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An Introduction to Stocks and Bonds

There are many different ways to invest your money. Each of them has different levels of risk and potential return. Stocks and bonds are two common types of financial investment.

A bond can be thought of as similar to a loan or an IOU. When you purchase a bond, you are lending money to the corporation or government entity that issued the bond. In return you receive interest payments on the bond. These payments are based on the original value (called the face value) of the bond and the interest rate (called the coupon rate) that existed when the bond was issued. Because bonds can be traded in secondary markets after they are issued, the price of bonds (and the yield they earn) can differ from the face value (and the coupon rate).

Shares of stock represent ownership in a corporation; they are often referred to as equities. Returns on investments in stocks result from changes in the stock price and/or from dividends. Some companies pay dividends (which are quarterly payments to stockholders) and others do not. Stocks can appreciate, or go up in value, as profits are earned and future expectations for growth of the company are positive. Stocks can also depreciate, or go down in value, if the company suffers losses or, in the extreme, goes bankrupt.

The graph on the following page charts the average annual performance of four different stock and bond investments over the 20-year period from 1989 to 2009. These four different investments represent the performance of four separate funds that are managed by Vanguard, a well known financial services firm that offers a variety of mutual funds. In the graph, the Vanguard 500 Index fund invests in the stock of 500 of the largest U.S. companies. The Vanguard Total Bond Market Index fund is comprised of a mix of U.S. government and corporate bonds. The Vanguard International Value fund represents investments in a set of foreign companies, and the Vanguard Asset Allocation fund attempts to balance stocks, bonds, and other investments to maximize long-term returns.

The annual return on stocks has historically averaged around 10 percent. The bar graph clearly shows that you won't earn that rate of return every year. Some years it will be higher and other years it will be lower. However, if you invest for the long term, you may be able to achieve performance that is close to this historical average.

EXERCISE
22.1

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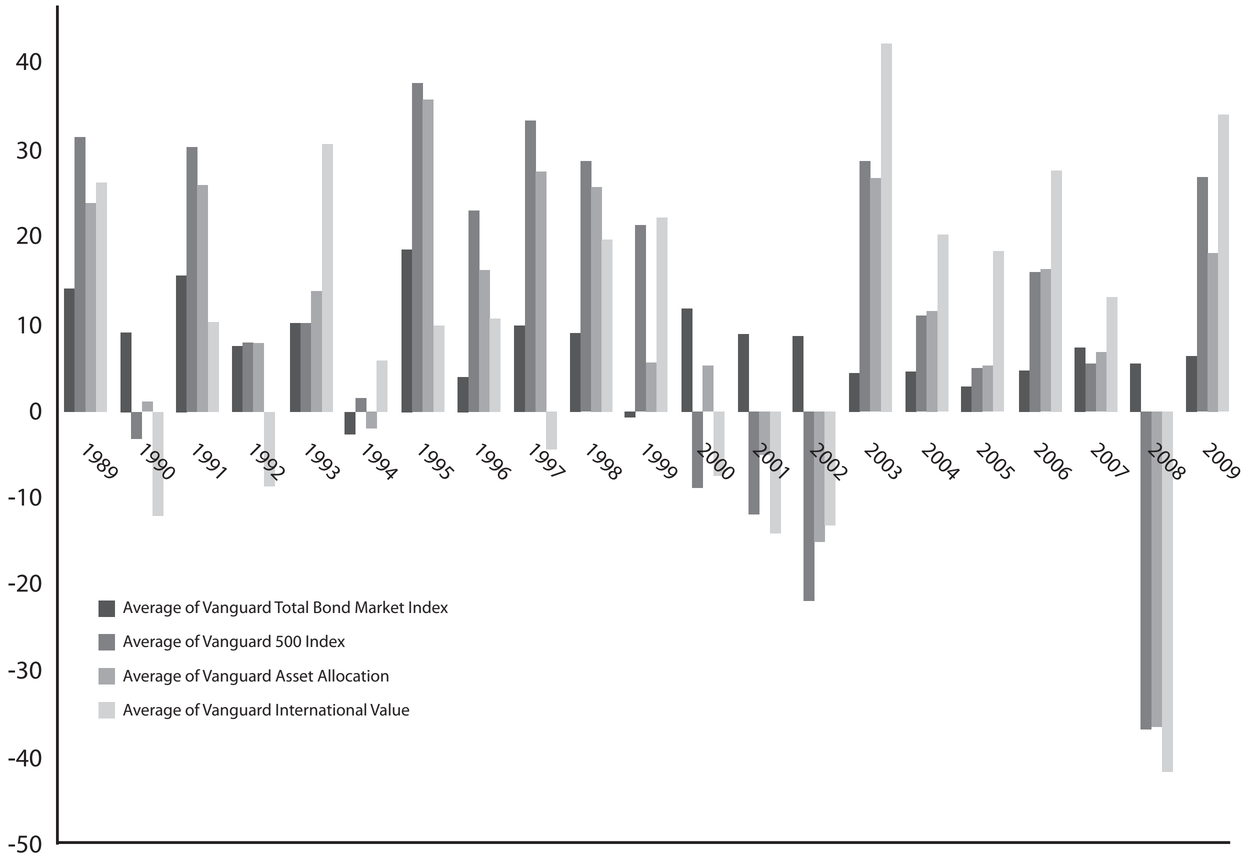

