

The Modern Macroeconomic Consensus



What you will learn in this Module:

- The elements of the modern macroeconomic consensus
- The main remaining disputes

The Modern Consensus

As we've seen, there were intense debates about macroeconomics in the 1960s, 1970s, and 1980s. More recently, however, things have settled down. The age of macroeconomic controversy is by no means over, but there is now a broad consensus about several crucial macroeconomic issues.

To understand the modern consensus, where it came from, and what still remains in dispute, we'll look at how macroeconomists have changed their answers to five key questions about macroeconomic policy. The five questions, and the answers given by macroeconomists over the past 70 years, are summarized in **Table 36.1**. (In the table, new classical economics is subsumed under classical economics, and new Keynesian economics is subsumed under the modern consensus.) Notice that classical macroeconomics said no to each question; basically, classical macroeconomists didn't think macroeconomic policy could accomplish very much. But let's go through the questions one by one.

table 36.1

Five Key Questions About Macroeconomic Policy

	Classical macroeconomics	Keynesian macroeconomics	Monetarism	Modern consensus
Is expansionary monetary policy helpful in fighting recessions?	No	Not very	Yes	Yes, except in special circumstances
Is expansionary fiscal policy effective in fighting recessions?	No	Yes	No	Yes
Can monetary and/or fiscal policy reduce unemployment in the long run?	No	Yes	No	No
Should fiscal policy be used in a discretionary way?	No	Yes	No	No, except in special circumstances
Should monetary policy be used in a discretionary way?	No	Yes	No	Still in dispute

◀ The Modern Consensus ▶

Is Expansionary Monetary Policy Helpful in Fighting Recessions?

As we've seen, classical macroeconomists generally believed that expansionary monetary policy was ineffective or even harmful in fighting recessions. In the early years of Keynesian economics, macroeconomists weren't against monetary expansion during recessions, but they tended to believe that it was of doubtful effectiveness. Milton Friedman and his followers convinced economists that monetary policy was effective after all.

Nearly all macroeconomists now agree that monetary policy can be used to shift the aggregate demand curve and to reduce economic instability. The classical view that changes in the money supply affect only aggregate prices, not aggregate output, has few supporters today. The view once held by some Keynesian economists—that changes in the money supply have little effect—has equally few supporters. Now, it is generally agreed that monetary policy is ineffective only in the case of a liquidity trap.

◀ Is Expansionary Monetary Policy Helpful ... ▶

Is Expansionary Fiscal Policy Effective in Fighting Recessions?

Classical macroeconomists were, if anything, even more opposed to fiscal expansion than to monetary expansion. Keynesian economists, on the other hand, gave fiscal policy a central role in fighting recessions. Monetarists argued that fiscal policy was ineffective as long as the money supply was held constant. But that strong view has become relatively rare.

Most macroeconomists now agree that fiscal policy, like monetary policy, can shift the aggregate demand curve. Most macroeconomists also agree that the government should not seek to balance the budget regardless of the state of the economy: they agree that the role of the budget as an automatic stabilizer helps keep the economy on an even keel.

◀ Is Expansionary Fiscal Policy Effective ... ▶

Can Monetary and/or Fiscal Policy Reduce Unemployment in the Long Run?

Classical macroeconomists didn't believe the government could do anything about unemployment. Some Keynesian economists moved to the opposite extreme, arguing that expansionary policies could be used to achieve a permanently low unemployment rate, perhaps at the cost of some inflation. Monetarists believed that unemployment could not be kept below the natural rate.

Almost all macroeconomists now accept the natural rate hypothesis and agree on the limitations of monetary and fiscal policy. They believe that effective monetary and fiscal policy can limit the size of fluctuations of the actual unemployment rate around the natural rate but can't keep unemployment below the natural rate.

◀ Can Monetary and/or Fiscal Policy Reduce... ▶

Should Fiscal Policy Be Used in a Discretionary Way?

As we've already seen, views about the effectiveness of fiscal policy have gone back and forth, from rejection by classical macroeconomists, to a positive view by Keynesian economists, to a negative view once again by monetarists. Today, most macroeconomists believe that tax cuts and spending increases are at least somewhat effective in increasing aggregate demand.

Many, but not all, macroeconomists, believe that *discretionary fiscal policy* is usually counterproductive: the lags in adjusting fiscal policy mean that, all too often, policies intended to fight a slump end up intensifying a boom.

