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# **Deflation: Who Let the Air Out?**

February 2011

## **Classroom Edition**

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*Prepared by the Economic Education Group of the  
Federal Reserve Bank of St. Louis*



### Deflation: Who Let the Air Out?

February 2011

*“Inflation that is ‘too low’ can be problematic, as the Japanese experience has shown.”*  
—James Bullard, President and CEO, Federal Reserve Bank of St. Louis, August 19, 2010

The Federal Open Market Committee (FOMC), the Federal Reserve’s policy-setting committee, took further steps in early November 2010 to attempt to alleviate economic strains from a high unemployment rate and falling inflation rates.<sup>1</sup> While it is clear that a high unemployment rate and rapidly increasing prices (inflation) are undesirable for economies, it is less obvious why decreasing prices (deflation) can also restrain economic growth.

At its November meeting, the FOMC discussed the potential of further slow growth in prices (disinflation). That month, the price level, as measured by the [Consumer Price Index \(CPI\)](#), was 1 percent higher than it was the previous November.<sup>2</sup> However, less than a year earlier, in December 2009, the year-to-year change was 2.8 percent. While both rates are positive and indicate inflation, the downward trend indicates disinflation. Economists worry about disinflation when the inflation rate is extremely low because it can potentially lead to deflation, a phenomenon that may be difficult for central bankers to combat and can have various negative implications on an economy.

While the idea of lower prices may sound attractive, deflation is a real concern for several reasons. Deflation discourages spending and investment because consumers, expecting prices to fall further, delay purchases, preferring instead to save and wait for even lower prices. Decreased spending, in turn, lowers company sales and profits, which eventually increases unemployment. At the same time, borrowing by businesses for investment or by households for big-ticket items (i.e., cars and homes) becomes equally unattractive. For example, consider a \$100 loan at a 2 percent interest rate with full payment, \$102, due at the end of the year. If during the year there is 5 percent inflation (the price level increases), only \$97 in *real* terms is owed at the end of the year because the money borrowed now purchases *fewer* goods and services.<sup>3</sup> Alternatively, if during the year there is 5 percent deflation (the price level decreases), then \$107 dollars in *real* terms is owed at the end of the year because the money borrowed now purchases *more* goods and services.<sup>4</sup> Because of its potential to cause such an increase in the real cost of borrowing, deflation could cause further pain to an already hard-hit U.S. housing sector as households continue delaying home purchases to circumvent such losses.

Deflation also creates an additional pressure for businesses—wages that remain steady as the price level falls. Unlike pay raises, pay cuts are not well received and usually take time.<sup>5</sup> The burden of these higher real wages in a weak economy can further depress business profits, expansion, and hiring. For much of the 1990s and 2000s, these effects plagued Japan as it battled disinflation or deflation in a malaise termed the [Lost Decade](#).

During the Lost Decade, Japan’s economy experienced a sluggish and lengthy recovery and mild deflation. Although largely contained, companies still faced falling sales and declining profits, which in turn led to higher unemployment and a beleaguered business climate. Declining company profits made funding new business investments difficult, and paying down debt took precedence over business expansion. Stock prices help tell the story: In 2003, Japan’s stock prices were trading at 1984 prices.<sup>6</sup> Federal Reserve policymakers intend to prevent [Japanese-style deflation](#) and stagnant growth from taking hold in the United States. To further pursue this goal, at their November 2010 meeting the FOMC voted to begin purchasing long-term Treasury bonds, a policy termed “quantitative easing,” in an effort to (i) lower long-term interest rates, thereby encouraging sales and investment, and (ii) discourage price decreases (deflation).<sup>7</sup>

—By Hoda El-Ghazaly, Research Associate

<sup>1</sup> Since the beginning of the financial crisis, to ease economic pressures the Federal Reserve has lowered the federal funds rate to near zero and created lending programs to increase business and consumer access to money. See Anderson, Richard G. and Gascon, Charles S. [“A Closer Look: Assistance Programs in the Wake of the Crisis.”](#) Federal Reserve Bank of St. Louis *Regional Economist*, January 2011.

