

There Is No Free Lunch in Investing

LESSON DESCRIPTION AND BACKGROUND

Risk is inherent in all investments. Some risks are beyond an investor's control, while others can be managed. The key for investors is developing a risk-reward ratio that makes them comfortable.

When investing, the general rule is this: The greater the risk, the higher the potential reward and vice versa. Given that relationship, there is no free lunch in investing. Investors who choose low risk investments may earn meager returns, while investors who seek higher returns through high-risk investments may suffer big losses.

This lesson helps students understand those relationships. It includes five types of risk and compares them with the risks-rewards associated with some of the primary investment tools. In general, it provides an overview of the modern investment world.

ECONOMIC AND PERSONAL FINANCE CONCEPTS

- Financial Investments
- Financial Markets
- Risk and Return
- Saving

NATIONAL STANDARDS FOR FINANCIAL LITERACY

- **Standard 3 Saving, Grade 12, Benchmark 2** – Inflation reduces the value of money, including savings. The real interest rate expresses the rate of return on savings, taking into account the effect of inflation. The real interest rate is calculated as the nominal interest rate minus the rate of inflation.
- **Standard 3 Saving, Grade 12, Benchmark 3** – Real interest rates typically are positive because people expect to be compensated for deferring the use of savings from the present into the future. Higher interest rates increase the rewards for saving.

- **CCSS.MATH.Content.HSF.LE.B.5** – Interpret the parameters in a linear or exponential function in terms of a context.
- **CCSS.ELA-Literacy.CCRA.R.10** – Read and comprehend complex literary and informational texts independently and proficiently.
- **CCSS.ELA-Literacy.W.9-10.9, CCSS.ELA-Literacy.W.11-12.9** – Draw evidence from literary or informational texts to support analysis, reflection, and research.
- **CCSS.ELA-Literacy.L.9-10.6; CCSS.ELA-Literacy.L.11-12.6** – Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
- **CCSS.ELA-Literacy.RH.9-10.4** – Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.

OBJECTIVES

The student will

- describe five types of investment risk.
- use the risk pyramid to describe the relationship between potential investment risk and potential investment reward.
- distinguish between real and nominal rates of return.
- describe the characteristics of the following investments: insured savings accounts, certificates of deposit, U.S. government securities, corporate bonds, stocks and mutual funds.
- compare and contrast the risks and rewards of several common investment tools.

TIME REQUIRED

Two 45-minute class periods

MATERIALS

- Slides 21.1–21.2
- Exercise 21.1: Types of Investment Risk, one copy per student
- Exercise 21.2: The Pyramid of Risk and Reward, one copy per student
- Exercise 21.3: Lesson Assessment: The Pyramid of Risk and Reward, one copy per student
- 8 sheets of colored paper

ADDITIONAL RESOURCES

Visit <https://www.econedlink.org/resources/collection/fffi-9-12/> to find presentations, interactives and other great technology tools to enhance your teaching of this lesson.

PROCEDURE

1. Ask students what they know about risks and rewards. Discuss their answers and explain investing involves both factors. People who invest want to benefit from their investments in the long run. However, not all investments have the same potential return because of the potential for risk.

2. Display Slide 21.1. Discuss the individual points clarifying, as necessary, the relationship between risk and reward. Tell students reward in this situation is commonly called investment return. Remind students that all choices have costs and each person may have a different perspective of taking risks when investing.

3. Give each student a copy of Exercise 21.1: Types of Investment Risk. Have them read the exercise and answer the questions at the end. Discuss their answers after students have completed the exercise.

a. What does it mean to say investing has “no free lunch”? (**There are potential costs to investing because all choices have some degree of risk.**)

b. What is the relationship between the expected rate of return and the investment risk? (**The greater the investment risk, the greater the expected rate of return and vice versa.**)

c. If the annual nominal rate of return on an investment is 10 percent and the annual rate of inflation is 3 percent, what is the real rate of return? (Show your work for finding the answer). (**7 percent [10 percent – 3 percent = 7 percent]**)

d. Hi-tech is the future of our economy. The prices of stocks in hi-tech companies are bound to go up.” Is this statement TRUE, FALSE or is more information needed to answer it? Explain your answer. (**Uncertain or false. Investors could change their attitudes toward hi-tech stocks. Hi-tech companies may prove to be unprofitable, decreasing the value of their stock.**)

