

18

MONETARY POLICY

18.1

Interest rates and the role of a central bank

Learning outcomes

- Describe the role of central banks as regulators of commercial banks and bankers to governments.
- Explain that central banks are usually made responsible for interest rates and exchange rates in order to achieve macroeconomic objectives.
- Explain, using a demand and supply of money diagram, how equilibrium interest rates are determined, outlining the role of the central bank in influencing the supply of money.



It's hard to imagine a world without money. We take it so much for granted that we might overlook the magic it works in our daily lives.

Walk into a grocery store, pick out your food items for the week, and hand over a few pieces of paper, perhaps a couple of coins as well. To you, the benefits of such a transaction are obvious. You expect to eat the vegetables, meats, breads and chocolates. For the supermarket, there's a gamble. They take your paper and coins on faith, the trust that some other person or firm will accept the paper and coins in return for labour services or more goods to fill up the store. If the supermarket did not believe that, you would have to produce something else of value. Your car? A share of your house? A sack of gold? Clearly, money facilitates trade like nothing else, and it operates largely on faith. Money has value because we believe it does. When that faith declines, so does the value of the money.

While it may feel precarious to consider that the crucial ingredient of every market transaction relies on trust, it is a lesson that policymakers must always bear in mind. The

amount and value of money is regularly manipulated to achieve macroeconomic goals. Economic growth and employment levels, as well as price stability, can be enormously influenced by the flow of money in the economy.

This chapter examines the means by which central banks and governments manage their money supplies, and evaluates the effectiveness of monetary policy as a tool in macroeconomics.

What money is and does

Money is any object or record that is widely accepted as payment for goods and services.



While we can acknowledge that some people are very wealthy, their wealth may not easily translate into having money. Money, as defined by economists, is a type of wealth that is widely accepted in exchange for goods and services. Steve Jobs, the owner of Apple, may be wealthy, but his shares in Apple are not necessarily easily transferable into goods and services as money in the way that economists define it.

For something to be considered money, it needs to fulfil three functions.

- **Money must be a medium of exchange.** Buyers and sellers must be willing to use money as a proxy for later use in other transactions. If you buy a bike from a store, the store owner accepts your money, knowing that he or she can later use the money in another transaction.
- **Money must serve as a unit of account.** Whatever items serve as money must be easily measurable so that everyone understands the value. When money serves as a unit of account, we can more easily post clear prices that are universally understood. In the absence of this feature, we would be left to price goods in terms of whatever we had available to barter. One bike would be equal to half of an electronic bike, perhaps a fifth of a motorbike, and so on.
- **Money must be a store of value.** For something to be used as money, you must be able to keep it and use it at a later date. It must hold value, independent of inflation or other changes in the economy. It must, therefore, be durable. When, in years past, communities used grain such as corn or wheat as money, they risked moulds or other deterioration of the crop, which would hurt their savings. Coins and durable paper, while hardly indestructible, now serve this purpose in most societies. Recently, many countries have moved to replace paper money with plastic money to improve durability and lower the cost of making it.

These stones are part of a collection of stone money used at Yap, Federated States of Micronesia.



Most money used today has little intrinsic value and is called fiat money. *Fiat*, a Latin word, means 'let it be done'. It is used to describe today's money because the materials used are practically worthless, but they are deemed to be money because the government declares it so. Money is money by government *fiat*. Less frequently in modern times, societies use *commodity money*. This type of money does possess some intrinsic value, and could be traded as a good in and of itself. A major challenge to the use of commodity money is that when the value of the commodity changes, the value of the money increases or decreases as well. Many items have been used as commodity money, including grains, conch shells, beads, gold, silver, copper, rice, special belts, and very large stones.

Modern money: M1 and M2

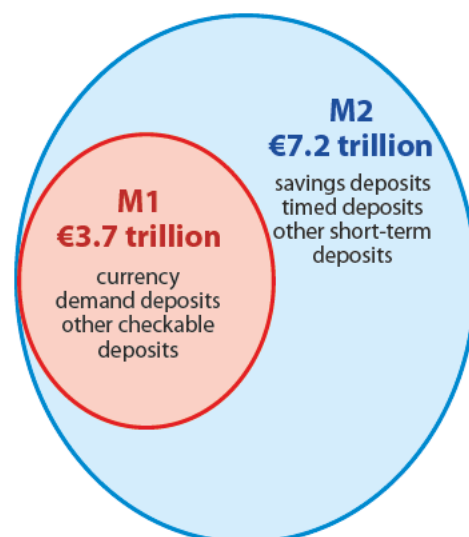
When the central bank of a country goes about the business of managing the supply of money, only a particular kind of money is in question. The first category of money, M1, includes all currency (paper and coin money), as well as demand deposits, traveller's cheques, and other checkable deposits. Demand deposits, as well as checkable deposits, are assets in banks that can easily be removed from the bank as currency. The second category, called M2, includes everything in M1, *plus* less accessible money such as savings deposits, which depositors can retrieve from the bank with a small penalty or loss of interest. These are timed deposits, which are kept for specified periods, and other similar deposit types (Figure 18.1).

While the details of these categories do not alter the fundamental analysis that follows, you should understand that money includes a wider array of deposits than is covered by our traditional understanding of money as cash and currency. Furthermore, when the central bank of a country acts to expand the money supply (page 391), its actions most directly affect these bank deposits, which are the dominant form of money in a modern economy.

Figure 18.1

2007 European Union
eurozone M1 and M2.

European Central Bank



The role of central banks

The two largest economies in the world, those of the European Union and the US, manage their money supply using a central bank system. The European Central Bank (ECB) has its headquarters in Frankfurt, Germany, and the US Federal Reserve (the Fed), is based in Washington DC. Both central banks are led by governing boards, made up of a combination of appointed economists and bankers. These and other central bank systems have the responsibility of managing monetary policy. Monetary policy is defined as the manipulation of the money supply to meet economic goals. Among the primary goals balanced by a central bank are economic growth, employment, and price stability. These goals sometimes conflict with each other.

