

CHAPTER 5

MACROECONOMICS

by Michael J. Buckle, PhD, James Seaton, PhD, and Stephen Thomas, PhD



LEARNING OUTCOMES

After completing this chapter, you should be able to do the following:

- a** Describe why macroeconomic considerations are important to an investment firm and how macroeconomic information may be used;
- b** Define gross domestic product (GDP) and GDP per capita;
- c** Identify basic components of GDP;
- d** Describe economic growth and factors that affect it;
- e** Describe phases of a business cycle and their characteristics;
- f** Explain the global nature of business cycles;
- g** Describe economic indicators and their uses and limitations;
- h** Define inflation, deflation, stagflation, and hyperinflation, and describe how inflation affects consumers, businesses, and investments;
- i** Describe and compare monetary and fiscal policy;
- j** Explain limitations of monetary policy and fiscal policy.

INTRODUCTION

1

Many news programmes and articles contain items about the economy. You may hear that “the economy is booming”, “the economy is depressed”, or “the economy is recovering”. The term economy is widely used but rarely defined. Have you ever stopped to think about what it actually means?

Although it is often referred to as a single entity, in fact the economy represents millions of purchasing and selling and lending and borrowing decisions made by individuals, companies, and governments. Macroeconomics is the study of the economy as a whole. Macroeconomics considers the effects of such factors as inflation, economic growth, unemployment, interest rates, and exchange rates on economic activity. The effects of these factors on business, consumer, and government economic decisions represent an intersection of micro- and macroeconomics.

Macroeconomic conditions affect the actions and behaviour of businesses, consumers, and governments. Macroeconomic considerations also affect decisions made by investment firms. Some investments, for instance, benefit from slow economic growth and low inflation, whereas others do well during periods of relatively strong economic growth with moderate inflation. Investment professionals use macroeconomic data to forecast the earnings potential of companies and to determine which asset classes may be more attractive. An **asset class** is a broad grouping of similar types of investments, such as shares, bonds, real estate, and commodities. More details on these types of investments are provided in the Investment Instruments module.

GROSS DOMESTIC PRODUCT AND THE BUSINESS CYCLE

2

“GDP” is another term we hear frequently without necessarily pausing to think about what it means. **Gross domestic product**—more commonly known as GDP—is the total value of all final products and services produced in a country over a period of time. It is an important concept in macroeconomics. GDP may also be referred to as total output. Economists may express it on a per person or per capita basis; **GDP per capita** is equal to GDP divided by the population. This measure allows comparisons of GDP between countries or within a country over time because it is adjusted to reflect different population levels among countries or changes in population levels within a country.

For countries with the highest total GDP, GDP is partly a function of their populations. When GDP is adjusted for the size of population, smaller but relatively wealthy countries rise to the top of the list. In other words, although the United States is the world’s wealthiest country, the average citizen of Monaco or Norway is relatively wealthier than the average citizen of the United States.

GDP can be calculated in two ways:

- By using an expenditure (spending) approach
- By using an income approach

We can estimate GDP by summing either expenditures or incomes. Under the income approach, the sum can be referred to as gross domestic income. Gross domestic income should equal gross domestic product; after all, what one economic entity spends is another economic entity's income. This equivalence relationship is a useful cross check when statisticians are measuring economic activity because, in practice, GDP is hard to measure and subject to error. The results of the two approaches can be compared to ensure that the estimate of GDP provides a fair reflection of the economic output of an economy.

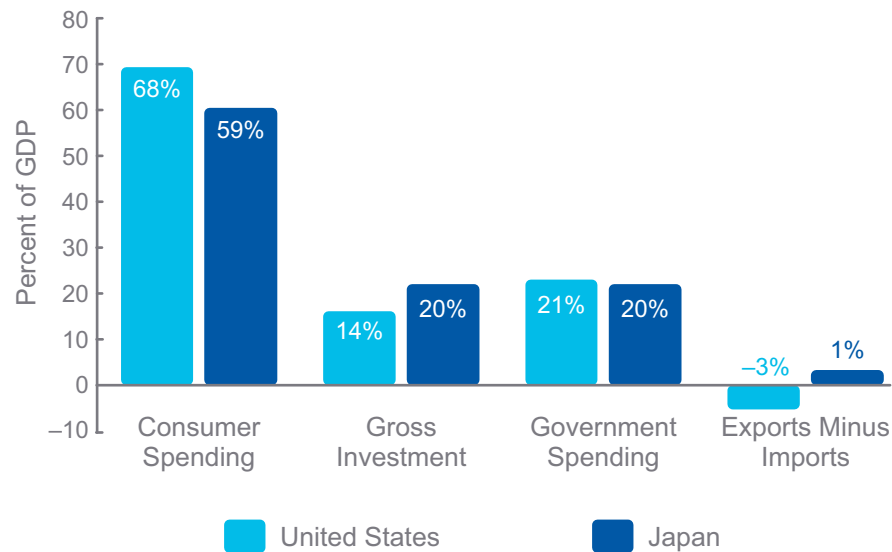
Using the expenditures approach, GDP is estimated with the following equation:

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

The equation shows that GDP is the sum of the following components:

- consumer (or household) spending (C)
- business spending (or gross investment) (I)
- government spending (G)
- exports (or foreign spending on domestic products and services) (X)
- imports (or domestic spending on foreign products and services) (M)

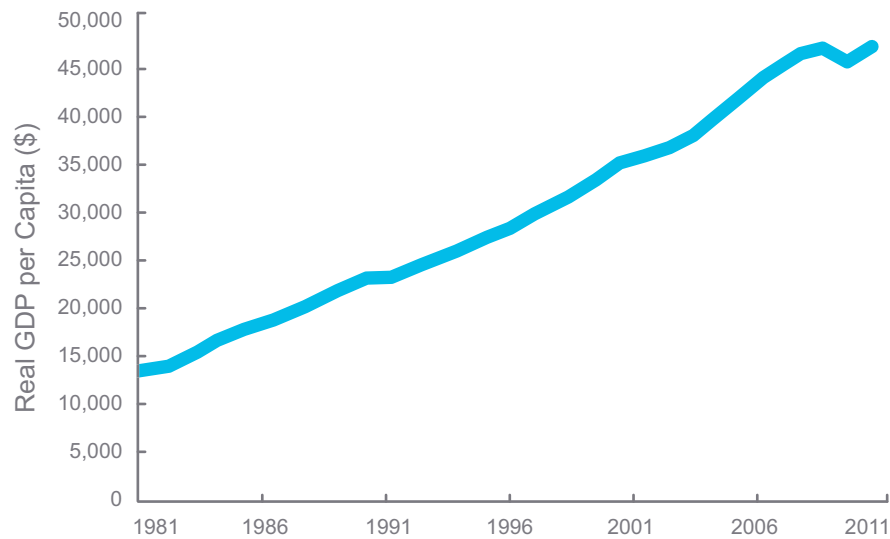
The term $(X - M)$ represents net exports. Exports result in spending by other countries' residents on domestically produced products and services, whereas imports involve domestic residents spending money on foreign-produced products and services. So, exports are included as spending on domestic output and are added to GDP, whereas imports are subtracted from GDP. Household spending (or consumer spending) is often the largest component of total spending and may represent up to 70% of GDP. Exhibit 1 shows the percentage shares of the GDP components for the United States and Japan in 2010. You can see that for both countries, consumer spending was the largest component. Japan's net exports represented 1% of GDP whereas imports exceeded exports for the United States and net exports represented -3% of GDP.

