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Risk

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WHAT'S COVERED

In this lesson, you will learn about different types of financial risk associated with an investment. Specifically, this lesson will cover:

1. Types of Financial Risk

The term “financial risk” is broad, but can be broken into different categories to understand it better.

Type of Risk	Description
Asset-backed risk	This risk affects investments in asset-backed securities such as home loans. In order to finance home sales, banks issue bonds that serve as a debt obligation to their buyer. The buyer of the debt is essentially receiving the interest from the bank that the home-buyer is paying to it.
Prepayment risk	This is the risk that the buyer goes ahead and pays off the mortgage. Therefore, the buyer of the bond loses the right to the buyer’s interest payments over time.
Interest rate risk	This risk refers to an asset whose terms can change over time, such as a Variable Rate Mortgage payment.
Credit risk or default risk	This is the risk that a borrower will default (or stop making payments).
Liquidity risk	This is the risk that an asset or security cannot be converted into cash in a timely manner. Some investments (i.e., stocks) can be sold immediately at the current market rate and others (i.e., houses) are subject to a much higher degree of liquidity risk.
Market risk	This is the term associated with the risk of losing value in an investment because of a decline in the market.
Operational risk	This is another type of risk that deals with the operations of a particular business. If you are invested in the Boston Red Sox, your operational risk might include the chance that starting pitchers and recent acquisitions won’t perform, that your manager will turn the clubhouse into a mess, or that ownership will not be able to execute a long-term strategy. Any of these risks might result in decreased revenues from ticket sales.

Foreign investment risk	This risk involves the risk associated with investments in foreign markets.
Model risk	This risk involves the chance that past models, which have been used to diversify away risk, will not accurately predict future models.

IN CONTEXT

A recent phenomenon that applies the concepts of these risks and how they interact with each other happened in 2008 when the housing market crashed. Can you find an example of each form of risk here?

Leading up to the crisis, many people received loans to buy houses which they really couldn't afford. The mortgages often featured variable rate annuities, meaning that the interest rate terms of the mortgage started low and increased over time. Over the past 20-year period, house prices had risen constantly and investors assumed the trend would continue. Buyers worried about an adjustment to their interest rate, and all of a sudden, a $1,500 monthly payment became $2,000. When interest rates climbed two percentage points and the mortgage climbed to $2,000, some owners had to default, or stop making payments. They were promised that their investment would appreciate in value and they would be able to refinance it.

The home loans were packaged and shipped off to investors all over the world in the form of complex investment vehicles. They seemed rewarding and highly safe at first, but then a few started breaking down. By now, these vehicles had made their way all the way around the world. When some investors defaulted, the world realized there were no mechanics around to fix these vehicles. After a few vehicles broke down, no one wanted to buy them, leading to the worst crash across world markets since 1929.

2. Measuring Risk

Risk refers to the variability of possible returns associated with a given investment. Risk, along with the return, is a major consideration in capital budgeting decisions. The firm must compare the expected return from a given investment with the risk associated with it. Higher levels of return are required to compensate for increased levels of risk.

The relationship between risk and return can better be thought of as a range, or also as on a spectrum. With this brings a variance of potential investment options. Each option brings with it a unique level of risk. Typically, the higher the risk, the more expenses that will be incurred. For instance, investments with higher levels of risk will require additional time spent researching and monitoring the investment. Additionally, the potential loss of the investment can be greater than the potential gains. As a result, riskier investments will carry a higher risk premium due to these additional expenses that are typically incurred.

BIG IDEA

The higher the risk undertaken, the more ample the return – and conversely, the lower the risk, the more modest the return. Also, the higher the risk, the more that investors require to be compensated for.

When considering a firm tasked with making capital budgeting decisions, all firms use breaking even as a baseline. However, they must also factor **inflation** into what it would take to truly break even. Because of this, inflation is factored into the firm's cost of capital. Since inflation can change, and sometimes unexpectedly, firms cannot fully plan for the effects of inflation.

In addition to inflation concerns, risk aversion plays an important role as well. Risk aversion can be thought of as the behavior exhibited when firms and investors are faced with uncertainty and must counteract this. Risk aversion also spans a spectrum, ranging from these three levels:

- Risk-averse, or risk-avoiding
- Risk-neutral
- Risk-loving, or risk-seeking

> ↪ EXAMPLE A risk-averse investor would be more likely to put their money into a bank account with a lower rate, but have their investment guaranteed as opposed to a stock that has a high return but the chance of losing value.

Beta is a measure firms can use in order to determine an investment's return sensitivity in relation to overall market risk. Beta describes the correlated volatility of an asset in relation to the volatility of the benchmark that said asset is being compared to. This benchmark is generally the overall financial market and is often estimated via the use of representative indices, such as the S&P 500. Since beta is a measure of volatility, those firms with higher betas are more volatile (i.e., risky). Firms with lower betas have less risk, or are less volatile.

TERM TO KNOW

Inflation
An increase in the general level of prices or in the cost of living.

SUMMARY

In this lesson, you learned that there are numerous **types of financial risk** depending on the asset type. Companies and individual investors **measure risk** when making investment decisions. Higher risk investments typically generate higher returns, but also have higher expenses related to researching and monitoring the investment. Risk-averse investors prefer to avoid the uncertainty associated with high risk investments.

Best of luck in your learning!

TERMS TO KNOW

Inflation
An increase in the general level of prices or in the cost of living.