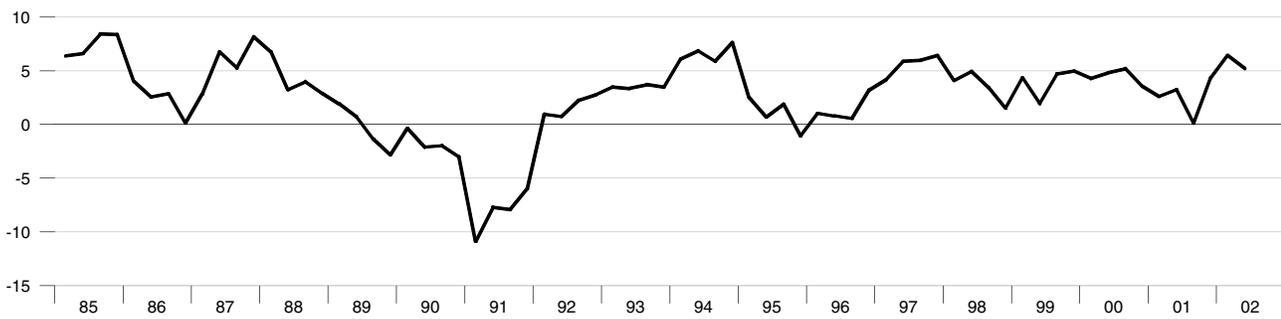
Industrial Production

Percent change from year ago



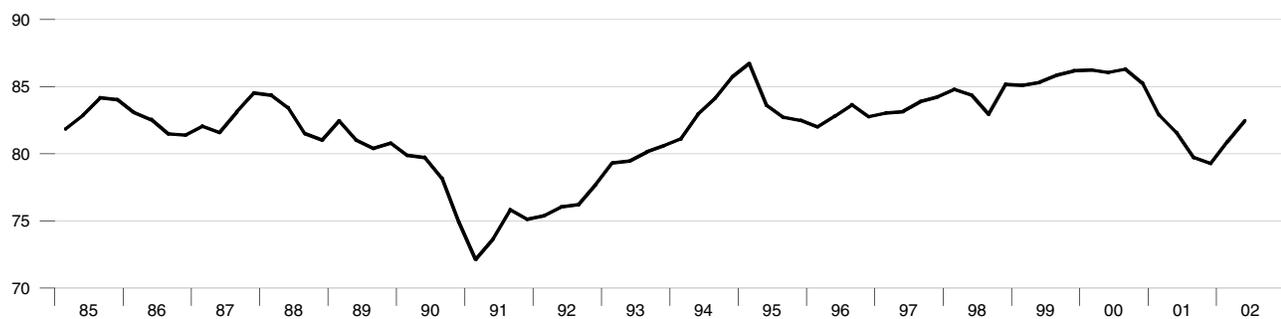
Retail Sales

Percent change from year ago

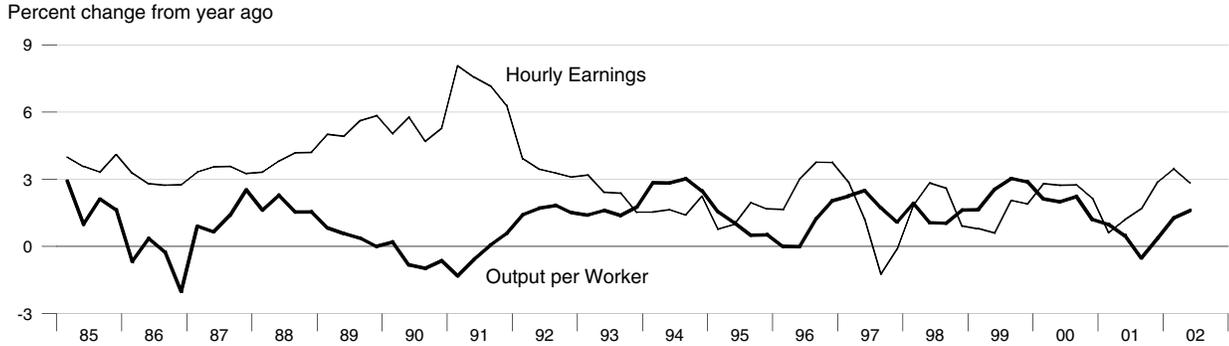


Capacity Utilization

Percent



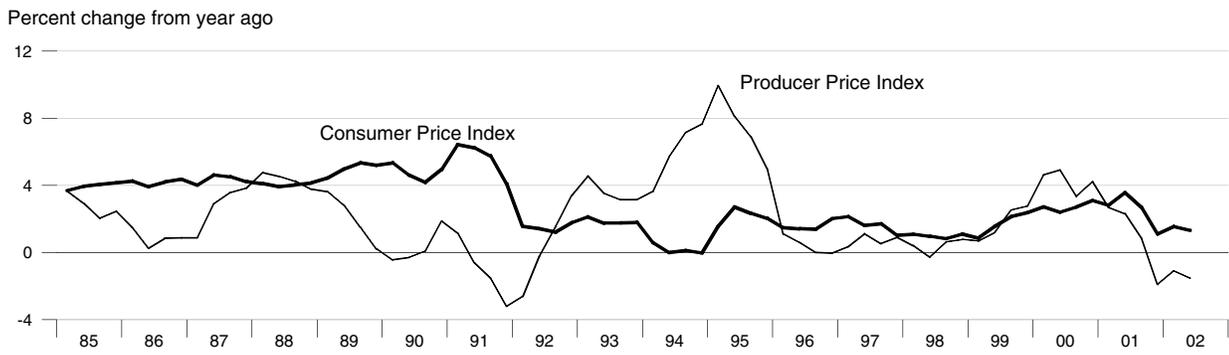
Hourly Earnings and Output per Worker



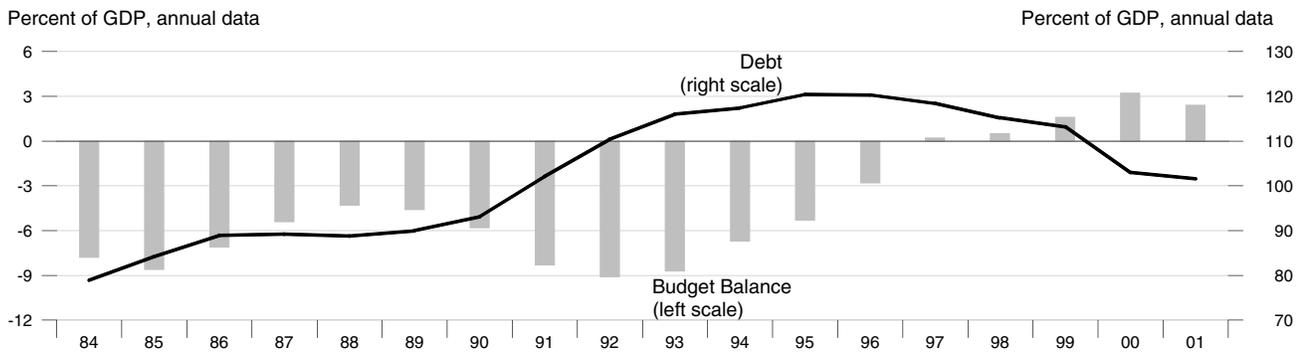
Labor Force Indicators



Inflation

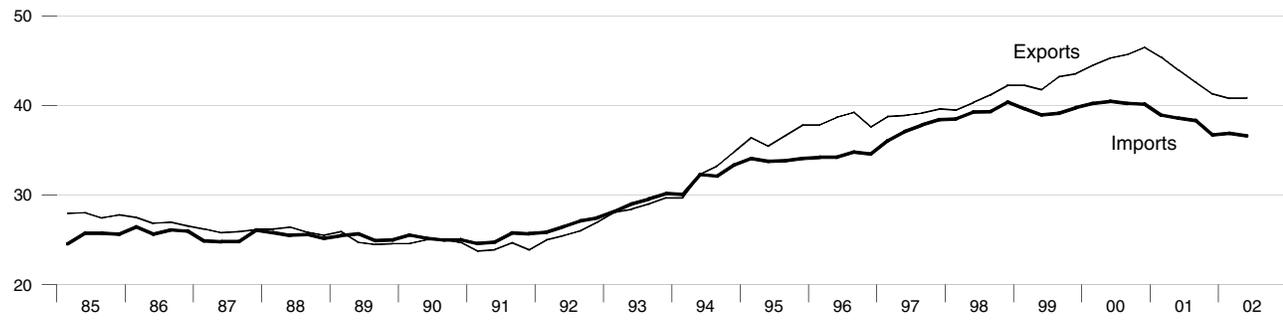


Government Debt and Budget Balance



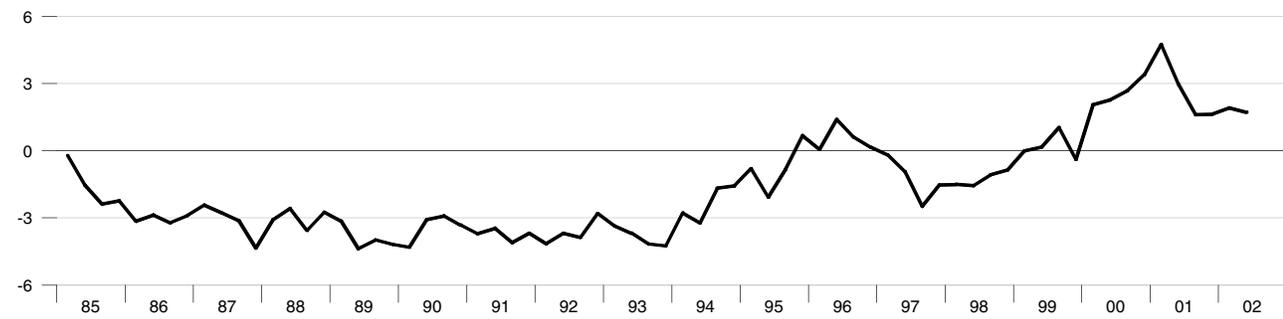
International Trade - Goods and Services

Percent of GDP



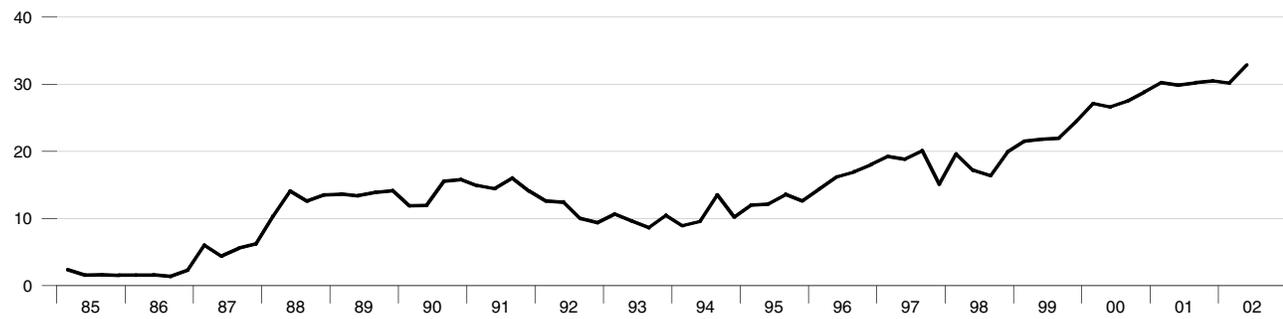
Current Account Balance

Percent of GDP



Foreign Exchange Reserves

Billions of US\$



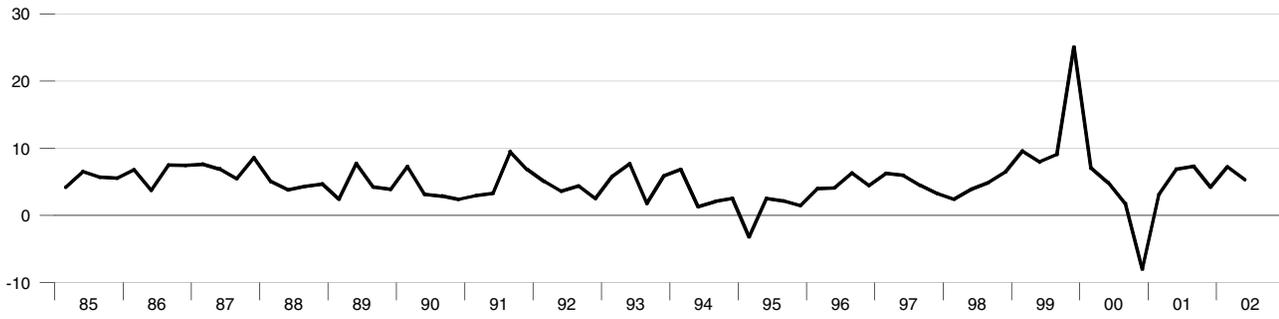
Real Effective Exchange Rate

Index 1995 = 100



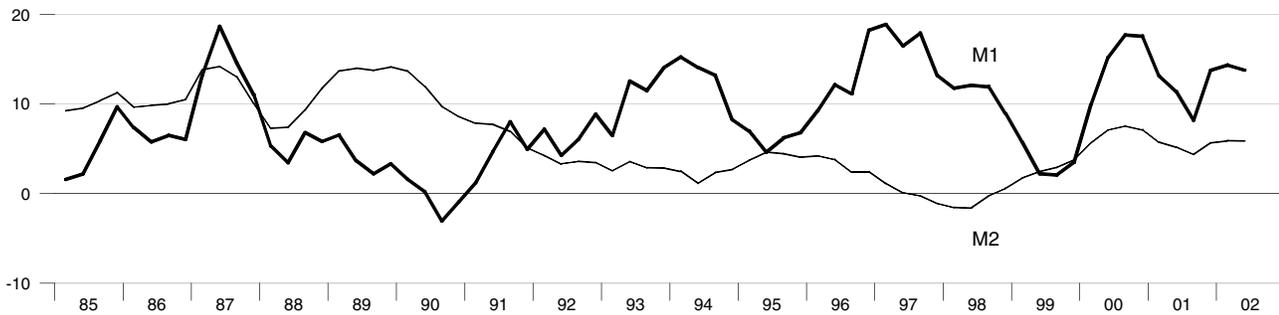
Reserve Money

Percent change from year ago



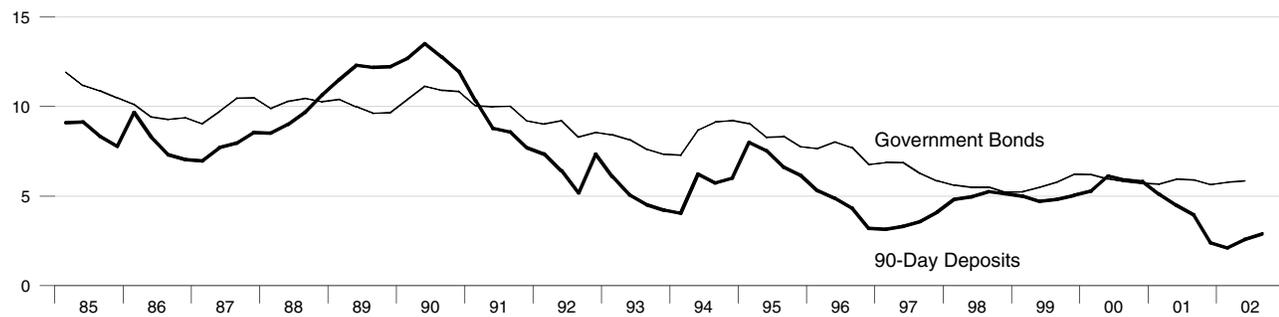
Monetary Aggregates

Percent change from year ago



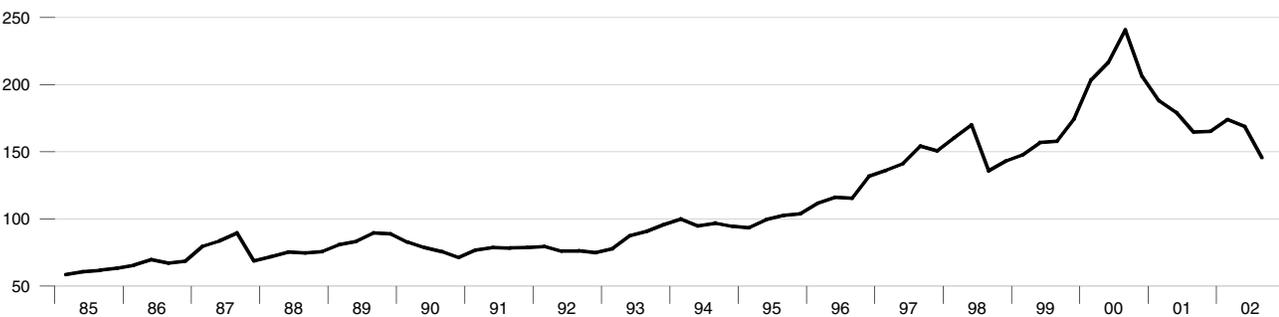
Interest Rates

Percent



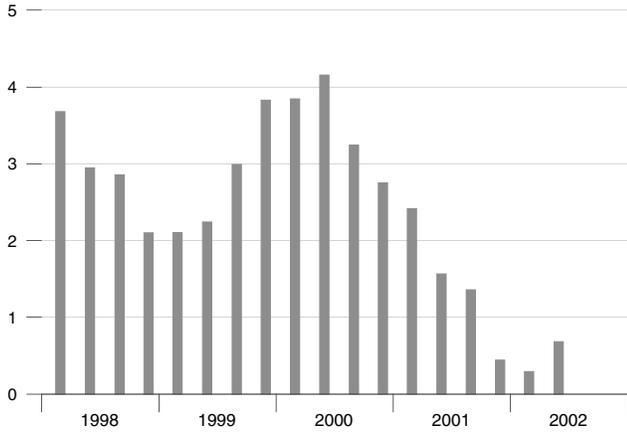
Stock Exchange Index - Toronto Stock Exchange

