

Putting It Together: Money and Banking

In this module, we learned how the supply of money in the economy is largely determined by the amount of loans made in the banking system. In the next module, we will learn how the Federal Reserve, the central bank in the U.S., takes advantage of the loan-making process to control the money supply and credit conditions.





Why It Matters: Monetary Policy

We noted earlier that the government has two ways of influencing the economy. The first was fiscal policy by which the government raises or lowers the federal budget deficit.

The second, which we will introduce in this module, is monetary policy, which is how a special part of the government called a central bank regulates the availability of credit and regulates the banking system. The central bank of the United States is the Federal Reserve System (or Fed).



Introduction to the Federal Reserve

What you'll learn to do: explain the structure, functions, and responsibilities of the Federal Reserve System.





Banks, Loan Finance, and the Payments System

LEARNING OBJECTIVES

- Explain the key role of banks in bringing lenders and borrowers together, and in facilitating the payments system
- Explain how the nature of banks makes them susceptible to bank runs



Loan Finance

Banks earn income by making loans. They also make other safe investments, like purchases of Treasury securities, but primarily they are in the loan business. Businesses borrow from banks to finance investment expenditures and also for shorter term needs like payrolls. Households borrow from banks to finance home purchases (i.e. mortgages). Individuals borrow money to purchase cars and other vehicles. They also borrow money to pay for higher education. It is no overstatement to say that money and credit are the grease in a modern economic system, without which the economic system would operate at a much lower level.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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Increasing the sophistication of the financial payments system benefits banks mostly because _____.

- advances in financial payments technology raise the productivity of bank tellers.
- advances in financial payments technology reduce the time that transactions such as deposits can be cleared.
- households will need to hold less of their wealth in the form of cash and will be able to leave more in banks from where it can be loaned out for a profit.

Check Answer

Correct. A good example is the introduction of automatic teller machines (ATMs). These machines virtually eliminate the need for households to make a costly visit to their bank to conduct a transaction such as a transfer of funds from an interest bearing account to a non-interest bearing account. Households will therefore be more likely to leave more of their wealth in the bank rather than hold it in cash outside of the bank.

Loan Finance

Because banks operate using a fractional reserve system, they are always vulnerable to liquidity constraints. Banks keep only a small fraction of deposits as reserves; the rest they put to work earning income as loans or other investments. This means that on any business day, banks will have less cash on hand than the potential withdrawals of their depositors. That is just the nature of the banking business.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

<u>0:30</u>

1 of 1

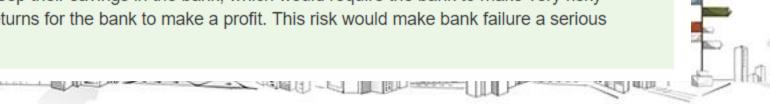


If banks kept no reserves at all, they would

- probably fail, since without any reserves they would not be able to cover any requests for withdrawals.
- make more risky but more profitable investments.
- solve the issue of liquidity constraints.

Check Answer

Correct. Banks need to hold reserves to cover their customers' withdrawals. Without reserves, they would need to sell their loans and other assets in a hurry, potentially suffering losses in the process. The alternative would be to pay very high interest rates on deposits to induce customers to keep their savings in the bank, which would require the bank to make very risky investments which promise high enough returns for the bank to make a profit. This risk would make bank failure a serious probability..



Bank Runs

Suppose a bank makes a bad loan, which the borrower is unable to repay. This has an adverse impact on the bank's balance sheet. When the bad loan is written off, the value of the bank's assets falls by the amount of the loan, and the bank's equity falls by the same amount. Handling loan losses is one reason why banks need sufficient equity. Depositors may worry about the safety of their deposits, if their bank is making bad loans. Suppose the bank makes a bigger bad loan, where the amount is larger than the bank's capital. When the bad loan is written off, the bank finds itself insolvent.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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A private bank that systematically engages in making risky loans to borrowers runs

- O no more risk of a bank run than if it engaged in overly cautious behavior.
- o a decreased probability of facing a bank run by depositors.
- an increased probability of facing a bank run by depositors.

Check Answer

Correct. Once it is understood that the bank has taken far too many risks, depositors will be apt to retrieve their deposits as fast as possible.



Bank runs

In fact, the bank run could have happened earlier, while the bank was still solvent, but losing equity. Either way, the bank is in a difficult situation. What can the bank do?



Figure 1. A Run on the Bank. Bank runs during the Great Depression only served to worsen the economic situation. (Credit: National Archives and Records Administration)



Bank run

Systemic bank runs cause interest rates to spike as lenders become very conservative about lending. If this persists over time, these higher interest rates have an adverse impact on investment and consumption expenditure as well as the economy as a whole. Bank runs also threaten the integrity of the payments system. Checks are built on trust. If a bank is suffering from a run, other banks are less likely to accept checks written on the failing bank, even if the check writer has sufficient funds in their account.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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The banking sector is critical to the health of a market economy because it

- o provides the key connection between savers and borrowers that facilitates the flow of capital to income and employment generating activities.
- O is large and generates a significant portion of an economy's profit and income.
- O provides individual savers with financial planning services.

Check Answer

Correct. Without a strong banking sector, both consumption and investment, two components of aggregate demand would be hindered.

We stopped here with 2107709 on 07-10-2023 5-minute break GLOSSARY

financial contagion:

when fears that one bank is insolvent spread to fears that other banks are insolvent; can cause bank runs to occur at multiple banks

illiquidity:

when the demand for cash by depositors exceeds the bank's available reserves

insolvency:

when the value of a bank's assets is less than the value of its liabilities; i.e. bankrupt

The Federal Reserve System and Central Banks

LEARNING OBJECTIVES

- Explain the structure and organization of the U.S. Federal Reserve
- Discuss how central banks impact monetary policy, promote financial stability, and provide banking services



210710 we stopped here 07-10-2023 Structure and Organization of the Federal Reserve

In order to help financial systems operate smoothly and to reduce the likelihood of financial crises, most modern nations have a central bank. The oldest central bank is the Bank of England. Other prominent central banks include the Bank of Japan, and the European Central Bank, which is the central bank for the member countries of the European monetary system. In the United States, the central bank is called the Federal Reserve—often abbreviated as "the Fed." This section explains the organization of the U.S. Federal Reserve System and identifies the major responsibilities of a central bank.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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The independence in decision-making of the US Federal Reserve Bank's Board of Governors is critical since

- otherwise they may be vulnerable to political pressures.
- otherwise they may take decisions that serve to perpetuate their position and not for the good of the national economy.
- O otherwise their decisions may favor their own constituents rather than the national economy.
- O decisions are made on the merits of the national economy, not to support the wishes of elected officials.

Check Answer

Correct. Board members are insulated as much as possible from political pressures to ensure that



Structure and Organization of the Federal Reserve



Figure 1. The Twelve Federal Reserve Districts. There are twelve regional Federal Reserve banks, each with its district.



Board of Governors of the Federal Reserve System

The Federal Reserve, the central bank of the United States, provides the nation with a

safe, flexible, and stable monetary and financial system.
https://www.federalreserve.gov/aboutthefed/bios/board/boardmembership.htm

About the Fed

News & Events Monetary Policy

Supervision & Regulation **Financial** Stability

Payment Systems

Economic Research

Data

Consumers & Communities

Home > About the Fed > Board Members

Board Members



Jerome H. Powell, Chair

Lael Brainard, Vice Chair

Michael S. Barr. Vice Chair for Supervision

Michelle W. Bowman

Lisa D. Cook

Philip N. Jefferson

Christopher J. Waller

Board of Governors Members, 1914-Present

Jerome H. Powell, Chair



Jerome H. Powell first took office as Chair of the Board of Governors of the Federal Reserve System on February 5, 2018, for a four-year term. He was reappointed to the office and sworn in for a second four-year term on May 23, 2022. Mr. Powell also serves as Chairman of the Federal Open Market Committee, the System's principal monetary policymaking body. Mr. Powell has

served as a member of the Board of Governors since taking office on May 25, 2012, to fill an unexpired term. He was reappointed to the Board and sworn in on June 16, 2014, for a term ending January 31, 2028.

Recent Speeches

Welcoming Remarks

Monetary Policy and Price Stability

Welcoming Remarks

Welcoming Remarks

Restoring Price Stability

Prior to his appointment to the Board, Mr. Powell was a visiting scholar at the Bipartisan Policy Center in Washington, D.C., where he focused on federal and state fiscal issues. From 1997 through 2005, Mr. Powell was a partner at The Carlyle Group.

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The Federal Reserve Chairperson is tasked with providing the US Congress with regular policy updates. It is known that such testimony can move global equity and bond markets up or down primarily because .

- the U.S. economy is so large and its currency so prevalent on the global market that the effects of Fed policy will impact wealth and income around the globe
- the Fed directs its policy towards managing global trade
- the Fed is subject to the influence of foreign lobbying

Check Answer

Correct. The US dollar is known as the world's reserve currency. Decisions made by the Fed will impact its value in global markets and will therefore have international effects



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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The	Federal Reserve includes: [Check all that apply]	
 ✓	12 Regional Federal Reserve Districts	~
	The Federal Open Market Committee	~
	Board of District Banks	
	50 State Federal Reserve Districts	
	Board of Chairmen	
	Federal Marketing Committee	
<u>~</u>	A Board of Governors	~
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Class starts at 14:00

(Beijing Time, GMT+8)

Ivan Monich, PhD, www.Monich.pro

October 08, 2023

What Does a Central Bank Do?

