International Interest Rate Linkages

A change in the federal funds rate target often prompts observers to comment that other central banks are likely to follow suit by changing their own targeted interest rates. The accompanying chart shows that central banks of different countries often change interest rates in the same direction, at about the same time. This is especially true for central banks of countries with close economic ties.

There are at least three reasons why central banks might tend to change their interest rate targets in a similar fashion.

1. Countries react similarly to “common shocks.” In making monetary policy, central banks consider the state of the economy, including international commodity prices, like oil. Changes in such prices tend to affect countries in the same way, leading to similar changes in monetary policy.

2. Countries may desire to maintain stable exchange rates. By raising and lowering interest rates in tandem, central banks might minimize swings in the external value of their currencies.

3. Economic conditions in one country affect those in other countries through trade and capital flows. A U.S. recession that leads to lower U.S. interest rates might also slow our trading partners’ growth, prompting their central banks to lower rates as well.

The latter two reasons might explain why the interest rate changes of larger countries generally precede those of their smaller trading partners. Conditions in large countries, like the United States, affect conditions in smaller trading partners more than the reverse; therefore, smaller countries are more likely to take external factors into account when making monetary policy.

Because the Federal Reserve has conducted monetary policy for the largest economy in the world, it has been less concerned with external factors than most central banks. As a result, it has frequently been a “leader” in international interest rate movements. For example, the chart shows that the Fed led the way for other central banks by starting the most recent series of interest rate reductions in January 2001.

With the formation of the European Monetary Union, monetary policy in Europe may be more concerned with European trends and less concerned with external factors—like Federal Reserve policies—than were the central banks of the constituent states. The president of the European Central Bank (ECB), Wim Duisenberg, underscored this change in explaining the decision to decline to match the most recent Federal Reserve interest rate cuts: “The impact of events outside the euro area is not so significant. The euro area is a much more closed economy than its constituent parts were previously.” (Irish Times, February 2, 2001)

Monetary policy is not, of course, a game of “follow the leader.” Central banks make interest rate decisions for their own domestic reasons, not to simply keep in step with other central banks. They do, however, consider the effect of external factors—including foreign interest rates—when making monetary policy for their own countries.

—Christopher J. Neely

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 2001. 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 month t-12 and the current month t is: \( \frac{\left( x_t / x_{t-12} \right) - 1}{100} \).

3. All data with significant seasonal patterns are seasonally adjusted.

We welcome your comments addressed to:

Editor, International Economic Trends
Research Division
Federal Reserve Bank of St. Louis
P.O. Box 442
St. Louis, MO 63166

or to:
webmaster@stls.frb.org
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**Federal Reserve Bank of St. Louis**
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International Economic Trends -- Euro Area

Real GDP Growth
Percent change

Employment Growth
Percent change

Consumer Price Index
Percent change

Unemployment Rate
Percent

Hourly Earnings
Percent Change

Current Account Balance
Percent of GDP

Federal Reserve Bank of St. Louis
International Trade - Goods
Percent of GDP

Monetary Aggregates
Percent Change

Real Effective Exchange Rate
Index 1995 = 100

Government Debt and Budget Surplus or Deficit (-)
Percent of GDP, annual data

Federal Reserve Bank of St. Louis
International Economic Trends -- Italy

Real GDP Growth
Percent change

Employment Growth
Percent change

Consumer Price Index
Percent change

Unemployment Rate
Percent

Hourly Earnings
Percent change

Current Account Balance
Percent of GDP

Federal Reserve Bank of St. Louis
Hourly Earnings and Output per Worker

Labor Force Indicators

Saving and Investment

Government Debt and Budget Surplus or Deficit (-)
GDP Growth
Percent change

Industrial Production
Percent change

Retail Sales
Percent change

Capacity Utilization
1995 = 100

Federal Reserve Bank of St. Louis
Monthly Earnings and Output per Worker

Labor Force Indicators

Saving and Investment

Government Debt and Budget Surplus or Deficit (-)
Weekly Earnings and Output per Worker

Labor Force Indicators

Saving and Investment

Government Debt and Budget Surplus or Deficit (-)
M0 Growth
Percent change

Monetary Aggregates
Percent change

Interest Rates
Percent

Stock Exchange Index - Financial Times Stock Exchange
1995 = 100

Federal Reserve Bank of St. Louis
Notes

**Euro-Area Data** – The unit of account for most series is the euro.

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, earnings, employment, GDP, industrial production, retail sales, and unemployment include Greece. The series for current account balance, interest rates, merchandise trade, monetary aggregates, the real effective exchange rate, and the stock exchange index incorporate Greece starting January 2001. The series for government debt and surplus remain for the 11 euro-area countries.

Prior to December 1998, euro-area interest rates 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.

Inflation data for the euro area is based on the harmonized index of consumer prices. Data for individual countries in this publication continues to be based on national consumer price indexes.