Questions:

a. During the 20 years examined in the graph above, is there one type of investment that consistently outperformed the other types of investment?

b. Which fund appears to have the steadiest rate of return over the 20-year period?

c. What are the highest and lowest rates of return for the bond market fund?

d. Since 2003, which fund appears to have had the most volatile annual return?

e. The historic average annual rate of return in the stock market from 1927 to 2009 was nearly 10 percent. The historic average annual rate of return on bonds over this same period was approximately 5 percent. Since 1989, in how many years did the Vanguard 500 Index fund outperform the Vanguard Total Bond Market Index fund?

f. In how many years did the Vanguard 500 Index fund have a negative return?

g. In how many years did the Vanguard Total Bond Market Index fund experience a negative return?

h. If you had to select between investing in the Vanguard Total Bond Market Index fund and the Vanguard 500 Index fund, which fund would you choose? Why?

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What Investment Strategy Is Best for Me?

What Investment Strategy Is Best for Me?

If you were to ask Warren Buffet, one of the most successful investors of all time, "What investment strategy is best for me?" he would reply in the way he has replied many times: "The best way, in my view, is to just buy a low-cost index fund and keep buying it regularly over time." In this lesson, we will discuss the three key elements of Mr. Buffet's advice: "index funds," "low-cost," and "buying regularly over time."

What Is an Index Fund?

First let's review what a mutual fund is. A mutual fund is a collection of stocks, bonds, or other investments selected and managed by a fund manager to meet certain investment goals. Investors buy shares in these funds, often for a relatively low price; in doing so, they diversify their investments, since their purchase gets them pieces of all the fund's holdings. Investors in managed funds pay for the services of the fund manager. These fees typically range from 1-3 percent. So, for each $100 you invest, you pay the fund manager $1-$3. This may not seem like much, but these fees can add up to thousands of dollars over time.

Index funds are mutual funds that make up a market index. They provide diversification by purchasing all of the stocks or bonds in a market index. An example would be investing in all the stocks in the S&P 500 Index (the most commonly traded large-cap stocks in the United States). Index funds don't need a manager to select or manage investments—they are defined by whatever is in the index. The fees, accordingly, are relatively low, typically ranging from 0.15 - 0.5 percent. That's as little as 15 cents per $100 invested!

You might think that paying a fund manager to buy and sell stocks in a mutual fund would give you an advantage–that the manager's special knowledge and diligence would pay off and enable you to beat the performance of the indexes or the market average. But most managed funds do not perform as well as their target benchmark over time. In buying into a managed fund, an investor may well pay more and get less.

How Can I Keep Costs Low When Investing?

Invest in no-load funds with low management fees that don't have 12b-1 fees.

- **Loads:** Mutual funds that charge a fee to purchase shares are called load funds. Load funds charge a sales fee or commission that occurs "up-front."

- **Redemption fee (Back-end load):** a sales charge or fee that may be charged when you sell your shares. This is known as a back-end load. These charges typically decline with each year you own shares in the fund, and they disappear after you own shares for a specified number of years. If you buy and sell shares through a stockbroker (or others who are authorized to buy and sell securities), there may be an additional sales charge from that professional.

- **12b-1 fee:** The Securities and Exchange Commission (SEC) allows mutual funds to charge what is known as the 12b-1 fee to cover marketing and distribution costs. This fee helps pay the costs of buying and selling securities within the fund's portfolio (in lieu of sales charges or loads), advertising, and other costs.

- **Management and other fees:** All mutual funds charge investors a management or administrative fee that compensates the portfolio manager(s). This management fee is typically stated as a percentage, but it may also be stated as a flat fee. Other fees cover the cost of maintaining an office, fees paid to companies contracted by the mutual fund to provide services for shareholders, and other fund operating expenses.