As a result, the macroeconomic consensus gives monetary policy the lead role in economic stabilization. Discretionary fiscal policy plays the leading role only in special circumstances when monetary policy is ineffective, such as those facing Japan during the 1990s when interest rates were at or near the zero bound and the economy was in a liquidity trap.

◀ Should Fiscal Policy Be Used in a Discre... ▶

Should Monetary Policy Be Used in a Discretionary Way?

Classical macroeconomists didn't think that monetary policy should be used to fight recessions; Keynesian economists didn't oppose discretionary monetary policy, but they were skeptical about its effectiveness. Monetarists argued that discretionary monetary policy was doing more harm than good. Where are we today? This remains an area of dispute. Today there is a broad consensus among macroeconomists on these points:

- Monetary policy should play the main role in stabilization policy.
- The central bank should be independent, insulated from political pressures, in order to avoid a political business cycle.
- Discretionary fiscal policy should be used sparingly, both because of policy lags and because of the risks of a political business cycle.

There are, however, debates over how the central bank should set its policy. Should the central bank be given a simple, clearly defined target for its policies, or should it be given discretion to manage the economy as it sees fit? Should the central bank consider the management of asset prices, such as stock prices and real estate prices, part of its responsibility? And what actions should the central bank undertake when interest rates have hit the zero bound and conventional monetary policy has reached its limits?

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Supply-Side Economics

During the 1970s, a group of economic writers began propounding a view of economic policy that came to be known as "supply-side economics." The core of this view was the belief that reducing tax rates, and so increasing the incentives to work and invest, would have a powerful positive effect on the growth rate of potential output. The supply-siders urged the government to cut taxes without worrying about matching spending cuts: economic growth, they argued, would offset any negative effects from budget deficits. Some supply-siders even argued that a cut in tax rates would have such a miraculous effect on economic growth that tax revenues—the total amount taxpayers pay to the government—would actually rise. That is, some supply-siders argued that the United States was on the wrong side of the Laffer curve, a hypothetical relationship between tax rates and total tax revenue that slopes upward (meaning higher taxes bring higher tax revenues) at low tax rates but turns downward (meaning higher taxes bring lower tax revenues) when tax rates are very high.

In the 1970s, supply-side economics was enthusiastically supported by the editors of the *Wall Street Journal* and other figures in the media, and it became popular with politicians. In 1980, Ronald Reagan made supply-side economics the basis of his presidential campaign.

Because supply-side economics emphasizes supply rather than demand, and because the supply-siders themselves are harshly critical of Keynesian economics, it might seem as if supply-side theory belongs in our discussion of new classical macroeconomics. But unlike rational expectations and real business cycle theory, supply-side economics is generally dismissed by economic researchers.

The main reason for this dismissal is lack of evidence. Almost all economists agree that tax cuts increase incentives to work and invest, but attempts to estimate these incentive effects indicate that at current U.S. tax levels they aren't nearly strong enough to support the strong claims made by supply-siders. In particular, the supply-side doctrine implies that large tax cuts, such as those implemented by Ronald Reagan in the early 1980s, should sharply raise potential output. Yet estimates of potential output by the Congressional Budget Office and others show no sign of an acceleration in growth after the Reagan tax cuts.

Central Bank Targets It may sound funny to say this, but it's often not clear exactly what the Federal Reserve, the central bank of the United States, is trying to achieve. Clearly it wants a stable economy with price stability, but there isn't any document setting out the Fed's official view about exactly how stable the economy should be or what the inflation rate should be.

This is not necessarily a bad thing. Experienced staff at the Fed generally believe that the absence of specific guidelines gives the central bank flexibility in coping with economic events and that history proves the Fed uses that flexibility well. In practice, chairs of the Fed tend to stay in office for a long time—William McChesney Martin was chair from 1951 to 1970, and Alan Greenspan, appointed in 1987, served as chair until 2006. These long-serving chairs acquire personal credibility that reassures the public that the central bank's power will be used well.

Central banks in some other countries have adopted formal guidelines. Some American economists—including some members of the Federal Reserve Board of Governors—believe that the United States should follow suit. The best-known example of a central bank using formal guidelines is the Bank of England. Until 1997, the Bank of England was simply an arm of the British Treasury Department, with no independence. When it became an independent organization like the Federal Reserve, it was given a mandate to achieve an inflation target of 2.5%. (In 2003, that target was changed to 2%.)

While inflation targeting is now advocated by many macroeconomists, others believe that such a rule can limit the ability of the central bank to respond to events, such as a stock market crash or a world financial crisis.