The Federal Reserve, like most central banks, is designed to perform three important functions:

- 1. To provide banking services to commercial banks and other depository institutions, and to provide banking services to the federal government.
- 2. To promote stability of the financial system
- 3. To conduct monetary policy



To provide banking services to commercial banks and other depository institutions, and to provide banking services to the federal government.

The Federal Reserve is sometimes called a "banker's bank." The reason for this is that the Fed provides many of the same services to banks as banks provide to their customers. For example, all commercial banks have an account at the Fed where they deposit reserves. In fact, most of a commercial bank's reserves are not held on the premises; rather, they are held at their regional Federal Reserve bank. Banks can also obtain loans from the Fed through the "discount window" facility, which will be discussed in more detail later



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To provide banking services to commercial banks and other depository institutions, and to provide banking services to the federal government.

On a more mundane level, the Federal Reserve ensures that enough currency and coins are circulating through the financial system to meet public demands. For example, each year the Fed increases the amount of currency available in banks around the Christmas shopping season and reduces it again in January.



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Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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	One mission of the Federal Reserve Bank can be aptly described as	
1	O providing a profit-generating center	1
	providing banking services to commercial banks	~
	providing private banking services to individuals	
		Check Answer
	Correct. By clearing transactions, holding reserves from private banks as deposits, and making loans to comm Federal Reserve bank can be aptly described as the bankers' bank.	ercial banks, the



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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If the Federal Reserve Bank did not exist, economic transactions would	
O be all conducted with barter or the direct trade of one good or service for another	
be less efficient and more costly	~
O be all done in cash	
	Check Answer
Correct. The Fed provides private banks with services that enable efficient transfers of money between buy banks.	banks and seller
	AL III

GLOSSARY

central bank:

institution which conducts a nation's monetary policy and regulates its banking system

Federal Reserve:

the central bank of the United States run by a 7-member Board of Governors in conjunction with 12 regional Federal Reserve banks



Bank Regulation

LEARNING OBJECTIVES

- Explain bank supervision and measures taken to reduce the risk of bank insolvency (including reserve requirements, bank capital requirements, and restrictions on investments)
- Explain how deposit insurance and lender of last resort are two strategies to protect against bank runs



Bank Regulation

Bank regulation is intended to maintain banks' solvency by avoiding excessive risk. Regulation falls into a number of categories, including reserve requirements, capital requirements, and restrictions on the types of investments banks may make. In the previous module on money and the banking system, we learned that banks are required to hold a minimum percentage of their deposits on hand as reserves, to cover desired withdrawals by depositors. "On hand" is a bit of a misnomer because, while a portion of bank reserves are held as cash in the bank, the majority are held in the bank's account at the Federal Reserve.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

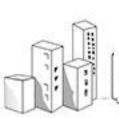
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In an economy that is relatively unstable or more subject to negative influences out of its control (negative shocks) than other economies around the globe, how might the central bank set its reserve requirements relative to international averages?

- They would be higher than the international average.
- They would be the same as the international average.
- They would likely be lower than international average.

Check Answer

Correct. Maintaining a stable supply of money is correlated with a stable economy and is therefore one of the core tasks of the central bank. An economy subject to frequent negative shocks relative to the rest of the world may have unusually high investment risk and therefore could subject private banks/lenders to an elevated risk of bank runs in which case private savers will be less likely to commit to keeping savings in the system. The central bank will therefore require sufficient reserves to maintain banking sector credibility and ensure that funds from savers make their way back to the economy through the same banking system.



5-minute break Bank Supervision

Several government agencies monitor banks' balance sheets to make sure they have positive net worth and are not taking too high a level of risk. Within the U.S. Department of the Treasury, the Office of the Comptroller of the Currency has a national staff of bank examiners who conduct on-site reviews of the 1,500 or so of the largest national banks. The bank examiners also review any foreign banks that have branches in the United States. The Office of the Comptroller of the Currency also monitors and regulates about 800 savings and loan institutions.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class



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If you were a bank regulator which of the following banks you reviewed would cause concern and warrant a deeper evaluation?

- A bank that holds the minimum level of reserves but has spread its remaining assets in the form of loans made across a wide swath of markets and industries.
 - A bank that holds the minimum amount of assets in reserves, holds the vast majority of its total assets in the form of loans to just one particular industry and another small share of its assets held in the form of mortgages to domestic home varieties.
- A bank holding just over the minimum level of cash reserves, a high volume of loans made to developing countries but a large share of assets in the form of loans to more stable domestic industries and households.

Check Answer



Correct. This bank is undiversified and is therefore subject to a possible negative shock to the industry where most of its assets lie.



Deposit Insurance

The risk of bank runs creates instability in the banking system. Even a rumor that a bank might experience negative net worth could trigger a bank run and, in a bank run, even healthy banks could be destroyed. Moreover, a run at one bank often triggered financial contagion that threatens the integrity of the payment system across the economy.





5-minute break

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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Deposit insurance was created in the 1930s to

- O reduce risk-taking by bank managers and therefore support a safer more stable banking system.
- encourage more risk taking by banks and therefore promote economic growth.
- promote the credibility and safety of banks as a place to store one's money and therefore support the link between savers and borrowers.

Check Answer

Correct. Without such insurance, some depositors might decide instead to "bury their money in the backyard" or "stuff their mattresses" with it, in which case it is unavailable for lending.



5-minute break Lender of Last Resort

A lender of last resort is the institution in a financial system that acts as the provider of liquidity to a financial institution which finds itself unable to obtain sufficient liquidity in the interbank lending market when other facilities or such sources have been exhausted. Wikipedia

The problem with bank runs is not that insolvent banks will fail; they are, after all, bankrupt and need to be shut down. The problem is that bank runs can cause solvent banks to fail and spread to the rest of the financial system. To prevent this, the Fed stands ready to lend to banks and other financial institutions when they cannot obtain funds from anywhere else. This is known as the lender of last resort role. For banks, the central bank acting as a lender of last resort helps to reinforce the effect of deposit insurance and to reassure bank customers that they will not lose their money.



Q

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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While the role of "lender of last resort" supports banking system credibility, the problem with such a commitment is that

- O it discourages savers from committing savings to a bank known to carry risky loans in its asset portfolio.
- it encourages borrowers to misrepresent the risk of the loan they are trying to source from a bank.
- o it encourages excessive risk taking by bank managers in their choice of loans.

Check Answer

Correct. Aptly termed "Moral Hazard, a commitment by the Federal Reserve Bank to bail banks out of any bad loans they make will encourage banks to pursue riskier investments that may not live up to their fiduciary responsibilities.



GLOSSARY

bank capital requirements minimum percentage (of assets): a bank's capital must exceed to stay in operation

bank run: when depositors fear their bank is insolvent, they will "run" to withdraw their deposits; because of fractional reserve banking, bank runs can turn solvent banks insolvent

deposit insurance: program which insures commercial bank depositors up to \$250,000 per bank in the U.S.

lender of last resort: role of the Fed to provide loans to distressed banks when the banks can't obtain credit from anywhere else



Introduction to Monetary Policy



What you'll learn to do: describe monetary policy and the Fed's three main policy tools.

- In the last two sections, we have discussed how the Federal Reserve provides banking services to banks and the federal government, and how the Fed regulates the banking system. In this section, we will begin to discuss what is perhaps the Fed's most important responsibility: conducting monetary policy.
- Along with fiscal policy, monetary policy is one of the two major tools governments can use to influence the course of the economy. While it is easy to confuse the two, monetary policy is very different than fiscal policy. While the goals of the two policies may be similar, in this section you will see that the mechanisms for achieving those goals are very different.

Monetary Policy

LEARNING OBJECTIVES

- Describe monetary policy and the Fed's three main policy tools
- Explain and demonstrate how the central bank executes monetary policy by changing the discount rate
- Explain and demonstrate how the central bank executes monetary policy through changing reserve requirements



How a Central Bank Executes Monetary Policy

Monetary policy operates through a complex mechanism, but the basic idea is simple. The Fed supplies (or withdraws) reserves to the banking system, which affects the availability of credit generally.

A central bank has three traditional tools to implement monetary policy in the economy:

- Changing the discount rate, which is the interest rate charged by the central bank on the loans that it gives to other commercial banks. What is the discount rate here in China?
- Changing reserve requirements, which determine what level of reserves a bank is legally required to hold
- Open market operations, which involves buying and selling government bonds with banks

Q&A session

Changing the Discount Rate

The Federal Reserve was founded in the aftermath of the Financial Panic of 1907 when many banks failed as a result of bank runs. As mentioned earlier, since banks make profits by lending out their deposits, no bank, even those that are not bankrupt, can withstand a sufficiently long bank run. As a result of the Panic, the Federal Reserve was founded to be a "lender of last resort." In the event of a bank run, sound banks (banks that were not bankrupt) could borrow as much cash as they needed from the Fed's discount "window" to quell the bank run. The interest rate banks pay for such loans is called the discount rate. (They are so named because loans are made against the bank's outstanding loans "at a discount" of their face value.) Once depositors became convinced that the bank would be able to honor their withdrawals, they no longer had a reason to make a run on the bank. In short, the Federal Reserve was originally intended to provide credit passively, but in the years since its founding, the Fed has taken on a more active role with monetary policy.

