

THEME

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Tomorrow's Money: Getting to the End of the Rainbow

OVERVIEW

Student Letter

Have your parents told you that money doesn't grow on trees? This is good advice as far as it goes. Although money most definitely doesn't grow on trees, it can grow. It grows when you save and invest wisely. If you want to be wealthy, start by saving and investing regularly. Begin saving now and save as much as you can afford. Pay yourself first by putting money in a savings account or money market fund every time you are paid.

Because of the power of compounding, your money will grow *big time*. *Compounding* means that you earn interest on the interest earned in previous years. For example, if you save \$2,000 and earn 8 percent annual interest, you will have \$2,160 at the end of the first year. You earned \$160 in interest. The second year, however, you will earn more than \$160 in interest because you earn 8 percent of \$2,160, not \$2,000. This is \$172.80 in interest, or \$12.80 more than the first year.

So you earned \$12.80 more the second year. Big deal. How much difference does this compounding make? If you save \$2,000 a year at 8 percent annual interest from age 22 to age 65, you will have saved \$86,000 over 43 years. How much money would you have at age 65? You would have a total of \$713,899, or \$627,899 more than you saved. Think of compound interest as the fertilizer that makes money grow. (Example from Dwight Lee and Richard McKenzie, *Getting Rich in America*.)

Of course, with a higher rate of return, money grows even faster. An 8 percent annual rate of return is not that difficult to achieve. The value of stocks has increased more than that, on average, over the last 60 years. If you earned 15 percent annual interest, your \$86,000 would grow to \$6,230,000 by the time you reach 65. Because of compounding, doubling the rate of return increases your stash of cash eight times. Obviously, the interest rate makes a huge difference.

But the people competing for your savings will not pay you a high interest rate out of kindness. Saving and investing will not only enrich you, but your investment dollars help businesses and the economy to grow. That's why banks, savings and loans, credit unions, governments, and companies pay you for the use of your money. *They* hope to gain by using *your* savings.

Some of these people competing for your savings will be taking more risks than others. They pay more to get you to take more risk. *Risk* is the chance that you might not get your money back. The higher the risk, the higher the potential reward. You might want to take some high risks with some of your savings but not with all of it. That is why you need to diversify your investments. *Diversification* means that you should not put all your eggs in one basket. Although diversification will not guarantee that your investments will not lose money, it should decrease the chance of that happening.

Money can work for you, but you will have to work to make it grow as much as possible, consistent with the risks you are willing to take. Investigate before you invest. There are millions of places you can invest, from very safe insured savings accounts to speculative stocks, commodity futures, and collectibles. A successful investor learns a lot about investing before making investment choices.

The lessons that follow will get you started, but you will never be able to stop learning if you want to invest successfully over your lifetime. There is a pot of gold at the end of that rainbow, but getting there takes hard work.

Questions

1. Why do people save and invest?

2. When is the best time to begin investing?

3. Why do savings grow so quickly?

4. Why do saving and investing help the overall economy?

5. What is the relationship between investment risk and reward?

6. What does it mean to diversify investments?

FAQs



ABOUT TOMORROW'S MONEY: GETTING TO THE END OF THE RAINBOW

1. Can most Americans become rich?

Yes. No matter what your income, regular saving and investing can make you rich. The key is to live below your means, save regularly, and find good investments. The earlier you start this, the richer you will become.

2. What is the difference between saving and investing?

The words, saving and investing, are used a lot in these lessons. Saving is putting money aside—not spending it now for goods and services. Individuals may place their money in savings accounts. These include passbook savings accounts and certificates of deposit that are insured by the Federal Deposit Insurance Corporation (FDIC). Investing generally is seen as putting saved money into stocks, corporate bonds, mutual funds, commercial real estate, and other financial instruments or ventures. Each of these investments carry more risk than savings accounts.

Don't be too concerned about the differences between savings and investing. We sometimes use these words interchangeably in these lessons.

3. Why shouldn't I just keep my money in a savings account where it will be safe?

This depends on your definition of "safe." The money is perfectly safe in an insured savings account, but what if the annual interest rate is less than the rate of inflation? With inflation, your money loses purchasing power. What if you save enough to buy a mountain bike, but when you take the money out, it buys only half a bike? That's why some people put money in riskier, long-term investments that can provide a greater return—one where the purchasing power of your savings/investment keeps pace with or exceeds inflation.