Both the ECB and the Fed have enormous power to shape their respective economies. At the same time, both organizations have been vested with significant independence from politics. This conforms to a principle of organization that has become increasingly orthodox among developed economies, that of central bank independence. Like fiscal policy, monetary policy can be poorly made when the decisions are taken for purely political reasons. To avoid this pitfall, the heads and governors of the ECB and the Fed are appointed by politicians to fixed terms. This is designed to allow them to concentrate on policy without fear of unpopularity with voters.

Central banks and the money supply

Monetary policy is implemented by the central bank by managing interest rates primarily through manipulating the supply of money in the nation's banking system. The interest rate is the percentage charged above a loan by banks to the customers who borrow money. When a loan of €100 000 charges 5% per year, the interest paid by the borrower is €5000 each year. In addition, the borrower also has to pay back the initial €100 000 over the course of the loan period. The interest rate, then, is the 'price' of money, how much it costs to use someone else's money to buy a car or a house, or to invest in your business.



A central bank is the monetary authority of a country, which performs the functions of issuing currency, managing the money supply, and controlling interest rates. Besides the Fed and the ECB, other central banks influencing the world's money supplies include the Bank of England, the Bank of Japan, the People's Bank of China and the Swiss National Bank.



The money supply is the combined value of the currency and demand deposits of a country.

To learn more about interest rates, visit www.pearsonhotlinks.com, enter the title or ISBN of this book and select weblink 18.1.



It's important to understand that individual interest rates vary. Credit card interest rates are usually higher than mortgage rates (the interest rate on a home loan). The rate charged to an established, profitable business is likely to be much less than that charged to a start-up firm. So, the type of loan and the amount of risk to the lender are factored into the specific rates. However, the general level of interest rates is heavily influenced by the supply of money available in the nation as a whole.

With a larger money supply, most interest rates throughout the economy will drop, and buying everything with borrowed money becomes cheaper. With a smaller money supply, most interest rates increase, and buying anything with borrowed money becomes more expensive. Ultimately, the overall level of interest paid is determined by the central bank and its monetary policy.

In its effort to influence interest rates, a nation's central bank plays an active role in the market for money. The market for money, like any market, is driven by the forces of supply and demand. When intervening in the money market, the central bank attempts to either increase or decrease the nominal interest rate that prevails in the economy.

Money demand

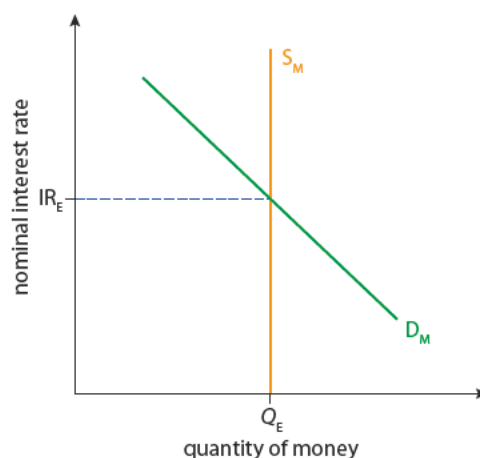
The demand for money is first determined by the desire to buy essential goods and services for daily living. This demand, called transaction demand, is relatively stable and autonomous to interest rate changes, although credit card rates may affect transaction spending to some degree. Transaction demand is, instead, positively influenced by increased real income and increased inflation. Higher incomes lead to more demand for transaction money, and higher inflation requires greater quantities of money to buy the same amount of a good as was previously purchased with less money.

Beyond transaction demand is the demand for money that is kept as an asset, called asset demand or speculative demand. Asset demand is inversely related to the interest rate. As interest rates rise, the opportunity cost of holding money as an asset increases. Fewer households hold onto cash; instead they deposit it in banks, which offer interest in return for savings. Households deposit money rather than hold onto it as an asset, reducing the quantity of money demanded at a higher interest rate. When rates fall, the opportunity cost of holding money as an asset decreases, thus the quantity of money demanded as an asset increases. More households hold onto cash as an asset since the returns offered by banks and on other investments are less attractive. Taken together, transaction and asset demand form the total demand for money and are shown as a downward-sloping curve, negatively related to nominal interest rates, in Figure 18.2.

Money demand includes the desire to hold money as an asset and the demand for money as a means to purchase goods and services. Money demand is inversely related to the interest rate and it increases or decreases with the overall level of national output.



Figure 18.2
The money market.

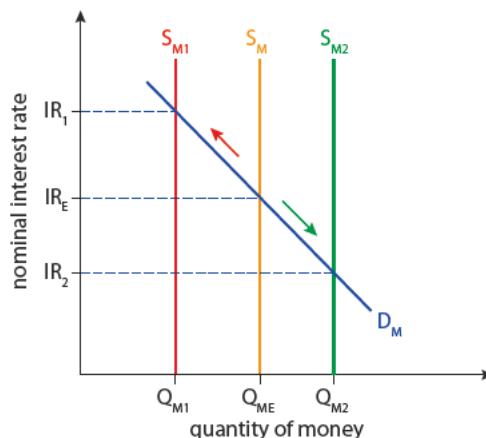


Money supply

The supply component of the money market, in contrast, is independent of changes to nominal interest rates; rather, money supply is determined by the actions of the central bank aimed at increasing or decreasing the overall supply of money available in a nation. As shown in Figure 18.2, the money supply curve is completely vertical, and not affected by changes in interest rates. This is because the central bank determines the supply of money through a variety of monetary policy tools. It does so with the specific goal of influencing nominal interest rates. By managing interest rates, the central bank can influence consumption spending and investment spending, as well as indirectly influence the international value of the country's currency.

So, the supply curve is perfectly inelastic because the central bank has the authority to set the level of the money supply. It operates independently of the interest rate, in an attempt to establish that rate and thereby either stimulate or contract the overall level of demand in the nation's economy. Note that this is a reversal of how we typically think of the relationship between supply and price. Normally, supply is upward sloping because price increases tend to increase the quantity of output supplied. In the money market, however, the central bank establishes the amount of money available. This supply is moved against the relative demand in order to change the interest rates charged in the market.

