

CHAPTER 1

The Economic Environment

*Time present and time past
Are both perhaps present in time future,
And time future contained in time past.*

T.S. Eliot, *Burnt Norton*

1.1 INTRODUCTION

A prerequisite to the successful management and hedging of financial portfolios is an understanding of how those portfolios are valued. As we shall see in Chapter 3, it is useful to distinguish between value and price. In this book we shall refer to the *value* of a financial instrument as the present value of any expected cashflows associated with it; generally, we shall define value as an *intrinsic* measure of the worth of an asset, the value calculated being predicated on assumptions about the cashflows that will accrue to the owner of the asset. A consequence of this categorization is that we can calculate a value for almost any asset with expected cashflows using only two tools: cashflow discounting and statistics. We shall consider *price* to be the *extrinsic* measure of worth that the market places on an asset, whether that price is set by the owner of the asset—the *ask price*—or a prospective purchaser of the asset—the *bid price*.

For many assets, the difference between the market price and the value calculated by market participants will be small. At times, it can be inconvenient or cumbersome to value an asset directly; instead, a price can be determined by comparing the asset to another with generally similar characteristics (e.g., using *matrix pricing* to price a selection of bonds). In some cases, a purchaser may be prepared to pay for an asset a market price that

exceeds the intrinsic value that he¹ calculates; in this case the purchaser can be considered, from his perspective, to be paying a *premium* for the asset. Conversely, a purchaser may be able to purchase the asset at a price lower than the value he assigns to it; in this case, the asset is purchased at what he would consider to be a *discount*. In times of market dislocation, there can be a significant disconnect between value and price. How market sentiment affects this dichotomy is explored in Chapter 2.

It is important that an investor understand the distinction between value and price in order to manage the risks inherent in his portfolio. For some assets, the only cashflows that an owner can expect to receive are the proceeds of their sale. For an asset of this kind, intrinsic value derives wholly from the existence of a subsequent purchaser and the price he is prepared to pay. If an investor is considering purchasing an asset to be held as an investment, or to be used as a medium of exchange, he should consider carefully the propositions upon which the value ascribed to it is based and whether those propositions are likely to persist. If precious stones intended to be used as a store of value have no other utility than as a form of scrip, an investor holding them may be sorely disappointed when seeking to subsequently dispose of them. The purchasing power of an asset is ultimately predicated on a common confidence in the value of that asset; the danger for an investor is a reduction in or the disappearance of that confidence, as many participants in the dotcom bubble discovered. We leave it as an exercise for the reader to decide if the market price of diamonds, for example, is justified or whether, as an asset class, precious stones may be compared to Dutch tulip bulbs in the 1600s, a discussion of which may be found in Mackay (2003).

In the remainder of this book we shall see how an investor can use the time value of money and statistics to value a financial portfolio, understand the various risks to which it is exposed, and hedge those risks. Before we focus on valuation, and specific risks such as equity or credit risk, however, it is useful to spend some time considering the economic environment in which companies operate, the role of interest rates and the money supply, the nature of the business cycle, and the operations of central bankers such as the Federal Reserve. Much as a sailor needs to understand weather patterns in order to safely navigate the seas, an investor needs to be aware of the forces at play in the broad economy that can impact the price—and value—of his investments.

In this chapter we make no pretense of summarizing the entire canon of economic knowledge; rather, we highlight those aspects with which a market

¹To avoid tortuous linguistics, the authors use the masculine pronoun to refer to both males and females.

participant should have at least a passing familiarity. For a more detailed exploration, we refer the reader to any standard text in what Thomas Carlyle termed the dismal science.

Supply and Demand

The principles of supply and demand are key to understanding the behavior of producers, consumers, and investors. The *law of demand* states that, *ceteris paribus*, consumers will demand more of a product as the price drops. The *law of supply* states that more of a good will be produced as the price rises, again assuming all other things being equal. When consumers require more of a given product, its price will tend to increase, reflecting scarcity; producers will then have an incentive to increase production to satisfy the increased demand, tending to bring the price down. Conversely, if consumers require less of a product, the price will generally fall, producers will produce less, and ultimately the price will increase, reflecting the reduced supply. When the market is in equilibrium, the amount required by consumers is the amount being supplied by producers, and prices are stable at a level that can clear the market.

