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# Understanding Stock Market Fluctuations:

The Turmoil at the Heart of  
the Capitalist System



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## Introduction

On October 9, 2007, the **Dow Jones Industrial Index**, a popular measure of the overall movement in stock prices, hit a record high of 14,164. On November 20, 2008, just 13 months later, the Dow closed at 7,552, down 47 percent from the peak. Why did stock prices decline so much? What impact is the decline having on the economy? Is the decline a sign that we are on the brink of another **Great Depression**? What, if anything, should the federal government do to arrest the decline? Daunting questions to be sure; to move toward some answers, let's start by reviewing some basics.

## Back to Basics

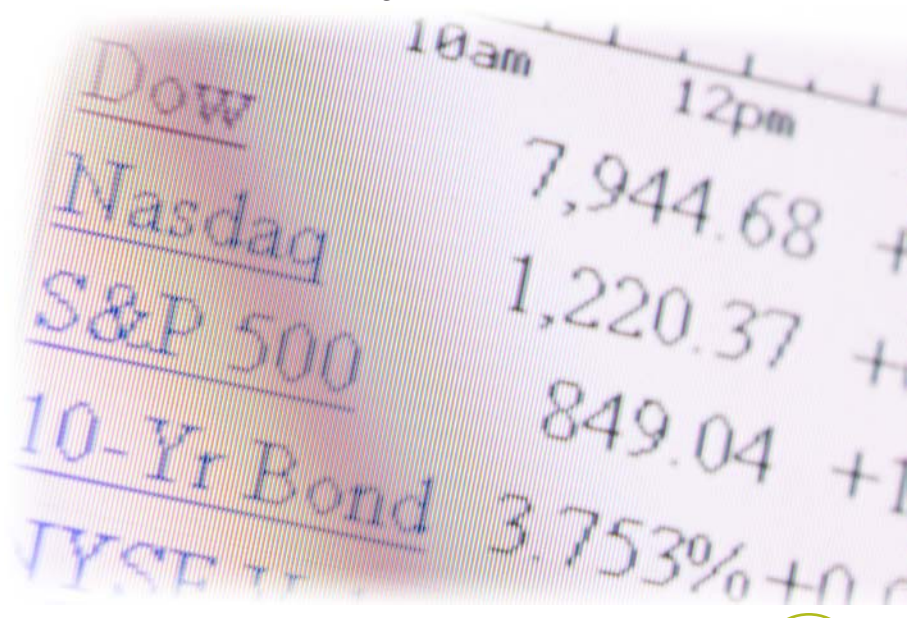
Most major corporations in the United States are publicly owned. This means that at some time in the past the founders of a particular company offered stock to the public. More precisely, the founders sold their ownership in the company to the public; the public acquired the common stock, or ownership shares, also called equity, in the company, and the original owners received money for selling some or all of their ownership shares. The purchasers of the stock have acquired a share of the earnings and assets of the company.

## What is a share of stock worth?

What would you be willing to pay per share to acquire one or even 50,000 shares of stock in a company? Just stop for a minute and think about the basics noted in the previous paragraph; I hope you said to yourself, "it depends." If you did, you are correct. The next question to ask is what does it depend on? The general answer, but one that yields all the real insight you need, is that it depends on what return you could earn by investing your money elsewhere, say on treasury bonds yielding 5 percent per year issued by the U.S. government, and what you expect you could earn by acquiring stock in a company (or group of companies). To anticipate what we will discuss in more detail, it should be readily apparent that if you expect stock prices to decline, whatever the reason, you probably will decide to hold less stock

### Dow Jones Industrial

**Index:** The Dow, for short, is the sum of the daily closing prices of the 30 largest U.S. companies. The companies that make up the Dow are selected by Dow Jones & Company, which also publishes *The Wall Street Journal*. Those companies included in the index change over time to reflect changes in corporate America. Some of the companies included currently are Boeing, Exxon Mobil, Home Depot, Wal-Mart, and Walt Disney.



and more treasury bonds and other types of financial assets. But if you, and many others, sell stock, then stock prices will in fact decline!

The expected return on stock sounds like a daunting concept, but we can demystify it here.