For example, Figure 18.3 shows how an increase or a decrease in the money supply can raise and lower the interest rate as the equilibrium moves up and down along the money demand curve. The original equilibrium is determined by the intersection of D_M and S_M , which sets the 'price' of money at IR_E and the quantity at Q_{ME} .



W To learn more about the money market, visit www.pearsonhotlinks.com, enter the title or ISBN of this book and select weblink 18.2.

Figure 18.3
Shifts of the money supply.

Central banks and monetary policy

If the central bank were to undertake a contractionary monetary policy, decreasing the money supply and shifting the S_M to the left, the quantity of money demanded would decrease due to the increased scarcity of money in the economy and the corresponding higher interest rate of IR_1 . At IR_1 , all interest rates would be higher, which would discourage investment and consumption by charging households and firms more to borrow money at all levels.

If the central bank were to undertake an expansionary monetary policy and the supply of money were increased to S_{M2} , the new equilibrium interest rate IR_2 would be lower, making it cheaper to borrow money, which is now less scarce and in greater amounts in banks' reserves. This would encourage consumption and investment, and likely expand AD and output.

i Contractionary monetary policy is the term for actions by the central bank to decrease the money supply and increase interest rates.

i Expansionary monetary policy is the term for actions by the central bank to increase the money supply and reduce interest rates.

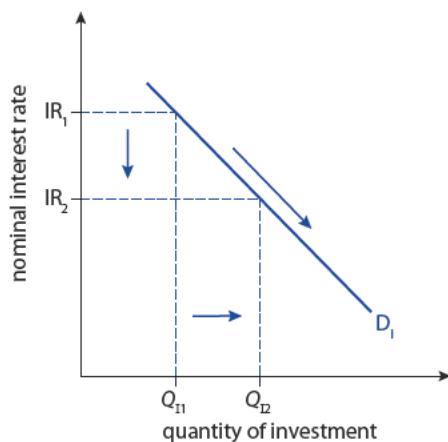
To grasp exactly how and why interest rates affect consumption and investment, let's return to the four major components of GDP, as determined by the consumption method:

- consumption (C)
- investment (I)
- government spending (G)
- net exports ($X - M$).

First, government spending is least likely to be affected because it is determined independently of interest rates. Net exports are affected in ways we will see later, but it is relatively much smaller than either consumption or investment. Of these two, interest rates most directly affect investment, because firms will choose to borrow if they can earn more than the interest they pay on the borrowed funds. While some consumption of high-priced goods (cars, appliances) can be influenced by interest rates, much more consumption is determined by income, expectations and other factors. Thus, private investment is the component most highly sensitive to the rate of interest.

Figure 18.4

Interest rates and investment demand.



With the effect of interest rates on investment in mind, Figure 18.4 shows the relationship between the interest rate and the demand by private firms for private investment. It is clearly an inverse relationship, as the demand for investment slopes downwards. This is because firms balance their borrowing decisions against the expected rate of return on the borrowed money. They can only afford to borrow at high interest if the returns are very great.

So, at high interest rates such as IR_1 , less quantity of investment is demanded, Q_{I1} . At lower interest rates, more firms are confident they will be able to pay the interest and demand a greater quantity of investment, at Q_{I2} .

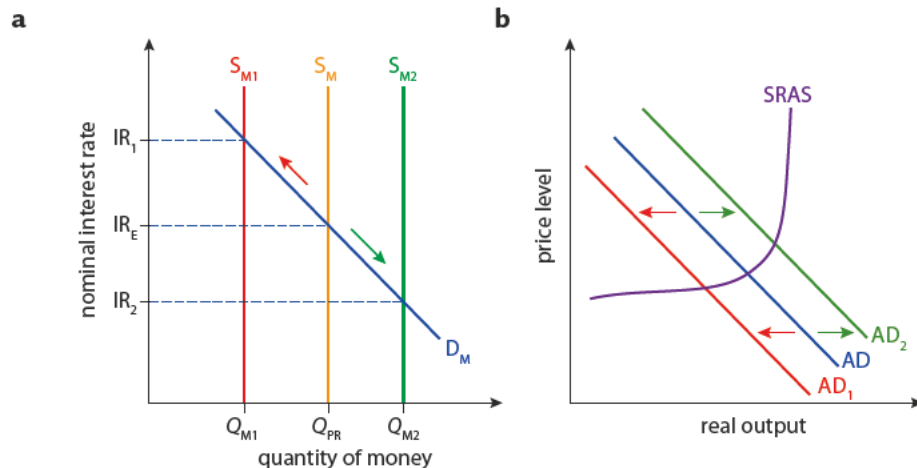
The effect on investment demand is one of the major concerns for the central bank. By indirectly influencing the amount of private investment (I) and consumption (C), the central bank is also encouraging and discouraging the amount of AD:

- limiting the money supply and increasing interest rates reduces private investment (as well as a little consumption) and decreases AD
- expanding the money supply and decreasing interest rates expands private investment and expands AD.

Figure 18.5 shows the desired effects of both lowering and increasing the money supply.

Figure 18.5

Changes in the money supply and effect on AD. **a** The money market; **b** AD/AS diagram.





In Figure 18.5a, a contraction of the money supply from S_M to S_{M1} results in a higher interest rate, IR_1 . That higher interest rate reduces investment and consumption from AD , moving it back to AD_1 (Figure 18.5b). This process can work in the other direction, too. If the central bank expanded the money supply from S_M to S_{M2} , thus decreasing interest rate from IR_E to IR_2 , consumption and investment would increase, pushing AD outwards to AD_2 .

When the central bank actually implements these policy goals, it has a number of policy tools to choose from, each with different ways of contributing to the same effect on the money supply.

Tools for changing the money supply

Central banks manage the money supply with the following monetary policy tools:

- changing the discount rate
- buying or selling bonds
- changing the reserve requirement.