- **No-load:** There are a number of mutual funds that don't charge fees to buy or sell shares. These funds are called no-load funds. There is no evidence that load funds outperform no-load funds.

To reduce their costs, many investors avoid load funds and those that charge 12b-1 fees. And they look for funds with low management fees (0.5 percent or less). The idea is to use money to buy shares, not to pay fees.

How Can I Buy Regularly Over Time?

Use dollar-cost averaging.

Dollar-cost averaging is an investment strategy in which you invest a set dollar amount on a regular basis no matter what the market is doing. The idea is that no one can predict the market. Many investors feel it is best to keep buying on a regular basis in order to achieve returns that are similar to long-term stock returns. The easiest way to make regular investments is through a payroll deduction.

For example, you invest $50 per month in a mutual fund regardless of the share price. The result is that you purchase more mutual fund shares when the price is low and fewer shares when the price is high.

What's Anne's Dollar-cost Average?

Anne purchases $100 worth of mutual fund shares on a quarterly basis for one year. The share prices have gone up and down over the 12-month period. The results of her purchases are found in the table below. Note that by dollar-cost averaging, she is paying an average cost of $4.53 per share and she is able to take advantage of periods when the share price is low to accumulate more shares.

Amount Invested	Price per Share	# of Shares Purchased
$100	$2	50.0
$100	$5	20.0
$100	$10	10.0
$100	$12	8.3
$400		88.3

Average Cost per Share = Total Amount Invested ÷ Total Number of Shares Purchased = $400/88.3 shares = $4.53 per share

Kelly invests $50 every month. The prices of her mutual fund shares have changed during the year. The table below shows her monthly purchases.

Amount Invested	Price per Share	# of Shares Purchased
$50	$10	5.00
$50	$8	6.25
$50	$6	8.33
$50	$4	12.5

Questions:

a. How many shares did Kelly purchase over four months?

b. What was her average cost per share over this period?

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How Much Will My Investment Be Worth?

Potential returns for different investments vary significantly. Since 1926, the average return on U.S. Treasury bills and other cash equivalents like savings accounts has been 3.7 percent. The average annual return on long-term government bonds during the same period has been 5.4 percent. Large company stocks, like those in the S&P 500 index, have averaged an annual return of 10.2 percent. It is important to understand what average return means—i.e., that in some years these investments made money and in some years they lost money. Remember the investment pyramid from **Exercise 21.2**: higher returns are associated with higher risk.

Use the following website http://partners.leadfusion.com/tools/motleyfool/savings02/tool.fcs to estimate how much money you would earn if you invested $100 per month for 20 years in each of the investments listed in the table below. Assume you are paying no taxes and that the rate of inflation is 3 percent. Enter the value of your investment in the table below and answer the question at the end of the exercise.

How Much Will My Investments Be Worth?

	U.S. Treasury Bills	**Long-term Government Bonds**	**Large Company Stocks**
Amount Invested	$100	$100	$100
Average Annual Rate of Return	3.7%	5.4%	10.2%
Additional Deposit	$100	$100	$100
Frequency	Monthly	Monthly	Monthly
Years Invested	20	20	20
Federal or State Tax	0	0	0
Inflation Rate	3%	3%	3%
Value of Investment After 20 Years			

Question:

a. What is the benefit of putting some of your money into riskier investments, such as stocks, for long-term goals such as retirement?

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The Rule of 72

The Rule of 72 is a guideline for determining approximately how many years it will take an investment to double in value. It can also be used to determine the interest rate that would be needed for an investment to double in value after a given period of time.

To calculate the number of years required for an investment to double in value, you divide 72 by the annual interest rate (expressed in percentage form).

For example: Freddy invests $1,000 at 3 percent interest in a money market account. He wants his money to double to $2,000. It will take approximately 24 years for his money to double in value. 72/3 = 24 years.

To find the interest rate you need to earn for an investment to double, divide 72 by the number of years you have until you need the money.

Another example: Patrick has $1,000 to invest. He would like it to double in 10 years. He needs an interest rate of 7.2 percent to double his money in 10 years. 72/10 = 7.2 percent.

Now you try it!

a. George has $700 in an account earning 10 percent. How long will it take to double his money?

b. Jay wants his money to double in eight years. What interest rate does he need to earn?

c. Gennie wants to buy a home in five years. She needs a $10,000 down payment. At what interest rate will her $5,000 double in five years?

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Investment Bingo

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

		Free Lunch		

Dollar-cost averaging
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
Opportunity cost
Wealth/Net worth
Market risk
Fraud risk
U.S. Savings Bond
Inflation risk
Stocks
Annual rate of return
Risk/Reward ratio

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How Much Risk Am I Willing to Take?