e. “This investment pays 30 percent a year and is perfectly safe. I put my mother’s money into this investment.” Is this statement TRUE, FALSE or is more information needed to answer it? Explain your answer. (**False. Investments with high potential rates of return always involve high levels of risk, so it is not perfectly safe as claimed.**)

f. A headline in the newspaper reads, “Stock Market Rally May End in a Bubble”. What is a bubble and what causes it? (**A bubble means that stocks in a particular industry are increasing rapidly to a point that is inflated beyond the value of the companies themselves. It is generally caused by high/exaggerated expectations of an increase in the resale value of those stocks.**)

4. Display Slide 21.2. Explain that risks for different types of investments vary based on a variety of factors. Discuss the investments included and their positions on the pyramid of risk and reward. Be sure to note that risk increases as the potential for greater rewards or losses increases. Tell students that a good investment portfolio will tend to include investment tools from more than one level on the pyramid to help diversify risk. (Note: If students ask why real estate is not

included as an investment, tell them real estate is an asset – not an investment – because it can have more than one purpose.)

5. Divide the class into small groups and distribute a copy of **Exercise 21.2: The Pyramid of Risk and Reward** to each student. Have groups use the information in the description of each investment to rank its risk and reward and write a brief explanation of the reasons for their ratings. Continue displaying **Slide 21.2** to assist students in completing this exercise.

6. When students have completed **Exercise 21.2**, discuss each type of investment with the class. When groups differ, ask group members to explain the reasons for their rankings. Possible answers (denoted by bold type and asterisks) are provided below. The goal is that the students understand the risk-reward relationship.

Mattress

Financial Risk	1	2	3*
Market Risk	1*	2	3
Liquidity Risk	1*	2	3
Inflation Risk	1	2	3*
Fraud Risk	1*	2	3
Reward	1*	2	3

Why? *(The money could be stolen (financial risk). You can get it any time you want, but you don't earn a rate of return. If there is inflation, your real rate of return will be negative.)*

Savings Account

Financial Risk	1*	2	3
Market Risk	1*	2	3
Liquidity Risk	1*	2	3
Inflation Risk	1	2*	3
Fraud Risk	1*	2	3
Reward	1*	2	3

Why? *(These accounts are highly liquid, meaning you can get your money at any time and there is little risk of losing the money put into the account. However, interest rates tend to be rather low and may not keep pace with the inflation rate.)*

Certificate of Deposit (CD)

Financial Risk	1*	2	3
Market Risk	1	2*	3
Liquidity Risk	1	2*	3
Inflation Risk	1	2*	3
Fraud Risk	1*	2	3
Reward	1	2*	3

Why? *(Insured accounts involve little financial risk. Banks usually pay a higher rate of interest on longer-term deposits. Deposits can be withdrawn at any time, but there is a penalty for withdrawal before the maturity date. Longer-term CDs do come with some market risk—the risk that the depositor will be locked into an interest rate lower than current market rates.)*

U.S. Government Securities

Financial Risk	1*	2	3
Market Risk	1	2*	3
Liquidity Risk	1	2*	3
Inflation Risk	1	2*	3
Fraud Risk	1*	2	3
Reward	1	2*	3

Why? *(U.S. Government securities include savings bonds and Treasury bills, notes, and bonds sold by the federal government to raise money to pay their expenses. Basically, they are a loan to the federal government, which the government promises to repay with interest. As a result, these securities have little financial risk. However, they may have some market risk because those holding the securities tend to be locked into a stated interest rate which may be lower than the current market rate. Holders of the securities can receive their money at any time, although there could be a penalty or other costs of selling them before maturity. In recent years, interest rates on government securities have been higher than rates for insured savings accounts.)*

Money Market Mutual Funds

Financial Risk	1*	2	3
Market Risk	1*	2	3
Liquidity Risk	1*	2	3
Inflation Risk	1	2*	3
Fraud Risk	1*	2	3
Reward	1*	2	3