Exhibit 1 GDP Components for the United States and Japan in 2010

Source: Based on data from www.bea.gov for the United States and www.stat.go.jp for Japan.

GDP changes as the amount spent changes. Changes in the amount spent could be the result of changes in either the quantity purchased or the prices of products and services purchased. If a change in GDP is solely the result of changes in prices with no accompanying increase in quantity of products and services purchased, then the economic production of the country has not changed. This result is equivalent to a company increasing its prices by 5% and reporting a subsequent 5% increase in sales. In fact, the company's production has not increased, so looking at nominal (reported) sales would not accurately reflect the change in output. Similarly, **nominal GDP**, which reflects the current market value of products and services, unadjusted for price changes, may over- or understate actual economic growth. **Real GDP** is nominal GDP adjusted for changes in price levels. Changes in real GDP, which reflect changes in actual physical output, are a better measure of economic growth than changes in nominal GDP.

In the United States, when GDP is expressed in real terms, it may be referred to as constant dollar GDP. Other countries use similar terminology to differentiate between nominal and real data. Exhibit 2 shows the growth in real GDP per capita in the United States from 1981 to 2010. Over the period, GDP per capita, adjusted for changes in price level, generally exhibited a steady increase. It appears that living standards, as measured by real GDP per capita, rose over the time period.

Exhibit 2 Real GDP per Capita for the United States, 1981–2010

Source: Based on data from the World Bank.

2.1 Economic Growth

Economic growth is measured by the percentage change in real output (usually real GDP) for a country. Real GDP measures the products and services available to the citizens of that country. Real GDP per capita is a useful measure to assess changes in wealth and living standards.

The “trend” rate of GDP growth is determined at its most simplistic level by growth in the labour force plus productivity gains, subject to the availability of capital to produce more products and services. That is, GDP growth is determined by

- growth of the labour force, which represents the increase of labour in the market;
- **productivity gains**, which represent growth in output per unit of labour; and
- availability of capital, which represents inputs other than labour necessary for production.

The GDP growth rate depends to a large extent on productivity gains. For example, if a worker assembles two cell phones in an hour instead of one, productivity has doubled. If that increase is applied across the economy, the economy will grow more rapidly, provided that there is a market for the additional products and services produced.

Productivity is a function of the efficiency of a worker and also the availability of technology. As technological progress occurs, capital will be more efficiently used and productivity and output will increase. For example, without technological change,

a worker may be able to increase production from one cell phone per hour to two cell phones per hour. That is, the worker is more efficient. But with a technological advance, a worker may be able to produce three cell phones per hour.

The increase in productivity is because of increased worker efficiency and the availability of new technology. There are many real-world examples of this relationship. Decades ago, for instance, typesetting allowed the mass production of printed material and factories increased productivity in the textile industry through the use of machines. More recently, computer technology has revolutionised business operations. For example, some aspects of automobile production are computerised, and the internet allows consumers to perform tasks they formerly outsourced to service companies, such as airline travel agents. But although technology has boosted economic productivity, it is also disruptive in the sense that while new occupations have been created, other occupations have been rendered irrelevant. Productivity gains can result in a lower demand for labour and increased unemployment unless the productivity gains are offset by increases in demand for products and services.

We will now discuss the effects of growth in the labour force and productivity gains on GDP. Developed countries typically have ageing populations and low birth rates, so their potential labour force will grow slowly or even decline. This means GDP will grow more slowly unless this slowing labour force growth is offset by productivity gains. Exhibit 3 shows the annual GDP growth rate for a sample of countries from 1971 to 2010.

The growth rate in the developed countries shown—Germany to Canada—was in the range of 2.0%–3.0%. However, the growth rate in the emerging countries of Brazil, India, and China, where productivity gains are relatively large, was much higher. Over time, as economies grow and make the transition from emerging to developed, the GDP growth rates are expected to move toward the 2.0%–3.0% range.

**Exhibit 3 Annual GDP Growth Rates at Market Prices
Based on Local Currency, 1971–2010**

China	9.1%
India	5.4
Brazil	4.0
United States	2.9
Canada	2.9
Japan	2.6
France	2.3
United Kingdom	2.2
Germany	2.0
World	3.2

Source: Based on data from the World Bank.

Some developed countries, such as Japan, are experiencing a decline in population. Such declines will require increases in productivity or a technological revolution if GDP is to remain at the long-term trend rate. Demographic change is another reason why GDP per capita may be a more useful measure than GDP for evaluating the economic well-being of a country's citizens. If GDP grows at a faster rate than the population growth rate or if GDP shrinks at a lower rate than the population shrinkage rate, it will result in higher GDP per capita.

2.2 The Business (or Economic) Cycle

Analysts and economists spend a great deal of energy trying to predict real GDP, which is affected by business cycles. Economy-wide fluctuations in economic activity are called **business cycles**. Although we refer to the fluctuations as cycles, they are neither smooth nor predictable. These cycles typically last a number of years. Economic activity may fluctuate in the short term though because of seasonal variations in output, but a true business cycle is a fluctuation that affects a large segment of the economy over a longer time period.

Phases of an economic cycle may include the following:

- 1 Expansion
- 2 Peak
- 3 Contraction
- 4 Trough
- 5 Recovery

There is no universal agreement on what the phases of business cycles are and when they begin and end. For example, some economists view recovery as the start of an expansion phase, whereas others view recovery as the end of a trough phase. Exhibit 4 shows a stylised representation of a business cycle. The level of national economic activity is measured by the GDP growth rate.

Exhibit 4 Representation of a Business Cycle

Aspects of the expansion, peak, contraction, trough, and recovery phases are described in the following paragraphs.

Expansion. During an economic expansion, production increases and **inflation** (a general rise in prices for products and services) and interest rates both tend to rise. A high rate of employment (a low rate of unemployment) means that employees can demand higher wages, putting upward pressure on costs and prices. Interest rates climb as more people and companies demand credit to finance their spending or investments. When an economy is growing faster than its resources might allow, inflation typically emerges and unemployment tends to fall; the increased demand for both products and services and labour can create inflationary pressures.