The laws of supply and demand apply to all products, including money. In order to borrow money, the borrower must pay a price, in the form of interest. A bank charges interest on loans it makes and pays interest to depositors who in turn lend it money. If a bank requires more funds to lend out, it must increase the price it pays for borrowing by, for example, increasing the interest rate it pays to its depositors.

An enterprise that needs to borrow money can do so by selling bonds to the investing public. An owner of cash has a choice between consuming the cash today (i.e., purchasing goods and services) and deferring his consumption of the cash by lending it to the issuer of a bond by purchasing the security. The price paid to the bond purchaser (i.e., investor) will be in the form of the interest he receives. The loan will be repaid at maturity when the investor receives the par amount of the bond (assuming the issuer has not defaulted). If the investor had previously disposed of the bond, the ultimate purchaser stands to receive the par amount. In our example, the investor is a lender of cash, the issuer of the bond is the borrower, and the interest rate charged on the bond is, in effect, the price of current consumption.

If there is an excess of borrowers over lenders, then the market is not at equilibrium. To reach that point, the price of borrowing (i.e., the interest rate) must increase. When the interest rate is sufficiently high, more investors will be prepared to lend to companies by purchasing their bonds. As we shall discuss in Chapter 2, bond prices generally move inversely with interest rates. When issuers increase the interest rate on their bonds, they are in effect

lowering the price (in present value terms), which by the law of demand will have the effect of increasing the number of bond buyers (i.e., cash lenders).

Interest rates in the market tend to reflect equilibrium pricing, incorporating participants' views of credit, liquidity, inflation, and other risks. As the consensus expectations for these risks change in the market, so too will the price that investors require to lend money.

Money Supply

The *quantity theory of money* suggests that there is a relationship between the money supply in an economy and the prices of goods and services sold throughout the year. Economist Irving Fisher expressed the relationship in the form:

$$MV = PQ \quad (1.1)$$

where M is the Money Supply, V the Velocity of Money, P is Price, and Q is Quantity of Goods produced in the economy. Since V and Q are relatively stable, a change in M will lead to a change in P ; in other words, an increase in money supply means that consumers will seek to purchase more goods and services, increasing demand and thereby prices—or, more succinctly, printing money usually leads to *inflation* with concomitant dangers for investors.

Inflation is a continual increase in the general level of prices of goods and services in the economy, leading to a reduction in the quantity of those goods and services that each unit of currency purchases. When lending money, therefore, for example, by purchasing a bond, an investor is compensated for anticipated inflation through the interest rate charged. Interest rates have two components, *nominal* and *real*. The nominal rate is merely the stated rate, for example, the bond coupon. The real rate is the yield effectively available to the investor after inflation:

$$\text{Nominal Rate} - \text{Inflation} \approx \text{Real Interest Rate} \quad (1.2)$$

If the nominal rate is 5%, for example, and inflation is 2%, then the lender's effective return will be approximately 3%. If inflation ultimately transpires to be higher than expected, then the lender will not have charged a sufficiently high coupon. If inflation is lower than anticipated, the borrower will have overpaid for the loan, all other things being equal.

An increase in inflation is bad for equity and fixed income markets, since the present value of future earnings and coupons, respectively, will be eroded, leading investors to require a larger inflation premium. Furthermore,

increases in expected inflation may lead to higher interest rates, resulting in increased borrowing costs for companies and individuals and a constriction of the economy.

Conversely, a decrease in inflation will generally be bullish for equities and fixed income instruments. If, however, the rate of inflation falls below zero, it can degenerate into *deflation*, a sustained decrease in the general price level of goods and services. Effectively a negative inflation rate, the result is an increase in the purchasing power of money. Deflation can be very harmful to an economy; in a deflationary environment, demand contracts because rational investors defer purchases, since their money's purchasing power increases over time, thus shrinking the economy and reinforcing the deflationary trend in a vicious circle of declining demand, increasing unemployment and stagnating markets. Debt burdens effectively rise, since notional debt principal remains unchanged while wages and profits fall, leading borrowers to curtail spending in order to be able to service their debts, further weakening the economy.