Why? *(Mutual funds are accounts shared by individuals who have common financial goals. They are managed by a professional account manager with a licensed company specializing in investments and tend to be relatively safe forms of investing. They have little market risk but tend to have lower rates of return than other investment accounts. Even so, they may not keep pace with inflation. However, they are liquid and often have higher earnings than a regular savings account.)*

Corporate Bonds

Financial Risk	1	2*	3
Market Risk	1	2*	3
Liquidity Risk	1	2*	3
Inflation Risk	1	2	3*
Fraud Risk	1*	2	3
Reward	1	2*	3

Why? *(Corporate bonds are loans to corporations and sold to investors as a way for the company to raise money for growth and expansion. They generally have a maturity of at least one year. Corporate bonds are similar to loans made to a company because they have a stated date of maturity (or ending) and a stated rate of interest. The value of the bond is based on the value of the company issuing it, which increases its potential financial risk and liquidity risk. Because they have a set rate of interest, corporate bonds also pose potential inflation risk.)*

Stocks

Financial Risk	1	2*	3
Market Risk	1	2	3*
Liquidity Risk	1*	2	3
Inflation Risk	1	2*	3
Fraud Risk	1	2*	3
Reward	1	2	3*

Why? *(Stocks have high potential rewards, but stockholders face high market risk. Many stocks carry significant financial risk also. The market risk and financial risk depend on how risky the stock is. For example, blue chip stocks listed on the Dow Jones are stocks issued by large, financially-secure companies and speculative stocks are high risk stocks in emerging companies or other types of risky business ventures. In addition, stocks have an increased potential for fraud risk due to unethical business practices such as schemes and scams.)*

Stock Mutual Funds

Financial Risk	1	2*	3
Market Risk	1	2	3*
Liquidity Risk	1*	2	3
Inflation Risk	1	2*	3
Fraud Risk	1	2*	3
Reward	1	2	3*

Why? *(Stock mutual funds have the risks of stocks, but they offer more diversity. They can be bought and sold daily and so have liquidity. They still experience significant market risk that results from overall market conditions.)*

CLOSURE

1. To highlight the key points of this lesson, play "The Savings Game" using the following directions. Tell students they each have \$5,000 to invest, and they each must choose the financial strategy that best helps them achieve their risk-reward investment goals.

Write each of the following investments on a separate sheet of paper. You may wish to use different colors for different investments:

- Mattress
- Savings accounts
- Certificate of deposit (CD)
- U.S. Government Securities
- Money market mutual funds
- Corporate bonds
- Stocks
- Stock mutual fund

Place the sheets of paper in different locations on your classroom floor and tell students to stand near the paper representing the investment they would choose. Have each group explain why they chose that investment. If an investment has no one standing on it, ask students why they did not

choose that one. Discuss the types of risk associated with each investment option.

ASSESSMENT

Give each student a copy of **Exercise 21.3: Lesson Assessment: The Pyramid of Risk and Reward**. Have each student complete the exercise by writing a brief paragraph explaining what the Investment Pyramid illustrates and why it is important to understand. **(Answers should indicate that the pyramid represents risk/reward relationship, with those at the top having the greatest risk and greatest potential for rewards or loss, while those at the bottom have the least risk with the lowest potential for rewards or loss. Understanding risk helps you develop a more diversified portfolio and protect your investments from various types of risk.)**

SLIDE 21.1

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There Is No Free Lunch in Investing

- Investment return is the additional income earned from saving or investing money.
- Risk is the uncertainty that an investor will receive the expected return.
- The greater the risk, the greater the potential for return and for loss.
- All choices involve some type of risk.

There Is No Free Lunch in Investing

SLIDE 21.2

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The Pyramid of Risk and Rewards

Highest Risk: Highest Potential Return or Loss



Lowest Risk: Lowest Potential Return or Loss

Dark grey: Investments are based more on growth and speculation.

Light grey: Investments are primarily focused on income and growth.

Medium grey: Investments are primarily focused on security and protection of funds.

There Is No Free Lunch in Investing

Types of Investment Risk

People save and invest their money to receive a return on their savings or investment. In this exercise, any type of saving or investing activity is an “investment.” The return is the income earned from the investment; it is usually calculated on a yearly or annual basis. That return can be stated as a percentage of the amount invested and called the annual rate of return.

