International Economic Trends
August 2008

Why Do Chinese Households Save So Much?

China is a poor but rapidly developing country; its per capita, nominal income is about $1,700 (about 1/25 of that of the United States in 2005). Nevertheless, as a fast-growing country with an average growth rate of 9.8 percent a year over the past 25 years, China's income prospects are bright. Total GDP is predicted to equal that of the United States by 2032.[1] Given such rapid growth, economic intuition would indicate that China has little need to save and instead has a strong incentive to consume today because the fundamental purpose of saving is to enable future consumption. In other words, Chinese households may improve their welfare by consuming more now because they can reasonably expect to be much richer in the future. Despite this fact, China's saving rate is one of the highest in the world. The figure shows that China's personal saving rate is about 25 percent and national saving is roughly 47 percent of GDP (in 2005, compared with 0.5 percent personal saving and 12 percent national saving in the United States)—and these savings rates have increased in recent years.

Why do Chinese households save today to consume even more in the future? Several factors may contribute to this behavior. First, the economic reform in China that started in 1978 increased income uncertainty because many jobs were no longer government-paid: People save more because they are more uncertain about their future.

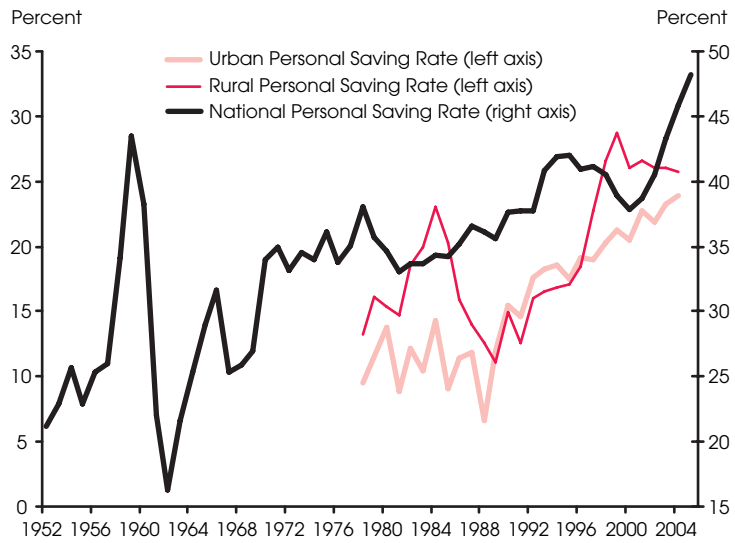
Second, since 1978 the Chinese government has gradually shifted the burden of retirement income to households. Hence, increased savings are needed for retirement, which formerly was essentially free. This change further increased the already high personal saving rate.

Third, China's financial market and banking system is still underdeveloped and only recently began to reform. As a result, borrowing for housing, education, medical care, and other big expenses is very difficult. Even today, mortgages require at least a 30 percent down payment, assuming a loan can be obtained. In addition, real estate prices are very high compared with incomes. In Beijing and Shanghai, for example, the median price of a 1,000-square-foot apartment is about $100,000 at current exchange rates. If the average annual income per capita in Beijing and Shanghai is about $2,000, then the average Chinese worker needs to save his or her entire annual income (a 100 percent saving rate) for about 50 years to buy an apartment. Even if a borrower can obtain a mortgage, the 30 percent down payment means a one-time payment of $30,000—equivalent to about 15 years' income (ignoring interest payments). Such high real estate costs have boosted the savings rate.

Economic theory predicts that the development of financial market and social insurance programs may dramatically reduce China's saving rate (at both household and national levels). Such a decline in the saving rate may slow China's speed of growth because economic growth is driven partially by domestic investment, which in turn is financed mostly by domestic saving.

—Luke M. Shimek and Yi Wen

[1] The computation assumes that the United States grows at the average postwar rate.



SOURCE: *China Statistical Yearbook–2006* and authors' calculations.

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 July 2008. 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.

Due to a new earnings statistics law, the German National Statistical Office has not released hourly earnings data since January 1, 2007. For more information see http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/EN/Content/Statistics/VerdiensteArbeitskosten/Aktuell__Verdienststatistikgesetz,templateId=renderPrint.psml.

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Cyprus and Malta joined the euro area effective January 1, 2008. The Notes section details the data series that now incorporate Cyprus and Malta.

International Economic Trends is published by the Research Division of the Federal Reserve Bank of St. Louis; the annual edition is published in July. Visit the Research Division's website at research.stlouisfed.org/publications/iet to download the quarterly issue of this publication or register for e-mail notification updates. For more information on data in this publication, please call (314) 444-8590.

Real Gross Domestic Product

Percent change from year ago

	05.2	05.3	05.4	06.1	06.2	06.3	06.4	07.1	07.2	07.3	07.4	08.1
Canada	2.69	2.63	3.01	3.88	3.55	2.80	2.25	2.22	2.78	3.09	2.76	1.65
Euro Area	1.64	1.93	2.09	2.60	2.99	2.90	3.27	3.25	2.58	2.66	2.17	2.08
France	1.70	2.03	1.73	2.14	2.85	2.19	2.26	2.17	1.67	2.37	2.19	2.00
Germany	0.67	1.41	1.62	2.11	3.05	3.22	3.94	3.74	2.55	2.48	1.75	2.64
Italy	0.65	0.65	0.97	1.94	1.61	1.60	2.56	1.90	1.58	1.58	0.31	0.31
Japan	2.00	2.10	2.89	2.72	2.36	2.01	2.51	3.14	1.74	1.84	1.42	1.31
United Kingdom	1.64	1.78	1.84	2.58	2.83	3.02	3.25	3.08	3.25	3.11	2.79	2.26
United States	3.01	3.22	2.88	3.31	3.22	2.37	2.60	1.55	1.89	2.84	2.46	2.55

Nominal Gross Domestic Product

Percent change from year ago

	05.2	05.3	05.4	06.1	06.2	06.3	06.4	07.1	07.2	07.3	07.4	08.1
Canada	5.18	6.34	7.49	7.56	6.87	5.01	3.41	4.99	6.34	5.74	6.39	4.93
Euro Area	3.55	3.89	4.30	4.64	5.05	4.94	5.04	5.48	4.90	5.00	4.47	4.23
France	3.61	4.11	4.13	4.62	5.37	4.80	4.93	4.55	4.28	5.09	4.57	4.80
Germany	1.18	2.01	2.50	2.61	3.66	3.86	4.57	5.31	4.60	4.50	3.69	3.96
Italy	2.59	2.87	3.71	3.99	4.21	3.34	3.31	4.38	3.23	4.04	2.67	1.84
Japan	0.89	0.76	1.17	1.45	1.13	1.14	1.91	2.39	1.33	1.21	0.07	-0.28
United Kingdom	4.15	3.55	3.90	5.02	4.89	6.67	6.07	5.76	6.72	5.80	5.56	5.34
United States	6.09	6.62	6.34	6.67	6.80	5.64	5.41	4.53	4.67	5.30	5.09	4.79

Consumer Price Index

Percent change from year ago

	05.3	05.4	06.1	06.2	06.3	06.4	07.1	07.2	07.3	07.4	08.1	08.2
Canada	2.62	2.22	2.37	2.54	1.73	1.39	1.82	2.18	2.13	2.42	1.78	.
Euro Area	2.32	2.32	2.37	2.45	2.14	1.78	1.90	1.87	1.88	2.90	3.35	3.64
France	2.05	1.83	2.02	2.19	1.93	1.51	1.29	1.26	1.35	2.53	3.30	.
Germany	2.10	2.19	2.10	2.13	1.63	1.30	1.92	1.95	2.19	3.06	3.08	3.02
Italy	2.18	2.39	2.27	2.30	2.34	1.98	2.03	1.84	1.69	2.59	3.26	3.78
Japan	-0.30	-0.74	-0.13	0.18	0.60	0.32	-0.10	-0.06	-0.14	0.53	0.97	.
United Kingdom	2.38	2.13	1.95	2.25	2.42	2.72	2.83	2.59	1.78	2.10	2.37	.
United States	3.80	3.76	3.71	3.94	3.34	1.95	2.42	2.63	2.36	4.01	4.17	4.29

Employment

Percent change from year ago

	05.3	05.4	06.1	06.2	06.3	06.4	07.1	07.2	07.3	07.4	08.1	08.2
Canada	1.45	1.64	1.77	2.23	1.88	1.88	2.48	2.01	2.27	2.45	2.03	1.94
Euro Area	0.89	0.94	1.31	1.73	1.63	1.64	1.77	1.67	1.89	1.70	.	.
France	0.59	0.66	0.58	1.02	1.23	1.21	1.88	1.75	1.77	1.97	1.57	.
Germany	-0.15	0.08	0.03	0.64	0.86	0.96	1.86	1.69	1.59	1.78	1.74	.
Italy	-0.39	-0.21	1.13	2.12	1.89	1.65	0.80	0.58	1.48	1.13	0.98	.
Japan	0.59	0.49	0.55	0.24	0.13	0.71	0.43	0.94	0.24	0.27	0.10	.
United Kingdom	1.55	1.19	0.54	0.68	0.27	0.30	0.33	0.43	0.82	0.63	0.71	.
United States	1.98	1.86	2.12	1.81	1.61	2.10	1.83	1.26	0.98	0.45	0.06	0.13

Unemployment Rate

Percent

	05.3	05.4	06.1	06.2	06.3	06.4	07.1	07.2	07.3	07.4	08.1	08.2
Canada	6.73	6.50	6.42	6.18	6.44	6.17	6.13	6.08	5.99	5.91	5.88	.
Euro Area	8.80	8.73	8.63	8.40	8.07	7.87	7.63	7.47	7.37	7.27	7.20	.
France	9.37	9.43	9.50	9.33	9.17	8.83	8.77	8.43	8.17	7.90	7.57	.
Germany	10.67	10.47	10.47	10.07	9.60	9.20	8.73	8.50	8.30	8.00	7.57	.
Italy	7.60	7.70	7.30	6.80	6.60	6.50	6.00	6.10	6.20	6.30	6.50	.
Japan	4.33	4.48	4.24	4.10	4.14	4.07	4.00	3.76	3.79	3.84	3.86	.
United Kingdom	4.67	5.07	5.17	5.37	5.40	5.40	5.47	5.30	5.27	5.03	5.13	.
United States	4.98	4.94	4.71	4.67	4.66	4.44	4.50	4.51	4.68	4.80	4.94	5.31

Reserve Money

Percent change from year ago

	05.3	05.4	06.1	06.2	06.3	06.4	07.1	07.2	07.3	07.4	08.1	08.2
Canada	4.01	3.24	3.93	4.28	5.78	5.94	5.61	5.48	5.64	4.89	2.84	.
Japan	1.65	1.03	-0.87	-16.22	-21.19	-20.00	-19.08	-4.19	0.76	0.34	-0.10	0.41
United Kingdom	3.82	3.15	5.06	5.64	5.06	5.14	4.06	4.77	5.44	5.81	6.75	5.73
United States	3.32	3.18	4.03	4.21	3.17	2.71	1.91	1.62	2.11	1.81	1.18	1.13

Narrow Money

Percent change from year ago

	05.3	05.4	06.1	06.2	06.3	06.4	07.1	07.2	07.3	07.4	08.1	08.2
Canada	6.31	7.67	7.26	7.72	9.76	10.52	10.07	9.75	10.50	7.54	7.75	.
Euro Area	16.72	17.69	16.10	9.28	7.42	7.65	7.32	6.44	6.36	4.02	2.92	.
Japan	5.23	4.94	4.18	3.38	1.54	-1.24	0.06	0.24	-1.22	2.96	-0.68	.
United Kingdom	9.31	9.36	9.57	8.64	7.88	7.82	7.16	7.56	7.05	6.59	6.76	.
United States	1.78	2.39	3.53	4.04	3.95	4.75	5.93	8.08	10.30	12.27	14.98	15.91

Broad Money

Percent change from year ago

	05.3	05.4	06.1	06.2	06.3	06.4	07.1	07.2	07.3	07.4	08.1	08.2
Canada	4.90	5.61	5.68	6.34	8.10	8.91	8.47	7.95	8.11	6.46	7.40	.
Euro Area	8.46	8.25	8.69	8.35	8.67	9.42	10.85	11.14	11.06	11.75	10.78	.
Japan	1.94	1.92	1.47	1.21	0.60	0.67	1.06	1.86	1.69	2.07	2.18	.
United Kingdom	11.02	12.69	12.02	13.42	14.27	12.83	13.06	12.97	12.97	12.03	11.70	.
United States	4.24	4.23	4.82	4.85	4.57	4.92	5.36	6.13	6.29	5.84	6.46	6.34

Short-Term Interest Rates

Percent

	05.3	05.4	06.1	06.2	06.3	06.4	07.1	07.2	07.3	07.4	08.1	08.2
Canada	2.90	3.48	3.93	4.43	4.32	4.32	4.35	4.52	5.11	4.79	3.57	3.16
Euro Area	2.13	2.34	2.61	2.89	3.22	3.59	3.82	4.07	4.50	4.73	4.48	.
Japan	0.03	0.03	0.05	0.13	0.38	0.42	0.54	0.60	0.73	0.76	0.75	.
United Kingdom	4.55	4.56	4.53	4.64	4.85	5.17	5.49	5.72	6.30	6.31	5.69	5.86
United States	3.74	4.30	4.72	5.18	5.39	5.32	5.31	5.32	5.42	5.02	3.23	2.76

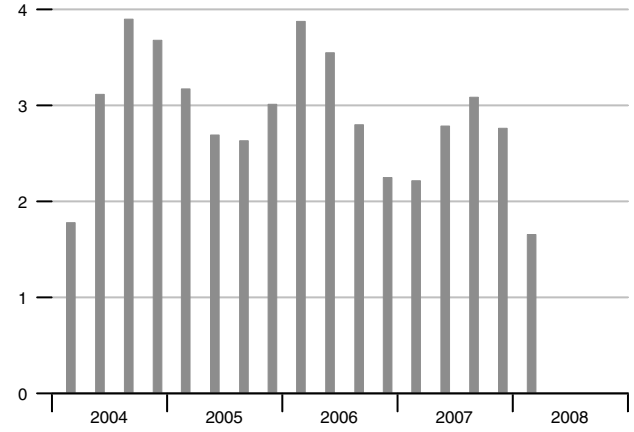
Long-Term Interest Rates

Percent

	05.3	05.4	06.1	06.2	06.3	06.4	07.1	07.2	07.3	07.4	08.1	08.2
Canada	3.90	4.06	4.13	4.43	4.27	4.02	4.08	4.36	4.48	4.17	3.75	3.66
Euro Area	3.24	3.40	3.54	4.03	3.96	3.83	4.08	4.41	4.46	4.34	4.12	.
France	3.23	3.39	3.51	3.99	3.90	3.79	4.06	4.39	4.44	4.33	4.08	.
Germany	3.17	3.34	3.48	3.94	3.88	3.76	4.00	4.33	4.34	4.19	3.93	4.25
Italy	3.39	3.55	3.72	4.26	4.17	4.03	4.24	4.54	4.64	4.53	4.38	4.78
Japan	1.36	1.53	1.58	1.90	1.80	1.71	1.68	1.75	1.73	1.57	1.40	1.62
United Kingdom	4.28	4.29	4.18	4.61	4.62	4.60	4.86	5.21	5.18	4.79	4.52	4.91
United States	4.45	4.73	4.74	5.26	5.06	4.80	4.86	5.03	4.98	4.59	4.25	4.46

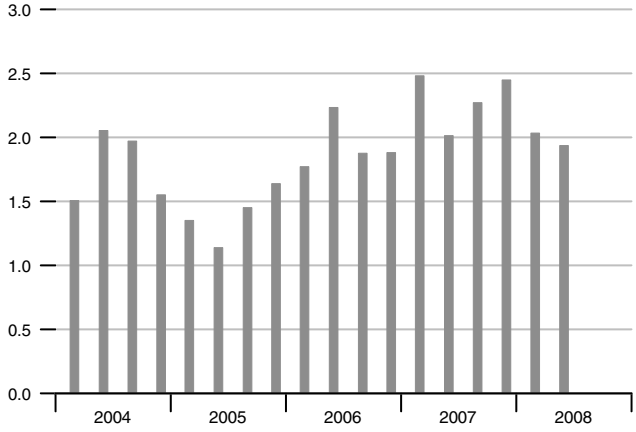
Real GDP

Percent change from year ago



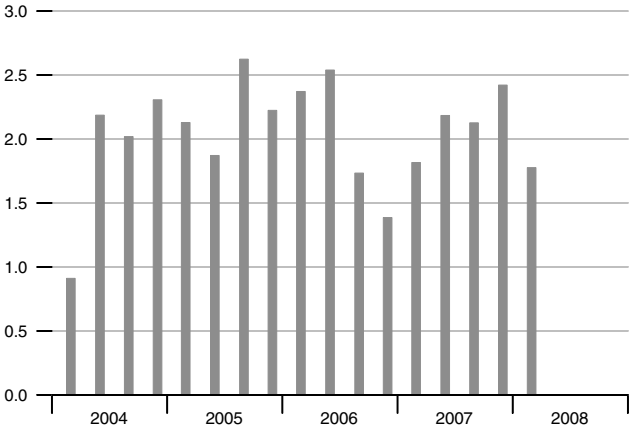
Employment

Percent change from year ago



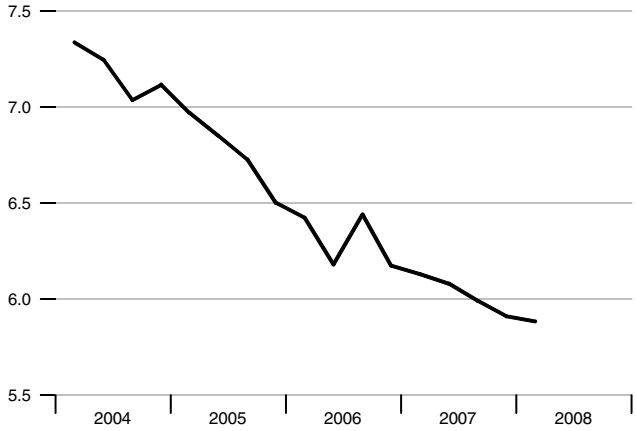
Consumer Price Index

Percent change from year ago



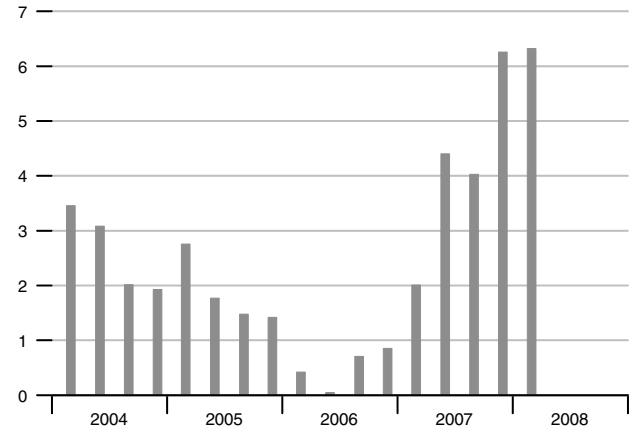
Unemployment Rate

Percent



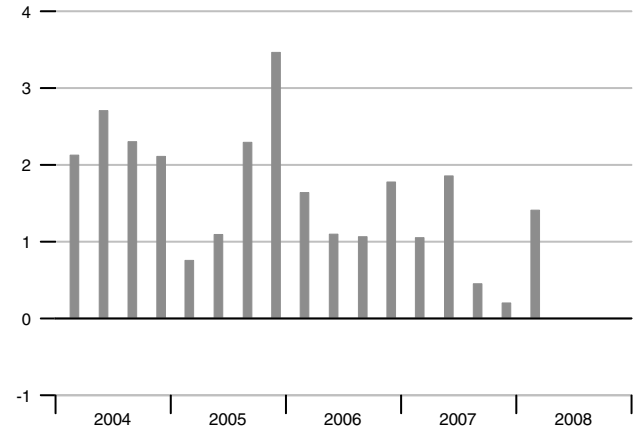
Real Hourly Earnings

Percent change from year ago



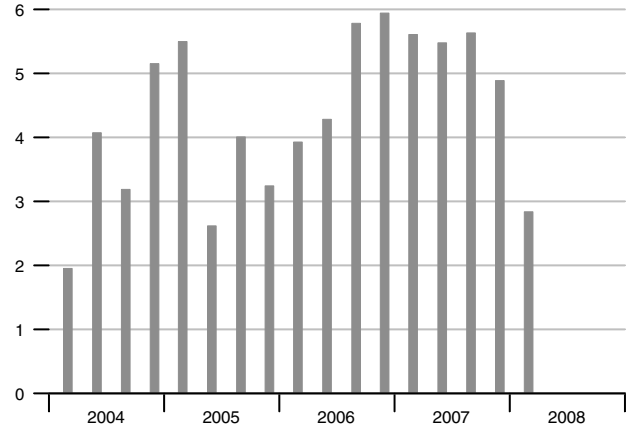
Current Account Balance

Percent of GDP



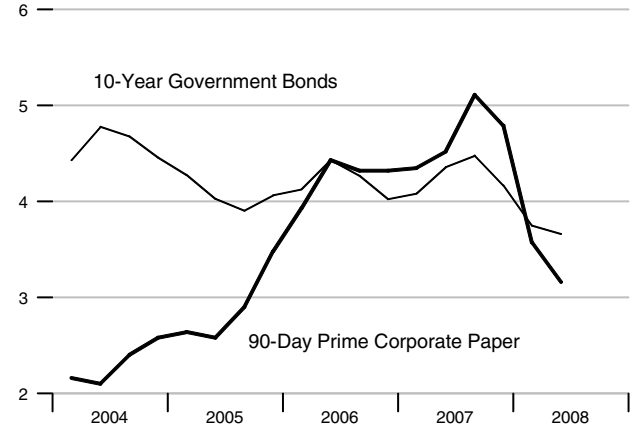
Reserve Money

Percent change from year ago



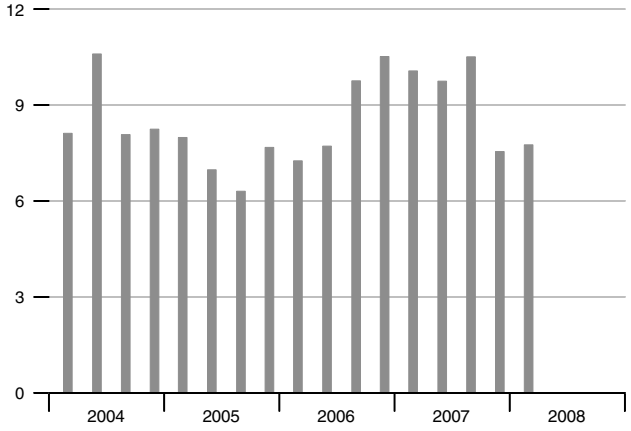
Interest Rates

Percent



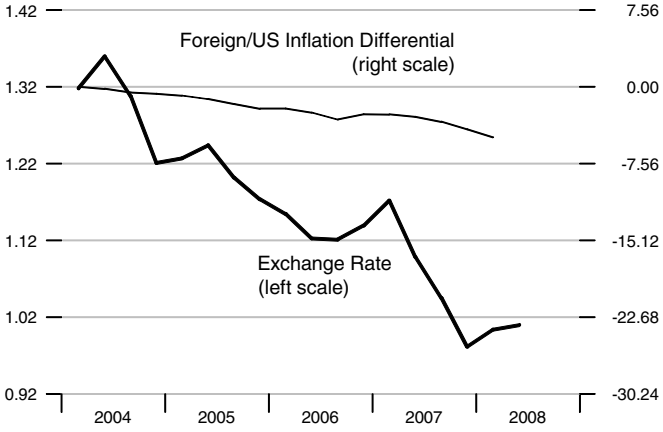
M1B

Percent change from year ago



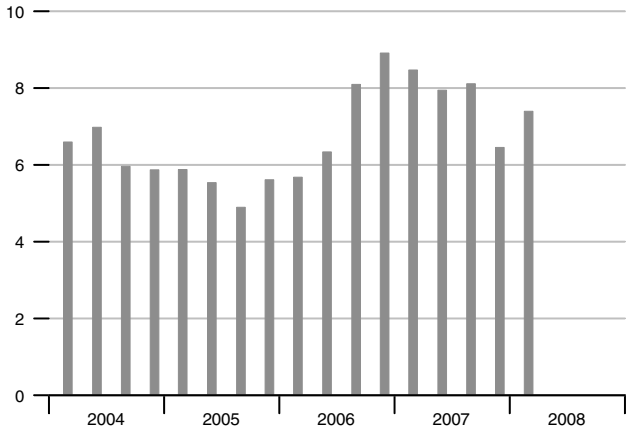
Exchange Rate and Inflation Differential

