

12.8: Financial Markets, Supply and Demand, and Interest

Learning Objectives

- Describe types of financial markets and how they are linked
- Explain how market forces determine interest rates in financial markets

Financial markets are made up of a large number of markets for different types of securities: equities, bonds, credit cards, etc. In the market for each asset, supply and demand interact to determine the price and rate of return. Since each financial market is both a source of borrowed funds and a destination for saving, each financial asset is a substitute for every other financial asset (to greater or lesser extent), and thus, all financial markets are linked, directly or indirectly. For example, if the interest rate on U.S. Treasury Bills goes up, you should expect the interest rates on U.S. Treasury notes and bonds to go up a certain extent also. The reason is that if interest rates on Treasury bills increase, that will make bills more attractive to people who normally invest in Treasury notes and bonds. As people shift their savings to bills, the interest rates on notes and bonds will rise.

In this section, we will explore these two features, that asset prices or rates of return are determined by supply and demand, and that all financial markets are linked. These features will help us understand later how monetary policy works.

Who Demands and Who Supplies in Financial Markets?

Financial markets can be analyzed by using the theories of supply and demand. Those who save money (or make financial investments, which is the same thing), whether individuals or businesses, are on the supply side of the financial market. Those who borrow money are on the demand side of the financial market.

In any market, the price is what suppliers receive and what demanders pay. In financial markets, those who supply financial capital through saving expect to receive a rate of return, while those who demand financial capital by receiving funds expect to pay that rate of return. A rate of return can come in a variety of forms, depending on the type of investment.

The simplest example of a rate of return is an **interest rate**. For example, when you put money into a savings account at a bank, you receive interest on your deposit. The interest payment expressed as a percent of your deposits is the interest rate. Similarly, if you demand a loan to buy a car or a computer, you will need to pay interest on the money you borrow.

Let's consider the market for borrowing money with credit cards. In 2015, almost 200 million Americans were cardholders. Credit cards allow you to borrow money from the card's issuer, and pay back the borrowed amount plus interest, although most allow you a period of time in which you can repay the loan without paying interest. A typical credit card interest rate ranges from 12% to 18% per year. In May 2016, Americans had about \$943 billion outstanding in credit card debts. About half of U.S. families with credit cards report that they almost always pay the full balance on time, but one-quarter of U.S. families with credit cards say that they "hardly ever" pay off the card in full. In fact, in 2014, 56% of consumers carried an unpaid balance in the last 12 months. Let's say that, on average, the annual interest rate for credit card borrowing is 15% per year. Thus, Americans pay tens of billions of dollars every year in interest on their credit cards—plus basic fees for the credit card or fees for late payments.

Figure 1 illustrates demand and supply in the financial market for credit cards. The horizontal axis of the financial market shows the quantity of money that is loaned or borrowed in this market. The vertical or price axis shows the rate of return, which in the case of credit card borrowing can be measured with an interest rate. Table 1 shows the quantity of financial capital that consumers demand at various interest rates and the quantity that credit card firms (often banks) are willing to supply.

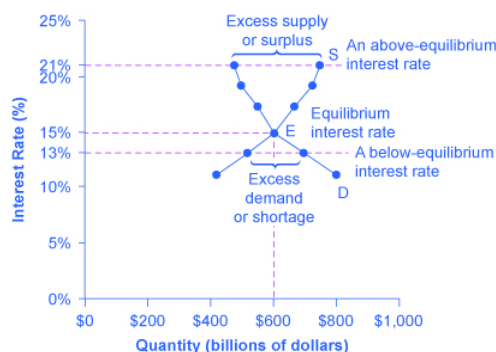


Figure 1. Demand and Supply for Borrowing Money with Credit Cards. In this market for credit card borrowing, the demand curve (D) for borrowing financial capital intersects the supply curve (S) for lending financial capital at equilibrium E. At the equilibrium, the interest rate (the “price” in this market) is 15% and the quantity of financial capital being loaned and borrowed is \$600 billion. The equilibrium price is where the quantity demanded and the quantity supplied are equal. At an above-equilibrium interest rate like 21%, the quantity of financial capital supplied would increase to \$750 billion, but the quantity demanded would decrease to \$480 billion. At a below-equilibrium interest rate like 13%, the quantity of financial capital demanded would increase to \$700 billion, but the quantity of financial capital supplied would decrease to \$510 billion.