Changing the discount rate

The discount rate is the rate charged by central banks when they make loans to big commercial banks. The chief importance of changes to the discount rate is as a signal to the banking system that borrowing will become more or less expensive, respectively, at all levels. Changes to the discount rate may have only a minor effect on the money supply, since the central bank is typically the 'lender of last resort' to commercial banks. Generally, when banks need loans to meet the demand for funds from their customers, they prefer to borrow from other commercial banks. Only when the availability of credit in the commercial banking system is tight, in other words, in periods of strong investment demand, will commercial banks turn to the central bank for a loan. In such a scenario, a lower discount rate sends the signal to commercial banks that it is OK to increase their own lending activities. This allows banks to make lower interest loans to borrowers, increasing the money supply and lowering interest rates across the economy.

Buying or selling bonds

The central bank may also intervene directly in the open market for bonds. A bond is a certificate issued by a government that guarantees repayment of a principal amount charged with a stated rate of interest. Governments use bonds to raise money initially, and the bonds are then traded as a means of investing and saving. In addition to making loans to private firms and households, commercial banks also lend money to governments by purchasing and holding interest-bearing government bonds.

- **Expansionary monetary policy: central bank buys bonds.** When the central bank buys bonds from private banks, it puts cash into those banks' reserves, increasing the funds available for banks to make loans. This is a form of money creation. By buying up bonds, the central bank has turned a government bond into a demand deposit, which can be spent or withdrawn at any time. Thus, it adds to the nation's stock of $M1$ or $M2$ money. These excess reserves may be spent by their owners. Or, since they are not now earning interest for the banks, they are also likely to be loaned out to private borrowers who will pay interest to the banks for the privilege of borrowing. In other words, the central bank's open market purchase of government bonds from private banks expands the supply of banks' excess reserves, incentivizing them to lower the interest rates they charge private borrowers, thereby increasing the level of consumption and investment in the economy.



Bank reserves are the money deposits held in banks. They are categorized as required reserves (legal minimums) and excess reserves (surplus reserves).

To learn more about banks, visit www.pearsonhotlinks.com, enter the title or ISBN of this book and select weblink 18.3.

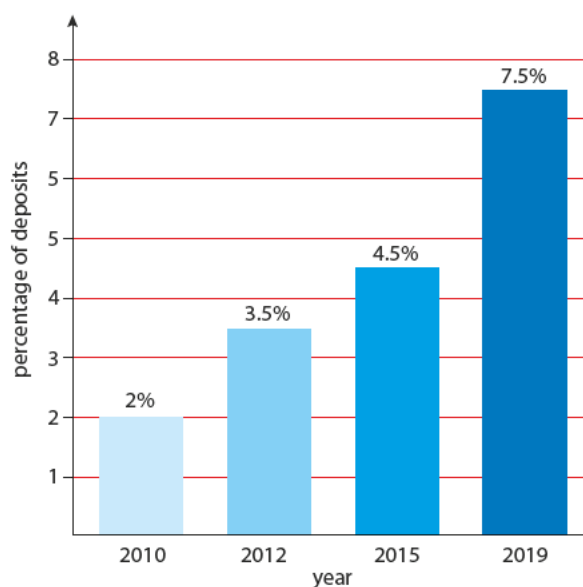


- **Contractionary monetary policy: central bank sells bonds.** When the central bank sells government bonds on the open market, commercial banks' reserves are taken out of the private banking system. Private banks will, therefore, have less money available to loan, and will charge higher rates for what remains. A central bank's sale of bonds reduces the money supply, increasing interest rates and contracting the overall level of consumption and investment in the economy. This puts downward pressure on price levels, output and employment.

Changing the reserve requirement

The reserve requirement is the percentage of deposits that banks are required to have available at all times. Any amount held that is beyond the reserve requirement is called excess reserves. Banks loan out excess reserves on which they charge interest to borrowers and thereby make profits. If the reserve requirement is raised, banks must keep a higher percentage of their deposits on reserve, and so must reduce the amount loaned out. This reduces the money supply and raises interest rates. If the reserve requirement is lowered, banks find they have excess reserves beyond the requirement, and can loan out the excess reserves. This increases the money supply and lowers the interest rate. Figure 18.6 shows changes to banking regulations in this area that have been made in response to the banking crisis of 2008–09.

Figure 18.6
Amount of capital banks must hold in reserve.



EXERCISES

- Figure 18.6 is based on the Basel III international banking accords and reflects changes to banking regulations in response to the banking crisis of 2008–09.
 - How will the changes in reserve requirements affect the money supply and aggregate demand?
 - Why do you think the proposed changes will take place over nine years?

Monetary policy and short-term demand management

Learning outcomes

- Explain how changes in interest rates can influence the level of aggregate demand in an economy.
- Describe the mechanism through which easy (expansionary) monetary policy can help an economy close a deflationary (recessionary) gap.
- Construct a diagram to show the potential effects of easy (expansionary) monetary policy, outlining the importance of the shape of the aggregate supply curve.
- Describe the mechanism through which tight (contractionary) monetary policy can help an economy close an inflationary gap.
- Construct a diagram to show the potential effects of tight (contractionary) monetary policy, outlining the importance of the shape of the aggregate supply curve.

Expansionary monetary policy

Assume that the economy has fallen into a recession due to a lack of aggregate demand and the central bank decides to take action to expand AD and encourage a recovery. Figures 18.7a–c (overleaf) show the effect of an expansionary monetary policy by the central bank: (a) on the money market, (b) on the level of private investment and (c) on the overall AD in the economy. To stimulate AD and encourage a recovery, the central bank would employ one of the following methods:

