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# inside the vault

AN ECONOMIC EDUCATION NEWSLETTER FROM THE FEDERAL RESERVE BANK ST. LOUIS



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## Low Interest Rates Have Benefits ...and Costs

In late December 2007, most economists realized that the economy was slowing. However, very few predicted an outright recession. Like most professional forecasters, the Federal Open Market Committee (FOMC) initially underestimated the severity of the recession.

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In January 2008, the FOMC projected that the unemployment rate in the fourth quarter of 2010 would average 5 percent. But by the end of 2008, with the economy in the midst of a deep recession, the unemployment rate had risen to about 7.5 percent; a year later, it reached 10 percent.

The Fed used a dual-track response to the recession and financial crisis. It adopted some unconventional policies, such as the purchase of \$1.25 trillion of mortgage-backed securities. And the FOMC reduced its interest rate target to near zero in December 2008 and indicated its intent to maintain a low interest rate environment for an "extended period." Recently, some economists have begun to discuss the costs and benefits of maintaining extremely low short-term interest rates for an extended period.

### Benefits of Low Interest Rates

In a market economy, resources tend to flow to activities that provide the greatest returns for the risks the lender bears. Interest rates (adjusted for expected inflation and other risks) serve as market signals of these rates of return. Although returns will differ across industries, the economy also

has a natural rate of interest that depends on factors such as the nation's saving and investment rates. When economic activity weakens, monetary policymakers can push the interest rate target (adjusted for inflation) temporarily below the economy's natural rate, which lowers the real cost of borrowing. To most economists, the primary benefit of low interest rates is their stimulative effect on economic activity. By reducing interest rates, the Fed can help spur business spending on capital goods—which also helps the economy's long-term performance—and can help spur household expenditures on homes or consumer durables like automobiles. For example, home sales are generally higher when mortgage rates are 5 percent than when they are 10 percent.

A second benefit of low interest rates is improving bank balance sheets and banks' capacity to lend. During the financial crisis, many banks, particularly some of the largest banks, were found to have too little capital, which limited their ability to make loans during the initial stages of the recovery.

By keeping short-term interest rates low, the Fed helps recapitalize the banking

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## Low Interest Rates

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system by helping to raise the industry's net interest margin (NIM), which boosts its retained earnings and, thus, its capital. Between the fourth quarter of 2008, when the FOMC reduced its federal funds target rate to virtually zero, and the first quarter of 2010, the NIM increased by 21 percent, its highest



level in more than seven years. Yet, the amount of commercial and industrial loans on bank balance sheets declined by nearly 25 percent from its peak in October 2008 to June 2010. This suggests that perhaps other factors were working to restrain bank lending.

A third benefit of low interest rates is that they can raise asset prices. When the Fed increases the money supply, the public finds itself with more money balances than it wants to hold. In response, people use these excess balances to increase their purchases of goods and services and of assets like houses or corporate equities. Increased demand for these assets, all else equal, raises their price.

The lowering of interest rates to raise asset prices can be a double-edged sword. On the one hand, higher asset prices increase the wealth of households (which can boost spending) and lower the cost of financing capital purchases for business. On the other hand, low interest rates encourage borrowing and higher debt levels.

## Costs of Low Interest Rates

Just as there are benefits, there are costs associated with keeping interest rates below the natural level for an extended period. Some argue that the extended period of low interest rates (below the natural rate) from June 2003 to June 2004 was a key contributor to the housing boom and the marked increase in household debt relative to after-tax incomes. Without a strong commitment to control inflation over the long run, the risk of higher inflation is one potential cost of the Fed's keeping the real federal funds rate below the economy's natural interest rate. For example, some point to the 1970s, when the Fed did not raise interest rates fast enough or high enough to prevent what became known as the Great Inflation.

Other costs are associated with very low interest rates. First, low interest rates provide a powerful incentive to spend rather than save. In the short term, this may not matter much, but over a longer period, low interest rates penalize savers and those who rely heavily on interest income. Since peaking at \$1.33 trillion in the third quarter of 2008, personal interest income has declined by \$128 billion, or 9.6 percent.

A second cost of very low interest rates flows from the first. In a world of very low real returns, individuals and investors begin to seek higher-yielding assets. Since the FOMC moved to a near-zero federal funds target rate, yields on 10-year Treasury securities have fallen, on net, to less than 3 percent, while money market rates have fallen below 1 percent. Of course, existing bondholders have seen significant capital appreciation over this period. However, those desiring higher nominal rates might instead be tempted to seek more speculative, higher-yielding investments.