1.2 INFLATION AND UNEMPLOYMENT

In his eponymous curve, the economist William Phillips demonstrated the relationship between inflation and unemployment. As unemployment decreases, inflation tends to increase, and vice versa, the result of labor costs being a function of supply and demand; if labor is in short supply, wages and salaries will increase, providing an incentive to work. Conversely—in theory—if there is an oversupply of labor, then wages and salaries will be reduced, resulting in increased employment, as employers have an incentive to hire workers at cheaper wages. Unemployed workers tend to reduce aggregate demand in the economy, with the natural response being a reduction in prices, leading over time to increased demand, requiring producers to hire more workers.

In equilibrium, there should be no involuntary unemployment.² However, government intervention results in market inefficiencies. If there is a statutory minimum wage level (i.e., a price floor for labor), then supply and demand will not be equal and there will be no clearing price for wages, resulting in a surplus of labor (i.e., unemployment).

Figure 1.1 shows the relationship between the *consumer price index* (CPI), that is, the inflation rate, and the unemployment rate. In times when

²In an economy with relatively high levels of unemployment benefits, some workers may choose to cease working rather than accept lower wages.

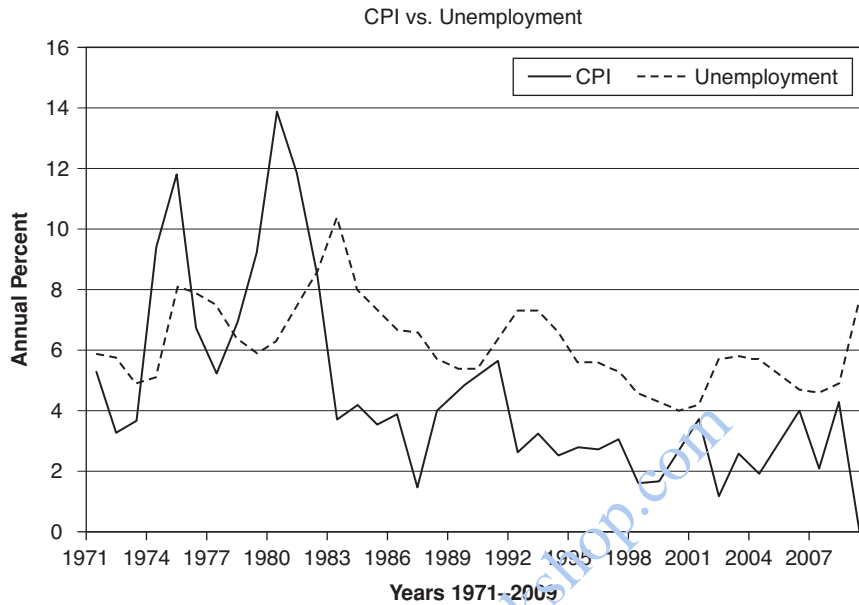


FIGURE 1.1 As inflation—and interest rates—rise, unemployment tends to increase with a lag of two to three years. This trend, however, appears to have broken in early 2008.

the inflation rate is extremely volatile, such as 1970s and 1980s, the relationship is evident. In the late 1990s and early 2000s, with less volatility in the inflation rate, the relationship is less clear. It should be noted that extreme economic shocks, such as those of 2007–2010, can lead to significant increases in unemployment without a contemporaneous increase in inflation. However, significant increases in unemployment can in their turn lead to spikes in inflation caused by governmental fiscal responses to economic crises.

1.3 CENTRAL BANKS AND THE MONEY SUPPLY

Monetary policy, which governs the supply and cost of money, is typically dictated in an economy by a nominally independent or quasi-autonomous *central bank*, which usually has a mandate to control inflation by setting interest rates, conducting open market operations, determining depository institutions' reserve requirements, setting margin requirements, and by other

means. The central bank usually also has supervisory powers over the banking sector, and often is the *lender of last resort* in an economy.