### Expected Return on Stock

Let's assume you want to calculate the expected return on a share of stock over a year. The return or yield, shown as a percentage, consists of three parts:

- The price you will pay for a share today (say \$50).
- The price you expect to prevail in one year (say \$53).
- The dividend per share you expect the company to pay to shareholders like yourself over the year (say \$2).

In this case, the expected return would be 10%, that is, the estimated increase in price (\$3), typically referred to as a capital gain, plus the estimated dividend (\$2), all divided by the price today (\$50), or  $[(53-50)+2]/50=0.10$ .

Note the key role of expectations in arriving at the estimated return on stocks. If the price is not expected to change at all, then the expected return will be only 4%, or  $[(50-50)+2]/50=0.04$ .

To be sure you understand this concept, make up an example that produces a negative expected return.

The essential ingredient to generating an estimate of the return on stock compared to other financial assets is what you expect the company will earn over time. The more you think the company will earn, the higher you expect future dividends and share prices to be; the latter only makes sense—remember a shareholder “owns” a portion of a firm’s earnings and its assets—the higher are earnings, the more investors will be willing to pay for the stock in the future. Note for later reference, it is what you expect the company will earn over time—next month, next year and beyond—not what the company is earning today.

### The Great Depression:

The Great Depression was a worldwide economic downturn. It started in most places in 1929, ending at different times in the 1930s or early 1940s for different countries. It was the largest economic depression in modern history, and is used in the 21st century as an example of how far the world's economy can fall. The Great Depression originated in the United States; historians most often use as a starting date the stock market crash on October 29, 1929, often referred to as “Black Tuesday.” The end of the depression in the United States is associated with the onset of World War II, beginning around 1939. To illustrate the severity of the downturn in the U.S., between 1929 and 1933, the unemployment rate increased from 3 percent to 25 percent, while the Dow fell 89 percent between Black Tuesday and the summer of 1932.



This consideration helps explain why investors are willing to acquire stock in companies today that may be losing money; they expect earnings to emerge at some point. It also helps explain why financial analysts often say the stock market is forward looking—stock prices reflect expectations about what will happen in the future.

Subsequent to that initial public offering of stock, the shares of the largest companies are **traded** on an “exchange.” This is nothing more than a marketplace where the existing shares outstanding can be bought and sold. The most prominent exchange is the New York Stock Exchange, located on Wall Street in New York City; this is where the shares of more than 3,900 U.S. companies are traded every day. Not surprisingly, it is often referred to as the heart of our capitalist system.

It is worth dwelling for a moment on that term “traded”—for every share of stock sold, there must be a buyer. On any given day, if the owners of a particular stock, be they individual investors or so-called “**institutional investors**”, such as “**mutual funds**”, decide to sell a larger number of shares than other investors are prepared to buy, the price of the stock will fall and keep falling until enough buyers step forward to buy the total number of shares being offered for sale. Conversely, if more buyers place orders to purchase a given number of shares of stock on a particular day than are available for sale, the stock price will rise; it’s the increase in the price that will induce some holding the stock to now sell it. This interaction between the sellers—that is, holders of the existing supply of stock who are offering to sell some or all of their holdings—and buyers—those demanding stock, is what drives stock prices up or down.

On any given day, the price that a stock closes at—the market opens at 9:30 a.m. each day and closes at 4:00 p.m. Eastern Time—can be thought of as the price that equilibrates supply and demand, that is, brings supply and demand into balance. While this notion is helpful in understanding how stock prices move over time, I think we can do even better.

### **Institutional Investors:**

The largest investors in the stock market – mutual funds, insurance companies, and pension funds – are typically referred to as institutional investors. “Institutional” is actually a synonym for “large.” They are buying and selling thousands of shares of stock in a particular company compared to the hundreds of shares more typical of individual investors.

### **Mutual Funds:**

Mutual funds are companies that pool the funds of many investors and then invest in hundreds or even thousands of stocks, and perhaps other financial assets. They allow individual investors to diversify their holdings more than might otherwise be the case by owning a small piece of the larger basket of stocks and other assets held by the mutual funds.



## Cracking the Code

Here is a selection from a typical stock page of a major newspaper.