1995 = 100



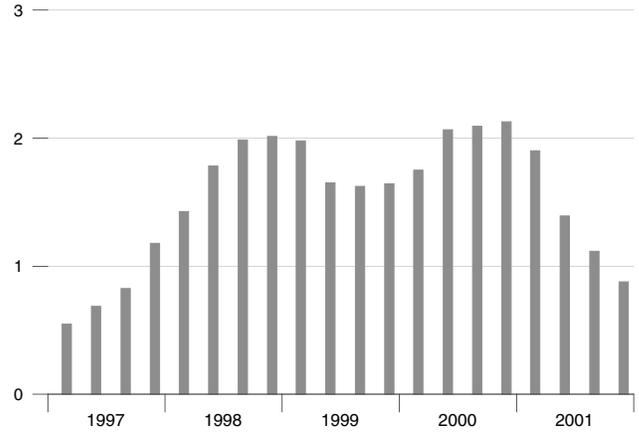
Real GDP

Percent change from year ago



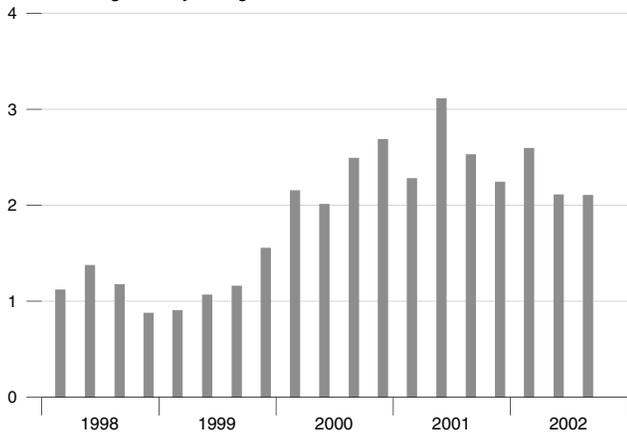
Employment

Percent change from year ago



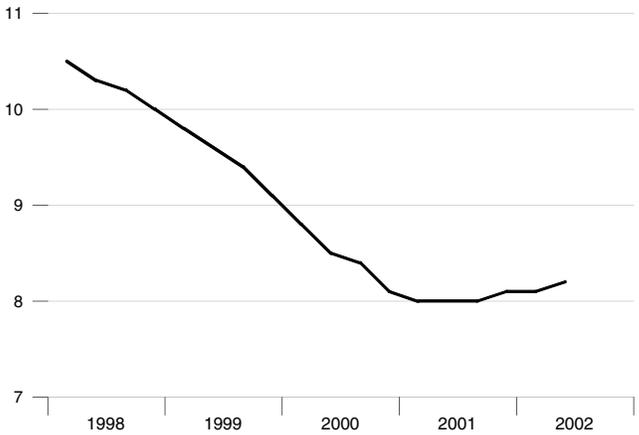
Consumer Price Index

Percent change from year ago



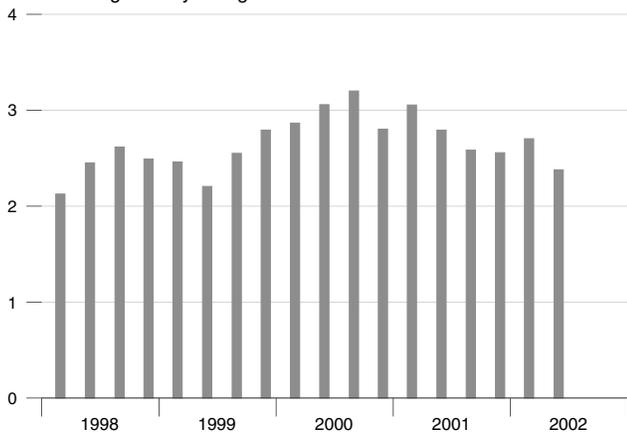
Unemployment Rate

Percent



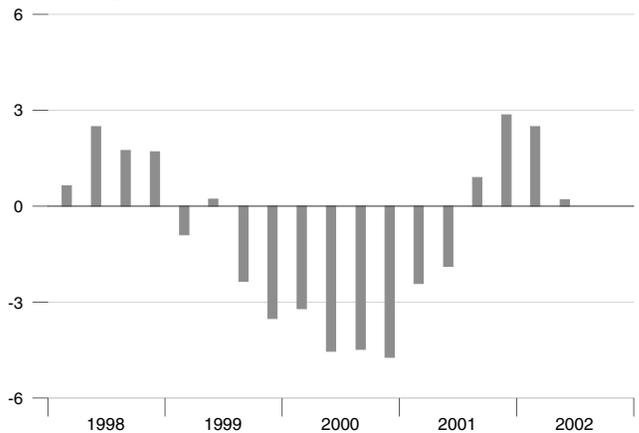
Hourly Earnings

Percent change from year ago



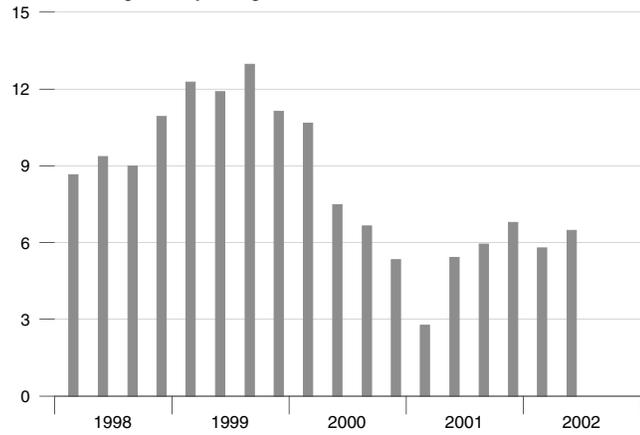
Current Account Balance

Percent of GDP



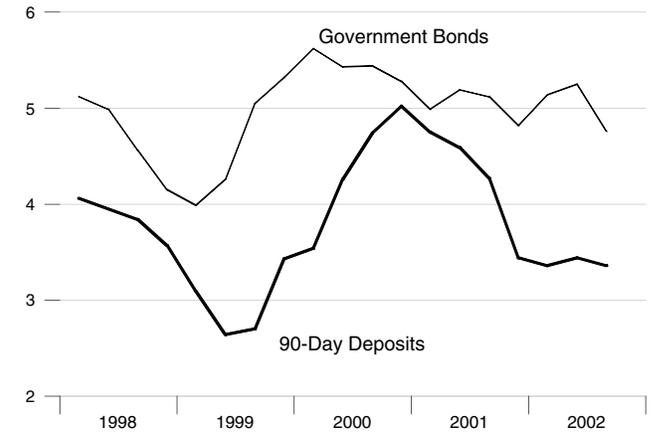
M1

Percent change from year ago



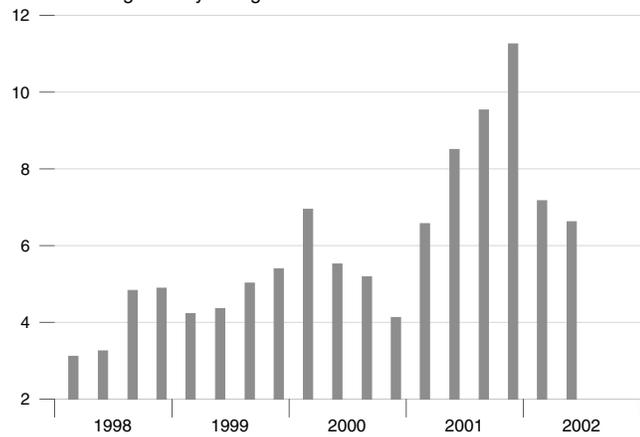
Interest Rates

Percent



M3

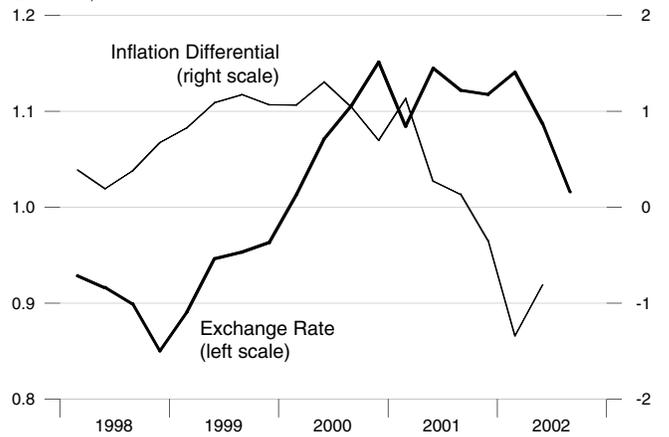
Percent change from year ago



Exchange Rate and Inflation Differential

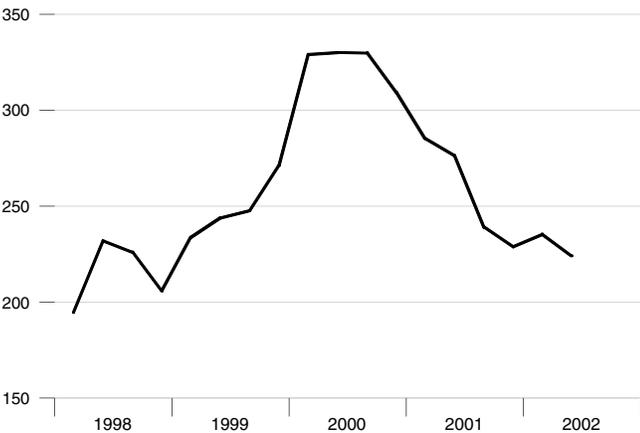
Euro/US\$

Percent



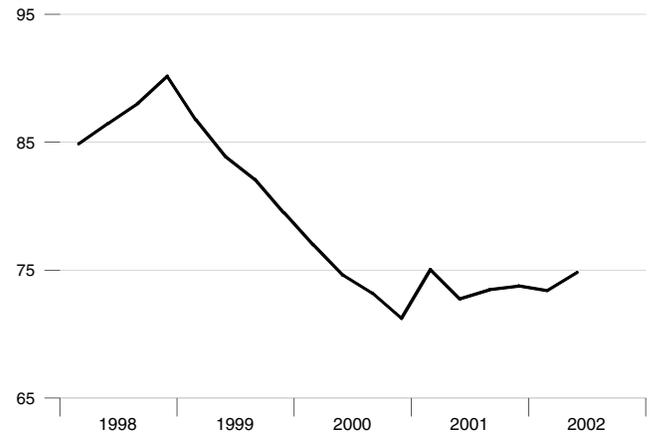
Stock Exchange Index - Dow Jones EURO STOXXSM