4. What is the difference between investing and gambling?

Some people say that purchasing stocks or mutual funds is the same as buying a lottery ticket, betting on a sporting event, or playing the slot machines. Gambling and investing both involve risk, but there are big differences. Gambling involves random chance and is what economists call a "zero-sum game." In other words, for every winner, there is a loser. It is a win-lose deal. Investing is not random and is a positive-sum game. Informed, deliberate choices increase your chances of making

FAQs



ABOUT TOMORROW'S MONEY: GETTING TO THE END OF THE RAINBOW c o n t i n u e d

money on your investments. A positive-sum game is an activity involving more than one person in which one person can gain without reducing another person's gain. It is a win-win deal. For example, the Standard & Poor's 500 Stock Index increased at a compounded annual rate of 12.7 percent from 1926 to 1997. This means a lot of people made money and no one had to lose money. It was a win for long-term investors.

5. Are good investments hard to find?

The problem is not finding good investments but evaluating them. For example, there are thousands of stocks traded on the New York Stock Exchange, Nasdaq, and the American Stock Exchange. Over 9,000 mutual funds fall into 33 broad categories. The federal, state, and local governments and corporations sell bonds. Thousands of banks, savings and loans, and credit unions offer all kinds of investment options.

6. Is there a secret to good investing?

There is no secret, but a few basic rules help:

- *Live below your means.*
- *Save early and often.*
- *Take prudent risks to achieve higher returns. Remember that the stock market has beaten the returns on every other type of investment over the long term.*

EXERCISE
8.1

The Opportunity Cost and Benefit of Spending and Saving

A person's income represents his or her scarce resources. Because resources are scarce, every decision involves an opportunity cost. The opportunity cost is what you give up to have something. The opportunity cost is the most valued option that you refused because you chose something else. The opportunity cost is your next best option.

One important choice everyone faces is whether to consume goods and services today or to consume goods and services later. Spending today brings immediate benefits or gratification. The opportunity cost is that you will have less money to buy goods and services in the future. Saving builds wealth to buy goods and services such as a car, house, or vacation in the future. The opportunity cost is not buying as many goods and services today.



Questions

1. What are the benefit and opportunity cost of spending your income today?
2. What are the benefit and opportunity cost of saving some of your income?

EXERCISE
8.2

A Tale of Two Savers

The following case study is about two people who saved. Each earned 10 percent interest. Of course, the interest or rate of return for any one year can differ greatly.

Ana Gutierrez started saving when she was 22, right out of college. Saving involves an opportunity cost—the best alternative given up. It wasn't easy to save \$2,000 a year then, considering her car loan, car, and rent payments. But Ana was determined to save because her grandmother always said it wasn't what you make but what you save that determines your wealth. So, reluctantly, Ana gave up buying that new car and renting a really nice apartment, and she saved \$2,000 a year. After 12 years, she got tired of the sacrifice, yearning for a brand new red sports car and other luxuries. She didn't touch the money she had already saved because she wanted to be sure she would have money for retirement, which she planned to do at the end of her 65th year. But she quit saving and hit the stores.

Shawn Wright didn't start saving until he was 34. He also graduated from college at 22, but

he had done without many things in college, and, now that he had an income, he wanted some of those things. He bought a new car and a very nice wardrobe and took some wonderful trips. But spending his current income involved an opportunity cost. By the time he was 34, Shawn was married, had many responsibilities, and decided he'd better start saving and planning for his financial future. He had also heard that it isn't what you have earned, but what you have saved, that determines your wealth. He figured he had 25 to 30 productive years left in his career. So, with new determination, Shawn saved \$2,000 a year for the next 32 years until he retired at the end of his 65th year.

Which person do you believe had more savings at the end of his/her 65th year?

Now let's see what really happened. Using Table 8.1, "The Growth of Ana's and Shawn's Savings," answer the questions on the next page.