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While the role of "lender of last resort" supports banking system credibility, the problem with such a commitment is that

- o it encourages excessive risk taking by bank managers in their choice of loans.
- it discourages savers from commiting savings to a bank known to carry risky loans in its asset portfolio.
- O it encourages borrowers to misrepresent the risk of the loan they are trying to source from a bank.

Check Answer

Correct. Aptly termed "Moral Hazard, a commitment by the Federal Reserve Bank to bail banks out of any bad loans they make will encourage banks to pursue riskier investments that may not live up to their fiduciary responsibilities.



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	An increase in the Federal Funds rate implies that credit conditions are					
	All morease in the rederal runds rate implies that orealt conditions are					
I	O not changing					
	worsening	~				
	○ improving					

Check Answer

Correct. Interest rates are the price of money. If interest rates rise it means money is scarcer which in turn implies a reduction in reserves and credit.



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The Fed is more likely to raise the discount rate when the economy is _____.

- booming
- entering a recession
- not changing

Check Answer

Correct. During a boom, the demand for loanable funds will be rising as firms will take the opportunity to expand. But if too much money is injected into the economy, it risks violating a major Fed mandate which is to maintain stable prices.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not



1 of 1

If the Federal Reserve Bank decides to reduce the discount rate it is likely that

- it is concerned the economy is overheating and wishes to discourage risk-taking by private banks to slow the economy down.
- it wishes to reduce the amount of reserves in the banking system and therefore discourage lending and reduce the supply of money in the economy.
- it is pursuing a pro-growth policy.

Check Answer

Correct. By reducing the discount rate, private banks will have access to cheaper credit and will therefore be encouraged to increase lending and ultimately the supply of money.



10-minute break

In recent decades, the Federal Reserve has made relatively few discount loans. Before a bank borrows from the Federal Reserve to fill out its required reserves, the bank is expected to first borrow from other available sources, like other banks. This is encouraged by Fed's charging a higher discount rate than the federal funds rate. Given that most banks borrow little at the discount rate, changing the discount rate up or down has little impact on their behavior. More importantly, the Fed has found from experience that open market operations are a more precise and powerful means of executing any desired monetary policy. This is a good example of how monetary policy has evolved and how it continues to do so.

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Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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Which of the following scenarios may compel the Federal Reserve bank to reduce its discount rate? [Hint: it's more than one.]

- Over-leveraged banks experience a run on deposits and are unable to cover it without sufficient ability to borrow directly from the Fed.
- Private banks experience an increase in demand from private borrowers and are unable to secure sufficient reserves in the federal funds market to make those loans.
- ✓ Falling demand in the federal funds market has driven interest rates in that market below the discount rate.

Check Answer

Correct. In order to stabilize the banking sector, the Federal Reserve would attempt to make more funds available to private banks and would therefore be likely to reduce interest rates charged on loans to them.

Changing Reserve Requirements

A second method of conducting monetary policy is for the central bank to raise or lower the reserve requirement, which, as we noted earlier, is the percentage of each bank's deposits that it is legally required to hold either as cash in their vault or on deposit with the Fed. If the Fed were to raise the reserve requirement, banks would have to hold a greater amount in reserves; thus, they have less money available to lend out, and credit would be harder to obtain economy-wide. If the Fed were to lower the reserve requirement, banks would be allowed to hold a smaller amount in reserves, and they will have a greater amount of money available to lend out, increasing the availability of credit.

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Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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1 of 1

If the Federal Reserve bank raises reserve requirements, interest rates are likely to and the supply of money will	
·	
○ be unaffected; decrease	
○ be unaffected; decrease	

- o rise; decrease
- fall; increase

Check Answer

Correct. An increase in reserve requirements reduces the amount of money or loanable funds that is available to lenders. With loanable funds scarcer, interest rates, which are the price of loanable funds, will rise, investment demand will fall and the supply of money will fall.



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Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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Changing reserve requirements is relatively rare because

- O the Federal Reserve Banks is careful not to "shock" the private sector banking industry.
- o it can be extremely costly to private sector banks.
- such action is rarely an effective means of altering the supply of money.

Check Answer

Correct. A change in reserve requirements can present an overwhelming burden on private sector banks whose extensive and complex accounting procedures will have to be altered to meet the new requirements.





Question 1				
Suppose the Fed decreases required reserve ratio.				
As a result of this policy, what will happen to the money supply?				
O Money Supply stays the same.				
O Money Supply decreases.				
Money Supply increases.				
→				
Show Answer				
Correct.				
Will this policy allow commercial banks to make fewer or more loans?				



Q

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class



711 we stopped here 08-10-2023 GLOSSARY

discount rate: the interest rate charged by the central bank on the loans that it gives to other commercial banks

federal funds rate: the interest rate on overnight, interbank loans.

open market operations: the central bank selling or buying Treasury bonds to influence the quantity of money and the level of interest rates

reserve requirement: the percentage amount of its total deposits that a bank is legally obligated to either hold as cash in their vault or deposit with the central bank



天津外国语大学(天外) **Tianjin Foreign Studies University** (TFSU)



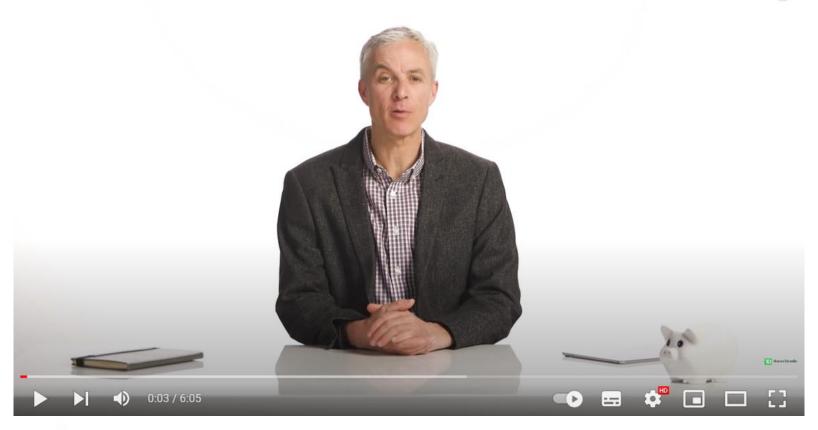
Class starts at 14:00

(Beijing Time, GMT+8)

Ivan Monich, PhD, www.Monich.pro

October 12, 2023

Economic Stimulus: Monetary & Fiscal Policy Explained https://www.youtube.com/watch?v=m9gRqxK0FKE







Monetary Policy and Open Market Operations

LEARNING OUTCOMES

 Explain and demonstrate how the central bank executes monetary policy through open market operations

The most commonly used tool of monetary policy in the U.S. is open market operations. Open market operations take place when the central bank sells or buys U.S. Treasury securities in order to influence the quantity of bank reserves and the level of interest rates. When the Fed conducts open market operations, it targets the federal funds rate, since that interest rate reflects credit conditions in financial markets very well.

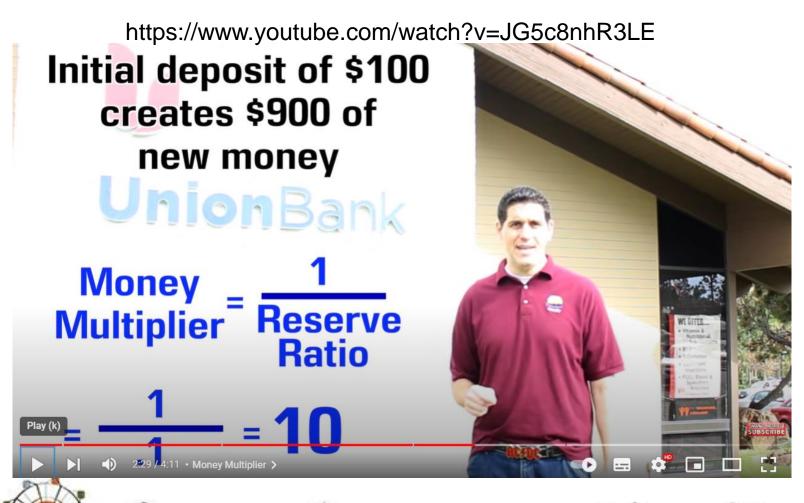


Open Market Operations

In the module on Money & Banking, we introduced the loan expansion process by which commercial banks lend out excess reserves. The loans are in the form of new checking account balances, which become part of the money supply. We used the money multiplier defined as 1/Required Reserve Ratio to develop a formula for determining how much the money supply increases through the loan expansion process.



Monetary Policy-How banks are creating Money.