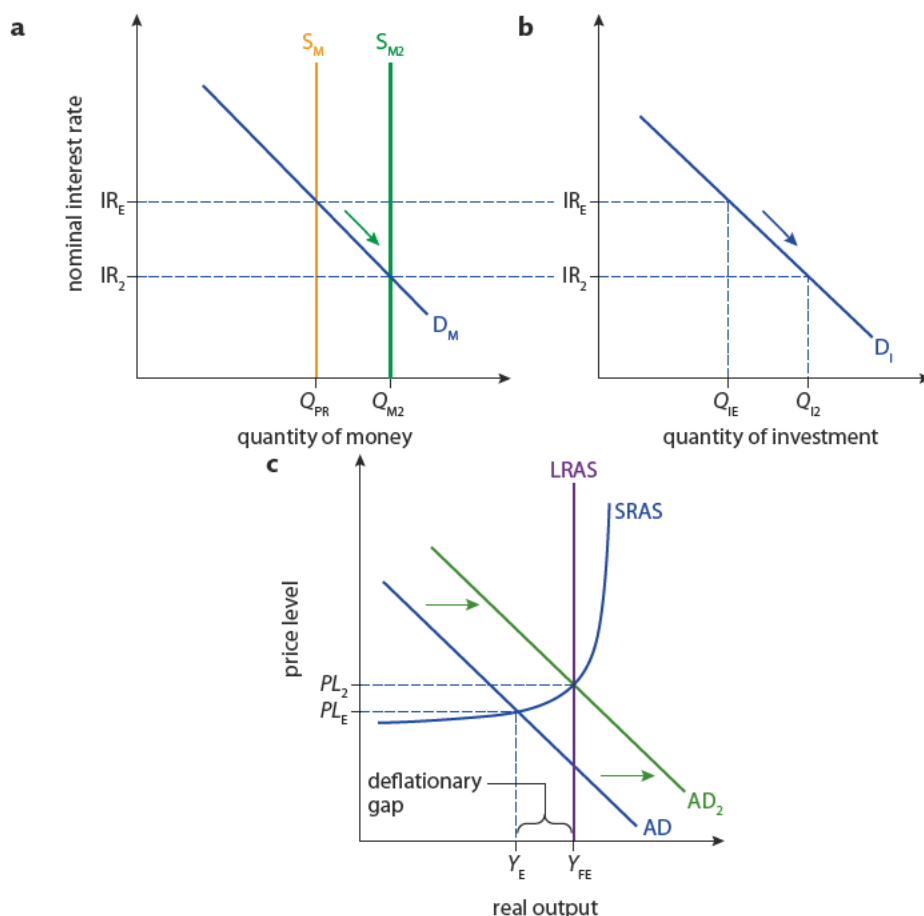
- lower the discount rate
- buy bonds on the open market
- lower the reserve ratio.

Figure 18.7c shows us the initial problem. The short-run equilibrium at Y_E is below the full-employment level of income (Y_{FE}). This demand-side recession is often called a deflationary gap, because it results in lower prices as well as more unemployment. In theory, expansionary policy should address this by expanding AD and increasing employment.

- In Figure 18.7a, when the central bank increases the money supply, interest rates decline from IR_E to IR_2 . The lower interest rate is carried over into the market for private investment (Figure 18.7b).
- In Figure 18.7b, the lower interest rate causes a movement down and to the right along the demand for investment curve, increasing the quantity of funds demanded for investment.
- In Figure 18.7c, the increased investment (along with likely growth of some consumption) shifts AD to the right to AD_2 leading to an increase in output from Y_E to Y_{FE} , an increase in the price level and an increase in the level of employment.

Figure 18.7

Expansionary monetary policy. **a** Effect on the money market; **b** effect on private investment; **c** Keynesian AD/AS diagram



Contractionary monetary policy

Assume the economy is experiencing some inflation caused by excess aggregate demand, and the central bank wanted to contract AD and reduce the price level. Figures 18.8a–c show the effect of a contractionary monetary policy by the central bank: (a) on the money market, (b) on the level of private investment and (c) on the overall AD in the economy. To reduce AD, the central bank would employ one of the following tools:

- raise the discount rate
- sell bonds on the open market
- raise the reserve ratio.

Figure 18.8c shows us the initial problem. AD has expanded beyond the full employment level of output (Y_{FE}). This increase in AD spending has caused prices to rise from PL_1 .

- In Figure 18.8a, when the central bank decreases the money supply from S_M to S_{M1} , the interest rate increases from IR_E to IR_1 due to the increased scarcity of money in commercial banks' reserves.
- In Figure 18.8b, the higher interest rate is carried over into the market for private investment, causing a movement up and left along the demand for investment from Q_{IE} to Q_{I1} , a decrease in the quantity of funds demanded for investment.
- In Figure 18.8c, the decreased investment (along with likely decline of some consumption) shifts AD to the left to AD_1 . Ultimately, the central bank's contractionary policy reduces the level of investment and consumption in the economy, putting downward pressure on the price level, reducing the level of national output from Y_E to Y_{FE} , and increasing the level of unemployment to a healthier rate closer to the nation's natural rate of unemployment.