C$/US$ Percent



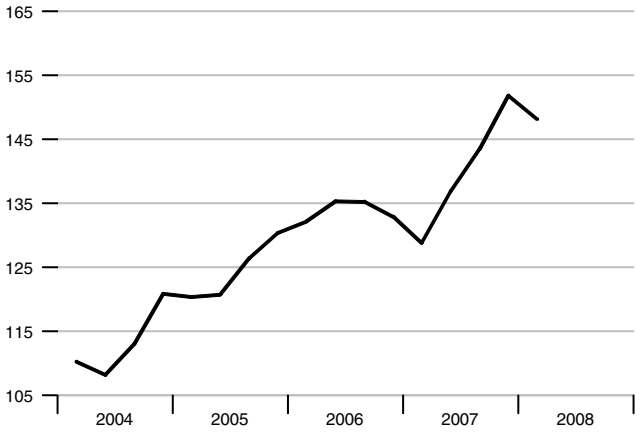
M2

Percent change from year ago



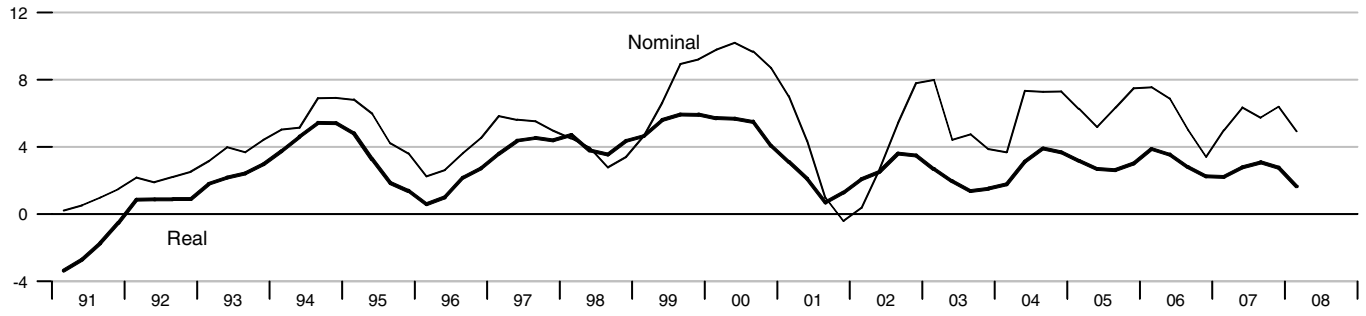
Real Effective Exchange Rate

Index 2000 = 100



GDP

Percent change from year ago



Industrial Production

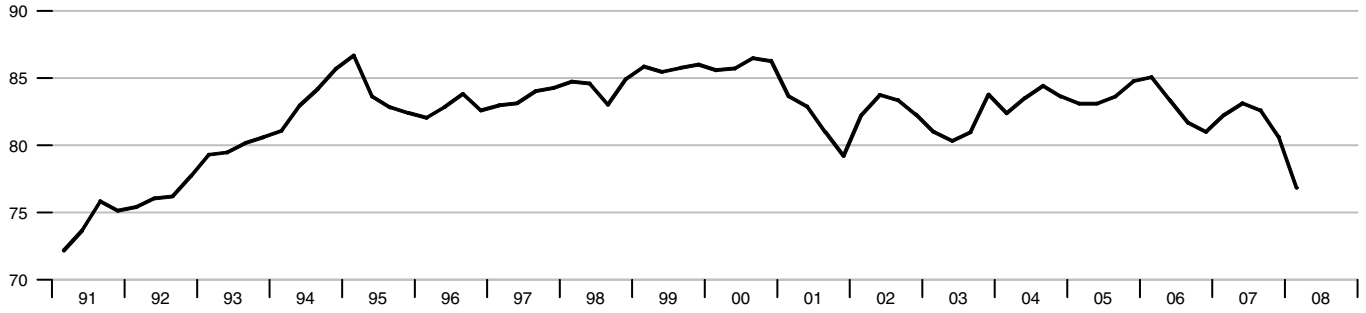
Percent change from year ago

Retail Sales

Percent change from year ago

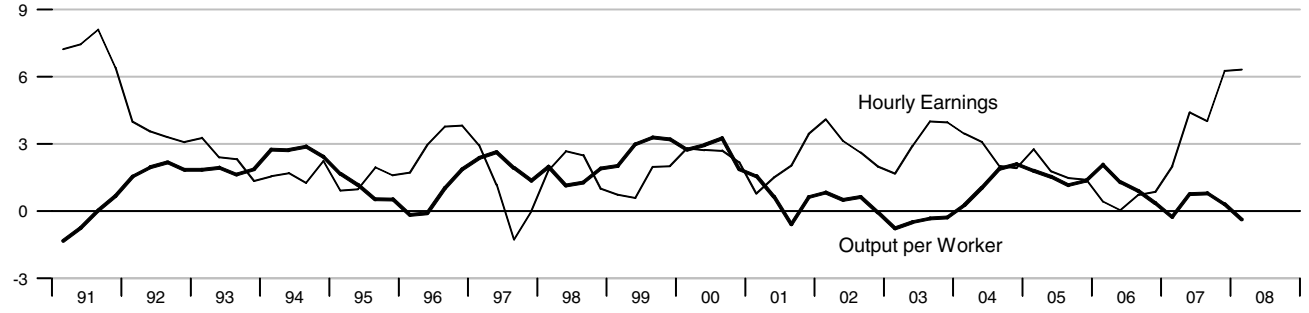
Capacity Utilization

Percent



Real Hourly Earnings and Output per Worker

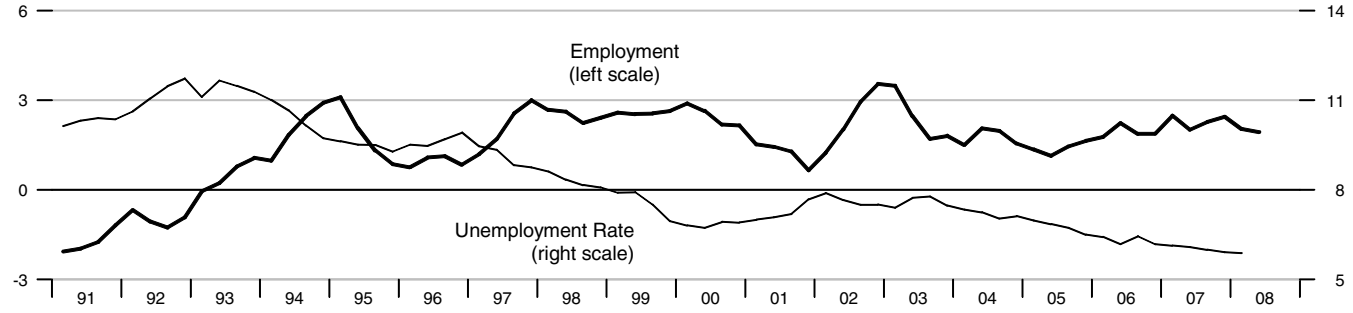
Percent change from year ago



Labor Force Indicators

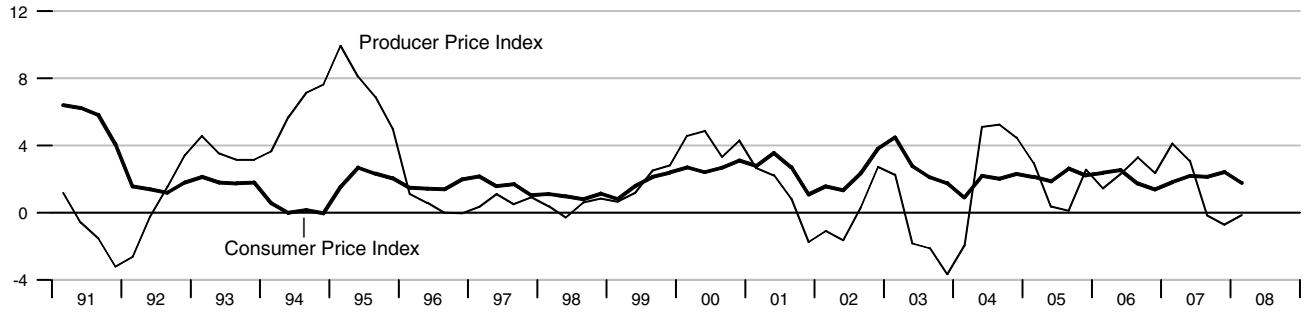
Percent change from year ago

Percent



Inflation

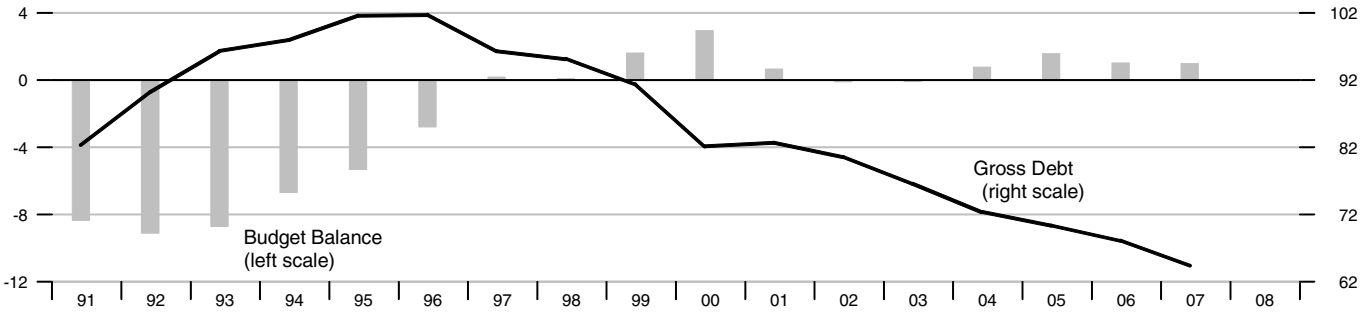
Percent change from year ago



Gross Government Debt and Budget Balance

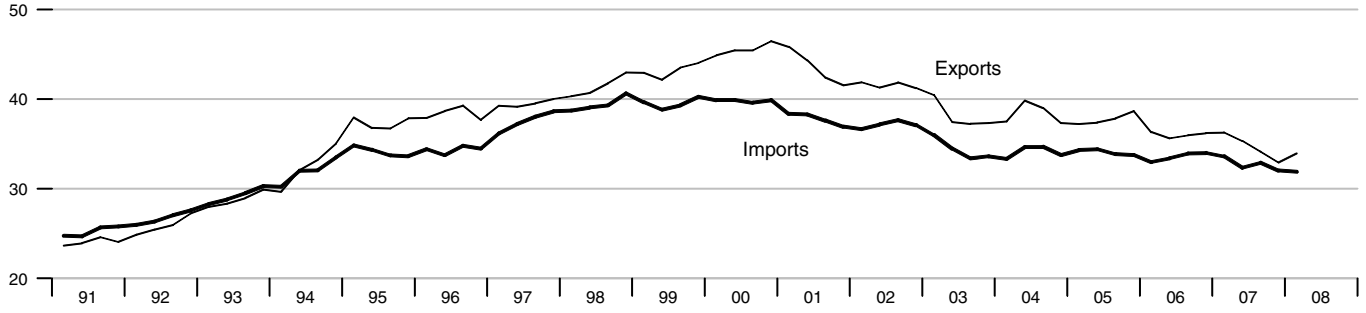
Percent of GDP, annual data

Percent of GDP, annual data



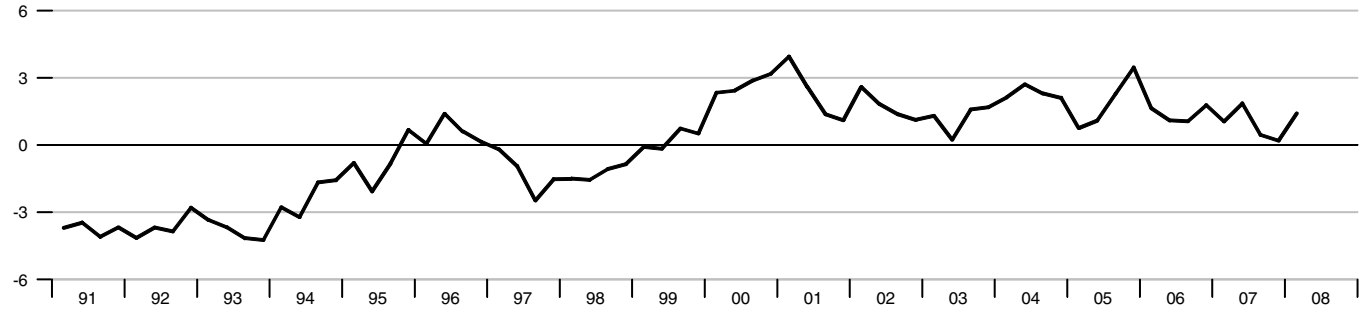
International Trade - Goods and Services

Percent of GDP



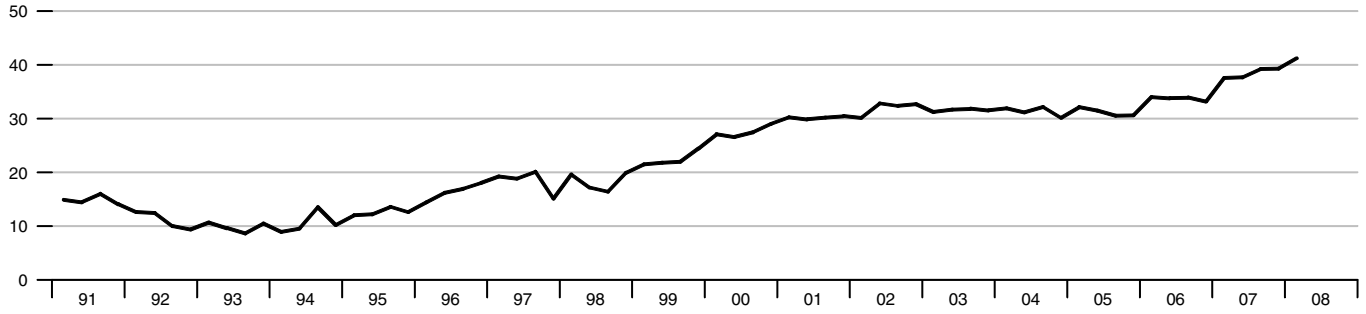
Current Account Balance

Percent of GDP



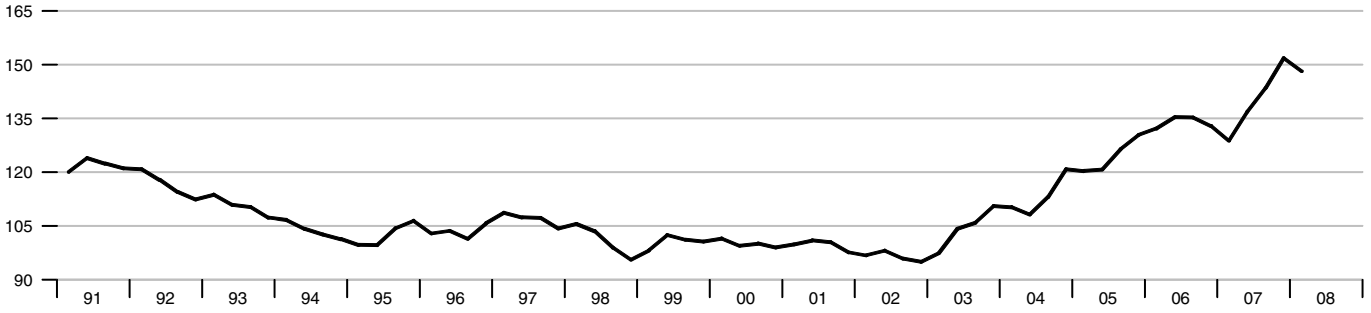
Foreign Exchange Reserves

Billions of US$



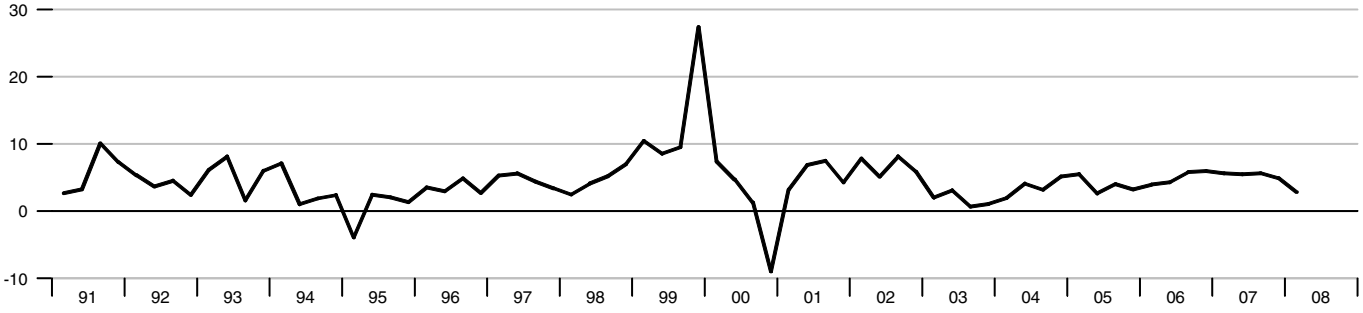
Real Effective Exchange Rate

Index 2000 = 100



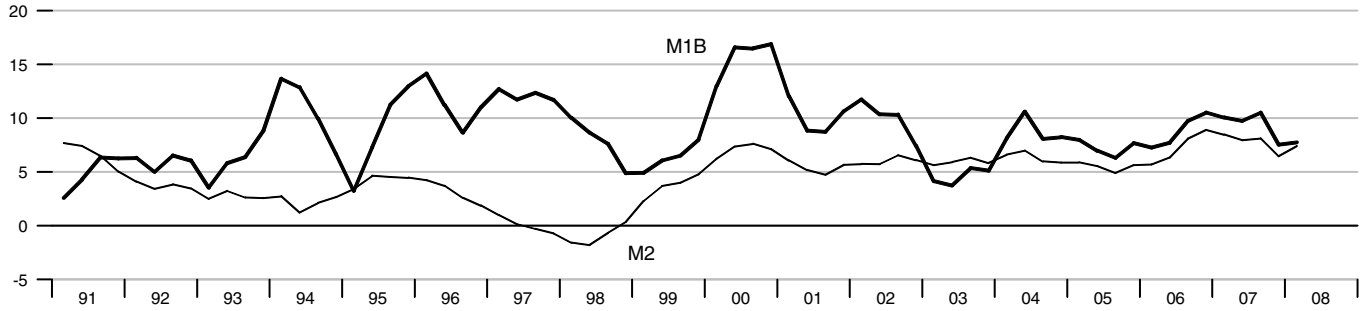
Reserve Money

Percent change from year ago



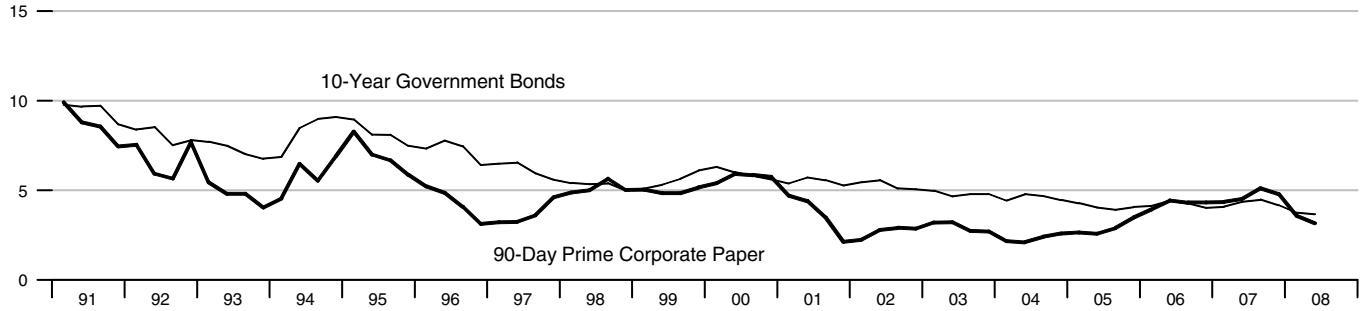
Monetary Aggregates

Percent change from year ago



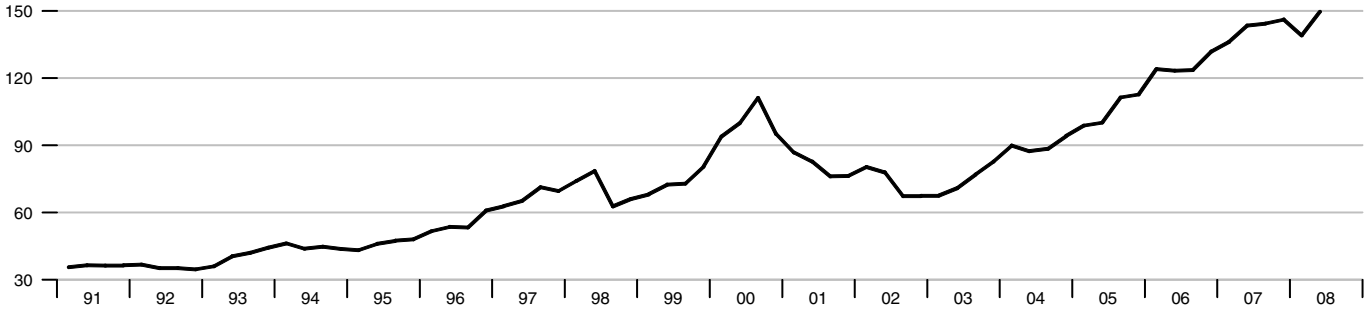
Interest Rates

Percent



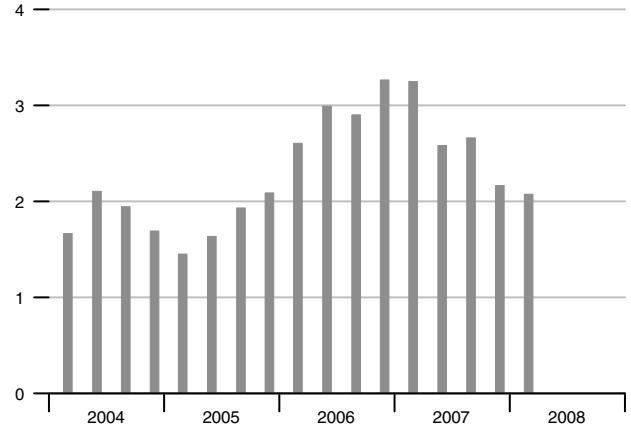
Stock Exchange Index - Toronto Stock Exchange

2000 = 100



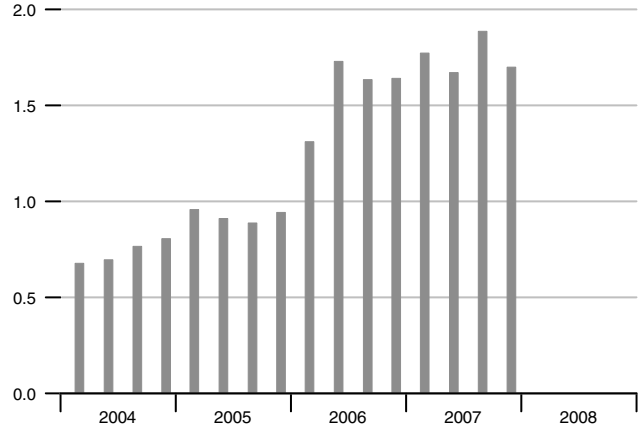
Real GDP

Percent change from year ago



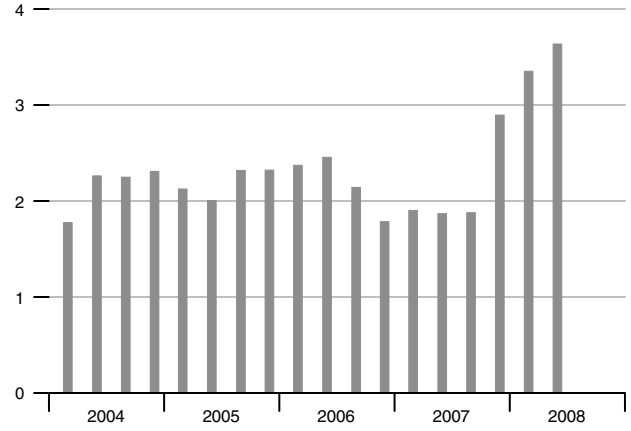
Employment

Percent change from year ago



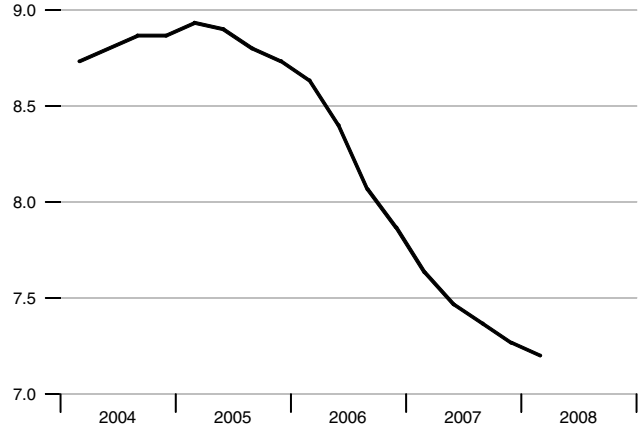
Consumer Price Index

Percent change from year ago



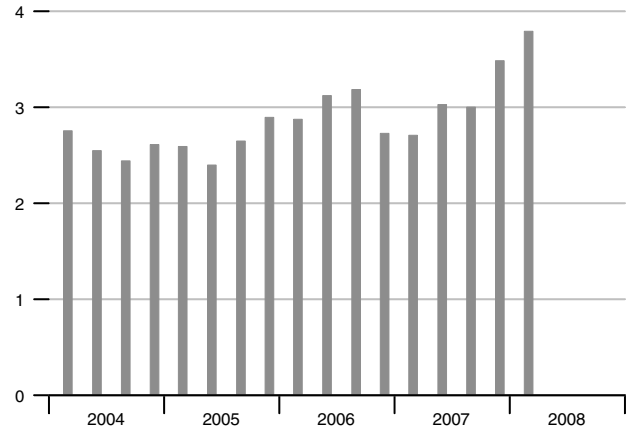
Unemployment Rate

Percent



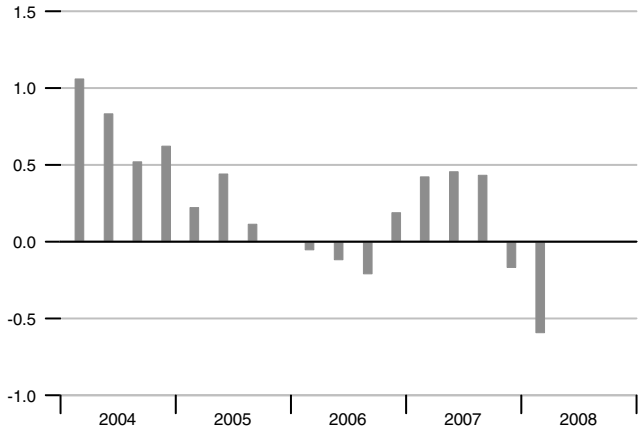
Real Hourly Earnings

Percent change from year ago



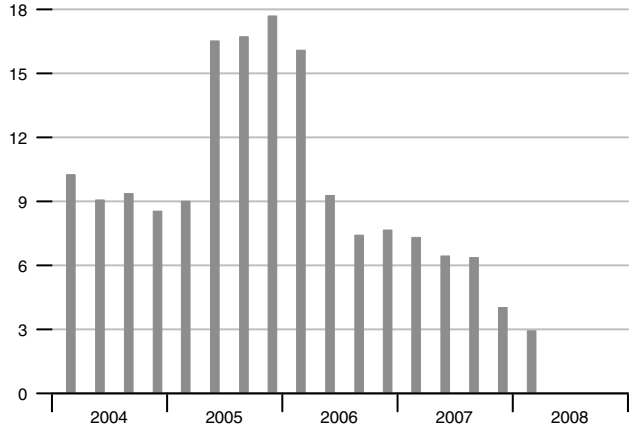
Current Account Balance

Percent of GDP



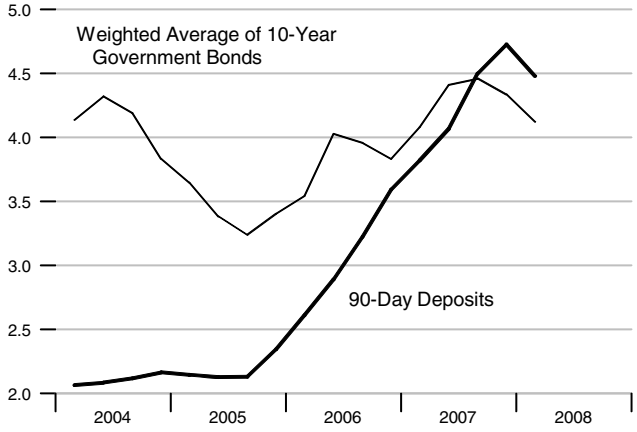
M1

Percent change from year ago



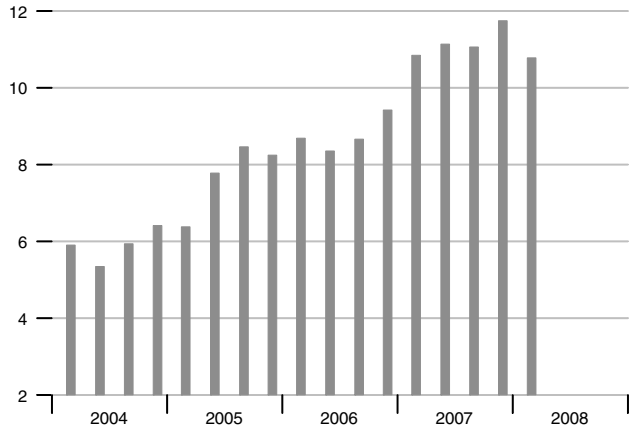
Interest Rates

Percent



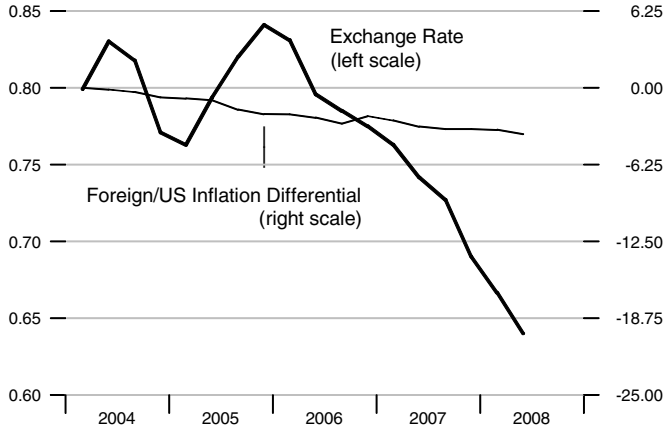
M3

Percent change from year ago



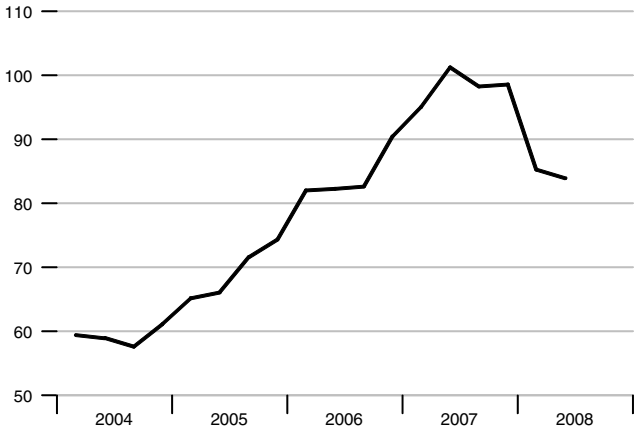
Exchange Rate and Inflation Differential

Euro/US$ Percent



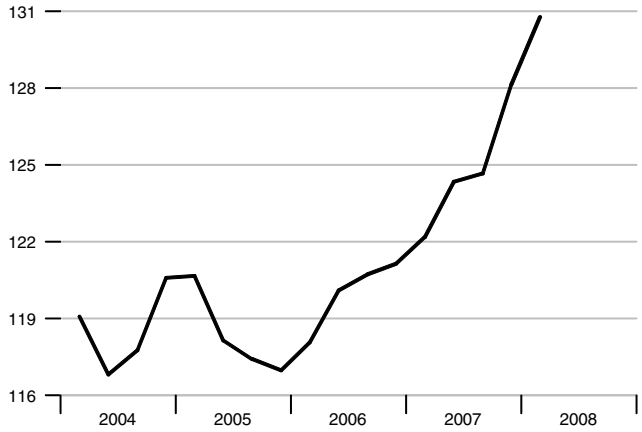
Stock Exchange Index - Dow Jones EURO STOXX SM