Table 1. Demand and Supply for Borrowing Money with Credit Cards

Interest Rate (%)	Quantity of Financial Capital Demanded (Borrowing) (\$ billions)	Quantity of Financial Capital Supplied (Lending) (\$ billions)
11	\$800	\$420
13	\$700	\$510
15	\$600	\$600
17	\$550	\$660
19	\$500	\$720
21	\$480	\$750

The laws of demand and supply continue to apply in the financial markets. According to the law of demand, a higher rate of return (that is, a higher price) will decrease the quantity demanded. As the interest rate rises, consumers will reduce the quantity that they borrow. According to the law of supply, a higher price increases the quantity supplied. Consequently, as the interest rate paid on credit card borrowing rises, more firms will be eager to issue credit cards and to encourage customers to use them. Conversely, if the interest rate on credit cards falls, the quantity of financial capital supplied in the credit card market will decrease and the quantity demanded will fall.

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Equilibrium in Financial Markets

In the financial market for credit cards shown in Figure 1, the supply curve (S) and the demand curve (D) cross at the equilibrium point (E). The equilibrium occurs at an interest rate of 15%, where the quantity of funds demanded and the quantity supplied are equal at an equilibrium quantity of \$600 billion.

If the interest rate (remember, this measures the “price” in the financial market) is above the equilibrium level, then an excess supply, or a surplus, of financial capital will arise in this market. For example, at an interest rate of 21%, the quantity of funds supplied increases to \$750 billion, while the quantity demanded decreases to \$480 billion. At this above-equilibrium interest rate, firms are eager to supply loans to credit card borrowers, but relatively few people or businesses wish to borrow. As a result, some credit card firms will lower the interest rates (or other fees) they charge to attract more business. This strategy will push the interest rate down toward the equilibrium level.

If the interest rate is below the equilibrium, then excess demand or a shortage of funds occurs in this market. At an interest rate of 13%, the quantity of funds credit card borrowers demand increases to \$700 billion; but the quantity credit card firms are willing to supply is only \$510 billion. In this situation, credit card firms will perceive that they are overloaded with eager borrowers and conclude that they have an opportunity to raise interest rates or fees. The interest rate will face economic pressures to creep up toward the equilibrium level.

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Shifts in Demand and Supply in Financial Markets

Those who supply financial capital face two broad decisions: how much to save, and how to divide up their savings among different forms of financial assets. We will discuss each of these in turn.

Participants in financial markets must decide when they prefer to consume goods: now or in the future. Economists call this **intertemporal decision making** because it involves decisions across time. Unlike a decision about what to buy from the grocery store, decisions about investment or saving are made across a period of time, sometimes a long period.

Most workers save for retirement because their income in the present is greater than their needs, while the opposite will be true once they retire. So they save today and supply financial markets. If their income increases, they save more. If their perceived situation in the future changes, they change the amount of their saving. For example, there is some evidence that Social Security, the program that workers pay into in order to qualify for government checks after retirement, has tended to reduce the quantity of financial capital that workers save. If this is true, Social Security has shifted the supply of financial capital at any interest rate to the left.

By contrast, many college students need money today when their income is low (or nonexistent) to pay their college expenses. As a result, they borrow today and demand from financial markets. Once they graduate and become employed, they will pay back the loans. Individuals borrow money to purchase homes or cars. A business seeks financial investment so that it has the funds to build a factory or invest in a research and development project that will not pay off for five years, ten years, or even more. So when consumers and businesses have greater confidence that they will be able to repay in the future, the quantity demanded of financial capital at any given interest rate will shift to the right.

For example, in the technology boom of the late 1990s, many businesses became extremely confident that investments in new technology would have a high rate of return, and their demand for financial capital shifted to the right. Conversely, during the Great Recession of 2008 and 2009, their demand for financial capital at any given interest rate shifted to the left.

To this point, we have been looking at saving in total. Now let us consider what affects saving in different types of financial investments. In deciding between different forms of financial investments, suppliers of financial capital will have to consider the rates of return and the risks involved. Rate of return is a positive attribute of investments, but risk is a negative. If Investment A (say, stock in a struggling corporation) becomes more risky, or the return diminishes, then savers will shift their funds to Investment B (say, U.S. Treasury bonds)—and the supply curve of financial capital for Investment A will shift back to the left while the supply curve of capital for Investment B shifts to the right.

The United States as a Global Borrower

In the global economy, trillions of dollars of financial investment cross national borders every year. In the early 2000s, financial investors from foreign countries were investing several hundred billion dollars per year more in the U.S. economy than U.S. financial investors were investing abroad. The following feature, which should look familiar from the earlier module “Applications of Supply and Demand,” deals with one of the macroeconomic concerns for the U.S. economy in recent years.

THE EFFECT OF GROWING U.S. DEBT

Imagine that the U.S. economy became viewed as a less desirable place for foreign investors to put their money because of fears about the growth of the U.S. public debt. How would this change in perceptions about the desirability of investments in U.S. public debt affect the equilibrium price and quantity for capital in U.S. financial markets?