Risk comes from the uncertainty about whether you will receive the promised return. The greater the risk you take with your investment, the higher the potential rate of return. Unfortunately, more risk also makes it more likely you will lose your money. As with any economic decision, there is no free lunch in deciding about investments. Here are some of the risks you take when you invest your money.

Financial Risk

Financial risk is the risk that the business or government you have invested in will not be able to return your money—much less pay a rate of return. Various businesses, state agencies, and local governments have been known to declare bankruptcy at some point in time. The U.S. government, however, is unlikely to become bankrupt, so investing in U.S. government securities (bills, notes, and bonds sold by the federal government to raise money to pay its expenses) have very little financial risk. Accounts in banks and credit unions insured by either the Federal Deposit Insurance Corporation (FDIC) or the National Credit Union Association (NCUA) up to \$250,000 and also have little or no financial risk.

Market Risk

Market risk is the risk that the price of an investment will go down. This doesn’t usually happen to money saved at a bank or credit union. However, the prices of stocks, bonds, and mutual funds are determined by supply and demand, and they do fluctuate up and down. The supply of an investment refers to the different quantities of that investment offered for sale at various prices during a specific time period. The demand for an investment refers to the different quantities of an investment that investors are willing and able to purchase at various prices during a specific time period. The equilibrium price is the price where buyers want to buy the same amount of an investment that sellers want to sell.

While this may sound confusing, the most important point is this: anything that changes the behavior of buyers and sellers can change the price of an investment. For example, technology stocks have been “hot” at various times, and prices for those stocks jumped because more people wanted to buy them. As a result, demand increased. But, when investors became less interested in technology stocks, the average price fell because fewer people wanted to buy them – meaning that demand decreased.

When investors become extremely excited about buying stocks in a certain company or industry, it may create a situation called a stock market bubble. Bubbles have occasionally happened in the stock market when prices for these stocks became over-inflated when compared to the actual value of the company. It is difficult to know for sure when a bubble appears; but when it does, the potential for market risk increases because the bubble can burst and cause a rapid decline in stock prices.

Liquidity Risk

Liquidity is the ability to turn your money into cash or spendable funds. Checking accounts, for example, offer high liquidity, but any interest earned on them is very low. Some investments are also very liquid. Traditional savings accounts generally allow you to withdraw your money at any time without a penalty, but also tend to have low interest rates. Stocks listed on a stock exchange are very liquid because you can buy or sell them at any time; however, you may have to take a lower price than you want or than you paid for them. On the other hand, real estate and collectibles (art, Barbie dolls, beanie babies, action figures, etc.) are not very liquid because it takes time for a seller to find the right buyer. Although the internet has sped up this process, there is no guarantee that a buyer and seller can get together on price and other terms for the sale of real estate and collectibles in a timely manner.

Inflation Risk

People invest money today to have that money, and more, available in the future. The goal is to receive the original investment back plus a return, enabling you to buy more goods and services at a future point in time. Inflation (a general increase in prices of goods and services) can decrease the value of your investment. When you save or invest, you are postponing your spending until a later time. If prices rise between now and then, your money will not go as far as it would have gone today, meaning you can purchase less in the future.

Because of inflation, investors are more interested in the real rate of return than the nominal rate of return. The real rate of return is the nominal rate of return minus the inflation rate. For example, let's say you put your money in a one-year certificate of deposit at a 5 percent rate of return. The annual rate of inflation that year is 3 percent. Your real rate of return is only 2 percent (5 percent – 3 percent = 2 percent).

In general, longer time periods increase the likelihood for inflation, which also decreases the future purchasing power of your investment. Understanding the basics of inflation will help you protect the value of your investment down the road.

Fraud Risk

Some investments are not what they seem and are misrepresented by dishonest individuals who only want your money. In these cases, information about the investment is designed to deceive you by making big promises about the rate of return on these so-called investments. Remember, anyone can print a fancy brochure, make promises on the telephone, or guarantee great returns on a web site or in an email.

Scammers and other criminals often make up “facts” that turn out to be false. Therefore, it is important to investigate before you invest. Most investment fraud occurs in securities and savings schemes that do not involve banks, credit unions, and brokerage firms. Oftentimes, they come unsolicited in your email or on social media – or from well-meaning friends and family who have also been tricked into investing.