The specific entry is for Gap Inc., a popular clothing store, for November 25, 2008:

Source: CNN Money.com

52 weeks		Stock	Sym	Div	Yld%	PE	Vol 100s	Close	Net Change
High	Low	Gap Inc.	GPS	.085	2.82	8.9	10,080	12.05	0.01

High closing price for Gap stock over the previous 52 weeks

Low closing price for Gap stock over the previous 52 weeks

The name of the company

The company's ticker symbol

The quarterly dividend paid by the Gap

The current return or yield on the stock

Price-to-earnings ratio (the price per share compared to the company's earnings per share)

The number of shares the Gap traded that day

The price of one share of Gap stock at market close

The change in the stock's price from that of the previous day

- The quarterly dividend paid by the Gap is 8.5 cents per share, implying an annual dividend of 34 cents per share ( $4 \times 8.5 = 34$ ).
- The price of one share of stock of the Gap at the close was \$12.05, down 1 cent from the close the previous day.
- The annual dividend is divided by the closing price to get the current return or yield (Yld %) on the stock; dividing 34 cents by \$12.05 gives the current yield of 2.82%.
- The PE, or price-to-earnings ratio, is 8.9. Stocks with low PE ratios compared to other firms in the same industry are often thought to be undervalued, and stocks with higher PE ratios than competitors are often thought to be overvalued.
- The Vol column tells us that the Gap traded 10,080,000 shares on November 25.
- The high and low closing prices for Gap stock over the last 52 weeks indicates that those who bought at \$11.82 are happier than those who bought at \$12.66.



## Key Points

- The purchasers of stock own a share of a company's earnings and assets.
- The value of a share is a function of the company's future earnings, which helps determine the expected return on the stock over time, compared to the expected return on alternative assets.

**Bulls vs. Bears:** A piece of stock market jargon. Bulls think stock prices will rise, while bears think they will fall.

## What explains changes in the price of a share of stock?

Imagine on one side of the street are the optimists, who currently hold the stock of Apex Corporation (a hypothetical company). They like the company's management team, they are optimistic about the competitive position of Apex in the industry, domestically and globally, and they are optimistic about the performance of the economy. Hence, they expect the demand for Apex's products to be strong and the company's earnings to grow, more or less steadily, for the foreseeable future. Simply put, with earnings expected to grow, they expect Apex's dividends and stock price to rise in the future. They expect to earn an attractive return on Apex stock compared to what they might earn on alternative financial assets; they are often called the "bulls."

On the other side of the street are those who are pessimistic, at least to some degree about one or more of the factors listed in the preceding paragraph: they might feel other companies in the particular industry or set of industries that Apex competes in will do better competing for new customers, or they may feel that the United States economy is likely to be very weak over the next year or two, perhaps slipping into a **recession**. Such weakness would translate into weaker demand for Apex's products and, hence, a decline in earnings. Accordingly, these are people who expect Apex's dividend and stock price to be relatively flat or even fall in the future. Hence, they are not expecting an attractive return on Apex. They often are called the "bears."