OK, so now you know about some important investment possibilities. How do you know where to put your money? For short-term goals—goals you'd like to reach within a year or two—it's best to put your money into savings instruments like certificates of deposit (CDs) or a savings account. With those savings instruments, there is no risk that you will lose any of your principal. You will earn some interest, and it's not likely that inflation will take too large a bite over such a short period of time.

For long-term goals, such as saving for your child's college or for retirement, you have time to take more risk. Just how much depends on your personal risk tolerance. Take the Investment Risk Tolerance Quiz at http://njaes.rutgers.edu/money/riskquiz to find out your preference for risk when investing, as well as your preferences for investment alternatives.

Risk tolerance score ____________

What are some investments that meet your preference for risk?

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How Do I Allocate My Investments?

Diversification requires investment in different segments of the economy. Typically, however, the percent of an investor's portfolio allocated to each of the different segments varies over time. Financial advisors help clients determine how to allocate their investments based on their long-term and short-term goals. When you are young, you can afford to have a higher percentage of your portfolio invested in mutual funds based on stocks or stock indexes. As you approach retirement, your portfolio should become more conservative, with a higher percentage of your portfolio in bonds and other lower-risk financial instruments. Use the Asset Allocator website at http://www.ipers.org/calcs/AssetAllocator.html to estimate what a portfolio would look like for the following clients:

Client 1

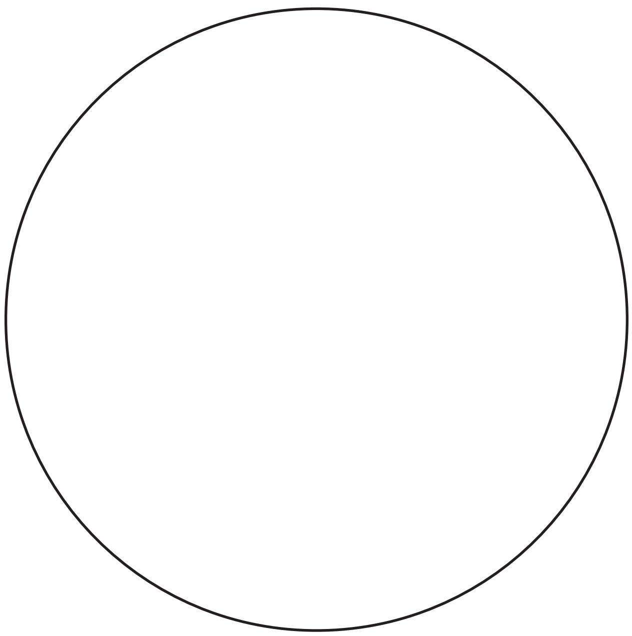
Mario, age 25, is a recent college graduate with a job in media relations. While he currently doesn't have any assets, he plans to begin investing $2,000 this year through his 401(k). He expects to continue this practice throughout his working lifetime. He has many choices for investing his money, and he is interested in what you think a good mix might be for a young person just starting out. Mario's marginal tax rate is 15 percent. He does not need money from investments to supplement his income at this time. He has a high tolerance for risk and he expects that the economic outlook will be average during the years in which he will invest.

Draw a pie chart to indicate what Mario's asset allocation should be. Indicate the percentage invested in each instrument.

Client 2

Sofia is a 45-year-old teacher. She started saving later in life and now has $54,000 to invest. She saves $2,500 each year. Her marginal tax rate is 25 percent. She is saving for retirement and does not need to draw any income from her investments at this time. She gets a sick feeling in her stomach at the thought of losing her hard-earned money. Her risk tolerance is medium-low. She will continue to work for several years before retirement; she expects the economic outlook to be average during most of the years in which she will be investing.

Draw a pie chart to indicate what Sofia's asset allocation should be. Indicate the percentage invested in each instrument.



Client 3

Ray is 65 years old. He plans to retire at age 67. He's saved for most of his life and now has $625,000 that he would like to invest with you. He is unsure what the best investments would be for him at this time of his life. He saves $2,000 each year; he is in the 28 percent marginal tax bracket. Since he is getting ready to retire, he will soon need income from his investments to support him in retirement. He is a risk taker, but he thinks that at this time in his life he should invest conservatively. He would describe his risk tolerance right now as low. He is an optimist and expects the economic outlook to be good in the next few years.

Draw a pie chart to indicate what Ray's asset allocation should be. Indicate the percentage invested in each instrument.