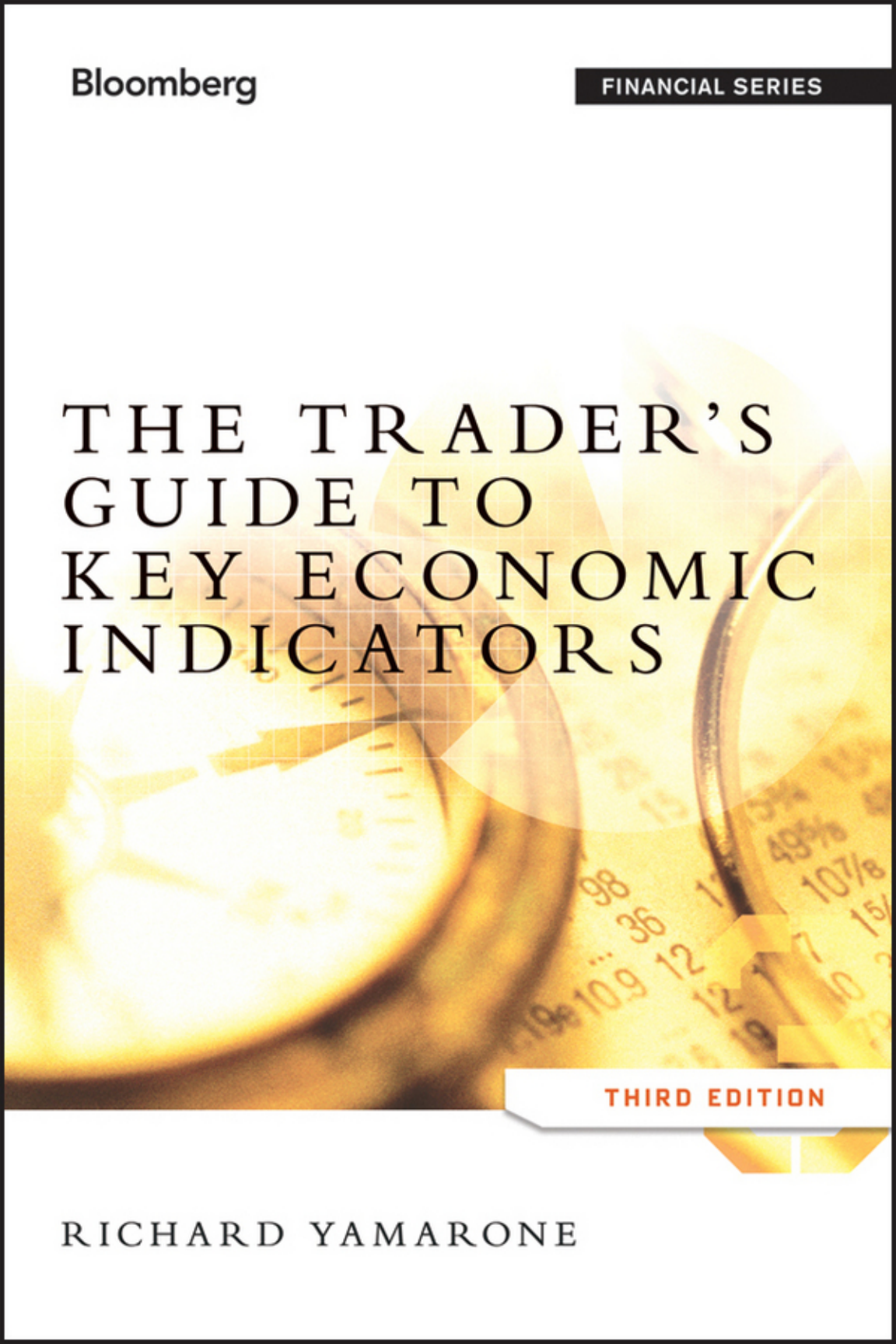


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# THE TRADER'S GUIDE TO KEY ECONOMIC INDICATORS

THIRD EDITION

RICHARD YAMARONE



# **THE TRADER'S GUIDE TO KEY ECONOMIC INDICATORS**

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# **THE TRADER'S GUIDE TO KEY ECONOMIC INDICATORS**

Third Edition

**Richard Yamarone**



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*To Suzie,  
Milton, Oskar, and Nash—*felinus economicus**



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Any errors or oversights that may exist in this book were not intentional and are not the fault of any of those individuals named above.

# Introduction

Investing without understanding the economy is like taking a trip without knowing anything about the climate of your destination. Inclement weather can wreak havoc on a vacation, especially if it involves outdoor activities. Just so, putting hard-earned money into the stock or bond market when economic conditions are unfavorable can destroy financial plans for a comfortable retirement, a new house, or a child's college education.