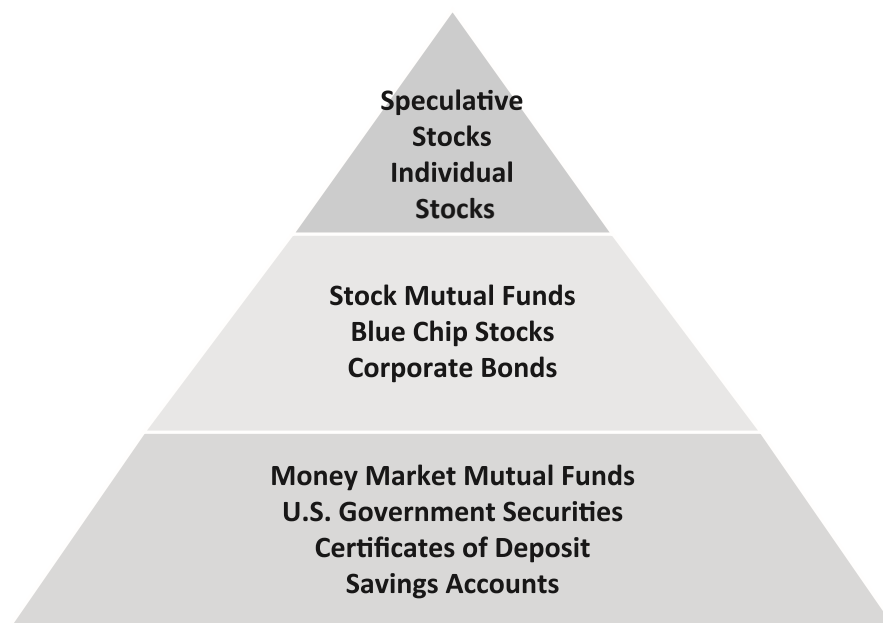
Questions

- a. What does it mean to say investing has “no free lunch”?
- b. What is the relationship between the expected rate of return and the investment risk?
- c. If the annual nominal rate of return on an investment is 10 percent and the annual rate of inflation is 3 percent, what is the real rate of return? (Show your work for finding the answer).
- d. “Hi-tech is the future of our economy. The prices of stocks in hi-tech companies are bound to go up.” Is this statement TRUE, FALSE or is more information needed to answer it? Explain your answer.
- e. “This investment pays 30 percent a year and is perfectly safe. I put my mother’s money into this investment.” Is this statement TRUE, FALSE or is more information needed to answer it? Explain your answer.
- f. A headline in the newspaper reads, “Stock Market Rally May End in a Bubble”. What is a bubble and what causes it?

The Pyramid of Risk and Reward

As shown in the image below, not all investments have the same level of risk. The higher an investment is on the pyramid, the greater the risk. Because the risk is greater, the potential reward and potential loss are also greater.

Your job is to rank each of the investments on the following pages on a 1-3 scale, with 1 representing the lowest risk or reward and 3 representing the greatest risk or reward. Circle the number that best represents each risk or reward. For each choice, explain your answer.



Mattress

You could hide your money under a mattress.

Financial Risk	1	2	3	Why?
Market Risk	1	2	3	
Liquidity Risk	1	2	3	
Inflation Risk	1	2	3	
Reward	1	2	3	

Savings Account

The Federal Deposit Insurance Corporation (FDIC) insures savings accounts in banks for up to \$250,000. Interest rates on these accounts are usually lower than rates for other savings and investment choices, but you can open an account with very little money and you can withdraw your money whenever you like.

Financial Risk	1	2	3	Why?
Market Risk	1	2	3	
Liquidity Risk	1	2	3	
Inflation Risk	1	2	3	
Fraud Risk	1	2	3	
Reward	1	2	3	

Certificate of Deposit (CD)

CDs are a special type of savings deposit that pays you a fixed rate of interest and requires you to leave your money in the bank for a specific period of time. The FDIC also insures these accounts for up to \$250,000. Banks usually require that you deposit at least \$500 in a CD. If you withdraw your money before the end of the agreed-upon time, you must pay a penalty fee, such as a reduction in the amount of interest earned.

