

Understanding Investment Risk Beyond 20 Questions

At some point in one's investing career, virtually everybody has been queried about his/her "risk tolerance" level. In order to measure an individual's "investment personality," a questionnaire is oftentimes completed with the resulting score used to fit the prospective client into a neat conservative, moderate, or aggressive category that conveniently matches one of several pre-designed investment products. Answering basic questions concerning the anticipated time horizons for contributions and withdrawals along with establishing some level of understanding about the relationship between risk and return are good beginning points. However, a more thorough knowledge of the various types of investment risk and the methods of risk measurement will enable the investor to do a better job of portfolio construction with a clearer picture of expected returns and volatility.

Shifting From Whim to Mathematics

In his best seller *Against The Gods, The Remarkable Story of Risk*, financial editor and author Peter L. Bernstein states, "The revolutionary idea that defines the boundary between modern times and the past is the mastery of risk: the notion that the future is more than a whim of the gods and that men and women are not passive before nature."

As suggested by Bernstein, the serious study of risk began during the Renaissance, perhaps with the collaboration between Blaise Pascal and Pierre de Fermat in 1654, which led to the discovery of the theory of probability, the mathematical heart of the concept of risk. In 1703, Jacob Bernouilli followed with the invention of the Law of Large Numbers ("The difference between the observed value of a sample and its true

value will diminish as the number of observations in the sample increases.") and methods of statistical sampling that still drive activities such as opinion polling, stock picking and the testing of new drugs.

Perhaps most essential to the modern techniques for quantifying risk were Abraham De Moivre's suggestion in 1730 of the structure of the normal distribution – better known as the bell curve – and the discovery of the concept of standard deviation. Together, these two concepts make up what is popularly known as the Law of Averages.

In 1875, Francis Galton discovered regression to the mean, which as Bernstein says, "explains why pride goeth before a fall and why clouds tend to have silver linings." Whenever we make a decision based on the expectation that a temporary condition will return to "normal," the notion of regression to the mean is being invoked.

And finally, in 1952 Nobel Laureate Harry Markowitz demonstrated mathematically why putting all your eggs in one basket is an unacceptably risky strategy and why diversification can be utilized to mitigate risk, a topic we have often visited.

Bumps and Bruises in Equities

Looking first at stock investing, the basic types of risk can be broken down into three categories: (1) Business Risk (2) Valuation Risk and (3) Timing Risk.

Business risk, probably the most familiar and easily understood of the three, is the potential for loss of value through competition (Montgomery Wards, Pontiac, PanAm), technology (typewriters, travel agents and telephone poles) or poor management (Enron, Global Crossing, or nearly any dot com).

Valuation risk entails the rise or fall in price in response to investor sentiment or changes in the fortunes of the company, the industry, or the overall economy. With the growth in overseas investing, the impact of long-term changes in currency valuation must also be considered. If the value of the U.S. dollar rises in relation to other currencies, the value of foreign stock shares translates into fewer dollars. Over the past two years, the converse has been true, as a weakening of the dollar has boosted returns from non-dollar denominated international stocks. As hard as it is, it is not enough to identify a strong company and buy their stock. The correct question for an investor to ask is not, "Is this company a good investment?" but rather, "Is this company a good investment at this price?"

The timing risk of equity investing is twofold. At the investor level, the risk of a forced sale in order to meet other financial obligations may prove fatal for an investment due to a short-term fluctuation in value. At the company level, even a strong stock may be adversely affected by cyclical weak economic conditions, one-time political events or natural disasters. Thus, matching

potential holding periods to specific portfolio components is critical to risk management.

The Measure of Volatility

Having identified the various types of risk associated with stock investing, it is important to examine the "measure" of risk, or standard deviation that is used to quantify volatility. Standard deviation is defined as the statistical measurement of dispersion about an average, which depicts how widely a stock or portfolio's returns varied over a certain period of time. Investors use the standard deviation of historical performance to ascertain the inherent volatility of a stock or market sector in an effort to predict the range of returns that is most likely in the future. When a stock or portfolio has a high standard deviation, the predicted range of performance is wide, implying greater volatility or risk.

In the table below, we have listed the 10-year standard deviations and annualized total returns for the benchmark S&P 500 Index along with 17 equity mutual fund categories as reported by Morningstar.

VOLATILITY vs. RETURN		
Market Category	10-Yr Std Dev %	10-Yr Ann Tot Ret %
S & P 500	15.6	8.9
Large Cap Growth	19.4	7.0
Large Cap Value	14.3	9.1
Mid Cap Growth	24.0	8.9
Mid Cap Value	15.7	11.8
Small Cap Growth	25.8	8.9
Small Cap Value	16.2	13.2
International Large Cap Growth	17.9	7.4
International Large Cap Value	15.0	9.8
International Mid/Small Cap Growth	20.5	16.0
International Mid/Small Cap Value	17.5	9.2
Emerging Market	23.8	14.5
Technology	34.9	11.8
Healthcare	18.4	6.4
Real Estate	13.9	15.1
Utilities	13.8	8.0
Natural Resources	23.7	10.1
Financial	18.2	11.6

In line with our general expectations, the volatility associated with both market capitalization and management style holds true, with small caps more volatile than mid caps, which are again more volatile than large caps. The relative volatility of the growth style vs. the value style follows the identical pattern.