No one understands this better than Wall Street investment banks, brokers, and research institutions. All of these have adopted a top-down approach to securities analysis that begins with a forecast of the general economic climate, including interest rate projections, currency forecasts, and estimates of domestic and foreign economic growth. In this, they are following one of the precepts laid down by Benjamin Graham and David Dodd in their 1940 investors' bible, *Security Analysis*: "Economic forecasts provide essential underpinning for stock and bond market, industry, and company projections.

You don't need to manage millions or billions of dollars, however, to study economic conditions and plan your investment strategy accordingly. You can get much of the same information that Wall Street professionals use in their analyses from the business sections of the nation's newspapers, magazines, and evening news programs. Furthermore, you don't need a degree in economics or mathematics to interpret this information. In fact, many graduates of such programs at the nation's top universities find themselves entirely unprepared for the real world of finance. This book attempts to bridge the wide gap between the sometimes mind-numbing theories of textbook economics—the principles that are taught on college campuses across the country—and the everyday world of Wall Street. It does so by focusing on a dozen economic indicators and several others from the fixed-income and commodity markets that are among the most important of any analyst's or economist's tools. Understanding these indicators will make the study of economics more palatable and exciting.

Over the past century, thousands of economic indicators have emerged, predicting everything from the demand for gasoline to the size of harvests. Some are more fun than functional, such as those claiming links between stock performance for the year and which conference—the NFC or the AFC—wins the Super Bowl, or whether women's hemlines rise to midthigh or fall to midcalf. Other indicators are more serious, solidly based in economic observations. These range from the arcane—such as the indicator connecting the production level of titanium dioxide, an ingredient of pigments used in paints and plastics, with the demand for building materials—to the commonsensical. The price of copper, used in wiring and many other construction elements, for instance, has a clear relationship to the pace of housing activity. The same could be said of economic growth and railroad car loadings, shipping container production, wooden pallet shipments, and the manufacture of corrugated boxboard and packaging, all of which are connected with transporting freight or manufactured goods.

Over time, economists have weeded out the least successful indicators, based on the most dubious relationships, to arrive at a core of about 50 consistently reliable ones. This book presents the dozen or so that are must-haves in any analytical toolbox. Virtually all Wall Street economists use these indicators in their analyses and their writings. Federal Reserve officials conduct monetary policy based on the trends that these indicators project. They are also considered must-haves in the sense that they are among the most accurate at depicting economic relationships as well as attendant market-movability. That is, each of these indicators at one time or another typically figures among the top-tier factors that can presage big swings in the financial markets.

Some of the dozen-plus indicators discussed in this book are constructed by U.S. government agencies such as the U.S. Department of Commerce's Census Bureau, the U.S. Department of Labor, and the Board of Governors of the Federal Reserve System. Others are the products of private organizations such as the Institute for Supply Management, the Conference Board, and the University of Michigan. Some have excellent predictive powers. Others reflect principally the current state of the economy, and still others highlight industries that might outperform and so help identify the likely path of economic activity. All have one thing in common, however: In one way or another, they all relate to the business cycle.

## **The Business Cycle**

The business cycle is one of the central concepts in modern economics. It was defined by celebrated economists Arthur Burns and Wesley Mitchell in their pioneering 1946 study, *Measuring Business Cycles*, written for the National Bureau of Economic Research (NBER), which today is the official arbiter of the U.S. business cycle. According to Burns and Mitchell, the business cycle is “a type of

fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises: a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals, which merge into the expansion phase of the next cycle.”

No two business cycles are the same. As illustrated in Exhibit I.1, during the relatively short time that people have been measuring the U.S. economy, the length of expansions, from economic trough to peak, and of contractions, from peak to trough, has varied widely—although expansions, especially recently, generally have been longer and steadier than contractions. Expansions have ranged from 120 months (April 1991 to March 2001) to 10 months (March 1919 to January 1920), and downturns from 43 months (August 1929 to March 1933) to 6 months (February 1980 to July 1980). The amplitude of the peaks and troughs has also differed significantly from cycle to cycle.

One way to think of the business cycle is as a graphical representation of the total economic activity of a country. Because the accepted benchmark for economic activity in the United States is currently gross domestic product (GDP), economists generally identify the business cycle with the alternating increases and declines in GDP. Rising GDP marks economic expansion; falling GDP, a contraction (see Exhibit I.2). That said, the business cycle, as defined by Burns and Mitchell, can't be fully captured by one indicator, even the nation's GDP. Rather, it is a compendium of indicators that reflects various aspects of the economy.

Economic indicators are classified according to how they relate to the business cycle. Those that reflect the current state of the economy are coincident; those that predict future conditions are leading; and those that confirm that a turning occurred are lagging.