2000 = 100



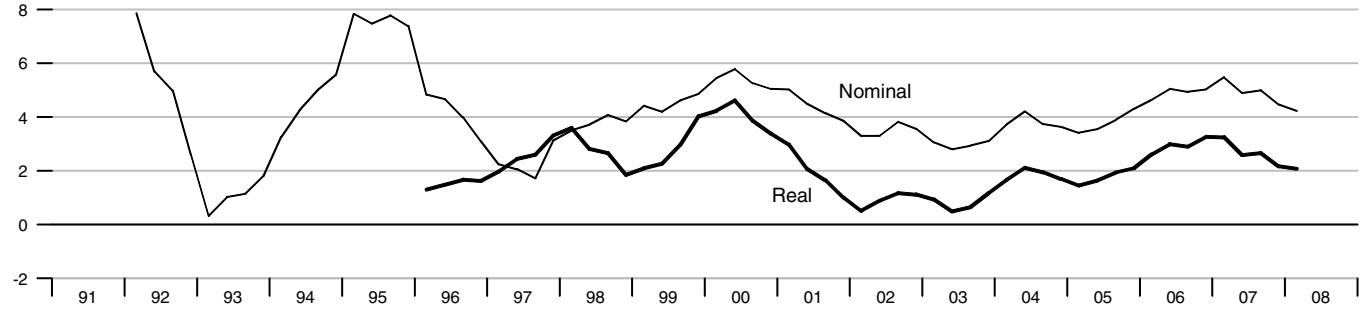
Real Effective Exchange Rate

Index 2000 = 100



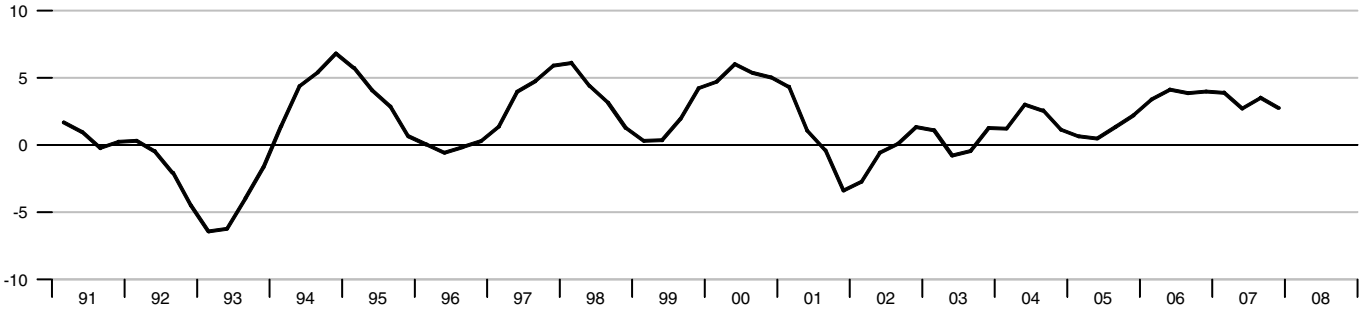
GDP

Percent change from year ago



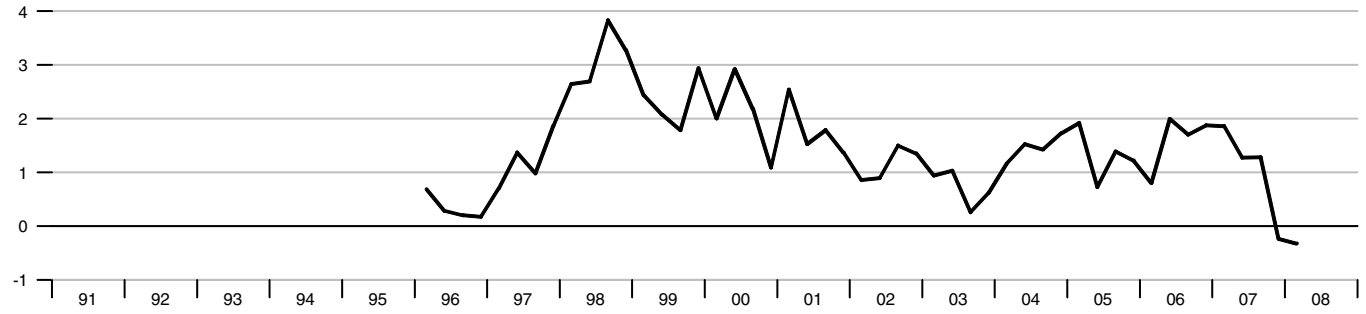
Industrial Production

Percent change from year ago



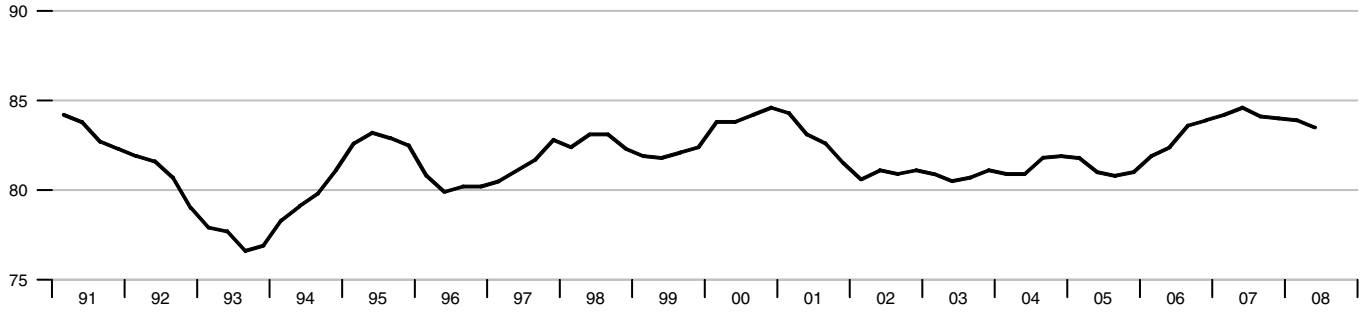
Retail Sales

Percent change from year ago



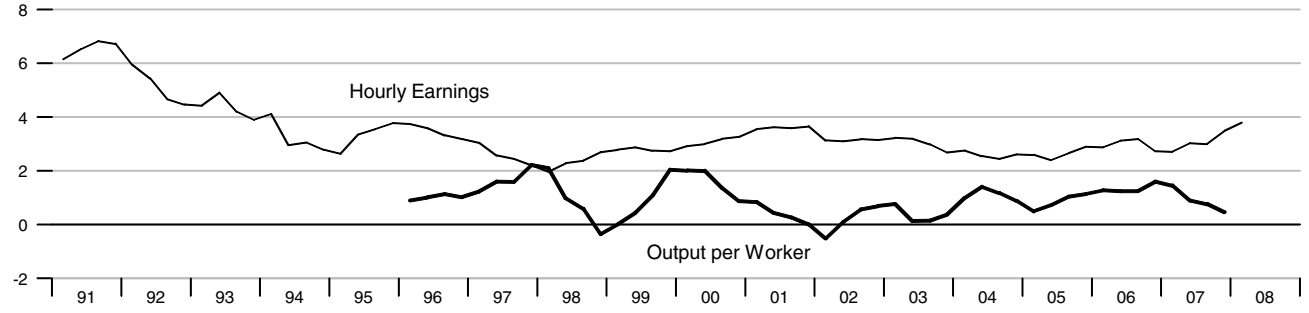
Capacity Utilization

Percent



Real Hourly Earnings and Output per Worker

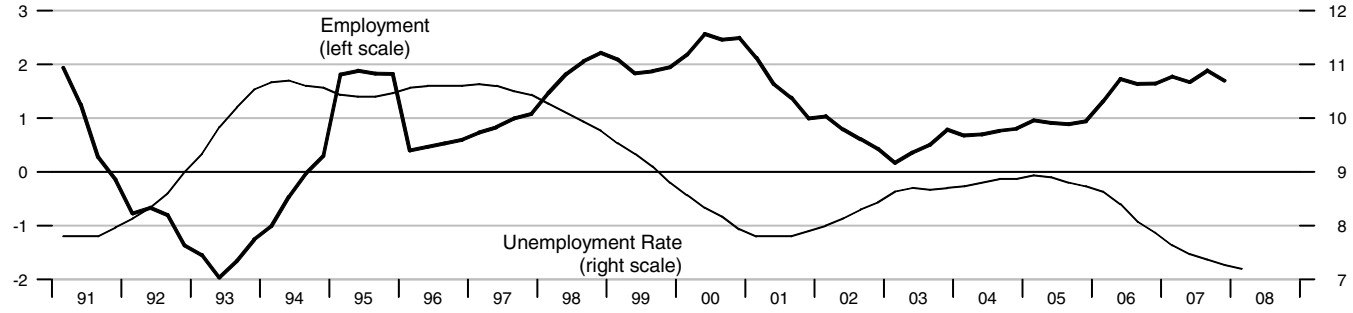
Percent change from year ago



Labor Force Indicators

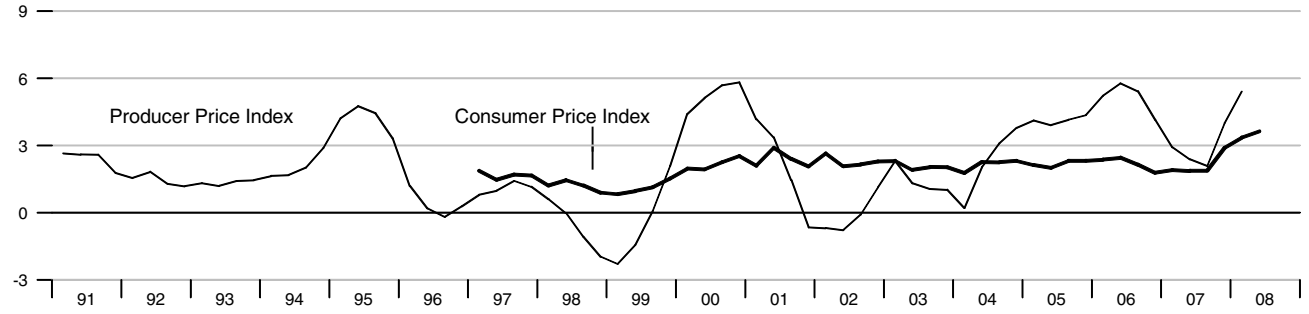
Percent change from year ago

Percent



Inflation

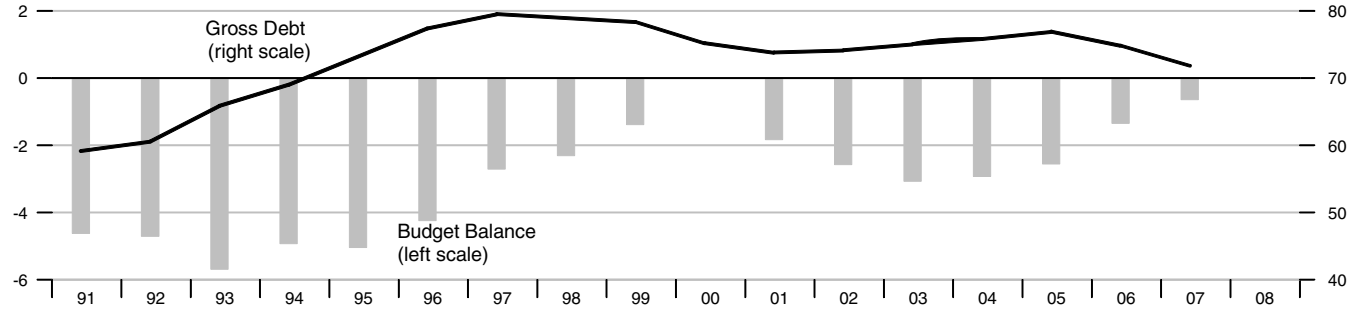
Percent change from year ago



Gross Government Debt and Budget Balance

Percent of GDP, annual data

Percent of GDP, annual data

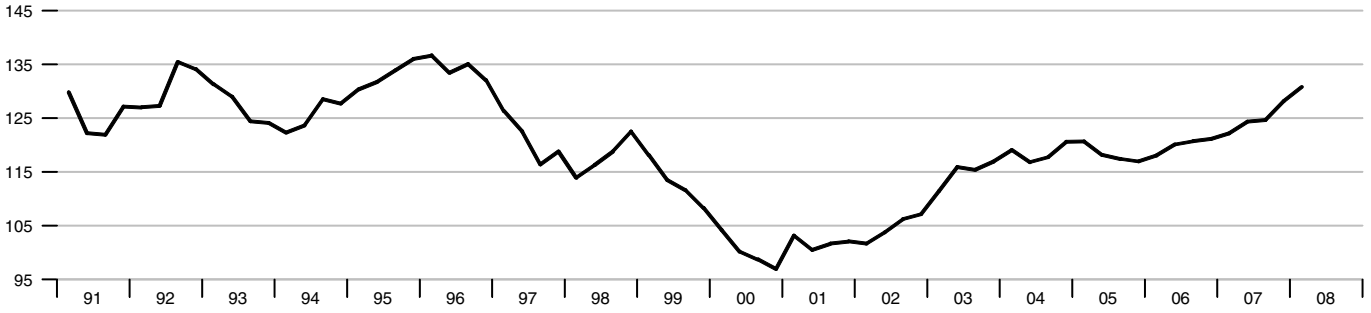


International Trade - Goods

Percent of GDP

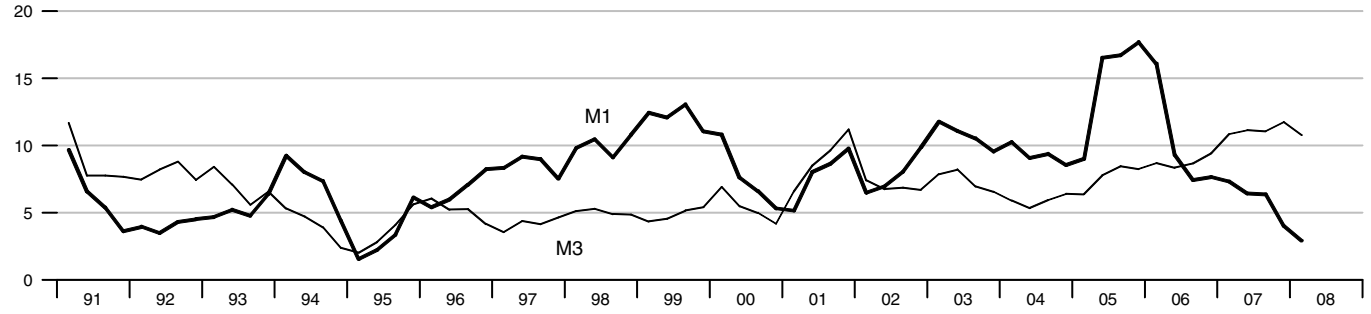
Real Effective Exchange Rate

Index 2000 = 100



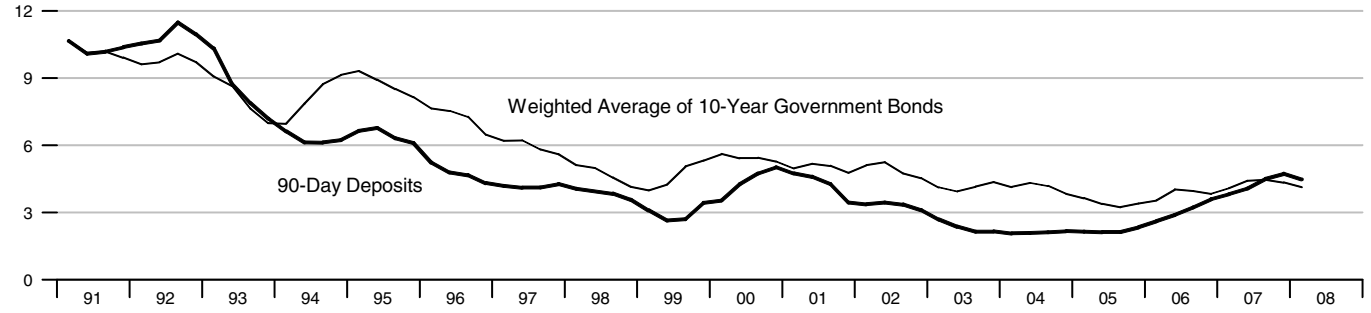
Monetary Aggregates

Percent change from year ago



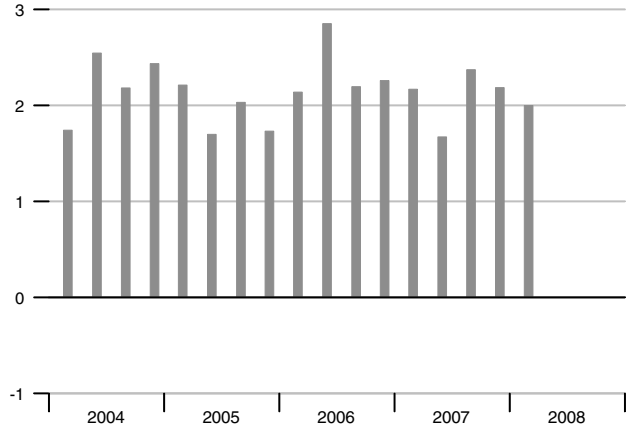
Interest Rates

Percent



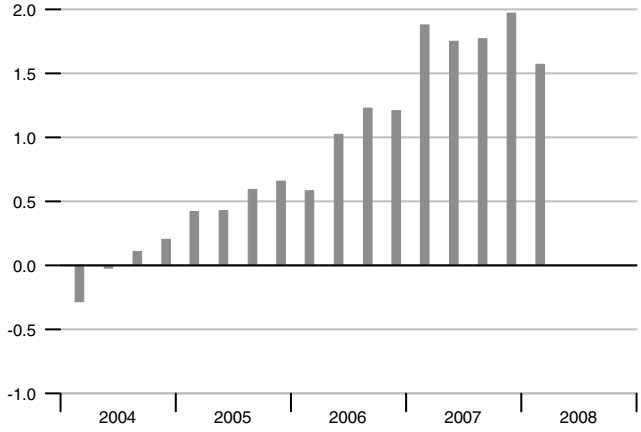
Real GDP

Percent change from year ago



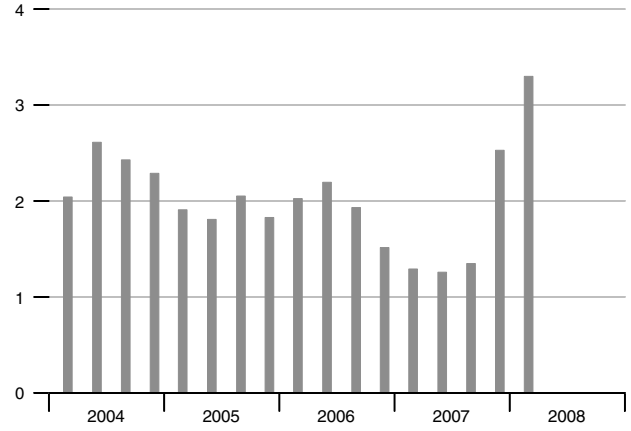
Employment

Percent change from year ago



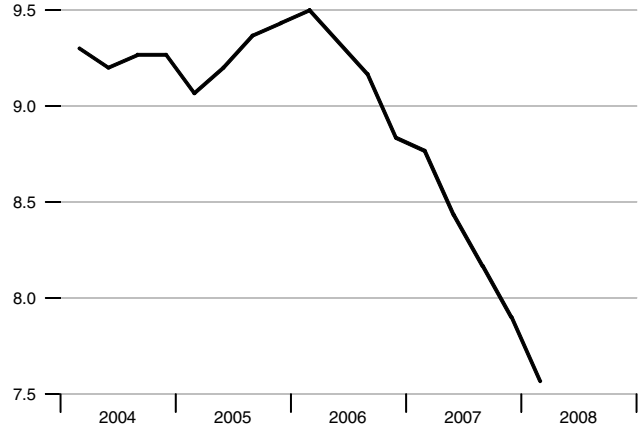
Consumer Price Index

Percent change from year ago



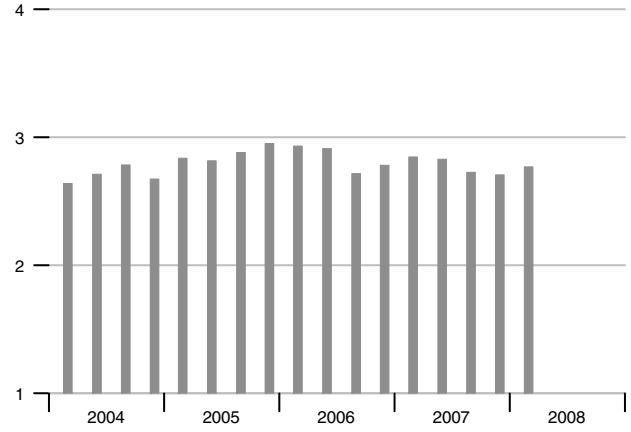
Unemployment Rate

Percent



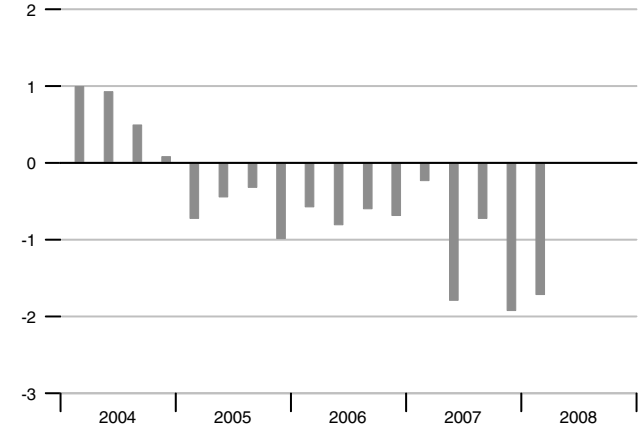
Real Hourly Earnings

Percent change from year ago



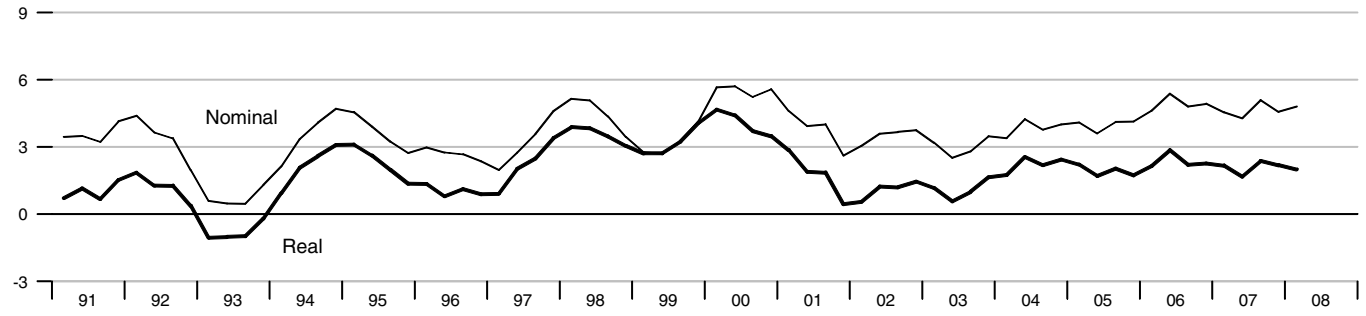
Current Account Balance

Percent of GDP



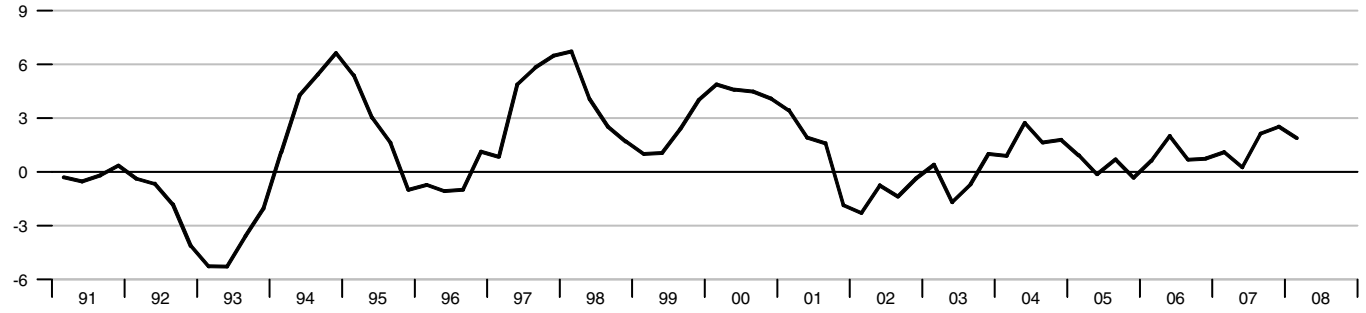
GDP

Percent change from year ago



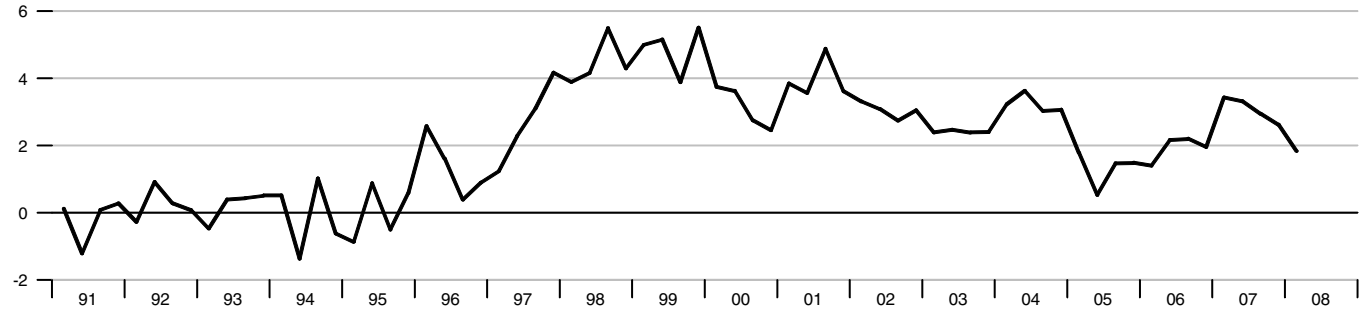
Industrial Production

Percent change from year ago



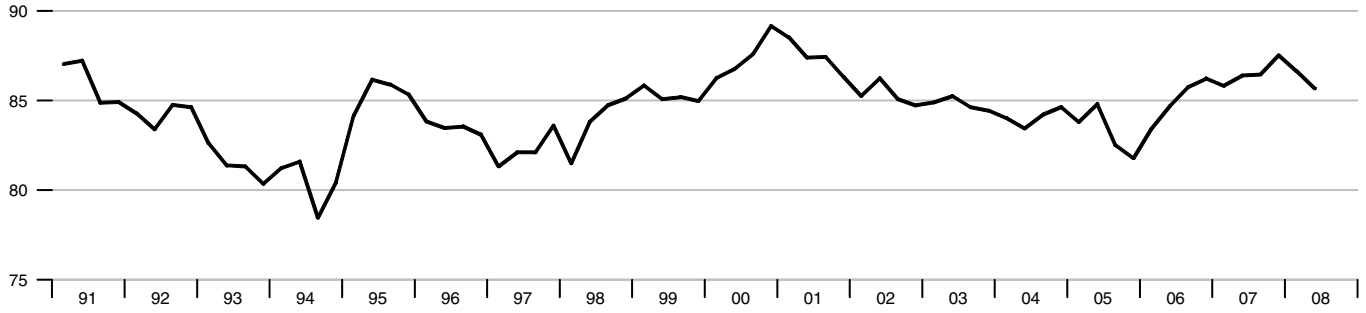
Retail Sales

Percent change from year ago



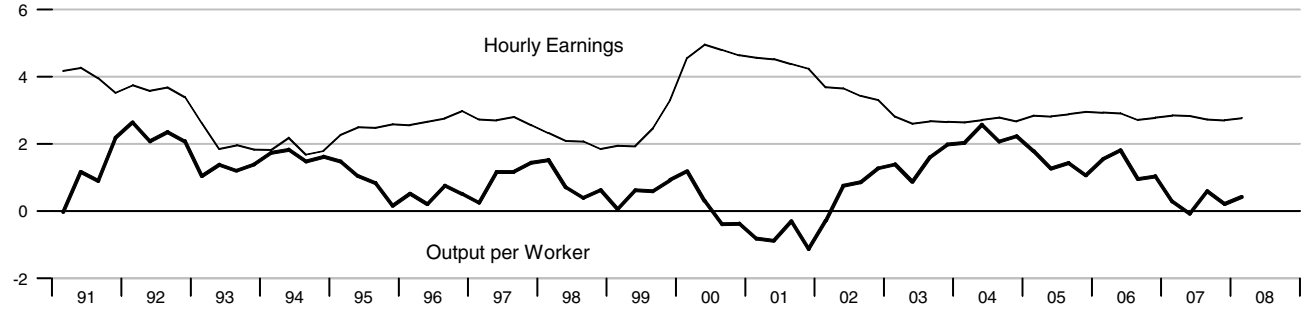
Capacity Utilization

Percent



Real Hourly Earnings and Output per Worker

Percent change from year ago