Somewhat surprising, however, are the volatility measures of the international categories, where the mid/small cap sectors are remarkably similar to their domestic counterparts, while the Emerging Markets sector has been slightly less volatile than both the domestic mid and small cap growth sectors. While it is also interesting to note that the less volatile "value" style has outperformed the "riskier" growth style in all three market capitalization categories (large, mid, and small cap) over the 10-year measurement timeframe, we are enclosing an Investment Style Leadership Changes chart dating from 1992 through 2005 to reinforce the statement that "Past performance does not guarantee future results."

The Not So Fixed Income Returns of Bonds

Because of the generally conservative nature of many fixed income investments, such as money markets and investment grade bonds, many investors are not aware of the risks associated with fixed income/bond investments. The six basic risks common to fixed income strategies include (1) Interest rate risk (2) Credit or Default risk (3) Inflation risk (4) Call risk (5) Prepayment risk and (6) Reinvestment risk.

Interest rate risk simply means that as interest rates rise, bond prices decline and vice versa. This risk exists because, as rates rise, new bonds are issued with higher yields, making the outstanding bonds less attractive. The longer a bond's maturity, the greater the impact a change in interest rates

has on its price. The technical measure of this interest rate/maturity risk is referred to as the "modified duration." Duration enables an investor to easily compare bonds with different maturities and coupon rates using the following rule: with every percentage change in interest rates, the bond's value will decline (or increase) by its modified duration, stated as a percentage. For example, the principal value of a bond with a modified duration of 5 years will decline 5% for every 1% rise in 5-year interest rates. However, interim fluctuations in a bond's principal value become irrelevant when held to maturity, since the bond is redeemed at par or 100% of its face value.

Credit/Default risk is essentially the risk of default, which means that the issuer is unable to make further income or principal payments. Many individual bonds are "rated" by third party agencies such as Moody's or Standard & Poor's to help identify the creditworthiness of the issuer. The highest rating, AAA, represents the "risk free" benchmark rate generally associated with U.S. Treasuries. Bonds rated below BBB- are considered "non-investment grade" and are commonly referred to as "junk" bonds. High-yield bond mutual funds are typically comprised of a substantial percentage of sub-investment grade securities.

Investors should also be aware that tax-exempt municipal bonds are also rated with the highest quality being G.O. or General Obligation bonds backed by the taxing authority of the issuing jurisdiction, while "revenue" bonds are supported only by the income from a specific project. Inflation risk is the risk that the rate of price increases in the economy may outpace the returns associated with a bond, leading to a negative "real" rate of return. In response to this risk, variable rate bonds and U.S. Treasury Inflation-Protected bonds (TIPS, where the principal value is adjusted for increases in the inflation rate) have gained

in popularity. However, even this strategy has its shortcomings, as investors discovered when short-term rates plummeted in 2004.

Call risk is associated with those bonds that have a provision that allows the issuer to call, or repay, the bond early. If interest rates drop low enough, the bond's issuer can save money by repaying its callable bonds and issuing replacement bonds at lower coupon rates. Although the purchaser of a callable bond may receive a small return premium for assuming this risk, an early payoff can dramatically reduce the income stream upon reinvestment of the prepaid principal.

Similar to call risk, prepayment risk is the risk that the issuer of a security will repay principal prior to the bond's maturity date, thereby changing the expected payment schedule of the bonds. This is especially prevalent in the mortgage-backed bond market, where a drop in mortgage rates can ignite a refinancing flurry. When the homeowners/borrowers refinance their mortgages, the investor in the underlying pool of mortgage-backed bonds receives his or her principal back sooner than anticipated and must reinvest at the lower prevailing rates.

Reinvestment risk describes the risk of reinvesting both the principal of maturing bonds along with the cash flow of coupon interest payments in a changing rate environment. During periods of declining interest rates, investors are forced to buy new bonds at the lower current rates. Conversely, if interest rates are rising, both the maturing principal and interest payments can be "rolled over" into bonds with more attractive rates.

The Balancing Act of Risk vs. Return

While it is commonly assumed that there is always a reasonable trade-off between risk and reward – the greater the inherent risk, the higher the potential return – we believe part of our value-added management

Grant/GrossMendelsohn, LLC

comes from identifying those times when this relationship between risk and reward, or the "risk premium," becomes distorted. Today's bond market (and our resulting high-quality, short duration fixed-income strategy) is an example of such a market condition. Not only is the yield curve virtually flat (short-term rates equal to longer-term rates), the risk premiums (higher yields) associated with lower credit, and less liquid bonds have been compressed to illogical "spreads." As PIMCO chief investment officer and bond management guru Bill Gross recently observed, "When one can buy a U.S. agency guaranteed FNMA mortgage at a higher yield than almost all emerging market debt, then there exists an irrational pricing of credit."

Our challenge at Grant/GrossMendelsohn is to construct investment strategies that optimize potential returns, capturing opportunities and dodging pitfalls, in order to reach stated investment goals. Changes in market conditions as well as in the financial status or objectives of our clients make this a dynamic on-going process. Regardless of where you invest, there are always risks involved. However, familiarity with the many types of risk and the techniques of risk measurement are central to the process of both setting and achieving financial success, all within the confines of each person's "comfort zone."

Christopher E. Grant

Grant/GrossMendelsohn, LLC

36 South Charles Street, 18th Floor

Baltimore, MD 21201

Office: 410 685-9685

Facsimile: 410 752-1148

E-mail: chris@noloadria.com