USING THE MONEY MULTIPLIER FORMULA

How much did the Fed's \$20 million open market purchase of bonds increase the money supply? We can use the following formula to find out, recalling that since the reserve requirement is 10%, the money multiplier is 10:

Change in the Money Supply = Money Multiplier \times Amount of Fed's Bond Purchase

Or in other words,

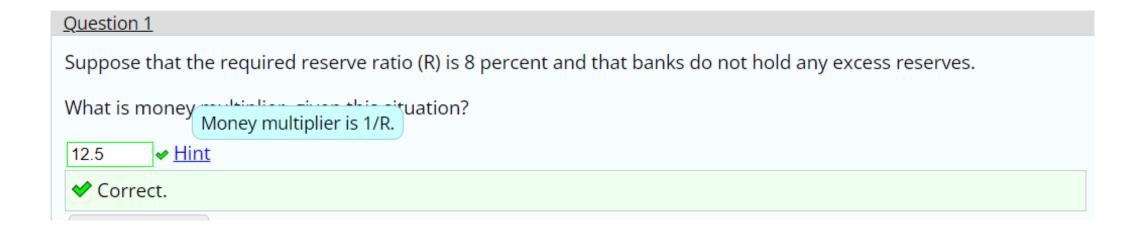
Change in the Money Supply = Money Multiplier \times Change in Bank Reserves

SO,

Change in the Money Supply $= 10 \times 20$ million = 200 million



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class



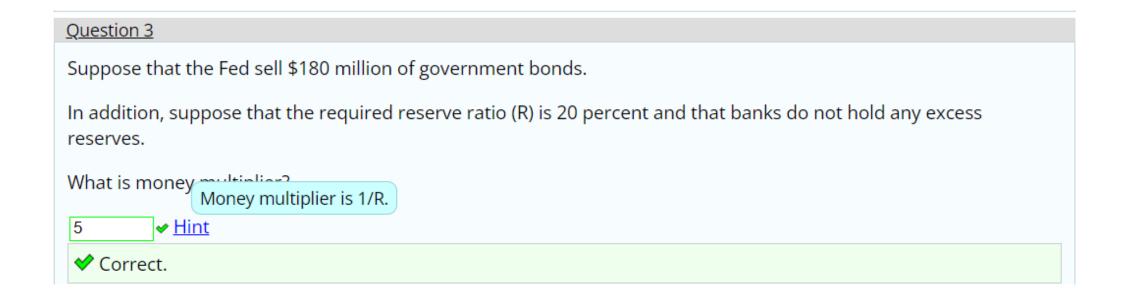




Suppose that the Fed conducts a \$270 million open market purchase of government bonds. In addition, suppose that the required reserve ratio is 24 percent and that banks do not hold any excess reserves. What is the effect on the manage supply? More precisely, by how much will the manage supply increase? Change in money supply is Fed's purchase of bonds multiplied by the money multiplier. 1125 Hint Correct.



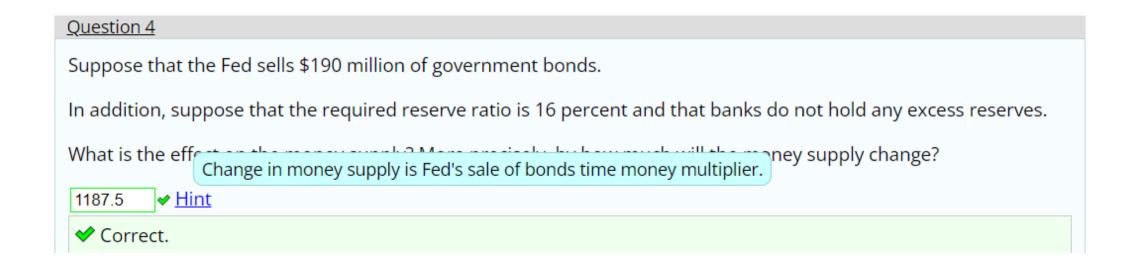
Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class





5-minute break

4 Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class





5-minute break

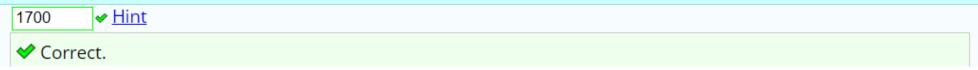
Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

Question 5

Assume that the banking system has total reserves of \$170 billion.

Assume also that required reserves are 10 percent and that banks do not hold any excess reserves and households hold no currency.

Required Reserves are the percentage share of deposits. In other words, if 170 represents 10% of the deposits, what is the total amount of the deposits?







Question 6

Assume that the banking system has total reserves of \$644 billion.

Assume also that required reserves are 28 percent and that banks do not hold any excess reserves and households hold no currency.

Now suppose that the Fed decreased the required reserves to 22.4.

What is the new Money multiplier is 1/R.

4.464 **✓** <u>Hint</u>

Correct.





Question 7

Assume that the banking system has total reserves of \$861 billion.

Assume also that required reserves are 41 percent and that banks do not hold any excess reserves and households hold no currency.

Now suppose that the Fed decreases the required reserves to 32.8.

What is the level of excess reserves? Make sure to include a negative sign if necessary.

Hint



5-minute break

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

Question 8

Assume that the banking system has total reserves of \$1296 billion.

Assume also that required reserves are 48 percent and that banks do not hold any excess reserves and households hold no currency.

Now suppose that the Fed decreased the required reserves to 38.4.

As a result of this new policy, by how much has the money supply increased?

675 ✓ Hint
✓ Correct.





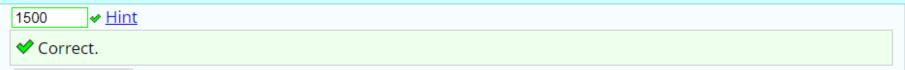
Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

Question 9

Assume that the banking system has total reserves of \$465 billion.

Assume also that required reserves are 31 percent and that banks do not hold any excess reserves and households hold no currency.

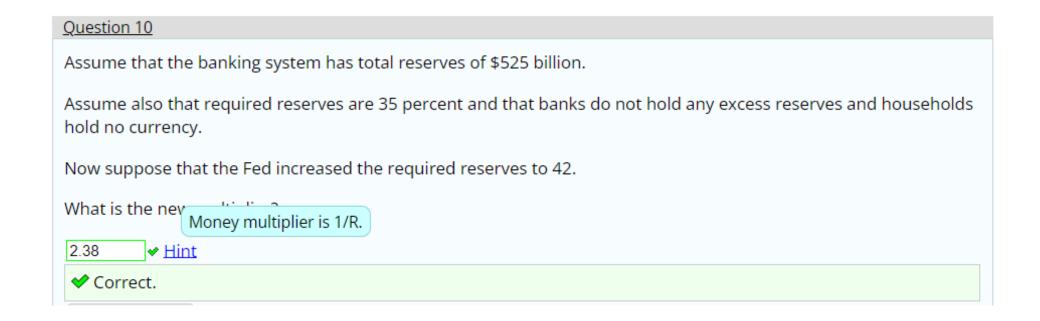
Required Reserves are the percentage share of deposits. In other words, if 465 represents 31% of the deposits, what is the total amount of the deposits?





0:30

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class





Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class





-433.3

✓ Hint

0:30

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

Assume that the banking system has total reserves of \$728 billion. Assume also that required reserves are 28 percent and that banks do not hold any excess reserves and households hold no currency. Now suppose that the Fed increased the required reserves to 33.6. As a result of the Multiply the excess reserves by the new multiplier. By changed?



USING THE MONEY MULTIPLIER FORMULA

How much did the Fed's \$20 million open market purchase of bonds increase the money supply? We can use the following formula to find out, recalling that since the reserve requirement is 10%, the money multiplier is 10:

Change in the Money Supply = Money Multiplier \times Amount of Fed's Bond Purchase

Or in other words,

Change in the Money Supply = Money Multiplier \times Change in Bank Reserves

SO,

Change in the Money Supply $= 10 \times 20$ million = 200 million



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class



1 of 1



Which of the following statement is likely to be true?

- The purchase of bonds by the Federal Reserve Bank is a contractionary monetary policy since bond prices will rise and therefore reduce private investment.
- The purchase of bonds by the Federal Reserve Bank is an expansionary monetary policy since bond prices will fall, interest rates will fall and therefore private investment will rise.
- The purchase of bonds by the Federal Reserve Bank is an expansionary monetary policy in part because the Federal Reserve Bank is a large player in the bond market and can influence bond prices.

Check Answer



Correct. When the Fed buys bonds it is putting upwards pressure on the economy-wide demand for bonds and therefore their price. This means that firms seeking debt finance for their operations will find they can issue debt at lower rates of interest which helps to bring economy-wide interest rates down and therefore improve conditions for private investment.



About News Monetary Supervision Financial Payment Economic Data Consumers the Fed & Events Policy & Regulation Stability Systems Research & Communities

Home

Monetary Policy



Monetary policy in the United States comprises the Federal Reserve's actions and communications to promote maximum employment, stable prices, and moderate long-term interest rates—the economic goals the Congress has instructed the Federal Reserve to pursue.