## **Indicators and the Markets**

The organization responsible for an indicator generally distributes its report about an hour before the official release time to financial news outlets such as Bloomberg News, Dow Jones Newswires, Thomson Reuters, and CNBC. The reporters, who are literally locked in a room and not permitted to have contact with anyone outside, ask questions of agency officials and prepare headlines and analyses of the report contents. These stories are embargoed until the official release, at which time they are transmitted over the newswires to be dissected by the Wall Street community. Most Wall Street firms employ economists to provide live broadcasts of the numbers as they run across the newswires, together with interpretation and commentary regarding the likely market reaction. This task, known as the “hoot-and-holler” or tape reading, is among the most stressful

**EXHIBIT I.1** U.S. Business Cycle Durations

|                                                                        |                       | Duration in Months        |                                                 |                                                |                                            |
|------------------------------------------------------------------------|-----------------------|---------------------------|-------------------------------------------------|------------------------------------------------|--------------------------------------------|
|                                                                        |                       | Contraction               | Expansion                                       | Cycle                                          |                                            |
| Business Cycle Reference Dates<br>(Quarterly Dates Are in Parentheses) |                       |                           | <i>Previous<br/>Trough<br/>to This<br/>Peak</i> | <i>Trough<br/>from<br/>Previous<br/>Trough</i> | <i>Peak<br/>from<br/>Previous<br/>Peak</i> |
| Peak                                                                   | Trough                | <i>Peak to<br/>Trough</i> |                                                 |                                                |                                            |
|                                                                        | December 1854<br>(IV) | —                         | —                                               | —                                              | —                                          |
| June 1857 (II)                                                         | December 1858<br>(IV) | 18                        | 30                                              | 48                                             | —                                          |
| October 1860 (III)                                                     | June 1861 (III)       | 8                         | 22                                              | 30                                             | 40                                         |
| April 1865 (I)                                                         | December 1867 (I)     | 32                        | 46                                              | 78                                             | 54                                         |
| June 1869 (II)                                                         | December 1870<br>(IV) | 18                        | 18                                              | 36                                             | 50                                         |
| October 1873 (III)                                                     | March 1879 (I)        | 65                        | 34                                              | 99                                             | 52                                         |
| March 1882 (I)                                                         | May 1885 (II)         | 38                        | 36                                              | 74                                             | 101                                        |
| March 1887 (II)                                                        | April 1888 (I)        | 13                        | 22                                              | 35                                             | 60                                         |
| July 1890 (III)                                                        | May 1891 (II)         | 10                        | 27                                              | 37                                             | 40                                         |
| January 1893 (I)                                                       | June 1894 (II)        | 17                        | 20                                              | 37                                             | 30                                         |
| December 1895<br>(IV)                                                  | June 1897 (II)        | 18                        | 18                                              | 36                                             | 35                                         |
| June 1899 (III)                                                        | December 1900<br>(IV) | 18                        | 24                                              | 42                                             | 42                                         |
| September 1902<br>(IV)                                                 | August 1904 (III)     | 23                        | 21                                              | 44                                             | 39                                         |
| May 1907 (II)                                                          | June 1908 (II)        | 13                        | 33                                              | 46                                             | 56                                         |
| January 1910 (I)                                                       | January 1912 (IV)     | 24                        | 19                                              | 43                                             | 32                                         |
| January 1913 (I)                                                       | December 1914<br>(IV) | 23                        | 12                                              | 35                                             | 36                                         |
| August 1918 (III)                                                      | March 1919 (I)        | 7                         | 44                                              | 51                                             | 67                                         |
| January 1920 (I)                                                       | July 1921 (III)       | 18                        | 10                                              | 28                                             | 17                                         |
| May 1923 (II)                                                          | July 1924 (III)       | 14                        | 22                                              | 36                                             | 40                                         |
| October 1926 (III)                                                     | November 1927<br>(IV) | 13                        | 27                                              | 40                                             | 41                                         |

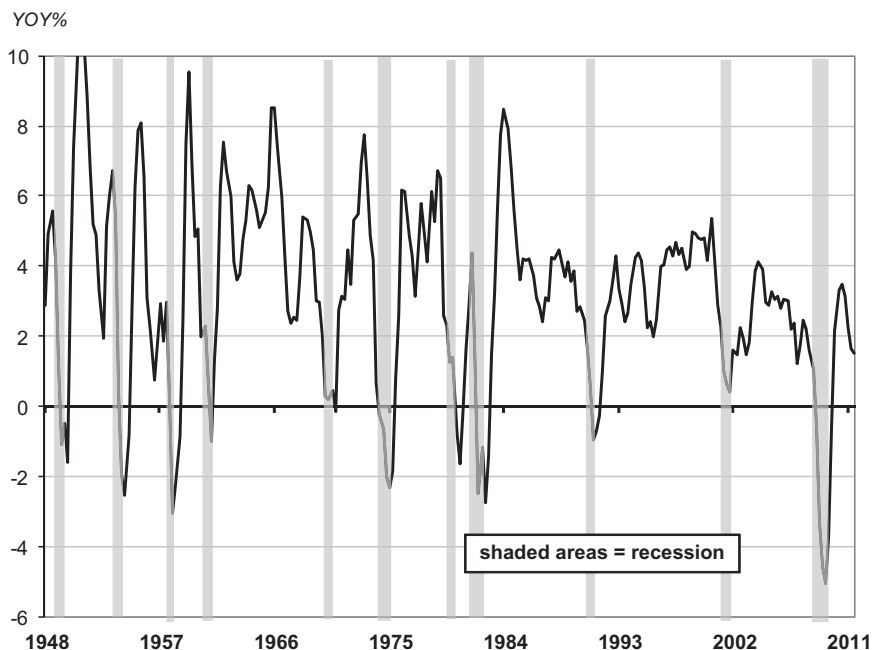
**EXHIBIT I.1** (Continued)