Peak. At a peak, economic growth reaches a maximum level and begins to slow, or contract. Each country has a central bank that serves as the banker for the government and other banks. Central banks may implement policies to slow the economy and control inflation. These policies are discussed in Section 4.1. Other factors contributing to the end of an expansion include a drop in consumer or business confidence caused by events such as rising oil prices, falling real estate prices, and/or declining equity markets. Shocks, such as natural disasters, or geopolitical events, such as a war, can also contribute to the end of an expansion.

Contraction. During a contraction, the rate of economic growth slows. If economic activity, as gauged by total real GDP or some other measure, declines (negative growth), a **recession** may occur. In a contraction, inflation and interest rates tend to fall because of market forces and central bank actions, whereas unemployment tends to increase. In this scenario, central banks often implement policies to try to stimulate economic growth. On some occasions, federal governments may seek to stimulate the economy through direct spending programmes to combat economic weakness. Government and central bank policies are discussed in Section 4.

WHAT IS A RECESSION?

There are different definitions associated with the term “recession”. In Europe, a recession is typically defined as two consecutive quarters of negative growth. In the United States, the National Bureau of Economic Research (NBER) 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, real income, employment, industrial production, and wholesale–retail sales.

Trough and recovery. A trough marks the end of the contraction phase and the beginning of recovery. In a trough, the rate of economic growth stabilises and there is no further contraction. Eventually, companies need to replace obsolete equipment and individuals need to purchase new household items, spurring more spending. Lower interest rates may encourage more borrowing to finance spending. Finally, the economic growth rate begins to improve and the economy enters a recovery phase.

2.3 Causes of Business Cycles

Why does GDP move through cycles rather than rising in a straight line? To answer that, recall the four basic components of GDP:

- Consumer spending
- Business spending
- Government spending
- Net exports (exports minus imports).

A contraction in any of these components can cause a reduction in the economic growth rate. Furthermore, the effect of a change in one component is often amplified because the components are interrelated. Example 1 describes how some of these components may be affected by changes in the housing sector.

EXAMPLE 1. THE HOUSING SECTOR AND THE BUSINESS CYCLE

When consumer confidence is high, consumer spending increases, including spending on housing. Because of increased demand, housing prices increase. This increases wealth and further consumer (household) spending and investing takes place. As consumer spending increases, business spending increases too because of the increased demand for products and services and increased availability of capital due to increased consumer investing. The economy expands and advances toward a peak. If the demand for housing stabilises or declines and consumers begin to think that home prices are too high, the price of homes may decline. So, a period of contraction begins. Consumer confidence and wealth both decline along with the decline in housing prices. This decline results in reduced consumer spending and investing, and companies see a decline in demand for

goods and services and a reduction in the availability of capital. Meanwhile, governments experience a reduction in tax revenues and an increased demand for social services as unemployment rises.

Governments and central banks will then usually take action to try to stimulate the economy. When that happens, consumer confidence increases again along with consumer spending, and the economy begins a period of recovery (expansion).

Changes in the business cycle can be driven by many factors other than changes in the housing sector. A decrease or increase in the price of a key commodity, such as oil, can also affect spending. A decrease or increase in the stock market or the financial services sector can be transmitted through to the components of GDP. The decline in a sector can be very dramatic; an extreme decline is often described as a bubble bursting.

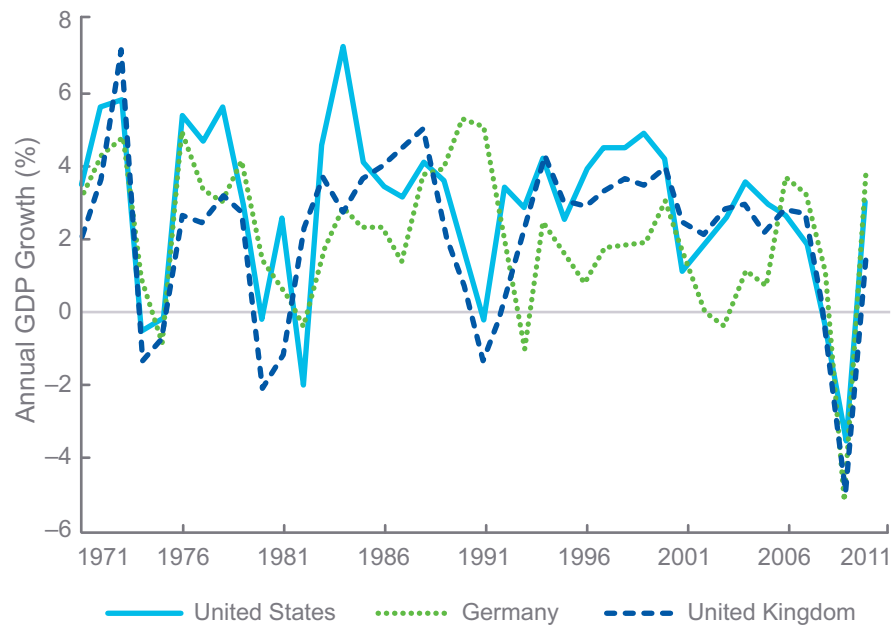
As described in Example 1, during periods of economic contraction, governments may engage in fiscal stimulus programmes to stimulate aggregate demand. Central banks may increase access to credit (provide liquidity) and reduce borrowing costs to help the economy stabilise and recover. By taking these actions, central banks inject money into the economy, which encourages consumers and businesses to increase spending. Those who benefit from this additional spending, in turn, increase their own spending. This is known as the **multiplier effect**.

As the economy moves from trough to expansion, companies begin to hire. Other consumers who witness job gains may become more confident in their own employment prospects, even if they are already employed. With unemployment declining and confidence growing, consumers increase their spending. So, we see that psychology and consumer confidence have a significant effect on spending decisions.

2.4 Global Nature of Business Cycles

With the growth of international trade, mobility of labour, and more closely connected financial markets, movements in the business cycles of countries have become more closely aligned with each other. In Exhibit 5, which shows growth rates in real GDP for Germany, the United Kingdom, and the United States, we can see that similar patterns emerge. The cycles are transmitted between countries through trade and integrated financial markets. One country's economic growth, for instance, often leads to a higher level of imports, which creates a larger export market for other countries. Increased exports will lead to economic growth in the exporting countries.

Investing and borrowing occur in increasingly integrated global financial markets. Financial panics can spread rapidly throughout the global economy, as the world experienced in the financial crisis that started in 2008. Economic policies of governments also create alignment between the business cycles of various countries. Policies can be co-ordinated through the promotion of greater integration of financial markets and through international policy forums, such as the G-20. The G-20 is a group with representatives from 19 countries, the European Union, the International Monetary Fund, and the World Bank that meets to discuss economic and financial policy issues.

Exhibit 5 International Business Cycles, 1971–2010

Note: Annual percentage growth of GDP is calculated at market prices based on constant local currency.

Source: Based on data from the World Bank.