In 2003-04, many investors, facing similar choices, chose to invest heavily in subprime mortgage-backed securities since they were perceived at the time to offer relatively high risk-adjusted returns. When economic resources finance more-speculative activities, the risk of a financial crisis increases—particularly if excess amounts of leverage are used in the process. In this vein, some economists believe that banks and other financial institutions tend to take greater risks when rates are maintained at very low levels for a lengthy period. Economists have identified a few other costs associated with very low interest rates. First, if short-term interest rates are low relative to long-term rates, banks and other financial institutions may overinvest in long-term assets, such as Treasury securities. If interest rates rise unexpectedly, the value of those assets will fall (bond prices and yields

move in opposite directions), exposing banks to substantial losses.

Second, low short-term interest rates reduce the profitability of money market funds, which are key providers of short-term credit for many large firms. (An example is the commercial paper market.) From early January 2009 to early August 2010, total assets of money market mutual funds declined from a little more than \$3.9 trillion to about \$2.8 trillion.

Finally, St. Louis Fed President James Bullard has argued that the Fed's promise to keep interest rates low for an "extended

period" may lead to a Japanese-style deflationary economy. This might occur in the event of a shock that pushes inflation down to extremely low levels—maybe below zero. With the Fed unable to lower rates below zero, actual and expected deflation might persist, which, all else equal, would increase the real cost of servicing debt (that is, incomes fall relative to debt).

*Kevin Kliesen is an economist at the Federal Reserve Bank of St. Louis.*

## Glossary

**Asset** – Anything an individual or business owns that has commercial or exchange value.

**Board of Governors** – Central governmental agency of the Federal Reserve System located in Washington, D.C., and composed of seven members appointed by the president and confirmed by the Senate.

**Borrowing** – Receiving something on loan with the promise or understanding of returning it or its equivalent.

**Capital goods** – Manufactured goods—such as machines, equipment, and structures—that are used to produce other goods and services.

**Deflation** – A general downward movement of prices for goods and services in an economy.

**Federal funds rate** – The interest rate charged by a bank on an overnight loan of funds to another bank.

**Federal Open Market Committee (FOMC)** – A Committee created by law that consists of the seven members of the Board of Governors; the president of the Federal Reserve Bank of New York; and, on a rotating basis, the presidents of four other Reserve Banks. Nonvoting Reserve Bank presidents also participate in Committee deliberations and discussion.

**Federal Reserve System (FED)** – The central bank of the United States.

**Incentives** – Perceived benefits that encourage certain behaviors.

**Inflation** – A general, sustained upward movement of prices for goods and services in an economy.

**Inflation rate** – The percentage change in the price index from a previous period.

**Interest** – The price of using credit—that is, someone else's money—to make purchases.

**Interest income** – The income received for allowing a financial institution or another person to use your money.

**Interest rate** – The price of using credit expressed as a percentage of the amount owed.

**Investment** – The purchase of new capital resources; the diversion of resources from the production of goods and services for current consumption to the production of goods and services that increase the economy's productive capacity.

**Loans** – Money provided temporarily on the condition that the amount borrowed, will be repaid, usually with interest.

**Market economy** – An economy that allocates resources through the decentralized decisions of many firms and households as they interact in markets for goods and services.

**Monetary policy** – A central bank's actions involving the use of interest rate or money supply tools to achieve economic goals.

**Net interest margin (NIM)** – The difference between the interest expense a bank pays (cost of funds) and the interest income a bank receives on the loans it makes.

**Rate of return** – Also called the "yield," this is the return on an investment expressed as a percentage of its price.

**Recession** – A period of declining real income and rising unemployment; significant decline in general economic activity extending over a period of time.

**Risk** – Exposure to loss of investment capital due to a variety of causes, such as business failure, stock market volatility, and interest rate changes; in business, the likelihood of loss or reduced profit; the danger or probability of loss to an individual.