| Business Cycle Reference Dates<br>(Quarterly Dates Are in Parentheses) |                       | Duration in Months        |                                                 |                                                |                                            |
|------------------------------------------------------------------------|-----------------------|---------------------------|-------------------------------------------------|------------------------------------------------|--------------------------------------------|
|                                                                        |                       | Contraction               | Expansion                                       | Cycle                                          |                                            |
|                                                                        |                       | <i>Peak to<br/>Trough</i> | <i>Previous<br/>Trough<br/>to This<br/>Peak</i> | <i>Trough<br/>from<br/>Previous<br/>Trough</i> | <i>Peak<br/>from<br/>Previous<br/>Peak</i> |
| Peak                                                                   | Trough                |                           |                                                 |                                                |                                            |
| August 1929 (III)                                                      | March 1933 (I)        | 43                        | 21                                              | 64                                             | 34                                         |
| May 1937 (II)                                                          | June 1938 (II)        | 13                        | 50                                              | 63                                             | 93                                         |
| February 1945 (I)                                                      | October 1945 (IV)     | 8                         | 80                                              | 88                                             | 93                                         |
| November 1948<br>(IV)                                                  | October 1949 (IV)     | 11                        | 37                                              | 48                                             | 45                                         |
| July 1953 (II)                                                         | May 1954 (II)         | 10                        | 45                                              | 55                                             | 56                                         |
| August 1957 (III)                                                      | April 1958 (II)       | 8                         | 39                                              | 47                                             | 49                                         |
| April 1960 (II)                                                        | February 1961 (I)     | 10                        | 24                                              | 34                                             | 32                                         |
| December 1969<br>(IV)                                                  | November 1970<br>(IV) | 11                        | 106                                             | 117                                            | 116                                        |
| November 1973<br>(IV)                                                  | March 1975 (I)        | 16                        | 36                                              | 52                                             | 47                                         |
| January 1980 (I)                                                       | July 1980 (III)       | 6                         | 58                                              | 64                                             | 74                                         |
| July 1981 (III)                                                        | November 1982<br>(IV) | 16                        | 12                                              | 28                                             | 18                                         |
| July 1990 (III)                                                        | March 1991(I)         | 8                         | 92                                              | 100                                            | 108                                        |
| March 2001 (I)                                                         | November 2001<br>(IV) | 8                         | 120                                             | 128                                            | 128                                        |
| December 2007<br>(IV)                                                  | June 2009 (II)        | 18                        | 73                                              | 91                                             | 81                                         |
| Average, all cycles:                                                   |                       |                           |                                                 |                                                |                                            |
| 1854–2009 (33 cycles)                                                  |                       | 16                        | 42                                              | 56                                             | 55*                                        |
| 1854–1919 (16 cycles)                                                  |                       | 22                        | 27                                              | 48                                             | 49**                                       |
| 1919–1945 (6 cycles)                                                   |                       | 18                        | 35                                              | 53                                             | 53                                         |
| 1945–2009 (11 cycles)                                                  |                       | 11                        | 59                                              | 73                                             | 66                                         |

\*32 cycles

\*\*15 cycles

Source: National Bureau of Economic Research

**EXHIBIT I.2** GDP and Highlighted Recessions

Source: U.S. Department of Commerce, Bureau of Economic Analysis; National Bureau of Economic Research

performed by an economist. One slip-up can cost a trader or an entire trading floor millions of dollars.

The more an indicator deviates from Street expectations, the greater its effect on the financial markets. A 0.1 percent decline in retail sales, for example, might not move the markets much if economists were looking for a flat reading or a 0.1 percent rise. But if the consensus was for an increase of 0.7 percent, and instead the 0.1 percent decline hit the tape, the markets might well be rocked. That said, it is always prudent for traders and other market participants to keep apprised of what the Street expectations are for key economic indicators such as those covered here.

## How to Use This Book

You've no doubt read in a paper or heard on television or the radio forecasts of economic expansion or recession. You also probably realize that the one is desirable and the other is not. But you may not know how the economists quoted

came up with their predictions. Without this knowledge, how can you judge how well considered or rash they are—and whether to trust them in creating your investment strategy? This book seeks to help you form your own opinions about the possible direction of the economy and the markets and to decide how to act based on those opinions.