The *Federal Reserve System* (the Fed) is the central bank of the United States. Unusually, it has a second, conflicting, task of controlling unemployment. The Fed was created by the Federal Reserve Act of December 23, 1913, largely as a response to the panic of 1907 and a series of earlier panics and bank runs. The Act, amended in 1977, articulates the Fed's mandate

to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.

The Federal Reserve consists of 12 regional banks and is controlled by a seven-member Board of Governors appointed by the U.S. president. The Federal Open Market Committee (FOMC), consisting of the seven governors and five of the 12 regional bank presidents, oversees the open market operations by which the Fed controls monetary policy.

Central banks such as the Fed can conduct monetary policy (i.e., decrease or increase the money supply to stabilize economic growth and reduce the risk of inflation or deflation) by changing the discount rate, buying or selling securities, or by changing banks' reserve requirements, which can dramatically alter the money supply through the fractional reserve nature of bank deposits and lending.

The Fed is the lender of last resort to depository institutions, mostly commercial banks, who can borrow at the "discount window" at the so-called *discount rate*, the only rate set directly by the Federal Reserve. By choosing to raise or lower the discount rate, the Fed can attempt to discourage or stimulate bank borrowing. This in turn affects consumer interest rates and credit availability and, therefore, consumer spending.

In practice, depository institutions avoid the discount window, the use of which can be interpreted as a sign of financial weakness. The common method for banks to meet short-term, especially overnight, liquidity needs is to borrow each other's balances at the Fed ("federal funds"). The rate at which this borrowing is done, the *federal funds rate*, is the shortest term and therefore, usually, the most volatile rate in the U.S. interest rate markets.

Central banks usually change reserve requirements and the discount rate infrequently. On a day-to-day basis, they effect policy through *open market operations*, buying and selling government and other financial securities in the open market, or by lending and borrowing collateral.

The Fed strives to keep the federal funds rate close to the *federal funds target rate* set by the FOMC, typically 25 to 100 basis points below the discount rate. While normally the target is a specific number, on December 16, 2008, the FOMC set a *range* of 0 to 25 basis points (the discount rate

was set at the same meeting at 50 basis points). The federal funds rate subsequently stayed close to 15 basis points.

These open market operations typically involve *repurchase agreements* (repos) and *reverse repurchase agreements* (reverse repos). A repo is in effect a short-term loan extended to a *primary dealer* by the Fed in exchange for a collateral of Treasury securities. The borrower promises to repurchase the collateral at the end of the loan, typically one to seven days later, at a higher price. Repos inject liquidity into the economy, and the FOMC uses them to lower the federal funds rate. A reverse repo, in which the Fed borrows from a primary dealer, drains liquid funds and thus increases the federal funds rate.

Investors loathe uncertainty; if the future level of inflation cannot be estimated with a high degree of confidence, market interest rates will be high to compensate investors for this uncertainty; the resultant high borrowing costs will tend to diminish economic activity. The Federal Reserve, therefore, strives to balance the unemployment rate against inflation and ensure price stability. If the Fed is concerned about the current level of inflation, it may seek to raise interest rates by selling securities at reduced prices. Investors attracted by the lowered prices—and higher yields—will purchase those bonds for cash, which the Fed effectively withdraws from circulation. As there is now less cash in public hands, its price—the interest rate—rises. Conversely, to reduce interest rates, the Fed purchases securities. To attract sellers, the Fed will increase prices; investors will receive cash in return for the securities, increasing the money supply and thereby reducing the price of cash—the interest rate. In addition to its open market operations, the FOMC meets at six-weekly intervals—and convenes in emergencies, if required, by conference call—to consider and, if necessary, adjust the target and discount rates.