1995 = 100



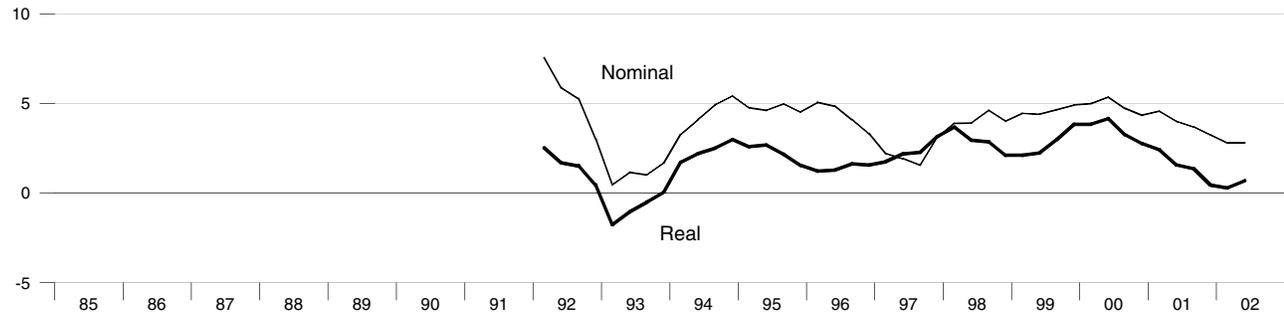
Real Effective Exchange Rate

Index 1995 = 100



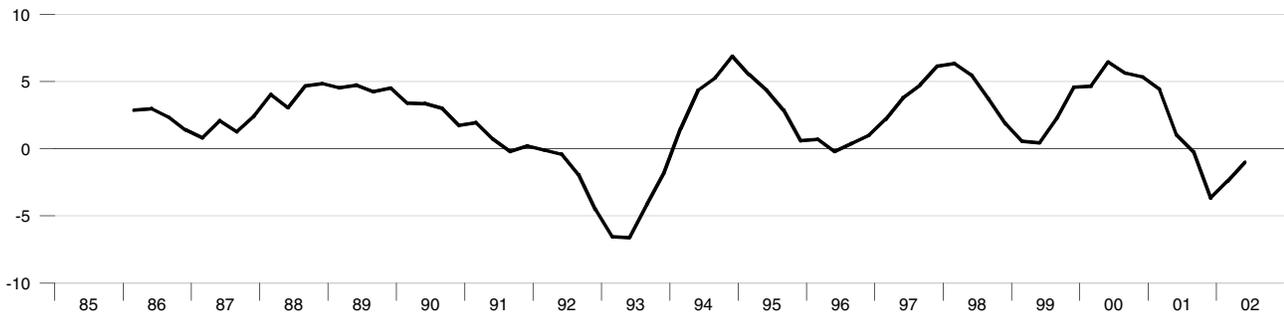
GDP

Percent change from year ago



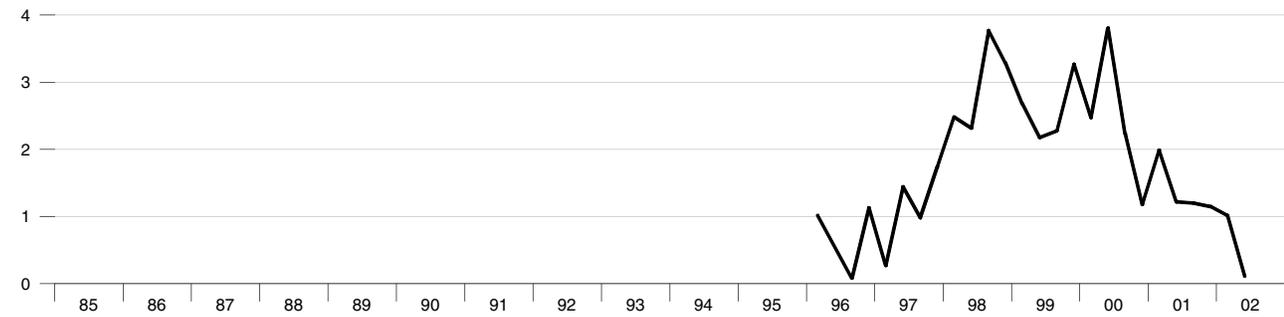
Industrial Production

Percent change from year ago



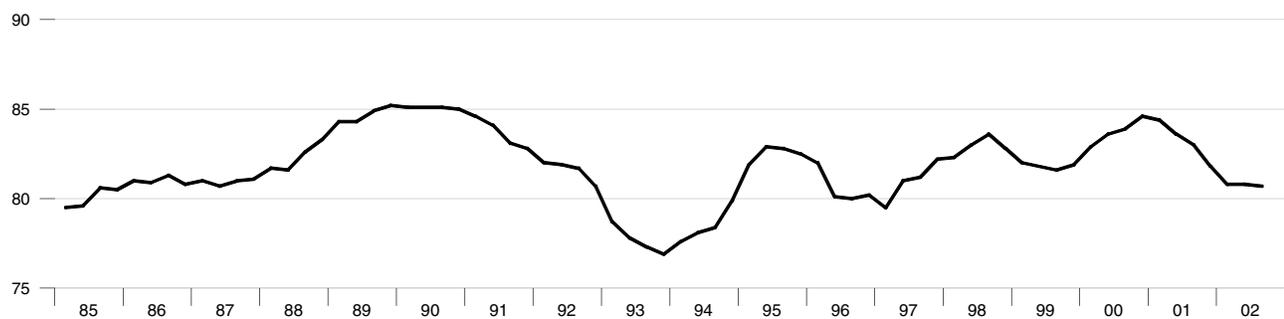
Retail Sales

Percent change from year ago

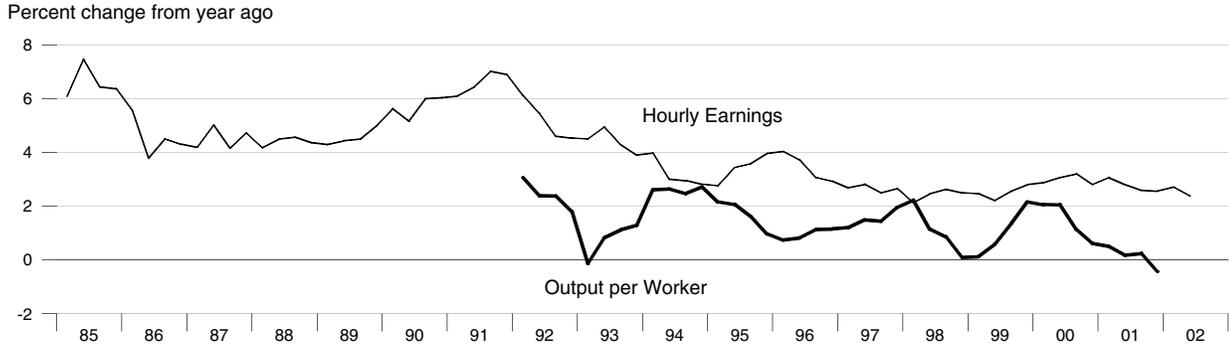


Capacity Utilization

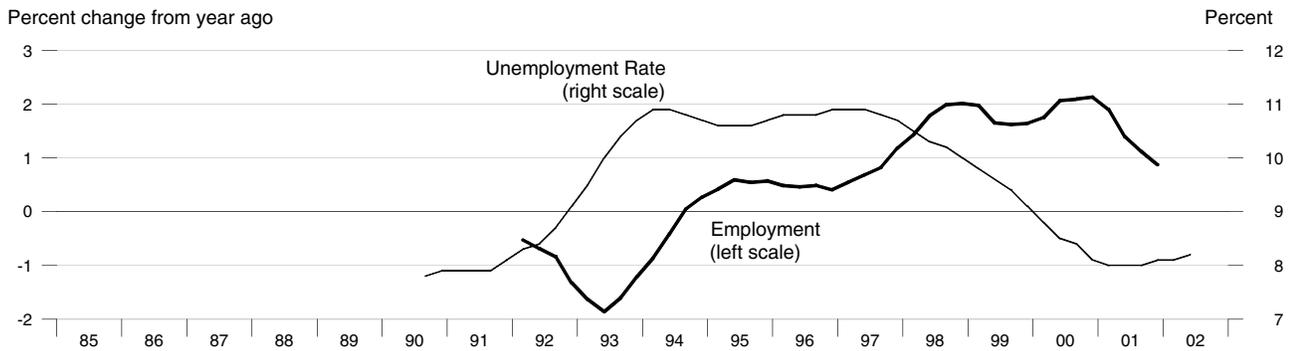
Percent



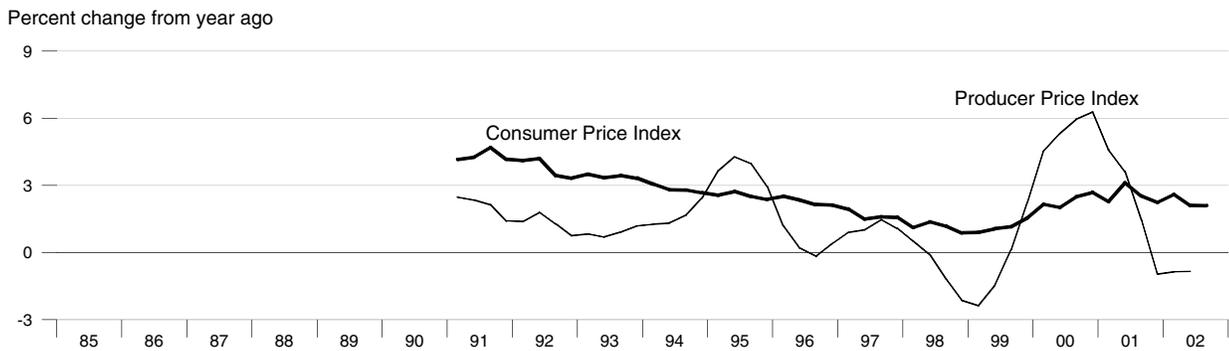
Hourly Earnings and Output per Worker



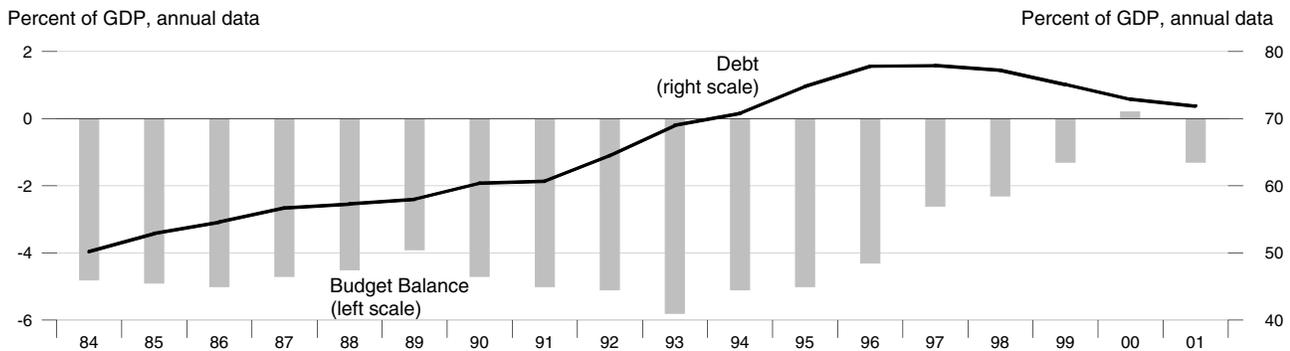
Labor Force Indicators



Inflation

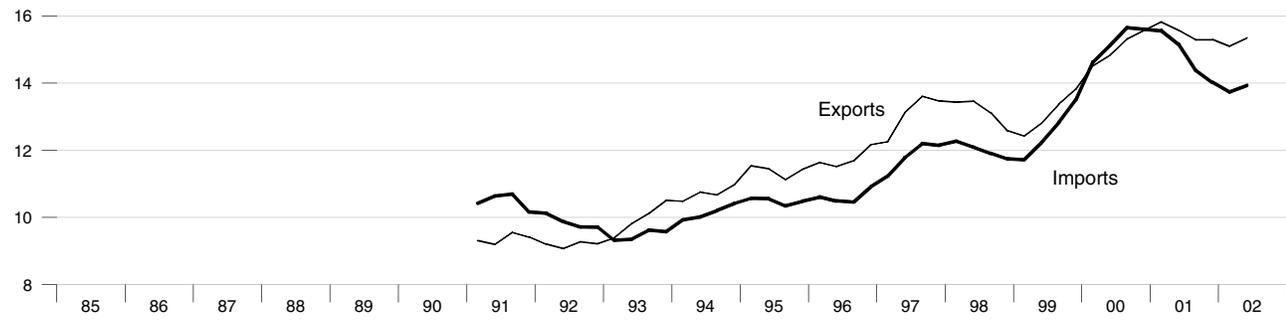


Government Debt and Budget Balance



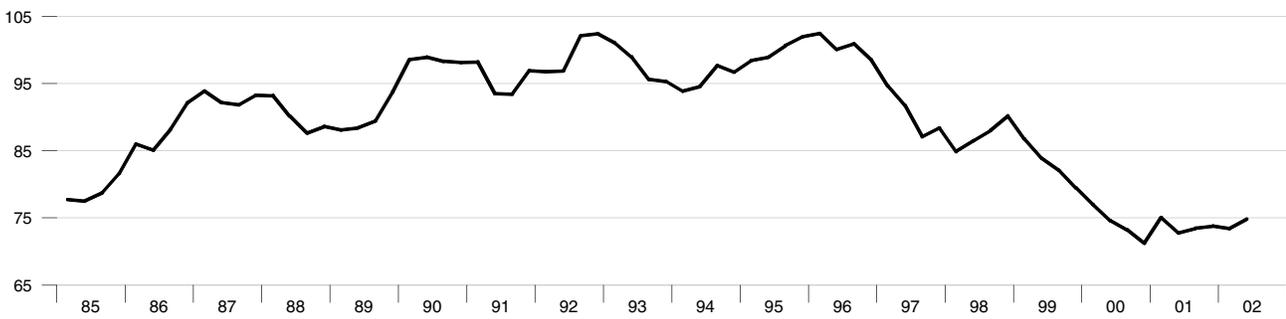
International Trade - Goods

Percent of GDP



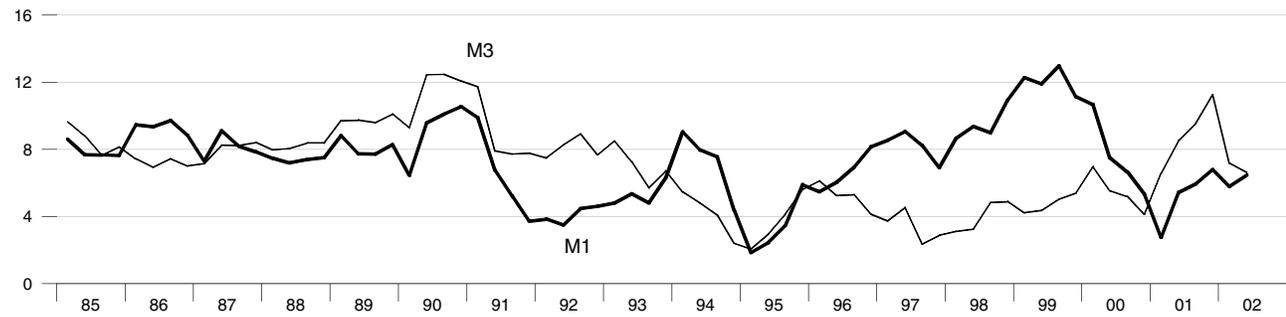
Real Effective Exchange Rate

Index 1995 = 100



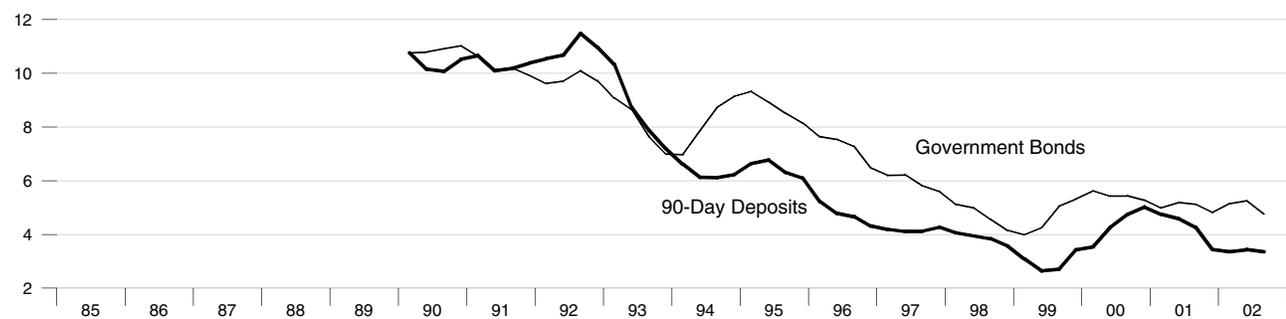
Monetary Aggregates

Percent change from year ago



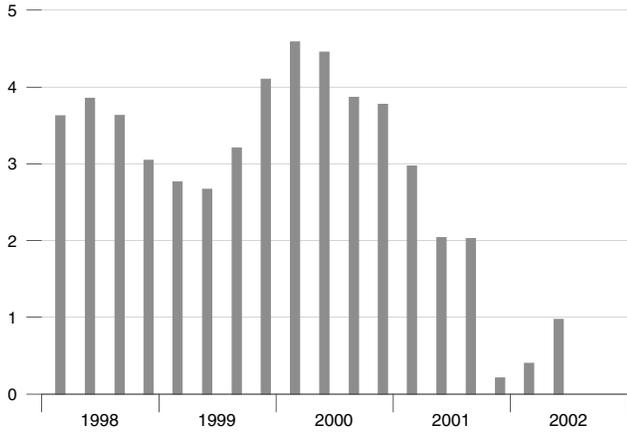
Interest Rates

Percent



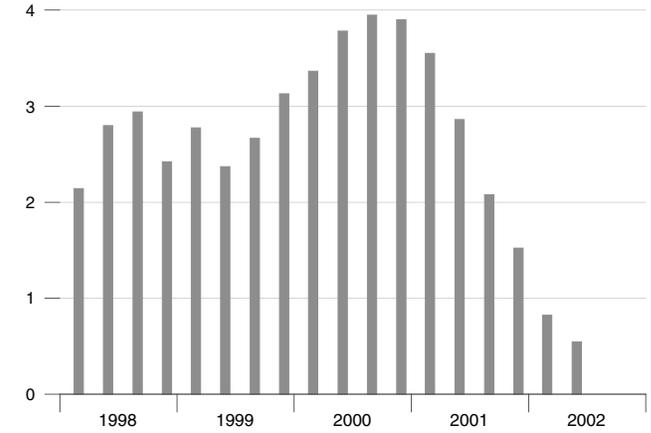
Real GDP

Percent change from year ago



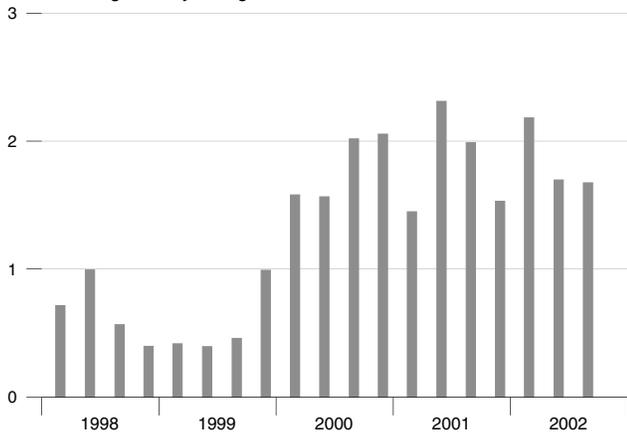
Employment

Percent change from year ago



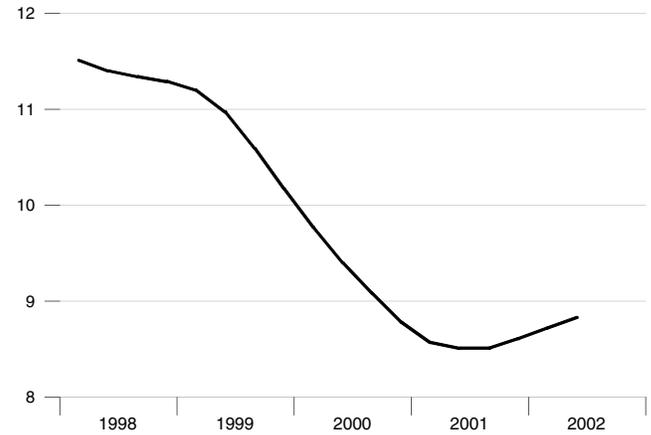
Consumer Price Index

Percent change from year ago



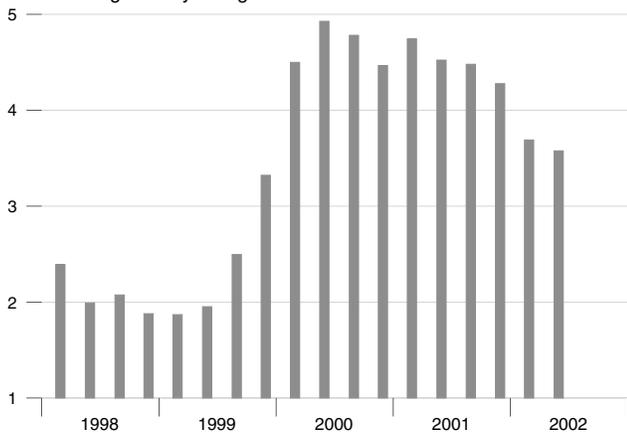
Unemployment Rate

Percent



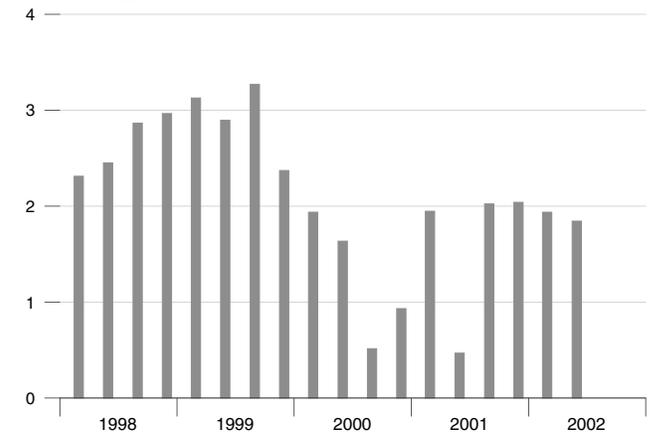
Hourly Earnings

Percent change from year ago



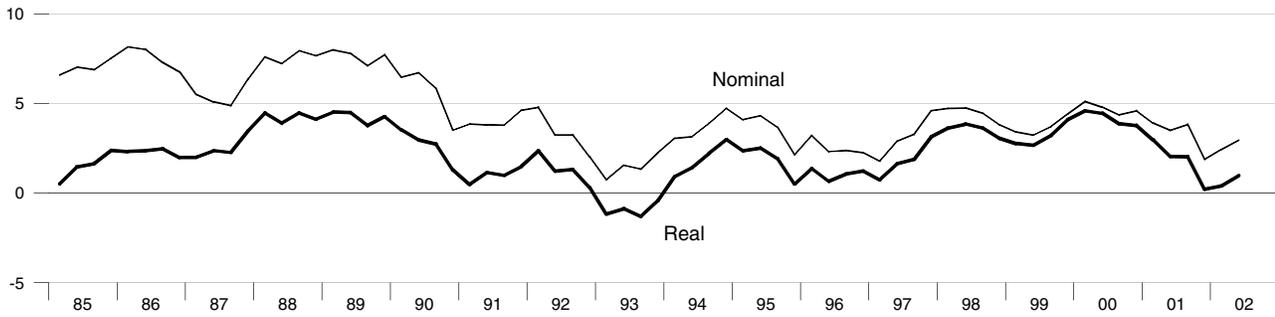
Current Account Balance

Percent of GDP



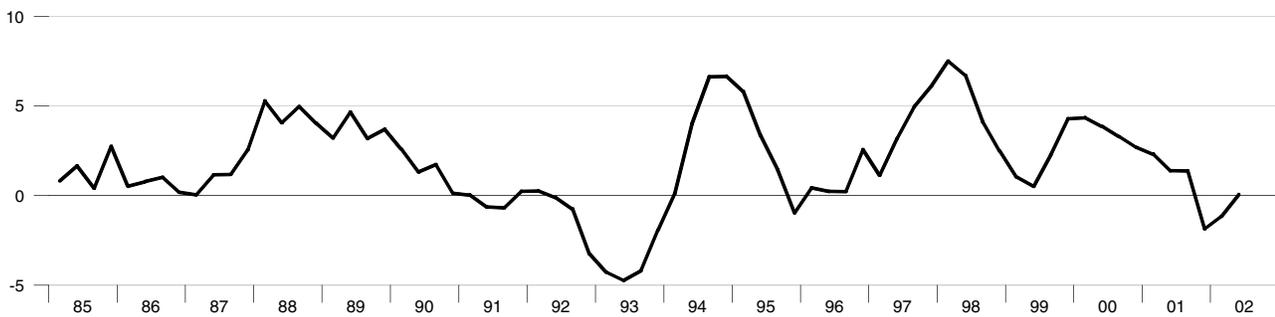
GDP

Percent change from year ago



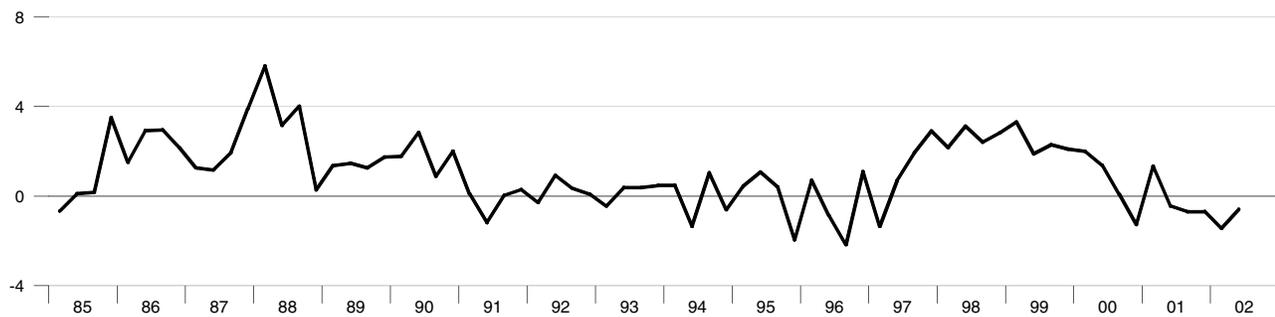
Industrial Production

Percent change from year ago



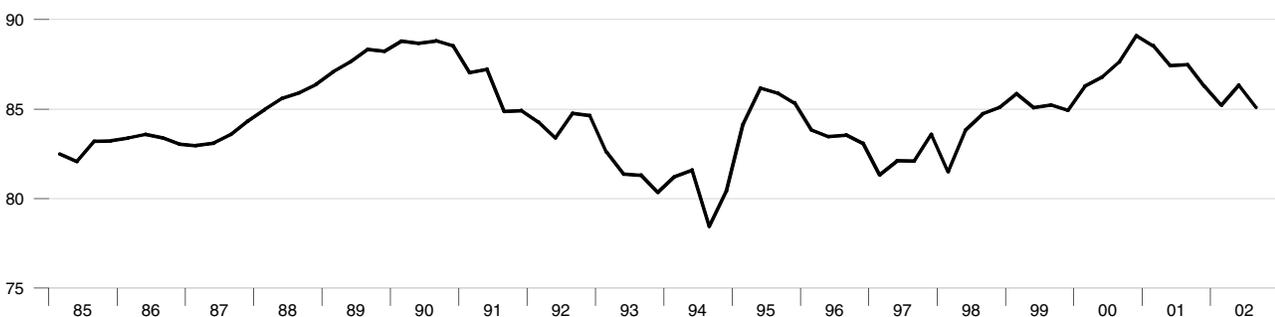
Retail Sales

Percent change from year ago



Capacity Utilization

Percent



Hourly Earnings and Output per Worker

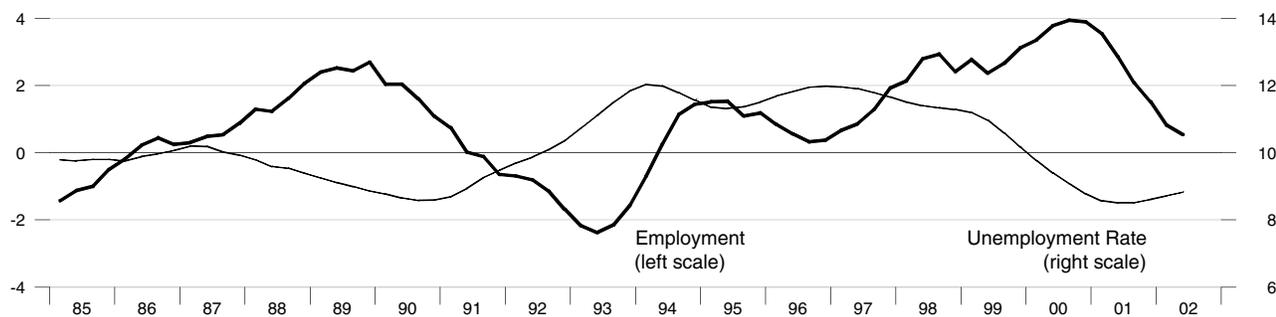
Percent change from year ago



Labor Force Indicators

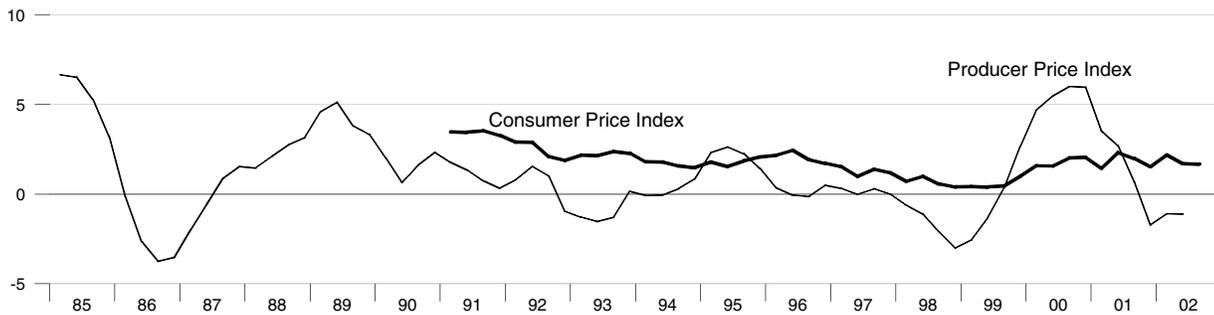
Percent change from year ago

Percent



Inflation

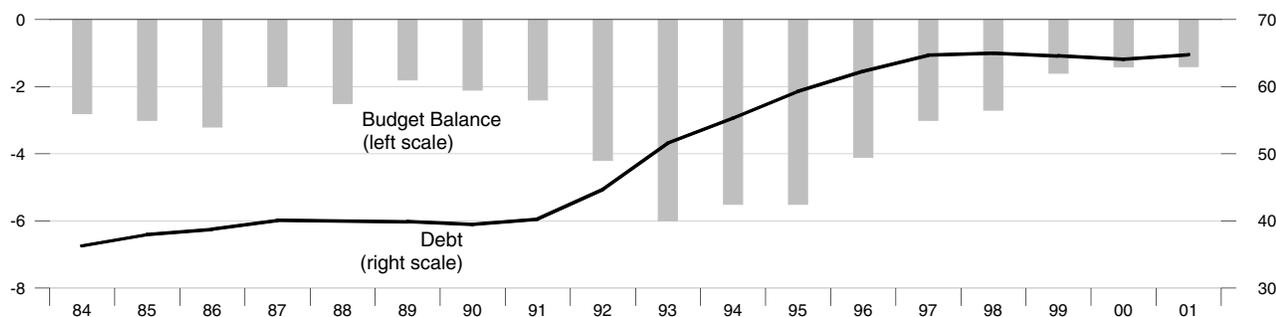
Percent change from year ago



Government Debt and Budget Balance

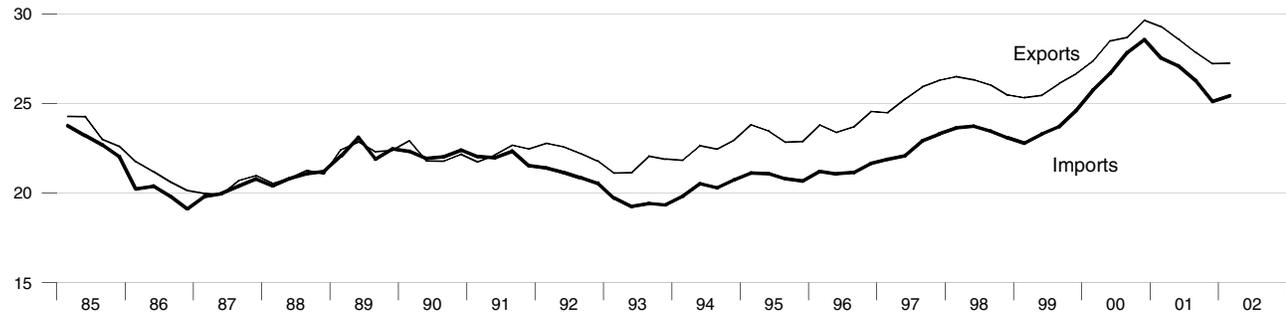
Percent of GDP, annual data

Percent of GDP, annual data



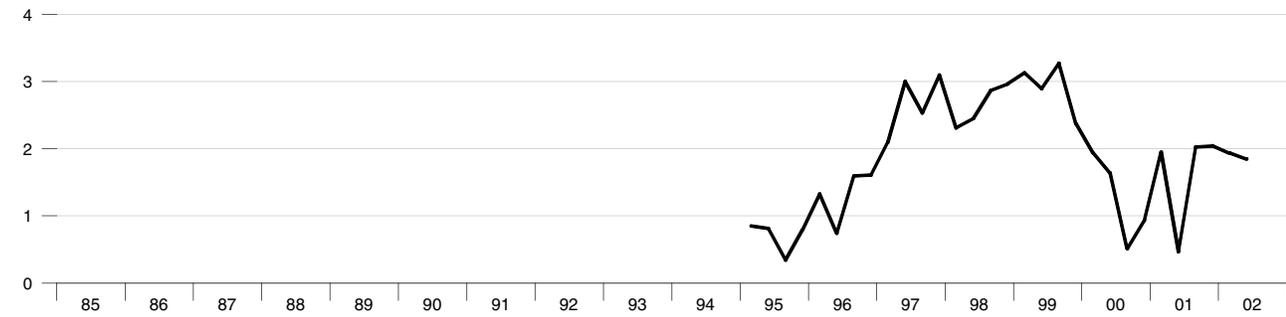
International Trade - Goods and Services