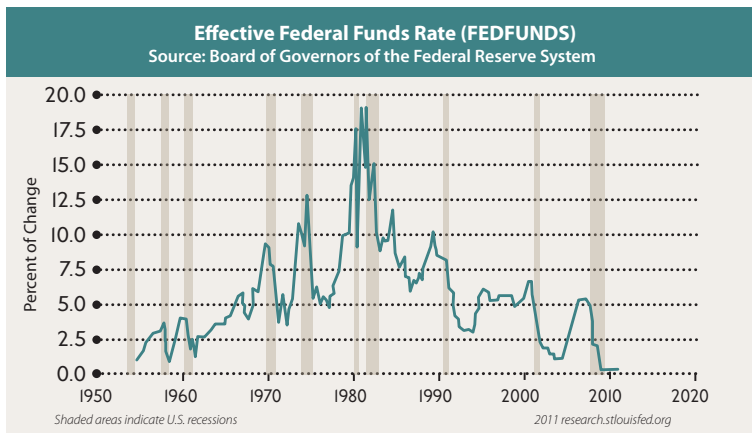
**Unemployment rate** – The percentage of the labor force that is willing and able to work, is not currently employed, and is actively seeking employment.

**Yield** – The return on an investment, stated as a percentage of the price. Also called rate of return.

## Inflation and Deflation

**Q. The Fed's policymaking body, the Federal Open Market Committee, usually targets the federal funds interest rate to conduct monetary policy. In response to economic conditions, the FOMC acted to reduce that interest rate to near zero in December 2008. Did the Federal Reserve substantially lower the rate in previous recessions?**

A. Yes. In the graph of the federal funds rate (below), the shaded bars represent recent U.S. recessions. In these recessions, the federal funds rate dropped as a result of the Fed's policy actions. However, the past recession was the only one where the rate approached zero.



**Q. How is the inflation rate measured?**

A. Although the level of inflation can be measured in several ways, one of the most widely used measurements is the consumer price index (CPI). This index is a monthly measure of the average change over time in the prices paid by urban consumers for a “market basket” (80,000 items) of consumer goods and services. This urban consumer group represents about 87% of the total U.S. population.

**Q. Downward movement in the prices of goods and services (lower prices) sounds good. So why is deflation considered a problem?**

A. Deflation can have undesirable “snowball” effects on an economy. Although it may sound good, a general decreasing trend in prices discourages spending and investment because consumers delay purchases while waiting for prices to drop further. For example, if the price of electronics, such as computers, tablets, and the latest phones, consistently dropped every week, you would probably delay purchasing these

items until the price was as low as possible. Delayed spending results in fewer sales and less revenue for businesses, which in turn reduces the need for employees and thereby increases unemployment. Another factor to consider is the cost of credit during deflationary times. Since the value of money increases in a deflationary environment (each dollar will buy more goods and services), debtors must repay their old loans with more-valuable dollars, to the benefit of their creditors.

**Q. What specific goods and services are represented in the CPI's market basket of consumer goods?**

A. The CPI is often referred to as the “all items index.” Although it does not include literally all items, it includes a representative selection of consumer goods and services. Items are divided into more than 200 categories, arranged into eight major groups:

Food and beverages	Housing
Apparel	Transportation
Medical care	Recreation
Education and communication	
Other goods and services	

**Q. What is the core CPI?**

A. The core CPI is the CPI excluding food and energy. It may seem puzzling to exclude two categories of great importance to all consumers, but here's why it's done. Food and energy prices tend to be more volatile and subject to more price variation—sharp and often short-term movements can obscure longer-term and underlying trends in other categories. For example, gasoline prices can change several cents per gallon overnight. By excluding food and energy, the core CPI indicates the short-run inflation trend without the risk of volatile prices concealing the true picture of that trend.

**SOURCES:**

Hoda El-Ghazaly. “Deflation: Who Let the Air Out?” Federal Reserve Bank of St. Louis *Liber8*, February 2011; <http://liber8.stlouisfed.org/newsletter/2011/201102.pdf>.

Kevin L. Kliesen. “Is the Fed's Definition of Price Stability Evolving?” Federal Reserve Bank of St. Louis *Economic Synopses*, Number 33, 2010; <http://research.stlouisfed.org/publications/es/10/ES1033.pdf>.

U.S. Bureau of Labor Statistics. “All Items Less Food and Energy.” *Focus on Prices and Spending: Consumer Price Index*, February 2011, 1(15); [http://www.bls.gov/opub/focus/volume1\\_number15/cpi\\_1\\_15.htm#chart2](http://www.bls.gov/opub/focus/volume1_number15/cpi_1_15.htm#chart2).