The market response to the actions by the Fed may not always be immediately intuitive. When the Fed tightens, for example, short-term rates rise. However, investors may believe that the Fed action will reduce the risk of future inflation; investors may as a result move into bonds, thereby prompting a drop in long-term rates. Similarly, a decrease in rates in response to an economic slowdown often leads to a rally in equities, because the benefit afforded by reduced borrowing costs may more than offset the impact of a slowing economy.

Figure 1.2 illustrates the recent history of inflation and the federal funds rate. Many large financial institutions employ “Fed watchers” who devote a great deal of time to monitoring inflation and interpreting other economic indicators in an effort to divine the future actions of the Fed and profit accordingly. For example, they may use the *Taylor Rule*, which makes use of current and expected gross domestic product (GDP) and current and desired inflation rates to determine a target interest rate, as the basis of their forecast of the federal funds target rate.

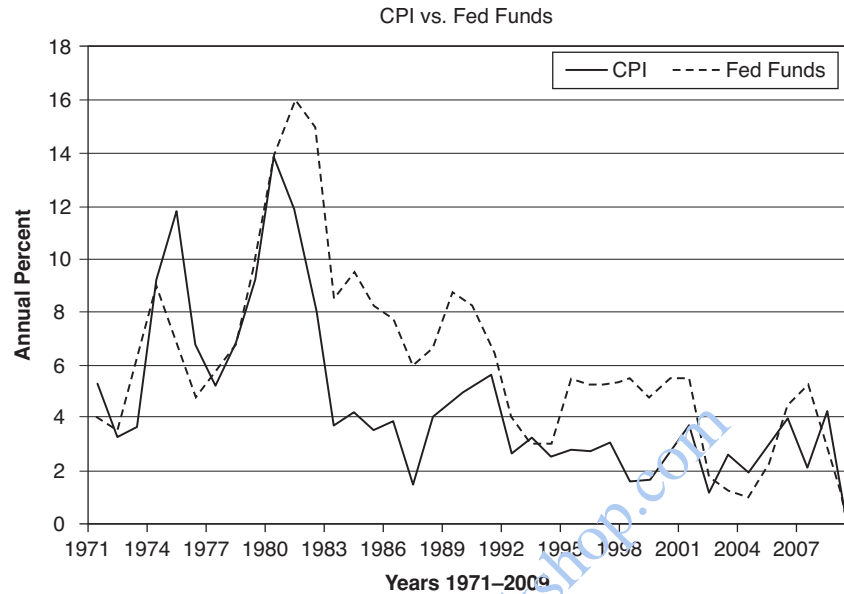


FIGURE 1.2 The federal funds rate is highly correlated with inflation. Monitoring current inflation may help investors forecast the federal funds rate.

1.4 THE BUSINESS CYCLE

Economic activity is measured by *gross domestic product* (GDP), a measure of the goods and services produced domestically in the economy, regardless of the ownership of the resources used to produce them.³ The *output gap* is the difference between current GDP and GDP based on a long-term trendline. When current GDP is lower than trendline GDP, the economy and inflationary pressures have slowed. Conversely, when current GDP is higher than trendline GDP, inflationary pressures have increased, and there is a risk that interest rates will rise.

Over the long term, the level of business activity in an economy can be seen to fluctuate through a series of peaks and troughs known as the *business cycle*. The business cycle has five phases, beginning with an initial recovery, progressing through an early expansion and late expansion, into a slowdown and finally into recession.

³*Gross national product* (GNP) is a measure of goods produced by the permanent residents of a country, irrespective of where they are produced (i.e., domestically or internationally).

Interest rates tend to rise during an early expansion phase, reducing in a recession phase, while inflation has a tendency to rise with a late expansion, peak in a recession, and fall during an initial recovery. Equity prices tend to be *leading indicators*, signaling future economic conditions, rising with an initial recovery and falling with slowdown and recession cycles in response to changes in the level of inflation and interest rates. Meanwhile, as discussed above, an increase in inflation reduces the appeal of bonds as an investment. In an expansion phase, therefore, as inflation increases, bond prices tend to fall. They will rise, however, during a recession when interest rates fall. Understanding where the economy is in the business cycle will help investors identify inflection points and to gauge the likelihood of particular Fed actions. While it can be difficult to identify precisely where the economy is in a business cycle or how long a particular phase will last, an understanding of the relevance of economic statistics can help investors anticipate economic swings. An in-depth discussion of the business cycle can be found at the website of the Economic Cycle Research Institute (www.businesscycle.com).