Review of Monetary Policy Strategy, Tools, and Communications

In a review conducted over 2019 and 2020, the Fed took a step back to consider whether the U.S. monetary policy framework could be improved to better meet future challenges. Here are the results.

More information

Federal Open Market Committee

FOMC Calendar

About the FOMC

Transcripts and other historical materials

Rules and Authorizations

FAQs

FOMC Longer-Run Goals and Monetary Policy Strategy (PDF)

Communications Policies: Committee (PDF) | Staff (PDF)

Recent Documents

FOMC Statement: PDF | HTML

Released September 21, 2022

Press Conference

September 21, 2022

Projection Materials: PDF | HTML

Released September 21, 2022

FOMC Minutes: PDF | HTML

Released October 12, 2022

Upcoming Dates

Jan. 4

Nov 1-2 FOMC Meeting

Two-day meeting

Press Conference

Nov. 23 FOMC Minutes

Meeting of Nov. 1-2

Dec. 13-14 FOMC Meeting

Two-day meeting

Press Conference

FOMC Minutes

Meeting of Dec. 13-14

The Federal Open Market Committee (FOMC)

policy.htm

Home > Monetary Policy

Policy Tools

The Federal Reserve has a variety of policy tools that it uses in order to implement monetary policy.

- · Open Market Operations
- · Discount Window and Discount Rate
- · Reserve Requirements
- Interest on Reserve Balances
- · Overnight Reverse Repurchase Agreement Facility
- Term Deposit Facility
- Central Bank Liquidity Swaps
- Foreign and International Monetary Authorities (FIMA) Repo Facility
- · Standing Overnight Repurchase Agreement Facility
- Expired Policy Tools

Last Update: December 16, 2021



Open Market Operations



Let's watch this video to review how the FED uses open market operations to influence interest rates.



GLOSSARY

open market operations: the central bank selling or buying Treasury securities to influence the quantity of money and the level of interest rates

open market purchase: the central bank buys Treasure securities to increase bank reserves and lower interest rates

open market sale: the central bank sells Treasure securities to decrease bank reserves and raise interest rates



Learn By Doing: Monetary Policy and Open Market Operations

Questions



天津外国语大学(天外) **Tianjin Foreign Studies University** (TFSU)



Class starts at 14:00

(Beijing Time, GMT+8)

Ivan Monich, PhD, www.Monich.pro

October E, 2023

Introduction to Monetary Policy and Economic Outcomes

What you'll learn to do: explain how monetary policy affects GDP and the interest rates

Expansionary and contractionary monetary policies affect the broader economy, by influencing interest rates, aggregate demand, real GDP and the price level. In this section, we will take a look at the mechanisms by which monetary policy plays out.



https://www.istockphoto.com/photo/bull-and-bear-in-london-gm481498493-37446806

Monetary Policy and Interest Rates

LEARNING OBJECTIVES

- Contrast expansionary monetary policy and contractionary monetary policy
- Explain how monetary policy impacts interest rates
- Explain how monetary policy tools (changes to the reserve requirement, discount rate, or open market operations) affect the money market



Expansionary and Contractionary Policies

Monetary policy affects aggregate demand and the level of economic activity by increasing or decreasing the availability of credit, which can be seen through decreasing or increasing interest rates. Recall that an open market purchase by the Fed adds reserves to the banking system. Banks turn those reserves into new loans, making credit available to more borrowers and increasing the supply of money.



Expansionary and Contractionary Policies

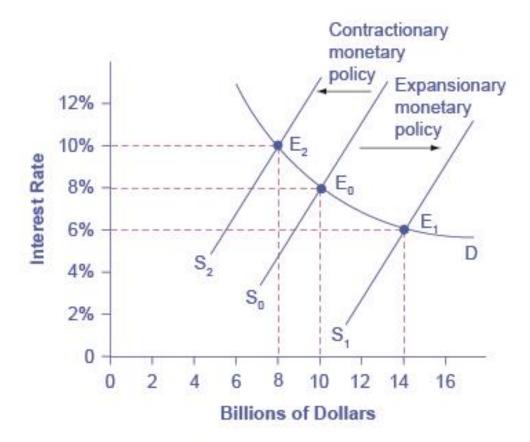
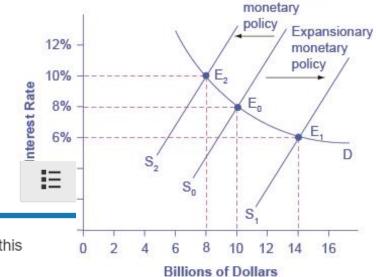


Figure 1. **Monetary Policy and Interest Rates.** The original equilibrium occurs at E_0 . An expansionary monetary policy will shift the supply of loanable funds to the right from the original supply curve (S_0) to the new supply curve (S_1) and to a new equilibrium of E_1 , reducing the interest rate from 8% to 6%. A contractionary monetary policy will shift the supply of loanable funds to the left from the original supply curve (S_0) to the new supply (S_2) , and raise the interest rate from 8% to 10%.

Q

Check Your Understanding. Answer the question(s) below to see understand the topics covered in the previous section. This short count toward your grade in the class



Contractionary

1 of 1

Suppose the Federal Reserve Bank increases the reserve ratio. Which of the following would be the best representation of this policy on the money market equilibrium in Figure 1 above?

- O Both the money supply and money demand curve shift to the left leaving interest rates unchanged.
- The money supply curve shifts to the left and money demand falls along the investment demand curve.
- The money supply curve shifts to the right and money demand increases along the investment demand curve.

Check Answer

Correct. An increase in reserve requirements reduces the amount of money available to lenders and therefore shifts the money supply curve to the left, independent of interest rates. Since loanable funds are now scarcer, interest rates rise and money demand falls along the money demand curve.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class



1 of 1

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Suppose the public suddenly decides that private sector banks are too risky to trust its money with. How might this be represented on the diagram of Figure 1 and what happens to private investment as a result?

The money demand curve shifts to the right. The money supply curve remains in place but interest rates rise along it, reducing private investment.

Both the money supply and money demand curve shift to the right leaving interest rates unchanged and therefore leaving private investment unchanged.

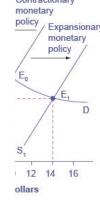
The money supply curve shifts to the left since with less deposits, banks have to reduce their lending activity. Interest rates fall and money demand falls along the investment demand curve.

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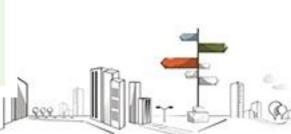
leaving

rest



Check Answer

Correct. The public will want to hold more of their assets in liquid accounts if not in cash and therefore save less. The demand for money rises, the money demand curve shifts to the right and interest rates rise along the money supply curve. Private investment falls. This is a critical reason why the Fed supports stability and integrity of the private banking system.

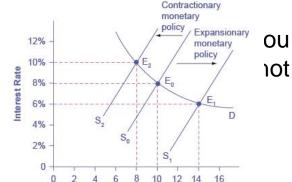


The Effect of Monetary Policy on Interest Rates

So how does a central bank "raise" interest rates? When describing the monetary policy actions taken by a central bank, it is common to hear that the central bank "raised interest rates" or "lowered interest rates." We need to be clear about this: more precisely, through open market operations the central bank changes bank reserves in a way which affects the supply curve of loanable funds.

When the Fed decides to conduct an expansionary monetary policy, they purchase Treasury securities held by private investors. When the private investors deposit their payment from the Fed, the new reserves have been injected into the banking system. As a result, interest rates change, as shown in Figure 1. If they do not meet the Fed's target, the Fed can buy or sell Treasury securities, injecting more or less reserves into the banking system until interest rates do.

Check Your Understanding. Answer the question(s) bunderstand the topics covered in the previous section count toward your grade in the class



Billions of Dollars

0:30

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1 of 1

In Figure 1, the supply curve for loanable funds slopes upward in interest rates. How would the supply curve appear if savings were fixed instead of being a function of interest rates, and how would this impact interest rates relative to an upwards sloping supply curve if the investment demand function shifted its position?

- The money supply curve would be horizontal and interest rates would not change when investment demand shifts its position.
- The money supply curve would be downwards sloping.
- The money supply curve would be vertical.

Check Answer



Correct. Fixed savings mean that savings do not respond to changes in interest rates and therefore a shift in the demand curve for loanable funds would have a larger impact on equilibrium interest rates.



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Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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1 of 1

Which of the following statements is true?

- The Federal Reserve Bank has indirect and imperfect control over interest rates.
- The Federal Reserve Bank has direct control over interest rates.
- The Federal Reserve Bank has zero control over interest rates.

Check Answer

Correct. The Fed can influence interest rates because it is a large player in the market for securities but the forces of supply and demand for loanable funds are what set equilibrium interest rates.



Q

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

1 of 1



Which of the following statements is true?

- Holding money when it could instead be in an interest bearing account is an opportunity cost to the holder.
- Holding money when it could instead be in an interest bearing account suggests households perceive the economy and their own income to be stable.
- O Holding money when it could instead be in an interest bearing account suggests households are not worried about the solvency of banks.