Questions

- 1.** How much money had Ana put into savings by age 65?
- 2.** How much money had Shawn put into savings by age 65?
- 3.** How much savings (total wealth) did Ana have at the end of her 65th year?
- 4.** How much savings (total wealth) did Shawn have at the end of his 65th year?
- 5.** In money terms, what were the opportunity cost and benefit for Ana?
- 6.** In money terms, what were the opportunity cost and benefit for Shawn?
- 7.** What is as important as the amount saved and amount of time? Why?
- 8.** What are the incentives for saving early?
- 9.** What might be an opportunity cost for saving early?
- 10.** What conclusions can you draw from this activity?

TABLE
8.1



The Growth of Ana's and Shawn's Savings

Age	Interest rate	Ana Gutierrez			Shawn Wright		
		Saved	Interest earned	Total saved at the end of year	Saved	Interest earned	Total saved at the end of year
21	10%	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
22	10%	\$2,000.00	\$200.00	\$2,200.00	\$0.00	\$0.00	\$0.00
23	10%	\$2,000.00	\$420.00	\$4,620.00	\$0.00	\$0.00	\$0.00
24	10%	\$2,000.00	\$662.00	\$7,282.00	\$0.00	\$0.00	\$0.00
25	10%	\$2,000.00	\$928.20	\$10,210.20	\$0.00	\$0.00	\$0.00
26	10%	\$2,000.00	\$1,221.02	\$13,431.22	\$0.00	\$0.00	\$0.00
27	10%	\$2,000.00	\$1,543.12	\$16,974.34	\$0.00	\$0.00	\$0.00
28	10%	\$2,000.00	\$1,897.43	\$20,871.78	\$0.00	\$0.00	\$0.00
29	10%	\$2,000.00	\$2,287.18	\$25,158.95	\$0.00	\$0.00	\$0.00
30	10%	\$2,000.00	\$2,715.90	\$29,874.85	\$0.00	\$0.00	\$0.00
31	10%	\$2,000.00	\$3,187.48	\$35,062.33	\$0.00	\$0.00	\$0.00
32	10%	\$2,000.00	\$3,706.23	\$40,768.57	\$0.00	\$0.00	\$0.00
33	10%	\$2,000.00	\$4,276.86	\$47,045.42	\$0.00	\$0.00	\$0.00
34	10%	\$0.00	\$4,704.54	\$51,749.97	\$2,000.00	\$200.00	\$2,200.00
35	10%	\$0.00	\$5,175.00	\$56,924.96	\$2,000.00	\$420.00	\$4,620.00
36	10%	\$0.00	\$5,692.50	\$62,617.46	\$2,000.00	\$662.00	\$7,282.00
37	10%	\$0.00	\$6,261.75	\$68,879.21	\$2,000.00	\$928.20	\$10,210.20
38	10%	\$0.00	\$6,887.92	\$75,767.13	\$2,000.00	\$1,221.02	\$13,431.22
39	10%	\$0.00	\$7,576.71	\$83,343.84	\$2,000.00	\$1,543.12	\$16,974.34
40	10%	\$0.00	\$8,334.38	\$91,678.22	\$2,000.00	\$1,897.43	\$20,871.78
41	10%	\$0.00	\$9,167.82	\$100,846.05	\$2,000.00	\$2,287.18	\$25,158.95
42	10%	\$0.00	\$10,084.60	\$110,930.65	\$2,000.00	\$2,715.90	\$29,874.85
43	10%	\$0.00	\$11,093.06	\$122,023.71	\$2,000.00	\$3,187.48	\$35,062.33
44	10%	\$0.00	\$12,202.37	\$134,226.09	\$2,000.00	\$3,706.23	\$40,768.57
45	10%	\$0.00	\$13,422.61	\$147,648.69	\$2,000.00	\$4,276.86	\$47,045.42
46	10%	\$0.00	\$14,764.87	\$162,413.56	\$2,000.00	\$4,904.54	\$53,949.97
47	10%	\$0.00	\$16,241.36	\$178,654.92	\$2,000.00	\$5,595.00	\$61,544.96
48	10%	\$0.00	\$17,865.49	\$196,520.41	\$2,000.00	\$6,354.50	\$69,899.46
49	10%	\$0.00	\$19,652.04	\$216,172.45	\$2,000.00	\$7,189.95	\$79,089.41
50	10%	\$0.00	\$21,617.25	\$237,789.70	\$2,000.00	\$8,108.94	\$89,198.35
51	10%	\$0.00	\$23,778.97	\$261,568.67	\$2,000.00	\$9,119.83	\$100,318.18
52	10%	\$0.00	\$26,156.87	\$287,725.54	\$2,000.00	\$10,231.82	\$112,550.00
53	10%	\$0.00	\$28,772.55	\$316,498.09	\$2,000.00	\$11,455.00	\$126,005.00
54	10%	\$0.00	\$31,649.81	\$348,147.90	\$2,000.00	\$12,800.50	\$140,805.50
55	10%	\$0.00	\$34,814.79	\$382,962.69	\$2,000.00	\$14,280.55	\$157,086.05
56	10%	\$0.00	\$38,296.27	\$421,258.96	\$2,000.00	\$15,908.60	\$174,994.65
57	10%	\$0.00	\$42,125.90	\$463,384.85	\$2,000.00	\$17,699.47	\$194,694.12
58	10%	\$0.00	\$46,338.49	\$509,723.34	\$2,000.00	\$19,669.41	\$216,363.53
59	10%	\$0.00	\$50,972.33	\$560,695.67	\$2,000.00	\$21,836.35	\$240,199.88
60	10%	\$0.00	\$56,069.57	\$616,765.24	\$2,000.00	\$24,219.99	\$266,419.87
61	10%	\$0.00	\$61,676.52	\$678,441.76	\$2,000.00	\$26,841.99	\$295,261.86
62	10%	\$0.00	\$67,844.18	\$746,285.94	\$2,000.00	\$29,726.19	\$326,988.05
63	10%	\$0.00	\$74,628.59	\$820,914.53	\$2,000.00	\$32,898.80	\$361,886.85
64	10%	\$0.00	\$82,091.45	\$903,005.99	\$2,000.00	\$36,388.68	\$400,275.53
65	10%	\$0.00	\$90,300.60	\$993,306.59	\$2,000.00	\$40,227.55	\$442,503.09