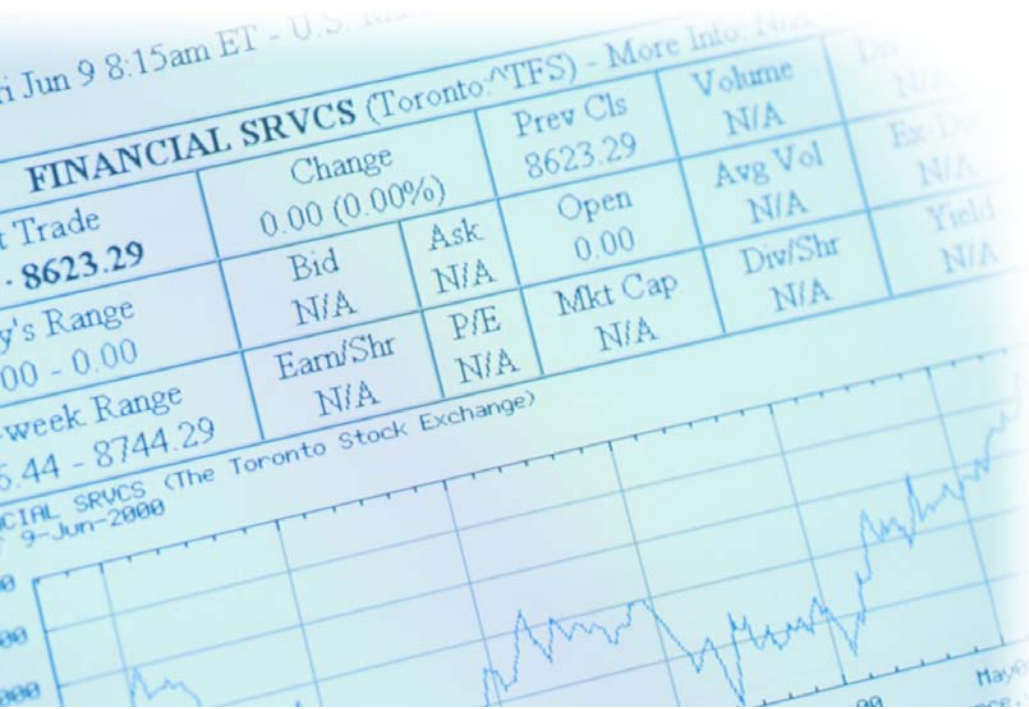
Take special note of the fact that those who participate in the stock market, and indeed in many markets that comprise our economy, do not agree on the outlook for Apex and for the economy; it is precisely this disagreement and the fact that people revise their expectations (change their minds) as events unfold that leads stock prices to move day-to-day.

Okay, the stage is now set; on a particular day the stock market closes with the optimists owning all the existing shares of Apex at a price of \$20 per share. The market opens the next day. Ask yourself: what might lead some of the optimists to decide to sell some stock?

If you said some unexpected “bad news” about Apex’s sales or about the economy, or about anything that would lead at least some of the optimists/bulls to revise their expectations for Apex’s future profitability downward, you would be exactly right! The resulting expected falloff in earnings would in turn lead some of our optimists to be less optimistic, or less sure, about the rise in the price of Apex stock and **dividends** that they had been expecting; they may even now feel that the stock price will actually fall in the future instead of rising. Given the news, the revision in expectations, and the resulting move to the pessimistic or bearish side of the street for at least some Apex stock holders, sales of Apex stock are likely to rise and the stock price will fall. How much it will fall cannot be deduced from the simple example presented here. The main point is the news—be it company specific, or about the economy as a whole – puts downward pressure on the stock price. What we can say is that the decline in Apex’s stock price will at some point lead some of the pessimists to think that the lower price is attractive even in light of the bad news. They will turn out to be the buyers of the stock being offered for sale by the former optimists.

**Recession:** The U.S. based National Bureau of Economic Research defines a recession as “a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP growth, real personal income, employment (non-farm payrolls), industrial production, and wholesale-retail sales.” A recession begins when the economy reaches a peak of activity and ends when the economy reaches its trough. Between trough and peak, the economy is in an expansion. The usual rule of thumb denoting a recession is two consecutive quarters (six months) when the quantity of goods and services produced and sold in the economy, real GDP, declines.

