



Living in The Real World – Risk & Returns

By Paul Woods

Risk

One of the things the investment community seems to do pretty well is to obfuscate relatively simple ideas. The concept of risk is a perfect example. In the real world, everyone knows what risk means. If you're thinking about making an investment, you'd like to know what the chances are of losing money.

Academics, however, occasionally seem to live in some sort of parallel universe. Decades ago, they scratched their beards and pondered risk and came up with a definition that proved that none of them had ever invested in the stock market. Risk, they explained, was volatility. Volatility is the standard deviation of historic returns for a particular investment. In English, this means that greater fluctuations in price and returns equal greater risk.

Rather than trying to burn off the fog left by academics on this topic, the investment community embraced this definition. Industry marketing materials now convey the impression that risk is enormously complicated and only trained investment professionals have the depth of understanding to properly understand and evaluate it. The only small problem is that, as a real-world definition of risk, volatility is incomplete and inaccurate.

Probability tables are available to calculate a definition of risk that provides investors with a good estimation of the likelihood of losing money on an investment. Students of probability know that there are actually two components of investment risk. Volatility is one. However, average returns are the missing link that makes the academic definition of risk misleading.

To demonstrate the fatal flaw in the academic view of risk, consider two potential investments. Assume that both have about the same volatility, so most in the investment industry would consider the risks to be equivalent. However, one produces only a small return over time while the other produces a much higher return. The investment with the higher average return will move the overall range of probabilities farther away from negative territory, making it the less risky of the two investments.

Let's say that you're considering an investment in an S&P 500 Index fund. You're curious about the risk. An investment advisor fresh out of academia tells you that the standard deviation of historic annual returns for the S&P 500 Index is 0.2032. Someone that understands probabilities tells you that you can expect to take a hit slightly more often than every 4 years. It's pretty obvious which one was the more useful answer.

In this context, let's lift the fog and obfuscation and start living in the real world. We have returns from 1926 that break the universe of stocks into large companies (S&P 500 Index) medium sized companies (midcap index) and small companies. We also have returns for long-

term (20 year) and intermediate (5 year) Treasury bonds for the same period. Using these returns, we can calculate the following probabilities of a decline in value:

5-Year Treasury Note	16.61%
20-Year Treasury Bond	26.77%
S&P 500 Index	27.10%
Midcap Stocks	27.76%
Small Company Stocks	29.46%

In other words, on a historic basis...

- A 5-Year Treasury Bond declines in value about every 6 years
- A 20-Year Treasury Bond declines in value about every 3.7 years
- The S&P 500 declines in value about every 3.7 years
- Mid-cap Stocks decline in value about every 3.6 years
- Small Company Stocks decline in value about every 3.4 years

We also have historic returns from 1970 that enable us to calculate the likelihood of a negative return for foreign stocks (Morgan Stanley EAFE Index) and returns from 1972 that allow us to make the same calculation for real estate investment trusts (NAREIT Index). The huge caveat here is that this was a period of increasing valuations in stock prices so returns are probably inflated. As a result, it's likely that this understates the likelihood of a negative return by 15-20%. Nonetheless, here are the probabilities of a negative return derived from a much shorter time period:

Real Estate Investment Trusts (REITs)	19.77%
Foreign Stocks	30.51%

In addition to providing a definition of risk that's more comprehensible, this measure of risk is also more dynamic. Bonds are a perfect example. As bond yields change, the likelihood of a negative return will change also. Bond yields are currently close to record lows and the chances of a negative return from this point are much higher as a result. Using the current yields available coupled with historic volatility, we calculate the following probabilities of a negative return:

5-Year Treasury Note	34.10%
20-Year Treasury Bond	34.10%

In other words, the current probability of a negative return on either 5-year or 20-year Treasury bonds is a bit greater than 1 in 3. At this point, the chances of a decline in value appear to be greater in bonds than stocks.

Returns

If we again look at the period from 1926-2003, we get the following compound returns:

5-Year Treasury Note	5.37%
20-Year Treasury Bond	5.31%
S&P 500 Index	10.41%
Mid-cap Stocks	11.72%
Small Company Stocks	12.93%

What are probably inflated compound returns from 1970s show the following:

Real Estate Investment Trusts	12.90%
Foreign Stocks	9.64%

Most investment decisions come down to a tradeoff between risk and return with a goal of getting the most return for the least risk. If we use the probability of a negative return as our measure of risk, and then calculate the historic returns per unit of risk, we get the following:

Real Estate Investment Trusts	0.52%
Small Company Stocks	0.44%
Mid-cap Stocks	0.42%
S&P 500 Index	0.38%
5-Year Treasury Note	0.32%
Foreign Stocks	0.25%
20-Year Treasury Bond	0.20%

By the way, the above calculation gives the return on REITs and foreign stocks from the 1970s a 20% haircut to try to make the numbers comparable with the longer returns for the other equity categories. Also, if we used current yields instead of historic returns, the returns per unit of risk for bonds would be significantly lower.

Conclusion

With the usual caveats about a shorter time period and what are probably inflated returns, real estate investment trusts still appear to be a very attractive investment. REITs offer a good combination of high current yields, good overall returns, and reasonable risk.

Risk is higher in small and mid-cap stocks, but investors appear to be sufficiently compensated with higher overall returns. Along with REITs, these should probably form the core of long-term equity investment portfolios.

The 'blue chip' segment of the stock market is problematic. While the overall risk is moderate, long-term returns are fairly low and don't appear to adequately compensate investors. At best, these stocks should probably be used selectively.

Looking at the data, it's difficult to find a compelling reason to invest in foreign stocks. Although returns have been helped by the recent decline in the dollar, this is still an asset class with unexciting returns and very high risk over time.

Finally, when bond yields rise and make bonds a less risky investment than stocks, historic returns and volatility show that the highest risk-adjusted returns by a wide margin can be found in bond portfolios with an average maturity of about 5 years.

Published in *I Sophia: A Leading Women's Investment Network Newsletter*, Volume 1, Issue 46, March 1, 2004

Paul Woods is President and CEO of Odyssey Advisors LLC, an independent investment advisory firm specializing in equities and fixed income. He can be contacted at pwoods@odysseyadvisors.com.

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