Percent of GDP



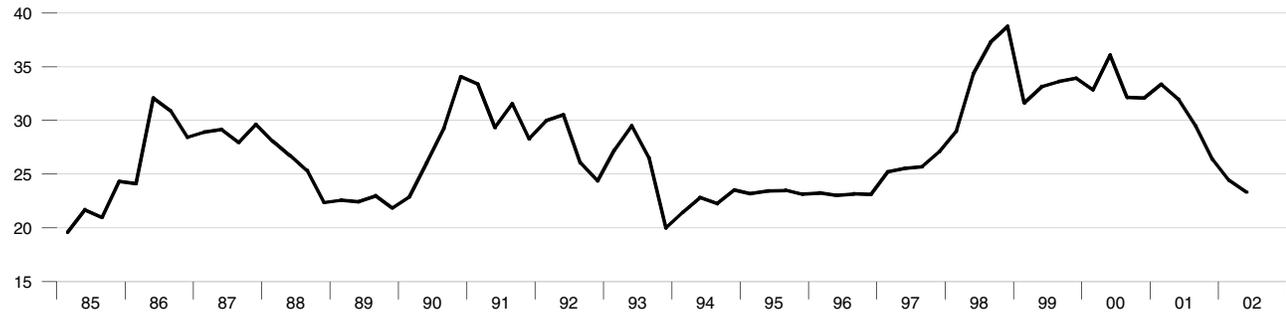
Current Account Balance

Percent of GDP



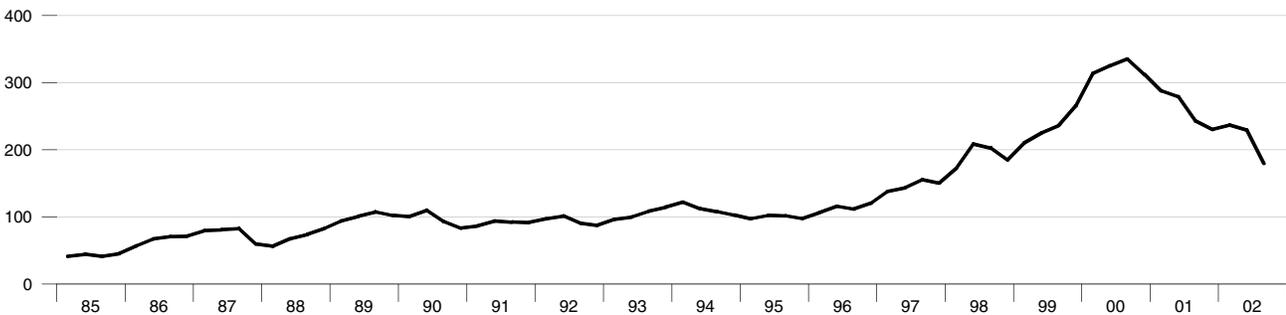
Foreign Exchange Reserves

Billions of US\$



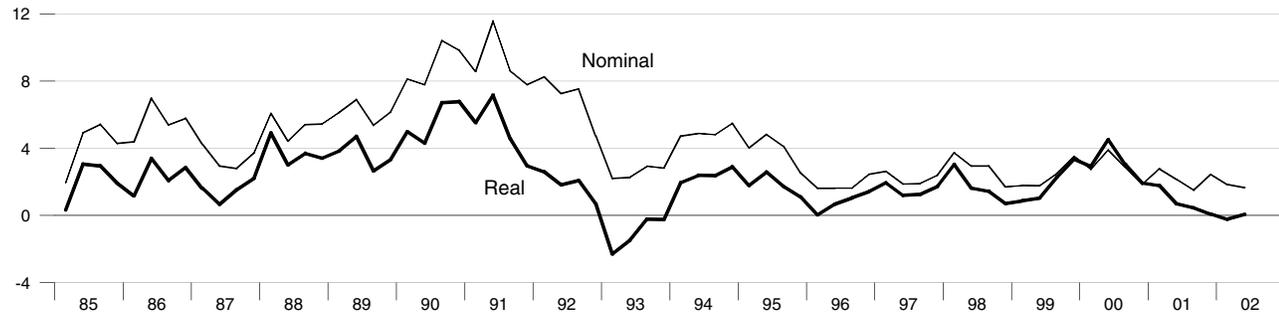
Stock Exchange Index - SBF 250

1995 = 100



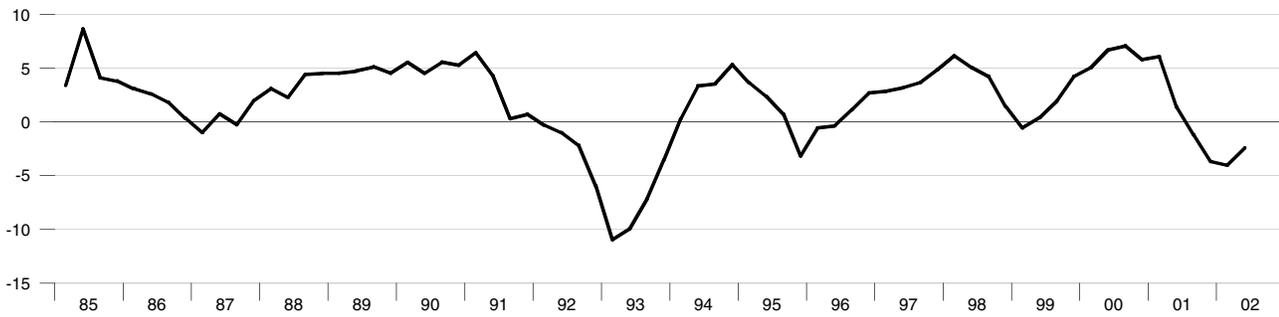
GDP

Percent change from year ago



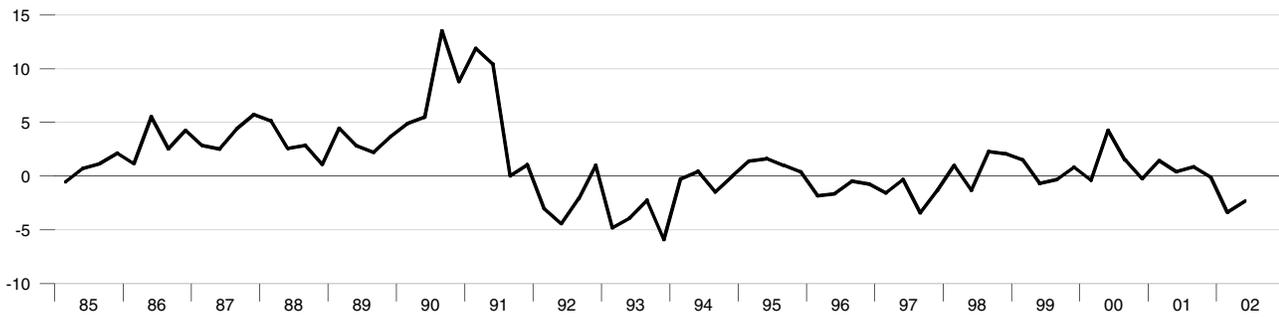
Industrial Production

Percent change from year ago



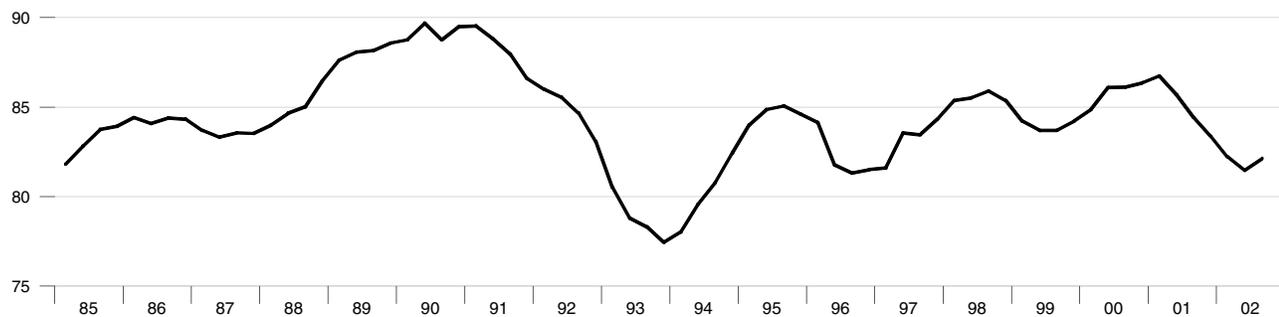
Retail Sales

Percent change from year ago

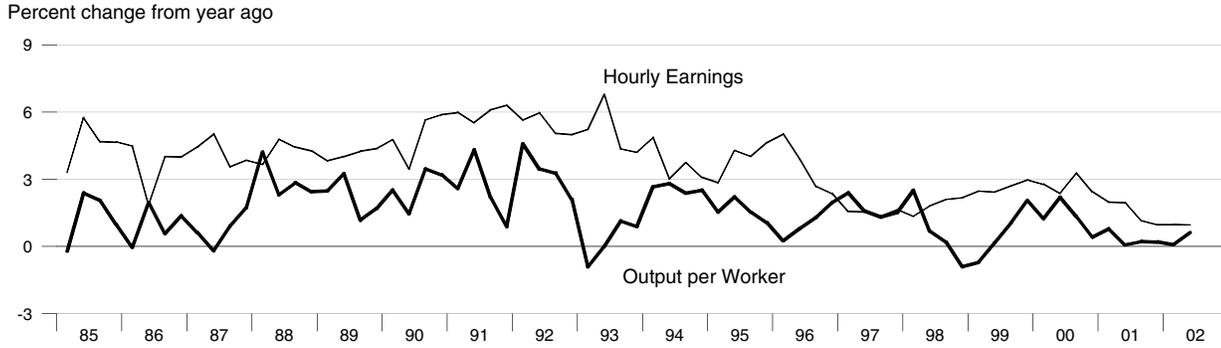


Capacity Utilization

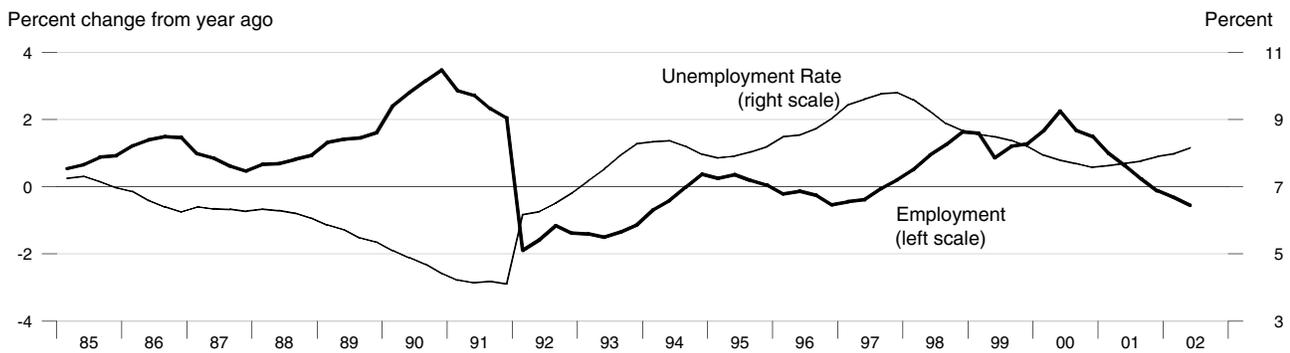
Percent



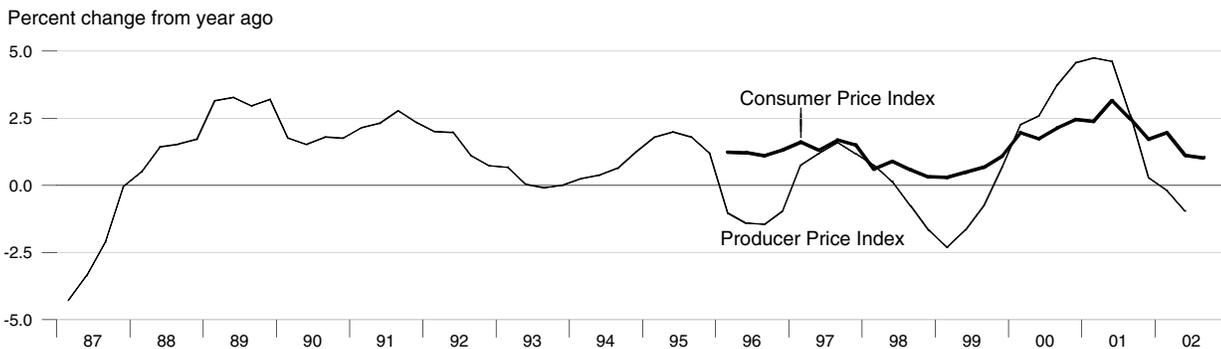
Hourly Earnings and Output per Worker



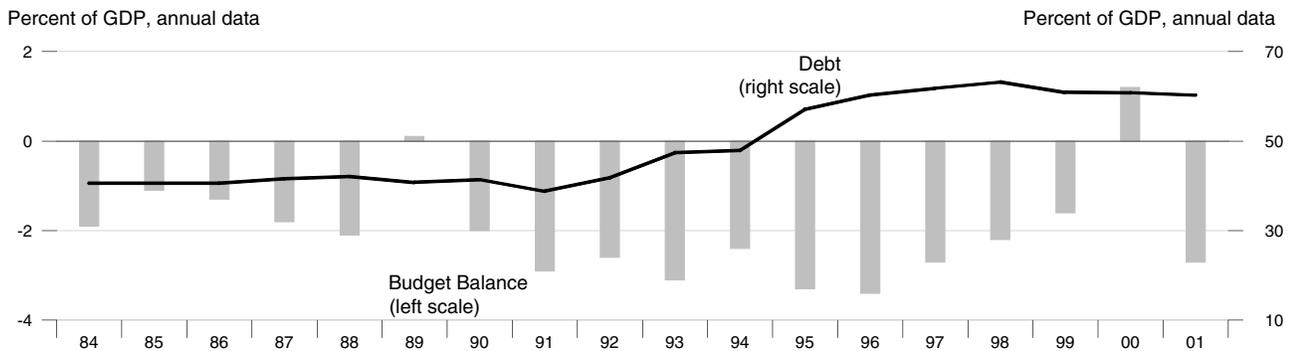
Labor Force Indicators



Inflation

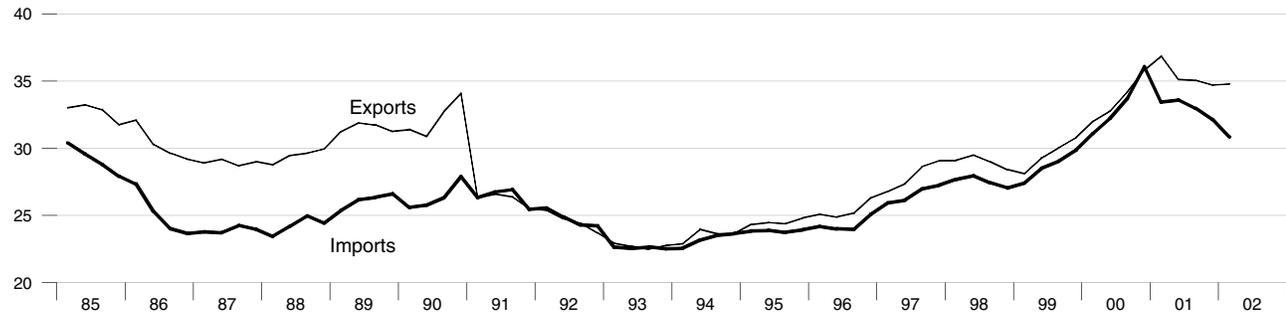


Government Debt and Budget Balance



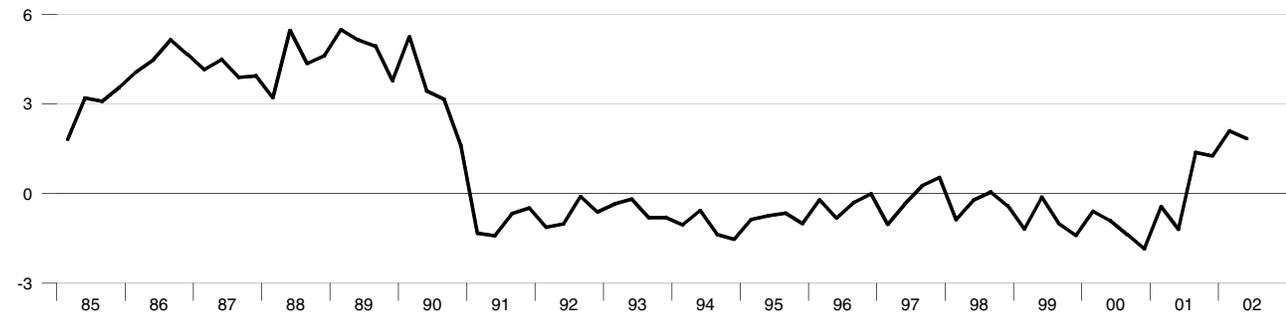
International Trade - Goods and Services