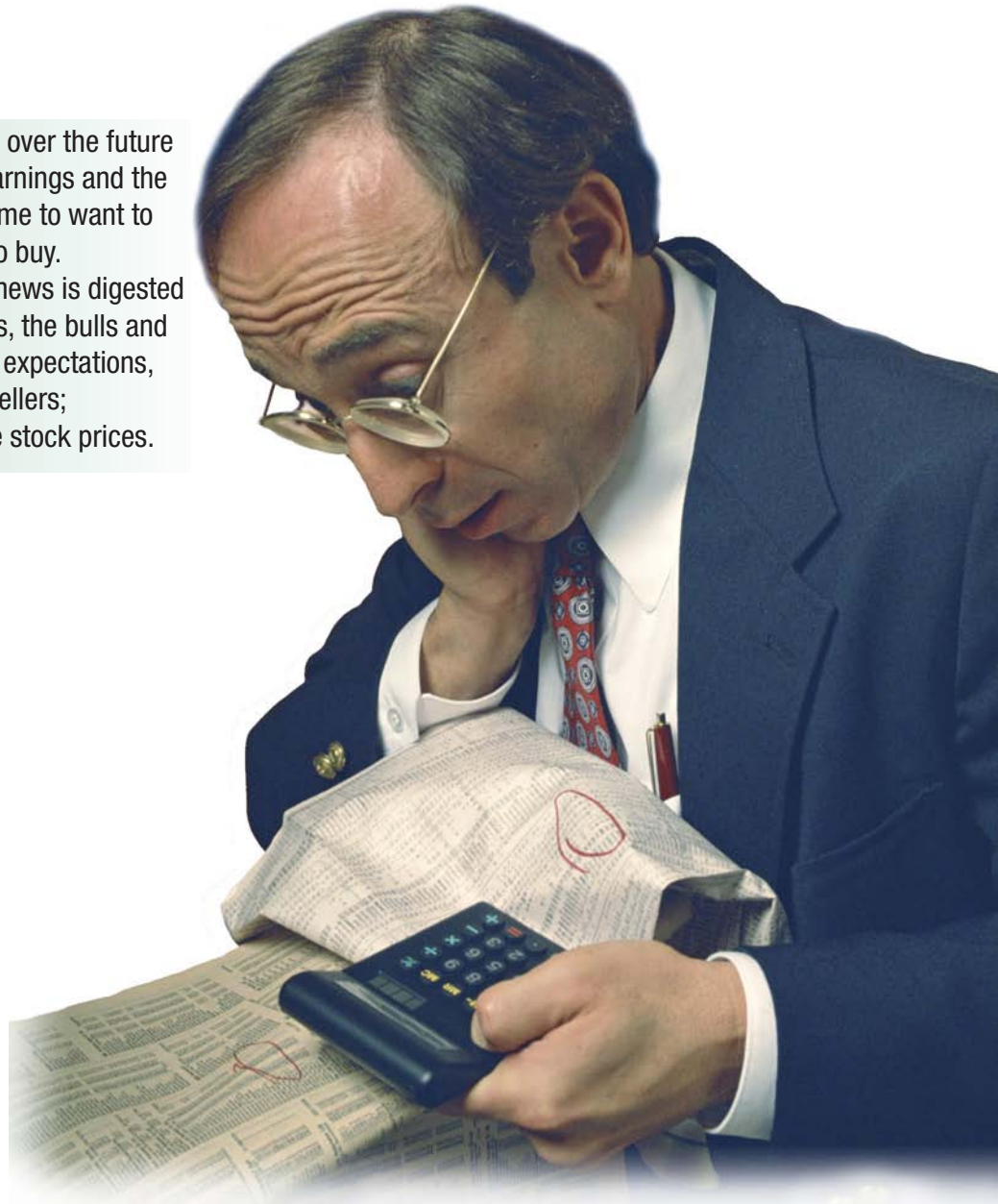
**Dividend:** Most public companies pay out a portion of their earnings on a regular basis to holders of their common stock.



To take a particularly dramatic example from recent headlines, the price of General Motors stock declined from the \$30-40 range in October 2007 to about \$4 per share in early December 2008 as sales and earnings plummeted in the face of the worsening financial crisis that made it more difficult for potential car buyers to find loans. Even as GM announced falling sales and record losses, some were willing to acquire GM stock; rightly or wrongly, they thought eventual support by the U.S. government would help restore GM to profitability. Over the December 5, 2008 weekend, it was announced that the Congress was near agreement on a support program for Ford, Chrysler, and GM. What do you think happened on Monday in the stock market? If you said, the price of GM stock probably rose, you are correct. GM rose from a close of \$4.08 on the previous Friday to \$4.93 on Monday.

## Key Points

- It is the disagreement over the future course of company earnings and the economy that lead some to want to sell stock and some to buy.
- On any given day, as news is digested by market participants, the bulls and bears will revise their expectations, becoming buyers or sellers; this, in turn, will move stock prices.