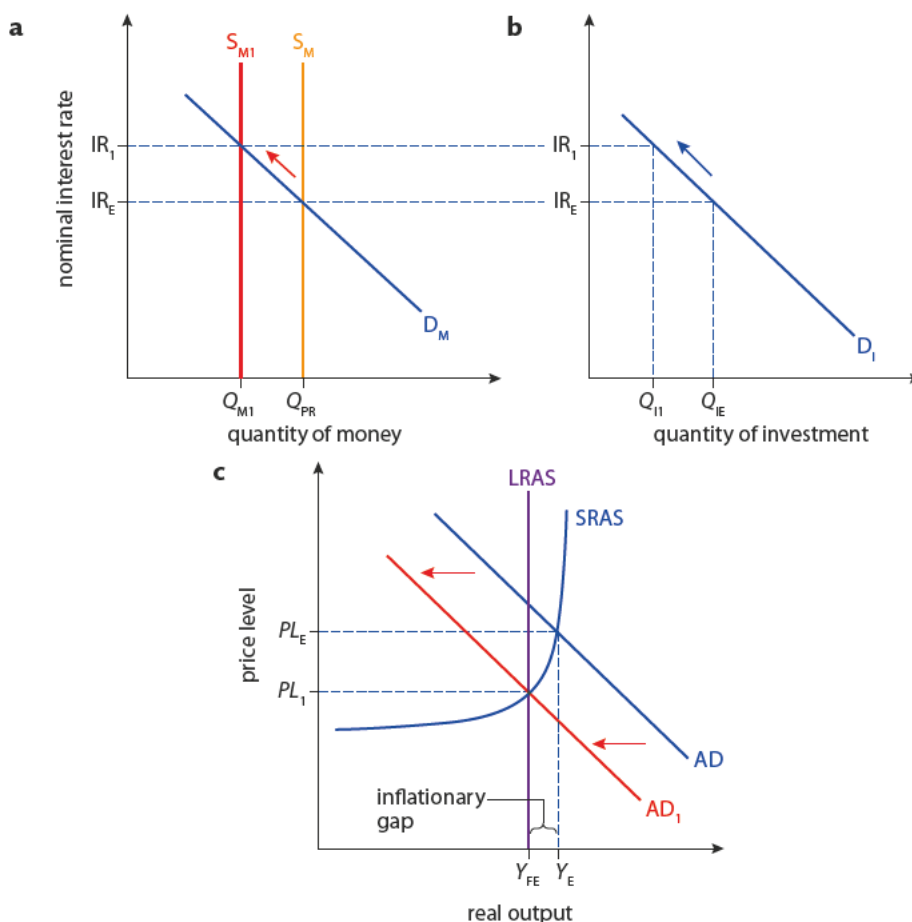


Figure 18.8

Contractionary monetary policy. **a** Effect on the money market; **b** effect on private investment; **c** Keynesian AD/AS diagram

EXERCISES

- 2 The central bank has just received news that inflation is higher than expected this quarter.
 - a** List the policy tools available for the central bank to slow down inflation.
 - b** Draw a three-part diagram that shows the ultimate effects of these policies on unemployment, output, and inflation.

18.3

Evaluation of monetary policy

Learning outcomes

- Evaluate the effectiveness of monetary policy through consideration of factors including the independence of the central bank, the ability to adjust interest rates incrementally, the ability to implement changes in interest rates relatively quickly, time lags, limited effectiveness in increasing aggregate demand if the economy is in deep recession and conflict among government economic objectives.
- Explain that central banks of certain countries, rather than focusing on the maintenance of both full employment and a low rate of inflation, are guided in their monetary policy by the objective to achieve an explicit or implicit inflation rate target.

While the maintenance of effective monetary policy is important for stability and general economic growth, it can also be assessed as a tool for managing macroeconomic problems such as recession or inflation.

Stimulating growth during recession

Strengths

- **Speed.** Monetary policy can be enacted by the central bank as soon as the problem is recognized. The central bank skips the process by which legislators debate fiscal policy and create compromises in order to get the policy passed. For the central bank, policy decisions are relatively immediate, which improves the chances of an expansionary policy going into effect while the recession is still underway.
- **Control.** It is within the power of the central bank to adjust the money supply more discretely and finely than legislators can with fiscal policy. The central bank, for example, can buy bonds in the open market until it gets the target interest rate it desires. Monetary policy is thus more finely calibrated to solve the problem at hand.
- **No politics.** As mentioned above, the central banks of most countries are held to be independent of politics and not involved in election processes. This should prevent the desires of voters from influencing central bank policy. During a recovery, for example, the central bank may tighten monetary policy earlier than voters would like, in order to prevent inflation. Such a policy might be more difficult to enact if central bank governors were running for their offices in elections.
- **No crowding-out.** As explained in Chapter 17, expansionary fiscal policy typically requires the government to borrow money. Massive borrowing drives up interest rates, it is argued, and limits long-term growth. Monetary policy, by lowering interest rates, avoids this disadvantage.

Weaknesses

- **Investors reluctant to borrow.** In times of deep recession, consumer and investor confidence is at its lowest point. Consumers, fearful of losing their jobs and income, defer large purchases and cut back spending, instead saving 'for a rainy day.' Firms, knowing the reluctance of consumers, reduce their output, which thus reduces their demand for new investment funds. Few businesses aggressively expand during hard times. These crises of confidence render the reduction of interest rates rather meaningless. Money may be cheap, but consumers and investors lack the confidence that they will easily repay the loans. The impotence of expansionary monetary policy was most evident during Japan's 'lost decades' from 1991 to 2010. Interest rates during this time were held near to zero, making borrowing very easy. But firms and consumers refused the offer of low rates, and growth stagnated for year after year.
- **Time lags.** While monetary policy is quick to implement, it takes time to go into effect. Lower rates may spur borrowing in relatively good years, but not immediately. The speed at which interest rate changes have effect is influenced by elasticity of demand for investment.
- **Changes in elasticity of demand for investment.** In Figure 18.9a, an expansionary decrease of the interest rate from IR_1 to IR_2 increases investment demand from Q_{I1} to Q_{I2} . This might be a 'normal year' where demand is relatively elastic and businesses are keen to take advantage of the lower cost of borrowing. Figure 18.9b shows a relatively inelastic demand for investment, perhaps a typical recession period, where the same decrease in the interest rate, from IR_1 to IR_2 , results in a far less encouraging increase in investment.

If the demand for investment is highly unresponsive to changes in the interest rate, or if investment demand is extremely low, then expansionary monetary policy may be ineffective at stimulating aggregate demand. Japan had its 'lost decade' during the 1990s when 0% interest rates failed to stimulate investment. The US has experienced similar failures in monetary policy since the financial crisis began in 2008 and the US Federal Reserve began a period of massive monetary expansion. Despite interest rates close to 0% in the US, investment demand has been similarly slow to recover.