Check Answer

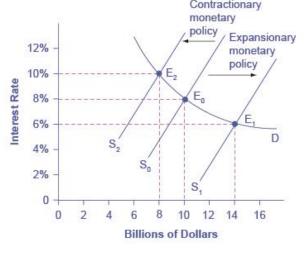
Correct. The holder is losing the interest that would otherwise be earned if the money was placed in an interest bearing account.



5-minute break



Check Your Understanding. Answer the question(s) below to see how vullet understand the topics covered in the previous section. This short quiz down toward your grade in the class

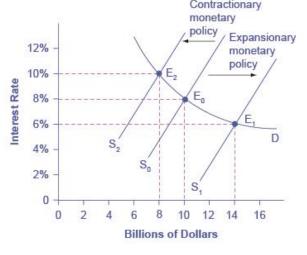


If the Fed wishes to conduct **contractionary** monetary policy, it should

- O Increase the discount rate.
- O Decrease the discount rate.
- O Increase taxes.
- O Buy T-Bills.



Check Your Understanding. Answer the question(s) below to see how vulperstand the topics covered in the previous section. This short quiz do count toward your grade in the class



Suppose the Fed decreases required reserve ratio.

As a result of this policy, what will happen to the interest rates?

- O Interest rates will stay the same.
- O Interest rates will decrease.
- O Interest rates will increase.



you

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

Suppose the Fed increases required reserve ratio.

As a result of this policy, what will happen to the interest rates?

- O Interest rates will increase.
- O Interest rates will stay the same.
- O Interest rates will decrease.



GLOSSARY

capital market:

the markets for long term financial assets

contractionary (or tight) monetary policy:

a monetary policy that reduces the supply of money and increases interest rates

expansionary (or loose) monetary policy:

a monetary policy that increases the supply of money and reduces interest rate

federal funds rate

the interest rate at which one bank lends funds to another bank overnight

market for loanable funds

a broad view of financial markets, including equities, bonds, bank accounts, credit, and all other financial assets

money market:

the markets for short term financial assets

prime rate:

the interest rate banks charge their very best corporate customers, borrowers with the strongest credit ratings

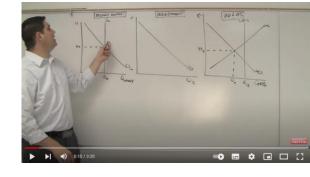
Monetary Policy and Aggregate Demand

LEARNING OBJECTIVES

Explain and show how monetary policy impacts aggregate demand



Monetary Policy and Aggregate Demand



Monetary policy affects interest rates and the available quantity of loanable funds, which in turn affects several components of aggregate demand. Tight or contractionary monetary policy that leads to higher interest rates and a reduced quantity of loanable funds will reduce two components of aggregate demand. Business investment will decline because it is less attractive for firms to borrow money, and even firms that have money will notice that, with higher interest rates, it is relatively more attractive to put those funds in a financial investment than to make an investment in physical capital. In addition, higher interest rates will discourage consumer borrowing for big-ticket items like houses and cars. Conversely, loose or expansionary monetary policy that leads to lower interest rates and a higher quantity of loanable funds will tend to increase business investment and consumer borrowing for big-ticket items.



Q

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

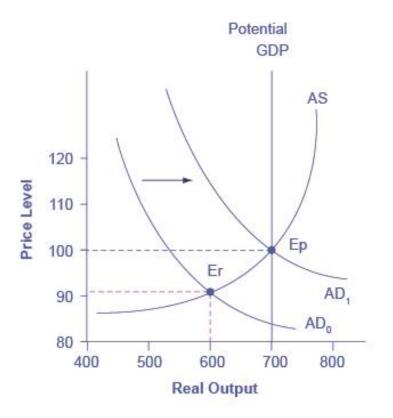
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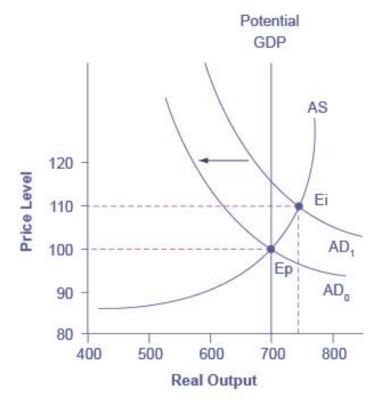
Which of the following statements is correct?

- Monetary policy has a direct impact on aggregate demand.
- Monetary policy has an indirect impact on aggregate demand.
- Monetary policy impacts consumption more than investment.





(a) Expansionary monetary policy

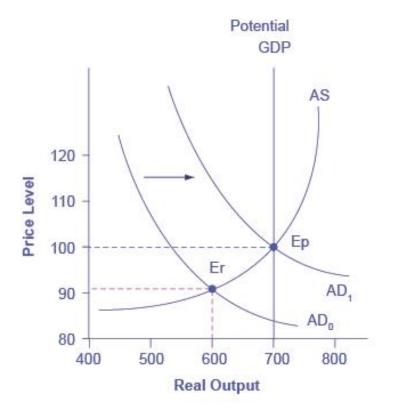


(b) Contractionary monetary policy

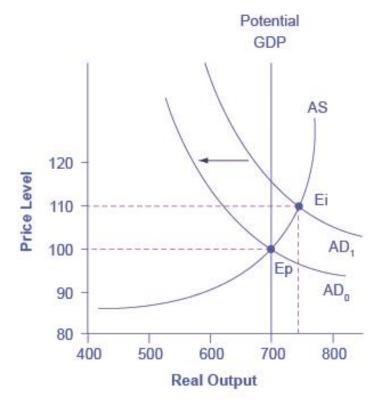
Figure 1. Expansionary or Contractionary Monetary Policy. (a)

The economy is originally in a recession with the equilibrium output and price level shown at Er. Expansionary monetary policy will reduce interest rates and shift aggregate demand to the right from AD₀ to AD₁, leading to the new equilibrium (Ep) at the potential GDP level of output with a relatively small rise in the price level. (b) The economy is originally producing above the potential GDP level of output at the equilibrium Ei and is experiencing pressures for an inflationary rise in the price level. Contractionary monetary policy will shift aggregate demand to the left from AD₀ to AD₁, thus leading to a new equilibrium (Ep) at the potential GDP level of output.





(a) Expansionary monetary policy



(b) Contractionary monetary policy

Figure 1. Expansionary or Contractionary Monetary Policy. (a)

The economy is originally in a recession with the equilibrium output and price level shown at Er. Expansionary monetary policy will reduce interest rates and shift aggregate demand to the right from AD₀ to AD₁, leading to the new equilibrium (Ep) at the potential GDP level of output with a relatively small rise in the price level. (b) The economy is originally producing above the potential GDP level of output at the equilibrium Ei and is experiencing pressures for an inflationary rise in the price level. Contractionary monetary policy will shift aggregate demand to the left from AD₀ to AD₁, thus leading to a new equilibrium (Ep) at the potential GDP level of output.



0:30

Q

With y711 we stopped here on E-10-2023. Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

1 of 1



Monetary policy should be conducted mindful of the tradeoff between _____.

- investment and consumption
- government expenditure and private investment
- inflation and unemployment



Stopped here 13 -10-2023 Review of the



https://www.youtube.com/watch?v=OueKt-mYlpY

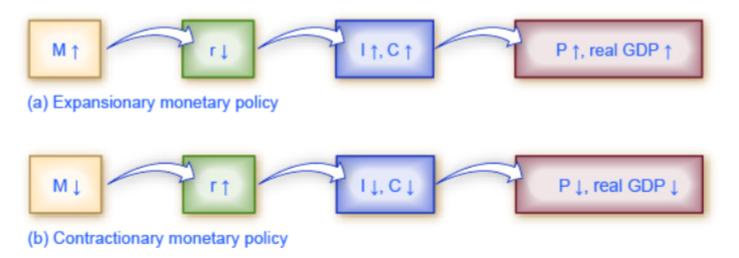


Figure 2. The Pathways of Monetary Policy. (a) In expansionary monetary policy the central bank causes the supply of money and loanable funds to increase, which lowers the interest rate, stimulating additional borrowing for investment and consumption, and shifting aggregate demand right. The result is a higher price level and, at least in the short run, higher real GDP. (b) In contractionary monetary policy, the central bank causes the supply of money and credit in the economy to decrease, which raises the interest rate, discouraging borrowing for investment and consumption, and shifting aggregate demand left. The result is a lower price level and, at least in the short run, lower real GDP.



天津外国语大学(天外) Tianjin Foreign Studies University (TFSU)



October 19, 2023

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

Question 1

Suppose the Fed decreases discount rate.

As a result of this policy, what will happen to the Aggregate Demand (AD)?

- O AD will shift to the left.
- O AD will stay the same.
- AD will shift to the right.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

Question 2

Suppose the Fed sells T-bills.

As a result of this policy, what will happen to the Aggregate Demand (AD)?

- O AD will shift to the left.
- O AD will stay the same.
- AD will shift to the right.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

Question 3

Suppose interest rates increase.

As a result of this, what will happen to consumption (C) and investment (I)?