## CPI and Core CPI

**1. What two measures of inflation are represented in Graph A, Graph B, and Graph C below?**

The two measures of inflation represented are the CPI and the core CPI.

**2. What does each graph measure differently as shown on the x-axis of each graph?**

Each graph includes data for a different date range: Graph A shows one year of data, Graph B shows ten years of data, and Graph C shows more than sixty years of data.

**3. Which one of the three graphs reflects a smaller variation between the CPI and the core CPI? Why?**

Graph C shows a similar trend between both measures, while Graphs A and B show greater differences and variances. This is because Graph C looks at the long-term trend, and while the differences in the measurements on the first two graphs appear substantial, over the long run the trends for both the CPI and the core CPI are quite similar. Graphs showing longer time spans will reflect the long-run picture, whereas those with shortened time spans will reflect short-term trends.

**4. Which graph would be best for finding the following types of information?**

1. The number of recessions over the past 50 years
2. The trend in inflation over the first quarter of 2010
3. The period with the all-time high inflation rate
4. Speculating on the price levels of food and/or energy in early 2011
5. Identifying recessions in the past 10 years

Source: [www.bls.gov/cps/cps\\_htgm.htm#nlf](http://www.bls.gov/cps/cps_htgm.htm#nlf)

Answers: 1.-C; 2.-A; 3.-C; 4.-A; 5.-B and C;

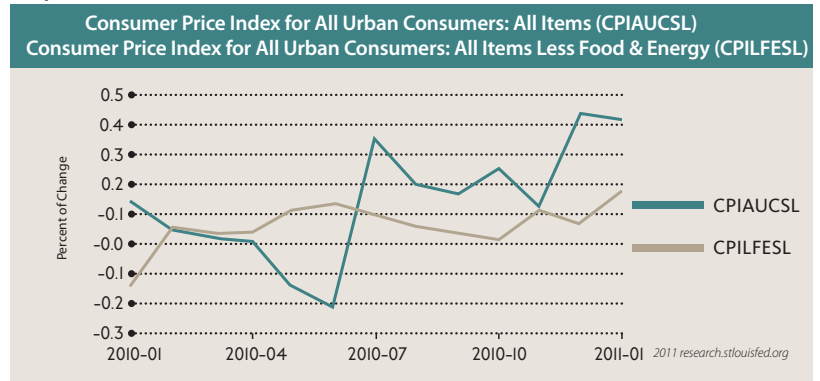
**Fourth Quarter 2010**

	Q1-'10	Q2-'10	Q3-'10	Q4-'10
<b>Growth Rate</b>				
Real Gross Domestic Product	3.7%	1.7%	2.6%	2.8%*
<b>Inflation Rate</b>				
Consumer Price Index	1.3%	-0.5%	1.4%	2.6%
<b>Civilian Unemployment Rate</b>	9.7%	9.6%	9.6%	9.6%

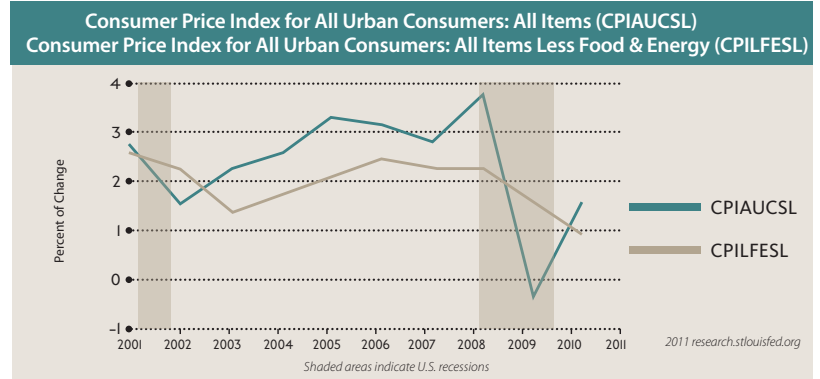
\* second estimate

Bureau of Economic Analysis: [www.bea.gov](http://www.bea.gov).