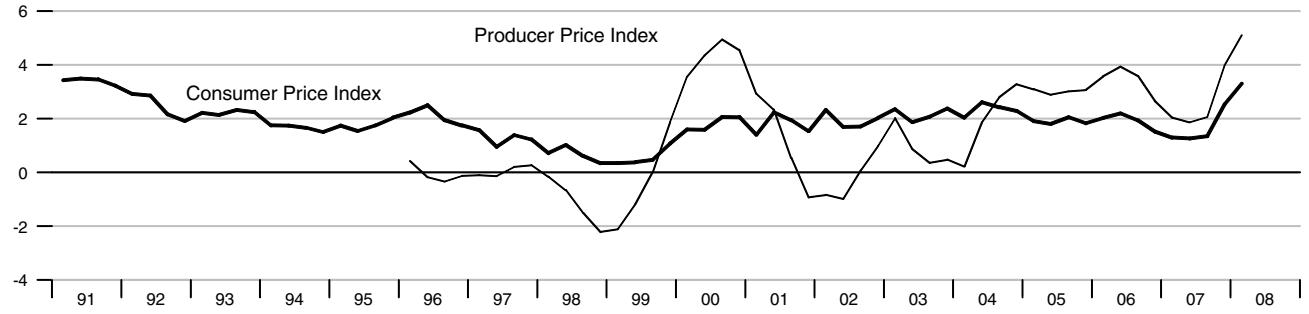
Labor Force Indicators

Percent change from year ago

Percent

Inflation

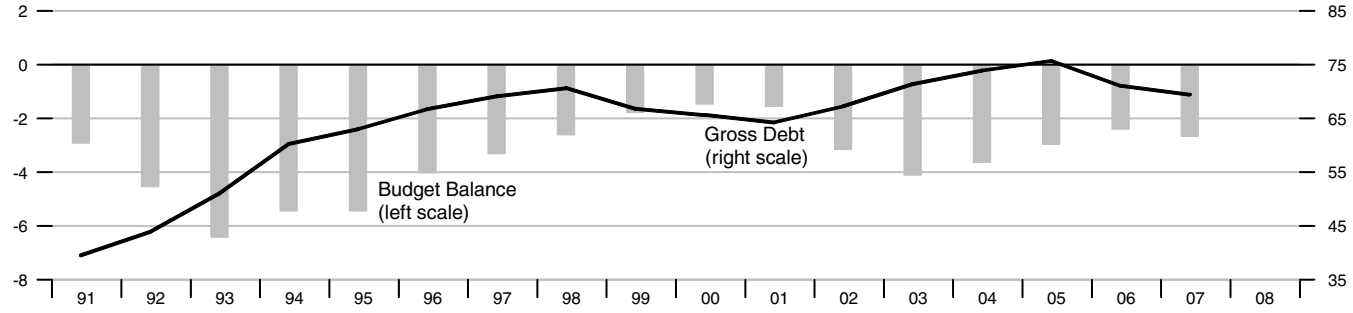
Percent change from year ago



Gross Government Debt and Budget Balance

Percent of GDP, annual data

Percent of GDP, annual data



International Trade - Goods and Services

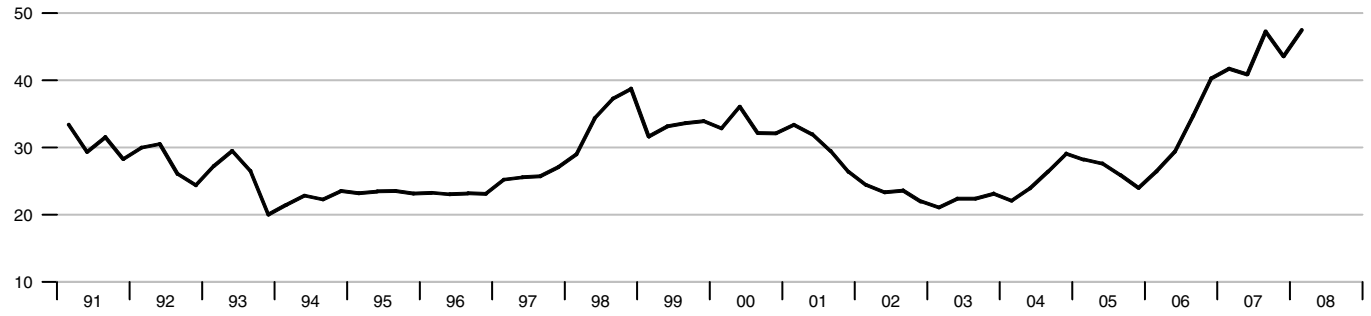
Percent of GDP

Current Account Balance

Percent of GDP

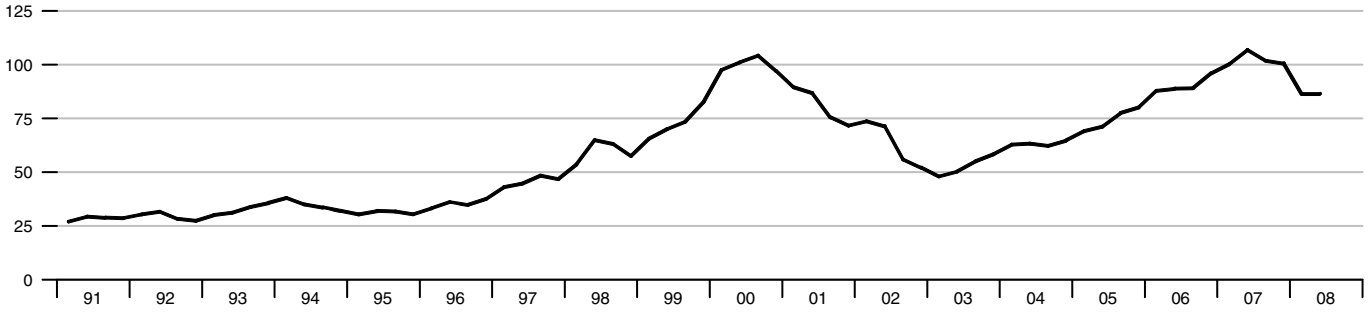
Foreign Exchange Reserves

Billions of US$



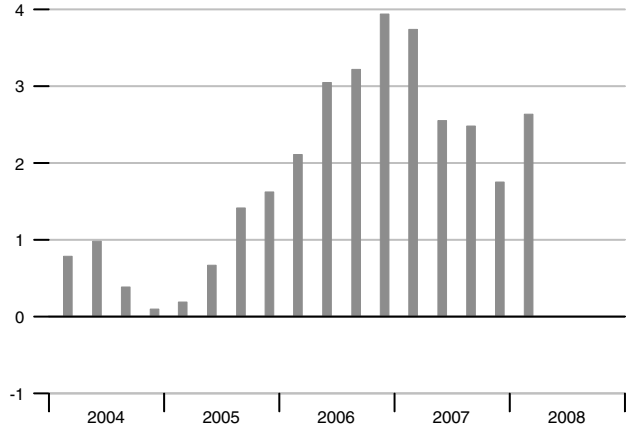
Stock Exchange Index - SBF 250

2000 = 100



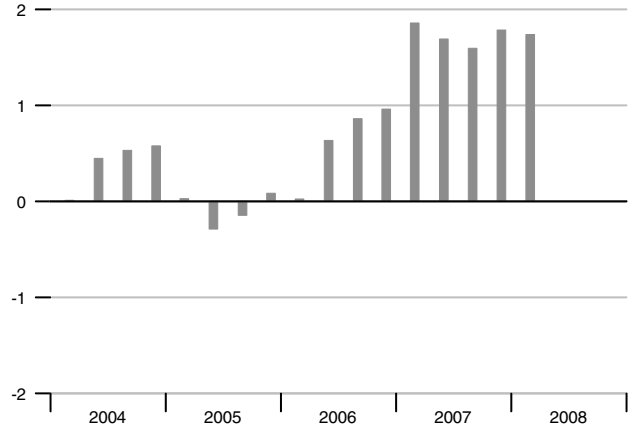
Real GDP

Percent change from year ago



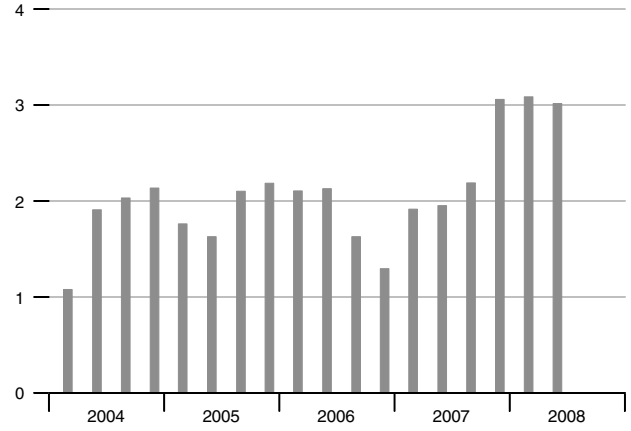
Employment

Percent change from year ago



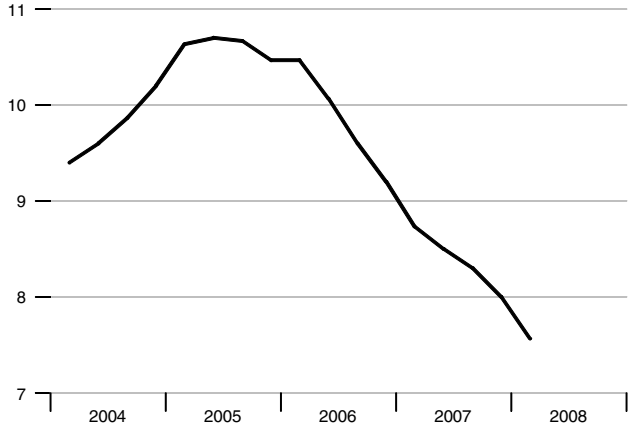
Consumer Price Index

Percent change from year ago



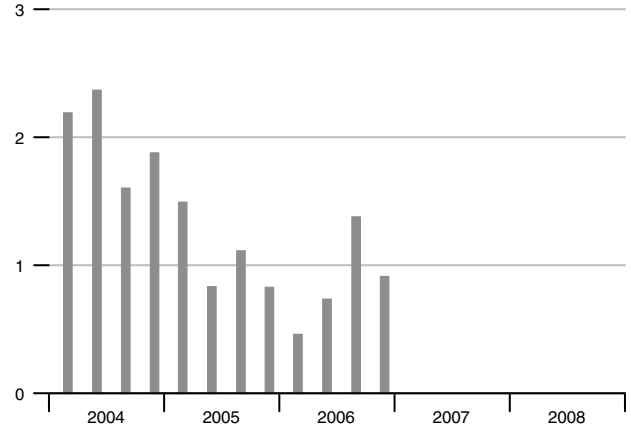
Unemployment Rate

Percent



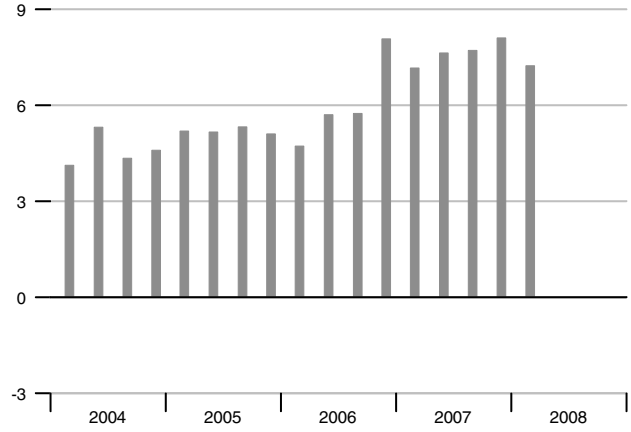
Real Hourly Earnings

Percent change from year ago



Current Account Balance

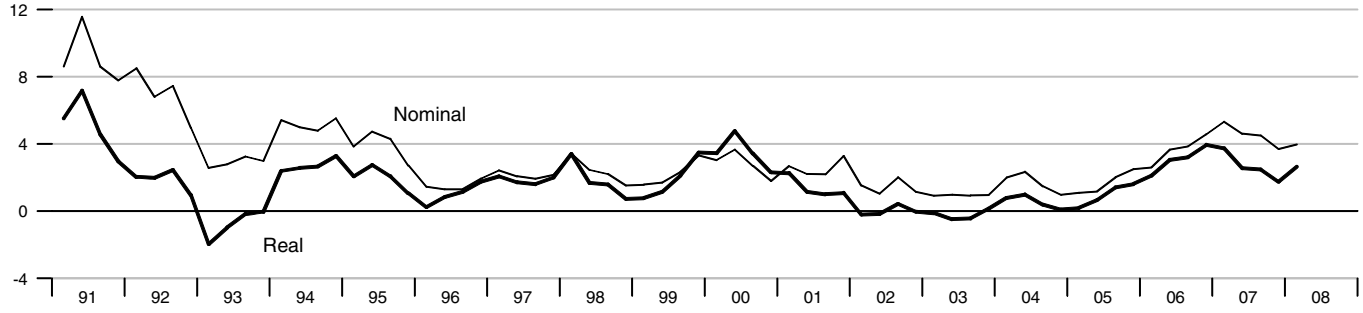
Percent of GDP



* Please see the important note on the table of contents page.

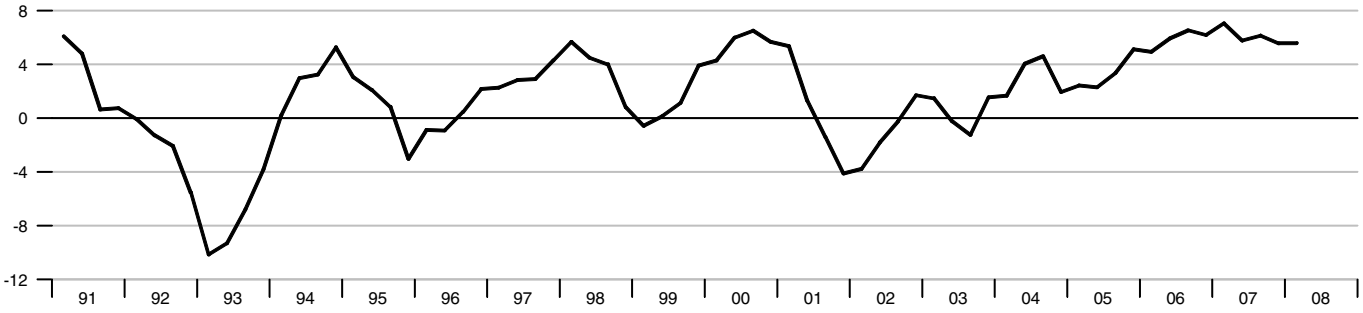
GDP

Percent change from year ago



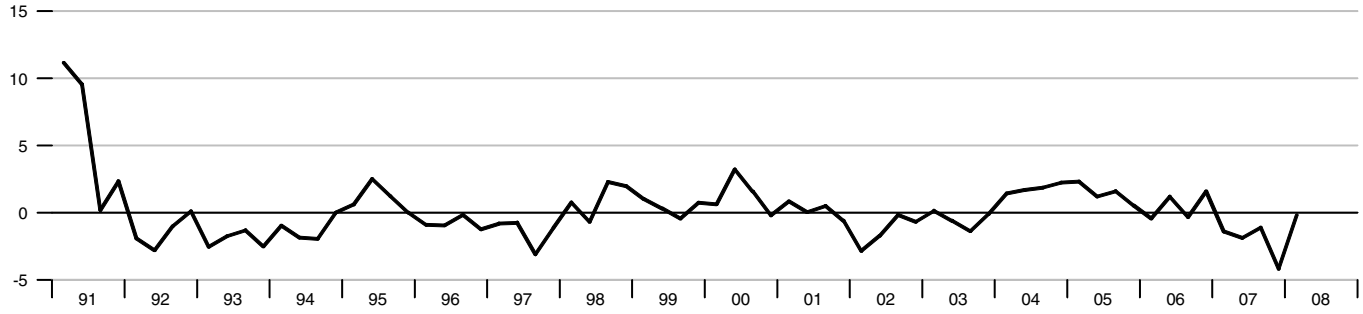
Industrial Production

Percent change from year ago



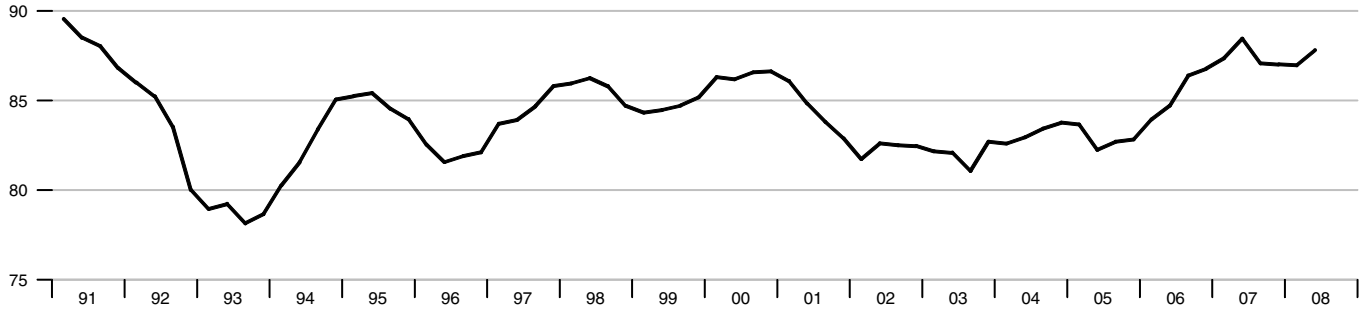
Retail Sales

Percent change from year ago



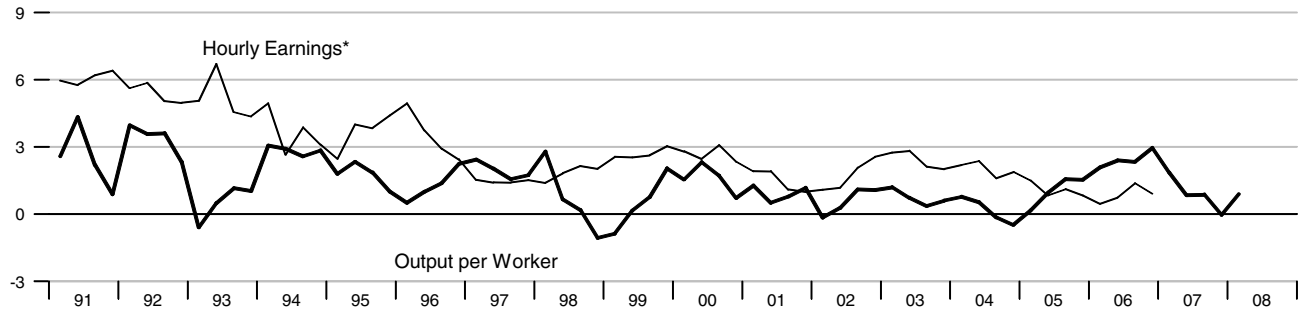
Capacity Utilization

Percent



Real Hourly Earnings and Output per Worker

Percent change from year ago

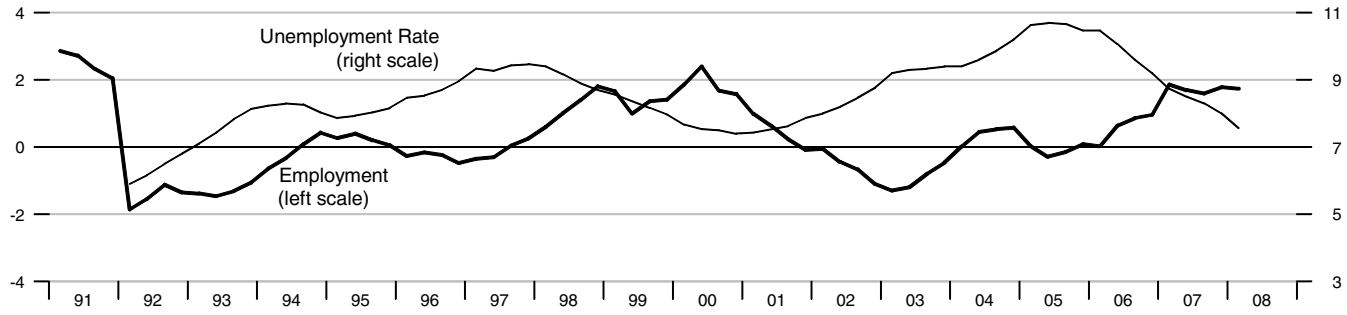


* Please see the important note on the table of contents page.

Labor Force Indicators

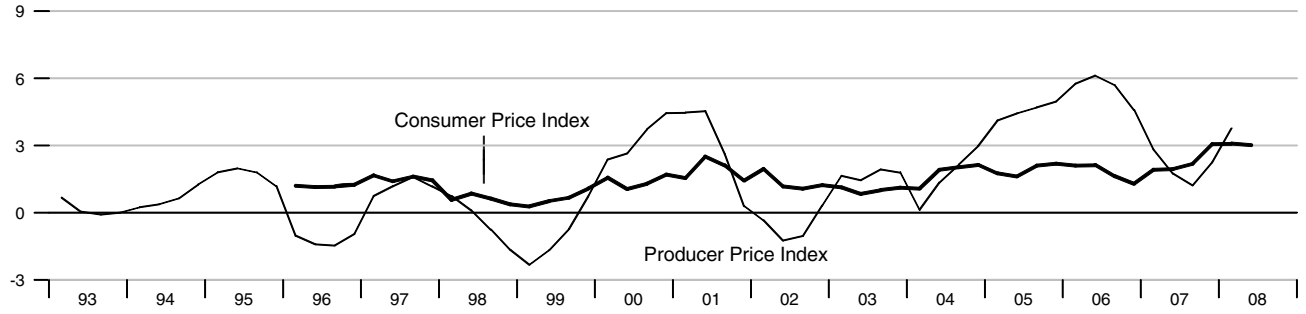
Percent change from year ago

Percent



Inflation

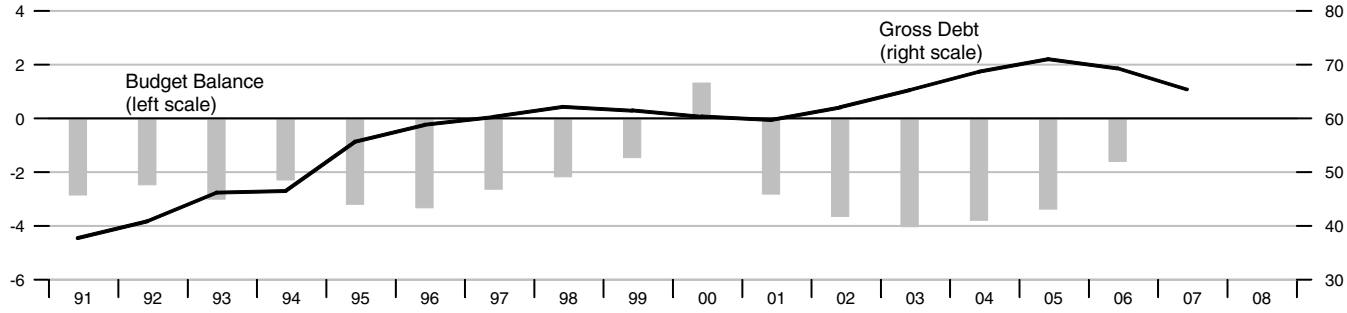
Percent change from year ago



Gross Government Debt and Budget Balance

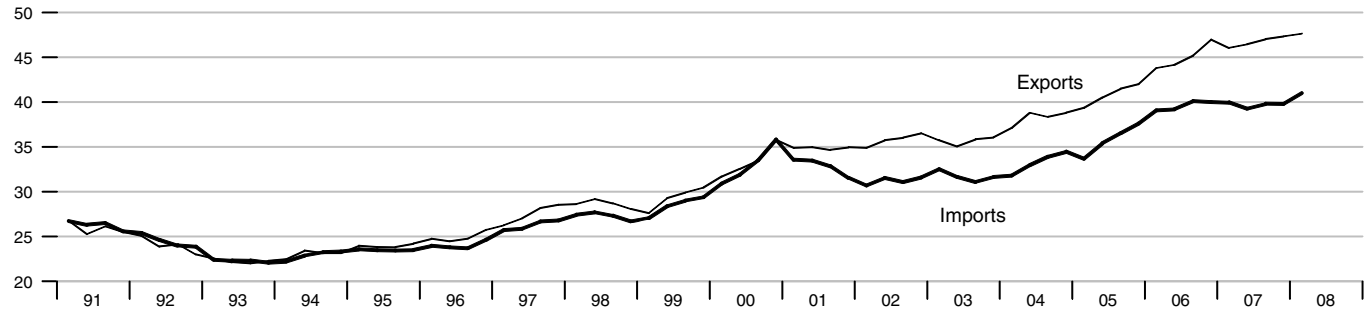
Percent of GDP, annual data

Percent of GDP, annual data



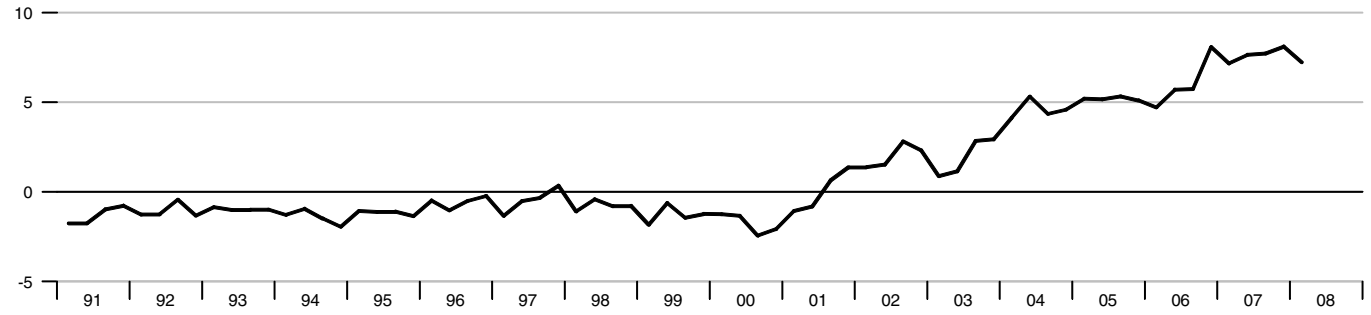
International Trade - Goods and Services