Unlike the Bank of England, the Fed doesn't have an explicit inflation target. However, it is widely believed to want an inflation rate of about 2%. Once the economy has moved past the current recession and financial crisis, there is likely to be renewed debate about whether the Fed should adopt an explicit inflation target.

Asset Prices During the 1990s, many economists warned that the U.S. stock market was losing touch with reality—share prices were much higher than could be justified given realistic forecasts of companies' future profits. Among these economists was Alan Greenspan, then chair of the Federal Reserve, who warned about "irrational exuberance" in a famous speech. In 2000, the stock market headed downward, taking the economy with it. Americans who had invested in the stock market suddenly felt poorer and so cut back on spending, helping push the economy into a recession.

Just a few years later the same thing happened in the housing market, as home prices climbed above levels that were justified by the incomes of home buyers and the cost of renting rather than buying. This time, however, Alan Greenspan dismissed concerns about a bubble as "most unlikely." But it turned out that there was indeed a bubble, which popped in 2006, leading to a financial crisis, and which pushed the economy into yet another recession.

These events highlighted a long-standing debate over monetary policy: should the central bank restrict its concerns to inflation and possibly unemployment, or should it also try to prevent extreme movements in asset prices, such as the average price of stocks or the average price of houses?

One view is that the central bank shouldn't try to second-guess the value investors place on assets like stocks or houses, even if it suspects that those prices are getting out of line. That is, the central bank shouldn't raise interest rates to curb stock prices or housing prices if overall consumer price



The Bank of England has a mandate to keep inflation at around 2%. Andrew Holt/Getty Images



When the housing market fell in 2006, people began to question whether the

inflation remains low. If an overvalued stock market eventually falls and depresses aggregate demand, the central bank can deal with that by cutting interest rates.

The alternative view warns that after a bubble bursts—after overvalued asset prices fall to earth—it may be difficult for monetary and fiscal policy to offset the effects on aggregate demand. After having seen the Japanese economy struggle for years with deflation in the aftermath of the collapse of its bubble economy, proponents of this view argue that the central bank should act to rein in irrational exuberance when it is happening, even if consumer price inflation isn't a problem.

The 2001 recession and the recession that started in 2007 gave ammunition to both sides in this debate, which shows no sign of ending.

Unconventional Monetary Policies In 2008, responding to a growing financial crisis, the Federal Reserve began engaging in highly unconventional monetary policy. The Fed normally conducts monetary policy through open-market operations in which it buys and sells short-term U.S. government debt in order to influence interest rates. We have also seen that in 2008, faced with severe problems in the financial markets, the Fed vastly expanded its operations. It lent huge sums to a wide variety of financial institutions, and it began large-scale purchases of private assets, including commercial paper (short-term business debts) and assets backed by home mortgages.

These actions and similar actions by other central banks, such as the Bank of Japan, were controversial. Supporters of the moves argued that extraordinary action was necessary to deal with the financial crisis and to cope with the liquidity trap that the economy had fallen into. But skeptics questioned both the effectiveness of the moves and whether the Fed was taking on dangerous risks. However, with interest rates up against the zero bound, it's not clear that the Fed had any other alternative but to turn unconventional. Future attitudes toward unconventional monetary policy will probably depend on how the Fed's efforts play out.

central bank should
concern itself with extreme
movements in asset prices
such as homes. Seth
Joel/Photographer's Choice
RF/Getty Images

◀ Should Monetary Policy Be Used in a Disc... ▶

The Clean Little Secret of Macroeconomics

It's important to keep the debates we have just described in perspective. Macroeconomics has always been a contentious field, much more so than microeconomics. There will always be debates about appropriate policies. But the striking thing about current debates is how modest the differences among macroeconomists really are. The clean little secret of modern macroeconomics is how much consensus economists have reached over the past 70 years.

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After the Bubble

In the 1990s, many economists worried that stock prices were irrationally high, and these worries proved justified. Starting in 2000, the NASDAQ, an index made up largely of technology stocks, began declining, ultimately losing two-thirds of its peak value. And in 2001 the plunge in stock prices helped push the United States into recession.

The Fed responded with large, rapid interest rate cuts. But should it have tried to burst the stock bubble when it was happening?

Many economists expected the aftermath of the 1990s stock market bubble to settle, once and for all, the question of whether central banks should concern themselves about asset prices. But the test results came out ambiguous, failing to settle the issue.

