



## Financial Concepts Tutorial

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### **Introduction**

The world of investing can be extremely confusing. In this tutorial, we'll go through some of the theories that investors have developed in an attempt to make sense of the market. We'll discuss certain concepts that are especially useful for individual investors, like dollar cost averaging and diversification, while others that are more arcane academic explanations. No matter what your situation, all these concepts are important to understand and can help you gain insight into how the market works.

So, without further ado, here are some of the most important concepts of finance and investment.

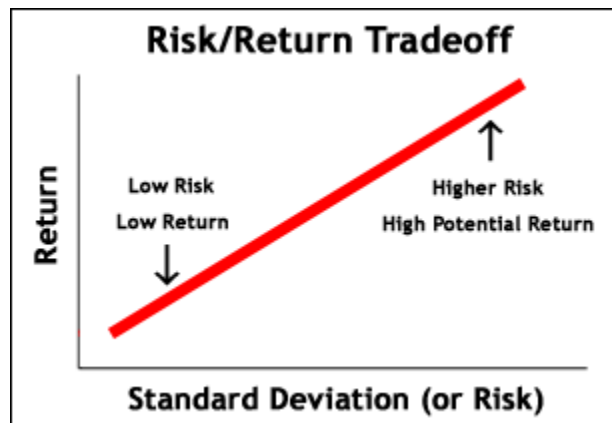
## The Risk/Return Tradeoff

The risk/return tradeoff could easily be called the "ability to sleep at night" test. Deciding what amount of risk you can take on while still being able to feel comfortable about your investments is a very important decision.

The dictionary definition of risk explains that: "risk is the chance that an investment's actual return will be different than expected." Technically, this is measured in statistics by [standard deviation](#). Risk means you have the possibility of losing some or even all of your original investment.

Low levels of uncertainty (low risk) are associated with low potential returns. High levels of uncertainty (high risk) are associated with high potential returns. The risk/return tradeoff is the balance between the desire for the lowest possible risk against the highest possible return. This is demonstrated graphically in the chart below. A higher standard deviation means a higher risk and higher possible return.

A common misconception is that more risk equals greater return. The risk/return tradeoff tells us the higher risk gives us the *possibility* of higher returns. There are no guarantees here. Just as risk means higher potential returns, it also means higher potential losses.



On the lower end of the scale, the [risk-free rate](#) of return is represented by the return on U.S. Government Securities because their chance of [default](#) is next to nothing. If the risk-free rate is currently 6%, this means for virtually no risk we can earn 6% per year on our money.

However, a common question arises, who wants 6% when [index funds](#) average 12% per year over the long run? The answer to this is that even the entire market (that an index fund represents) carries risk. The return on index funds is not 12% every year, but rather -5% one year, 25% the next year, and so on. An investor still takes on substantially more risk and volatility to get an overall return that is higher than a predictable government security. We call this additional return the risk premium, which in our case, is 6% (12% - 6%).

How do you know what risk is most appropriate for you? This isn't an easy question to answer. The amount of risk you can comfortably undertake differs from person to person. It depends on your goals, income, personal situation, etc.

## Diversification

Most individual investors can't tolerate the short-term fluctuations in the stock market. The best way to smooth out the ride is by diversifying your portfolio.

Diversification is a risk management technique that mixes a wide variety of investments within a portfolio in order to minimize the impact that any one security will have on the overall performance of the portfolio.

The effect of diversification is to lower the risk of your portfolio. Academics have complex formulas to demonstrate how this works, but we can explain it clearly with an example:

Say you live on a deserted island where the entire economy consists of only 2 companies, one sells umbrellas, while the other sells sunscreen. If you invest your entire portfolio in the company that sells umbrellas, you'll have strong performance in rainy season but poor performance when it's sunny outside. This also applies to the opposite situation. If you buy the company that sells sunscreen, your portfolio will have excellent performance when it's sunny, but bad results when it rains. Because you'd rather have constant, steady returns, a solution is to invest 50% in one company and 50% in the other. Since you have diversified your portfolio, you will get decent performance year round instead of having excellent and terrible performance depending on the season.