2.5 Economic Indicators

We noted earlier in this chapter that economic growth is not easy to measure. Real GDP is typically estimated quarterly and is an important measure of the wealth of a country. However, it is rarely 100% accurate when published because all necessary information is not yet available. It is estimated with a substantial time lag and is subject to revisions over time as more data become available. In fact, revisions can occur well over a year after the original report date.

Economic indicators are measures that offer insight regarding economic activity and are reported with greater frequency than GDP. Economic indicators are estimated and reported by governments and private institutions. Economic indicators can be used to guide forecasts of future economic activity as well as forecasts of activity and performance in the financial markets and exchange rates.

Industrial production, for example, is available monthly and reports the output of the industrial sector of the economy—principally the output of manufacturing, mining, and utility companies. Industrial production excludes the agricultural and service sectors, which can also be significant contributors to economic activity. Other indicators of economic activity include

- average weekly hours of production workers,
- initial claims for unemployment insurance,

- durable products orders (such as new orders of high-priced manufacturing items),
- retail sales,
- construction spending for commercial and residential properties,
- sentiment surveys covering the manufacturing and consumer sectors.

Sentiment surveys attempt to measure the confidence that economic entities, such as manufacturers and consumers, have in the economy and their intended levels of activity. Sentiment surveys may be useful as predictors of spending plans, but they have limitations:

- They measure only general attitudes about economic conditions rather than actual spending or output.
- The sample may not be representative. For example, only large companies may be sampled, or the sample of consumers may be pedestrians at a single street corner. Therefore, because of sampling error, these surveys might not reflect data on an economy-wide basis.
- The survey may only ask respondents to choose between more, the same, or fewer sales, employment, output, and so on. So, the responses may show only the direction of the expected change but not its magnitude.

Economic indicators are often categorised as lagging, coincident, or leading, based on whether they signal or indicate that changes in economic activity have already happened, are currently underway, or are likely to happen in the future.

Lagging indicators signal a change in economic activity *after* output has already changed. An example of a lagging indicator is the employment rate, which tends to fall after economic activity has already declined.

Coincident indicators reveal *current* economic conditions, but do not have predictive value. Examples of coincident indicators include industrial production and personal income statistics.

Leading indicators usually signal changes in the economy in the *future*, and are considered useful for economic prediction and policy formulation. Examples of leading indicators include money supply (the amount of money in circulation) and broad stock market indices, such as the S&P 500 Index, the FTSE Index, and the Hang Seng Index.

A number of organisations publish indices of leading economic indicators. An **index of leading economic indicators** combines different indicators to signal what might happen to GDP in the future. In the United States, the Conference Board publishes a monthly index of leading economic indicators. In Europe, similar indices are also published.

Exhibit 6 shows economic indicators provided by the *Economist* magazine at the end of each issue. The *Economist* includes them for a number of countries, but Exhibit 6 shows them only for the five largest economies.

Exhibit 6 Economic Indicators

Output, Prices, and Jobs (% change on year ago)

	Gross Domestic Product				Industrial Production	Consumer Prices			Unemployment Rate, %
	Latest	Qtr*	2013 [†]	2014 [†]	Latest	Latest	Year Ago	2013 [†]	
China	+7.7 Q4	+7.4	+7.7	+7.3	+9.7 Dec	+2.5 Dec	+2.5	+2.6	4.0 Q3 [§]
France	+0.2 Q3	−0.5	+0.2	+0.8	+1.5 Nov	+0.7 Dec	+1.3	+1.0	10.8 Nov
Germany	+0.6 Q3	+1.3	+0.5	+1.7	+3.5 Nov	+1.4 Dec	+2.0	+1.5	6.9 Dec
Japan	+2.4 Q3	+1.1	+1.7	+1.5	+4.8 Nov	+1.6 Nov	−0.2	+0.2	4.0 Nov
United States	+2.0 Q3	+4.1	+1.8	+2.7	+3.7 Dec	+1.5 Dec	+1.7	+1.5	6.7 Dec

*% change on previous quarter, annual rate.

[†]The Economist poll or Economist Intelligence Unit estimate/forecast.

[§]Not seasonally adjusted.

Source: "Economic Indicators," *The Economist*, January 25th–31st, 2014. *The Economist* is citing data from Haver Analytics.

3

INFLATION

Have you noticed that your food costs tend to increase every year? Food that cost on average \$100 a week last year, may cost on average \$110 a week this year.

Inflation is a general rise in prices for products and services. Changing inflation has implications for economic activity and national competitiveness. Companies must monitor increases in costs and prices. They assess their competitive environment to decide how to respond to rising costs and prices. Consumers use changes in prices to make their buying decisions. So, accurate measurement of inflation is important.

3.1 Measuring Inflation

There are many different measures of inflation based on different price indices. A price index tracks the price of a product or service, or a basket of products and services (typically referred to as a basket of goods) over time. The basic measure of inflation is the percentage change in an index from one period to another.

Consumer price index. A **consumer price index** (CPI) is used to measure the change in price of a basket of goods typically purchased by a consumer or household over time. A CPI is constructed by determining the weight—or relative importance—of each product and service in a typical household's spending in a particular base year and then measuring the price of the basket of goods in subsequent years.



Weights in this index can be altered when long-term consumer trends change. For example, computers and technology-related products may not have been part of a typical household budget in the past, so they were not included in baskets of goods. Today their weighting in a basket of goods may be relatively high. Inflation measured by a CPI may overstate or understate inflation for a particular consumer or household depending on how their spending patterns compare with the basket of goods.

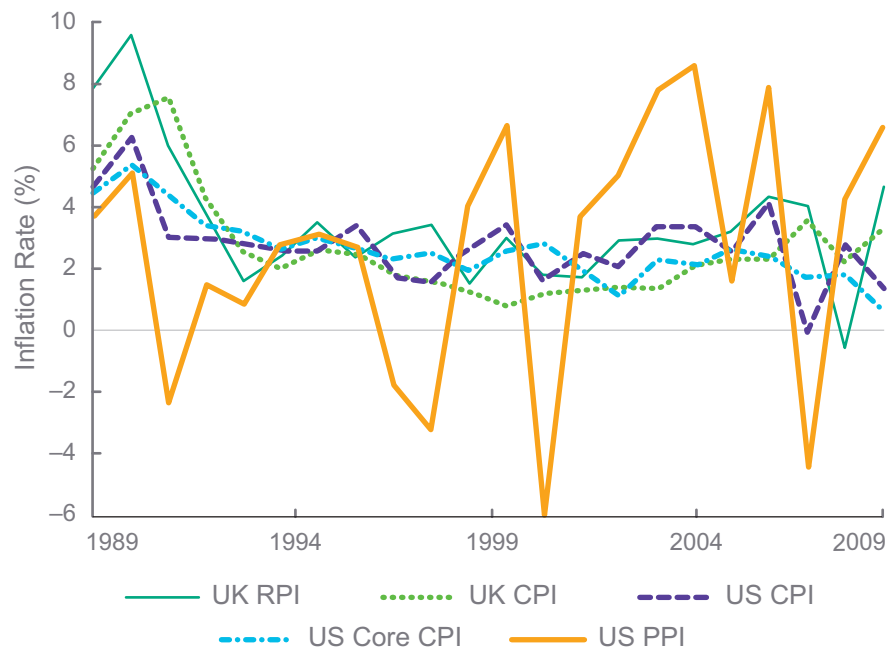
In different countries, terminology may vary, and the basket of goods is likely to vary. For example, in the United Kingdom, at least two CPIs are reported: a retail price index (RPI) based on a basket of goods that includes housing costs, and a CPI with a smaller basket of goods that does not include housing. Inflation rates as measured by the UK RPI and CPI are typically not the same.