EXERCISE 8.3

Why It Pays to Save Early and Often

Suppose you put \$1,000 into an investment that earns 10 percent interest. You leave it there for 10 years. You might expect to have earnings of \$1,000 or a total of \$2,000 in your account ($\$1,000 \times .1 \times 10 = \$1,000$). Adding the \$1,000 in earnings to your original \$1,000, you would have \$2,000, right?

Wrong! You would have more than that. The return will be much higher because you earn interest not just on the principal but also on the interest you have already earned. This is called compound interest.

Let's see how long it will take money to double.

Investment	Interest or rate of return	Years to double
Passbook savings	3%	_____
Money market account	6%	_____
U.S. Treasury Bond	7%	_____
Stock market	12%	_____

Because of compounding, it pays to save early and often. Early opportunity costs can bring large benefits. The factors that affect how much savings grow are:

- The earlier or longer you save, the more savings you will have.
- The more income you save each year, the more savings you will have.
- The higher the interest rate or rate of return, the more savings you will have.

Here's how compounding works. Let's assume that 10 percent interest is compounded annually. This first year you earn \$100 in interest. Now you have \$1,100. The second year you earn interest on \$1,100 ($\$1,100 \times .1 = \110).

Because of compound interest, you can find out how long money will take to double by dividing 72 by the interest rate or the rate of return. With the rule of 72, you can calculate how long it will take your money to double at a certain interest rate as long as you don't spend the earnings. For example, at 10 percent interest, money will double in 7.2 years if the interest is compounded ($72 \div 10 = 7.2$ years).

Question

1. One key point in the economic way of thinking is that people respond to incentives. What is the incentive for saving early and often?

EXERCISE

9.1

Types of Investment Risk

People save and invest their money to receive a return on that saving or investment. In this lesson, we will call any type of saving or investing an “investment.” The return is the income earned. That return is stated as a percentage of the amount invested; it is usually calculated on a yearly or annual basis. Then it is called the **rate of return**.

Risk is the uncertainty that you will receive the promised return. The greater the risk you take with your investment, the higher the potential rate of return and the greater the chance that you might not receive that return. In other words, you are paid for the risk you take with 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 will not be able to return your money—much less pay a rate of return. Businesses, state agencies, and local governments have on some occasions declared bankruptcy. The U.S. government prints money, so there is no financial risk that it will not pay off its bonds. Insured savings accounts are insured up to \$100,000 by an agency of the federal government, so they carry very little financial risk.