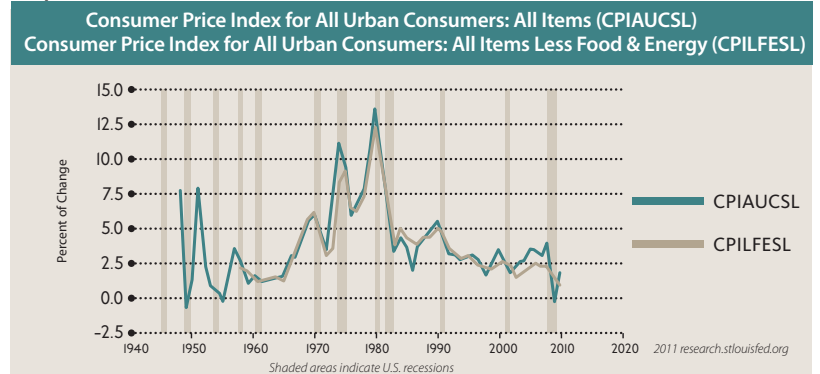
**Graph A**



**Graph B**



**Graph C**



ALL LOCATIONS

For more information on any of the following events, go to [http://stlouisfed.org/education\\_resources/events/](http://stlouisfed.org/education_resources/events/) unless otherwise indicated.

**Third National Economic Education Video Competition**

April 18 deadline

For more information: [http://stlouisfed.org/education\\_resources/videocontest.cfm](http://stlouisfed.org/education_resources/videocontest.cfm)

**A Webinar: Fiscal and Monetary Policy**

April 20, 3:30 - 4:30 CST

**Economics and Children's Literature K-4**

July 7, 8:30 - 3:30 CST

**Insights from the Inside**

July 14, 8:30 - 3:30 CST

**Economics and Children's Literature 5-8**

July 21, 8:30 - 3:30 CST

**It's Your Paycheck!**

July 26, 8:30 - 3:30 CST

**Cards, Cars and Currency**

July 27, 8:30 - 3:30 CST

**Time Value of Money / It's Your Paycheck!**

July 28, 8:30 - 3:30 CST

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MEMPHIS

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**Personal Finance Two-Day Workshop for Tennessee Educators**

Location: Agricenter International, Memphis, TN  
June 1-2, 2011

**Focus on the Economy**

[http://www.mscee.org/focus\\_signup.php](http://www.mscee.org/focus_signup.php)  
Jackson, MS  
June 1-3, 2011

**Dollars and Sense in the Classroom**

Ittabama Community College  
Tupelo, MS  
June 15, 2011

**Integrating Economics in the Mississippi Classroom**

Ittabama Community College  
Tupelo, MS  
June 22, 2011

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Contact: [Barbara.flowers@stls.frb.org](mailto:Barbara.flowers@stls.frb.org)

**AP Economics Program**

June 16 and 17, 8:30 - 3:30 CST

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8:30 a.m. - 3:30 p.m. | Thursday, June 16, 2011

8:30 a.m. - 3:30 p.m. | Friday, June 17, 2011 - Conference registration includes both days.

Are you a seasoned AP economics instructor? Have you thought about teaching AP economics? Is your school or district interested in adding AP economics courses to its curricula?

If the answer to any of these questions is yes, please join us for a two-day workshop at the Federal Reserve Bank of St. Louis. Federal Reserve staff and experienced AP instructors will demonstrate engaging economics lessons and introduce interactive whiteboard applications developed specifically for AP classes in micro and macro.

The workshop will include whole-group discussions of best practices, course development, and textbook selection. An "Ask the Expert" panel will delve into those thorny content problems, offering ideas for alternative instructional approaches.

Participants receive:

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- certificates of completion
- continental breakfast and lunch both days

The workshop is free, but registration is required. To register, visit:  
[www.stlouisfed.org/education\\_resources/events/?id=229](http://www.stlouisfed.org/education_resources/events/?id=229)

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## FEATURED RESOURCES

### The Economic Lowdown

*The Economic Lowdown* is a podcast series for high school students produced by the Economic Education department of the St. Louis Fed. The series covers topics in economics, personal finance, banking, and monetary policy.

Currently, there are seven episodes available: Opportunity Cost, Factors of Production, The Role of Self-Interest and Competition in a Market Economy, Inflation, Unemployment,

Demand, and Supply. Market Equilibrium will be added this spring, with more episodes to follow.

Everyone needs to hear things more than once—and review is always helpful. So if your students need some reinforcement of concepts you've taught, they can download and listen to economic content on the bus, in the car, or walking to class on exam day.

***The Economic Lowdown* is available on the Federal Reserve Bank of St. Louis's website, [www.stlouisfed.org/education\\_resources/podcasts](http://www.stlouisfed.org/education_resources/podcasts) and on iTunes.**