Percent of GDP



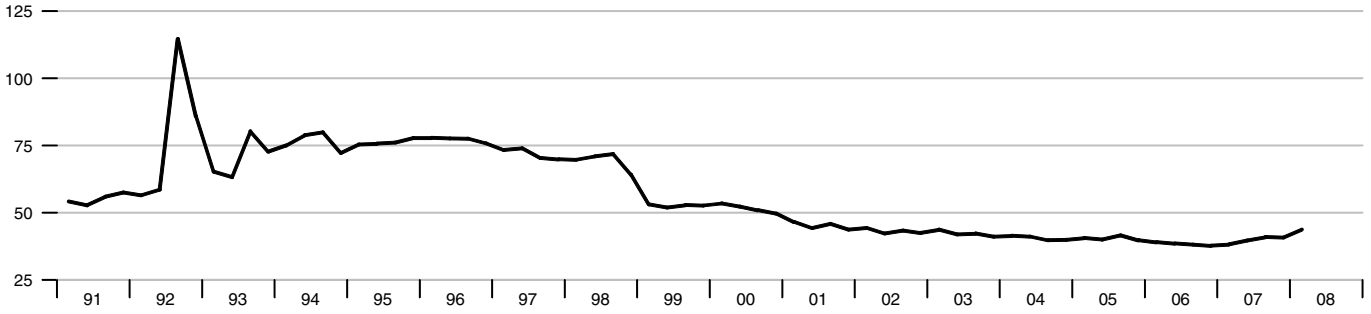
Current Account Balance

Percent of GDP



Foreign Exchange Reserves

Billions of US$

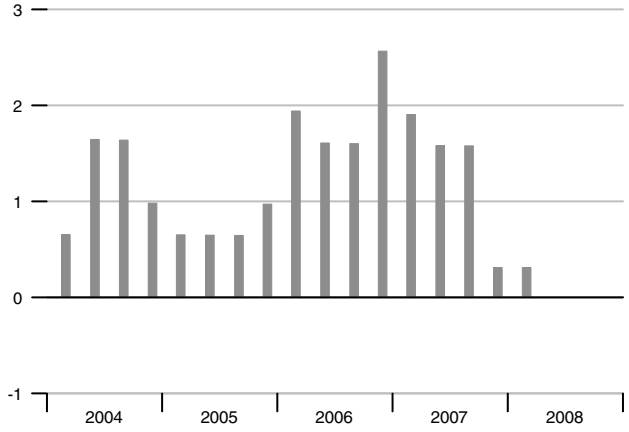


Stock Exchange Index - CDAX

2000 = 100

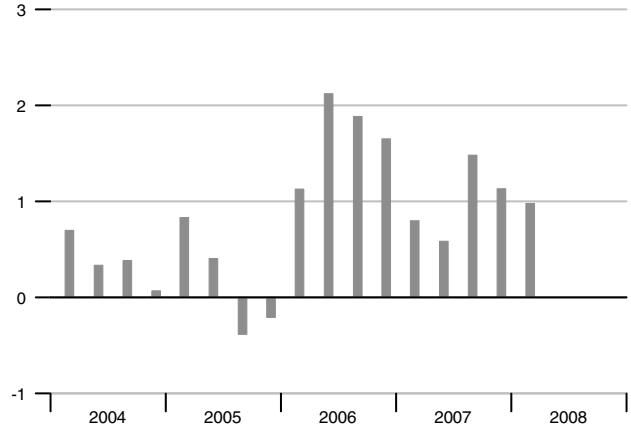
Real GDP

Percent change from year ago



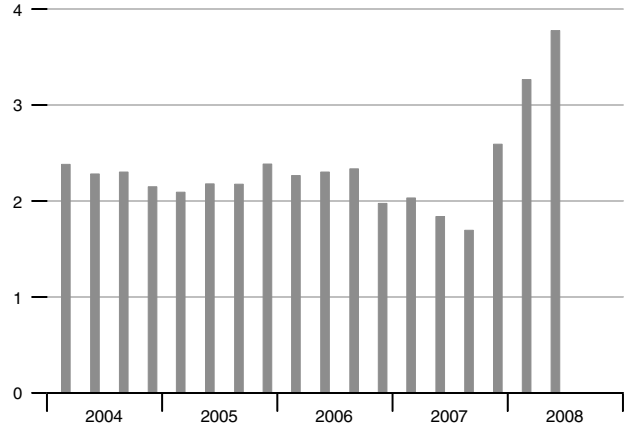
Employment

Percent change from year ago



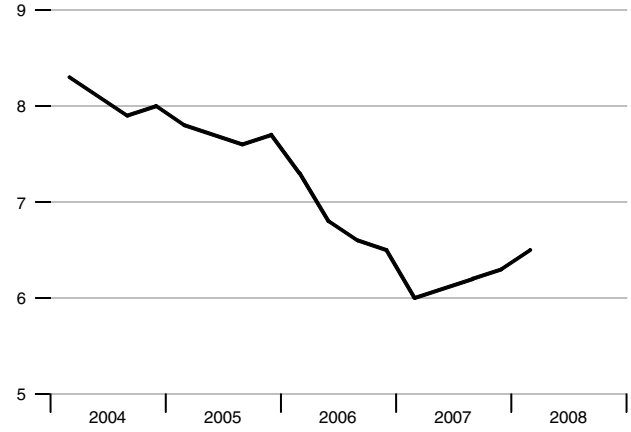
Consumer Price Index

Percent change from year ago



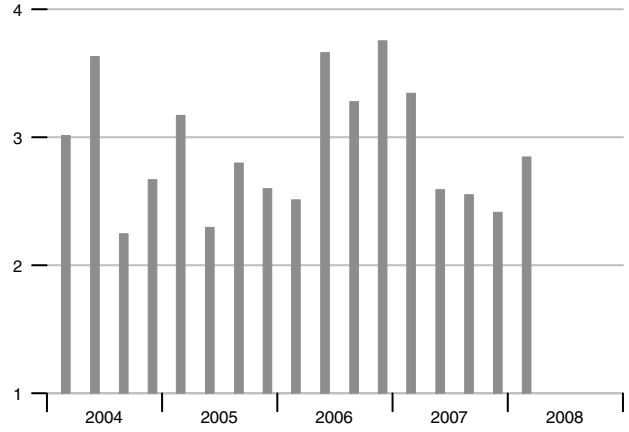
Unemployment Rate

Percent



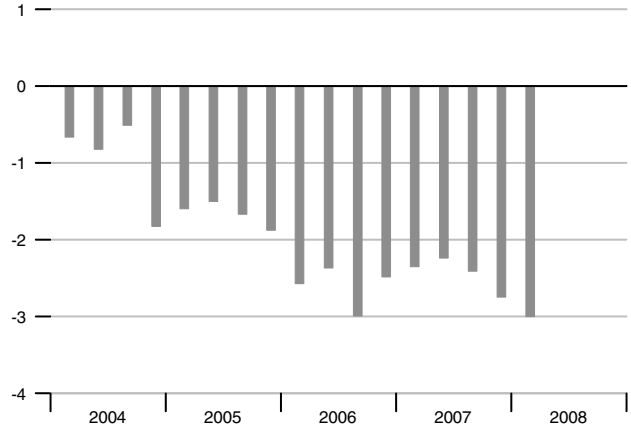
Real Hourly Earnings

Percent change from year ago



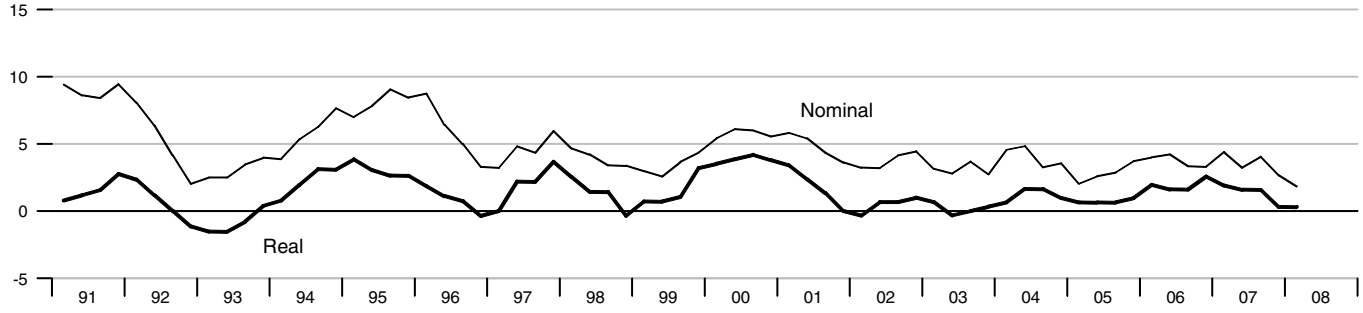
Current Account Balance

Percent of GDP



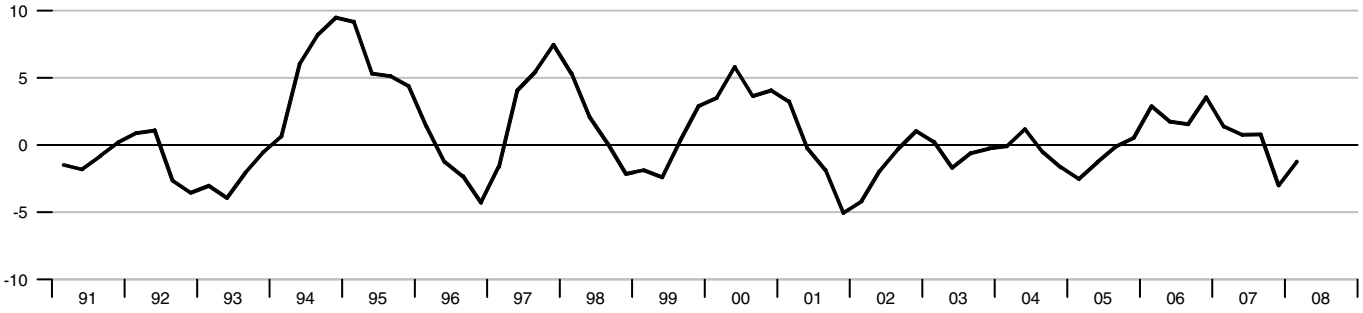
GDP

Percent change from year ago



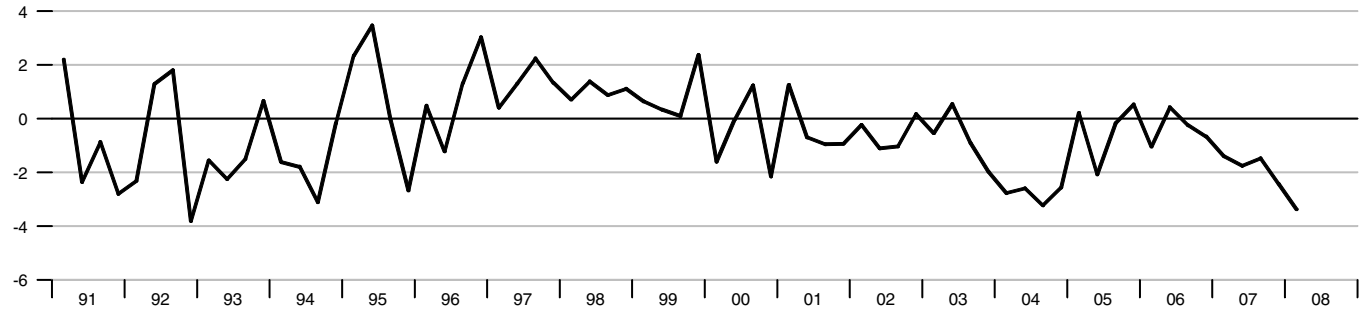
Industrial Production

Percent change from year ago



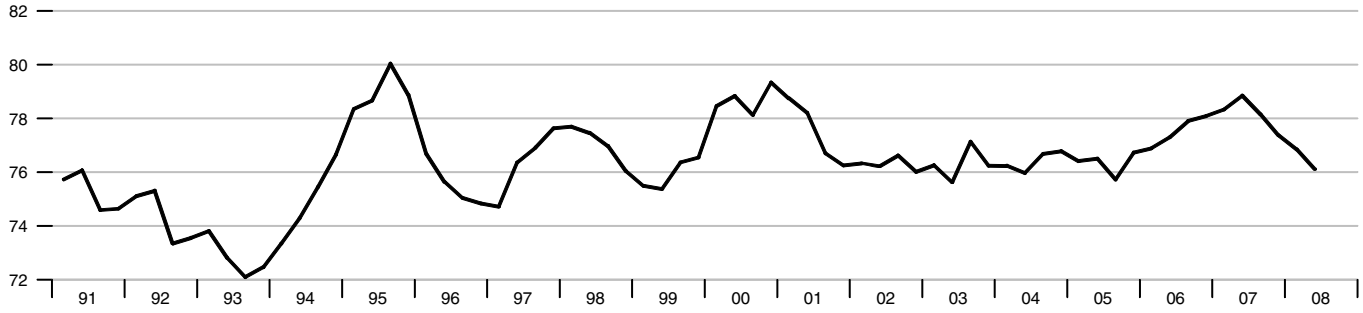
Retail Sales

Percent change from year ago



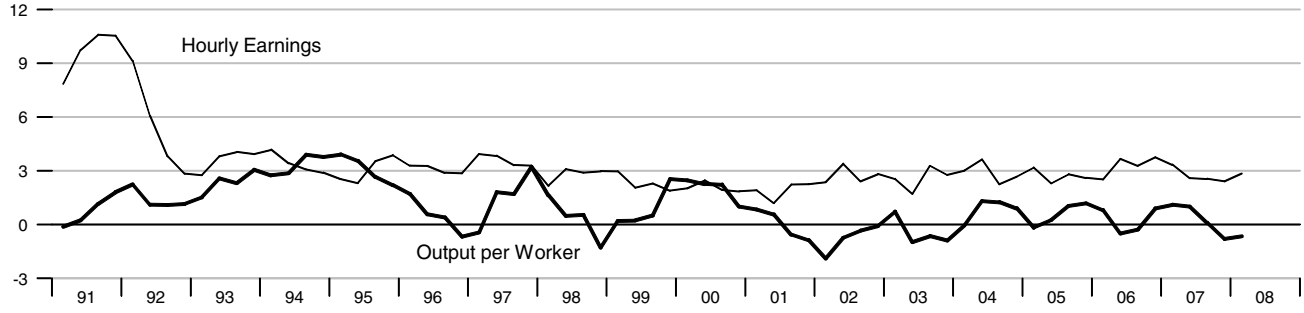
Capacity Utilization

Percent



Real Hourly Earnings and Output per Worker

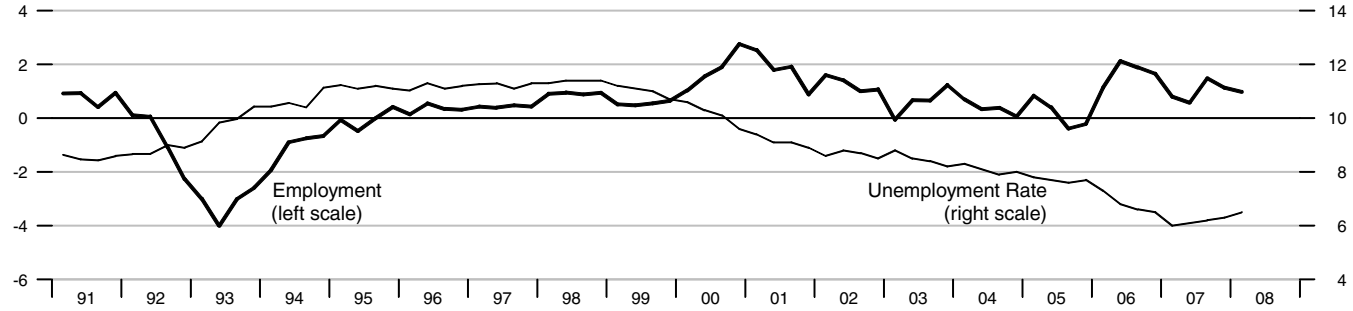
Percent change from year ago



Labor Force Indicators

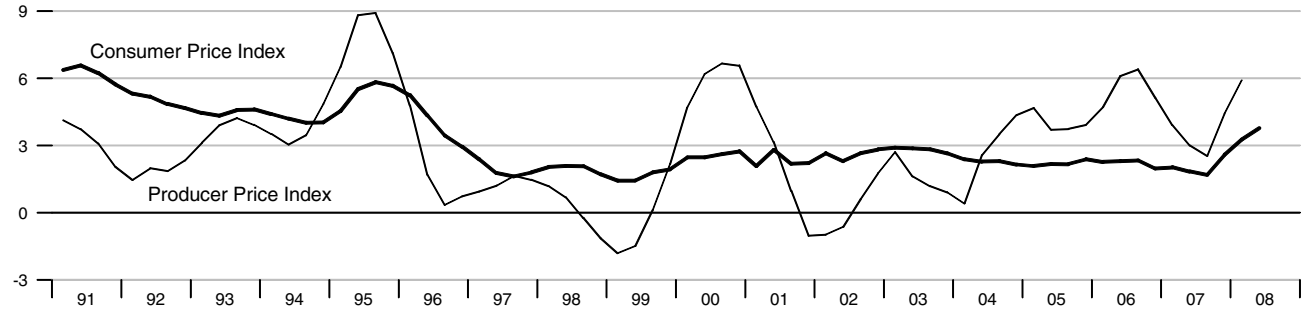
Percent change from year ago

Percent



Inflation

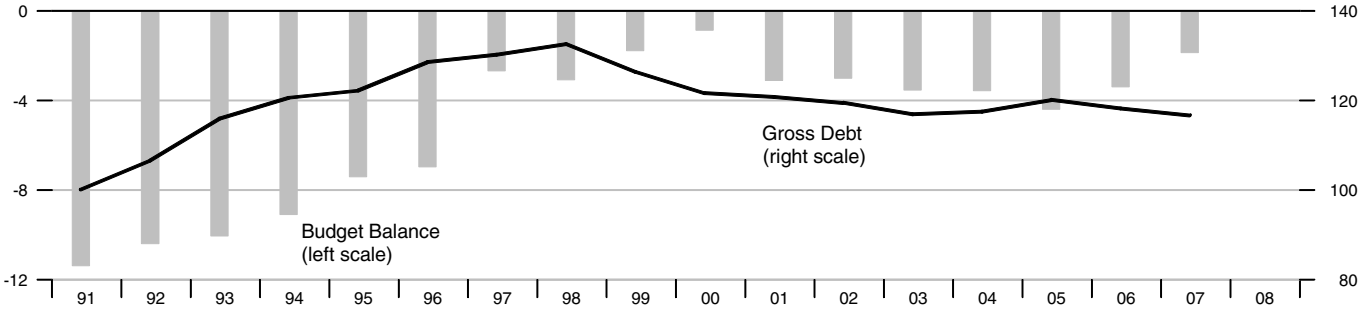
Percent change from year ago



Gross Government Debt and Budget Balance

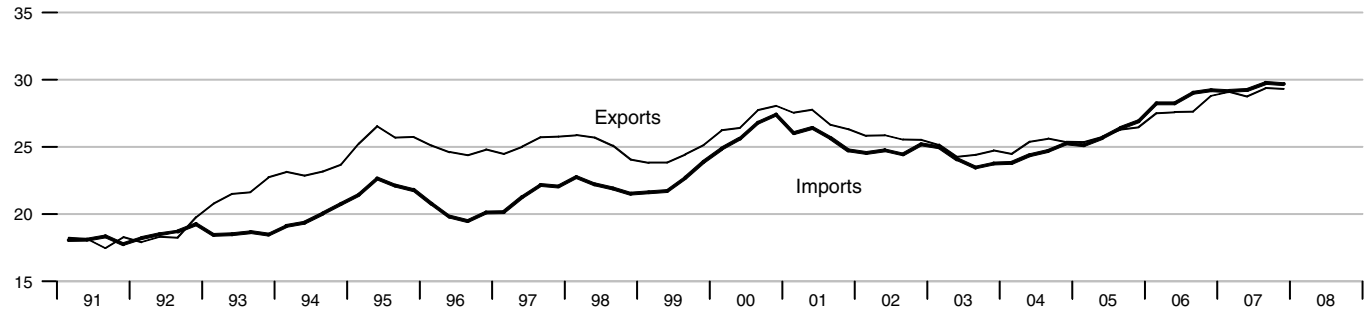
Percent of GDP, annual data

Percent of GDP, annual data



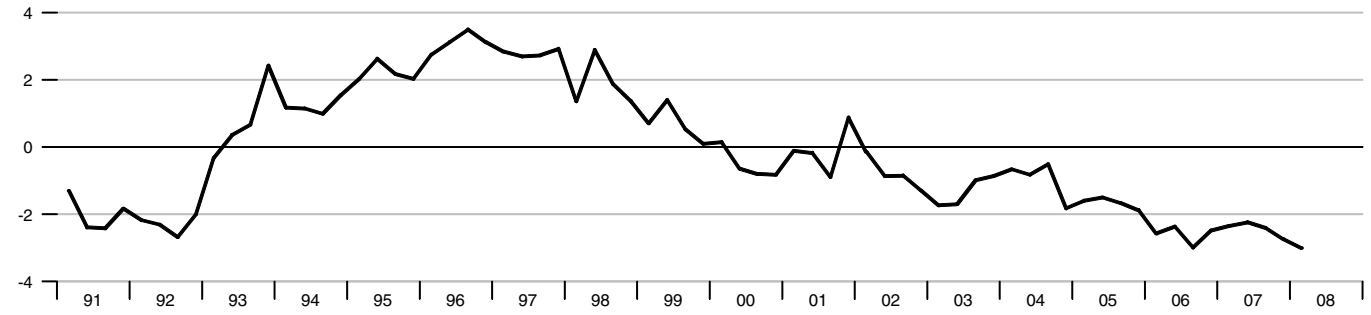
International Trade - Goods and Services

Percent of GDP



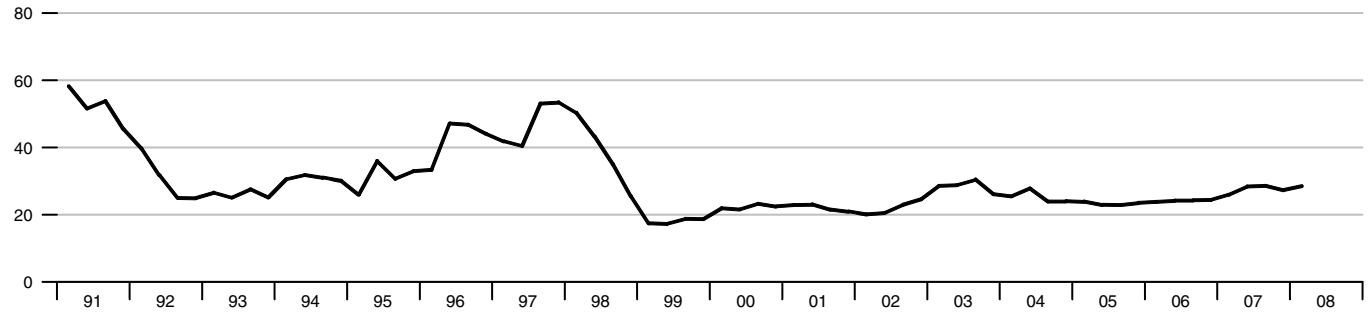
Current Account Balance

Percent of GDP



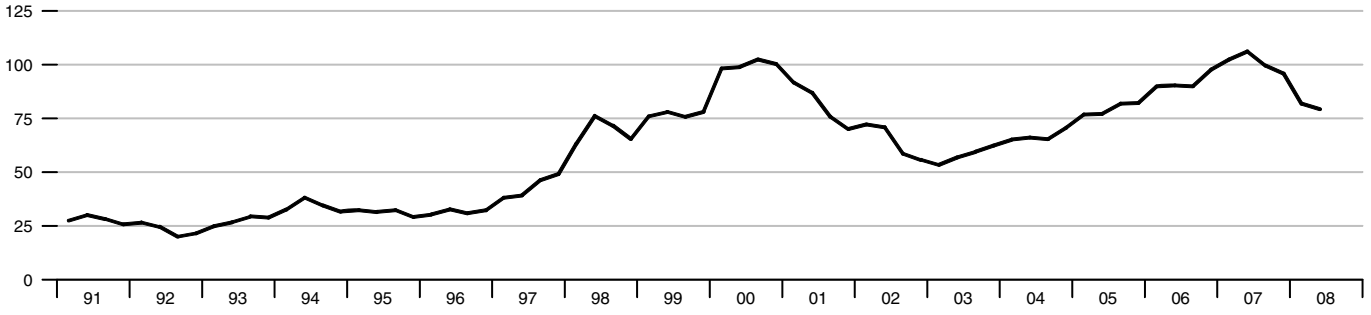
Foreign Exchange Reserves

Billions of US$



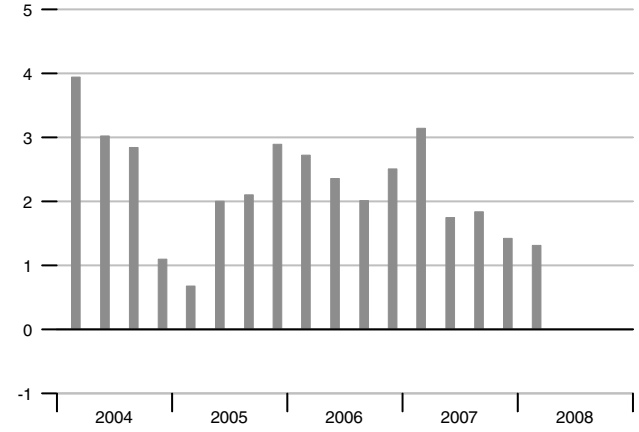
Stock Exchange Index - Milan Stock Exchange

2000 = 100



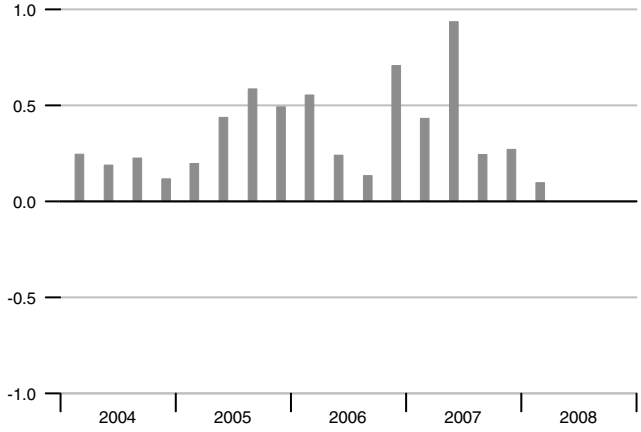
Real GDP

Percent change from year ago



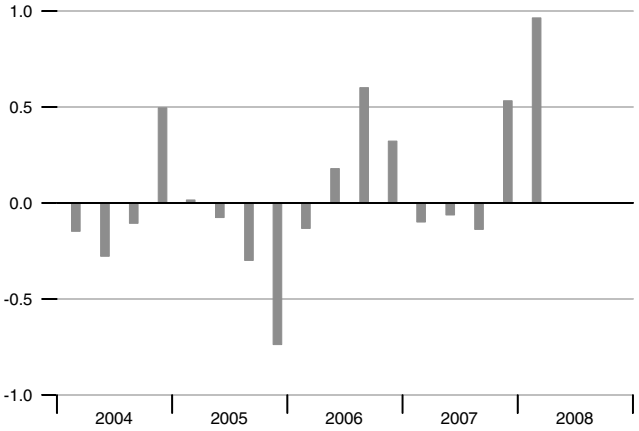
Employment

Percent change from year ago



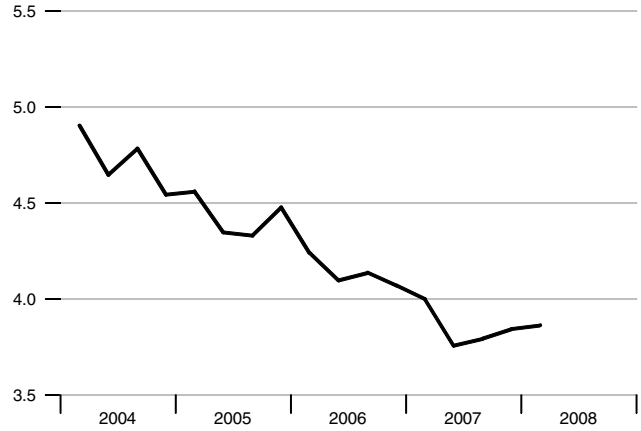
Consumer Price Index

Percent change from year ago



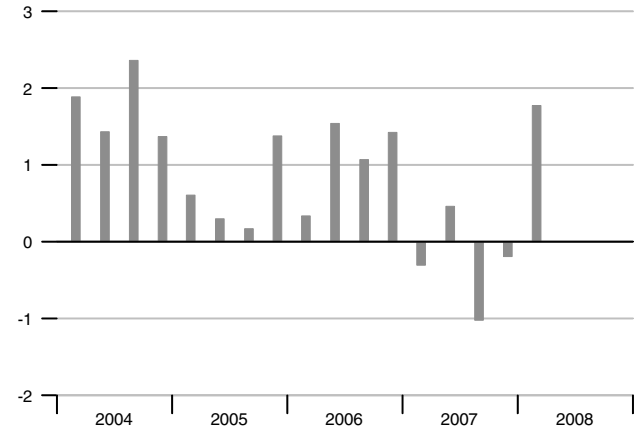
Unemployment Rate

Percent



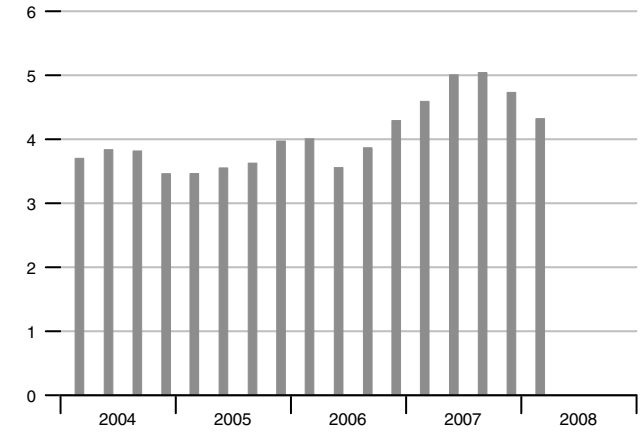
Real Monthly Earnings

Percent change from year ago

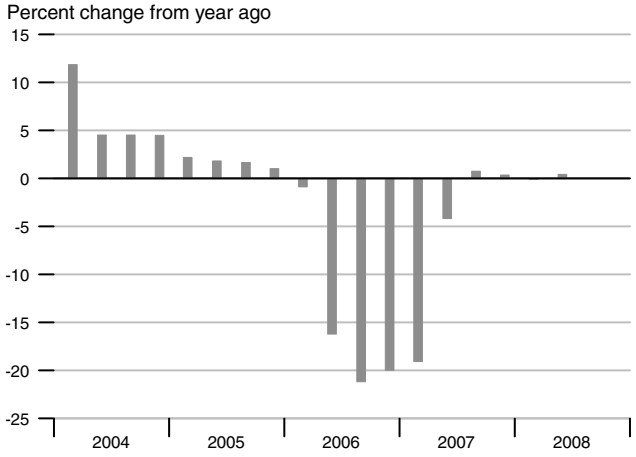


Current Account Balance

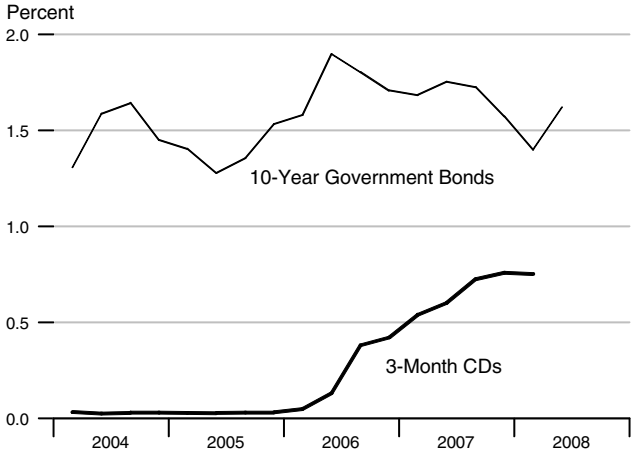
Percent of GDP



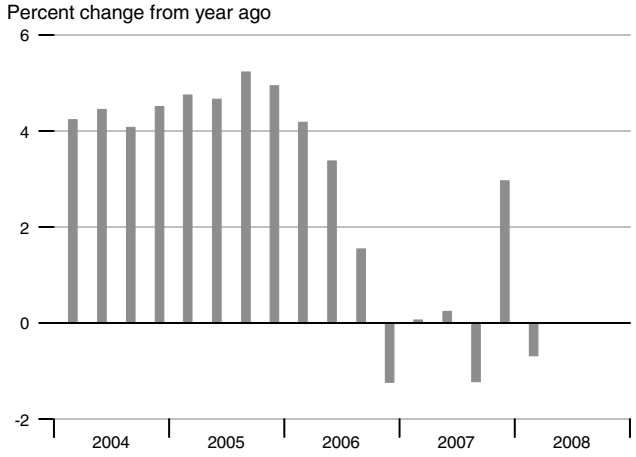
Adjusted Monetary Base



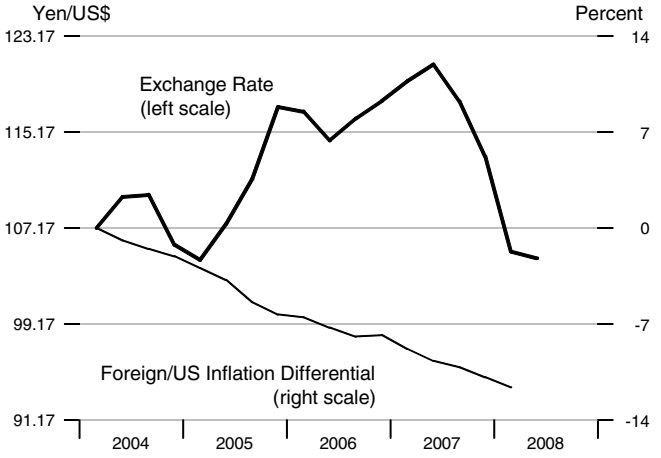
Interest Rates



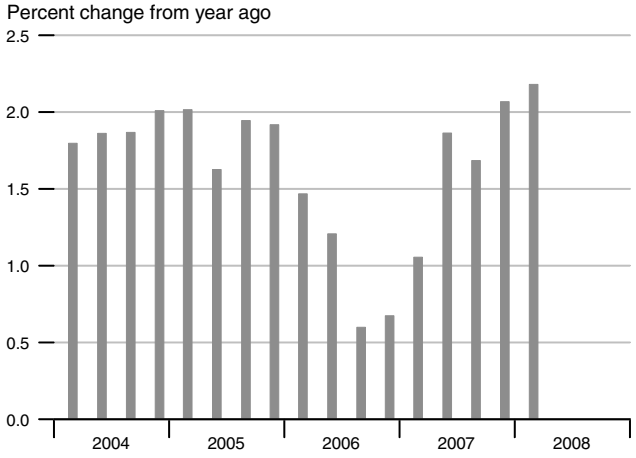
M1



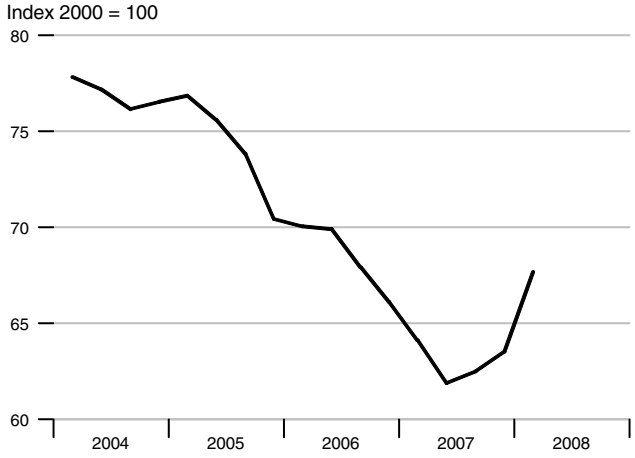
Exchange Rate and Inflation Differential