MARKET PRICE RISK

This is the risk that the price of an investment will go down. This rarely happens to money saved in a bank, savings and loan, or credit union. However, the prices of stocks, bonds, and mutual funds are determined by supply and demand, and they do go down (as well as up).

The *supply* of an investment is the different quantities of that investment that will be 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 will be purchased at various prices during a specific time period. The *equilibrium price* is the price at which buyers want to buy the same amount of an investment that sellers want to sell.

The important point is that 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. Prices increased because more people wanted technology stocks at various price levels (demand increased). When investors became less interested in technology stocks, the average price fell because fewer people wanted technology stocks at every price level (demand decreased).

LIQUIDITY RISK

Liquidity is the ability to turn your money into cash or spendable funds, such as a checking account. Some investments are very liquid. For example, some savings accounts allow you to withdraw your money at any time without a penalty. Stocks listed on a stock exchange are very liquid; you can buy or sell them at any time. Real estate and collectibles, on the other hand, are not very liquid because it takes time for a seller to find a buyer. Although the Internet is speeding up this process, there is no guarantee that a buyer and seller can get together on price and other terms for real estate and collectibles.

INFLATION RISK

Money is invested today in order to spend it tomorrow. The goal is to receive the original investment back plus a return, so that you will be able to buy more in the future.

Inflation can decrease the value of your investment. When you save or invest, you are deferring your spending until a later time. If prices rise over that time, your money will not go as far. Therefore, 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 certificate of deposit at an 8 percent rate of return. The annual rate of inflation is 3 percent. Therefore, your real rate of return is 5% ($8\% - 3\% = 5\%$). The longer the time period, the greater the inflation risk.

FRAUD RISK

Some investments are misrepresented. In these cases, information about the investment is designed to deceive investors. Anyone can print a fancy brochure, make promises on the telephone, or guarantee great returns on the the Internet. Criminals often make up facts. Therefore, it is important to investigate before you invest. Most investment fraud occurs in securities and savings schemes that do not involve banks, savings and loans, credit unions, and brokerage firms.

Questions

1. What is the annual rate of return on an investment?

2. If you earn \$40 a year on a \$500 investment, what is the annual rate of return?

3. What is the relationship between the expected rate of return and the investment risk?

4. 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?

5. True, false, or uncertain and why? “The Internet is the future of our economy. The prices of Internet stocks are bound to go up.”

6. True, false, or uncertain and why? “This investment pays 30 percent a year and is perfectly safe. I put my mother’s money into this investment.”

EXERCISE
9.2

The Pyramid of Risk and Reward



The list above ranks investments according to their risks and rewards. The higher an investment is on the pyramid, the greater the risk. Because the risk is greater, the potential rewards and potential losses are greater.

Your job is to rank each of these investments on a 1-3 scale with 3 representing the most risk or reward. Circle the number that best represents each risk or reward. For risk, “1” is the lowest risk and “3” the highest risk. For reward, “1” is the lowest reward and “3” the highest reward. Give reasons for your rank of each of the risks and reward. Let’s go for it.

EXERCISE

9.2

Continued

MATTRESS

You could hide your money under a mattress.

Financial Risk	1	2	3
Market Price Risk	1	2	3
Liquidity Risk	1	2	3
Inflation Risk	1	2	3
Reward	1	2	3

Why?

REGULAR (PASSBOOK) SAVINGS ACCOUNT

The Federal Deposit Insurance Corporation (FDIC) insures savings accounts for up to \$100,000. Interest rates are usually lower than rates for other types of savings choices, but you can open an account with very little money. You can also withdraw your money whenever you like.

Financial Risk	1	2	3
Market Price Risk	1	2	3
Liquidity Risk	1	2	3
Inflation Risk	1	2	3
Reward	1	2	3

Why?

CERTIFICATE OF DEPOSIT

CDs are a special type of savings deposit that you must leave in the bank for a set amount of time during which you receive a fixed rate of interest. The FDIC also insures these accounts for up to \$100,000. Banks usually require that you deposit at least \$500. If you withdraw your money before the end of the given time, you must pay a penalty.