<sup>2</sup> The FOMC prefers to consider core rather than headline price index values (as used here). Core inflation eliminates items that can cause temporary price shocks (such as energy and food products) and can therefore serve as a better indicator of long-term inflation trends.

<sup>3</sup> The real cost of the loan is the nominal interest rate (2 percent) less the inflation rate (5 percent):  $2 - 5 = -3$

<sup>4</sup> The real cost of the loan is the nominal interest rate (2 percent) less the inflation rate (-5 percent):  $(2 - -5 = 7)$ .

<sup>5</sup> It is also politically difficult, if not impossible, for lawmakers to decrease the minimum wage or Social Security benefits.

<sup>6</sup> See Tokyo Stock Exchange. [“History of TOPIX.”](#) January 22, 2010.

<sup>7</sup> The April 2011 *Liber8* newsletter will describe the quantitative easing strategy.

*The views expressed are those of the author and do not necessarily reflect the official positions of the Federal Reserve Bank of St. Louis, the Federal Reserve System, or the Board of Governors.*

## Recent Articles on Inflation and Deflation

[“U.S. Historical Experience with Deflation,”](#) by Christopher J. Neely, Federal Reserve Bank of St. Louis *Economic Synopses*, No. 30, October 19, 2010.

Provides a historical account of deflation in the United States.

[“Why Worry About Low Inflation?”](#) by Daniel Indiviglio, *Atlantic*, October 16, 2010.

Explains the impact deflation can have on an economy.

[“The Breadth of Disinflation,”](#) by Hart Hobijn and Colin Gardiner, Federal Reserve Bank of San Francisco *Economic Letter*, No. 36, December 6, 2010.

Examines the rate of inflation across a range of goods and services to help explain downward pressures on inflation.

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## Free Resources and Data Sources

**Resource:** Consumer Price Index (CPI) Historical Table  
**Description:** Provides monthly data, the yearly average, and the year-to-year percent change in CPI from 1913 to the present.  
**Published by:** Bureau of Labor Statistics  
**Location:** <ftp://ftp.bls.gov/pub/special.requests/cpi/cpiiai.txt>

**Resource:** The Economic Lowdown  
**Description:** A podcast covering inflation, deflation, and disinflation (by Scott Wolla, Volume 1, Episode 4).  
**Published by:** Federal Reserve Bank of St. Louis  
**Location:** [http://stlouisfed.org/education\\_resources/podcasts/economic\\_lowdownv1ep4.cfm](http://stlouisfed.org/education_resources/podcasts/economic_lowdownv1ep4.cfm)

**Resource:** The Inflation Project  
**Description:** A compilation of regularly updated inflation-related data, research, and reports.  
**Published by:** Federal Reserve Bank of Atlanta  
**Location:** <http://www.frbatlanta.org/research/inflationproject/>

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Name \_\_\_\_\_ Period \_\_\_\_\_

Federal Reserve Bank of St. Louis *Liber8*:  
"Deflation: Who Let the Air Out?"

After reading the article "Deflation: Who Let the Air Out?," answer the following questions.

1. In your own words, differentiate between the following terms: inflation, deflation, and disinflation.

2. List three reasons deflation is a real economic concern:

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3. What country's recent deflationary experience has served as a reference point for Federal Reserve policymakers? Briefly describe the country's experience.

4. What does the FOMC hope to accomplish by purchasing long-term Treasury bonds, a policy termed "quantitative easing"?

5. Imagine a friend thinks that deflation—a falling price level—is a good thing. Based on your understanding, write a short, easy-to-understand paragraph that describes the harmful economic effects of deflation.

## Teacher's Guide

### Federal Reserve Bank of St. Louis *Liber8*: "Deflation: Who Let the Air Out?"

After reading the article "Deflation: Who Let the Air Out?," answer the following questions.