There are 3 main aspects to ensure the best diversification:

1. Your portfolio should be spread among many different investment vehicles such as cash, stocks, bonds, mutual funds, and perhaps even some real estate.
2. Your securities should vary in risk. You're not restricted to choosing only [blue chip stocks](#). In fact, it'll be smart if you pick investments with varied risk levels, as it will ensure that large losses are offset over other areas.
3. Your securities should vary by industry, minimizing specific risk of certain industries.

Diversification is probably the most important component in helping you reach your long-range financial goals while minimizing your risk. On the other hand, diversification is no guarantee against a loss. No matter how much diversification you do, investing involves taking on some sort of risk.

Another frequently asked question is how many stocks should be bought in order to reach optimal diversification? According to portfolio theorists, after around 20 securities, you have reduced almost all of the individual security risk in a portfolio. This assumes you buy stocks of different sizes from various industries. More detail on this is available in our article entitled: [Are You Over-Diversified?](#)

## Dollar Cost Averaging

Ask any professional investor what's one of the hardest things to do as an investor and they will likely tell you, it is picking [bottoms](#) and tops in the market. Trying to time the market is a very difficult strategy, buying at the absolute low and selling at the peak is nearly impossible in practice. It is for this reason why so many professionals preach about dollar cost averaging.

While the term might imply a difficult and confusing concept, dollar cost averaging (DCA) is actually one of the simplest and most useful techniques around. DCA is a process of buying a fixed dollar amount of a particular investment on a regular schedule, regardless of the share price. More shares are purchased when prices are low, and fewer shares are purchased when prices are high. The cost per share over time eventually averages out. This reduces the risk of investing a large amount in a single investment at the wrong time.

Let's analyze this with an example. Suppose you just got a bonus (just imagine!) and now you have \$10,000 to invest. Instead of investing the lump sum into a mutual fund or stock, with dollar cost averaging you'd spread the investment out over several months. By investing \$2,000 a month for the next 5 months, this "averages" the price over 5 months. So one month you might buy high and the next month you buy more shares because the price is lower, and so on.

This plan is also perfect for the investor who doesn't have that big lump sum to start with, but can invest small amounts regularly. This way you can contribute as little as \$25-50 a month to an investment like an index fund. Keep in mind that dollar-cost averaging doesn't prevent a loss in a steadily declining market, but it is quite effective in taking advantage of growth over the long term.

## Asset Allocation

It's no secret that [common stock](#) has outperformed most financial instruments in the long run. If an investor plans to make an investment for a long period of time, then their portfolio should be mostly comprised of stocks. However, if they don't have enough time, it is important to diversify their portfolio i.e. include investments other than the stocks.

For this reason, the concept of "asset allocation" was developed. Asset allocation is an investment portfolio technique that divides assets among major categories such as bonds, stocks, real estate, or cash, usually to balance risk and create diversification. Each asset class will generally have different levels of return and risk, so they will also behave differently. At the time one asset is increasing in value, another may be decreasing or not increasing as much and visa versa.

The underlying principle of asset allocation is that the older you get, the less risk you should be exposed to. After you retire, if you depend on your savings as the only source of income, then you should invest more conservatively, as asset preservation is crucial.

Determining the right mix of investments in your portfolio is very important. The

decision of what percentage of your portfolio you should put into stocks, mutual funds, and low risk instruments like bonds and treasuries is not an easy one, particularly for those reaching retirement age. Imagine, saving for 30 or more years, only to see the stock market decline in the years before your retirement! For many, this is what happened during the bear market of 2000 and 2001. To determine your asset allocation plan, it is advisable you speak to an investment advisor who can customize a plan that is right for you.

## Random Walk Theory

[Random Walk Theory](#) gained popularity in 1973 when Burton Malkiel wrote: "A Random Walk Down Wall Street," a book that is now regarded as an investment classic. Random Walk is a stock market theory that states the past movement or direction of the price of a stock or overall market cannot be used to predict its future movement. Originally examined by Maurice Kendall in 1953, the theory also believes stock price fluctuations are independent of each other and have the same probability distribution, but over a period of time maintain an upward trend.

In short, random walk says that stocks take a random and unpredictable path. A stock that trades today at \$50 has as much a chance of trading up tomorrow as it does of trading down. A follower of random walk believes it is impossible to outperform the market without assuming additional risk. In his book, Malkiel preaches that both [technical analysis](#) and [fundamental analysis](#) are largely a waste of time, and are still unproven in outperforming the markets.