M2

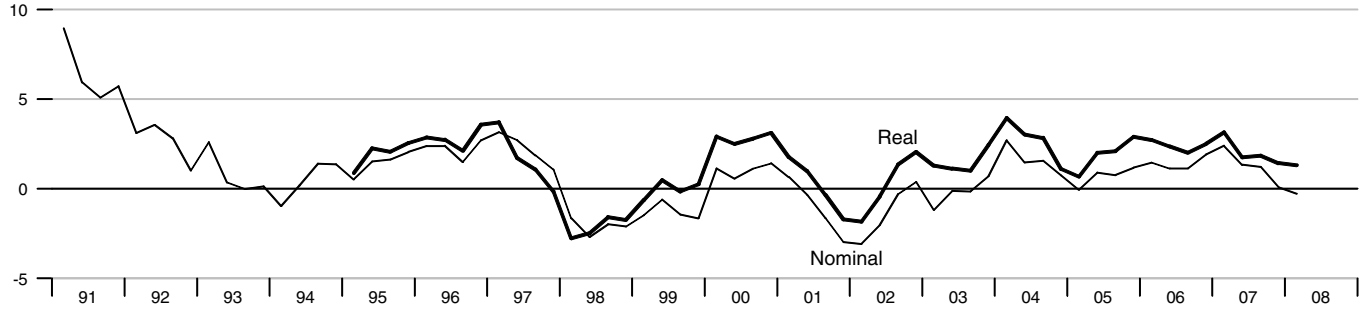


Real Effective Exchange Rate



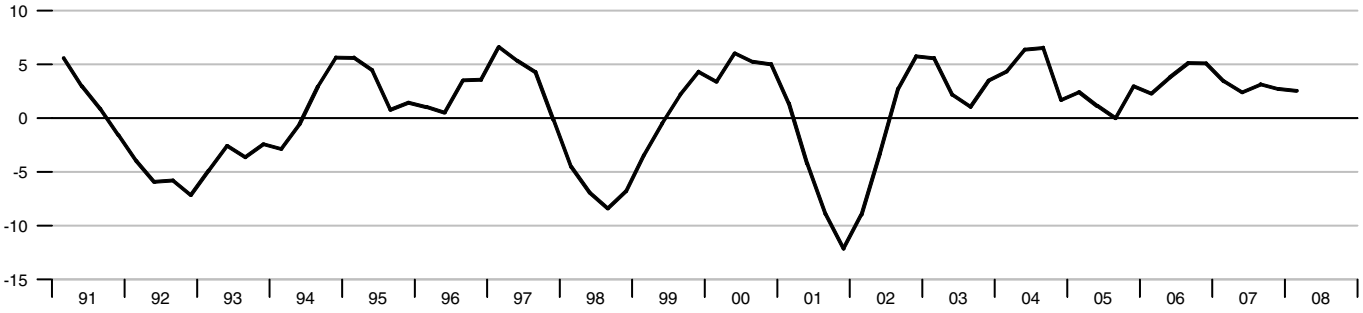
GDP

Percent change from year ago



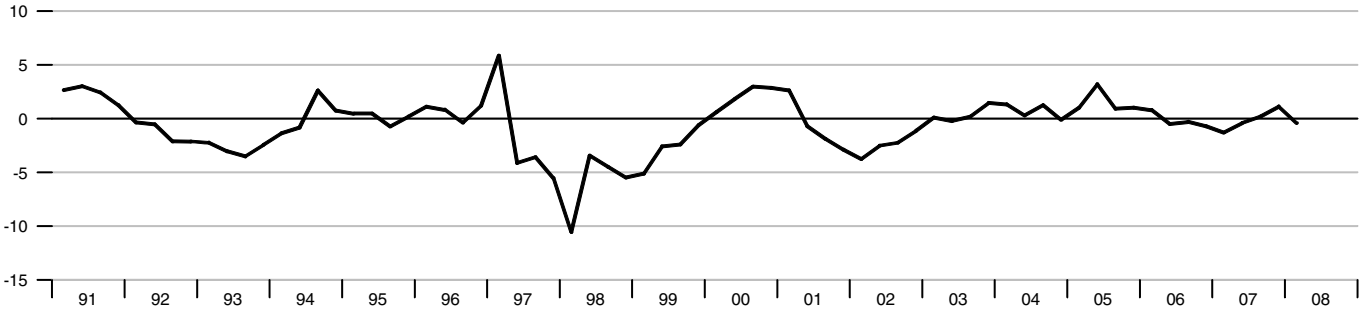
Industrial Production

Percent change from year ago



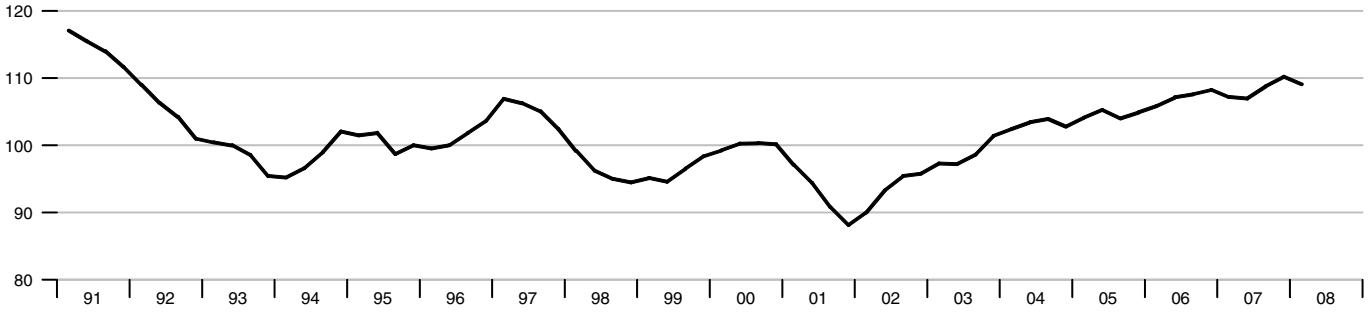
Retail Sales

Percent change from year ago



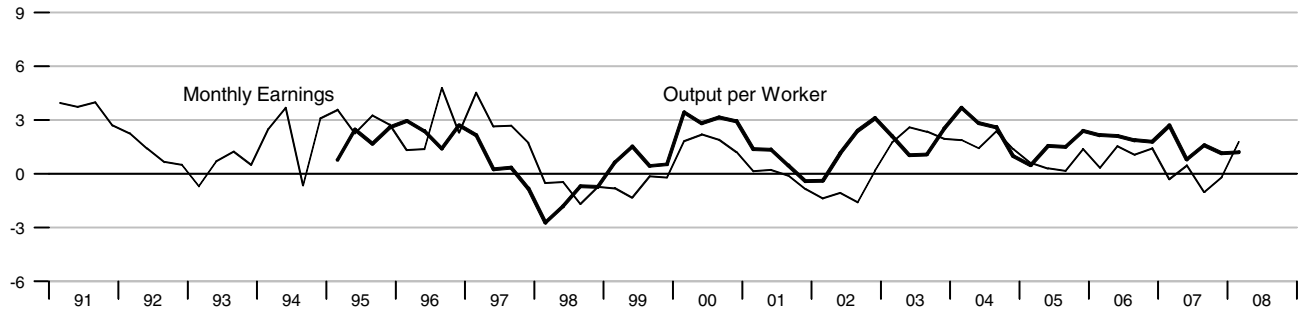
Capacity Utilization

2000 = 100



Real Monthly Earnings and Output per Worker

Percent change from year ago



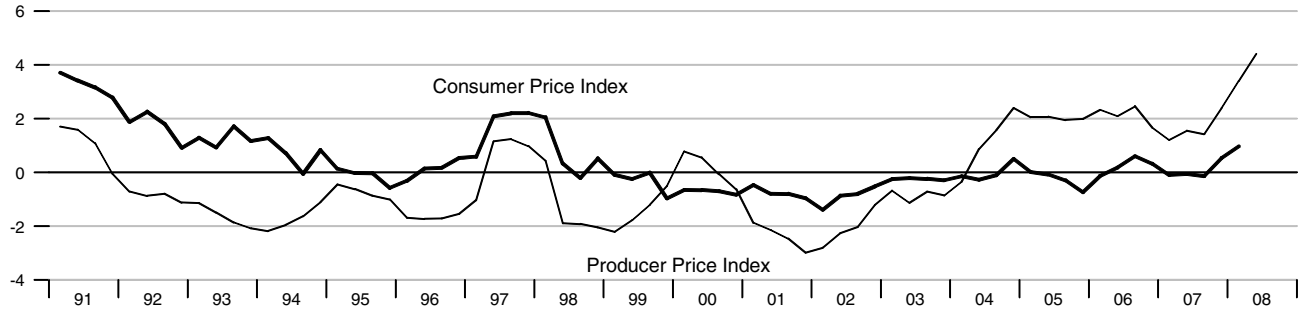
Labor Force Indicators

Percent change from year ago

Percent

Inflation

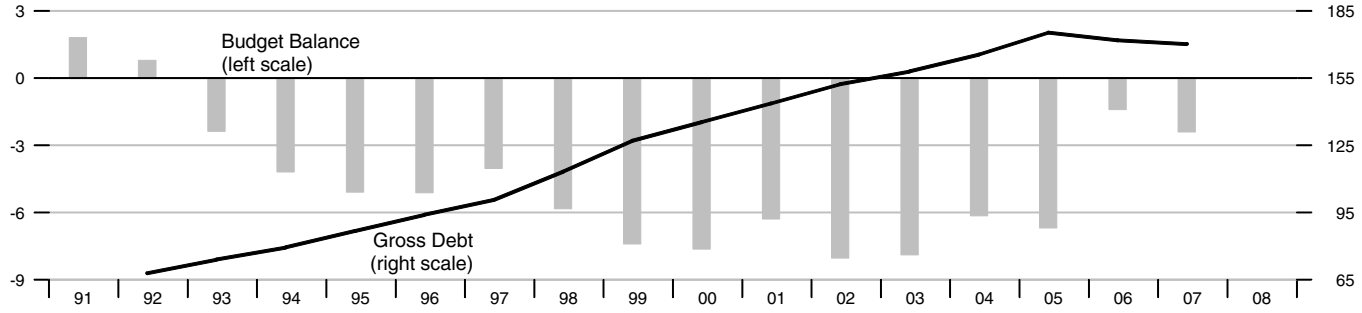
Percent change from year ago



Gross Government Debt and Budget Balance

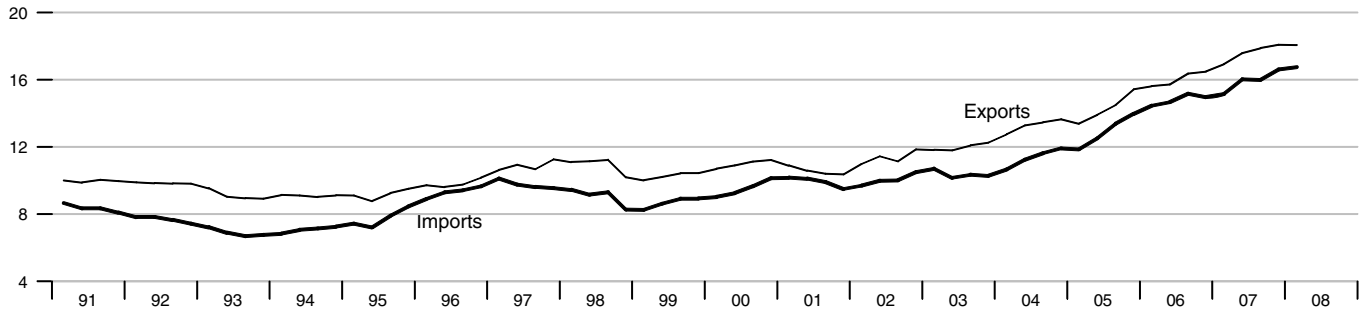
Percent of GDP, annual data

Percent of GDP, annual data



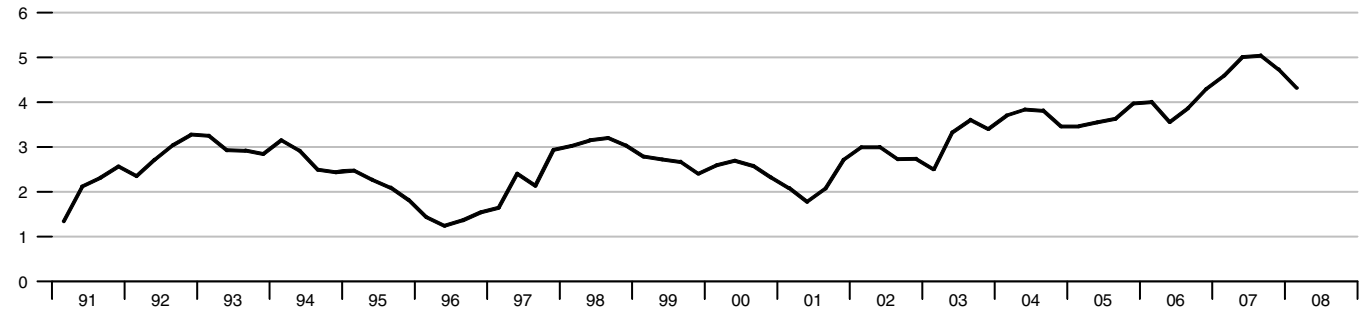
International Trade - Goods and Services

Percent of GDP



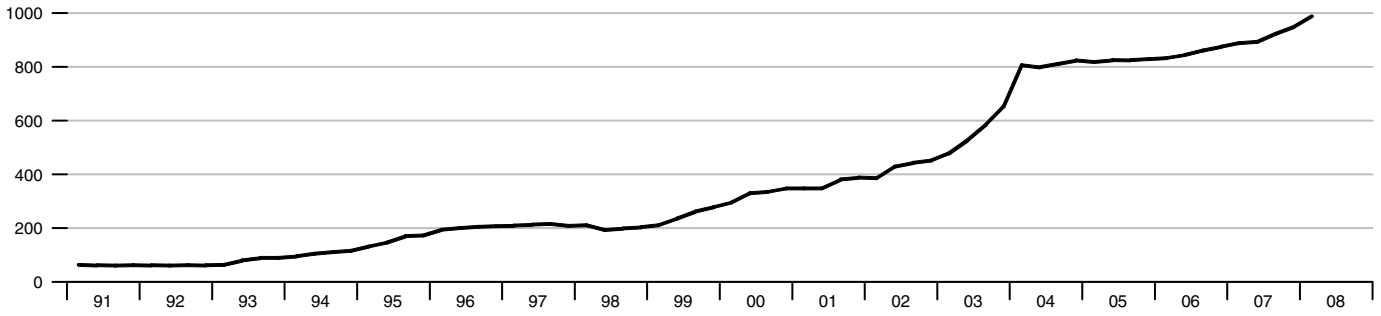
Current Account Balance

Percent of GDP



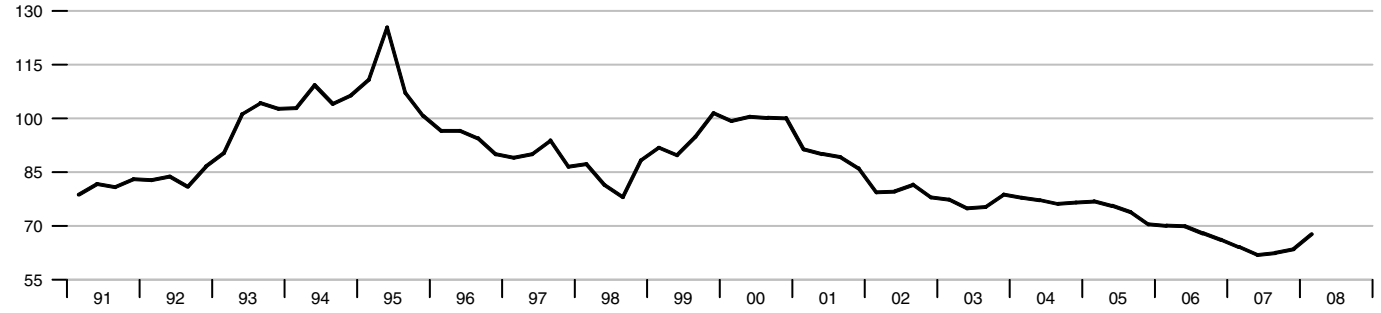
Foreign Exchange Reserves

Billions of US$



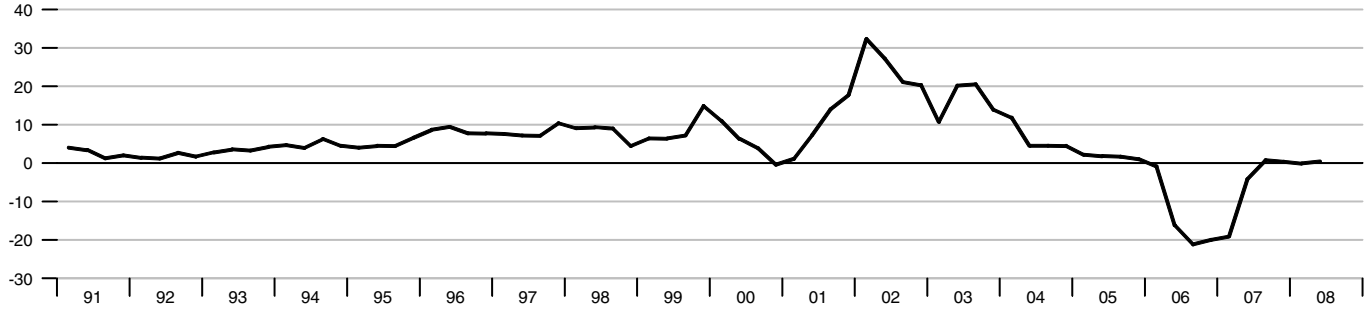
Real Effective Exchange Rate

Index 2000 = 100



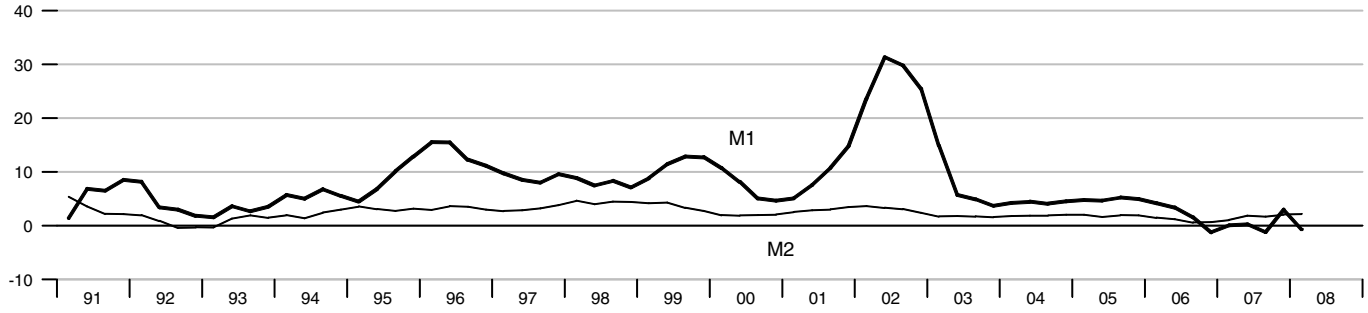
Adjusted Monetary Base

Percent change from year ago



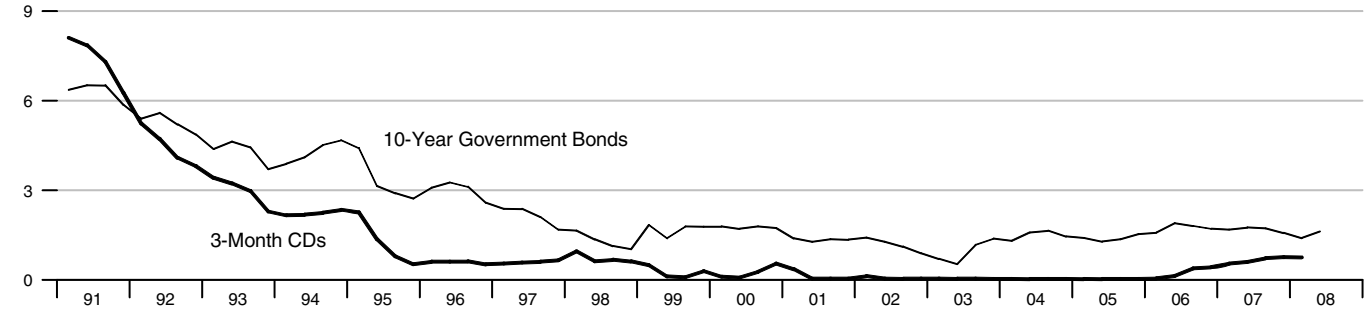
Monetary Aggregates

Percent change from year ago



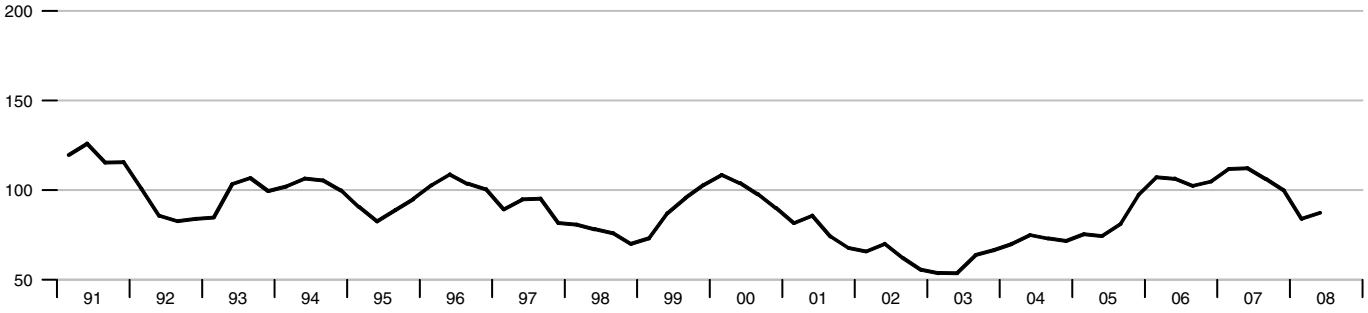
Interest Rates

Percent



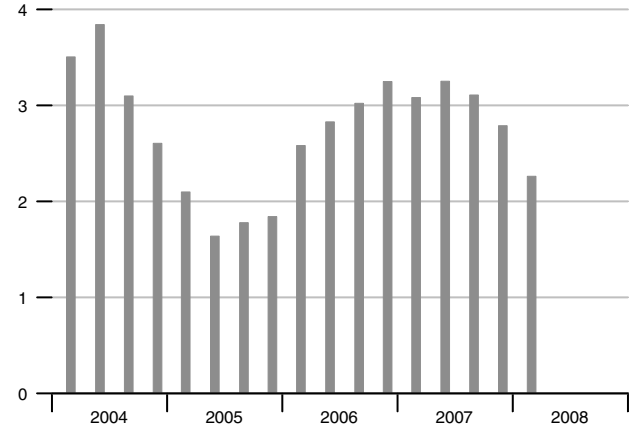
Stock Exchange Index - Tokyo Stock Exchange

2000 = 100



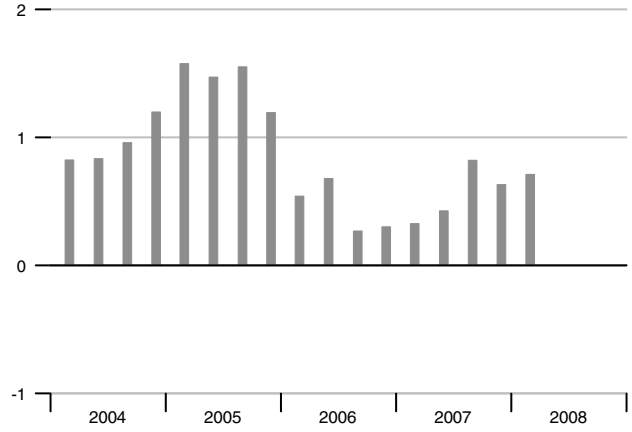
Real GDP

Percent change from year ago



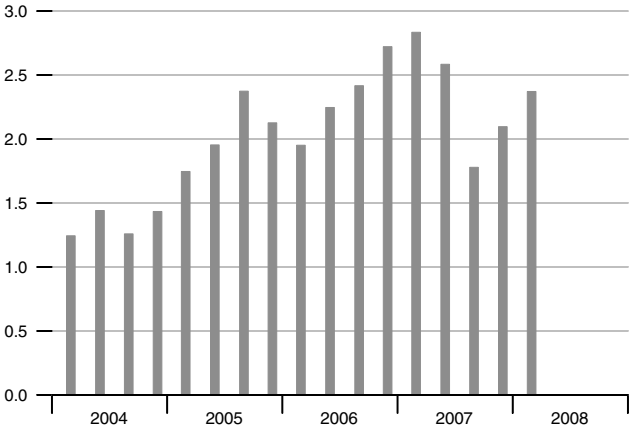
Employment

Percent change from year ago



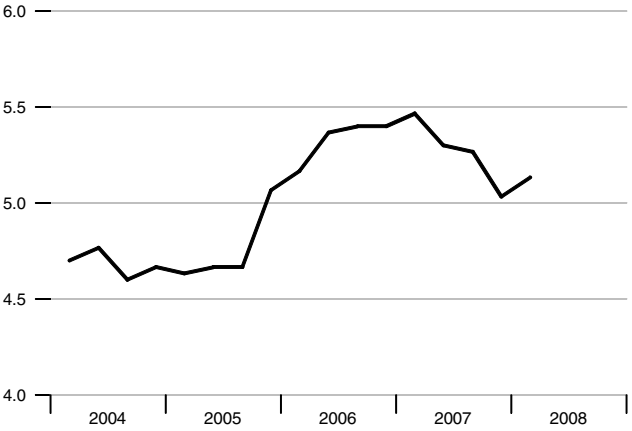
Consumer Price Index

Percent change from year ago



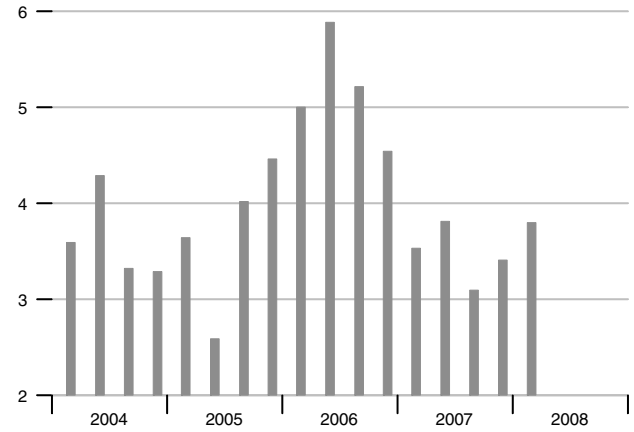
Unemployment Rate

Percent



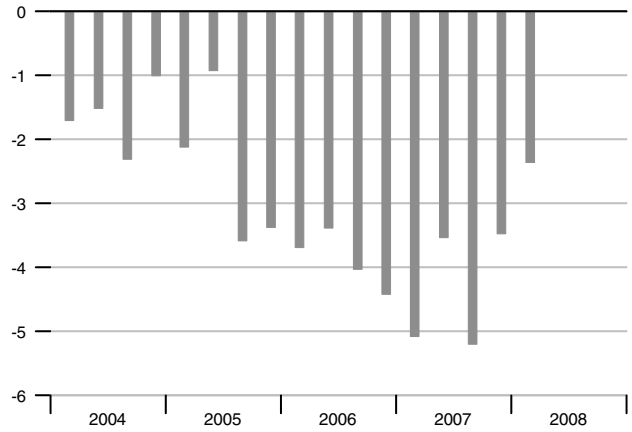
Real Weekly Earnings

Percent change from year ago



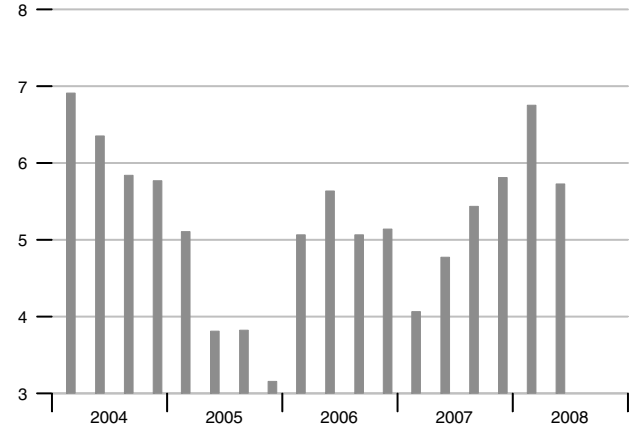
Current Account Balance

Percent of GDP



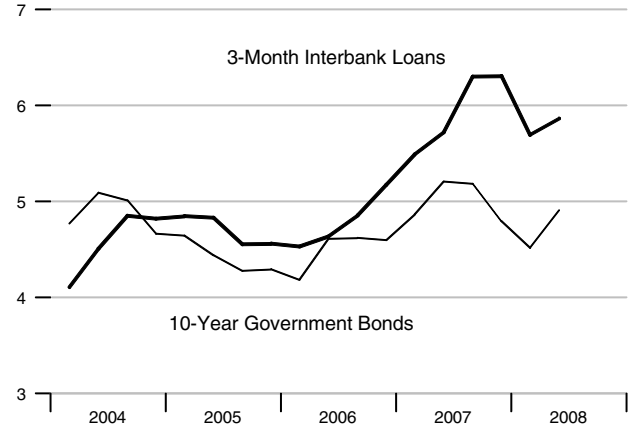
Notes and Coins in Circulation

Percent change from year ago



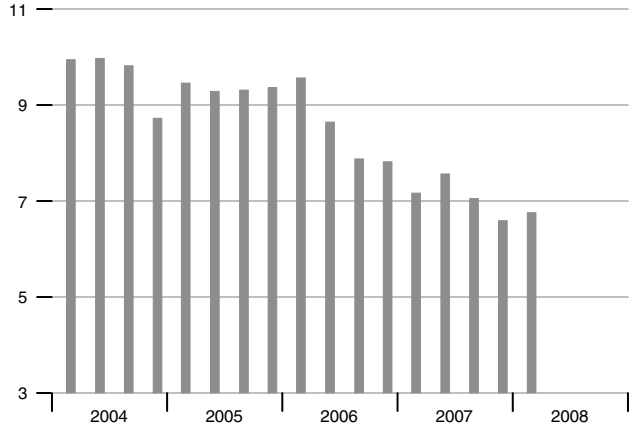
Interest Rates

Percent



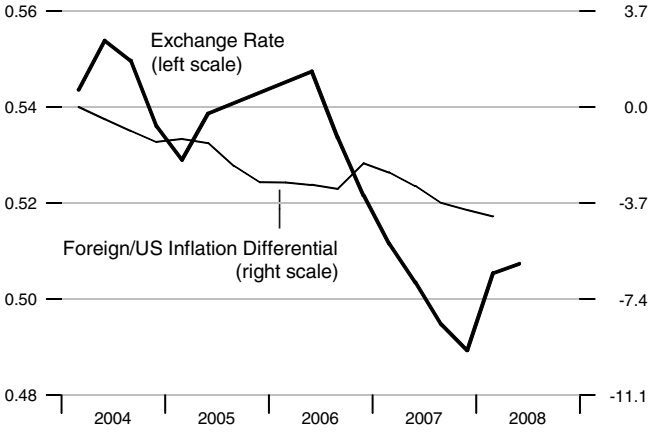
M2

Percent change from year ago



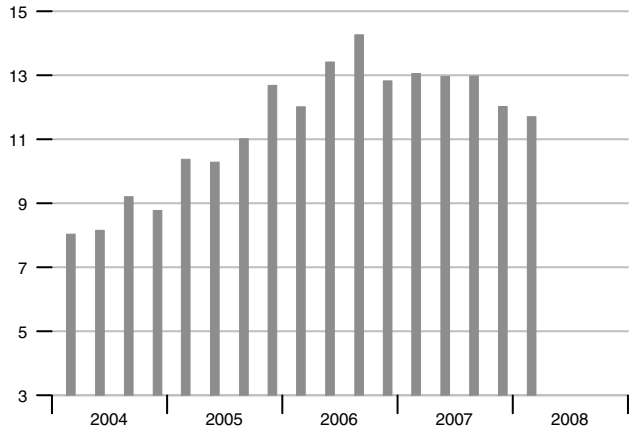
Exchange Rate and Inflation Differential