While inflation erodes the value of financial assets such as stocks and bonds, other investment opportunities, such as real estate, and other physical assets, such as gold or commodities, tend to perform better in inflationary times, with raw materials performing better than finished goods.

It is clear from Figure 1.3 that there is a strong positive relationship between the inflation rate and the spot price of gold. Gold is traditionally

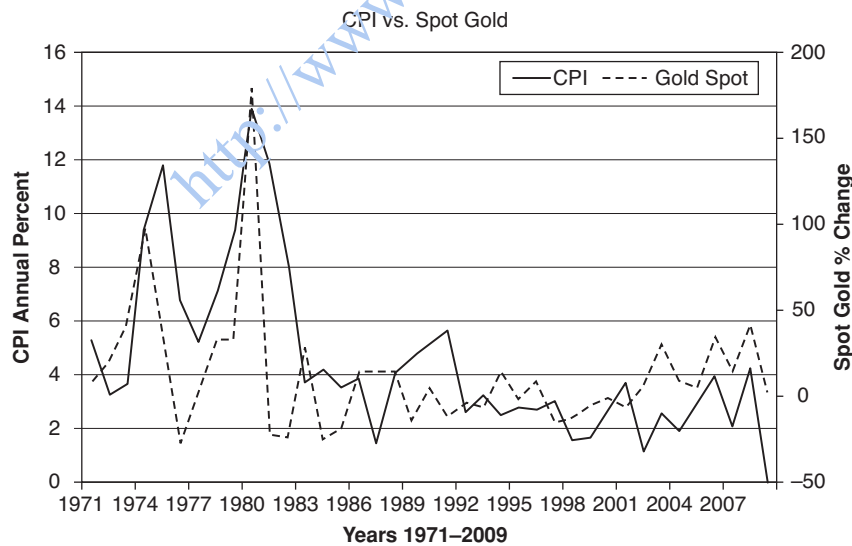


FIGURE 1.3 Historically, investors have used gold as a hedge against inflation.

considered a safe haven in times of economic uncertainty and inflation. When inflation was high, in the late 1970s, for example, gold prices rose dramatically. Conversely, in the late 1990s when inflation was muted, the investment returns of gold were modest. Other nonperishable commodities, including oil and gas, are also positively correlated with inflation; those that cannot be stored, such as agricultural commodities, can have a negative correlation with inflation.

By now it should be clear that it is important for investors to understand where we are in the current business cycle and what growth rates have historically prevailed at similar stages in the past, and they should adjust their investment and hedging strategies accordingly.

1.5 PREDICTING THE FUTURE?

Some market observers claim that through the use of *technical analysis* they can identify patterns in the historical movements of securities prices from which they can draw inferences about future price levels. In a rational world, this suggestion might seem absurd, with many academics professing a belief in *efficient markets*. There is, however, a growing body of research into an area called *behavioral finance*, which suggests that investors do not always behave rationally.

The *law of large numbers* is often used to extrapolate from the behavior of a sample to estimate the behavior of an entire population in disciplines such as electoral opinion polling, loan portfolio loss projections, and insurance mortality calculation.

What the law of large numbers suggests is that while the instantaneous behavior of individuals may not be possible to predict, it is possible to make considered judgments about the future behavior of the broad market by examining the past and identifying relationships between, for example, consumer spending and the unemployment rate.

Economic forecasting is an art as well as a science, combining statistics and psychology. Although present circumstances may resemble those prevailing in some previous time period, we must remember that human behavior is always subject to change, reacting in turn to macroeconomic, political, and technological change.