Percent of GDP



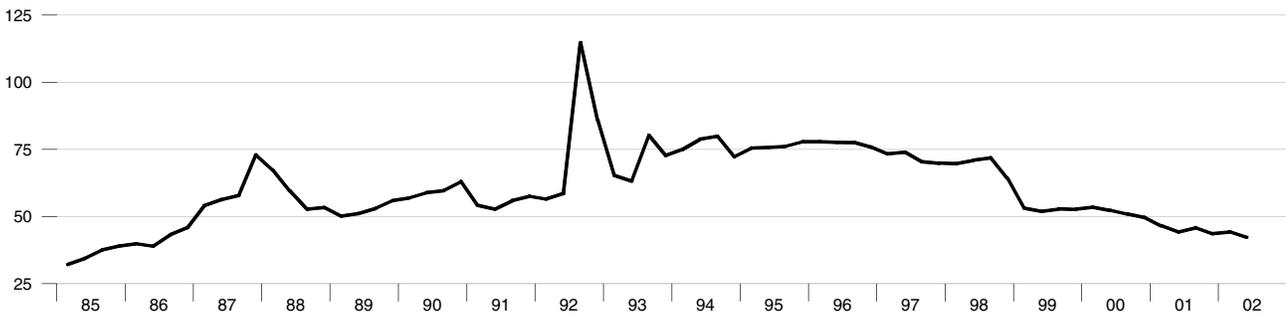
Current Account Balance

Percent of GDP



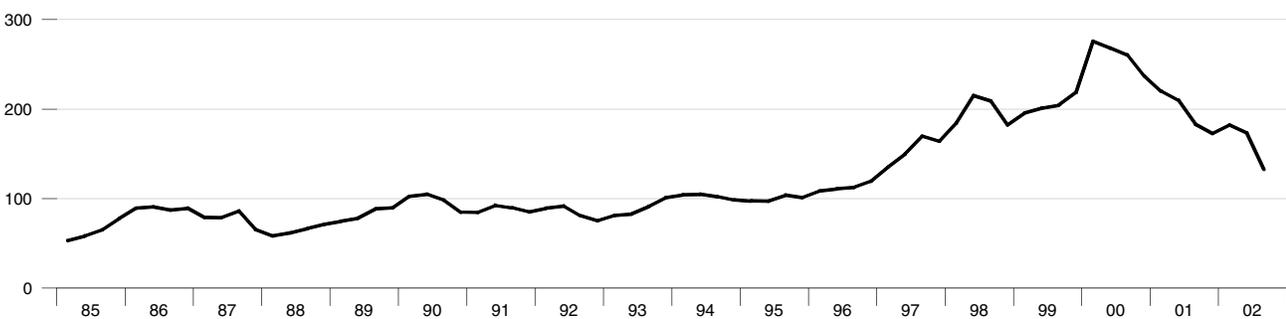
Foreign Exchange Reserves

Billions of US\$



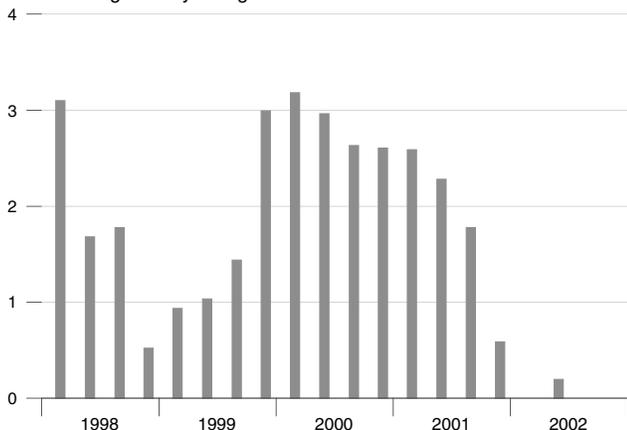
Stock Exchange Index - CDAX

1995 = 100



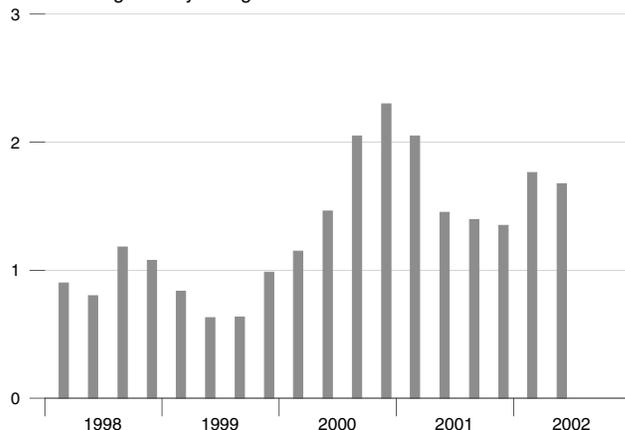
Real GDP

Percent change from year ago



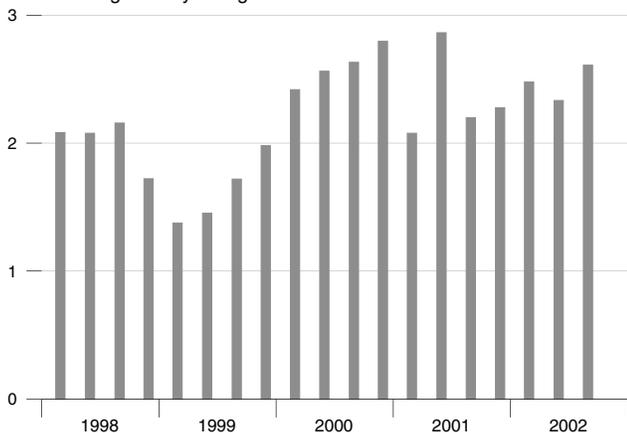
Employment

Percent change from year ago



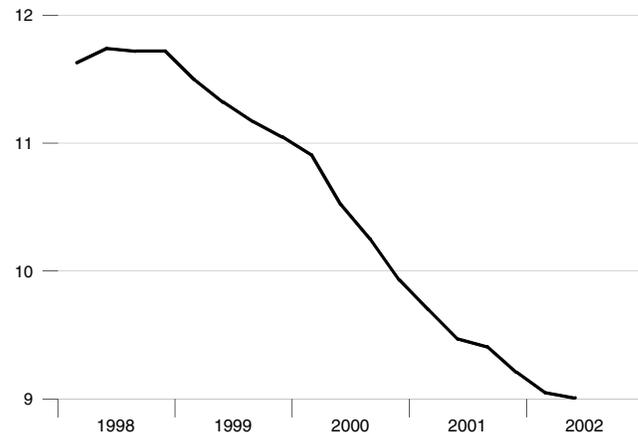
Consumer Price Index

Percent change from year ago



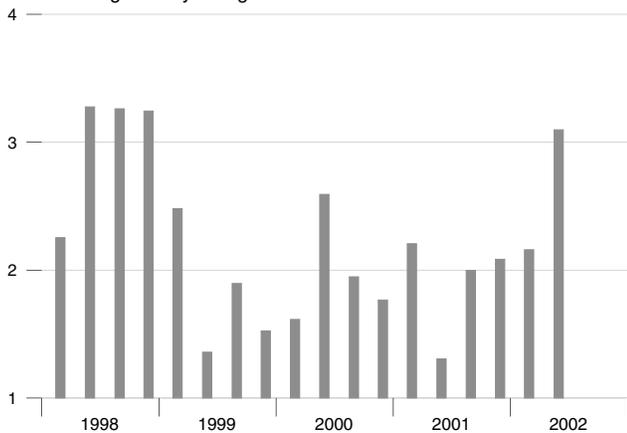
Unemployment Rate

Percent



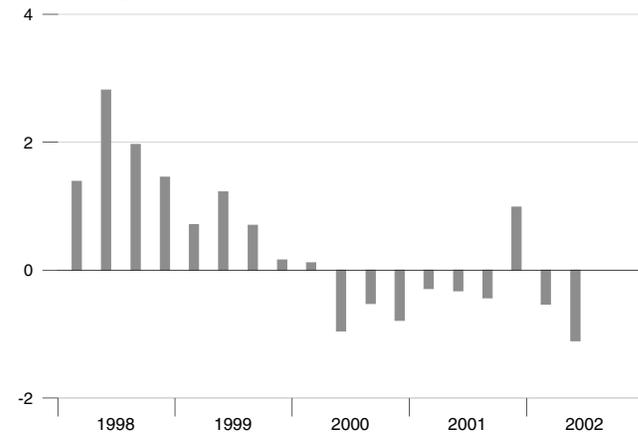
Hourly Earnings

Percent change from year ago



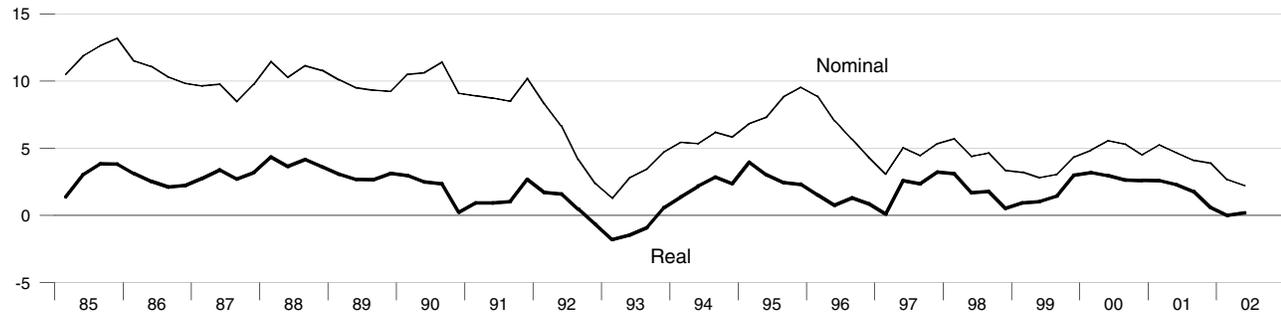
Current Account Balance

Percent of GDP



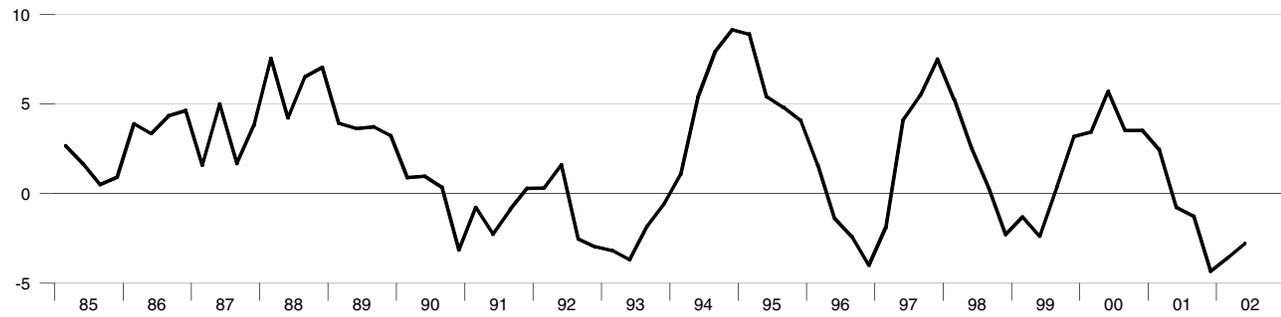
GDP

Percent change from year ago



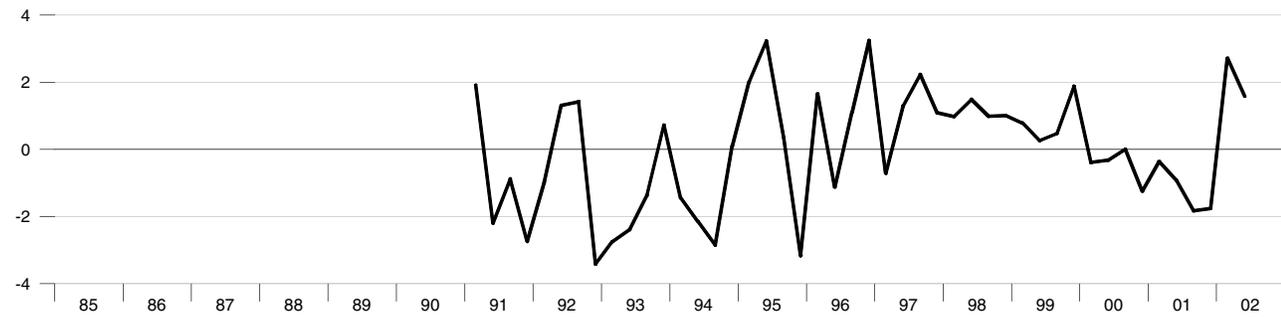
Industrial Production

Percent change from year ago



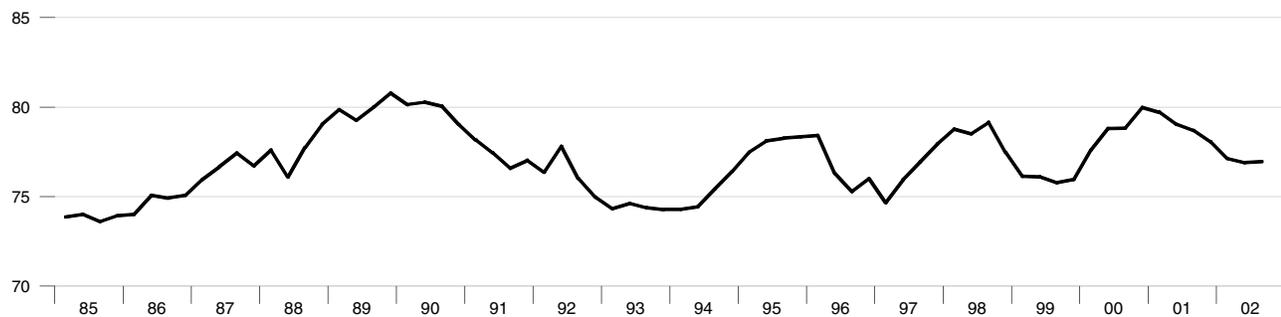
Retail Sales

Percent change from year ago

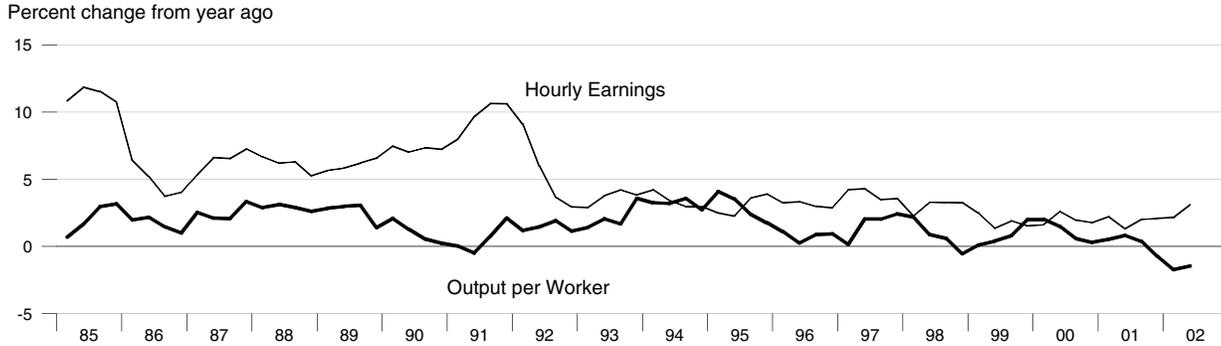


Capacity Utilization

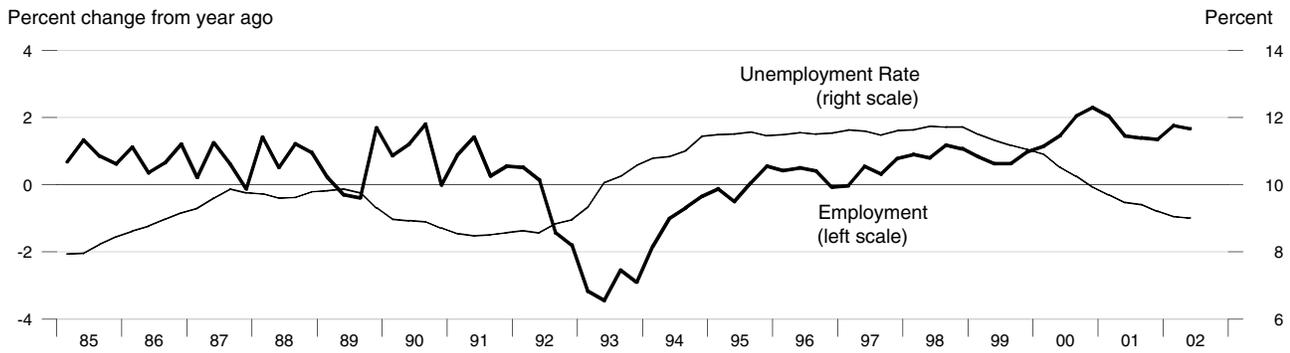
Percent



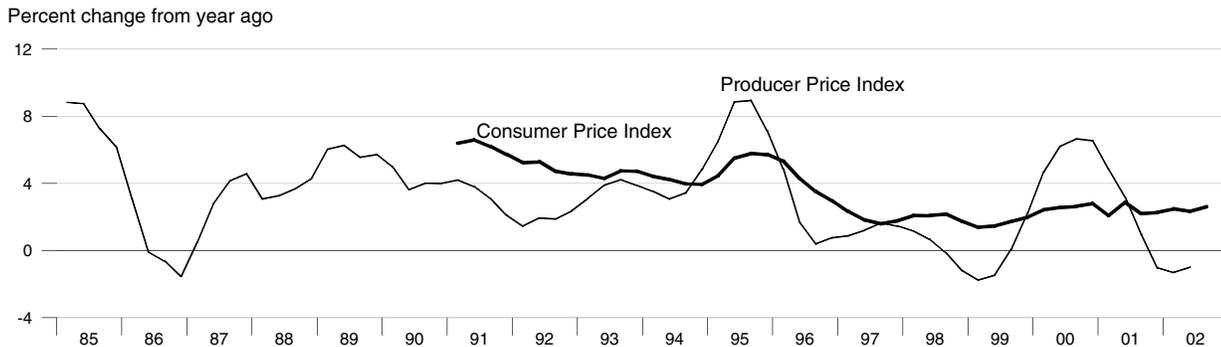
Hourly Earnings and Output per Worker



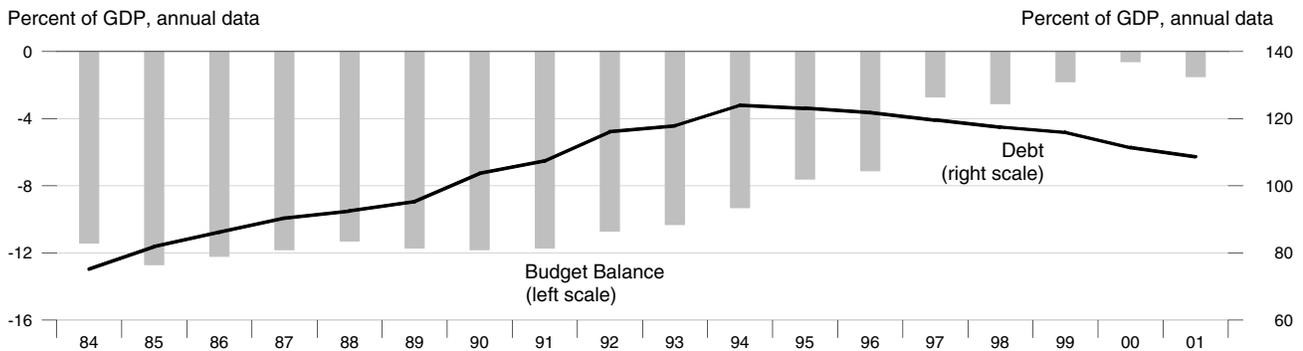
Labor Force Indicators



Inflation

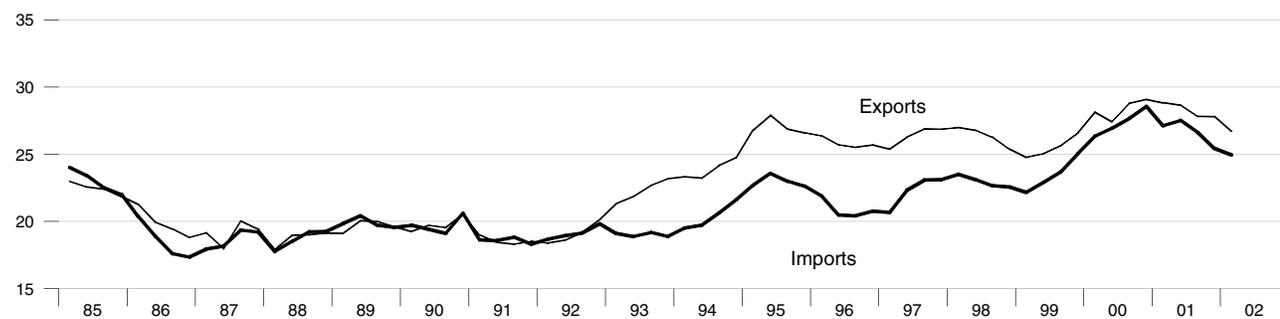


Government Debt and Budget Balance



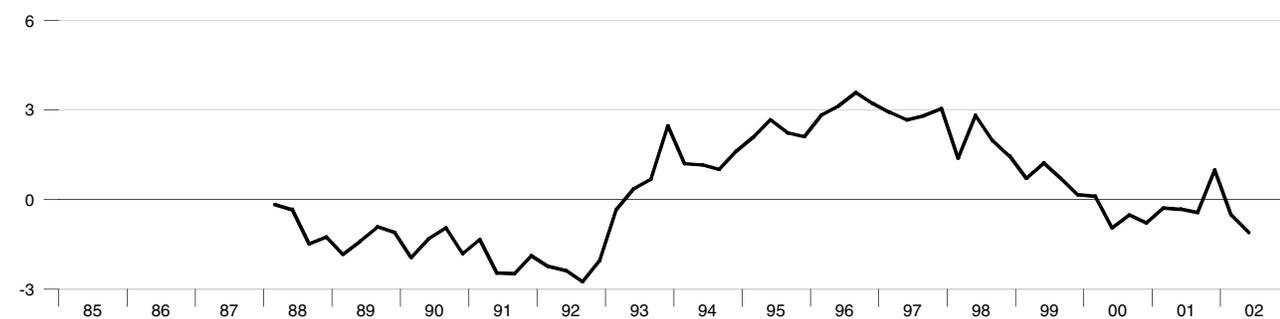
International Trade - Goods and Services

Percent of GDP



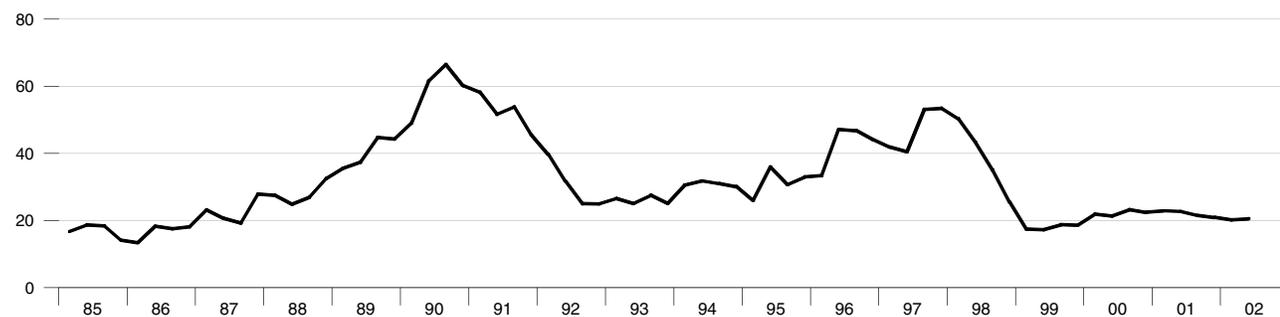
Current Account Balance

Percent of GDP



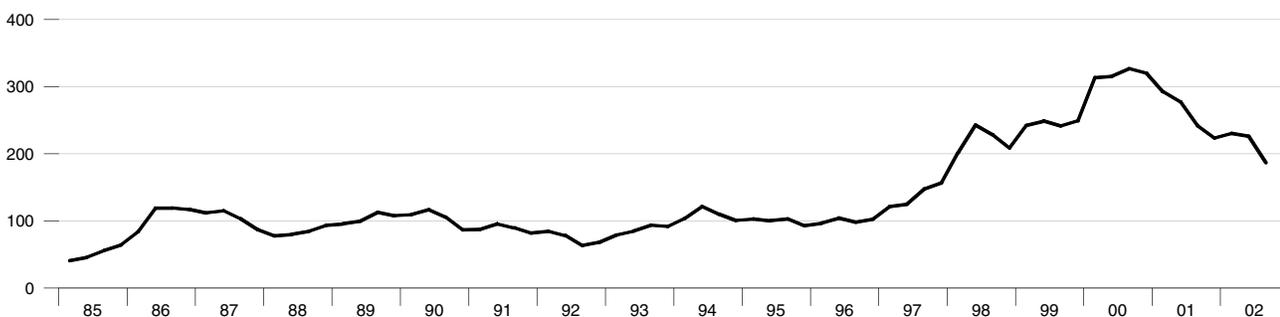
Foreign Exchange Reserves

Billions of US\$



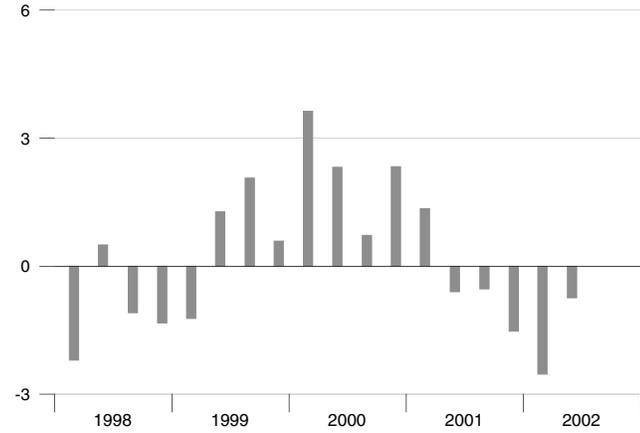
Stock Exchange Index - Milan Stock Exchange