- O Both C and I will increase.
- O C will increase and I will decrease.
- C will decrease and I will increase.
- O Both C and I will decrease.
- C and I will not change.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

Question 4

Suppose interest rates decrease.

As a result of this, what will happen to consumption (C) and investment (I)?

- OC and I will not change.
- C will increase and I will decrease.
- O Both C and I will decrease.
- O Both C and I will increase.
- O C will decrease and I will increase.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

Question 5

Suppose the Fed decreases discount rate.

As a result of this policy, what will happen to price level and GDP in the short-run?

- O Price level will increase while GDP will remain the same.
- O Price level will decrease while GDP will increase.
- O Price level will increase while GDP will decrease.
- O Both price level and GDP will decrease.
- Neither price level or GDP will change.
- O Both price level and GDP will increase.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

<u>Question 6</u>

Suppose the Fed sell T-bills.

As a result of this policy, what will happen to price level and GDP in the short run?

- O Both price level and GDP will increase.
- O Neither price level will or GDP will change.
- O Price level will decrease while GDP will increase.
- O Price level will decreases while GDP will remain the same.
- Both price level and GDP will decrease.
- O Price level will increase while GDP will decrease.



GLOSSARY

countercyclical:

moving in the opposite direction of the business cycle of economic downturns and upswings



Federal Reserve Actions and Quantitative Easing

LEARNING OBJECTIVES

- Evaluate Federal Reserve decisions over the last forty years
- Explain the significance of quantitative easing (QE)



Federal Reserve Actions Over Last Four Decades

For the period from the mid-1970s up through the end of 2007, Federal Reserve monetary policy can largely be summed up by looking at how it targeted the federal funds interest rate using open market operations. The Federal Reserve closely monitors the economy and considers when and if it should intervene, being mindful of the delicate tradeoff between unemployment and inflation.



Federal Reserve Actions Over Last Four Decades

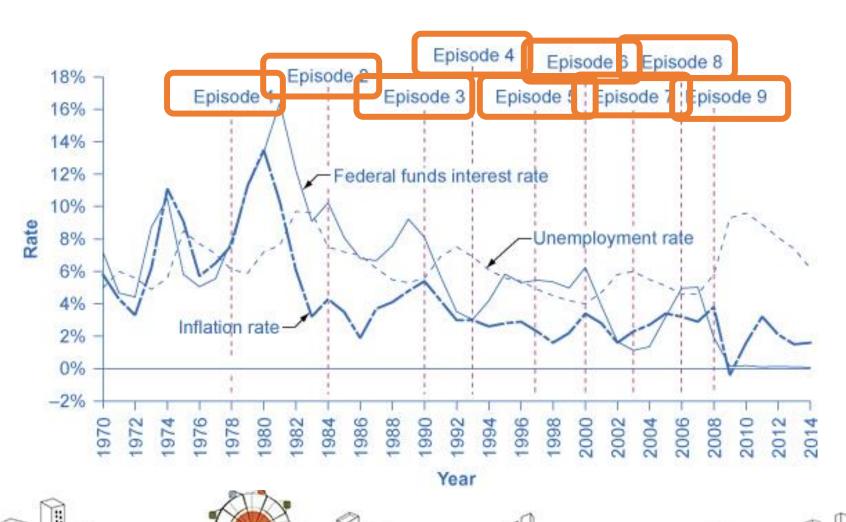


Figure 1. **Monetary** Policy, Unemployment, Inflation. Through the episodes shown here, Federal Reserve the typically reacted to higher inflation with contractionary monetary policy and a higher interest rate, and reacted to higher unemployment with an expansionary monetary policy and a lower interest rate.

Creating New Monetary Policy tools

At the beginning of the Great Recession the Federal Reserve found itself in a precarious position. Short term interest rates were close to zero, making it hard to conduct traditional open market operations. After all, expansionary monetary policy is carried out when the Fed purchases Treasury bills (T-bills) to lower short-term interest rates. If short-term rates are close to zero, there is little room for them to fall and stimulate spending. To deal with this situation, the Fed and the U.S. Treasury tried a number of innovative initiatives:



Creating New Monetary Policy tools

The Fed began conducting quantitative easing (or QE, discussed in detail below). In quantitative easing, the Fed buys longer-term assets, instead of just T-bills, thus, lowering long-term interest rates, which they hoped would stimulate spending. QE includes the purchase of non-traditional assets like mortgage-backed securities, as well as Treasury and Corporate debt. By doing this, the Fed injected money into the banking system and increased the amounts of funds available to lend to the business sector and consumers.



5-minute break Creating New Monetary Policy tools

The Fed also tried alternative ways to increase reserves in the banking system, to provide at least the potential for banks to increase loans. To this end, the Fed began paying interest on bank reserves, something they had not done previously. This provided an incentive for banks to hold more reserves.



Creating New Monetary Policy tools

In addition, the Fed made more aggressive use of repurchase agreements (or Repos). Repurchase agreements are essentially overnight loans in which central banks exchange cash for T-bills held by commercial banks, thus increasing holdings of bank reserves. These transactions are automatically reversed (i.e. the T-bills are "repurchased") at a small profit to the banks after 24 hours, so this has a very short term impact on bank reserves.



Creating New Monetary Policy tools

While not technically monetary policy if we are speaking strictly, the Congress and the President also passed several pieces of legislation that would stabilize the financial market. The Troubled Asset Relief Program (TARP), passed in late 2008, allowed the U.S. Treasury to inject cash into troubled banks and other financial institutions and help support General Motors and Chrysler as they faced bankruptcy and threatened job losses throughout their supply chain. The Treasury purchased "troubled assets" from the banks, allowing them to clean up their balance sheets and begin lending again. The TARP was criticized as a "bail-out" of large banks by taxpayers, but while the Treasury purchased some \$450 billion in troubled assets, they were able to recoup all but \$37 billion by selling those assets once financial markets had stabilized. The purpose of these initiatives was not to bail out banks, or even protect depositors, but rather to protect the integrity of the payments system.

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class



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Which of the following statements is correct?.

- The episodes of major Federal Reserve Bank actions during the past 40 years suggest that improved accuracy of projected inflation or unemployment would help the Fed to avoid recessions or periods of high inflation entirely.
- The episodes of major Federal Reserve Bank actions during the past 40 years suggest that it is more concerned about inflation than it is recession and unemployment.
- The episodes of major Federal Reserve Bank actions during the past 40 years suggest that the Fed is more concerned with inflation than deflation.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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Which of the following statements about TARP is correct?

- TARP caused a decrease in exports.
- TARP caused a decrease in the supply of money.
- TARP encourages risky behavior on the part of large banks and other large corporate entities that the Fed had saved from bankruptcy.



Quantitative Easing (the introduction of new money into the money supply by a central bank.)

The most powerful and commonly used of the three traditional tools of monetary policy—open market operations—works by expanding or contracting the money supply in a way that influences the interest rate. In late 2008, as the U.S. economy struggled with recession, the Federal Reserve had already reduced the interest rate to near-zero. With the recession still ongoing, the Fed decided to adopt an innovative and nontraditional policy known as quantitative easing (QE). This is the purchase of long-term government and private mortgage-backed securities by central banks to make credit available so as to stimulate aggregate demand.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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During the Great Recession, the direct targeting of long-term interest rates by the Federal Reserve Bank implies that private bank lending

- was limited by overly restrictive credit requirements and was therefore suppressing economic activity.
- O was inhibited by insufficient holdings of reserves.
- was rising too rapidly and needed long-term interest rates to fall in order to support successful returns.



Quantitative Easing

Quantitative easing attempted to skip the middle step and directly lower long-term interest rates. This leads to a second way QE is different from traditional monetary policy. Instead of purchasing Treasury securities, the Fed also began purchasing private mortgage-backed securities, something it had never done before. One of the triggers of the financial crisis, which precipitated the recession, was the collapse of the market for mortgage-backed securities (MBS). Mortgage-backed securities were financial assets consisting of bundles of individual mortgages. The idea behind MBS was that by holding many mortgages in a single asset, if a few mortgages went into default, which happens even in normal times, the rest would maintain the value of the broader asset. Since each mortgage paid interest, so did the MBS. When the housing market collapsed and many mortgages defaulted, no one knew what the mortgage-backed securities were worth. As a result, they were termed "toxic assets," which put the financial institutions holding those securities on very shaky ground. By offering to purchase mortgage-backed securities, the Fed was both pushing long term interest rates down and also removing possibly "toxic assets" from the balance sheets of private financial firms, which would strengthen the financial system.

Quantitative Easing

Quantitative easing (QE) occurred in three episodes:

During QE1, which began in November 2008, the Fed purchased \$600 billion in mortgage-backed securities from government enterprises Fannie Mae and Freddie Mac.

In November 2010, the Fed began QE2, in which it purchased \$600 billion in U.S. Treasury bonds.

QE3, began in September 2012 when the Fed commenced purchasing \$40 billion of additional mortgage-backed securities per month. This amount was increased in December 2012 to \$85 billion per month. The Fed ended the program in late 2014 after the unemployment rate had slipped under 6 percent.

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class



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Which of the following is NOT a risk of quantitative easing?