Each chapter corresponds to an indicator, beginning with the most comprehensive—the GDP and indices of leading, lagging, and coincident indicators—and continuing with those tied to particular aspects or segments of the overall economy, such as consumer prices, manufacturing, housing, and retail sales. Every chapter contains four principal sections: an introduction sketching out the major attributes of the indicator and its effect on the markets; a discussion of its origins and development; a description of how the relevant data are obtained, analyzed, and presented; and an explanation of how to incorporate these data into your investment process. The last section also contains at least one trick—involving either a little-known subcomponent of the indicator or a combination of subcomponents—that Wall Street economists use to get a clearer or more timely picture of business activity. At the end of each chapter is a listing of additional reading and resources, pointing those interested to references that discuss the relevant indicator in greater detail.

In putting what you learn from this book into practice, you might take some pointers from Wall Street. Just about every investment firm has a pre-market-opening meeting in which the day's events and potential trading strategies are presented. This always includes a discussion of the economic indicators scheduled for release that day. No trader wants to be caught off guard by an unexpected market-moving release. For the same reason, many traders have on their desks calendars showing which economic release is scheduled for a particular day and indicating both the value or percentage change of the previous report and the Street's estimates—highest, lowest, and consensus—for the upcoming one. That way, when the actual figure is released, they will know how it compares with expectations and can react accordingly.

Of course, no single economic indicator will tell you all you need to know about the current or future economic climate. Each has drawbacks and may send false signals because of unforeseen shocks, faulty measurements, or suspect collection processes. Piecing together the information from all of the indicators discussed in this book like tiles in a mosaic will give you a dynamic representation of the economy. But if you are truly serious about understanding the macroeconomic climate and individual industry conditions, you should also take advantage of the Securities and Exchange Commission's Regulation Fair Disclosure of 2000, which mandates for individual investors the same access to companies' quarterly earnings conference calls that professional analysts have.

These calls provide a great deal of insight into corporate spending plans, manufacturing and production activity, international conditions, pricing, and the general business climate. Especially informative are the announcements of

industrial behemoths such as Alcoa, Boeing, Caterpillar, Cummins, Emerson Electric, Ford Motor Company, General Electric, Illinois Tool Works, Johnson Controls, and United Technologies. Many companies also offer slide presentations, handouts, and supplemental data with these quarterly presentations, which often provide even greater detail on their buying intentions, prospective employment changes, and any threats to performance that they foresee. There's no cheaper and easier way to gather anecdotal evidence about business conditions. If you can't listen in, the presentations are almost always archived on company web sites, from which they may be readily retrieved 24/7.

## **Who Can Benefit from This Book?**

This book was written primarily for those traders and investors lacking a formal introduction to the most popular economic indicators on Wall Street. Just because an individual is entrusted with investing millions of dollars does not guarantee a practical command of economic indicators and their meaning for investment. When newly minted MBAs arrive on the trading floors of financial firms, for example, few are equipped with a complete appreciation of these indicators—no matter from which institution that degree has come. My years of experience on a few of the largest trading floors in the world has suggested the need to fill what can be viewed as a surprisingly expansive void regarding indicators, statistics, the economic meaning of the associated figures, and the market's likely reaction.

Those new to the field of investing and economics, including students of the subject, also should benefit from the fundamental, application-oriented nature of this book. As most academics know, if students cannot see the results or directly test theories with practical data, the knowledge they hold tends to remain more theoretical than real-world and they eventually may lose interest in the field. It is here that many future economists are lost. As exercises within an imperfect science, experiments conducted in the social discipline of economics are predominantly theorized or hypothesized and seldom tested with tangible data. In this sense, economists are not as fortunate as physicists or natural scientists, who conduct experiments in a controlled environment such as a laboratory, riverbed, or ocean. The economic indicators contained in these chapters serve as concrete guideposts within the discipline of economics, and as such make experimentation, testing, and study for investments not only possible but understandable.

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## CHAPTER 1

# Gross Domestic Product

Economics has received a bad rap. In the mid-nineteenth century, the great Scottish historian Thomas Carlyle dubbed this discipline “the dismal science,” and jokes abound on Wall Street about economists being more boring than accountants. But truth be told, there is nothing more exciting than watching the newswire on a trading floor of a money-center bank minutes ahead of the release of a major market-moving economic report. One of the top excitement generators is the report on gross domestic product (GDP)—an indicator that is a combination of economics and accounting.

Economists, policy makers, and politicians revere GDP above all other economic statistics because it is the broadest, most comprehensive barometer available of a country’s overall economic condition. GDP is the sum of the market values of all final goods and services produced in a country (that is, domestically) during a specific period using that country’s resources, regardless of the ownership of the resources. For example, all the automobiles made in the United States are included in GDP—even those manufactured in U.S. plants owned by Germany’s BMW and Japan’s Toyota. In contrast, gross national product (GNP) is the sum of the market values of all final goods and services produced by a country’s permanent residents and firms regardless of their location—that is, whether the production occurs domestically or abroad—during a given period. Baked goods produced in Canada by U.S. conglomerate Sara Lee Corporation, for example, are included in U.S. GNP, but not in U.S. GDP.