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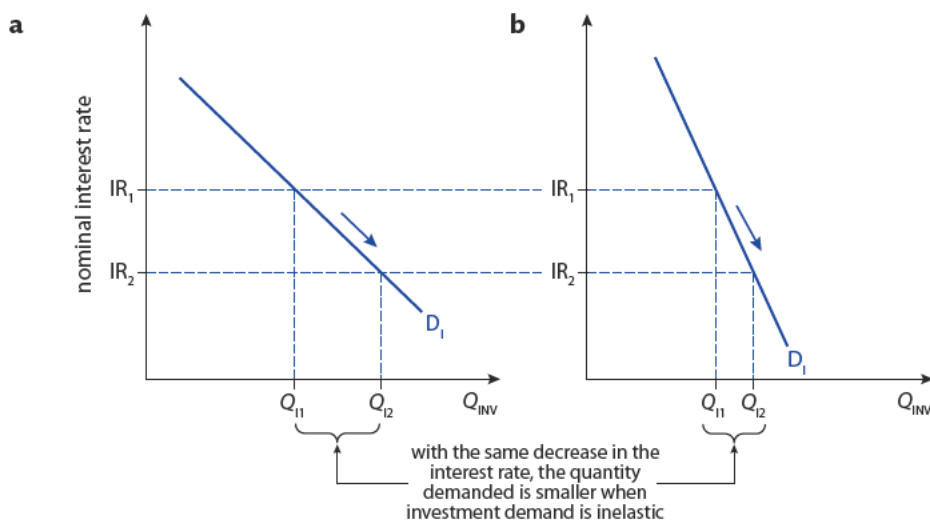


Figure 18.9

Interest rates and elasticity of private investment demand.

a Elastic demand; **b** inelastic demand

Inflation control

In last few decades, a sort of division of labour has taken place for most governments when it comes to macroeconomic management. The widespread inflation of the 1970s led many governments to conclude that fiscal policymakers were unlikely to enact possibly painful deflationary policies. This would leave inflation control in the hands of the central bank, where a certain amount of political independence would make deflationary policy possible. Thus, since then most governments delegate inflation control to the central bank as its most important priority.

Strengths

- **Direct action, speed and control.** Over the years, more central banks have taken the job of inflation control more seriously. Most, in fact, recognize that politicians rarely have the stomach to enact contractionary fiscal policies that might cost jobs and votes. And so, central banks accept that inflation control is almost exclusively their responsibility. Therefore most central banks monitor several price indices, including the consumer price index, the producer price index, the GDP deflator, and more. Decisions by the central bank board can be implemented as inflation begins to creep forwards. The central bank can intervene as much or as little as needed, so that the size of the price increases can be matched with commensurate interest rate increases.
- **Apolitical nature of the bank.** That central bank leaders and governors are not elected and not driven by the need to retain votes, enables them to act on the facts of the economy, even when such action would be unpopular. This is especially crucial during inflationary moments, as contractionary monetary policy can cause significant economic pain. If high interest rates are needed to drive down AD and limit inflation, the cost can be lower GDP and lost jobs. For example, the Federal Reserve under Paul Volker in 1979 pushed interest rates to nearly 20% in an attempt to dampen the double-digit inflation of the late 1970s. The recession that resulted was long and painful, with significant unemployment and political turmoil. It was, however, successful in slaying inflation, such that inflation rates have stayed below 5% for most of the 30 years that followed.

Weaknesses

- **Time lags during high inflation.** Although monetary policy can be enacted quickly, it can take several months of high interest rates for investors and consumers to change their behaviour.

i In the nearly 100 years since the US Federal Reserve Bank was established, 14 individuals have served in the role of Chairman, the person who makes the ultimate decisions over monetary policy in the US. Yet in the last 31 years, there have been only three Chairmen. During the same period, the US has had six presidents. The Fed Chairman, although appointed by the president, is not subject to political influence once in his role. This gives the bank relative autonomy to act in the interest of the nation's economy, rather than in the favour of special interest groups or potential voters.

- **Ineffective against cost-push inflation.** While it is agreed that monetary policy can be very effective at eliminating demand-induced inflation, it remains relatively powerless at stopping supply-side inflation. Often called ‘cost-push’ inflation, it is the result of higher input prices or other shocks to aggregate supply (AS). But the traditional tools of monetary management are effective at changing AD. So a move to shrink AD may reduce prices but deepen a recession. If the central bank chose to expand the money supply and increase AD, the result would not harm GDP, but could cause an inflationary spiral.

Exchange rate management

An exchange rate is the value of one country's currency expressed in terms of the amount of another country's currency needed to buy it (e.g. the number of euros you get for your dollars).



Depending on the type of exchange rate system a country follows, the central bank may play a role in the management of the currency's value. This subject is discussed extensively in Chapter 22, but the basics of the issue can be established here.

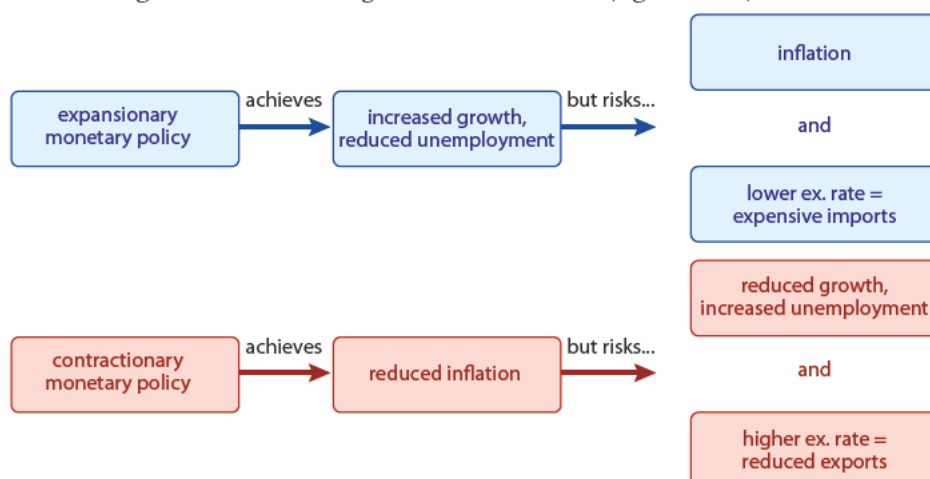
When a country raises or lowers its interest rates, it signals to potential depositors that domestic banks are now paying different rates of interest. Higher rates draw foreign depositors who must first exchange or buy the currency before making deposits locally. This new demand for the currency, called a capital inflow because it elicits an influx of money, pushes up the value of the currency. A lower interest rate, naturally, has the opposite result of driving demand for the currency down, and depreciating the exchange rate.

