Setting Expectations for Stock Returns

How much return should you expect from a stock? In light of the way the stock market has performed in the past few years, you may think that any return which is not a loss, is good. That's true, but you should also be compensated for the risk you take when you invest.

For example, suppose that you have $1000 to invest. Let's say you've looked around and found that you can invest in a FDIC covered bank CD and get 1% return. This is a fairly *low risk* investment. If the bank became insolvent, then the FDIC would probably step in and take over the bank. You can be reasonably be sure that the FDIC would return your money. There is a very low probability of a loss in this investment.

What if you would like to invest in the stock market? With the CD, you are pretty much guaranteed that you'll get a 1% return, not so with a stock. Stocks are riskier than CDs, and you could potentially lose 100% of your investment. Alright, so you know it's riskier than a CD, so how much *should* you be compensated for this riskier investment?

You should at least be compensated as much as the low risk CD investment. In finance, they refer to a risk free investment, r_f . The risk free investment is a US Treasury security, like a T-Bill. If we say the expected return on our investment is r_s, then we could write a starter equation of our expected return as

$$r_s = r_f + \text{more stuff}$$

The more stuff is somewhat intuitive. It is the premium you should receive for the additional risk you are taking. It is partly composed of what is referred to as a market premium. This is the return of the overall stock market, r_m, minus the risk free rate of return, r_f. Adding to our starter equation, we could write

$$r_s = r_f + (r_m - r_f)$$

There is just one more thing to add to our starter equation. It refers to the volatility of the stock relative to the market. This volatility is measured with a quantity call beta, β. Here is how β works. If the β of our stock equals 0.9, and the stock market went up 10%, then our stock should go up by 9% (10% * 0.9). Also, if the market happened to drop by 10%, our stock should only drop by 9%. So, if a stock has a β that is less than one, it is less volatile than the stock market. However, if β is greater than one, it is more volatile than the stock market. Our starter equation finally looks like

$$r_s = r_f + (r_m - r_f) * \beta$$

What the equation says is that our expected return is the risk free return, plus the market risk premium times the volatility of the stock. Descriptively, this equation is a risk adjusted expected rate of return. It is known as the security market line, or SML.

The β for most stocks are available on most internet financial sites. Essentially, it is a risk factor. The larger the β, the riskier the stock is. The risk free return is usually the return of the 90 day (13-Week) US Treasury T-Bill, also available on the internet. The market return is a little tricky. Some people use the

Dow, others the S&P 500.   For the following example, I used r_f = 0.132%, r_m = 12.6%, the β came from yahoo financial.

Stock Ticker	β	Expected Return	Actual Return
INTC	1.04	13.6%	-2.2%
WMT	0.37	4.7%	-2.5%
XOM	0.43	5.5%	21.1%
CAT	1.88	23.6%	67.1%