If the Fed had been unable to engineer a recovery—if the U.S. economy had slid into a liquidity trap like that of Japan—critics of the Fed's previous inaction would have had a very strong case. But the recession was, in fact, short: the National Bureau of Economic Research says that the recession began in March 2001 and ended in November 2001.

Furthermore, if the Fed had been able to produce a quick, strong recovery, its inaction during the 1990s would have been strongly vindicated. Unfortunately, that didn't happen either. Although the economy began recovering in late 2001, the recovery was initially weak—so weak that employment continued to drop until the summer of 2003. Also, the fact that the Fed had to cut the federal funds rate to only 1%—uncomfortably close to 0%—suggested that the U.S. economy had come dangerously close to a liquidity trap.

In other words, the events of 2001–2003 probably intensified the debate over monetary policy and asset prices, rather than resolving it.

Check Your Understanding

1. What debates has the modern consensus resolved? What debates has it not resolved?

[Answer Field]

Show Answer

Tackle the Test: Multiple-Choice Questions

1. Which of the following is an example of an opinion on which economists have reached a broad consensus?
- I. The natural rate hypothesis holds true.
 - II. Discretionary fiscal policy is usually counterproductive.
 - III. Monetary policy is effective, especially in a liquidity trap.
- a. I only
 - b. II only
 - c. III only
 - d. I and II only
 - e. I, II, and III

[Answer Field]

Show Answer

2. In the first FYI box of this module (p. 357) you learned about supply-side economics. Which of the following is stressed by supply siders?
- a. Taxes should be increased.
 - b. Lower taxes will lead to lower tax revenues.
 - c. It is important to increase incentives to work, save, and invest.
 - d. The economy operates on the upward-sloping section of the Laffer curve.
 - e. Supply side views are widely supported by empirical evidence.

[Answer Field]

Show Answer

3. Which of the following is true regarding central bank targets?
- a. The Fed has an explicit inflation target.
 - b. All central banks have explicit inflation targets.
 - c. No central banks have explicit inflation targets.
 - d. The Fed clearly does not have an implicit inflation target.
 - e. Economists are split regarding the need for explicit inflation targets.

[Answer Field]

Show Answer

4. The Fed's main concerns are
- a. inflation and unemployment.
 - b. inflation and asset prices.
 - c. inflation, asset prices, and unemployment.
 - d. asset prices and unemployment.
 - e. inflation and the value of the dollar.

[Answer Field]

Show Answer

5. The "clean little secret of macroeconomics" is that
- a. microeconomics is even more contentious than macroeconomics.
 - b. debate among macroeconomists has ended.
 - c. economists have reached a significant consensus.
 - d. macroeconomics has progressed much more than microeconomics in the past 70 years.
 - e. economists have identified how to prevent future business cycles.

[Answer Field]

Tackle the Test: Free-Response Questions

1. What is the consensus view of macroeconomists on each of the following.

a. monetary policy and aggregate demand

[Answer Field]

b. when monetary policy is ineffective

[Answer Field]

c. fiscal policy and aggregate demand

[Answer Field]

d. a balanced budget mandate

[Answer Field]

e. the effectiveness of discretionary fiscal policy

[Answer Field]

Answer (5 points)

1 point: Monetary policy can shift aggregate demand in the short run.

1 point: Monetary policy is ineffective when in a liquidity trap.

1 point: Fiscal policy can shift aggregate demand.

1 point: This is not a good idea. Fluctuations in the budget act as an automatic stabilizer for the economy.

1 point: It is usually counterproductive (for example, due to lags in implementation).

2. On the basis of the description of the Laffer curve in the FYI box on supply-side economics on [page 357](#), draw a correctly labeled graph of the Laffer curve. Use an "x" to identify a point on the curve at which a reduction in tax rates would lead to increased tax revenue.