1995 = 100



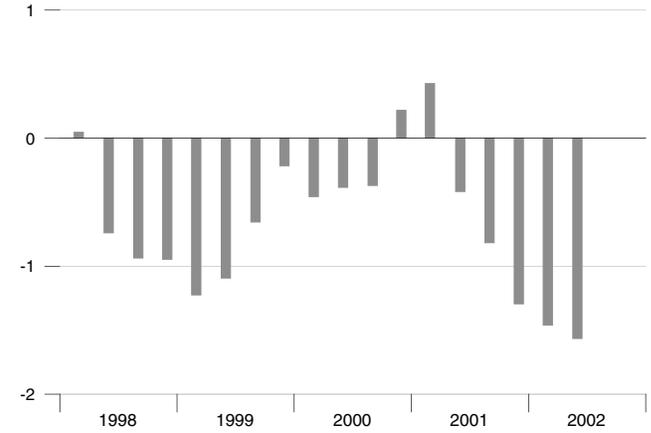
Real GDP

Percent change from year ago



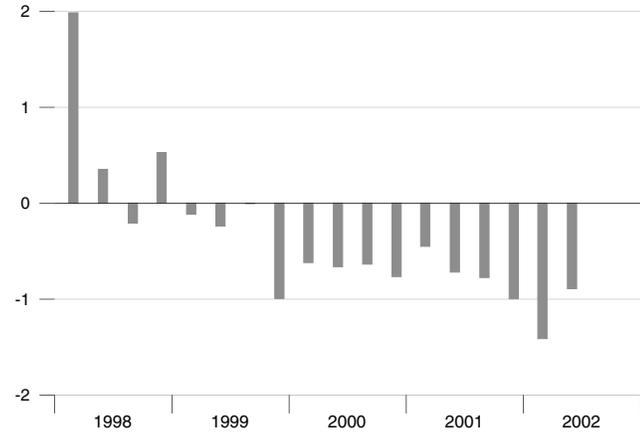
Employment

Percent change from year ago



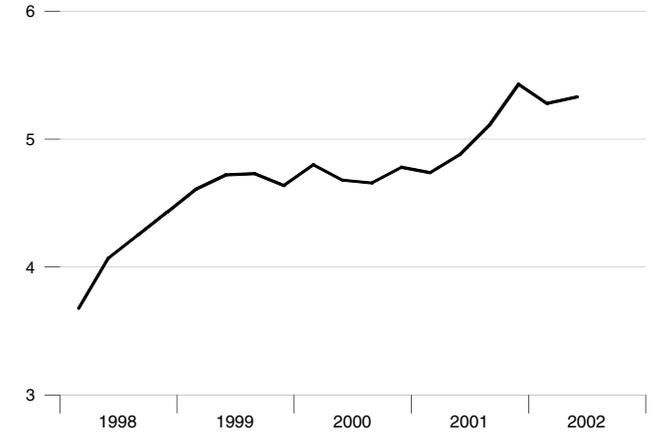
Consumer Price Index

Percent change from year ago



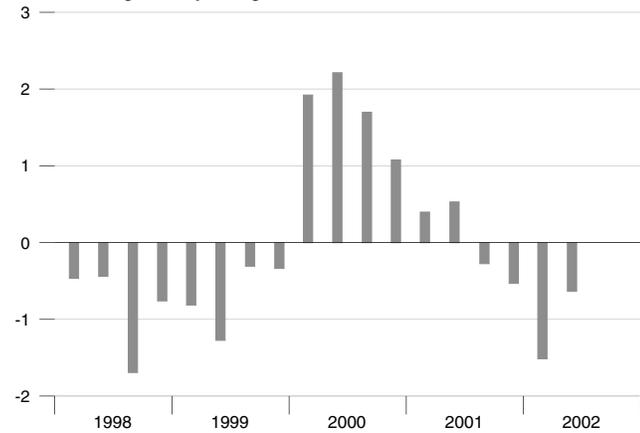
Unemployment Rate

Percent



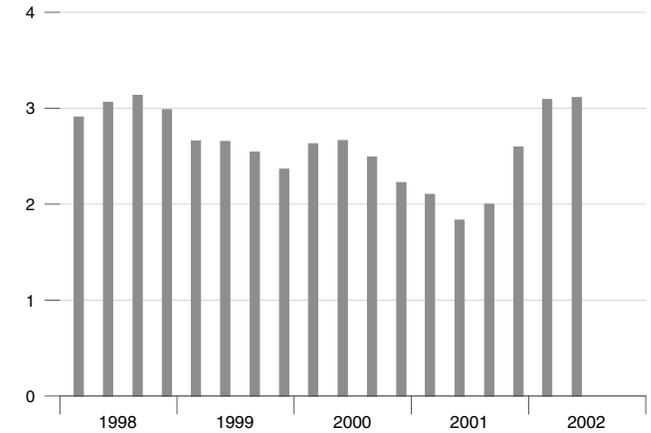
Monthly Earnings

Percent change from year ago



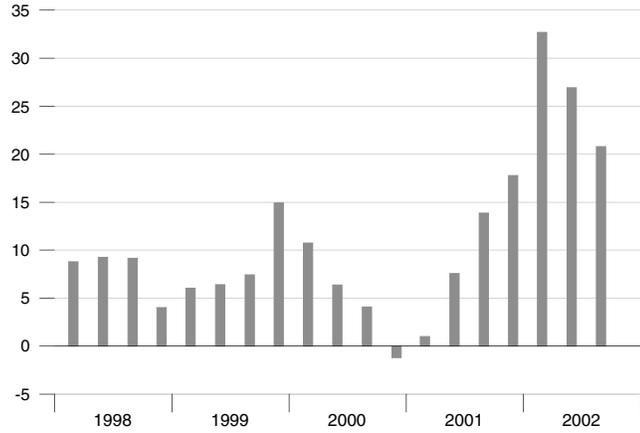
Current Account Balance

Percent of GDP



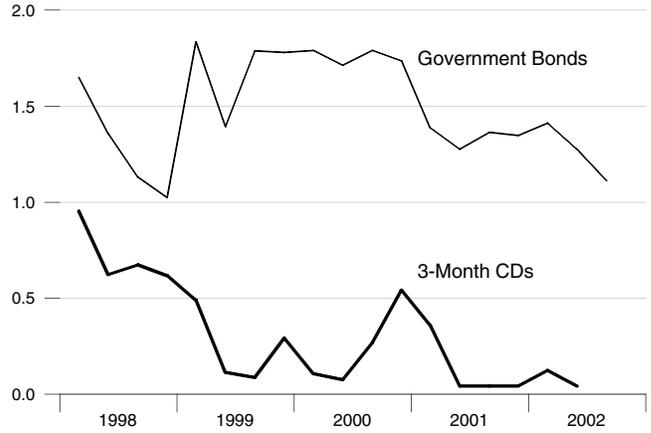
Adjusted Monetary Base

Percent change from year ago



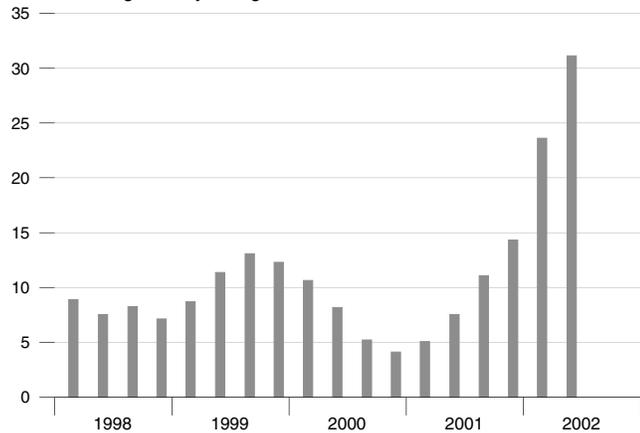
Interest Rates

Percent



M1

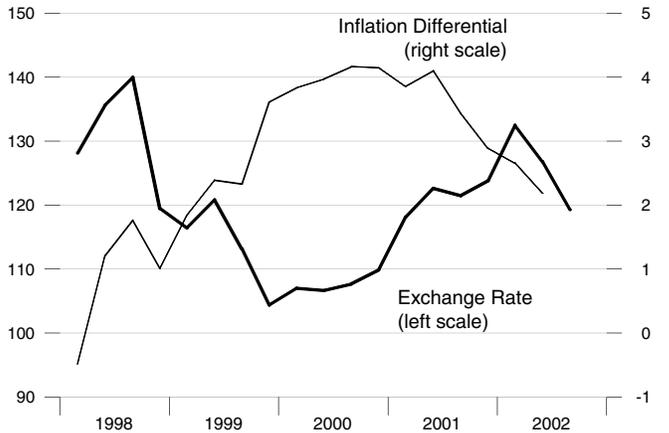
Percent change from year ago



Exchange Rate and Inflation Differential

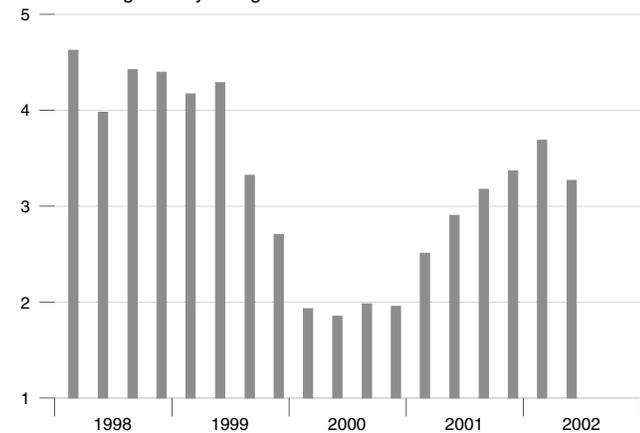
Yen/US\$

Percent



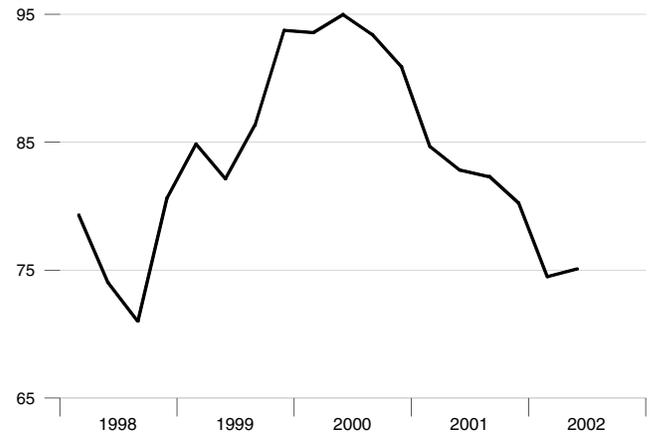
M2

Percent change from year ago



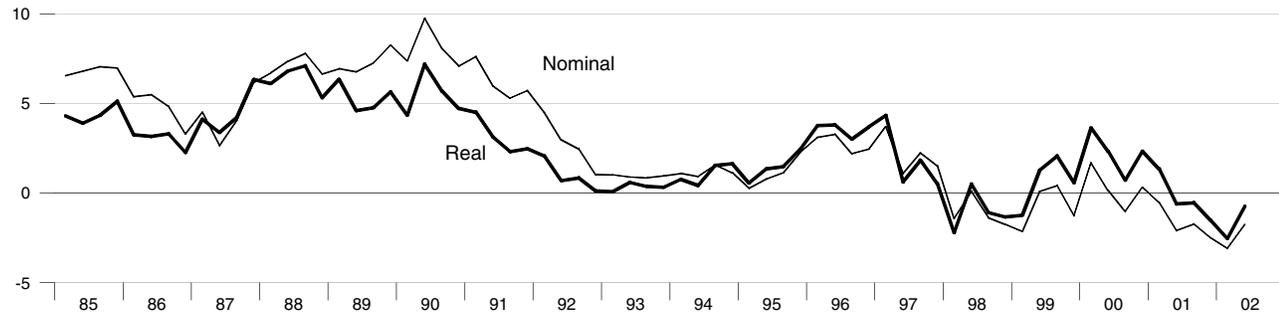
Real Effective Exchange Rate

Index 1995 = 100



GDP

Percent change from year ago



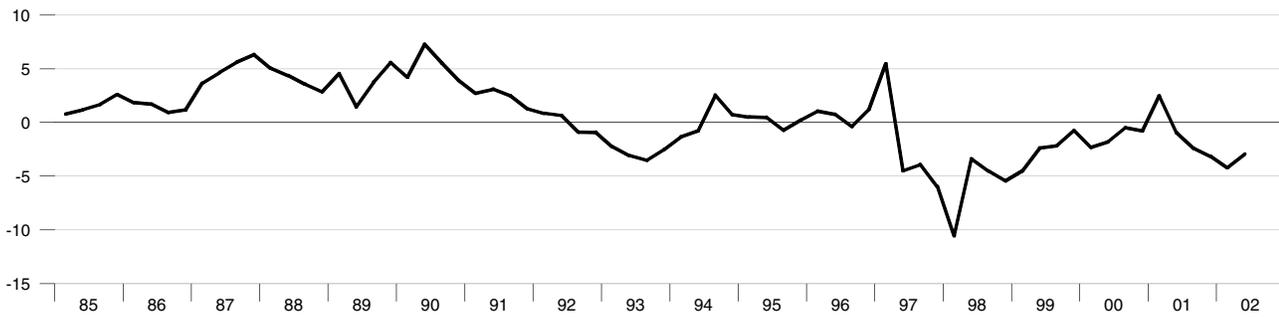
Industrial Production

Percent change from year ago



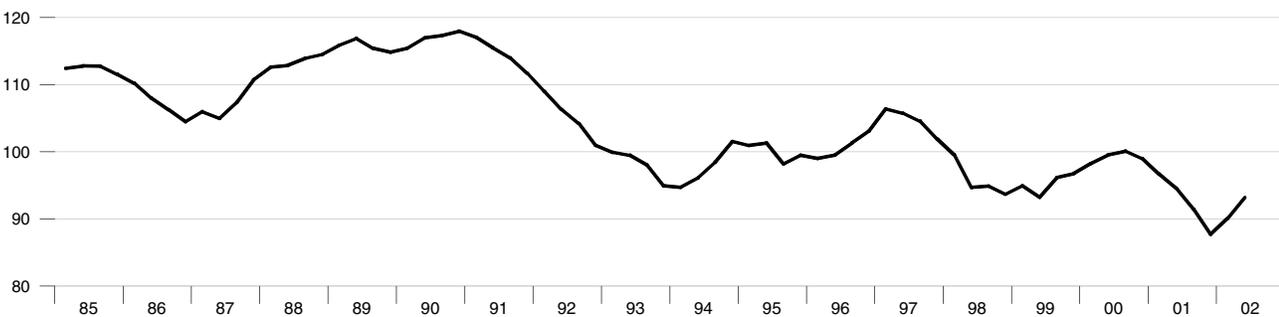
Retail Sales

Percent change from year ago



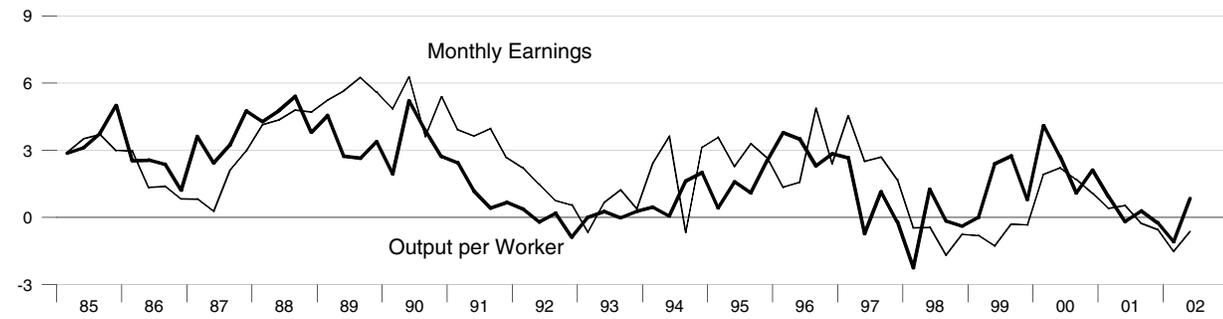
Capacity Utilization

1995 = 100



Monthly Earnings and Output per Worker

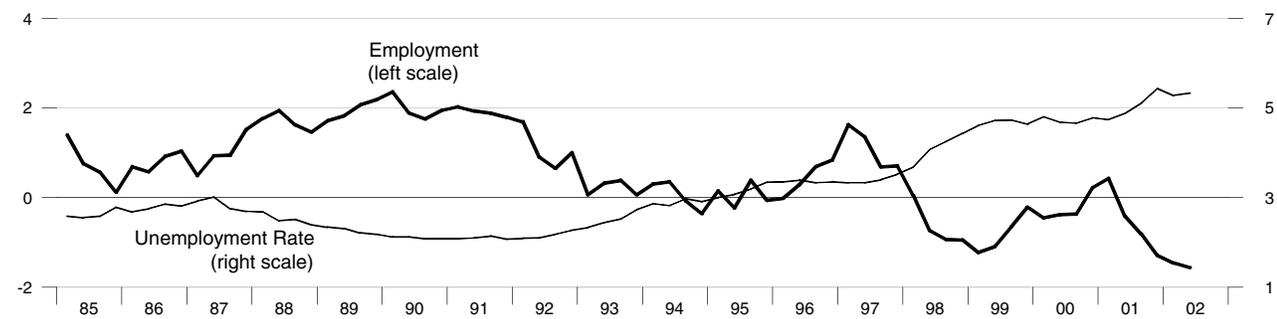
Percent change from year ago



Labor Force Indicators

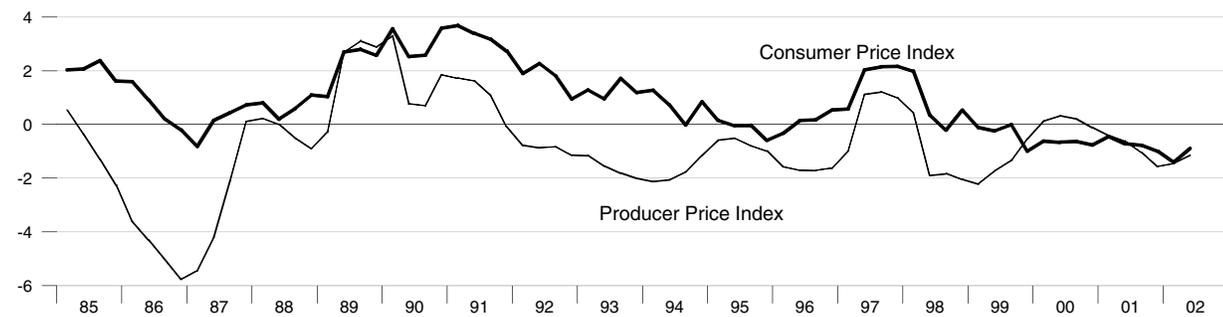
Percent change from year ago

Percent



Inflation

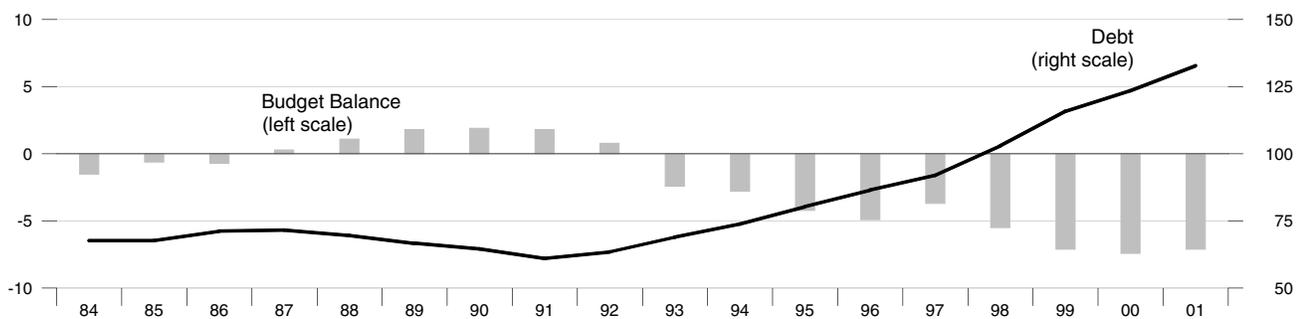
Percent change from year ago



Government Debt and Budget Balance

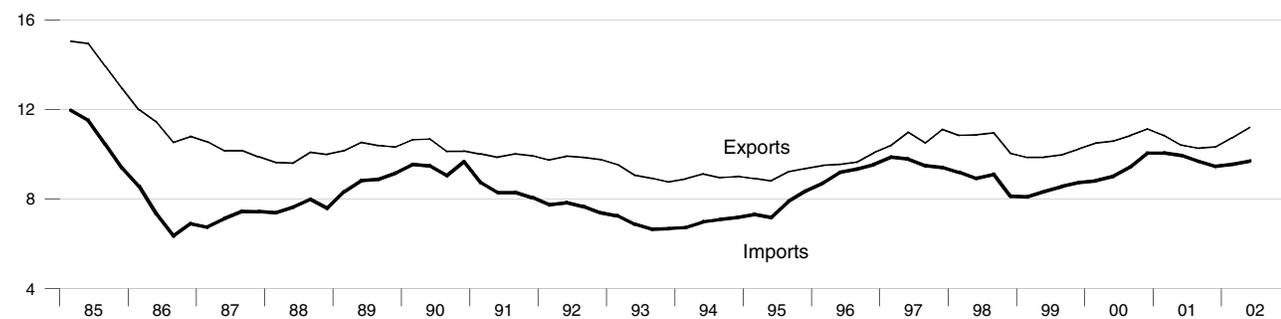
Percent of GDP, annual data

Percent of GDP, annual data



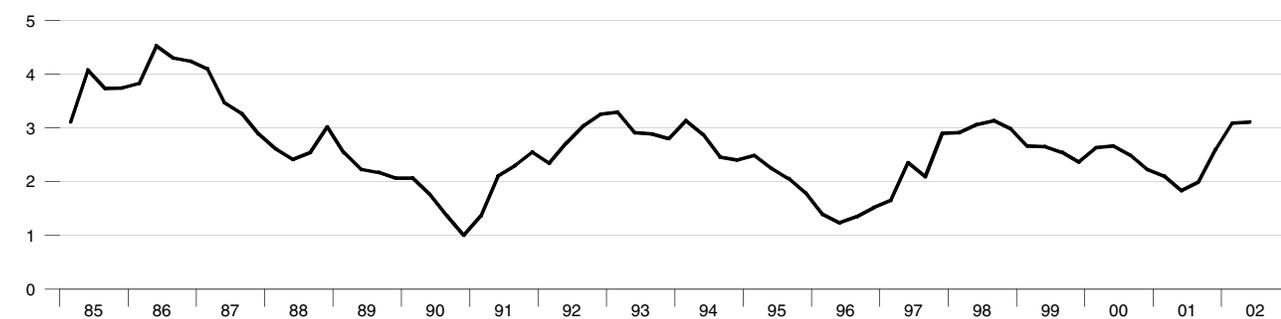
International Trade - Goods and Services

Percent of GDP



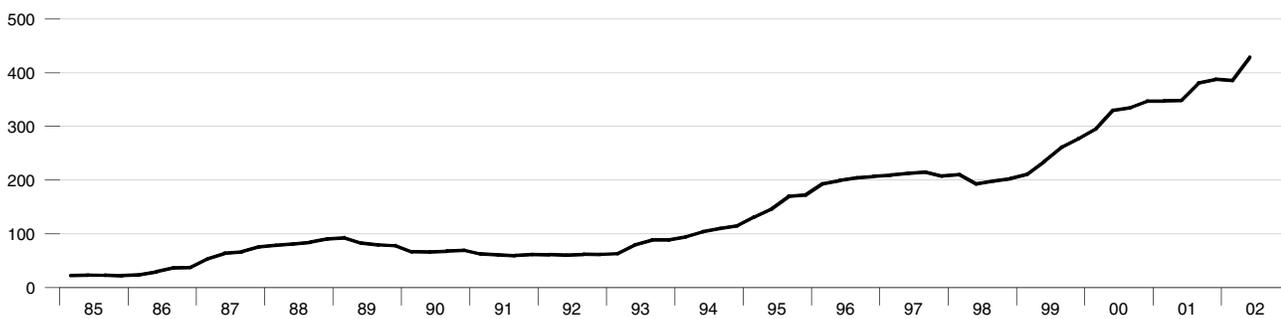
Current Account Balance

Percent of GDP



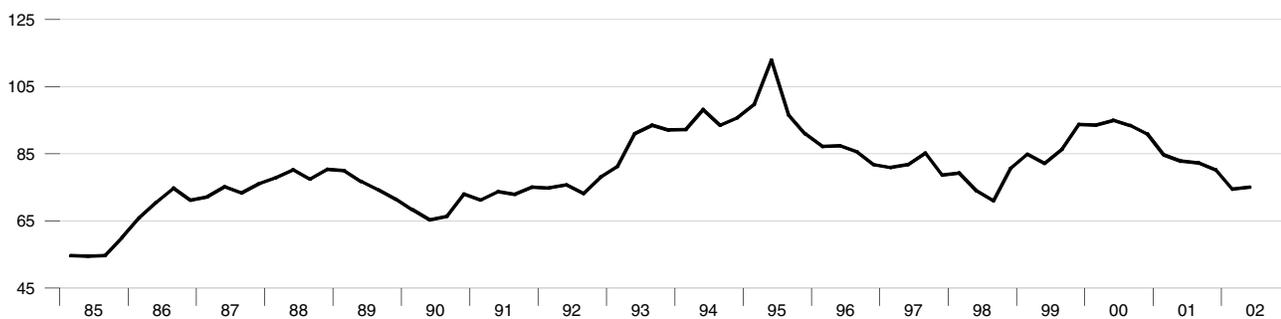
Foreign Exchange Reserves

Billions of US\$



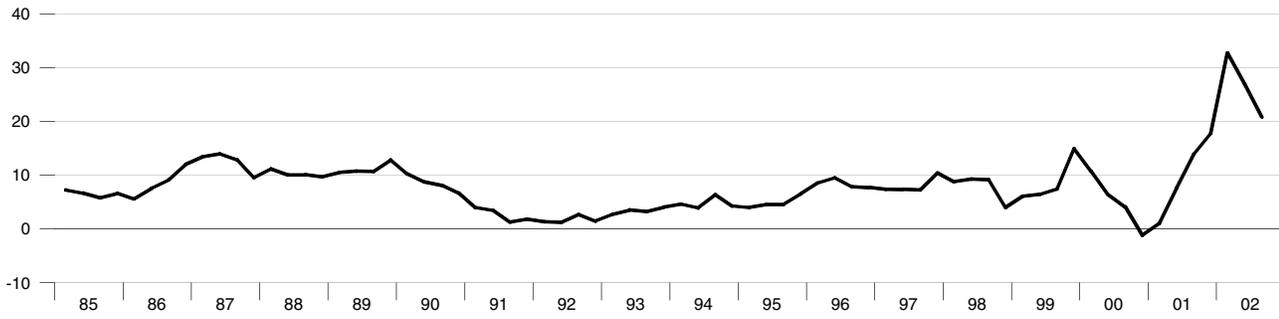
Real Effective Exchange Rate

Index 1995 = 100



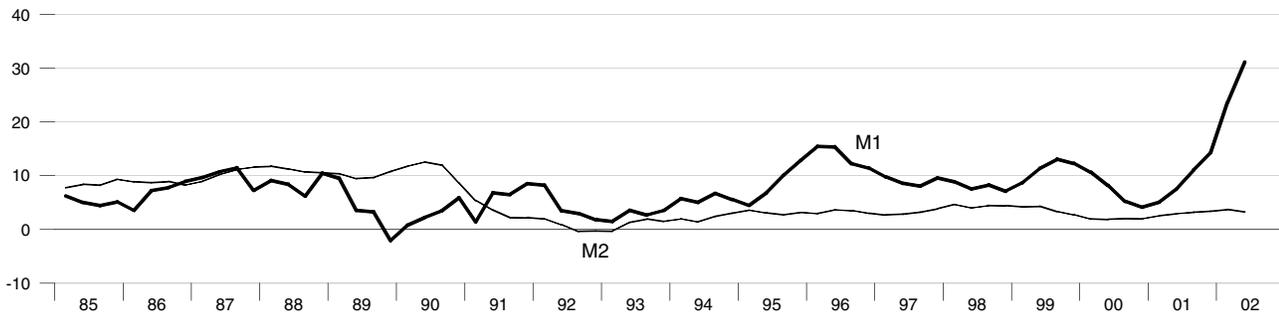
Adjusted Monetary Base

Percent change from year ago



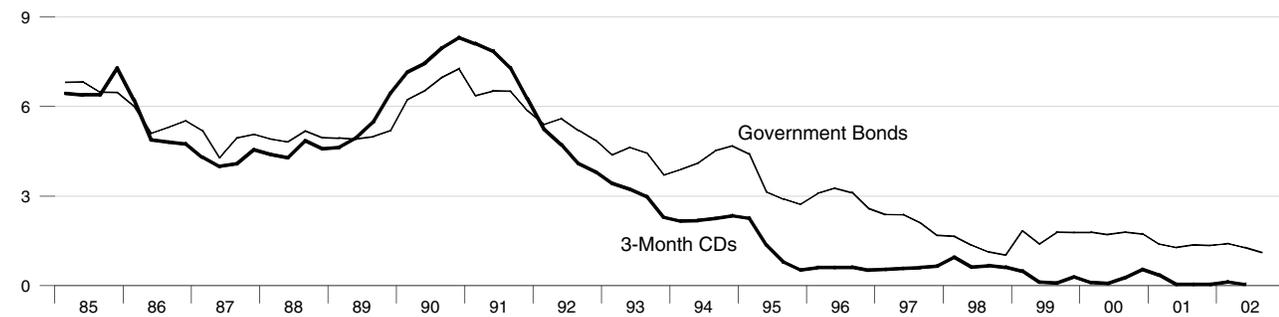
Monetary Aggregates

Percent change from year ago



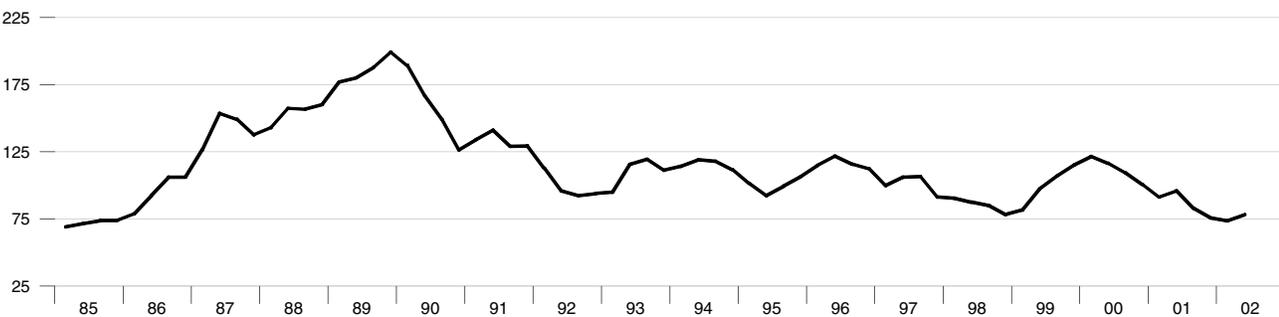
Interest Rates

Percent



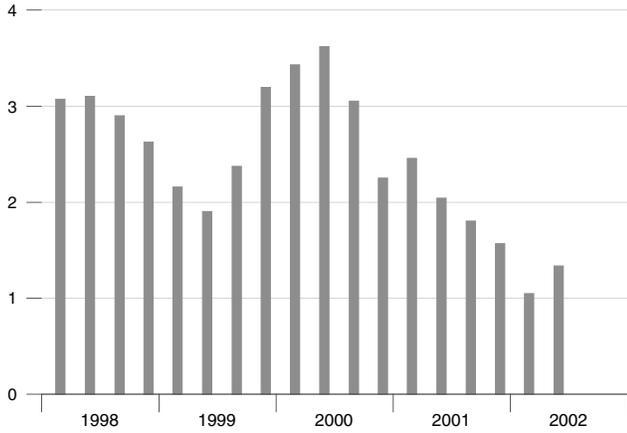
Stock Exchange Index - Tokyo Stock Exchange