Indices based on core inflation, such as the US Core CPI, exclude the effects of temporary volatility in commodity (including food and energy) prices. Policymakers, such as governments and central banks, find these indices useful. The reported core inflation can differ from what households and companies are experiencing.

Producer price index. Another measure of inflation is a **producer price index** (PPI). PPIs measure the average selling price of products in the economy. They are broader than CPIs in that they include the price of investment products, but they are simultaneously narrower in that they do not include services. PPIs can be reported by individual industries, commodity classifications, or stage of processing of products, such as raw material and finished products.

Inflation rates and price indices. Different indices can produce different inflation measures, even in the same country over the same period. As you can see in Exhibit 7, which shows inflation rates based on different price indices for the United Kingdom and the United States, inflation rates over the same period can vary noticeably depending on the price index used.

Exhibit 7 Inflation Rates in the United States and the United Kingdom, 1989–2010



Source: Based on data from the Federal Reserve Bank of St. Louis and the Office of National Statistics.

The relationship between CPIs and PPIs is sometimes used to determine the degree to which producers' costs are passed on to consumers. If consumer prices (or costs to consumers) are static and producer prices (or costs to producers) are rising, then producers seem unable to pass on the costs to consumers. Examining increases in production costs relative to consumer price increases can indicate whether profit margins are expanding or contracting.

Implicit GDP deflator. Another way of measuring inflation is to estimate what would happen if the weight of each good in the index is changed each year to reflect actual spending on that good. Such a measure is known as an implicit deflator and is widely used to estimate changes in GDP. The **implicit GDP deflator** is simply defined as nominal GDP divided by real GDP and is the broadest-based measure of a nation's inflation rate.

3.2 The Effects of Inflation on Consumers, Businesses, and Investments

Changes in price levels can affect economic growth because consumers and businesses may change the timing of their purchases, the amount of their spending, and their saving and borrowing decisions based on anticipated changes in prices. The value of investments may also be affected by changes in price levels.

Consumers. If consumers expect prices to increase, they may buy now rather than save. Or they may choose to borrow to increase spending. Borrowers benefit from inflation because they repay loans with money that is worth less (has lower purchasing power).

Inflation can prompt economic growth if consumers respond to expectations of price increases by making purchases now rather than delaying them. However, the added spending may only benefit economic growth in the short run because some of those purchases would have been made anyway. So, inflation may simply shift demand from the future to the current time period. This added short-term demand can further increase inflationary pressure.

During times of inflation, wages may not increase at the same rate as the prices of products and services. If wages increase by a lesser amount, consumers may have less money to spend as their budgets are squeezed. Additionally, if unemployment is high, labour's bargaining power declines, and real consumer spending (consumer spending adjusted for inflation) may weaken. This scenario may help break the inflationary cycle.

Businesses. What is the impact of inflation on business? Generally, inflation will have a negative effect on business planning and investment. Budgeting becomes more difficult because of the uncertainty created by rising prices and costs. Consumers spend rather than invest, so access to capital is reduced for companies, which results in reduced business spending on physical (productive) capital. Companies' profits may decline as costs rise, particularly if companies are unable to pass on the higher costs to consumers in the form of higher prices. If inflation becomes established, overall economic performance may deteriorate as companies raise prices and are potentially unable to invest in capital and seek productivity improvements.

Investments. Finally, inflation affects the values of financial investments. Any investment paying a fixed cash amount will decline in value if interest rates rise. As inflation increases, interest rates generally rise, so higher inflation will lead to lower values for fixed-income investments, such as bonds. Inflation tends to benefit borrowers, as described earlier, and hurt lenders.

Shares, on the other hand, may be a good hedge (protection) against inflation if companies are able to increase the selling prices of their products or services as their input prices increase. A more detailed discussion of bonds, shares, and other investments will be covered in the Investment Instruments module.

3.3 Other Changes in the Level of Prices

Inflation is a key economic concern for investors. Three additional scenarios related to price level changes are deflation, stagflation, and hyperinflation. Inflation is more typical but deflation, stagflation, and hyperinflation can be equally or even more problematic for consumers, companies, policymakers in central banks and governments, and economies.

Deflation. A persistent and pronounced decrease in prices across most products and services in an economy is called **deflation**. Deflation was experienced in the 1930s during the Great Depression in the United States and more recently in Japan. If consumers expect prices to fall, they may choose to save, even if they earn zero interest, and delay purchases until prices decrease further. As a result, demand drops, companies reduce

production and labour, and unemployment increases. Encouraging consumption and breaking this vicious cycle is very difficult. Japan, for instance, has experienced deflation for much of the past 20 years.

Stagflation. Inflation usually occurs in periods of high economic growth. However, high inflation can occur in times of little or no economic growth and this scenario is termed **stagflation**. Stagflation is typically associated with inflation that originates outside the domestic economy. Many developed economies experienced stagflation in the 1970s and early 1980s because oil prices suddenly and dramatically increased. Higher oil prices caused inflation through increased costs of production for suppliers of products and services. Investment spending by businesses declined. Simultaneously, consumer spending on other products decreased as consumers adapted to increased oil prices. As a result, unemployment rates increased and consumers had even less money to spend. Central banks and governments were faced with a dilemma: stimulate the economy and risk further inflation or fight inflation and risk further declines in economic growth. Finally, most central banks chose to fight inflation by raising interest rates, resulting in a period of global recession. Only when inflation was under control was action taken to stimulate the economy.

Hyperinflation. **Hyperinflation** involves price increases so large and rapid that consumers find it hard to afford many products and services. Consumers try to spend money as quickly as they get it, anticipating increases in prices of products and services and preferring to hold real assets rather than money. Often products and services are not available because producers hold back anticipating further price increases. Although most commonly associated with emerging markets, Germany experienced hyperinflation following World War I. Hyperinflation causes severe damage to an economy and cannot be readily counteracted by governments and central banks. Fortunately, cases of hyperinflation are relatively rare.

4

MONETARY AND FISCAL POLICIES

Economic growth, inflation, and unemployment are major concerns for central banks and governments. They each use different financial tools to affect economic activity. Central banks, which are often independent from governments, use monetary policy. Governments use fiscal policy.