[Answer Field]

Show Answer

Summary

1. Some of the fluctuations in the budget balance are due to the effects of the business cycle. In order to separate the effects of the business cycle from the effects of discretionary fiscal policy, governments estimate the **cyclically adjusted budget balance**, an estimate of the budget balance if the economy were at potential output.
2. U.S. government budget accounting is calculated on the basis of **fiscal years**. Persistent budget deficits have long-run consequences because they lead to an increase in **public debt**. This can be a problem for two reasons. Public debt may crowd out investment spending, which reduces long-run economic growth. And in extreme cases, rising debt may lead to government default, resulting in economic and financial turmoil.
3. A widely used measure of fiscal health is the **debt–GDP ratio**. This number can remain stable or fall even in the face of moderate budget deficits if GDP rises over time. However, a stable debt–GDP ratio may give a misleading impression that all is well because modern governments often have large **implicit liabilities**. The largest implicit liabilities of the U.S. government come from Social Security, Medicare, and Medicaid, the costs of which are increasing due to the aging of the population and rising medical costs.
4. **Expansionary monetary policy** reduces the interest rate by increasing the money supply. This increases investment spending and consumer spending, which in turn increases aggregate demand and real GDP in the short run. **Contractionary monetary policy** raises the interest rate by reducing the money supply. This reduces investment spending and consumer spending, which in turn reduces aggregate demand and real GDP in the short run.
5. The Federal Reserve and other central banks try to stabilize their economies, limiting fluctuations of actual output to around potential output, while also keeping inflation low but positive. Under the **Taylor rule for monetary policy**, the target interest rate rises when there is inflation, or a positive output gap, or both; the target interest rate falls when inflation is low or negative, or when the output gap is negative, or both. Some central banks engage in **inflation targeting**, which is a forward-looking policy rule, whereas the Taylor rule is a backward-looking policy rule. In practice, the Fed appears to operate on a loosely defined version of the Taylor rule. Because monetary policy is subject to fewer implementation lags than fiscal policy, it is the preferred policy tool for stabilizing the economy.
6. In the long run, changes in the money supply affect the aggregate price level but not real GDP or the interest rate. Data show that the concept of **monetary neutrality** holds: changes in the money supply have no real effect on the economy in the long run.
7. In analyzing high inflation, economists use the **classical model of the price level**, which says that changes in the money supply lead to proportional changes in the aggregate price level even in the short run.
8. Governments sometimes print money in order to finance budget deficits. When they do, they impose an **inflation tax**, generating tax revenue equal to the inflation rate times the money supply, on those who hold money. Revenue from the real inflation tax, the inflation rate times the real money supply, is the real value of resources captured by the government. In order to avoid paying the inflation tax, people reduce their real money holdings and force the government to increase inflation to capture the same amount

of real inflation tax revenue. In some cases, this leads to a vicious circle of a shrinking real money supply and a rising rate of inflation, leading to hyperinflation and a fiscal crisis.

9. A positive output gap is associated with lower-than-normal unemployment; a negative output gap is associated with higher-than-normal unemployment.

10. Countries that don't need to print money to cover government deficits can still stumble into moderate inflation, either because of political opportunism or because of wishful thinking.

11. At a given point in time, there is a downward-sloping relationship between unemployment and inflation known as the **short-run Phillips curve**. This curve is shifted by changes in the expected rate of inflation. The **long-run Phillips curve**, which shows the relationship between unemployment and inflation once expectations have had time to adjust, is vertical. It defines the **nonaccelerating inflation rate of unemployment**, or **NAIRU**, which is equal to the natural rate of unemployment.

12. Once inflation has become embedded in expectations, getting inflation back down can be difficult because **disinflation** can be very costly, requiring the sacrifice of large amounts of aggregate output and imposing high levels of unemployment. However, policy makers in the United States and other wealthy countries were willing to pay that price of bringing down the high inflation of the 1970s.

13. Deflation poses several problems. It can lead to **debt deflation**, in which a rising real burden of outstanding debt intensifies an economic downturn. Also, interest rates are more likely to run up against the **zero bound** in an economy experiencing deflation. When this happens, the economy enters a **liquidity trap**, rendering conventional monetary policy ineffective.

14. Classical macroeconomics asserted that monetary policy affected only the aggregate price level, not aggregate output, and that the short run was unimportant. By the 1930s, measurement of business cycles was a well-established subject, but there was no widely accepted theory of business cycles.

15. **Keynesian economics** attributed the business cycle to shifts of the aggregate demand curve, often the result of changes in business confidence. Keynesian economics also offered a rationale for **macroeconomic policy activism**.

16. In the decades that followed Keynes's work, economists came to agree that monetary policy as well as fiscal policy is effective under certain conditions. **Monetarism** is a doctrine that called for a **monetary policy rule** as opposed to **discretionary monetary policy**. The argument of monetarists—based on a belief that the **velocity of money** was stable—that GDP would grow steadily if the money supply grew steadily, was influential for a time but was eventually rejected by many macroeconomists.