**1. In your own words, differentiate between the following terms: inflation, deflation, and disinflation.**

The article describes inflation as rapidly increasing prices, deflation as decreasing prices, and disinflation as a decreasing inflation rate—say, from 2.8 percent inflation to 1 percent inflation.

**Teacher note:** It is worthwhile to emphasize that all of these terms refer to the average price level of goods and services, not a change in the price of individual goods or services. For example, in periods of inflation, the prices of some individual goods and services may be falling. Also, when speaking of price levels, define inflation as an increasing average price level and deflation as a decreasing average price level. Disinflation is an average price level that is increasing at a slower rate that it was in the previous period.

**2. List three reasons deflation is a real economic concern:**

- Deflation discourages spending and investment because consumers delay purchases with the expectation that prices will fall further. The decreased spending lowers company sales, revenue, and profits and leads to layoffs.
- Borrowing becomes unattractive for businesses and households because deflation increases the real (inflation-adjusted) cost of borrowing.
- Deflation creates additional pressure for businesses, which likely experience lower revenues due to the lower prices of the products they sell and the smaller number of units sold, but find it difficult to cut the wages of employees; this environment depresses profits, expansion, and hiring.

**3. What country's recent deflationary experience has served as a reference point for Federal Reserve policymakers? Briefly describe the country's experience.**

Japan experienced mild deflation and sluggish growth for much of the 1990s and 2000s—a period termed the "Lost Decade."

**4. What does the FOMC hope to accomplish by purchasing long-term Treasury bonds, a policy termed "quantitative easing"?**

The FOMC hopes that purchasing long-term Treasury bonds will lower long-term rates, which will encourage sales and investment. The resulting increase in economic activity will discourage further price decreases.

**5. Imagine a friend thinks that deflation—a falling price level—is a good thing. Based on your understanding, write a short, easy-to-understand paragraph that describes the harmful economic effects of deflation.**

You should tell your friend that while lower prices seem appealing, consumers will likely postpone spending, waiting for prices to fall further. If this behavior is widespread, firms will experience lower revenues and will have to lay off workers. Widespread layoffs would lead to less spending, lower revenues, falling prices, and more layoffs. This can lead to a self-reinforcing downward economic spiral that is hard to break.

## For Further Study and Discussion

Use the following quotes to discuss the importance of price stability.

*Stable prices provide a sense of security. They help define a reliable social and political order. They are like safe streets, clean drinking water and dependable electricity. Their importance is noticed only when they go missing. When they did in the 1970s, Americans were horrified. During most of these years, large price increases were the norm, like a rain that never stopped. Sometimes it was a pitter-patter, sometimes a downpour. But it was almost always raining. From week to week, people couldn't know the cost of their groceries, utility bills, appliances, dry cleaning, toothpaste and pizza. People couldn't predict whether their wages and salaries would keep pace. People couldn't plan; their savings were at risk. And no one seemed capable of controlling inflation. The inflationary episode was a deeply disturbing and disillusioning experience that eroded Americans' confidence in their future and their leaders.*

—*The Great Inflation and Its Aftermath*, by Robert J. Samuelson, pp. 4-5.

*Economists like to argue that money belongs in the same class as the wheel and the inclined plane among ancient inventions of great social utility. Price stability allows that invention to work with minimal friction.*

—Ben S. Bernanke, Chairman of the Federal Reserve

<http://www.federalreserve.gov/newsevents/speech/bernanke20060224a.htm>

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**Ask students to explain why price stability—the absence of inflation and deflation—is a benefit to economic performance. Some items you may want to discuss:**

- People and firms find planning for the future difficult when prices are not stable.
- Inflation and deflation change the incentives for saving, spending, and borrowing money. For example, unexpected inflation benefits those with a large debt because it allows them to repay the debt in the future with inflated dollars. On the other hand, unexpected deflation benefits savers since their saved dollars will buy more as a result of deflation. Stable prices allow people to make spending and saving decisions without wasting time, money, and energy worrying about unexpected inflation or deflation.