The central bank's role in exchange rate management tends to vary with the degree of control sought by the government over the currency value. As a result, fixed-rate regimes, which need to change interest rates more often to manage their currency, often find that they are torn between the objectives of managing economic growth, curbing inflation, and exchange rate control.

Conflicting goals

As with fiscal policy, monetary policymakers may find it difficult to achieve one macroeconomic goal without reducing the success of others (Figure 18.10).

Figure 18.10
Conflicting goals of monetary policy.



In Figure 18.10, the conflicting objectives of monetary policy are represented. Expansionary policies aimed at reducing unemployment may lead to inflation and a weaker currency, thus causing problems for the nation's trade balance. On the other hand, contractionary policies may succeed in bringing down inflation rates but, in the process,

may increase unemployment and drive the value of the currency up, a result that may also have an undesired impact on the nation's trade balance.

Managing the conflicting outcomes of their policy decisions presents central bankers with an additional challenge when determining the nation's optimal interest rates.

Further debate on monetary policy

From the late 1940s until the 1970s, most developed economies were managed under the aegis of Keynesian demand-management policies (Chapter 17). After watching several inflationary spikes in the 60s and 70s, a critique of the Keynesian approach was beginning to gain ground among policymakers. This originated most prominently among the leaders of the Chicago school under Milton Friedman at the University of Chicago. Friedman and his colleagues had long advocated a more classical approach to the macroeconomy, and put a particular emphasis on the money supply. The monetarists, as they were later to be called, emphasized the critical role of the money supply with their quantity theory of money.

The quantity theory of money can be expressed as the following equation:

$$MV = PQ$$

Where:

M = money supply

V = velocity of money

P = price level

Q = real output


This theory holds that V, the velocity of money, represents the number of times an average item of money (say, 1 euro) changes hands. This, they argue, tends to be relatively constant. At the same time, the level of output, Q, is also relatively constant, but may grow on average about 3–4% in a given year for a rich country economy. Thus, as V and Q are stable, M, the money supply, is the primary influence on P, the price level.


Should the money supply be expanded too much, price levels will increase. If the money supply is held too tightly, the size of the overall economy might contract. Thus, Friedman and the monetarists began to advocate a monetary rule, which limits the expansion of the money supply to a range of 3–4% per year. This, they argue, allows for stable real economic growth, and avoids the temptation of central banks to over-manage the economy with the money supply.


Some economists have, in recent years, expanded on the theme of caution when it comes to monetary policy. In times of recession, governments may find that expansionary fiscal and monetary policy, in the traditional sense of managing interest rates, is not sufficient to stimulate a recovery. They can and often do resort to printing money (a power reserved for central banks) to encourage spending.

This policy is sometimes called quantitative easing; its effect is an increase in the money supply. More specifically, the inflationary effect lowers the buying power of everyone holding money. It is, therefore, an inflation tax, because all holders of money now have less purchasing power. The effect of the policy to print money may be relatively slight during recessionary times, but to attempt to lower debts by printing money in healthier times may risk serious price increases or even hyperinflation.

However, other classical economists question whether price changes matter in the long run. David Hume, writing about it in the 1800s, anticipated the quantity theory of money by making the distinction between real variables and nominal variables. This might be read as the distinction between P and Q in the quantity theory.

 Milton Friedman was famous for his belief that 'inflation is always and everywhere a monetary phenomenon'. He opposed counter-cyclical use of monetary policy because he believed fluctuations in money supply only contributed to the business cycles' booms and busts.

 The quantity theory of money is a monetarist concept that the money supply has a direct and positive relationship on the price level.

 To access Worksheet 18.2 on 'easy money', please visit www.pearsonbacconline.com and follow the onscreen instructions.

Money neutrality is the concept that while the money supply affects price levels it will not affect the level of output.



To learn more about monetary policy, visit www.pearsonhotlinks.com, enter the title or ISBN of this book and select weblink 18.5.



However, Hume and economists who have followed him have come to a different conclusion. They assert that if the money supply were, perhaps, doubled compared to the amount of real output, real output would be likely to stay the same. Prices may double, but the standard of living based on the economy's productive capacity would be unlikely to change much. This concept of money neutrality states that manipulation of the money supply may affect price levels, but not production, in the long run (N Gregory Mankiw, *Principles of Economics*, 2008).

Even if this is the case, most economists believe that the money supply can have significant impact on short-run decisions. Inflationary spikes can lead to disruptions, crises of confidence and psychological gloom in the short run. And besides, most economists argue, price stability is achievable in any case through prudent implementation of sound monetary policy.

EXERCISES

- 3 Draw one investment demand curve that shows elastic demand, and a second one that shows inelastic demand.
- 4 Show exactly the same interest rate increase on each. What does the change in quantity demanded suggest about the condition of the economy?
- 5 Show an interest rate decrease on each. What does the change in quantity demanded suggest about the condition of the economy?
- 6 List and explain the advantages and disadvantages of using monetary policy to stop inflation.
- 7 Explain why the effect on net exports can contradict the original purpose of monetary policy changes.

To access Quiz 18, an interactive, multiple-choice quiz on this chapter, please visit www.pearsonbacconline.com and follow the onscreen instructions.



PRACTICE QUESTIONS

- 1
 - a List and explain the three methods or tools used by central banks to control the money supply. (10 marks) [AO4]
 - b Assess the effectiveness of monetary policy in fighting a recession. (15 marks) [AO3]
- 2
 - a Using appropriate diagrams, show how the central bank may fight inflation. (10 marks) [AO2], [AO4]
 - b Evaluate the effectiveness of monetary policy in managing inflation. (15 marks) [AO3]
- 3
 - a Analyse the methods by which the central bank might decrease the money supply. (10 marks) [AO2]
 - b Discuss the likely impact on an economy of a substantial decrease in the level of interest rates. (15 marks) [AO3]