17. The **natural rate hypothesis** became almost universally accepted, limiting the role of macroeconomic policy to stabilizing the economy rather than seeking a permanently low unemployment rate. Fears of a **political business cycle** led to a consensus that monetary policy should be insulated from politics.

18. **Rational expectations** suggests that even in the short run there might not be a tradeoff between inflation and unemployment because expected inflation would change immediately in the face of expected changes in policy. **Real business cycle theory** claims that changes in the rate of

growth of total factor productivity are the main cause of business cycles. Both of these versions of **new classical macroeconomics** received wide attention and respect, but policy makers and many economists haven't accepted the conclusion that monetary and fiscal policy are ineffective in changing aggregate output.

19. New Keynesian economics argues that market imperfections can lead to price stickiness, so that changes in aggregate demand have effects on aggregate output after all.

20. The modern consensus is that monetary and fiscal policy are both effective in the short run but that neither can reduce the unemployment rate in the long run. Discretionary fiscal policy is considered generally unadvisable, except in special circumstances.

21. There are continuing debates about the appropriate role of monetary policy. Some economists advocate the explicit use of an inflation target, but others oppose it. There's also a debate about whether monetary policy should take steps to manage asset prices and what kind of unconventional monetary policy, if any, should be adopted to address a liquidity trap.

◀ Summary ▶

1. The government's budget surplus in Macroland has risen consistently over the past five years. Two government policy makers disagree as to why this has happened. One argues that a rising budget surplus indicates a growing economy; the other argues that it shows that the government is using contractionary fiscal policy. Can you determine which policy maker is correct? If not, why not?

[Answer Field]

2. You are an economic adviser to a candidate for national office. She asks you for a summary of the economic consequences of a balanced-budget rule for the federal government and for your recommendation on whether she should support such a rule. How do you respond?

[Answer Field]

3. In which of the following cases does the size of the government's debt and the size of the budget deficit indicate potential problems for the economy?

- a. The government's debt is relatively low, but the government is running a large budget deficit as it builds a high-speed rail system to connect the major cities of the nation.

[Answer Field]

- b. The government's debt is relatively high due to a recently ended deficit-financed war, but the government is now running only a small budget deficit.

[Answer Field]

- c. The government's debt is relatively low, but the government is running a budget deficit to finance the interest payments on the debt.

[Answer Field]

4. Unlike households, governments are often able to sustain large debts. For example, in September 2007, the U.S. government's total debt reached \$9 trillion, approximately 64% of GDP. At the time, according to the U.S. Treasury, the average interest rate paid by the government on its debt was 5.0%. However, running budget deficits becomes hard when very large debts are outstanding.

- a. Calculate the dollar cost of the annual interest on the government's total debt assuming the interest rate and debt figures cited above.

[Answer Field]

- b. If the government operates on a balanced budget before interest payments are taken into account, at what rate must GDP grow in order for the debt–GDP ratio to remain unchanged?

[Answer Field]

- c. Calculate the total increase in national debt if the government incurs a deficit of \$200 billion in fiscal year 2008. Assume that the only other change to the government's total debt arises from interest payments on the current debt of \$9 trillion.

[Answer Field]

- d. At what rate must GDP grow in order for the debt–GDP ratio to remain

unchanged when the deficit in fiscal year 2008 is \$200 billion?