Pounds/US$ Percent



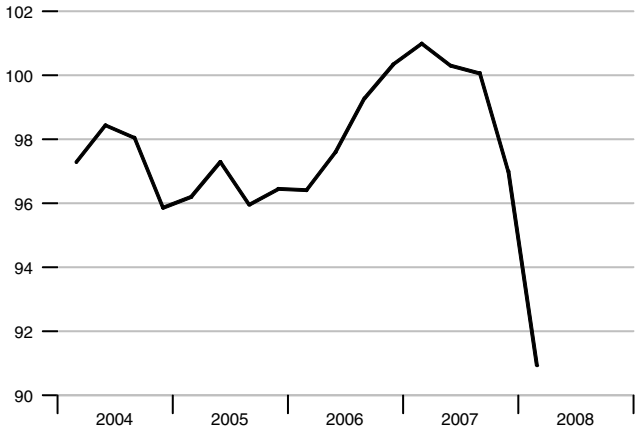
M4

Percent change from year ago



Real Effective Exchange Rate

Index 2000 = 100



GDP

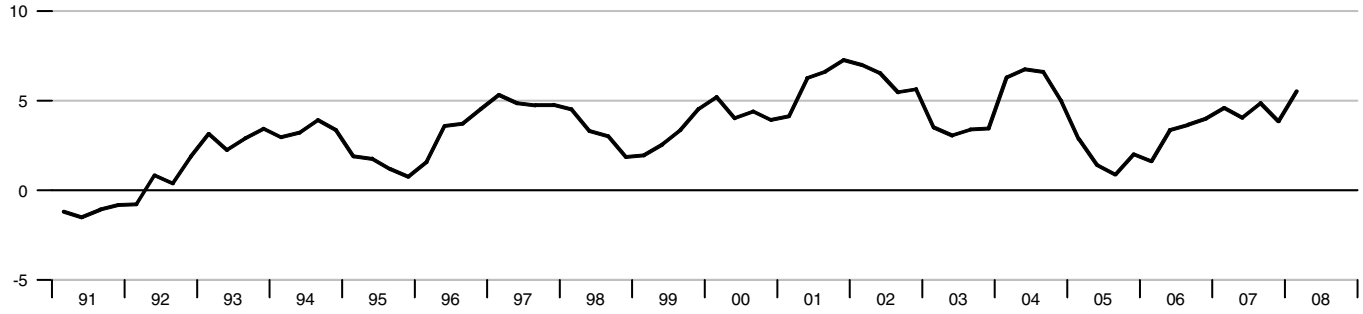
Percent change from year ago

Industrial Production

Percent change from year ago

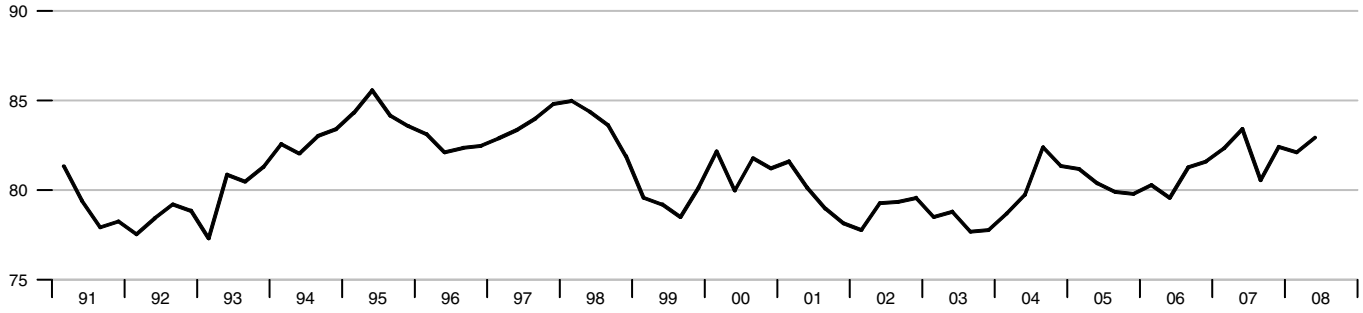
Retail Sales

Percent change from year ago



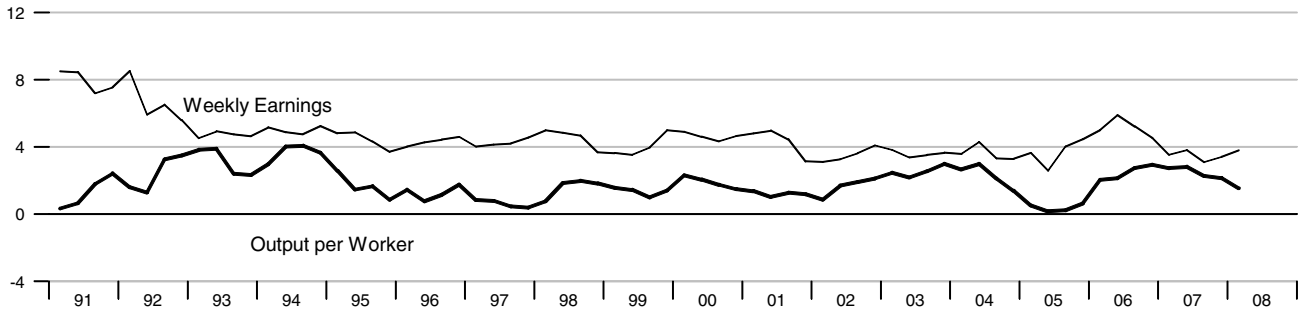
Capacity Utilization

Percent



Real Weekly Earnings and Output per Worker

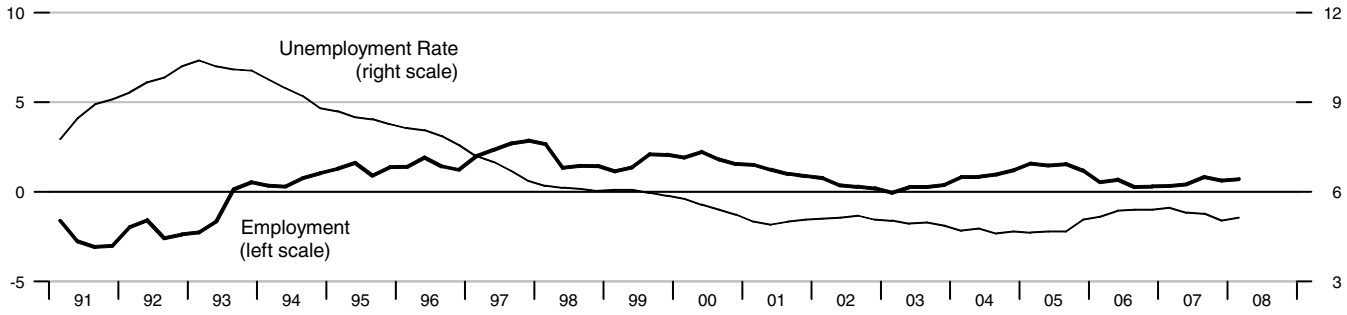
Percent change from year ago



Labor Force Indicators

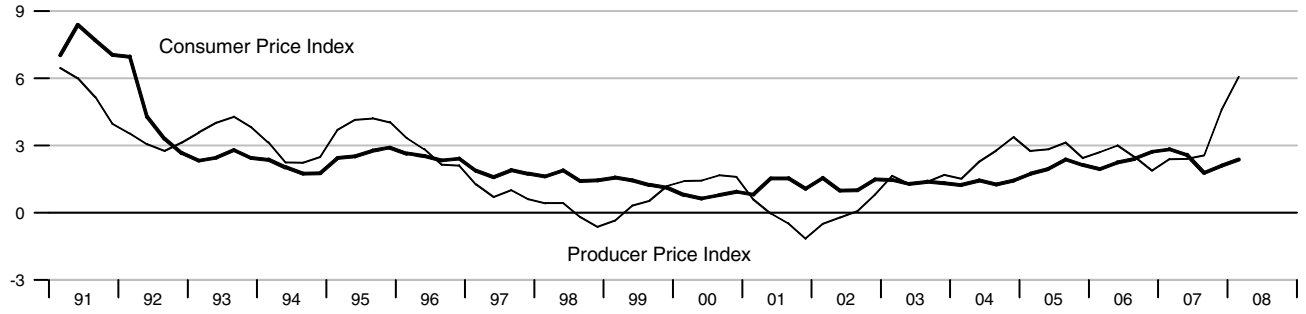
Percent change from year ago

Percent



Inflation

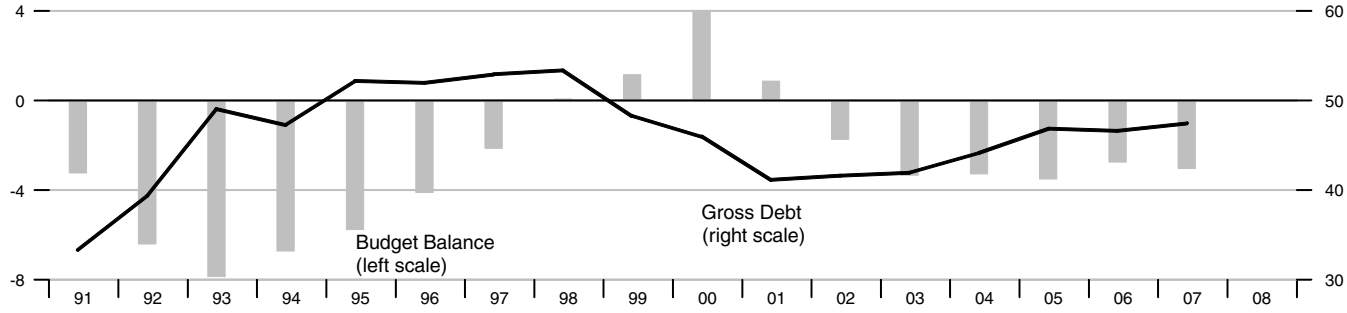
Percent change from year ago



Gross Government Debt and Budget Balance

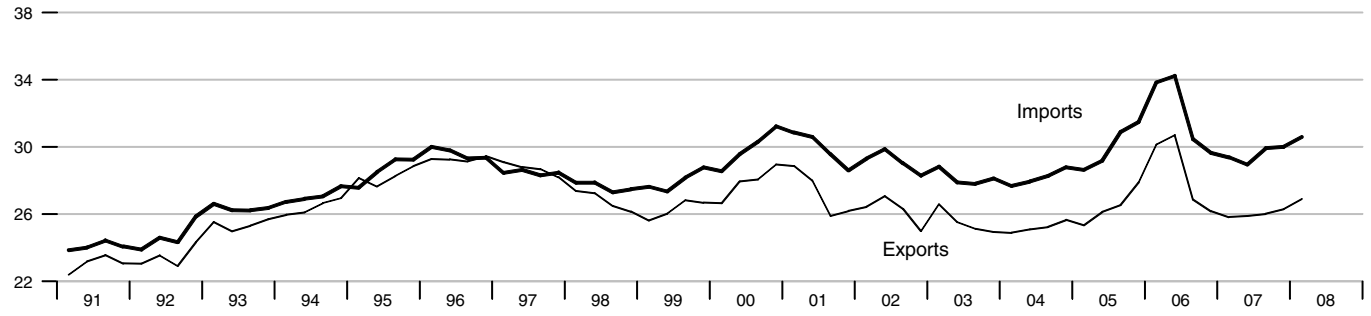
Percent of GDP, annual data

Percent of GDP, annual data



International Trade - Goods and Services

Percent of GDP

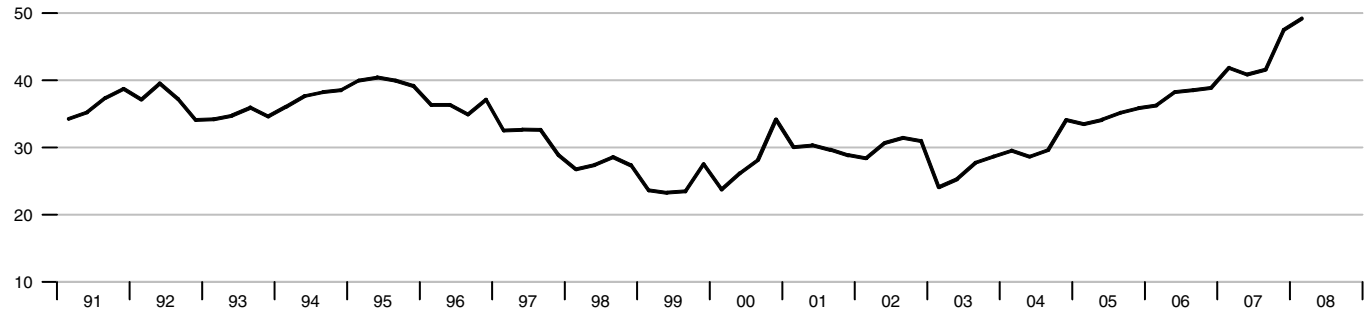


Current Account Balance

Percent of GDP

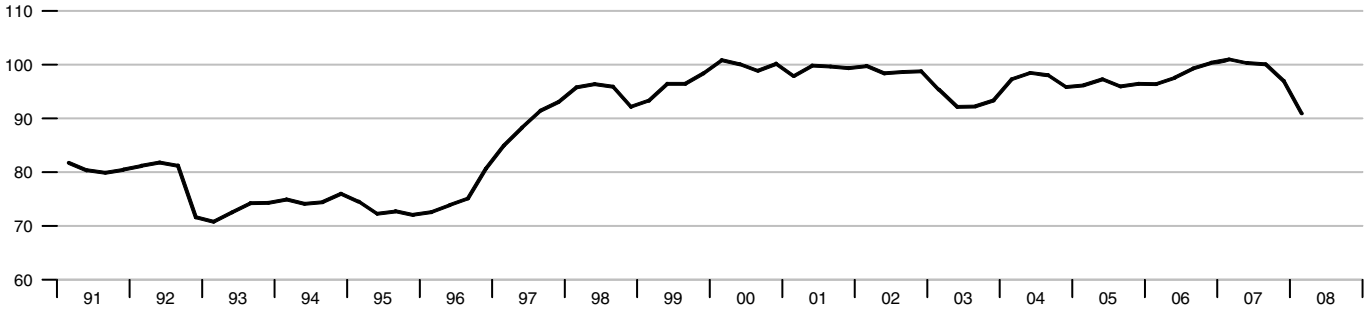
Foreign Exchange Reserves

Billions of US$



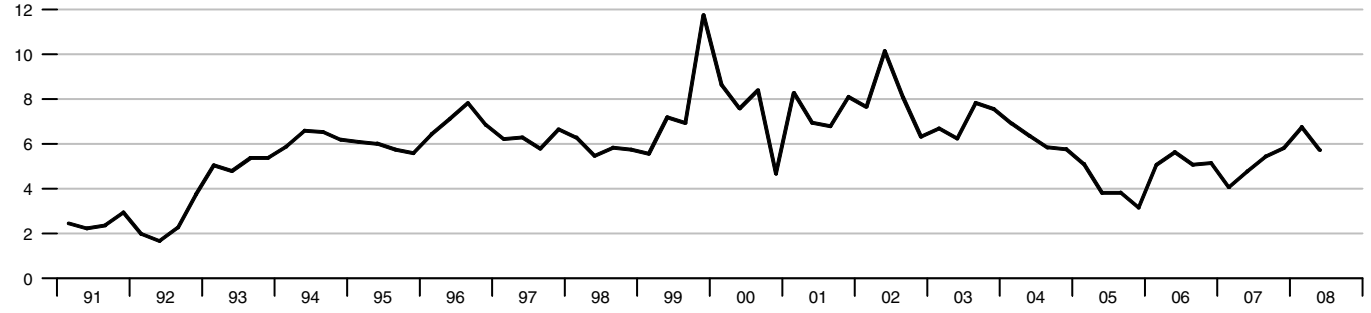
Real Effective Exchange Rate

Index 2000 = 100



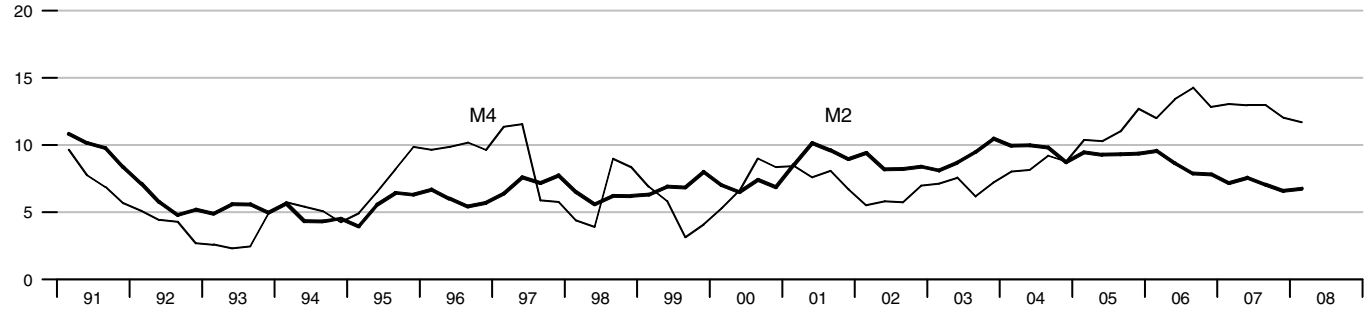
Notes and Coins in Circulation

Percent change from year ago



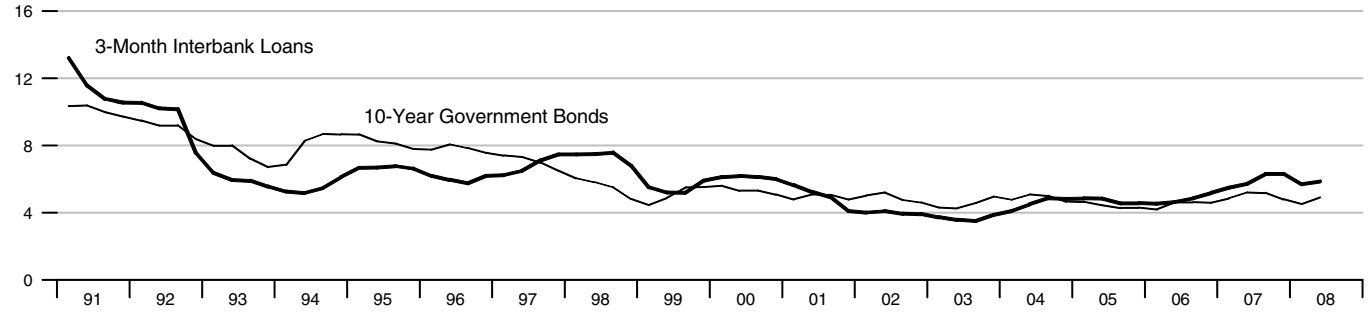
Monetary Aggregates

Percent change from year ago



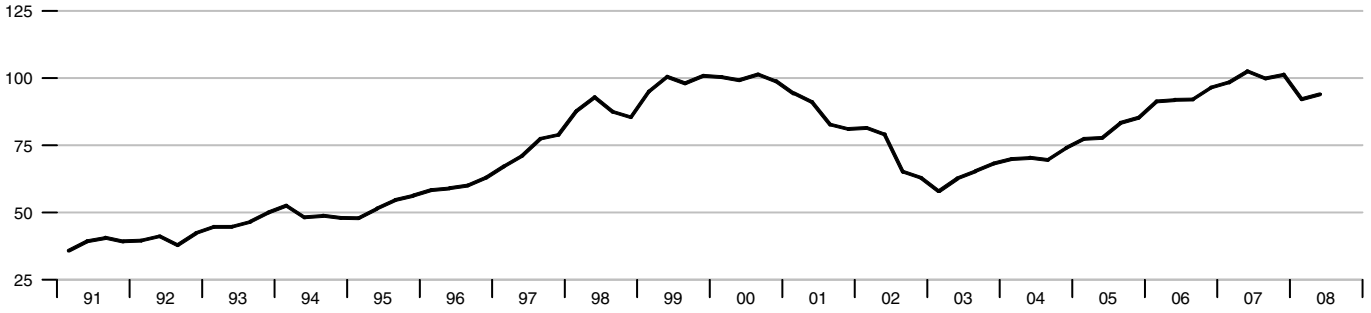
Interest Rates

Percent



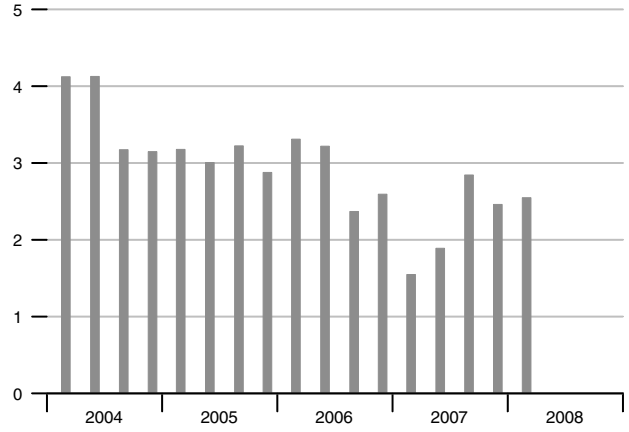
Stock Exchange Index - Financial Times Stock Exchange