1995 = 100



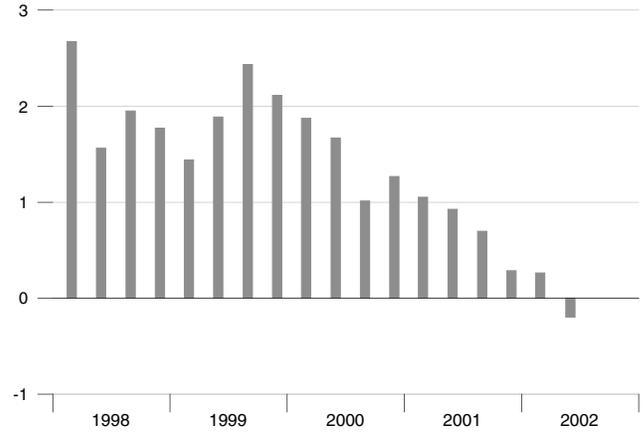
Real GDP

Percent change from year ago



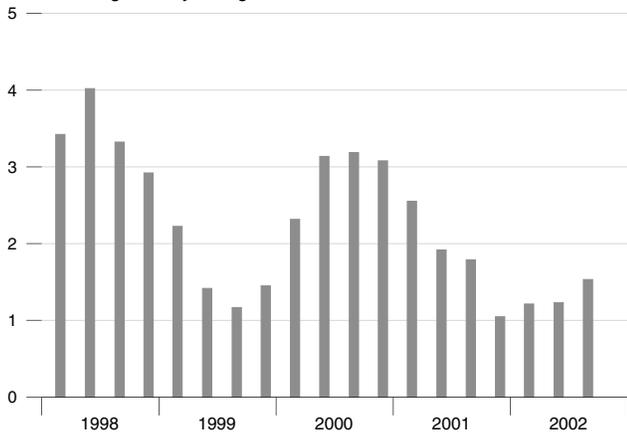
Employment

Percent change from year ago



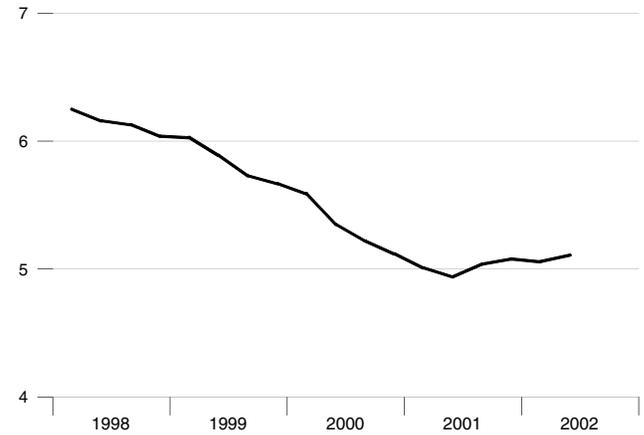
Consumer Price Index

Percent change from year ago



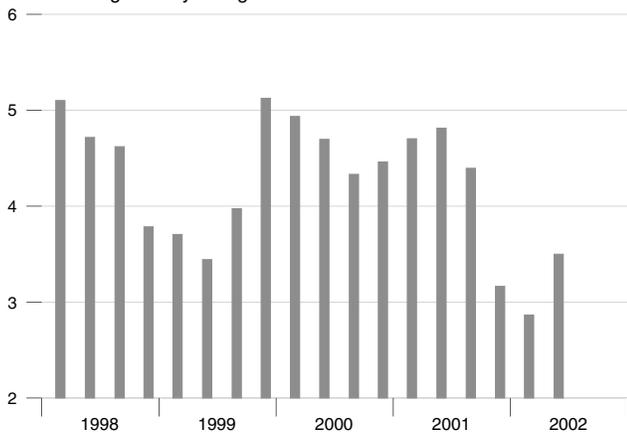
Unemployment Rate

Percent



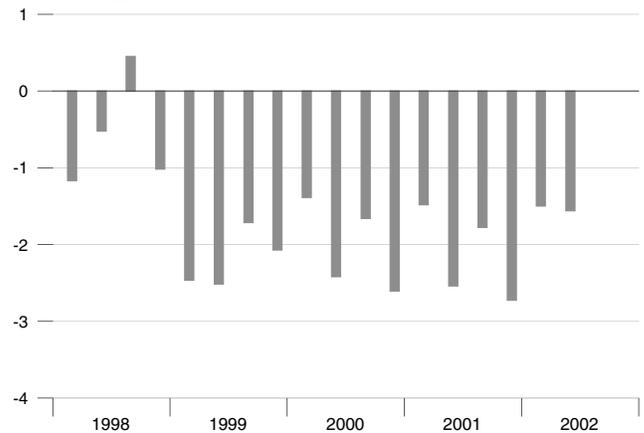
Weekly Earnings

Percent change from year ago



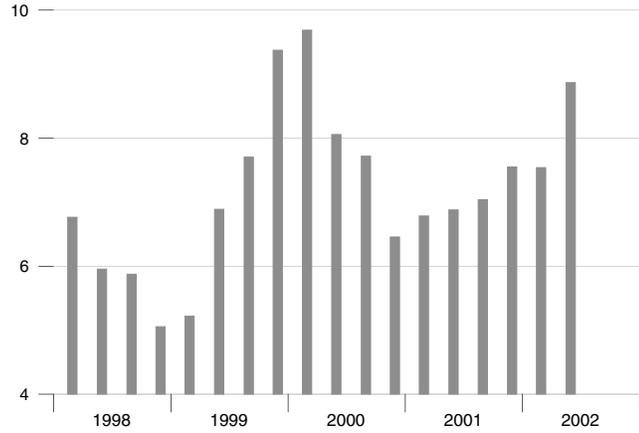
Current Account Balance

Percent of GDP



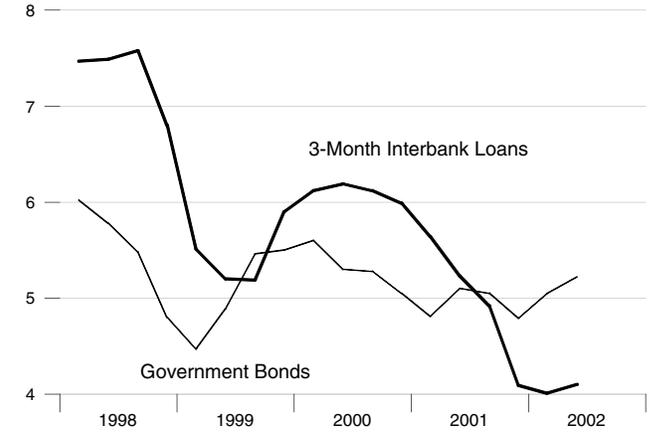
M0

Percent change from year ago



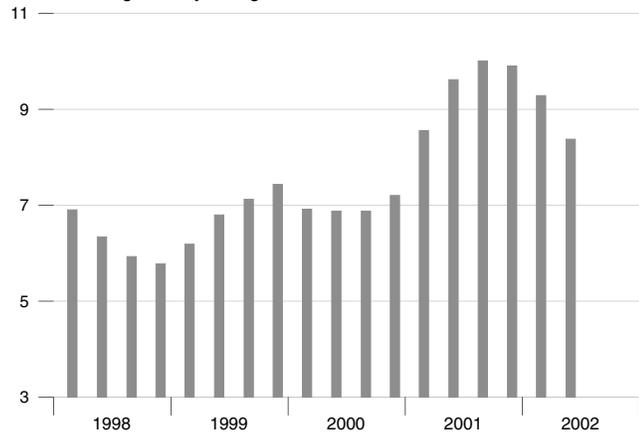
Interest Rates

Percent



M2

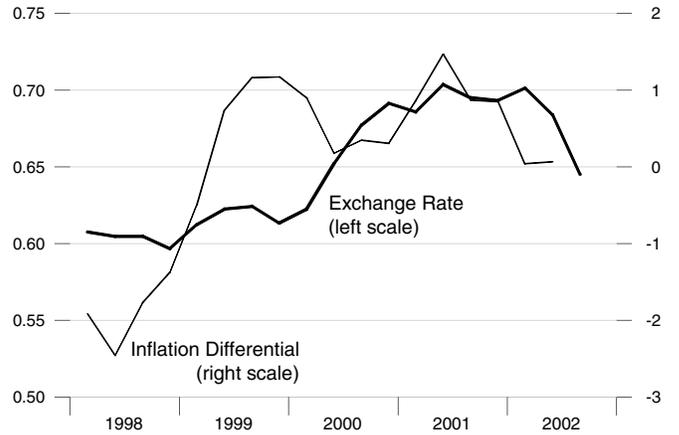
Percent change from year ago



Exchange Rate and Inflation Differential

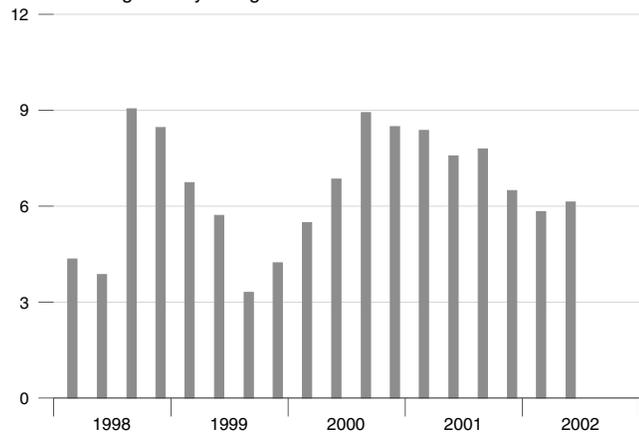
Pounds/US\$

Percent



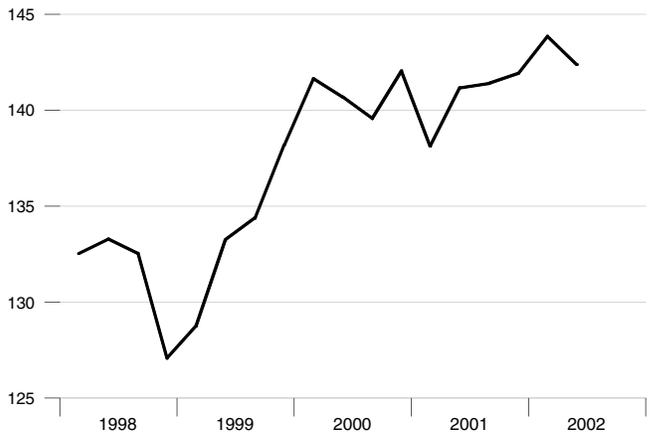
M4

Percent change from year ago



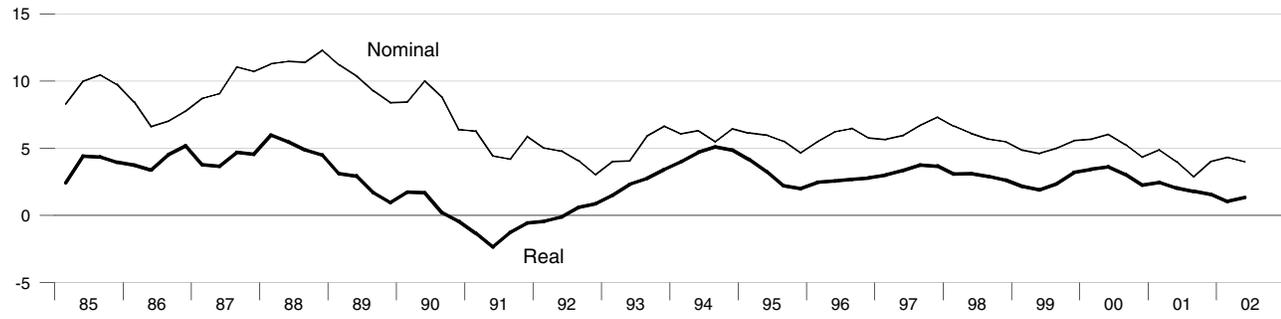
Real Effective Exchange Rate

Index 1995 = 100



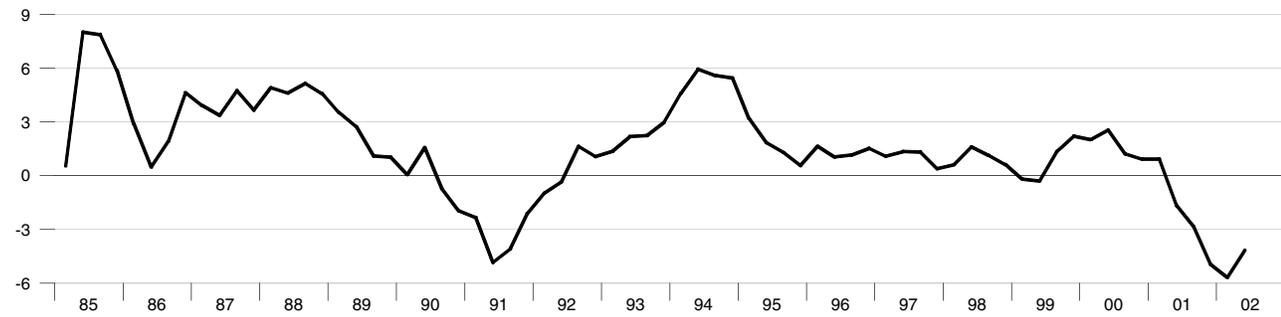
GDP

Percent change from year ago



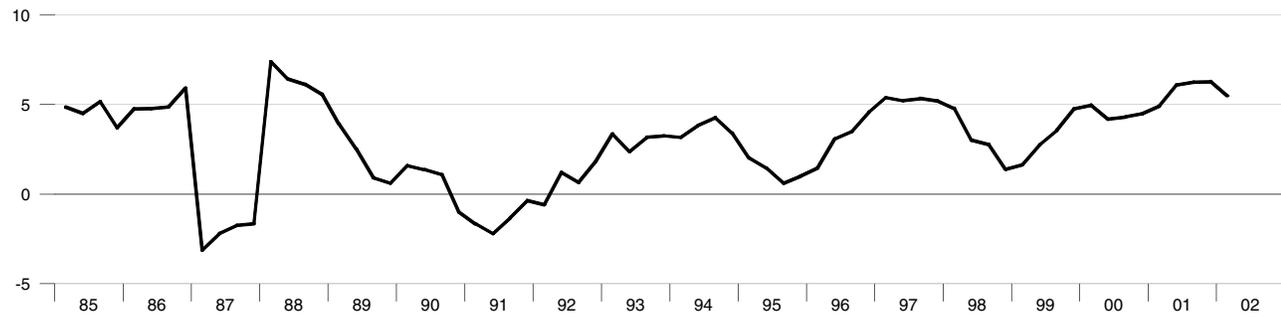
Industrial Production

Percent change from year ago



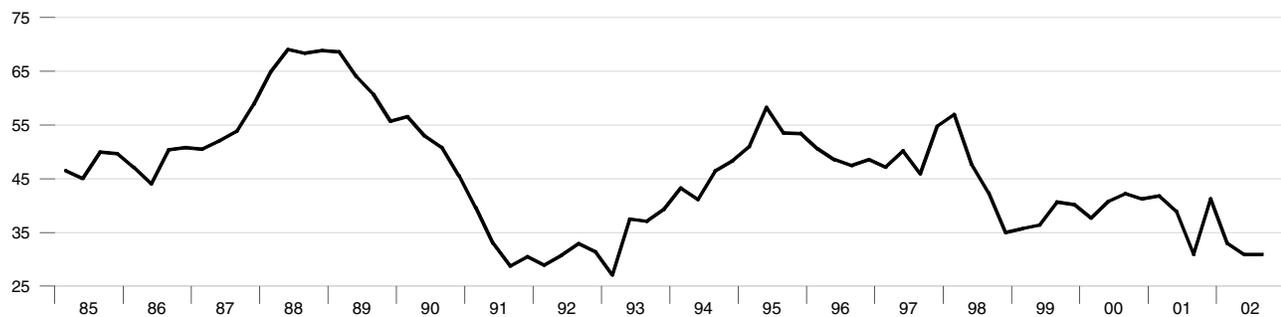
Retail Sales

Percent change from year ago

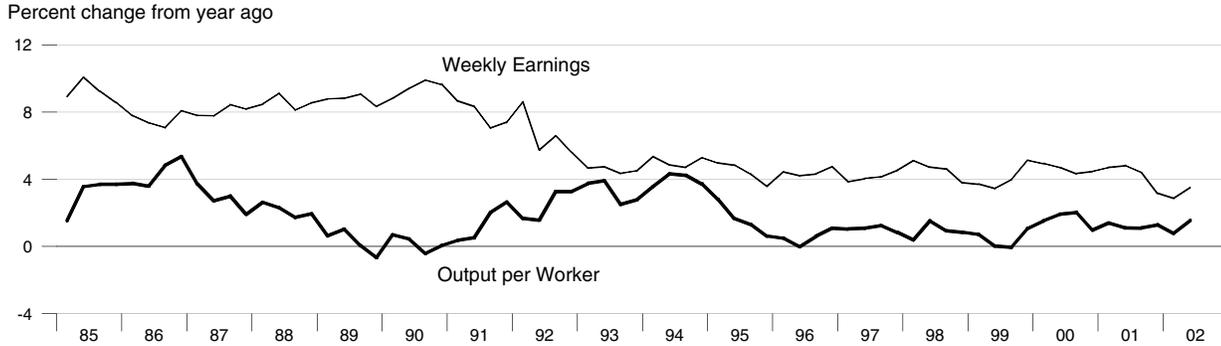


Firms Operating at Capacity

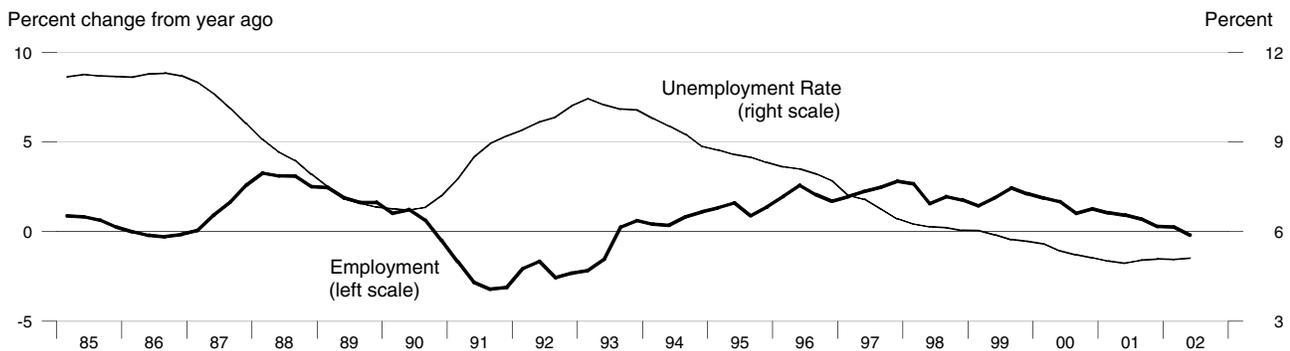
Percent



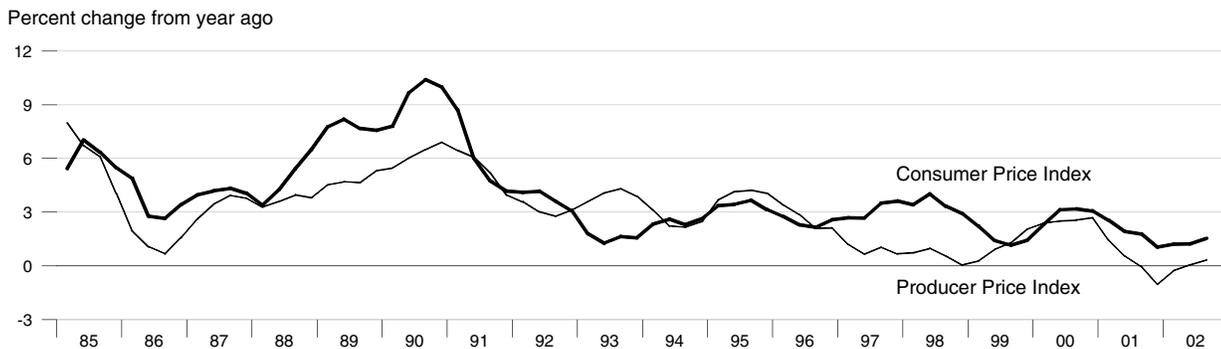
Weekly Earnings and Output per Worker



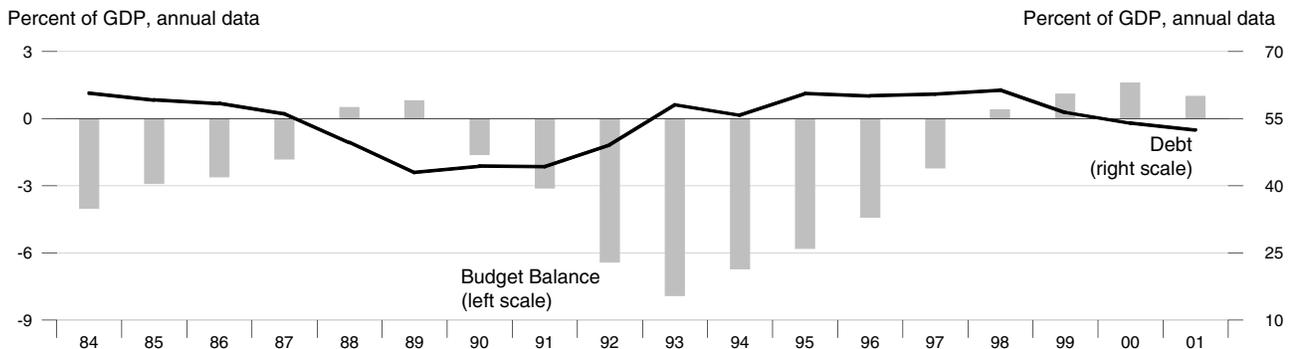
Labor Force Indicators



Inflation

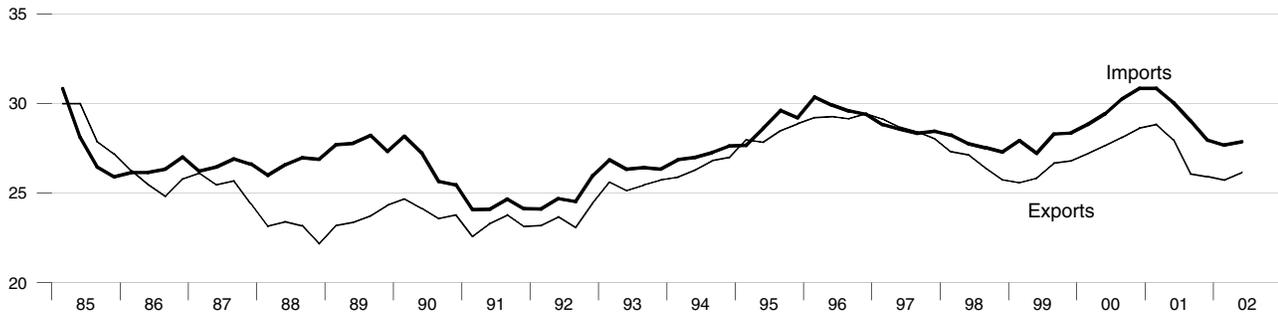


Government Debt and Budget Balance



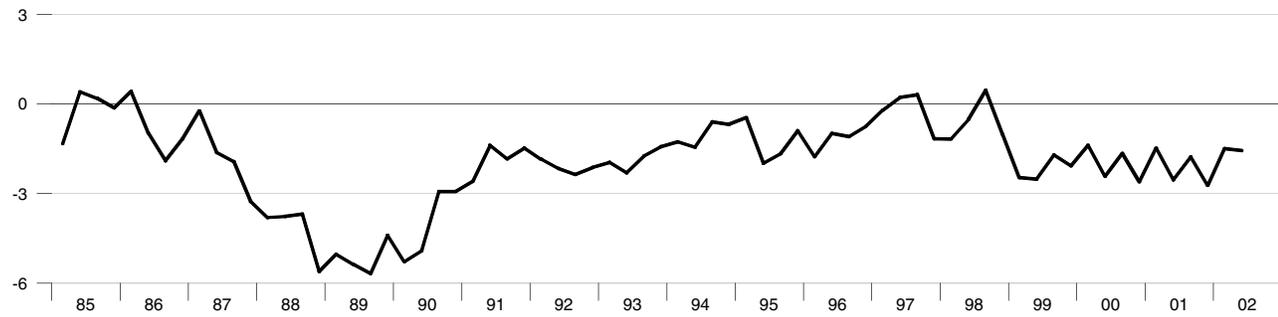
International Trade - Goods and Services

Percent of GDP



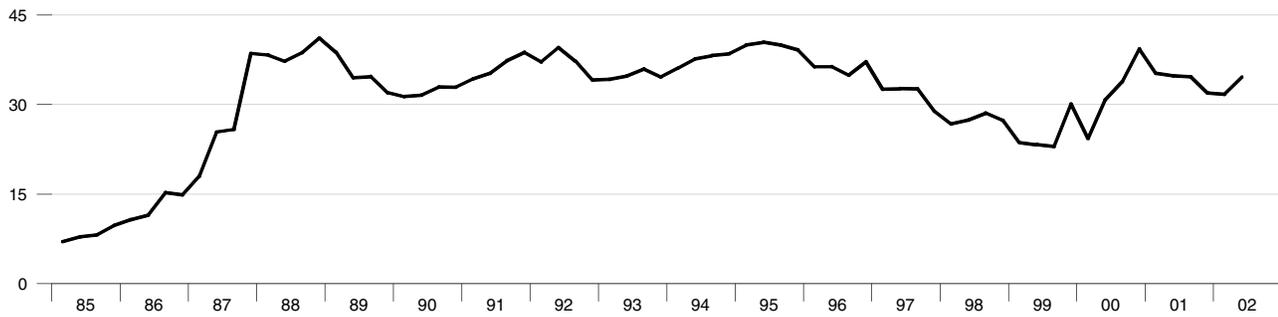
Current Account Balance

Percent of GDP



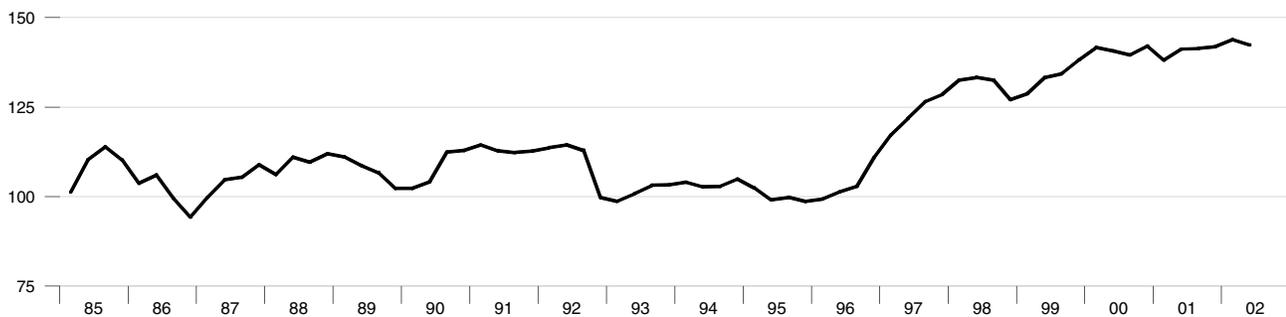
Foreign Exchange Reserves

Billions of US\$



Real Effective Exchange Rate

Index 1995 = 100



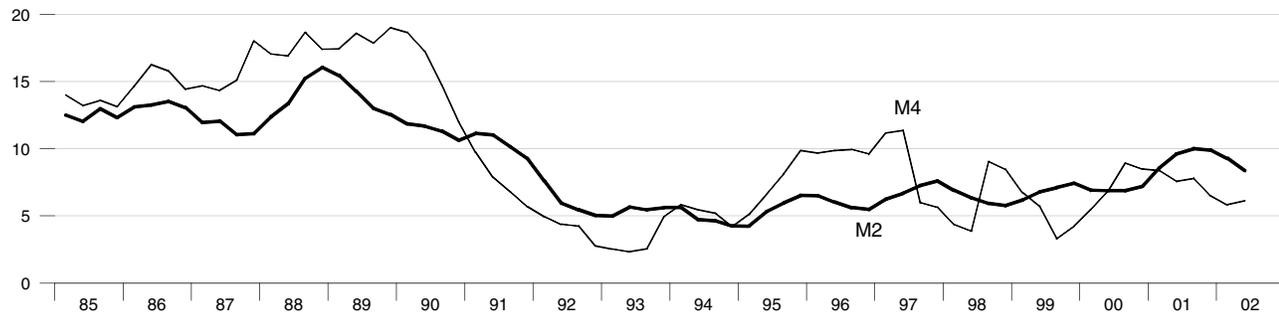
M0

Percent change from year ago



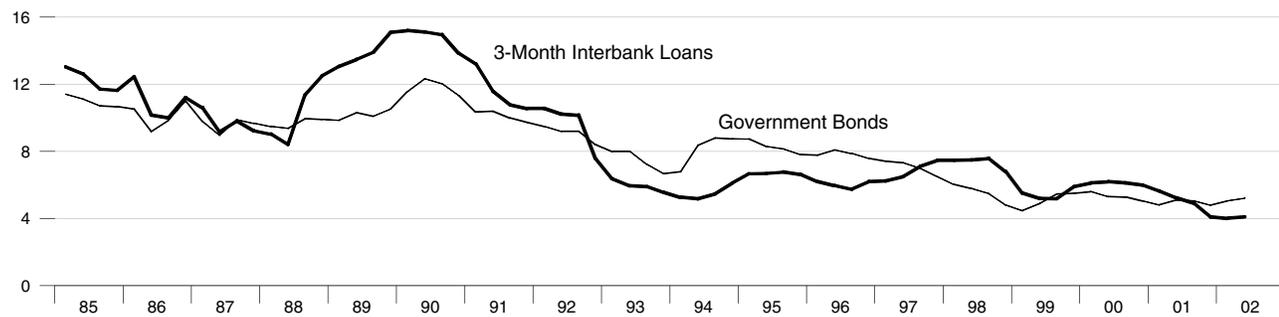
Monetary Aggregates

Percent change from year ago



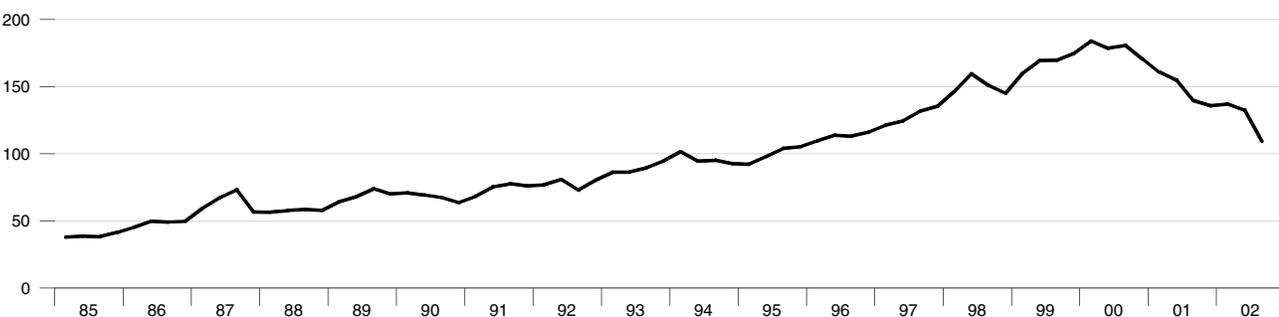
Interest Rates

Percent



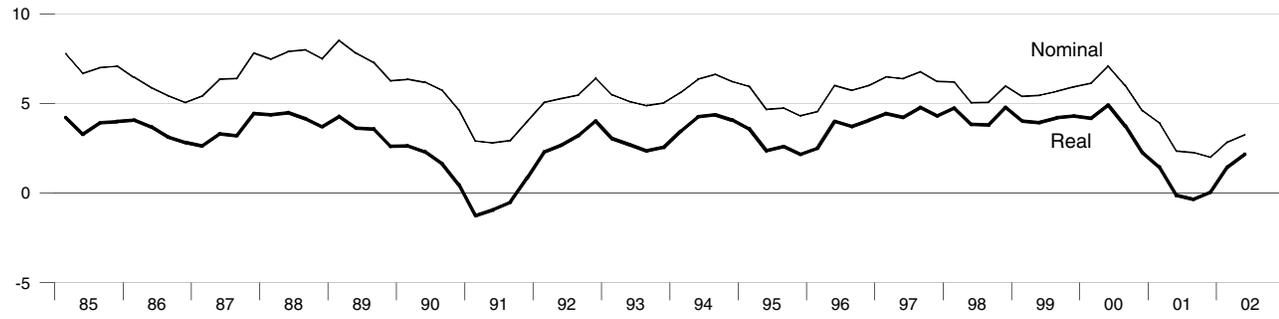
Stock Exchange Index - Financial Times Stock Exchange