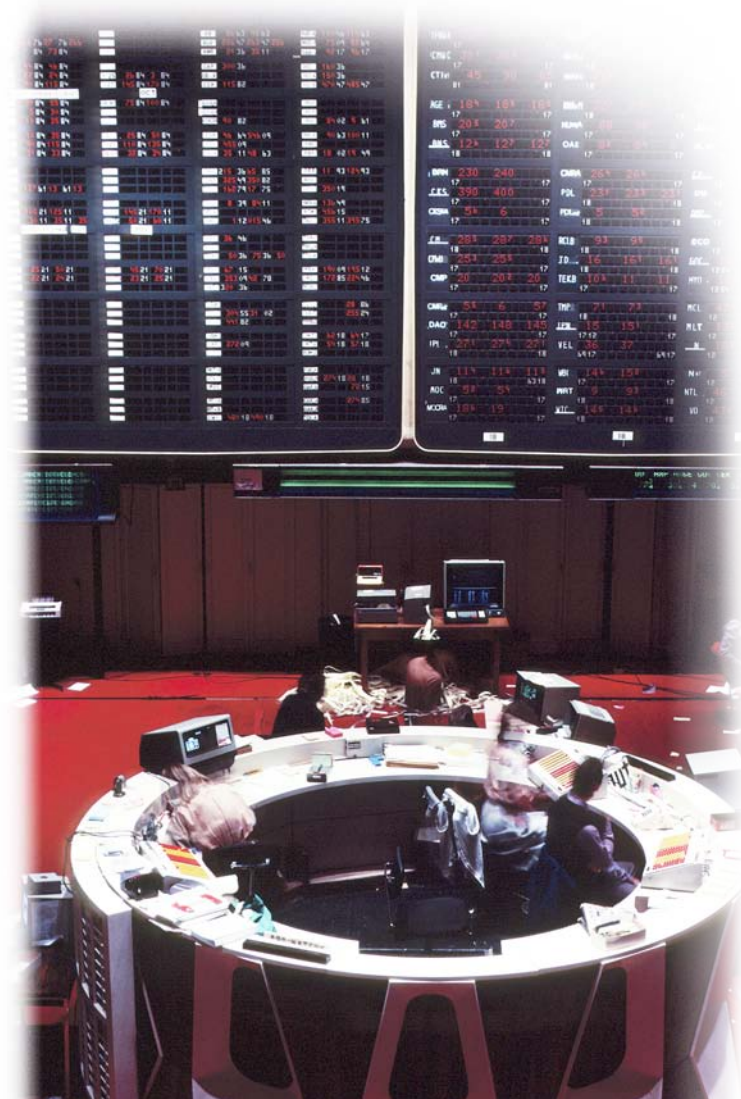
## What explains changes in the overall level of stock prices?

So much for Apex and GM stock. What would lead most stock prices to fall, such that, say, the **Dow Jones Industrial Index** declined? The basic approach to the answer is the same, except that now it's not an individual stock and the fortunes of an individual company that are most relevant, but rather national and global economic forces. In general, any set of developments that led stock market investors to expect a **recession** – remember, this would reduce the demand for goods and services being produced – would, in turn, lead investors to begin to revise downward their expectations for corporate sales and profits. This would lead at least some holders of stock to become sellers (turn “bearish”), putting downward pressure on stock prices, in general.

To reemphasize, the movement of stock prices is forward looking; price movements reflect what “**typical investors**” think will happen in the future. This is one of the reasons that movements in stock prices often are thought to be a leading indicator of future movements in the

overall economy. Of course, no indicator is perfect and investor expectations can turn out to be wrong, so not every movement in stock prices presages an economic boom or recession. Keeping in mind the possibility of such false alarms, 39 of 42 U.S. recessions from 1802 through 1990 were preceded by declines in stock prices of at least 10 percent, with the movement in stock prices often leading the subsequent movement in economic activity by six months or more.

**Typical Investor:** Remember that not all investors will have the same set of expectations; there is disagreement that leads some to be bullish and some to be bearish; it's the balance between the bulls and bears at a particular moment that matters.



## Chart on Stock Prices (DJII) and Recessions

The chart below shows the movement in stock prices (Dow Jones Industrial Index) since 1980 and economic recessions—the latter are the shaded areas.



As you can see, during expansions in the economy, the non-shaded areas, stock prices tend to rise, while just before and during recessions, they tend to fall.