The dollar/euro 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 most of 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. Data for capacity utilization remains for western Germany only.

- Third quarter 1990: current account balance, international trade, and unemployment.
- First quarter 1991: consumer price index, GDP, industrial production, investment, output per worker, and saving.
- First quarter 1993: stock exchange index.
- Third quarter 1993: employment.

**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 and Italy; all households for France; households with a monthly income of less than 25,000 DM for Germany; 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.

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

**The 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 1989-91. 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, the United States, and the euro area; industrial employment for France; and total employment for the United Kingdom.

Fluctuations in the dollar value of **Foreign Exchange Reserves** occur as a result of changes in reserve holdings and/or changes in the dollar value of the currencies held.

**Government Surplus** 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.

The **Inflation Differential** is the difference between the U.S. inflation rate and the foreign inflation rate, as measured by the consumer price index. For the chart on page 41, the inflation differential is the difference between the U.S. inflation rate and a weighted average of the inflation rates in the 17 countries used in the major currency trade-weighted exchange index. For the euro-area chart on page 12, the inflation differential is the difference between the U.S. inflation rate and the euro-area inflation rate as measured by the harmonized consumer price index.

**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 Japan, the United Kingdom, and the euro area.

**Investment** is gross fixed capital formation and changes in stocks (inventories) of the government and business sectors.

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** includes 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 – M2 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.

Retail Sales
are based on a volume index.

Saving
is gross national saving which includes net national saving (receipts less disbursements of households, business, and the government) and consumption of fixed capital.

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

The trade-weighted exchange rate, TWEX, is the Board of Governors of the Federal Reserve System’s major currency trade-weighted dollar exchange rate. This is a weighted average of the exchange value of the U.S. dollar relative to the major international currencies of 17 industrial countries.

The 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)
Financial and Economic Research International (FERI)
International Monetary Fund, International Financial Statistics (IMF)
Organization for Economic Cooperation and Development,
Economic Outlook (OECD1)
Main Economic Indicators (OECD2)
Quarterly National Accounts (OECD3)
Annual National Accounts (OECD4)

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 surplus or deficit.
OECD2: capacity utilization, consumer price index, current account balance, GDP, hourly earnings, industrial production, retail sales, interest rates, stock exchange index, and unemployment rate.
OECD3: investment and savings.
Statistics Canada: employment.

Euro Area
Eurostat: current account balance, gross domestic product, merchandise trade, and retail sales.
FERI: employment and hourly earnings.
Haver Analytics: synthetic euro exchange rate.
IMF: real effective exchange rate.

OECD1: government debt and budget surplus or deficit.
OECD2: capacity utilization, consumer price index, industrial production, M1, M3, interest rates, stock exchange index, and unemployment.

France
BOG: exchange rate.
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 surplus or deficit.
OECD2: capacity utilization, consumer price index, current account balance, GDP, hourly earnings, industrial production, retail sales, interest rates, stock exchange index, and unemployment.
OECD3: investment and savings.

Germany
BOG: exchange rate.
Bundesanstalt Fur Arbe: employment.
IMF: foreign exchange reserves, merchandise and service trade, and real effective exchange rate.
OECD1: government debt and budget surplus or deficit.
OECD2: capacity utilization, consumer price index, current account balance, GDP, hourly earnings, industrial production, M1, M3, retail sales, interest rates, stock exchange index, and unemployment.
OECD4: investment and savings.

Italy
Banca D’Italia: long-term interest rate.
BOG: exchange rate.
IMF: foreign exchange reserves, merchandise and service trade, and real effective exchange rate.
Instituto Nazionale di Statistica: employment.
OECD1: government debt and budget surplus or deficit.
OECD2: capacity utilization, consumer price index, current account balance, GDP, hourly earnings, industrial production, M1, M2, retail sales, short-term interest rate, stock exchange index, and unemployment.
OECD3: investment and savings.

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 surplus or deficit.
OECD2: capacity utilization, consumer price index, current account balance, employment, GDP, hourly earnings, industrial production, M1, M2, retail sales, short-term interest rate, stock exchange index, and unemployment.
OECD3: investment and savings.

United Kingdom
BOG: exchange rate.
IMF: foreign exchange reserves, merchandise and service trade, and real effective exchange rate.
OECD1: government debt and budget surplus or deficit.
OECD2: capacity utilization, consumer price index, current account balance, employment, GDP, hourly earnings, industrial production, M1, M2, retail sales, short-term interest rate, stock exchange index, and unemployment.
OECD3: investment and savings.

U.K. Office for National Statistics: employment and M0.

United States
BOG: capacity utilization, exchange rate, industrial production index, M2, and interest rates.
BEA: gross domestic product, current account balance, and merchandise and service trade.
BLS: employment and consumer 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 surplus or deficit.
OECD2: hourly earnings, retail sales, stock exchange index, and unemployment.
OECD3: investment and savings.