4.1 Monetary Policy

Monetary policy refers to central bank activities that are directed toward influencing the money supply (the amount of money in circulation) and credit (the amount of money available for borrowing and at what cost or interest rate) in an economy. The ultimate goal is to influence key macroeconomic targets:

- Output or GDP

- Price stability
- Employment

Most central banks have a mandate of maintaining price stability (controlling inflation while avoiding deflation), which has indirect effects on other macroeconomic targets, such as employment and output. Many central banks have additional responsibilities to sustain employment levels and to stimulate or slow down economic growth. Focussing on these only may result in lack of price stability; increased employment and high economic growth is often accompanied by inflation.

Consumers and companies should, in theory, be encouraged by lower interest rates to borrow and spend more and thus stimulate the economy. As interest rates fall, the stock market may seem a more attractive place to invest, leading to increases in share prices and a general sense of increased wealth. This sense of increased wealth should prompt consumers to spend more and save less and thus further stimulate the economy. So, reducing interest rates may increase output and employment, thereby meeting two of the key macroeconomic targets of policymakers. Similarly, increased interest rates may slow the economy.

The tools used for monetary policy include the following:

- Open market operations
- Changes in the central bank lending rate
- Changes in reserve requirements for commercial banks

4.1.1 Open Market Operations

Open market operations involve the purchase and sale of government notes and bonds. If a central bank wants to increase the supply of money and credit in order to stimulate the economy, it can do so by purchasing financial assets, generally short-term government instruments, held by commercial banks. The banks give up short-term government instruments for cash from the central bank, which puts more money in circulation. The injection of money allows banks to lower interest rates and make more loans because they now have more cash reserves at the central bank. Note that the central bank does not set the interest rates, but rather uses open market operations to influence the interest rates.

To reduce the supply of money and credit in circulation in order to slow an economy, the central bank sells these instruments to the commercial banks. The commercial banks now have lower balances at the central bank and more short-term government instruments. The decrease in cash balances reduces the credit available to the private sector. Interest rates rise as consumers and companies compete for a smaller amount of credit.

By conducting open market operations, the central bank creates a shortage or surplus of money. Effectively, the central bank is compelling commercial banks to change their lending rates.

QUANTITATIVE EASING

The policy of quantitative easing (QE), used in a number of countries after the financial crisis of 2008, is similar to open market operations, but on a much larger scale and it involves the purchase of instruments other than short-term government instruments. In the United States, QE differed from open market operations in that it involved the purchase of mortgage bonds as well as large-scale purchases of longer-term US Treasury securities. The intent was to decrease longer-term interest rates for bonds and across a variety of credit products, induce bank lending, and thereby increase real economic activity. It has proven difficult to evaluate the effectiveness of QE because there were other simultaneous stimulus programmes in the wake of the financial crisis.

Additionally, policymakers are concerned about **financial contagion** because of the interconnectedness of global financial markets. Financial contagion can occur when financial shocks spread from their place of origin to other locales—in essence, a declining sector or economy infects other healthier sectors and economies. For this reason, sometimes policymakers from different countries co-ordinate their open market operations.

4.1.2 Central Bank Lending Rates

An obvious expression of a central bank's intentions is the interest rate it charges on loans to commercial banks. This lending rate is the rate at which banks borrow directly from the central bank of the country. It is used to affect short-term interest rates as well as to indirectly influence longer-term and other commercial rates. The belief is that changes in interest rates can influence economic activity and affect inflation and economic growth. When a central bank wants to stimulate the economy, it may reduce its lending rate. When a central bank wants to slow the economy, it may increase its lending rate.

If a central bank announces an increase in its lending rate, then commercial banks will normally increase their lending base rates at the same time. Through its lending rate and its money market operations, a central bank can influence the availability and cost of credit. Generally, the higher the central bank lending rate, the higher the rate that banks, if they run short of funds, will have to pay to not only the central bank but to other banks that loan to them as well. The higher the central bank lending rate, the more likely banks are to reduce lending and thus decrease the money supply. So, higher central bank lending rates are expected to slow down economic activity. Similarly, lower central bank lending rates are expected to stimulate economic activity.

4.1.3 Reserve Requirements

Central banks can affect the amount of money available for borrowing in an economy by changing bank reserve requirements. The **reserve requirement** is the proportion of deposits that must be held by a bank rather than be lent to borrowers. By increasing the reserve requirement, central banks reduce access to credit in the economy because bank lending is reduced. When they lower the reserve requirement, central banks increase access to credit because commercial banks are able to make more loans. In practice, this tool is not often used by central banks.

4.1.4 Limitations of Monetary Policy

The effectiveness of monetary policy is subject to debate. Economists who question its effectiveness cite evidence of slow growth in some economies where interest rates are very low. This result may occur because consumers and companies do not respond to lower interest rates by spending more. Instead, they may prefer to

- add to their cash balances because they believe either that the economy will slow further and they need protective funds or that prices may drop and offer better purchase opportunities later.
- pay down debt, in a process referred to as deleveraging.

Thus, the psychology and likely responses of consumers and companies must be considered. Consider a scenario in which the central bank raises interest rates to reduce consumer spending and demand because it is concerned about inflationary pressures. If an economy is doing well, general optimism about income, employment, and business profits may be high. In that case, increases in borrowing costs are less effective in deterring spending. At other times, an increase in interest rates may be effective because optimism is less established. So, the levels of consumer and business confidence influence the effectiveness of monetary policy.

4.2 Fiscal Policy

Governments use fiscal policy to affect economic activity. **Fiscal policy** involves the use of government spending and tax policies. Fiscal policy may be aimed at stimulating a weak economy through increased spending or decreased taxes and slowing an overheating economy through decreased spending or increased taxes.

4.2.1 Role and Tools of Fiscal Policy

One way fiscal policy works is by reducing or increasing taxes on individuals or companies. Governments can also affect GDP directly by spending more or less itself.

An expansionary policy, which aims to stimulate a weak economy, can in essence,

- reduce taxes on consumers or businesses with the objective of increasing consumer and business spending and aggregate demand.
- increase public spending on social goods and infrastructure, such as hospitals and schools, which increases spending and aggregate demand directly. An expansionary policy can also increase spending and aggregate demand indirectly because it can increase the personal income of workers and increase the revenues of companies hired for those public projects. Those individuals and companies may then increase spending and aggregate demand.

The effectiveness of these policies will vary over time and among countries depending on circumstances. For example, in a recession with rising unemployment, cuts in the income tax will not always raise consumer spending because consumers may want to increase their savings in anticipation of further deterioration in the economy.

4.2.2 Limitations of Fiscal Policy

The effectiveness of fiscal policy is limited by the following:

- Time lags
- Unexpected responses by consumers and companies
- Unintended consequences

Time lags. There can be a significant time lag between when a change in economic conditions occurs and when actions based on fiscal policy changes affect the economy. A variety of events have to occur in the interim period. These events include recognition of the economic change that requires fiscal policy action, a decision on the fiscal policy response, implementation of the decision, and responses to the changed fiscal policy. In other words, it takes time for policymakers to recognise that a problem exists, for decisions to be made and implemented, and for actions to occur that affect the economy. By the time the actions affect the economy, economic conditions may have already changed.