GDP is a more relevant measure of U.S. economic conditions than GNP, because the resources that are utilized in the production process are predominantly domestic. There are strong parallels between the GDP data and other U.S. economic indicators, such as industrial production and the Conference Board’s index of coincident indicators (the coincident index), which will be explored in later chapters.

The GDP is calculated and reported on a quarterly basis as part of the national income and product accounts (NIPAs). The NIPAs, which were

developed and are maintained today by the Commerce Department's Bureau of Economic Analysis (BEA), are the most comprehensive data available regarding U.S. national output, production, and the distribution of income. Each GDP report contains data on the following:

- Personal income and consumption expenditures
- Corporate profits
- National income
- Inflation

These data tell the story of how the economy performed—whether it expanded or contracted—during a specific period, usually the preceding quarter. By looking at changes in the GDP's components and subcomponents and comparing these with changes that have occurred in the past, economists can draw inferences about the direction the economy might take in the future.

Of all the tasks market economists perform, generating a forecast for overall economic performance as measured by the GDP data is the one to which they dedicate the most time. In fact, the latest report on GDP is within arm's reach of most Wall Street economists. Because several departments in a trading institution rely on the economist's forecasts, this indicator has emerged as the foundation for all research and trading activity and usually sets the tone for all of Wall Street's financial prognostications.

## Evolution of an Indicator

Measuring a nation's output and performance is known formally as *national income accounting*. This process was pioneered largely by Simon Kuznets, an economist hired by the U.S. Department of Commerce in the 1930s—with additional funding from the National Bureau of Economic Research (NBER)—to create an accurate representation of how much the U.S. economy was producing. Up until that time, there was no government agency calculating this most critical of economic statistics.

The initial national income estimates produced by Kuznets in 1934 were representations of income produced, measures of the national economy's net product, and the national income paid out, or the total compensation for the work performed in the production of net product. At that time, no in-depth breakdown of components existed. In fact, Kuznets didn't even have a detailed representation of national consumption expenditures. This was the first step of several in the creation of a formal method of national income accounting, yet it was still a far cry from today's highly detailed representation of the macroeconomy.

The result was the national income and product accounts. In addition to taking on this immense task, Kuznets reconstructed the national income accounts of the United States back to 1869. (He was awarded a Nobel Prize in Economics in 1971 in part for this accomplishment.) Kuznets's first research report, presented to Congress in 1937, covered national income and output from 1929 through 1935.

In 1947, the first formal presentation of the national income accounts appeared as a supplement to the July issue of the *Survey of Current Business*. This supplement contained annual data from 1929 to 1946 disseminated in 37 tables. These data were separated into six accounts:

1. National income and product account
2. Business sector income and product account
3. Government receipt/expenditure account
4. Foreign account
5. Personal income/expenditure account
6. Gross savings and investment account

Before the creation of the NIPAs, households, investors, government policy makers, corporations, and economists had little or no information about the complete macroeconomic picture. There were indexes regarding production of raw materials and commodities. There were statistics on prices and government spending. But a comprehensive representation of total economic activity wasn't available. In fact, the term *macroeconomy* didn't appear in print until 1939. Policy making without knowing the past performance of the economy, how it operated under different conditions and scenarios, or which sectors were weak and which were strong, was a daunting task. This may have been the reason for many of the economic-policy failures of the early twentieth century.

Many economists have laid the blame for the Great Depression of the 1930s on the Federal Reserve Board's failure to respond to the ebullient activity during the Roaring Twenties (sound familiar?). The Fed may have borne much of the responsibility, but very few, if any, have absolved the Federal Reserve of its failures on the grounds that it had insufficient information.

The Great Depression forced the government to develop some sort of national accounting method. World War II furthered the government's need to understand the nation's capacity, the composition of its output, and the general economic state of affairs. How could the government possibly plan for war without an accurate appreciation of its resources? Since that time the NIPAs have enabled policy makers to formulate reasonable objectives such as higher economic growth rates or lower inflation rates, as well as to formulate policies to attain these objectives and steer the economy around any roadblocks that might impede the attainment of these goals.

## Digging for the Data

Tracking the developments in an economy as large and dynamic as that of the United States is not easy. But through constant revision and upgrading, a relatively small group of dedicated economists at the BEA accomplishes this huge task every quarter. Each quarterly report of economic activity goes through three versions, all available on the BEA web site, <http://www.bea.gov>. The first, frequently referred to as the *advance report*, comes one month after the end of the quarter covered, hitting the newswires at 8:30 a.m. (ET). So the GDP report pertaining to the first three months of the year is released sometime during the last week of April, the second quarter's advance report during the last week of July, the third quarter's in October, and the fourth quarter's during the last week of January of the following year. Because not all the data are available during this initial release, the BEA must estimate some series, particularly those involving inventories and foreign trade.