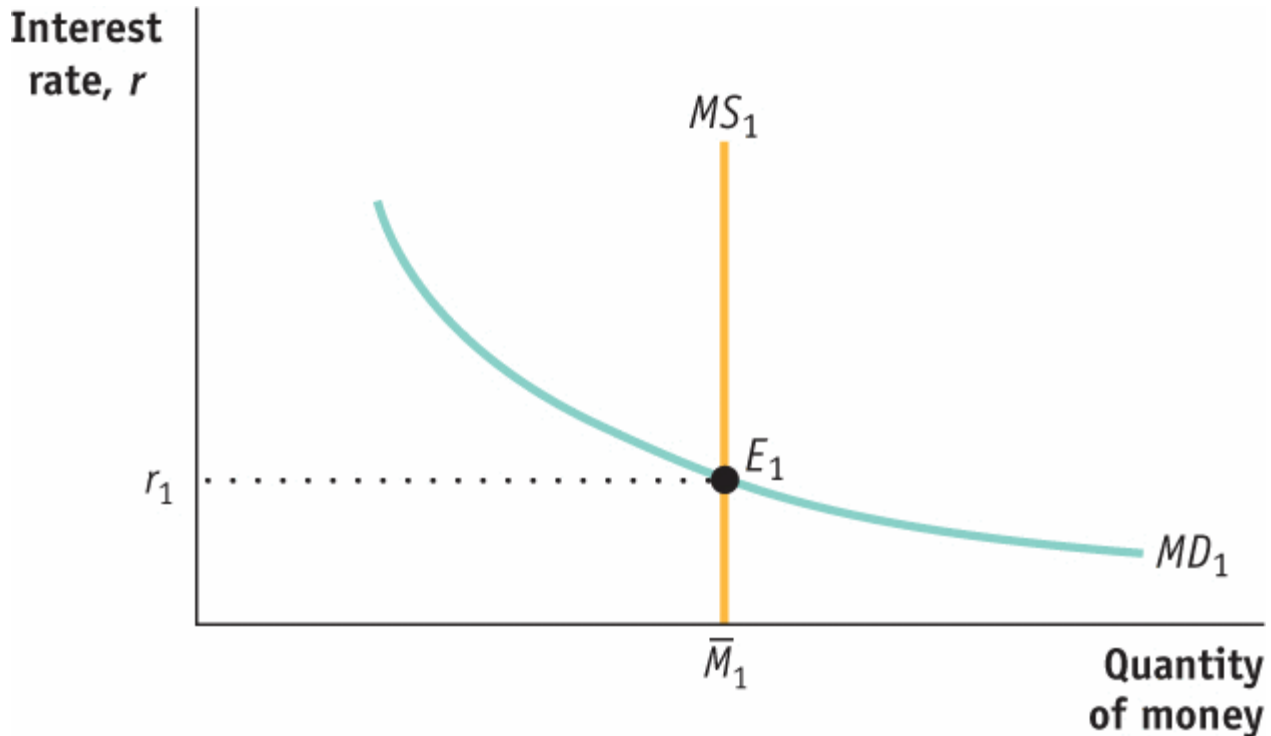
[Answer Field]

- e. Why is the debt–GDP ratio the preferred measure of a country's debt rather than the dollar value of the debt? Why is it important for a government to keep this number under control?

[Answer Field]

5. In the economy of Eastlandia, the money market is initially in equilibrium when the economy begins to slide into a recession.

- a. Using the accompanying diagram, explain what will happen to the interest rate if the central bank of Eastlandia keeps the money supply constant at \bar{M}_1 .



[Answer Field]

- b. If the central bank is instead committed to maintaining an interest rate target of r_1 , then as the economy slides into recession, how should the central bank react? Using your diagram from part a, demonstrate the central bank's reaction.

[Answer Field]

6. Continuing from equilibrium E_1 in the previous problem, now suppose that in the economy of Eastlandia the central bank decides to decrease the money supply.

- a. Using the diagram in problem 5, explain what will happen to the interest rate in the short run.

[Answer Field]

- b. What will happen to the interest rate in the long run?

[Answer Field]

7. An economy is in long-run macroeconomic equilibrium with an unemployment rate of 5% when the government passes a law requiring

the central bank to use monetary policy to lower the unemployment rate to 3% and keep it there. How could the central bank achieve this goal in the short run? What would happen in the long run? Illustrate with a diagram.

[Answer Field]

8. In the following examples, would the classical model of the price level be relevant?

a. There is a great deal of unemployment in the economy and no history of inflation.

[Answer Field]

b. The economy has just experienced five years of hyperinflation.

[Answer Field]

c. Although the economy experienced inflation in the 10% to 20% range three years ago, prices have recently been stable and the unemployment rate has approximated the natural rate of unemployment.

[Answer Field]

9. Answer the following questions about the (real) inflation tax, assuming that the price level starts at 1.

a. Maria Moneybags keeps \$1,000 in her sock drawer for a year. Over the year, the inflation rate is 10%. What is the real inflation tax paid by Maria for this year?

[Answer Field]

b. Maria continues to keep the \$1,000 in her drawer for a second year. What is the real value of this \$1,000 at the beginning of the second year? Over the year, the inflation rate is again 10%. What is the real inflation tax paid by Maria for the second year?

[Answer Field]

c. For a third year, Maria keeps the \$1,000 in the drawer. What is the real value of this \$1,000 at the beginning of the third year? Over the year, the inflation rate is again 10%. What is the real inflation tax paid by Maria for the third year?

[Answer Field]

d. After three years, what is the cumulative real inflation tax paid?

[Answer Field]

e. Redo parts a through d with an inflation rate of 25%. Why is hyperinflation such a problem?