Recently, the National Bureau of Economic Research, a group of the nation's most distinguished economists, announced that the U.S. economy peaked in December 2007 and has been in recession since. Referring back to the first paragraph of this article, you will remember that stock prices peaked earlier, in October 2007. This is an example of the typical peaking in stock prices prior to the peak in the economy. Note also that stock prices have tended to move up before recessions are over, look at 1982 and 1992; here again, we see evidence that the movement in stock prices proved to be a leading indicator; they moved up in anticipation of a recovery in the economy. If you watch financial news on cable channel CNBC, for example, you will not have to listen for long to hear some discussion of when the current slump in stock prices will bottom out, presaging the much hoped for economic recovery some months later.



## Key Points

- Developments that lead stock market investors to expect a recession will lead to lower expectations for corporate sales and profits; such expectations will put downward pressure on stock prices.
- Movements in stock prices are forward looking—reflecting what typical investors think will happen in the future. Accordingly, movements in stock prices often are a leading indicator of future movements in the overall economy.

## How do changes in stock prices affect the economy?

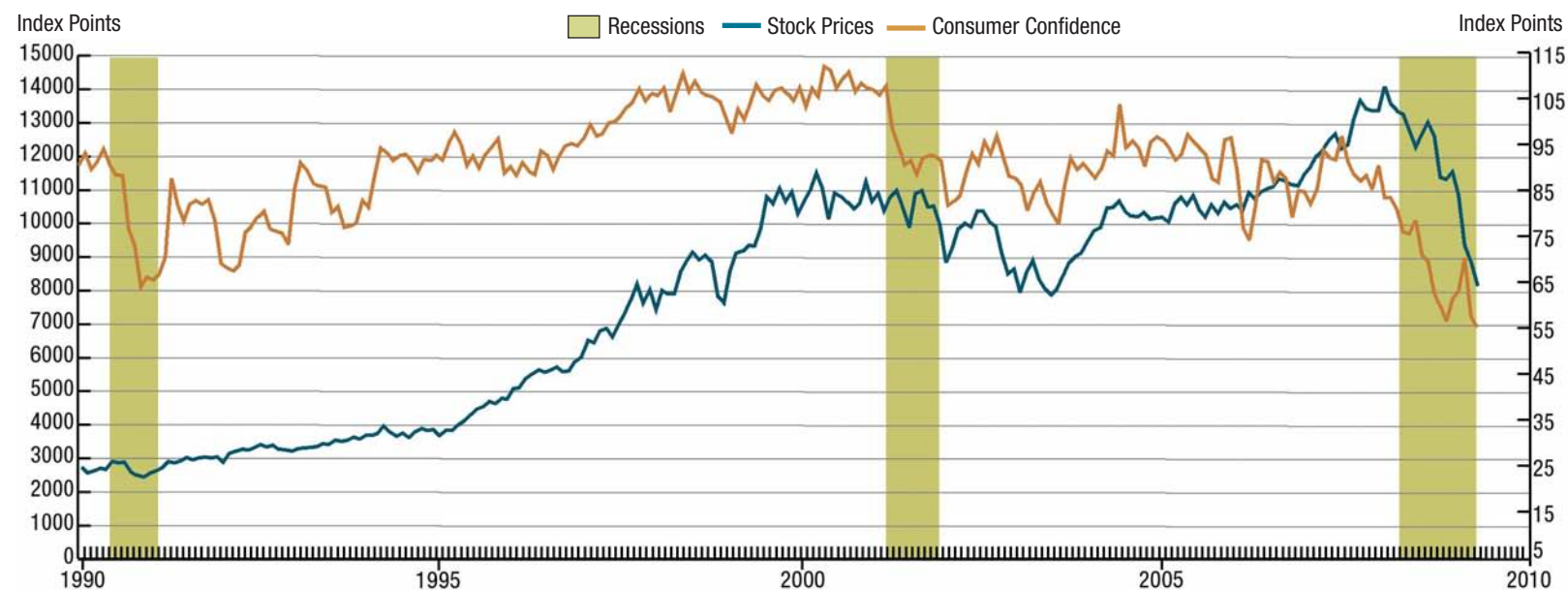
So far, we have focused on how the economy affects stock prices. What about the other way around—can changes in stock prices also affect the economy? The answer is an emphatic YES! The first and most obvious channel often is referred to as the “wealth effect.” According to data published by the Federal Reserve, about 90 percent of U.S. households own stock directly or through mutual funds and their pension plans. Thus, when stock prices rise substantially, people feel wealthier and are likely to spend more today on cars, flat screen TVs, jewelry, high-end clothes, vacations, and so forth. This increase in demand for goods and services will in turn lead to an increase in output and employment. Conversely, a substantial fall in stock prices, as has occurred over the past year, will lead households to pare back their spending, thereby contributing to a slowing in the economy.