Malkiel constantly states that a long-term [buy and hold](#) strategy is the best and that individuals should not attempt to time the markets. Attempts based on technical, fundamental or any other analysis are futile. He backs this up with statistics showing that most mutual funds fail to beat benchmark averages like the S&P 500.

While many still follow the preaching of Malkiel, others believe that the investing landscape is very different than it was nearly 30 years ago. Today, everyone has easy and fast access to relevant news and stock quotes. Investing is no longer a game for the privileged. Random Walk has never been a popular concept with those on Wall Street, probably because it condemns analysis and stock picking, the very basis of Wall Street.

How much truth is there in this theory? It's tough to say. There is evidence that supports both sides of the debate. Our suggestion to you is to pick up a copy of Malkiel's book and make the decision yourself as to where you stand.

## Efficient Market Hypothesis

[Efficient Market Hypothesis \(EMH\)](#) is an idea partly developed in the 1960s by Eugene Fama. It states that it is impossible to beat the market because prices already incorporate and reflect all relevant information. This is a highly controversial and often disputed theory. Supporters of this model believe it is pointless to search for undervalued stocks or try to predict trends in the market through any technique (fundamental or technical analysis).

Under the Efficient Market Hypothesis, any time you buy and sell securities, you're engaging in a game of chance, not skill. If markets are efficient and current, it means that prices always reflect all information, there's no way you'll ever be able to buy a stock at a bargain price.

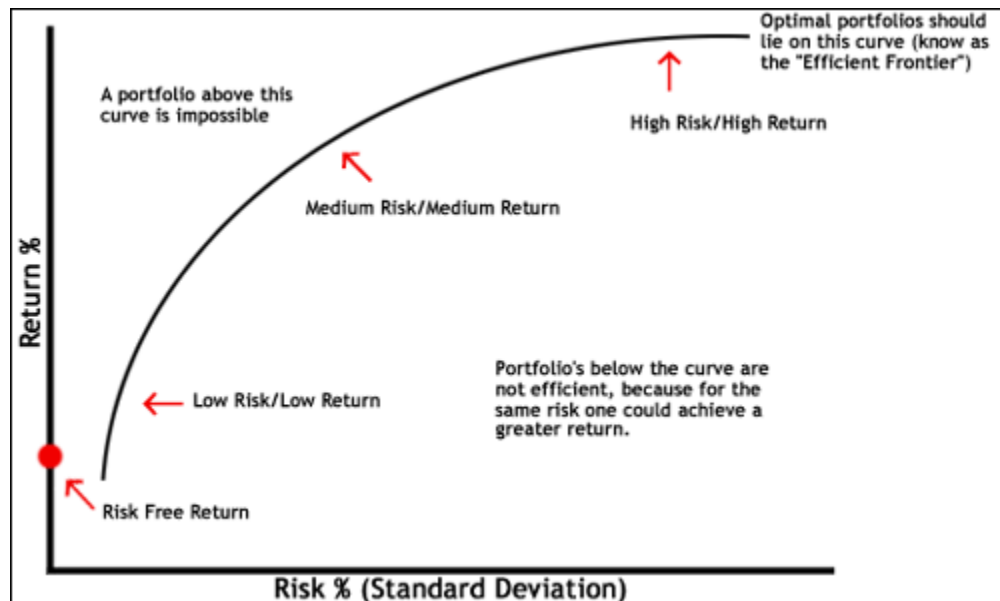
This theory has been met with a lot of opposition, especially from the technical analysts. Their argument against the Efficient Market Theory is that many investors base their expectations on past prices, past earnings, track records, and other indicators. Since stock prices are largely based on investor expectation many believe it only makes sense to believe that past prices do influence future prices.

## The Optimal Portfolio

This concept falls under the general category of "Modern Portfolio Theory." The theory assumes (among other things) that investors try as much as possible to avoid risk while obtaining the highest return possible. Investors will act rationally in making decisions based on maximizing their return for the level of risk that is acceptable for them.

The optimal portfolio was formally used in 1952 by Harry Markowitz, and shows us that it is possible to have a different number of portfolios that have varying levels of risk and return. Each investor must decide how much risk they can handle and allocate (or diversify) their portfolio accordingly to this decision.