Unexpected responses. As with monetary policy, consumers and companies may not respond as expected to changes in fiscal policy. For example, when a tax reduction is announced, private sector spending is expected to increase. But spending may remain unchanged or even decrease if the private sector chooses to save the funds or pay down debt rather than spend. On the other hand, spending may increase by more than expected. Similarly, if government spending increases, consumer and business responses may counteract the effects of the change in government spending on GDP by reducing their own spending.

Unintended consequences. Changes in fiscal policy may also have unintended consequences. For example, if the government increases spending with the intent of increasing aggregate demand and GDP, the increased aggregate demand may increase employment and lead to a tightening labour market and rising wages and prices. So the economy (GDP) grows as planned, but inflation also increases. Policymakers may be reluctant to implement fiscal policy to stimulate an economy given the risk of inducing inflation. In another example of unintended consequences, crowding out may occur. Crowding out is when the government borrows from a limited pool of savings and competes with the private sector for funds so the government “crowds out” private companies. As a result, the cost of borrowing may rise and economic growth and investment by the private sector may decline.

4.3 Fiscal or Monetary Policy

Both governments and central banks are concerned with economic growth, inflation, and unemployment. Each entity has different tools at its disposal to affect economic activity. Government tools include taxes and government spending. Central bank tools include open market operations, central bank lending rates, and reserve requirements.

Each entity is subject to much the same limitations: time lags between when a change in economic conditions occurs and when policy actions take effect; unexpected responses by consumers and companies; and unintended consequences, such as successfully

stimulating the economy but at the same time increasing inflation. However, the time lag for monetary policy may be shorter because central banks may be able to act more quickly than governments.

Economists are generally divided into two camps regarding the effectiveness of monetary and fiscal policies. **Keynesians**, named after British economist John Maynard Keynes (pronounced “canes”), believe that fiscal policy can have powerful effects on aggregate demand, output, and employment when there is substantial spare capacity in an economy. Some economists believe that changes in monetary variables under the control of central banks can only affect monetary targets, such as inflation, and will not lead to changes in output or employment. This is a subject of intense debate between economists.

Monetarists believe that fiscal policy has only a temporary effect on aggregate demand and that monetary policy is a more effective tool for affecting economic activity. Monetarists advocate the use of monetary policy instead of fiscal policy to control the cycles in real GDP, inflation, and employment.

In practice, both governments and central banks are likely to act in response to economic conditions. This is particularly true when economic conditions are extremely worrisome—for example, when a recession is identified or when either inflation or unemployment is high. The modern economy is a complex system of human behaviour and interactions. To encourage growth in real GDP requires considerable insight into the effects of interest rate or tax changes on decisions by consumers and companies. After all, the economy represents the collective action of many millions of consumers, companies, and governments around the globe.

SUMMARY

Investment professionals consider macroeconomic factors when evaluating companies' earnings potential and the relative attractiveness of asset classes. It is no easy task, and few investment professionals are able to measure and assess the combined effect of macroeconomic factors with any degree of certainty.

Some important points to remember about macroeconomics include the following:

- Gross domestic product is the total value of all final products and services produced in an economy over a particular period of time. Nominal GDP uses current market values, and real GDP adjusts nominal GDP for changes in price levels.
- GDP can be estimated by using an expenditure approach or an income approach. In the expenditure approach, the components of GDP are consumer spending, business spending, government spending, and net exports.
- GDP per capita is equal to GDP divided by the population. It allows comparisons of GDP between countries or within a country.

- Economic growth is the annual percentage change in real output. It is also sometimes expressed in per capita terms.
- Economic activity and growth rates tend to fluctuate over time. These fluctuations are referred to as business cycles. Phases of a business cycle include expansion, peak, contraction, trough, and recovery.
- Changes in the business cycle can be driven by many factors, such as housing, the stock market, and the financial services sector.
- With the growth of international trade, mobility of labour, and more closely connected financial markets, movements in the business cycles of countries have become more closely aligned with each other.
- Economic indicators—measures of economic activity—are regularly reported and analysed. These measures may be leading, lagging, or coincident indicators.
- Inflation is a general rise in the prices of products and services. Measures of inflation include consumer price indices, producer price indices, and implicit GDP deflators.
- Changes in price levels can affect economic growth because consumers, companies, and governments may change the timing of their purchases, the amount of their spending, and their saving and spending decisions based on anticipated changes in prices.
- Three additional price level changes investors also consider are deflation, stagflation, and hyperinflation.
- Economic growth, inflation, and unemployment are major concerns of central banks and governments. They each use different financial tools to affect economic activity. Central banks, which are often independent from governments, use monetary policy. Governments use fiscal policy.
- Monetary policy refers to central bank activities that are directed toward influencing the money supply and credit in an economy. Its goal is to influence output, price stability, and employment.
- Fiscal policy involves the use of government spending and tax policies to influence the level of aggregate demand in an economy and thus the level of economic activity.
- Both fiscal and monetary policies have limitations: they are affected by time lags and the responses to and consequences of each may not be as expected.

CHAPTER REVIEW QUESTIONS

- 1 Gross domestic product (GDP) is *best* defined as the total:
 - A output of a country.
 - B output of a country per person.
 - C changes in real output of a country.
- 2 Which of the following *best* measures the relative wealth of citizens of different countries?
 - A Real GDP
 - B GDP per capita
 - C Nominal GDP
- 3 In a given year, if a country's GDP per capita decreases while total GDP is unchanged, then the population of the country has:
 - A decreased.
 - B remained the same.
 - C increased.
- 4 The largest component of total GDP is *most likely* to be:
 - A gross investment.
 - B government spending.
 - C consumer or household spending.
- 5 Holding all other factors constant, an increase in imports would *most likely* cause total GDP to:
 - A decrease.
 - B remain the same.
 - C increase.
- 6 If all other factors remain the same, which of the following changes would *most likely* cause an increase in the growth rate of a country's GDP?
 - A An increase in productivity
 - B An increase in unemployment
 - C A decrease in the availability of capital

- 7 Which stage of the business cycle is *most* often characterised by rising interest rates and higher wages?
- A Recession
 - B Expansion
 - C Contraction
- 8 Which of the following will *most likely* decrease when an economy is in the expansion phase of the business cycle?
- A Production
 - B Unemployment rate
 - C Consumer spending
- 9 Which of the following phases of the business cycle *most likely* follows the peak phase?
- A Trough
 - B Recovery
 - C Contraction
- 10 Integrated global financial markets have *most likely* caused business cycles between countries to be:
- A less aligned.
 - B unrelated.
 - C more aligned.
- 11 Financial panics are *most likely*:
- A limited to specific countries.
 - B limited to specific securities markets.
 - C easily spread throughout the global economy.
- 12 More closely aligned movements in the business cycles between countries is *best* explained by:
- A reduced international trade.
 - B decreased mobility of labour.
 - C increasingly connected financial markets.