Even if consumers do not own stock, substantial increases or decreases in stock prices can lead households to become more optimistic or pessimistic about the economic outlook and their own future incomes; this may lead them to spend more or less today than would have otherwise occurred.



As you can see in the chart below, movements in stock prices (left scale) are typically mirrored by movements in the index of consumer sentiment (right scale) published by the Survey Research Center at the University of Michigan.

### Chart on Consumer Confidence and Stock Prices



Not surprisingly, changes in consumer confidence in turn lead to changes in consumer spending. Because consumer spending accounts for about two-thirds of total spending in our economy, such changes in consumer confidence can have powerful effects on overall economic performance.

### Key Points

- When stock prices rise, consumers feel wealthier and often are more confident about the future; accordingly, they will increase their spending, contributing to a strengthening of the economy.
- Conversely, when stock prices fall considerably, consumers feel less confident and less wealthy, leading them to spend less. The slowdown in spending contributes to a slowdown in the overall economy.



## Why did stock prices decline so much over the past year?

Most analysts believe we have witnessed the bursting of a speculative bubble over the past year. What is a speculative bubble? In general, the increases in stock prices as a bubble builds are fueled by what, with the benefit of hindsight, were unduly optimistic expectations about the performance of the economy and corporate profits. The problem is when the bubble bursts, as it did in early 2000, the downdraft in stock prices can spillover into financial markets. The resulting instability can disrupt the flow of money and credit so essential to lubricating and financing economic activity. Such disruptions can in turn lead to reductions in spending, production, income, and employment and, thus, a recession, as occurred in 2001.

This time around, as the housing crisis worsened, the spread of mortgage defaults and the effects on the banks that had extended the loans spilled over into credit markets more generally. The seizing up of credit markets soon led to reductions in output and employment and a crisis of confidence among consumers. As they slashed their spending, the economy fell into recession and stock prices declined significantly as profits become losses and expectations about future corporate earnings were revised downward.

## What impact are the declines having on the economy?

There is little doubt that the decline in household wealth resulting from the declines in stock prices and housing prices, and the associated depressing effects on consumer confidence, are having a substantial negative effect on consumer spending. This, in turn, is leading to a large contraction in production and employment. On Friday, December 5, 2008 the Bureau of Labor Statistics announced that the number of jobs fell by over 500,000 between October and November, the largest one month decline in 34 years. This brought the total loss of jobs in 2008 to nearly 2 million.



## Are the declines a sign we are headed for another Great Depression?

While nothing can be ruled out, such a cataclysmic development seems unlikely. First, the Great Depression has been studied extensively and the missteps in government policy at the time are unlikely to be repeated. Second, the President, President-elect, the Congress and the Federal Reserve all seem committed to taking any and all reasonable action to prevent the current recession from slipping into a prolonged Depression. Third, governments around the world are taking bold actions to also help shore up the global economy. This, too, should prove helpful in the months ahead.

## What, if anything, should the government be doing to arrest the decline?

To be as precise as possible, it should be emphasized that the government—and here we are talking about the Executive Branch (this is the President and his Cabinet and the agencies they head), the Congress and the Federal Reserve – do not and should not care about stock prices per se. What they care about is the performance of the economy and the associated well-being of our people. Of course, they are well aware of the fact that the decline in stock prices is itself eroding consumer wealth and confidence and thus contributing to the weakness in the economy.

In general, the Federal Reserve has responded by taking actions designed to increase the supply of money and credit and to reduce interest rates. With the cost of borrowing falling, both are expected, at some point, to encourage consumers to resume spending on cars, houses, and other products. At the same time, the new President and Congress will be taking actions to cut taxes on households and perhaps businesses and increase spending on roads, schools, and in other areas. When stock market observers and participants think such actions designed to increase spending on goods and services across the economy are sufficient to turn the economy around, a more bullish sentiment will propel stock prices upward.



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