The chart below is a graphical example of how the optimal portfolio works. The optimal risky portfolio is usually determined to be somewhere in the middle of the curve because as you go higher up the curve you take on proportionately more risk for a lower incremental returns. On the other end, low risk/low return portfolios are pointless because you can achieve a similar return by investing in [risk-free assets](#) like government securities.



How much volatility you are willing to bear in your portfolio is done by choosing any other point that falls on the "Efficient Frontier," since this will give you the maximum return for the amount of risk you wish to take on. Optimizing your portfolio is not something you can calculate in your head. There are computer programs dedicated to estimating hundreds (and sometimes thousands) of expected returns to determine optimal portfolios for each given amount of risk.

## Capital Asset Pricing Model (CAPM)

Pronounced Cap-M, this model was originally developed by Harry Markowitz in 1952 and fine-tuned by others, including William Sharpe, over a decade later. CAPM describes the relationship between risk and expected return, and serves as a model for the pricing of risky securities. CAPM says that the expected return of a security or a portfolio equals the rate on a [risk-free security](#) plus a risk premium. If this expected return does not meet or beat our required return then the investment should not be undertaken.

The commonly used formula to describe the CAPM relationship is as follows:

$$\text{Required (or expected) Return} = \text{RF Rate} + (\text{Market Return} - \text{RF Rate}) * \text{Beta}$$

For example, let's say that the current risk free rate is 5%, and the S&P 500 (the market) is expected to return 12% next year. You are interested in determining the return that Joe's Oyster Bar Inc. (JOB) will have next year. You have determined that its [beta](#) value is 1.9. The overall stock market has a beta of 1, so JOB's beta of 1.9 tells us that it is more risky than the overall market, this extra risk means that we should expect a higher potential return than the 12% for the S&P 500. We can calculate this as:

$$\begin{aligned} \text{Required (or expected) Return} &= 5\% + (12\% - 5\%) * 1.9 \\ \text{Required (or expected) Return} &= \mathbf{18.3\%} \end{aligned}$$

What CAPM tells us is that Joe's Oyster Bar has a required rate of return of 18.3%. So, if you invest in JOB, you should be getting at least 18.3% return on your investment. If you don't think that JOB will produce those kinds of returns for you, then you should probably consider investing in a different company.

It is important to remember that high beta shares usually give the highest returns. However, over a longer period of time high beta shares are the worst performers during market declines ([bear markets](#)). While you might receive high returns from high beta shares, there is no guarantee that the CAPM return is realized.

## Conclusion and Resources

We hope that this has given you some insight to the market and your investment strategies. Let's have a recap of the tutorial:

- The risk/return tradeoff is the balance between the desire for the lowest possible risk against the highest possible return.
- More risk equals greater possible return.
- Diversification lowers the risk of your portfolio.
- Dollar cost averaging is a technique where a fixed dollar amount is invested on a regular schedule, regardless of the share price.
- Asset allocation divides assets among major categories in order to create diversification and balance the risk.
- Random Walk Theory says that stocks take a random and unpredictable path.
- Efficient Market Hypothesis (EMH) says it is impossible to beat the market because prices already incorporate and reflect all relevant information.
- Optimal Portfolio is a model that attempts to show how rational investors will maximize their return for the level of risk that is acceptable to them.
- CAPM describes the relationship between risk and expected return, and serves as a model for the pricing of risky securities.

### Quiz Yourself

Finally, if you think you know this stuff now we challenge you to take the quiz and [Test Your Financial Concept Knowledge](#).

### Also:

1. If you think we missed something and have a question, [tell us about it](#).
2. If you enjoyed this tutorial, make sure to [Tell a Friend!](#)
3. If you still aren't [on our newsletter](#), why not?

### Related Tutorials

Having trouble sleeping at night? It could be you are exposing yourself to way too much risk. Learn about risk and risk management in our [Risk and Diversification Tutorial](#).

If you are new to the stock market then we've got the tutorial for you! [Stock basics](#) covers what a stock is, different types of stock, how stocks trade, how to read quotes, and much more.

You might of also already heard of mutual funds. These are basically big baskets of stocks management by a professional. Mutuals can be a great way for beginners to get involved in the market, learn more in [Mutual Fund Basics](#).