[Answer Field]

10. Concerned about the crowding-out effects of government borrowing on private investment spending, a candidate for president argues that the United States should just print money to cover the government's budget deficit. What are the advantages and disadvantages of such a plan?

[Answer Field]

11. The accompanying table provides data from the United States on the average annual rates of unemployment and inflation. Use the numbers

to construct a scatter plot similar to **Figure 34.1**. Discuss why, in the short run, the unemployment rate rises when inflation falls.

Year	Unemployment rate	Inflation rate
2000	4.0%	3.4%
2001	4.7	2.8
2002	5.8	1.6
2003	6.0	2.3
2004	5.5	2.7
2005	5.1	3.4
2006	4.6	3.2
2007	4.6	2.9

Source: IMF.

[Answer Field]

12. In the modern world, central banks are free to increase or reduce the money supply as they see fit. However, some people harken back to the “good old days” of the gold standard. Under the gold standard, the money supply could expand only when the amount of available gold increased.

a. Under the gold standard, if the velocity of money was stable when the economy was expanding, what would have had to happen to keep prices stable?

[Answer Field]

b. Why would modern macroeconomists consider the gold standard a bad idea?

[Answer Field]

13. Monetarists believed for a period of time that the velocity of money was stable within a country. However, with financial innovation, the velocity began shifting around erratically after 1980. As would be expected, the velocity of money is different across countries depending upon the sophistication of their financial systems—velocity of money tends to be higher in countries with developed financial systems. The accompanying table provides money supply and GDP information in 2005 for six countries.

Country	National currency	M1 (billions in national currency)	Nominal GDP (billions in national currency)
Egypt	Egyptian pounds	101	539
South Korea	Korean won	77,274	806,622
Thailand	Thai baht	863	7,103
United States	U.S. dollars	1,369	12,456
Kenya	Kenyan pounds	231	1,415
India	Indian rupees	7,213	35,314

Source: Datastream.

- a. Calculate the velocity of money for each of the countries. The accompanying table shows GDP per capita for each of these countries in 2005 in U.S. dollars.

Country	Nominal GDP per capita (U.S. dollars)
Egypt	\$1,270
South Korea	16,444
Thailand	2,707
United States	41,886
Kenya	572
India	710

Source: IMF.

[Answer Field]

- b. Rank the countries in descending order of per capita income and velocity of money. Do wealthy countries or poor countries tend to “turn over” their money more times per year? Would you expect that wealthy countries have more sophisticated financial systems?

[Answer Field]

14. **Module 35** explains that Kenneth Rogoff proclaimed Richard Nixon “the all-time hero of political business cycles.” Using the table of data below from the Economic Report of the President, explain why Nixon may have earned that title. (Note: Nixon entered office in January 1969 and was reelected in November 1972. He resigned in August 1974.)

Year	Government receipts (billions of dollars)	Government spending (billions of dollars)	Government budget balance (billions of dollars)	M1 growth	M2 growth	3-month Treasury bill rate
1969	\$186.9	\$183.6	\$3.2	3.3%	3.7%	6.68%
1970	192.8	195.6	-2.8	5.1	6.6	6.46
1971	187.1	210.2	-23.0	6.5	13.4	4.35
1972	207.3	230.7	-23.4	9.2	13.0	4.07
1973	230.8	245.7	-14.9	5.5	6.6	7.04

[Answer Field]

15. The economy of Albernia is facing a recessionary gap, and the leader of that nation calls together five of its best economists representing the classical, Keynesian, monetarist, real business cycle, and modern consensus views of the macroeconomy. Explain what policies each economist would recommend and why.

[Answer Field]

16. Which of the following policy recommendations, if any, are consistent with the classical, Keynesian, monetarist, and/or modern consensus views of the macroeconomy?

- a. Since the long-run growth of GDP is 2%, the money supply should grow at 2%.

[Answer Field]

- b. Decrease government spending in order to decrease inflationary pressure.

[Answer Field]

- c. Increase the money supply in order to alleviate a recessionary gap.

[Answer Field]

- d. Always maintain a balanced budget.

[Answer Field]

- e. Decrease the budget deficit as a percent of GDP when facing a recessionary gap.

[Answer Field]

17. Using a set of graphs as in **Figure 35.2**, show how a monetarist can argue that a contractionary fiscal policy may not lead to the desired fall in real GDP given a fixed money supply. Explain.

[Answer Field]