1.6 ECONOMIC INDICATORS

Economic forecasting was recognized by Benjamin Graham in his classic 1940 book as providing “essential underpinning for stock and bond market,

industry and company projections” (see Graham and Dodd, 2002). The Fed uses selected statistics about the current state of the economy to set monetary policy. At the same time, many companies make use of these statistics, referred to as economic indicators, to produce forecasts of future economic conditions to guide their business strategy. Financial analysts also use forecasts to project future cashflows and interest rates, and asset managers use them in determining their asset allocations. Indeed, to some extent, an expectation of a given set of economic conditions becomes a self-fulfilling prophecy: If the broad market expects a favorable economic climate, for example, it will increase the likelihood of a benign environment. Conversely, as we have seen in 2007–2010, fear and uncertainty in the bond and equity markets can deepen a crisis.

So much attention focused on the release of key important economic reports can lead to significant swings in the market due to the interpretation of those data by market participants who use it to make inferences about the prevailing level of unemployment, inflation, the current state of the business cycle, and future actions to be taken by the Fed.

It is therefore incumbent on market participants responsible for managing and hedging investment portfolios to monitor key indicators as they are released and to understand the significance of leading, coincident, and lagging indicators. Leading indicators tend to move in advance of the general level of economic activity, coincident indicators illustrate the current state of the economy, and lagging indicators tend to follow behind the broad economy, confirming trends.

As with all data, the user ought to be aware of the time lag between the collection and distribution of the data, changes both in the composition of and the methodology used to calculate indices, and data measurement errors including survivorship bias and smoothing. A comprehensive discussion of various economic indicators can be found in Rogers (1994) and Yamarone (2004). A release schedule can be found at the U.S. Government Census Bureau website (www.census.gov/epcd/econ/www/indijun.htm). Another resource useful in gauging the state of the economy is the *Economic Report of the President*, a report prepared annually by the Chairman of the Council of Economic Advisors that provides a useful discussion of the economy tempered by pragmatic political realities. This report is available through the U.S. Government Printing Office (www.gpoaccess.gov/eop/).

The key indicator that investors focus on is GDP, which indicates the relative strength of economic activity. Sustained economic growth, evidenced through a steady rise in GDP, is welcomed by equity investors. Fixed income investors, meanwhile, examine the GDP number and related

information—such as the *GDP deflator*, a measure of inflation that can be computed by comparing real and nominal GDP—for signs of inflation or economic slowdown, often responding favorably to the latter. Consequently, it is not unusual for the bond markets and the equity markets to respond differently to the release of a given indicator.

In recent years, approximately 70% of U.S. GDP is accounted for by personal consumption, with about 10% of that coming from purchases of durable goods (those with a shelf life in excess of three years), 30% non-durable goods, and approximately 60% related to purchases of services such as housing, medical expenses, education, and recreation. Since personal expenditure is such a large component of GDP, investors seek to understand consumer behavior by paying close attention to indicators such as *Consumer Confidence*, which are scrutinized in an attempt to identify the likely trend of GDP. Other metrics of consumer behavior such as the level of *Car Sales* are measures of consumer optimism, as rational consumers ought to be reluctant to make expensive purchases such as of automobiles—often bought on credit—if they believe the economy is headed for a significant economic slowdown. Car sales can therefore prove to be a leading indicator of macroeconomic performance.

Durable Goods Orders similarly reflect broad economic sentiment, manifested by the willingness of both consumers and companies to purchase appliances and machinery. For example, a decrease in durable goods orders can often signal an imminent economic downturn.

The *ISM Manufacturing Index* provides a barometer of manufacturing activity. Like metrics of consumer behavior, this indicator is available on a monthly basis, in advance of the GDP number that is published quarterly, and so can be used by analysts to provide an early estimate of the likely level of GDP.

Pending Home Sales is another useful leading indicator, as house sales reflect the availability of credit and positive consumer sentiment and typically result in significant additional consumer spending as purchasers furnish their new homes.

The *Employment Situation Report* provides details of unemployment and wage inflation, and so is examined in an attempt to predict likely Fed actions. Other information provided in this report, such as the average number of hours worked, can serve as a leading indicator of future manufacturing activity and employment levels. The *ADP Employment Report* is available a few days in advance of the Employment Situation Report and can be used to estimate the level of the latter.