As new data become available, the BEA makes the necessary refinements, deriving a more accurate estimate for GDP. The second release, called the *preliminary report*, comes two months after the quarter covered—one month after the advance report—and reflects the refinements made to date. The last revision to the data is contained in the final report, which is released three months after the relevant quarter and a month after the preliminary report. The release dates for 2012 are shown in Exhibit 1.1.

Annual revisions are calculated during July of every year, based on data that become available to the BEA only on an annual basis, such as state and local government consumption expenditures. The BEA estimates these data on a quarterly basis via a judgmental trend based on annual surveys of state and local governments. Judgmental trends are quarterly interpolations of source data that are available only on an annual basis. Because the surveys are available on an annual basis, estimates can only be made during the annual revision.

**EXHIBIT 1.1** 2012 Release Schedule for GDP Reports

|                                 | 2011: QIV  | 2012: QI | 2012: QII    | 2012: QIII  |
|---------------------------------|------------|----------|--------------|-------------|
| Advance report                  | January 27 | April 27 | July 27      | October 26  |
| Second report<br>(1st revision) | Feb 1      | May 31   | August 29    | November 29 |
| Third report<br>(2nd revision)  | March 29   | June 28  | September 27 | December 20 |

Source: U.S. Department of Commerce, Bureau of Economic Analysis

As source data for the components of the accounts are continuously updated and revised, the components of the NIPAs must be updated to reflect these revisions. That's the primary function of the annual revision. Each of the three years' (12 quarters') worth of data is subject to revision during this annual updating. Every five years the BEA issues a so-called benchmark revision of all of the data in the NIPAs. This has typically resulted in considerable changes to the five years of quarterly figures.

Benchmark revisions are different from annual revisions in that they generally contain major overhauls to the structure of the report, definitional reclassifications, and new presentations of data. New tables need to be created to account for products that are developed. As the economy evolves, new goods and services come to market and therefore need to be accounted for. Obviously, there were times, for example, when CDs, microwave ovens, DVDs, and iPods didn't exist. Because the U.S. economy develops and produces these goods, there must be a place for their production to be recorded. All of the data—quarterly and annual—are revised during benchmark revisions.

## Some Definitions

As noted previously, GDP is the sum of the market values of all final goods and services produced by the resources (labor and property) of a country residing in that country. This definition contains two particularly important terms: *final* and *produced*. When economists refer to final goods, they mean those goods produced for their final intended use, that is, as end products, not as component or intermediate parts in another stage of manufacture. As an example, consider that each year, the Goodyear Tire & Rubber Company produces some hundred million tires. Quite a number of these are created for distribution in retail and wholesale stores as replacements and spares, and these are counted as final goods. And although most tires are produced and delivered to automakers to be used on new automobiles, these are not counted as production, because we do not calculate the value of automobiles in the national accounts by summing the value of its components. In other words, we don't add the cost of the radio, the seats, the heating elements, the spark plugs, and so on. We count only the value of the final product, the automobile.

Obviously, the economists at the BEA would make a serious miscalculation if they counted all the tires sold by the automakers as part of their automobiles as well as those sold by the manufacturer to Walmart and Sears. The same holds true for the production of wool. BEA economists count only the wool purchased for final use. Because countless final uses exist for wool—sweaters, hats, blankets, and so on—the BEA would make the same double-counting error by adding the production of raw wool as well as the wool used in sweaters, blankets, and the like.

Let's consider the other important term, *produced*. Resales are not included in the accounts. Rightly so, the BEA has determined that because the pace of reselling is not indicative of the current pace of production, it shouldn't be included in the output figures.

Another segment of the economy that the BEA excludes from the GDP release is the activity that goes on off the books. This seems an obvious exclusion, but it's a big one. Believe it or not, some of the most conservative studies have set the size of the U.S. underground economy at around 10 percent of the official U.S. GDP (roughly \$1.5 trillion in the third quarter of 2011). The BEA doesn't count or make any adjustments for non-state-sanctioned gambling, prostitution, trade in illegal drugs, fraud, the production and sale of counterfeit merchandise, and the like, because, officially, they don't exist—wink, wink, nudge, nudge. These activities aren't reported, so how can they be measured? Clandestine activity like this understandably can alter the estimate of several economic indicators, but none more than GDP.

## GDP versus GNP

The NIPAs contain figures for both gross domestic product and gross national product. Before 1991, GNP was the benchmark for all economic activity in commentaries, reports, articles, and texts. GDP became the official barometer when the BEA decided that the measure was a better fit with the United Nations system of national accounts used by other nations, and so made international comparisons of economic growth easier.

GDP differs from GNP in what economists call *net factor income from foreign sources*: the difference between the value of receipts from foreign sources and the payments made to foreign sources. The table in Exhibit 1.2, based on data from the second GDP report of the third quarter of 2011, illustrates how the BEA quantifies this relationship in its GDP report.

The difference between the value of GDP and GNP is typically minuscule, usually less than 0.5 percent. In Exhibit 1.2, for example, GDP is approximately \$15,181 billion and GNP \$15,448 billion, a difference of about \$267 billion, or 0.17 percent of GNP.