1995 = 100



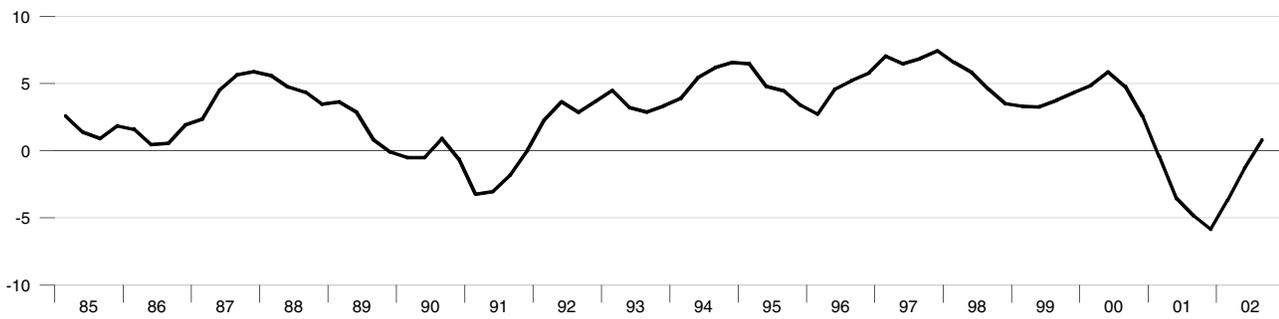
GDP

Percent change from year ago



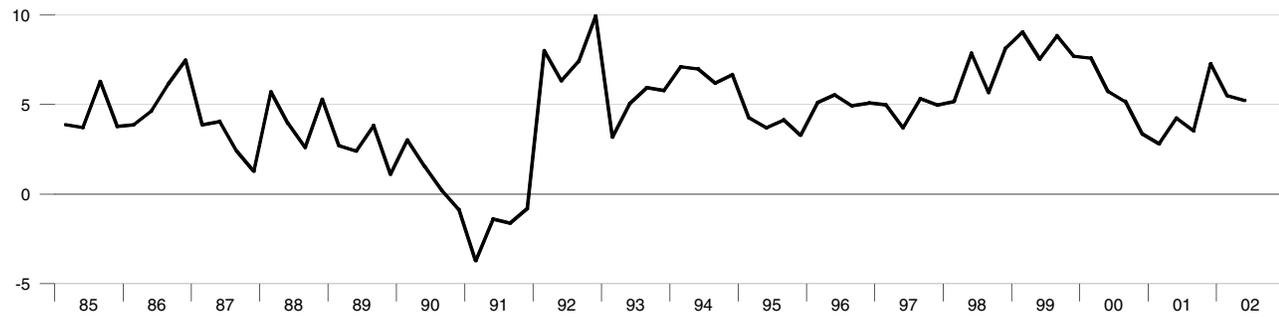
Industrial Production

Percent change from year ago



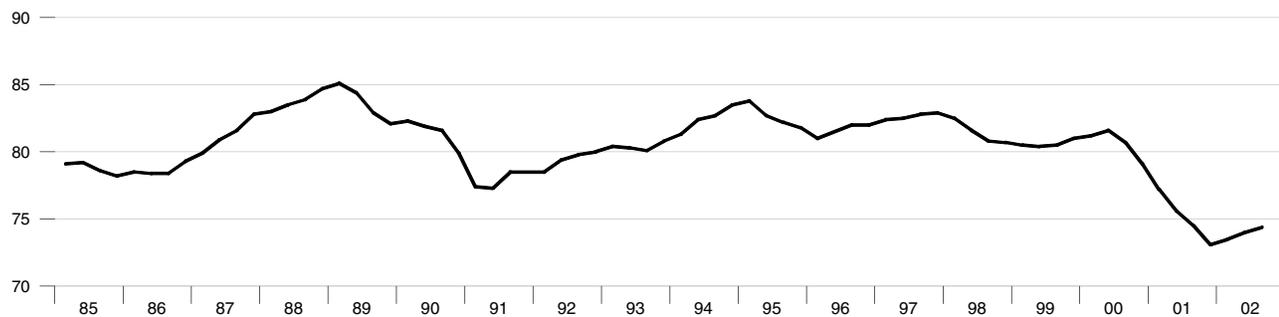
Retail Sales

Percent change from year ago

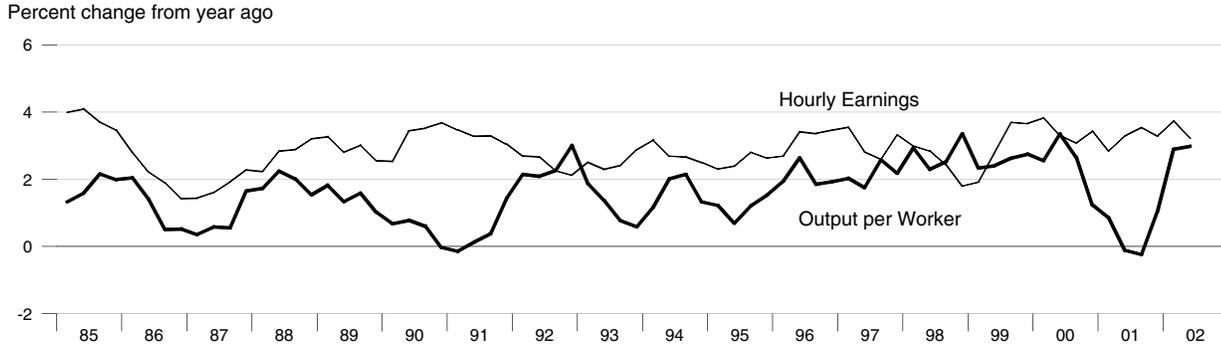


Capacity Utilization

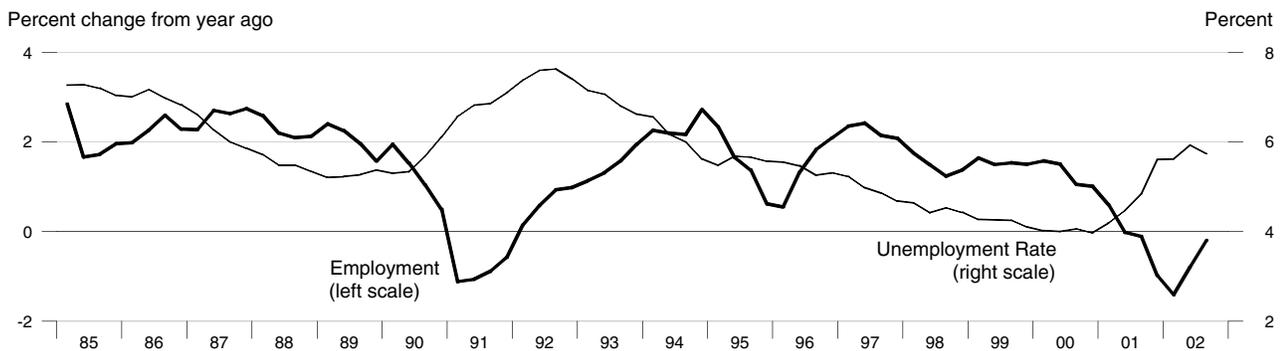
Percent



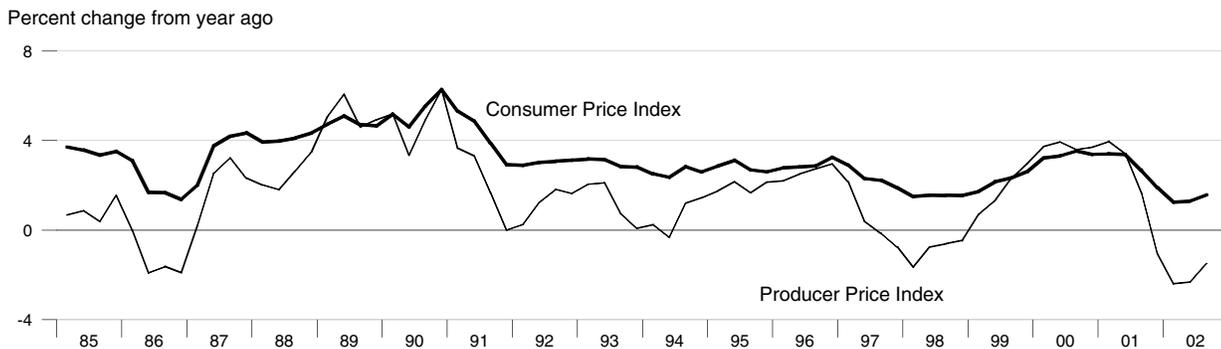
Hourly Earnings and Output per Worker



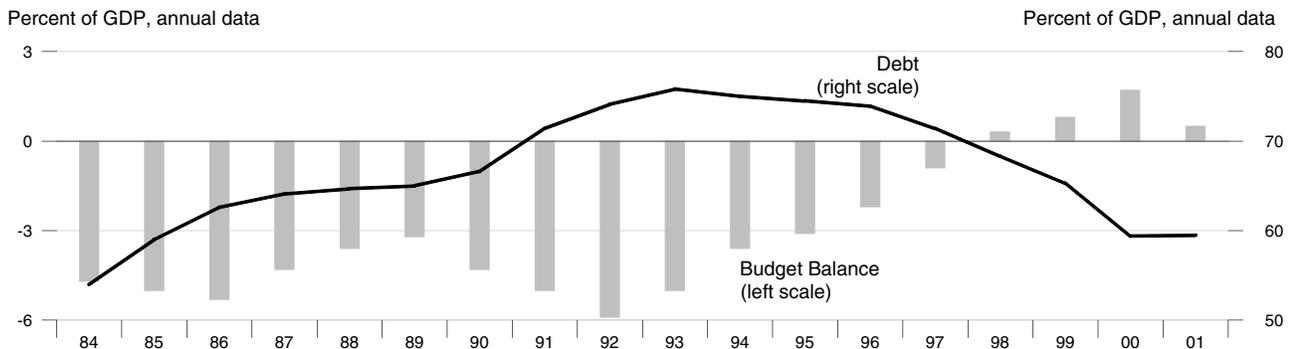
Labor Force Indicators



Inflation

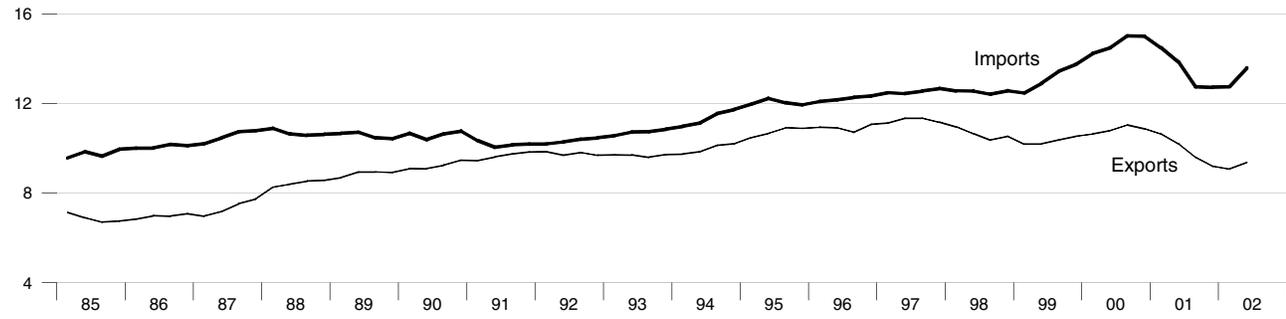


Government Debt and Budget Balance



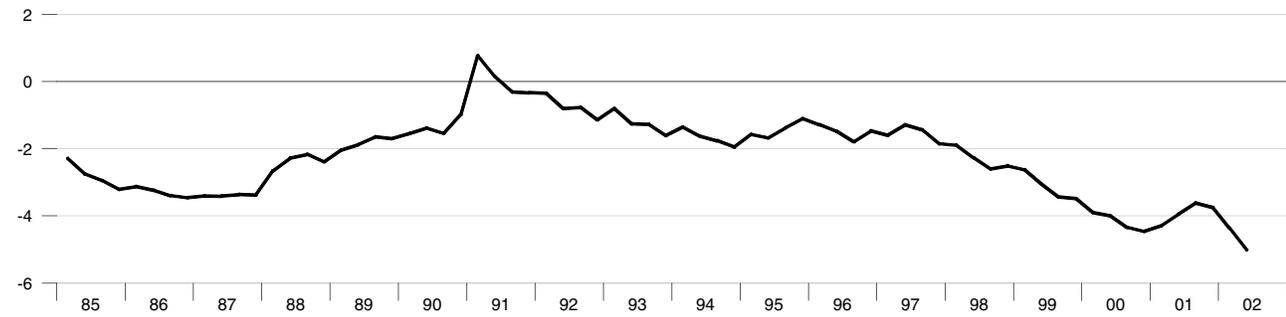
International Trade - Goods and Services

Percent of GDP



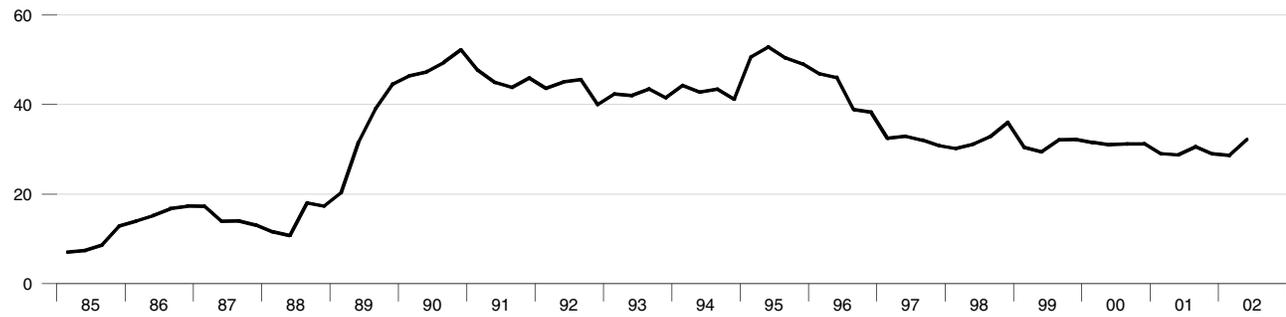
Current Account Balance

Percent of GDP



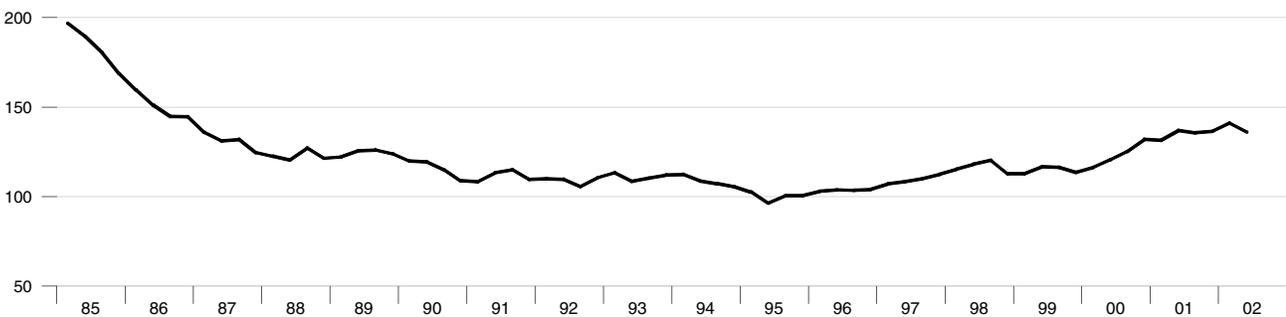
Foreign Exchange Reserves

Billions of US\$



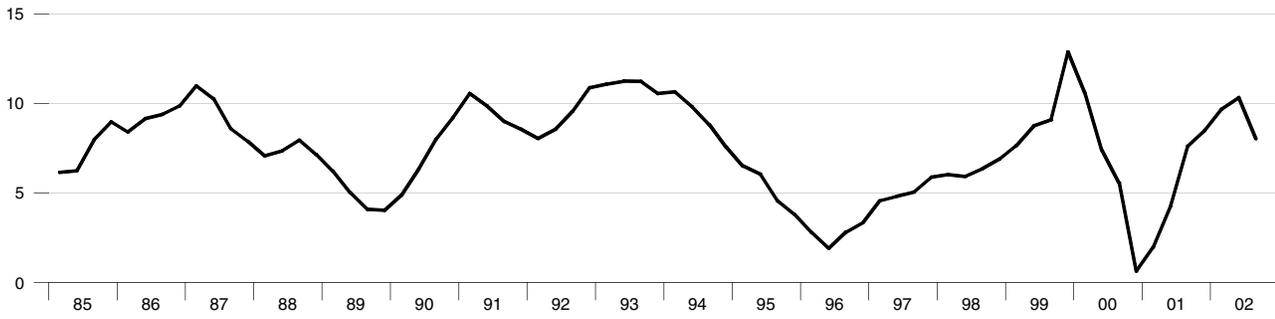
Real Effective Exchange Rate

Index 1995 = 100



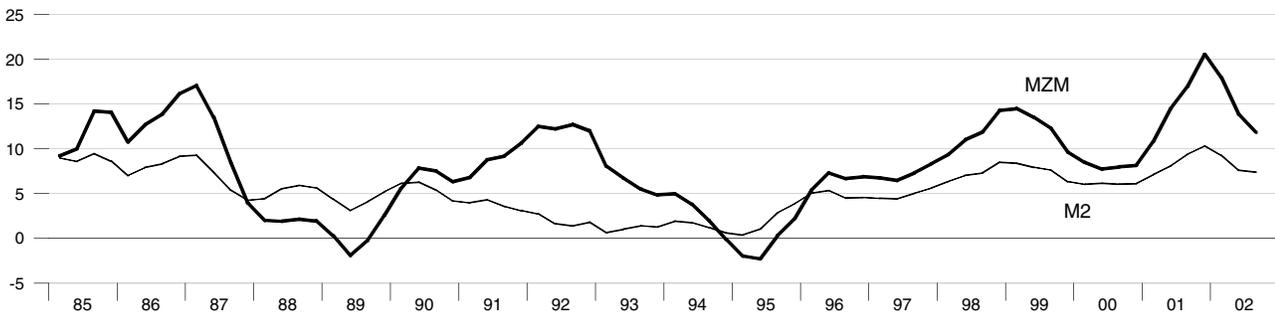
Adjusted Monetary Base

Percent change from year ago



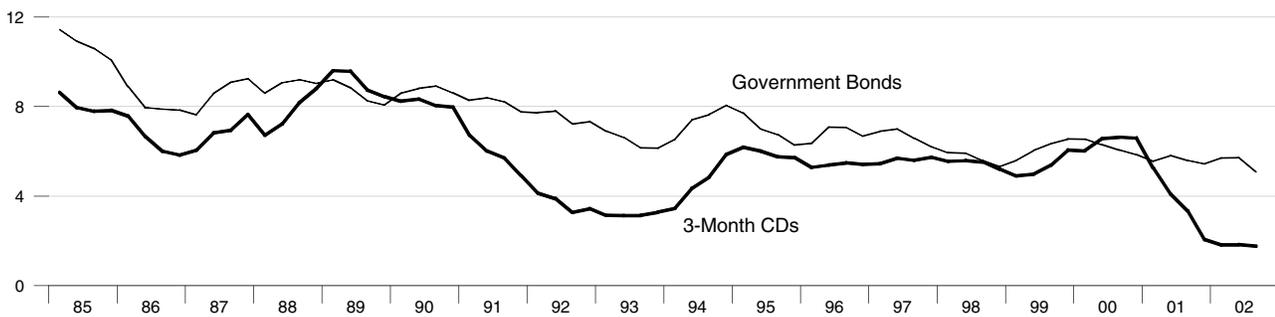
Monetary Aggregates

Percent change from year ago



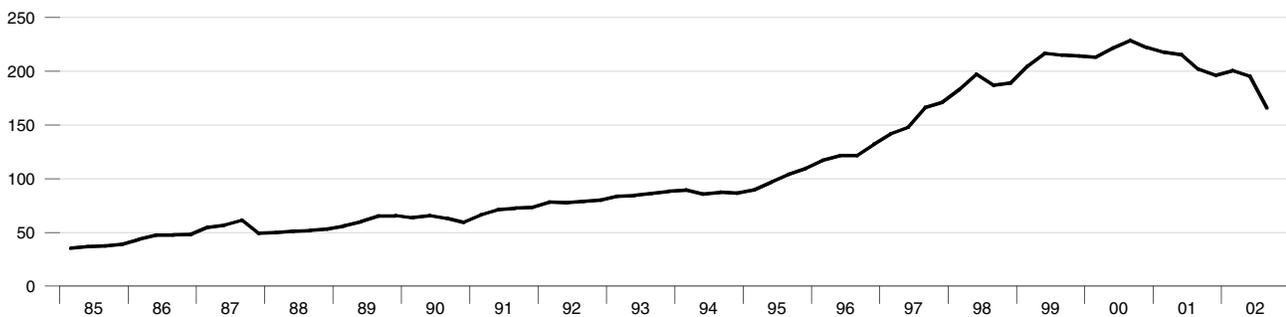
Interest Rates

Percent



Stock Exchange Index - New York Stock Exchange

1995 = 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 excluding construction 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 1995. 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.

Inflation Differential is the U.S. inflation rate minus the foreign inflation rate, as measured by the consumer price index. For the U.S. chart on page 41, the inflation differential is the U.S. inflation rate minus a weighted average of the inflation rates in 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 inflation rates for the individual euro area countries (excluding Greece and Luxembourg) are used.

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 Canada and the United States; long-term public and semi-public sector 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 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

Eurostat: capacity utilization, consumer price index, current account balance, employment, 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 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.
OECD3: merchandise and service trade.

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.