Financial Risk	1	2	3
Market Price Risk	1	2	3
Liquidity Risk	1	2	3
Inflation Risk	1	2	3
Reward	1	2	3

Why?

MONEY MARKET MUTUAL FUNDS

These funds are sold by companies that sell stocks, bonds, and other types of investments. The funds' managers lend money to businesses and governments for short periods of time. For every dollar put in such a fund, an investor can expect to get back a dollar plus interest. Although money market mutual funds are not insured by the federal government, they are low-risk investments. Interest rates are usually higher than on bank accounts but lower than for stocks and bonds bought and held for the long term. Investors can get their money at any time; they can even write checks on the account.

Financial Risk	1	2	3
Market Price Risk	1	2	3
Liquidity Risk	1	2	3
Inflation Risk	1	2	3
Reward	1	2	3

Why?

STOCKS

Stocks are shares of ownership in a corporation. When you buy stock, you usually take a greater risk than you would with any other type of investing. Your reward will vary, depending on the prices you pay for your stocks and the dividends you receive. Stocks on exchanges such as the New York Stock Exchange and Nasdaq can be bought and sold any time the exchange is open. The amount of money you need to buy stock depends on the prices of the stocks you want to buy and the number of shares you want.

Financial Risk	1	2	3
Market Price Risk	1	2	3
Liquidity Risk	1	2	3
Inflation Risk	1	2	3
Reward	1	2	3

Why?

U.S. GOVERNMENT SAVINGS BONDS

You can buy savings bonds from the federal government for as little as \$50. You can't sell them to other people, but you can sell them to the government whenever you want cash. There are limits on when you can sell them before maturity without a penalty of loss of interest.

Financial Risk	1	2	3
Market Price Risk	1	2	3
Liquidity Risk	1	2	3
Inflation Risk	1	2	3
Reward	1	2	3

Why?

EXERCISE
9.2

Continued

STOCK MUTUAL FUNDS

Stock mutual funds invest in stocks. The risk depends on the investment objective. Some funds invest in high quality or blue-chip stocks, and others invest in more speculative stocks. The major difference in buying a fund rather than individual stocks is that you own many stocks, and you don't have all your eggs in one basket. Therefore, the risk is lower than with an individual stock. You can sell your shares in the fund back to the fund company at any time.

Financial Risk	1	2	3
Market Price Risk	1	2	3
Liquidity Risk	1	2	3
Inflation Risk	1	2	3
Reward	1	2	3

Why?

REAL ESTATE

Most investors in real estate buy the house they live in. Houses can increase in value, but housing prices can also fall. Sometimes when they rise, they rise less than the inflation rate. To sell your house, you must find a buyer. Many buyers and sellers use real estate brokers.

Financial Risk	1	2	3
Market Price Risk	1	2	3
Liquidity Risk	1	2	3
Inflation Risk	1	2	3
Reward	1	2	3

Why?

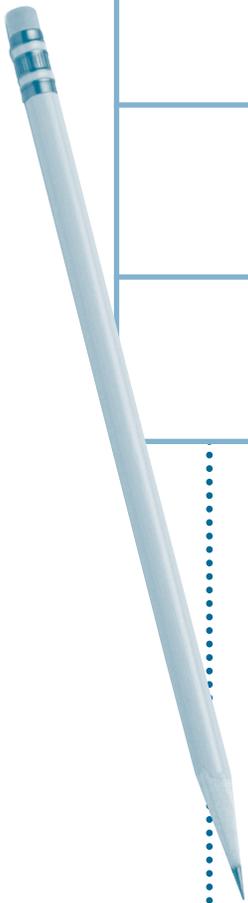


EXERCISE
10.1

Investment Bingo

There are 24 terms below the bingo board. Write one term in each square so that you have 24 different terms on your board.

		<i>Free Lunch</i>		



Rate of return

Incentive

Rule of 72

Liquidity risk

Nominal rate of return

Certificate of deposit

Money market mutual fund

Real estate

Compound interest

Income

Financial risk

Real rate of return

Passbook savings account

Inflation

Stock mutual fund

Annual rate of return

Opportunity cost

Wealth/Net worth

Market price risk

Fraud risk

U.S. Savings Bond

Inflation risk

Stocks

Risk/Reward ratio