Financial Risk	1	2	3	Why?
Market Risk	1	2	3	
Liquidity Risk	1	2	3	
Inflation Risk	1	2	3	
Fraud Risk	1	2	3	
Reward	1	2	3	

U. S. Government Securities

U.S. Government Securities are issued by the United States government and include bonds, bills and notes. Basically, they are a loan to the federal government, who promises to repay it with interest. Savings bonds can be purchased for as little as \$25, with a minimum of \$100 on most other government securities. If you sell them before maturity, there may be a penalty such as the loss of interest accumulated on the bonds.

Financial Risk	1	2	3	Why?
Market Risk	1	2	3	
Liquidity Risk	1	2	3	
Inflation Risk	1	2	3	
Fraud Risk	1	2	3	
Reward	1	2	3	

Money Market Mutual Funds

Money market mutual funds are sold by investment companies and designed to pool money from many different investors to purchase highly liquid, short-term financial products. These products include Treasury bills (a bond sold by the federal government that matures in less than one year), certificates of deposits, and other similar investments offered by businesses and governments. As a general rule, you can expect to get a dollar plus interest on every dollar placed into these funds. Although money market mutual funds are not insured by the federal government, they are low-risk investments. Interest rates on money market mutual funds are usually higher than rates on bank accounts but lower than returns for stocks and bonds held for the long term. Because they are liquid, you can get your money out of a money market mutual fund at any time. Some funds also allow you to write a limited number of checks on your account.

Financial Risk	1	2	3	Why?
Market Risk	1	2	3	
Liquidity Risk	1	2	3	
Inflation Risk	1	2	3	
Fraud Risk	1	2	3	
Reward	1	2	3	

Corporate Bonds

Corporate bonds are issued by corporations and sold to investors as a way for the company to raise money for growth and expansion. They generally have a maturity of at least one year but may last an extended period of time. Corporate bonds are similar to loans made to a company because they have a stated date of maturity (or ending) and a stated rate of interest. The value of the bond is based on the value of the company issuing it.

Financial Risk	1	2	3	Why?
Market Risk	1	2	3	
Liquidity Risk	1	2	3	
Inflation Risk	1	2	3	
Reward	1	2	3	

Stocks

Stocks are shares of ownership in a corporation. When you buy stock, you take the risk that the value of the company might decline. Such a decline would reduce the value of your ownership in that firm. Some stocks make quarterly payments called dividends to their investors. The return you receive on stocks will vary, depending on what happens to the prices of the shares you own and the dividends you receive. Stocks on exchanges such as the New York Stock Exchange and NASDAQ can be bought and sold whenever the exchange is open. The amount of money you need to buy stock depends on the prices of the stocks and the number of shares you want to buy.

Financial Risk	1	2	3	Why?
Market Risk	1	2	3	
Liquidity Risk	1	2	3	
Inflation Risk	1	2	3	
Fraud Risk	1	2	3	
Reward	1	2	3	

Stock Market Mutual Funds

Stock market mutual funds are offered by investment companies that pool funds from many individual investors to purchase a variety of stocks. The risk depends on the fund itself and the stocks included. Some funds invest in blue-chip stocks while other invest in more speculative stocks. Blue chip stocks have relatively low risk because they are stocks in large, well-established, financially-sound companies that have operated for many years. Speculative stocks are the opposite; they tend to be rather high-risk stocks in new, emerging, or financially-insecure companies or industries. The major difference in buying a fund rather than individual stocks is that you indirectly own many stocks in a mutual fund, and you don't have all your eggs in one basket. Therefore, the risk is lower than the risk of owning an individual stock. Stock market mutual funds make it easier to diversify your portfolio, and you can sell your shares in the fund back to the fund company at any time.

Financial Risk	1	2	3	Why?
Market Risk	1	2	3	
Liquidity Risk	1	2	3	
Inflation Risk	1	2	3	
Fraud Risk	1	2	2	
Reward	1	2	3	

Lesson Assessment: The Pyramid Of Risk And Reward

Directions: Review the information presented in the pyramid below. Write a brief paragraph explaining what it illustrates and why it is important to understand when building an investment portfolio.