### EXHIBIT 1.2 GNP Derived from GDP (QIII 2011 Second Report)

|                                                 |   |                    |
|-------------------------------------------------|---|--------------------|
| U.S. GDP                                        |   | \$15,180.9 billion |
| Plus income receipts from the rest of the world | + | \$794.8 billion    |
| Minus income payments to the rest of the world  | – | \$527.8 billion    |
| Equals U.S. GNP                                 | = | \$15,447.9 billion |

Source: U.S. Department of Commerce, Bureau of Economic Analysis

## Calculating GDP: The Aggregate-Expenditure Approach

Every transaction in an economy involves two parties: a buyer and a seller. To calculate total economic activity, economists can focus either on the buyers' actions, adding together all the expenditures on goods and services, or on the sellers' actions, tallying the total income received by those employed in the production process. These two approaches correspond to the two methods of calculating the GDP: the aggregate-expenditure method, which is the more popular and the one used on most Wall Street trading floors, and the income approach. The totals reached by both measures should theoretically be the same. In practice, however, there are small differences.

To calculate GDP, the BEA uses the aggregate-expenditure equation:

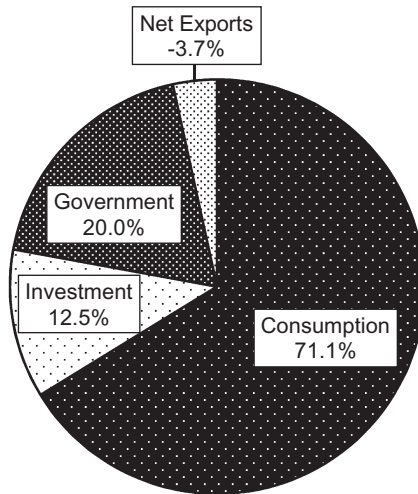
$$\text{GDP} = C + I + G + (X - M),$$

where  $C$  is personal consumption expenditures,  $I$  is gross private domestic investment,  $G$  is government consumption expenditures and gross investment, and  $(X - M)$  is the net export value of goods and services (exports minus imports). The identity expressed in this equation is probably the most widely cited of all economic relationships and appears in virtually all introductory macroeconomic texts.

Because the U.S. economy is extremely dynamic and susceptible to sudden and unforeseen influences like inclement weather and war, the percentage of GDP contributed by each of the equation's components varies over time, even from quarter to quarter. For the most part, though, the proportions don't deviate significantly from those represented in Exhibit 1.3, which depicts the composition of third quarter 2011 GDP.

*Personal consumption expenditures* (also referred to as *consumer spending* or simply *spending*) are the largest component of GDP, accounting for roughly two-thirds of total economic output. During the third quarter of 2011, consumer spending climbed to approximately 71 percent of GDP (\$10.798 trillion divided by \$15.181 trillion).

Consumer spending is the total market value of household purchases during the accounting term, including items such as beer, telephone service, golf clubs, CDs, gasoline, musical instruments, and taxicab rides. As shown in the table in Exhibit 1.4, these items fall into three categories: durable goods, nondurable goods, and services. Durable goods are those with shelf lives of three or more years. Examples include automobiles, refrigerators, washing machines, televisions, and other big-ticket items such as jewelry, sporting equipment, and guns. Nondurable goods are food, clothing and shoes, energy products such as gasoline and fuel oil, and other items such as tobacco, cosmetics, prescription drugs, magazines, and sundries. Services include housing, household operation, transportation, medical care, and recreation, as well as hairstyling, dry cleaning, funeral services, legal services, and education.

**EXHIBIT 1.3** Composition of GDP

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Services constitute by far the largest category of consumer purchases. They account today for roughly 66 percent of all consumer spending, up from a mere third in 1950. No wonder the United States is said to have a service-based economy. Spending on goods comprises the remaining 34 percent.

Nondurable goods is the second-largest category of expenditures, representing about 23 percent of the total. Durable goods expenditures, the most volatile component, account for the remaining 11 percent.

A more detailed summary of personal consumption expenditures is available on a monthly basis in the BEA's *Personal Income and Outlays* report, which is the direct source of data for this component of the GDP report. Personal income and outlays are discussed in Chapter 11.

Gross private domestic investment encompasses spending by businesses (on equipment such as computers, on the construction of factories and production plants, and in mining operations); expenditures on residential housing and apartments; and inventories. Inventories, which consist of the goods businesses produce that remain unsold at the end of a period, are valued by the BEA at the prevailing market price. This value fluctuates greatly from quarter to quarter, making the level of gross private domestic investment quite volatile. Accordingly, economists often look at fixed investment—gross private domestic investment minus inventories. This, in turn, has two major components, residential and nonresidential. The latter, which is also referred to as *capital spending*, includes expenditures on computers and peripheral equipment, industrial equipment, software, and nonresidential buildings such as plants and factories. The former