- 13 Which of the following indicators is *most* appropriate to use in forecasting future economic activity?
- A Lagging economic indicators
 - B Leading economic indicators
 - C Coincident economic indicators
- 14 Current economic conditions are *best* shown by:
- A lagging economic indicators.
 - B leading economic indicators.
 - C coincident economic indicators.
- 15 If consumers anticipate an inflationary environment, it may lead to consumer spending:
- A decreasing.
 - B remaining unchanged.
 - C increasing.
- 16 An economy experiencing deflation is *most likely* characterised by:
- A delayed consumption.
 - B increased production.
 - C reduced unemployment.
- 17 Tools of fiscal policy include:
- A government spending.
 - B open market operations.
 - C changes in the central bank lending rate.
- 18 Monetary policy is similar to fiscal policy in that:
- A legislation is required to implement policy decisions.
 - B a time lag may occur before it affects economic growth.
 - C commercial banks tend to react immediately by changing their lending terms.
- 19 Fiscal policy that is intended to stimulate the economy includes decreases in:
- A tax rates.
 - B interest rates.
 - C public spending.

- 20** Which of the following is a monetary policy tool?
- A** Changes in tax rates
 - B** Open market operations
 - C** Decreases in government spending
- 21** Which of the following *best* describes a limitation of monetary policy?
- A** Crowding out of private borrowers
 - B** Long time lags until implementation
 - C** Unexpected responses from consumers
- 22** Time lags until policies affect the economy are *most likely* associated with:
- A** only fiscal policy.
 - B** only monetary policy.
 - C** both fiscal policy and monetary policy.

ANSWERS

- 1** A is correct. GDP is the total output of a country. It is the total value of final goods and services produced within a country over a period of time. B is incorrect because the total output of a country per person measures GDP per capita. C is incorrect because total changes in real output of a country is a measure of economic growth.
- 2** B is correct. GDP per capita is defined as a country's total GDP divided by population and describes the average wealth of each citizen of a country. A and C are incorrect because GDP—real and nominal—is a measure of total wealth of a country, which can be highly dependent on total population.
- 3** C is correct. GDP per capita is calculated as total GDP divided by the population. A lower GDP per capita with an unchanged total GDP implies that the population has increased.
- 4** C is correct. Consumer or household spending is the largest component of total spending, and may be as high as 70% of total GDP.
- 5** A is correct. Imports involve domestic residents spending money on foreign goods. Higher imports would cause GDP to decrease as defined by the following equation: $GDP = C + I + G + (X - M)$, where C is consumer spending, I is gross investment, G is government spending, X is exports, and M is imports.
- 6** A is correct. An increase in productivity will lead to an increase in GDP, all other factors remaining the same. B is incorrect because an increase in unemployment (a decrease in the employed labour force) will lead to a decrease in GDP, all other factors being unchanged. C is incorrect because a decrease in the availability of capital will lead to a decrease in GDP, all other factors being unchanged.
- 7** B is correct. During an economic expansion, production, inflation, interest rates, employment, and investment spending all tend to rise. Employees have more bargaining power in demanding higher wages. A and C are incorrect because inflation and interest rates tend to decline and unemployment tends to increase during a contraction. A recession is a significant economic contraction.
- 8** B is correct. Unemployment tends to fall when an economy is in the expansion phase of the business cycle. A and C are incorrect because production and consumer spending tend to increase during the expansion phase of the business cycle.
- 9** C is correct. The business cycle can vary, but it typically follows a pattern of expansion, peak, contraction, trough, recovery, and back to expansion. Therefore, an economic peak is most likely followed by a contraction phase. A and B are incorrect because the trough and recovery phases typically occur following the contraction cycle.
- 10** C is correct. Integrated global financial markets have caused business cycles of various countries to become more closely aligned.

- 11 C is correct. As financial markets are increasingly global, financial panics are easily spread throughout the global economy. A and B are incorrect because financial panics generally do not remain contained to specific markets or countries, but spread globally as experienced from 2007 to 2009.
- 12 C is correct. Movements in the business cycles of countries have become more closely aligned as a result of increasingly connected financial markets. A and B are incorrect because *increased* mobility of labour and *growth* in international trade result in economies becoming more closely aligned.
- 13 B is correct. Leading indicators usually signal changes in the economy in the future and, therefore, are considered useful for economic prediction and policy formulation. A is incorrect because lagging indicators signal a change in economic activity after it has already changed. C is incorrect because coincident indicators reveal current economic conditions but do not have predictive value.
- 14 C is correct. Coincident indicators reveal current economic conditions but do not have predictive value. A is incorrect because lagging indicators signal a change in economic activity after it has already changed. B is incorrect because leading indicators usually signal changes in the economy in the future.
- 15 C is correct. Consumers may change the timing of their purchases in response to expected price changes. If they expect prices to increase (inflation), they may buy now rather than save (a lower savings rate).
- 16 A is correct. In a deflationary environment, consumers may expect prices to continue falling and delay purchases (consumption). B and C are incorrect because companies, as a result of reduced consumer spending, are likely to reduce production, which leads to increased unemployment.
- 17 A is correct. Government spending and tax policies are tools of fiscal policy. B and C are incorrect because open market operations and changes in the central bank lending rate are tools of monetary policy.
- 18 B is correct. There can be a time lag before the effects of monetary and fiscal policies are realised. A is incorrect because fiscal policy is set by lawmakers whereas monetary policy is usually set by a central bank, which is often independent from other government branches and may not require legislative action. C is incorrect because commercial banks tend to respond quickly to monetary policy but not to fiscal policy.
- 19 A is correct. A decrease in tax rates is a fiscal policy intended to stimulate an economy by increasing spending and aggregate demand. B is incorrect because a decrease in interest rates is an example of monetary policy intended to stimulate the economy. C is incorrect because a decrease in public spending is an example of a fiscal policy intended to slow an economy.
- 20 B is correct. Monetary policies are typically carried out by central banks and include such tools as open market operations, changes in central bank lending rates, and changes in reserve requirements for commercial banks. A and C are incorrect because both are examples of fiscal policy tools.
- 21 C is correct. Monetary policies are intended to change the behaviour of businesses and consumers to stimulate or slow the economy. One of the drawbacks is that consumers and businesses may not respond as expected, leading to

ineffective policies. A and B are incorrect because both are limitations of fiscal policy. Increased government borrowing and spending may crowd out private borrowers. Unlike fiscal policy, monetary policy can be implemented quickly.

- 22** C is correct. Both monetary policies and fiscal policies can have a significant time lag between a change in policy and when actions based on policy changes affect the economy.