Step 1. First, we will draw a diagram showing demand and supply for financial capital that represents the original scenario in which foreign investors are pouring money into the U.S. economy. Figure 1 shows a demand curve, D , and a supply curve, S , where the supply of capital includes the funds arriving from foreign investors. The original equilibrium E_0 occurs at interest rate R_0 and quantity of financial investment Q_0 .

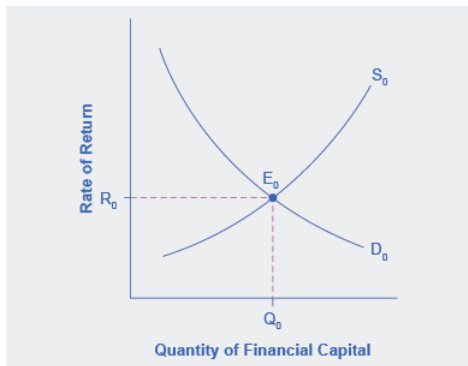


Figure 2. The United States as a Global Borrower Before U.S. Debt Uncertainty. The graph shows the demand for financial capital from and supply of financial capital into the U.S. financial markets by the foreign sector before the increase in uncertainty regarding U.S. public debt. The original equilibrium (E_0) occurs at an equilibrium rate of return (R_0) and the equilibrium quantity is at Q_0 .

Step 2. Will the diminished confidence in the U.S. economy as a place to invest affect demand or supply of financial capital?

[reveal-answer q="592867"]Show Answer[/reveal-answer]

[hidden-answer a="592867"]Yes, it will affect supply. Many foreign investors look to the U.S. financial markets to store their money in safe financial vehicles with low risk and stable returns. As the U.S. debt increases, debt servicing will increase—that is, more current income will be used to pay the interest rate on past debt. Increasing U.S. debt also means that businesses may have to pay higher interest rates to borrow money, because business is now competing with the government for financial resources. [/hidden-answer]

Step 3. Will supply increase or decrease?

[reveal-answer q="591653"]Show Answer[/reveal-answer]

[hidden-answer a="591653"]

When the enthusiasm of foreign investors' for investing their money in the U.S. economy diminishes, the supply of financial capital shifts to the left. Figure 3 shows the supply curve shift from S_0 to S_1 .

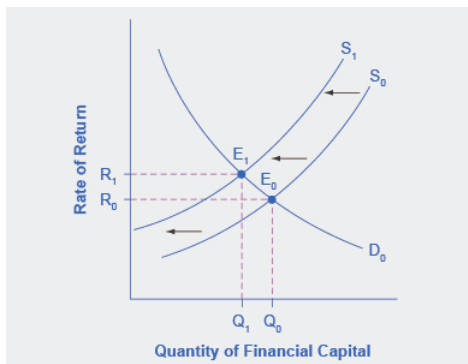


Figure 3. The United States as a Global Borrower Before and After U.S. Debt Uncertainty. The graph shows the demand for financial capital and supply of financial capital into the U.S. financial markets by the foreign sector before and after the increase in uncertainty regarding U.S. public debt. The original equilibrium (E_0) occurs at an equilibrium rate of return (R_0) and the equilibrium quantity is at Q_0 .

[/hidden-answer]

Step 4. What does this mean for U.S. financial markets?

[reveal-answer q="765316"]Show Answer[/reveal-answer]

[hidden-answer a="765316"]Foreign investors' diminished enthusiasm leads to a new equilibrium, E_1 , which occurs at the higher

interest rate, R_1 , and the lower quantity of financial investment, Q_1 .^[/hidden-answer]

The economy has experienced an enormous inflow of foreign capital. According to the U.S. Bureau of Economic Analysis, by the third quarter of 2014, U.S. investors had accumulated \$24.6 trillion of foreign assets, but foreign investors owned a total of \$30.8 trillion of U.S. assets. If foreign investors were to pull their money out of the U.S. economy and invest elsewhere in the world, the result could be a significantly lower quantity of financial investment in the United States, available only at a higher interest rate. This reduced inflow of foreign financial investment could impose hardship on U.S. consumers and firms interested in borrowing.

In a modern, developed economy, financial capital often moves invisibly through electronic transfers between one bank account and another. Yet these flows of funds can be analyzed with the same tools of demand and supply as markets for goods or labor.

Try It

These questions allow you to get as much practice as you need, as you can click the link at the top of the first question (“Try another version of these questions”) to get a new set of questions. Practice until you feel comfortable doing the questions.

[ohm_question]153727-153729-153730[/ohm_question]

Glossary

[glossary-page]

[glossary-term]interest rate:[/glossary-term]

[glossary-definition]the “price” of borrowing in the financial market; a rate of return on an investment[/glossary-definition]

[glossary-term]intertemporal decision making: [/glossary-term]

[glossary-definition]the study of how people make choices about what and how much to do at various points in time; when choices at one time influence the possibilities available at other points in time[/glossary-definition][[/glossary-page]

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