- inflation
- moral hazard (once private banks understand that they will always have a customer to purchase toxic assets, they will be more willing to take on increasingly risky debt)
- unemployment



GLOSSARY

countercyclical:

moving in the opposite direction of the business cycle of economic downturns and upswings

federal funds rate:

the interest rate at which one bank lends funds to another bank overnight quantitative easing (QE):

the purchase of long-term government and private mortgage-backed securities by central banks to make credit available in hopes of stimulating aggregate demand

Putting It Together: Monetary Policy

In this module we learned about the second important tool by which the government can influence the macro economy, that is, monetary policy. We explored the role of central banks. like the U.S. Federal Reserve, in conducting monetary policy, including:

- How the Fed regulates banks to protect the integrity of the payments system
- How monetary policy differs from fiscal policy
- How the equilibrium interest rate is determined in financial markets
- How the Fed uses monetary policy to manipulate interest rates and credit conditions to stimulate or contract economic activity
- How monetary policy affects GDP and the price level (using the AD-AS model)

Task 1

- Please, choose the country to inspect its central bank's monetary policy.
 You are expected to make a 5-7 minute presentation about the objectives of the bank and its monetary policy tools. You may work in pairs.
- The deadline is Next Friday (the 27th of October)





Policy Applications

Why apply fiscal and monetary policies in macroeconomic situations?

The module really ties together everything we've learned about macroeconomics. In earlier modules we introduced the concepts of fiscal and monetary policy. In this module, we examine the two types of policy in more detail, incorporating all the pros and cons of the real world. By extension, we will be evaluating the policy prescriptions of Keynesian and neoclassical economics. As you work through this module, use the following questions to guide your thinking:

- Under what circumstances do fiscal and monetary policy work well, or not so well, in managing the economy?
- For the activist Keynesians, what are the limits to fiscal and monetary policy that you would endorse, and why?
- For the laissez-faire neoclassicals, what is the minimalist fiscal and monetary policy that makes sense, and why?
- How is macroeconomic policy is the real world more complicated than in theory?

Introduction to Keynesian and Neoclassical Policy Prescriptions

What you'll learn to do: compare viewpoints on government spending and taxes between the Keynesian and Neoclassical perspectives.

In previous modules, we've learned about both the Keynesian and Neoclassical perspectives on the macro economy. Neoclassicals take a laissez-faire approach to macro policy. They believe that the economy is self-correcting, and doesn't need government intervention. Indeed, we will see that Neoclassicals believe that government intervention is counterproductive. Keynesians take a more active approach. They believe that the economy takes too long to correct itself and that government has a responsibility to speed things up and minimize the adverse effects of unemployment, inflation and other economic problems.

Viewpoints on Government Policy

LEARNING OBJECTIVES

- Summarize the neoclassical views on the effectiveness of fiscal and monetary policy
- Summarize the Keynesian views on the effectiveness of fiscal and monetary policy, including the importance of the expenditure multiplier



Reviewing the Neoclassical Perspective

Neoclassical economics covers several distinct schools of thought, including traditional neoclassical economics, supply side economics, and new classical economics. Each of these schools of thought shares a number of key beliefs, which makes them neoclassical. The first belief is that the macro economy is self-correcting, or that there is no need for government intervention. The second belief, for reasons to be discussed shortly, is that government "fine tuning" of the economy either through fiscal or monetary policy would be unwise and ineffective.



Reviewing the Keynesian Perspective

Keynesians believe, based on the experience of the Great Depression of the 1930s and more recently, the Great Recession of 2007-2009, that the economy can be in equilibrium at a level of GDP that does not correspond to potential, so that a GDP gap exists. This means that the economy will not be at full employment. Such an equilibrium can correspond to either a recession or an inflationary boom. In addition, even if the economy is self-correcting, the process can be so slow that the GDP will not close, and employment will not be full for an extended period of time.



Q

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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Which of the following actions would a neoclassical economist take to help stimulate aggregate supply and economic growth?

- O create an economic stimulus package
- reduce corporate taxes
- increase spending on infrastructure projects



Q

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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Based on a neoclassical economists view of the government's role in the economy, they focus on the _____-run.

- Short
- O long
- O medium



KEYNESIAN LIQUIDITY TRAP

John Maynard Keynes, in his book *The General Theory*, defined the concept of the liquidity trap. The **liquidity trap** refers to a situation where people are willing to hold an infinite amount of cash, because interest rates are so low that there is almost no opportunity cost of doing so—the reward for putting your money in an interest earning asset is essentially zero. In such a situation, expansionary monetary policy is powerless to move the economy forward. The reason why is that monetary policy works by lowering interest rates to increase borrowing and investment and consumption spending. This would stimulate aggregate demand and increase GDP and employment. But suppose the Fed conducts an open market purchase, but the sellers simply hold onto the money instead of depositing it in a bank account. Then interest rates don't fall and the process is short circuited. Keynes argued that in such a situation, the appropriate policy response was expansionary fiscal policy.

For some 70 years after publication of *The General Theory*, most economists viewed the Liquidity Trap as an interesting theoretical idea, but one that never happened in the real world. Then came the Global Financial Crisis and the Great Recession when interest rates fell to zero and monetary policy seemed ineffective.



5-minute break The Expenditure Multiplier

Another one of the key claims of Keynes was the existence of an "expenditure multiplier." Remember from previous readings that Keynes said that aggregate demand was highly volatile, that even if the economy started at a level of GDP where it equaled its potential so that the economy was at full employment, AD could shift abruptly causing a recessionary or inflationary gap. In the Keynesian model, not only did changes in spending cause GDP to change, but the change in GDP was more than proportionate than the initial change in autonomous spending. In other words, aggregate demand is powerful since a change in spending results in a multiplied change in GDP. This spending multiplier was part of the reasoning behind the Keynesian view that fiscal policy is a powerful tool for managing the economy.



Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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Based on Keynesian views, increased government spending will help economic growth

- only if spending is made on national defense or homeland security.
- regardless of the form of the spending.
- only if spending is limited.



Q

Check Your Understanding. Answer the question(s) below to see how well you understand the topics covered in the previous section. This short quiz does not count toward your grade in the class

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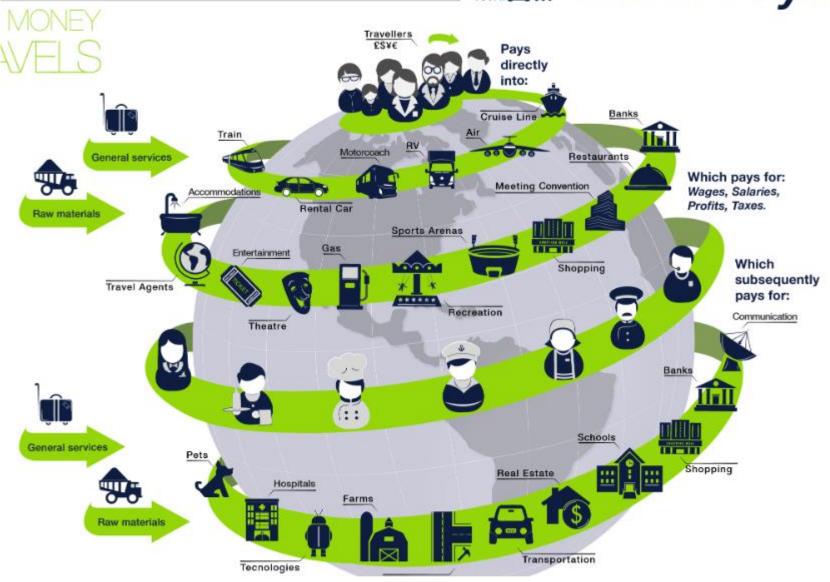


According to Keynesians beliefs, government spending has a multiplier effect that _____ every round.

- increases
- decreases
- stays the same







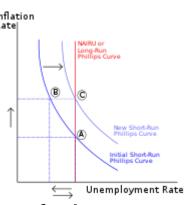
5-minute break GLOSSARY

liquidity trap:

Keynesian idea that when interest rates are very low, people are willing to hold cash, rather than put it into financial markets, eliminating the ability for expansionary monetary policy to work



Introduction to the Phillips Curve



What you'll learn to do: explain the reasoning behind the theory of the Phillips Curve and why it may not hold.

The Phillips Curve is a key part of Keynesian economics, at least the Keynesian economics of the 1960s. In this section, you'll learn what makes the Phillips curve Keynesian, and why neoclassicals believe it may not hold in the long run. This speaks to the effectiveness of demand management policies, which is a major subject of this module.



The Phillips Curve

LEARNING OBJECTIVES

- Explain the Phillips curve, noting its impact on the theories of Keynesian economics
- Demonstrate how the Phillips Curve can be derived from the aggregate supply curve



10-minute break 711 stopped here 20-10-2023 The Discovery of the Phillips Curve

In the 1950s, A.W. Phillips, an economist at the London School of Economics, was studying 60 years of data for the British economy and he discovered an apparent inverse (or negative) relationship between unemployment and wage inflation. Subsequently, the finding was extended to the relationship between unemployment and price inflation, which became known as the Phillips Curve. Why was there an trade-off between unemployment and inflation?