2000 = 100



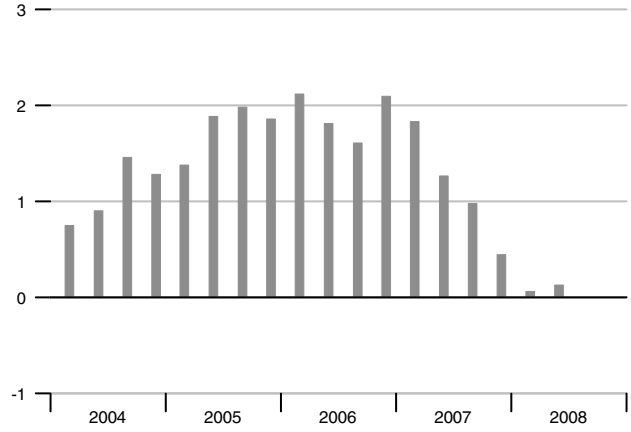
Real GDP

Percent change from year ago



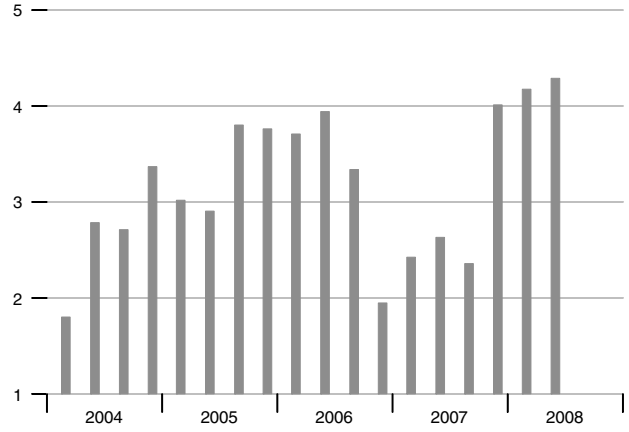
Employment

Percent change from year ago



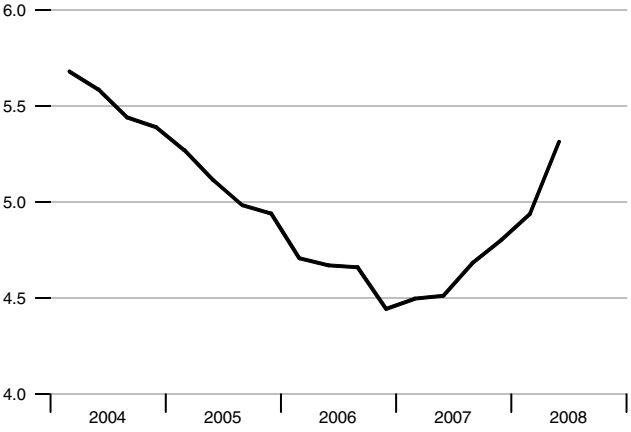
Consumer Price Index

Percent change from year ago



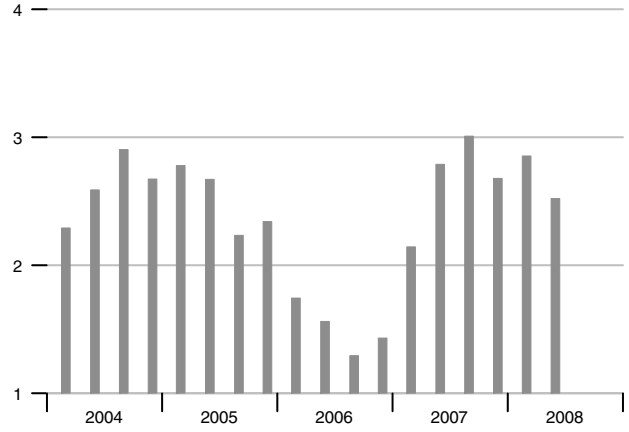
Unemployment Rate

Percent



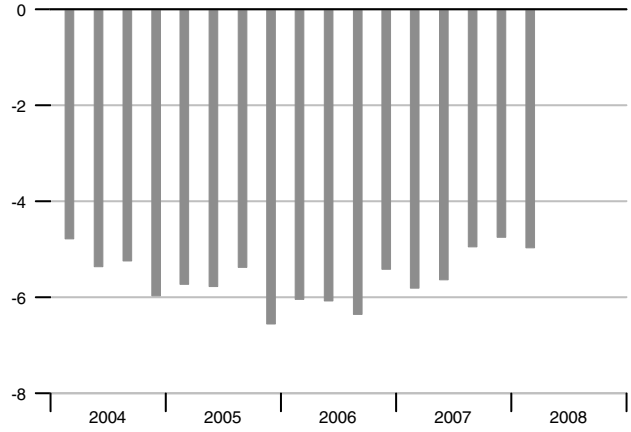
Real Hourly Earnings

Percent change from year ago

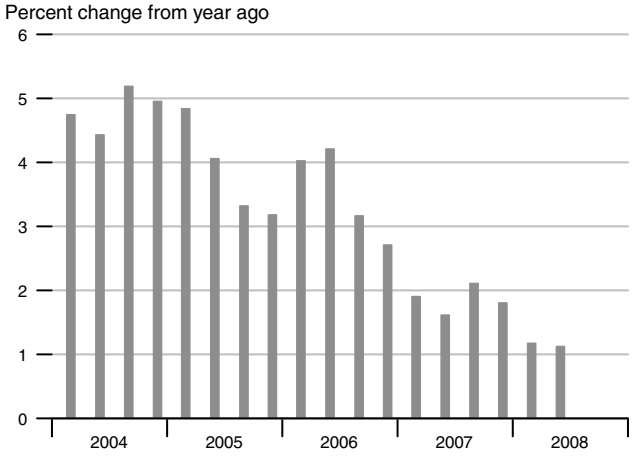


Current Account Balance

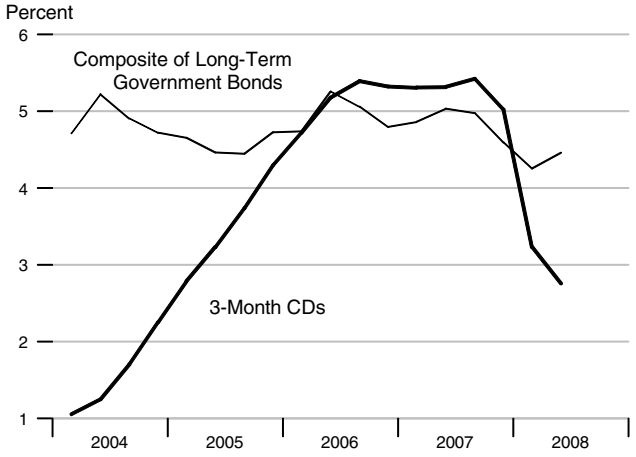
Percent of GDP



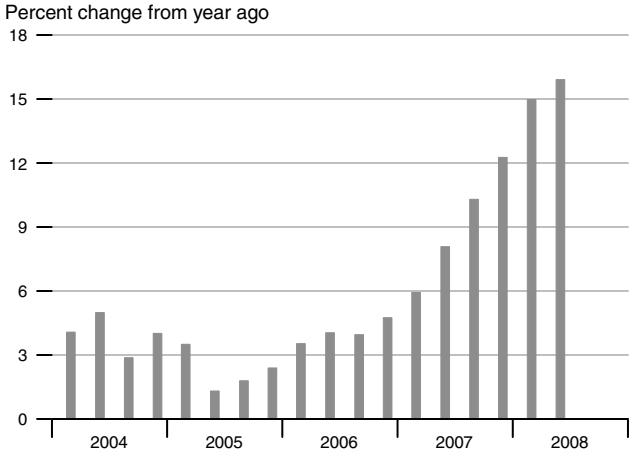
Adjusted Monetary Base



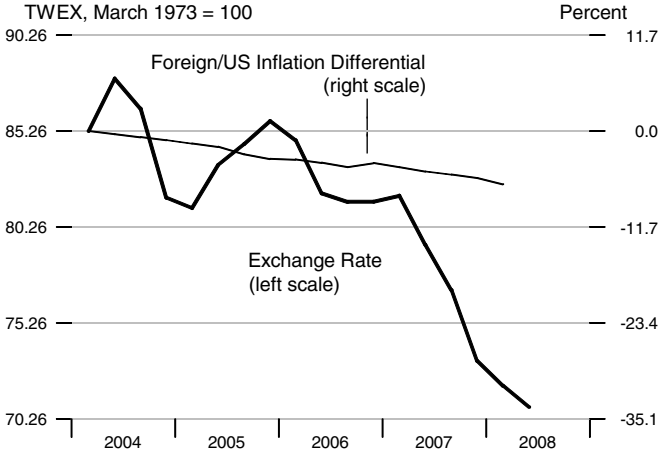
Interest Rates



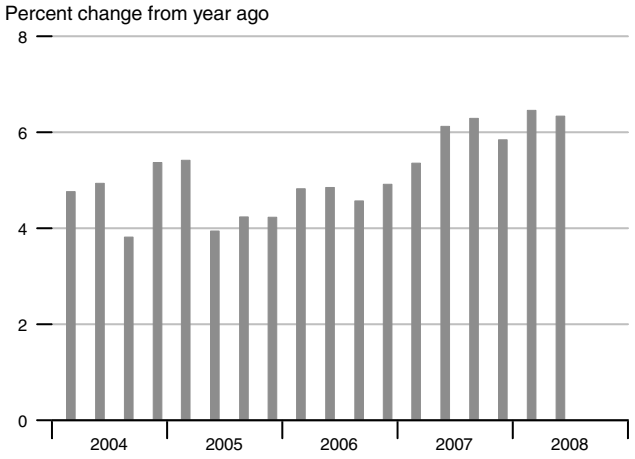
MZM



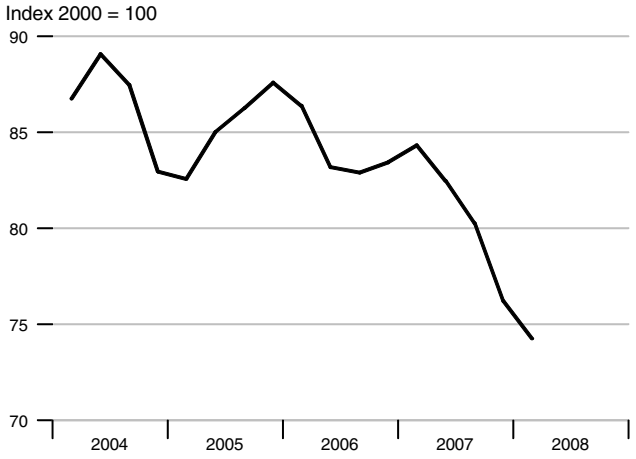
Exchange Rate and Inflation Differential



M2



Real Effective Exchange Rate

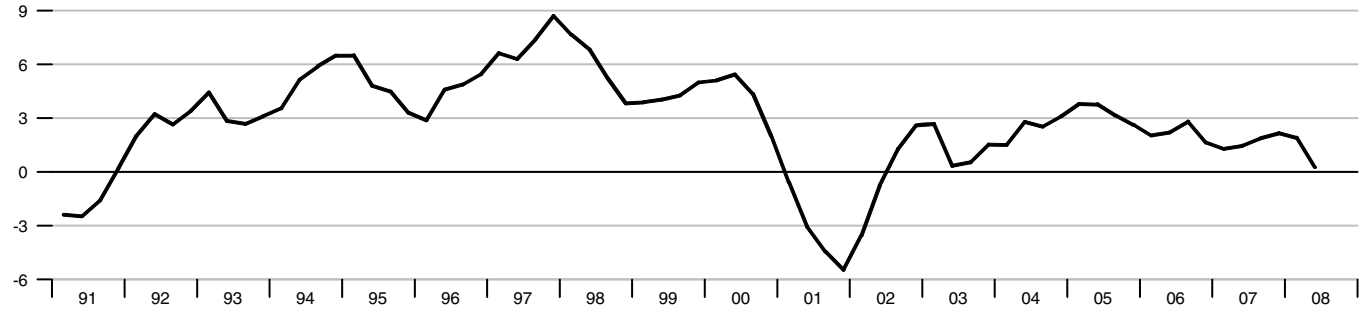


GDP

Percent change from year ago

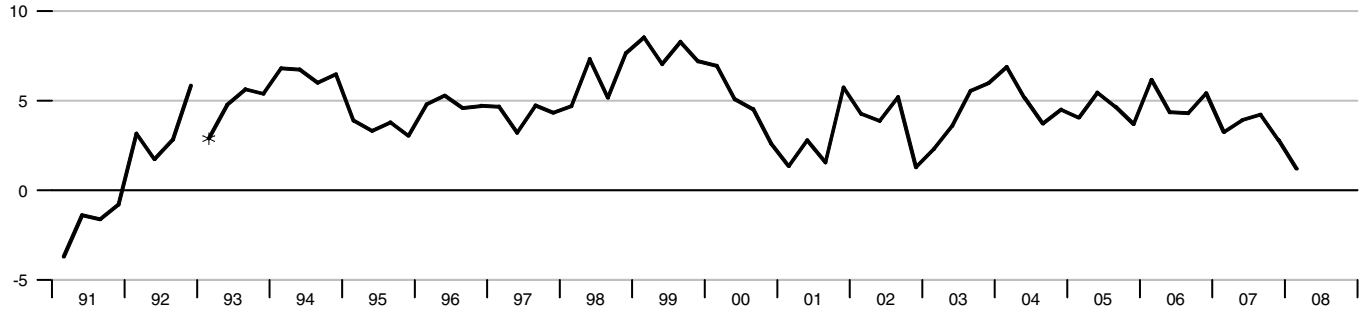
Industrial Production

Percent change from year ago



Retail Sales

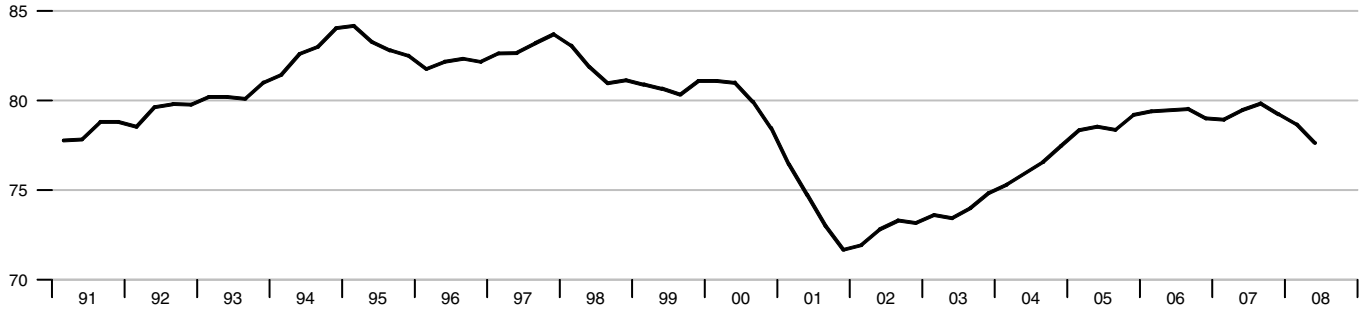
Percent change from year ago



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

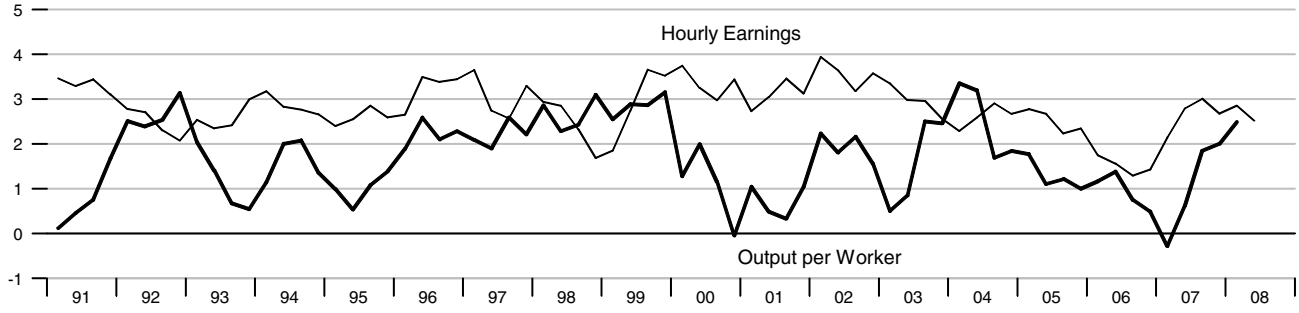
Capacity Utilization

Percent



Real Hourly Earnings and Output per Worker

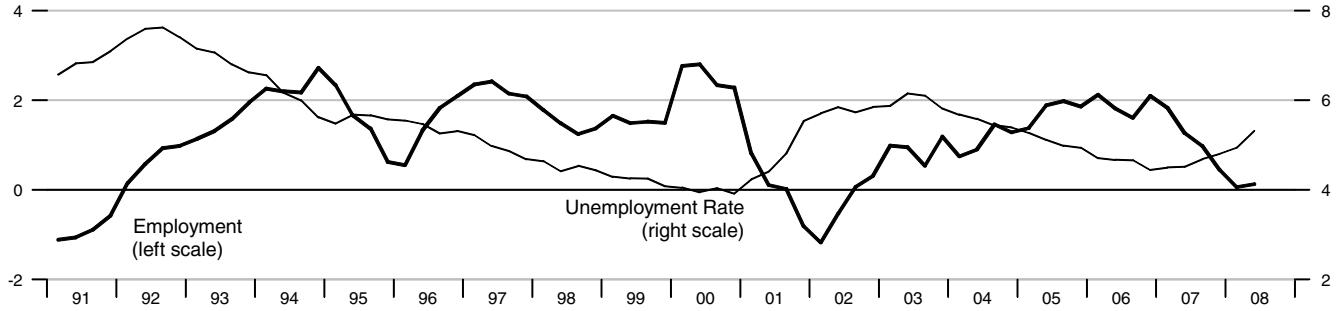
Percent change from year ago



Labor Force Indicators

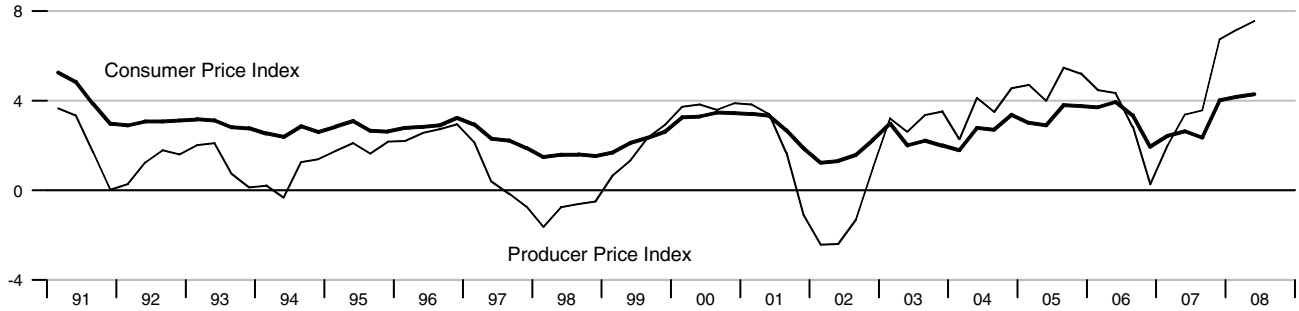
Percent change from year ago

Percent



Inflation

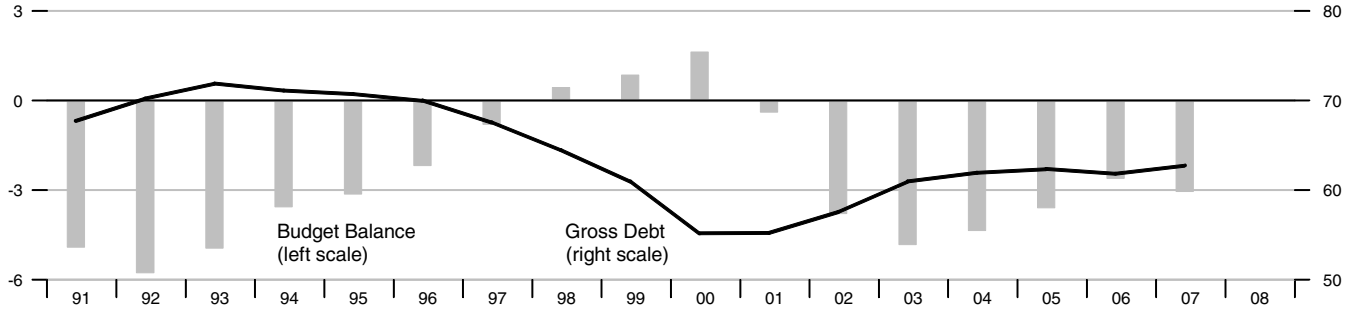
Percent change from year ago



Gross Government Debt and Budget Balance

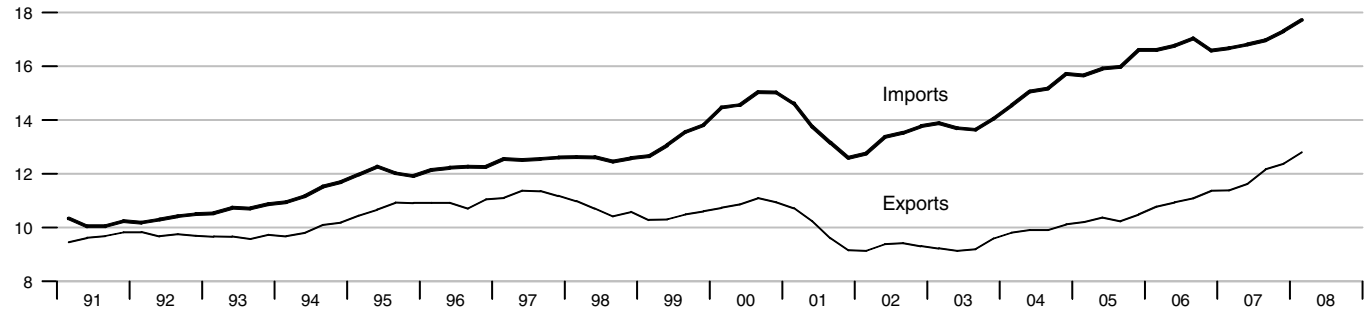
Percent of GDP, annual data

Percent of GDP, annual data



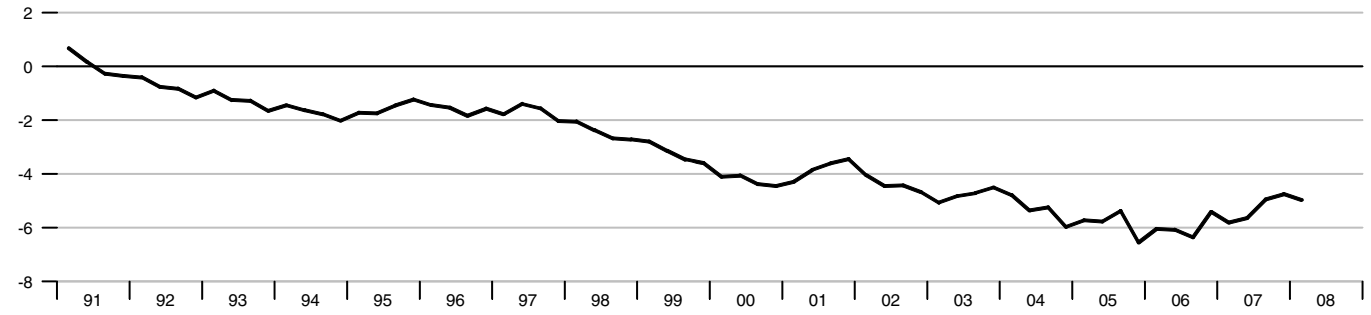
International Trade - Goods and Services

Percent of GDP



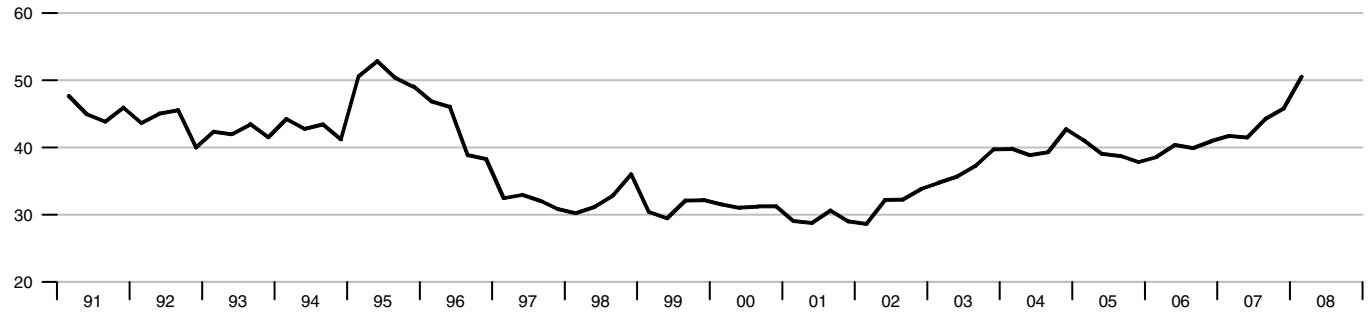
Current Account Balance

Percent of GDP



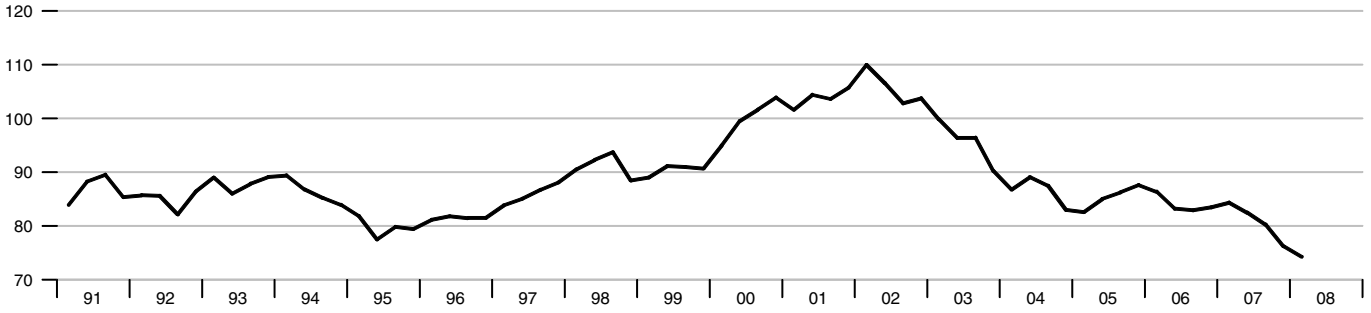
Foreign Exchange Reserves

Billions of US$



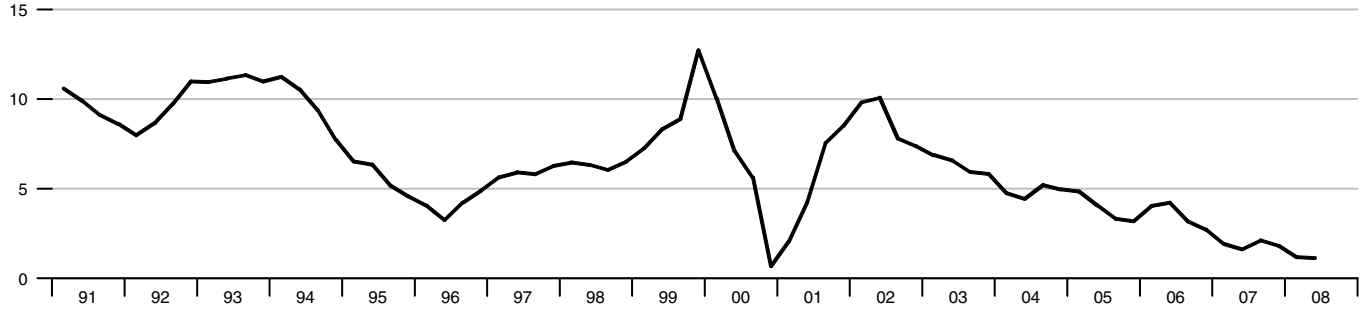
Real Effective Exchange Rate

Index 2000 = 100



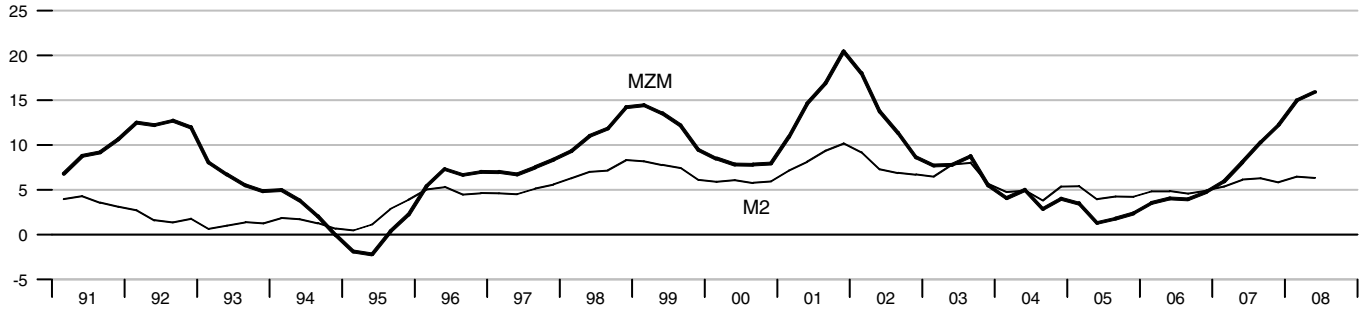
Adjusted Monetary Base

Percent change from year ago



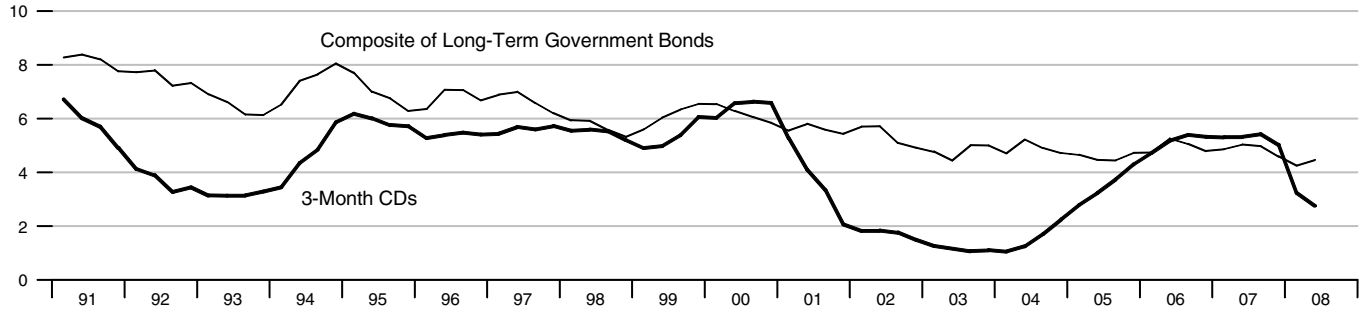
Monetary Aggregates

Percent change from year ago



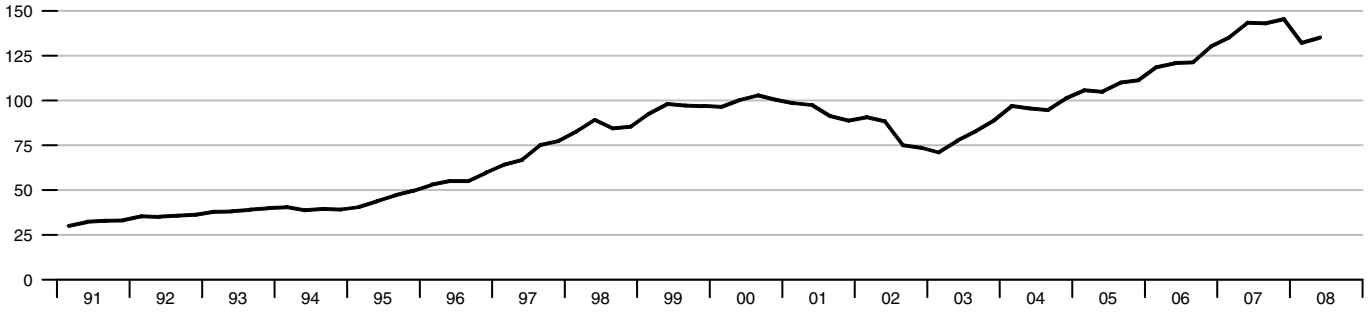
Interest Rates

Percent



Stock Exchange Index - New York Stock Exchange

2000 = 100



Notes

Euro-Area Data: The euro area was enlarged to include Greece on January 1, 2001, Slovenia on January 1, 2007, and Cyprus and Malta on January 1, 2008. Historical euro-area series for government debt and budget balance and industrial production include Greece. The series for employment, monetary aggregates, and unemployment include Greece and Slovenia for the whole sample. The series for earnings, the real effective exchange rate, and the stock exchange index include Greece starting in January 2001. Capacity utilization, the consumer price index, current account balance, merchandise trade, gross domestic product (GDP), and the producer price index include Greece, Slovenia, Cyprus, and Malta for the whole sample. The series for retail sales and interest rates include Greece starting in January 2001, Slovenia in January 2007, and Cyprus and Malta in January 2008.

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.

Real 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. **Gross 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 2002:Q1, then the cumulative inflation differential for Japan for 2006:Q3 is as follows:

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

where P^{J}_{2006Q3} is the Japanese CPI in the third quarter of 2006. 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.

Notes and Coins in Circulation

United Kingdom: After reforming the rules governing bank reserves, the Bank of England discontinued its M0 series in May 2006 because the data would not be comparable to previous data. *IET* now presents a related series, "Notes and Coins in Circulation," in place of M0. The Bank of England directs interested parties to "Publication of narrow money data: the implication of money market reform" in its Autumn 2005 *Quarterly Bulletin* (http://www.bankofengland.co.uk/publications/quarterlybulletin/qb050304.pdf).

M1
Japan: cash, currency in circulation, and deposit money.
Euro area: currency in circulation and overnight deposits.

M1B
Canada: currency outside banks, chartered bank checkable deposits, less inter-bank checkable 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: currency outside banks, chartered bank demand and notice deposits, chartered bank personal term deposits, adjustments to M2 (continuity adjustments and inter-bank demand and notice 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: M1B and M2.
BOG: exchange rate.
IMF: foreign exchange reserves, merchandise and service trade, real effective exchange rate, and reserve money.
OECD1: gross 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: currrent 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: gross 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: gross 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: gross 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.
Instituto Nazionale di Statistica: employment.
OECD1: gross 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: gross 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: gross 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 Notes and Coins in Circulation.

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: gross government debt and budget balance.
OECD2: hourly earnings, stock exchange index, and unemployment.