The *EIA Petroleum Status Report* reveals the supply and demand for oil, suggesting the direction of pressure on oil and energy prices, with a

concomitant influence on business profitability and providing insight into the underlying strength of the economy.

Market dislocations often happen when information is released unexpectedly, or, when released, is at variance with expectations. When economic statistics are published, the importance is often not in the number itself, but rather in how that number deviates from what the market had been anticipating and had previously priced in. Similarly, revisions to statistics previously released can move the market, particularly if indicative of a trend. If employment numbers come in worse than had been expected, that can be a bullish signal for bonds, lowering yields, on anticipation that the economy is weaker than previously assumed and an expectation that the Fed may stay or even lower rates. Figure 1.4 illustrates the market consensus expectations at two dates in July 2009 for the Fed Funds target rate to be set by the FOMC at its next meeting.

Managers of financial portfolios should try to anticipate market sentiment and reactions, and position their portfolios accordingly. They should also examine the political landscape and analyze the actions of the Administration. For example, in August 2009 the Congressional Budget Office estimated that the budget deficit for 2009 would exceed 11%. With federal programs such as Social Security and Medicare having unfunded liabilities in excess of \$100 trillion, the risk of a significant increase in interest rates and inflation is substantial (Villarreal, 2009). Portfolio managers should analyze

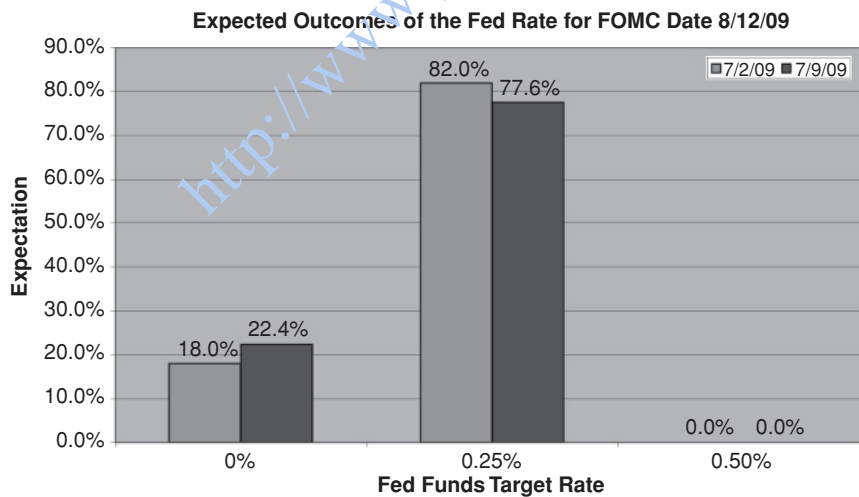


FIGURE 1.4 Over time, the market's expectation of the federal fund rate can change.

Source: Bloomberg Finance LP

TABLE 1.1 Key U.S. Economic Indicators and Their Reporting Dates

Economic Report	Approximate Release Date
Car Sales	1st or 2nd business day for prior month
ISM Manufacturing Index	1st business day for prior month
Pending Existing Home Sales	2nd business day for two months prior
Employment Situation	1st or 2nd Friday for prior month
ADP Employment Report	2 days prior to Employment Situation report
EIA Petroleum Report	Wednesday for prior week
International Trade	9th-16th for two months prior
Retail Sales	11-14th for prior month
Housing Starts	16-20th for prior month
Producer Price Index	2nd or 3rd week for prior month
Industrial Production/Capacity Utilization	Mid-month for prior month
Consumer Price Index (CPI)	2nd or 3rd week for prior month
Durable Goods Orders	22nd-28th for prior month
Consumer Confidence	Last Tuesday of the month
Personal Income/Consumer Spending	22nd-31st for prior month
GDP	Last week for previous quarter

the potential risks and benefits to both their home and the global economies by governmental actions and choose their investment and hedging strategies appropriately.

Some commonly used economic indicators and their approximate release dates are listed in Table 1.1.

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