

Exposing the Low Volatility Anomaly

A Case for Low Volatility Investing

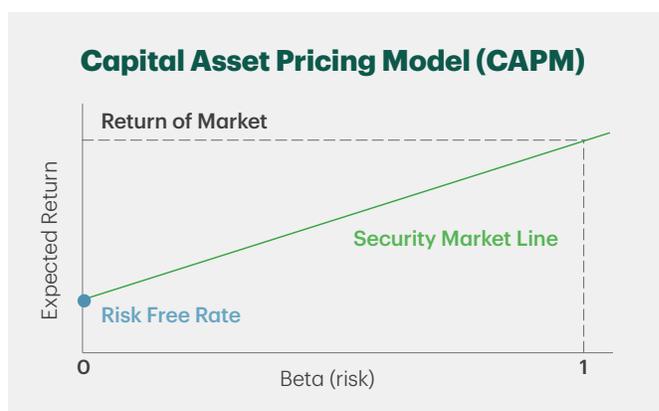
The relationship between risk and reward is as old as time and something most people, consciously or not, evaluate every day. Whether it's skydiving, jay-walking or trying a new dish, a decision is always made that weighs the "pros and cons" relating to risk and reward.

The same is true in the investing world. The risk/return tradeoff is the relationship between the amount of return gained on an investment and the amount of risk undertaken in that investment. Generally speaking, the greater the risk, the greater the reward potential, and the lower the risk, the lower your return is likely to be.

A Brief History Lesson on Risk

Put plainly, most investors like generating returns but dislike taking risks, which leads to a natural assumption that competition among investors would lead to a positive relationship between an asset's level of risk and its expected return. This assumption is the basis for most theories of expected returns in finance, and provided the foundation for conventional thinking about risk which began with Modern Portfolio Theory and the Capital Asset Pricing Model (CAPM).

The CAPM says that investors should look at their whole portfolio, not just individual stocks. Beta measures the risk contribution of a stock to the risk of the market portfolio. Therefore, there should be a linear trade-off between expected return and beta. However, while a large number of academic researchers have analyzed historical stock prices to find supporting evidence, most of their empirical findings suggest that **risk has not been rewarded over full market cycles.***



When Is Equity Risk Rewarded?

Historically, based on our research, risk has not been rewarded within equity markets. In fact, over complete market cycles, the less volatile stocks (i.e. less 'risky' stocks) have delivered returns that, on average, exceed those of the more volatile – or 'riskier' – stocks (**figure 1**). Although this finding flies in the face of decades of conventional thinking represented by Modern Portfolio Theory, this pattern has become known as the 'low volatility anomaly' and led to the development of low volatility investment strategies.

While **Figure 1** summarizes returns averaged since 1978, the returns hide significant patterns that depend on the strength and direction of markets. For example, investors who hold more volatile equities have historically been rewarded during strong market rallies. **Figure 2** provides evidence of this and shows that investors were rewarded for bearing risk during strong market rallies.

In **Figure 3**, we observe the reverse pattern during significant market downturns. More volatile equities underperformed less volatile equities during the periods observed. The majority of the time (65% of months during our sample period), markets are characterized by moderate market moves, and we found no economically significant difference between the average returns from the most and least volatile equities. This is illustrated in **Figure 4**.

Although they run counter to the main prediction of the CAPM, the stylized facts shown in **Figures 1** through **4** are consistent with evidence published in academic and professional literature, namely that:

- Higher volatility equities have not generated higher returns than less volatile equities over the long run.
- Higher volatility equities have only generated higher returns during strong market rallies (24% of the time). During "normal" market conditions, they generated similar returns to lower volatility equities, and during bear markets, they generated more negative returns than lower volatility equities.

Figure 1: Source: Standard & Poor's. As at March 30, 2019.
Note: Quintiles represent equally-weighted portfolios rebalanced monthly from equities sorted by trailing 60 months standard deviation (minimum of 20 months for partial data). Compounded annual returns on S&P 500 constituents. Risk is computed as the standard deviation of monthly quintile portfolio returns over the entire period. For illustrative purposes only.

Figure 2, 3, 4: Source: Standard & Poor's. As at March 30, 2019.
Note: Quintiles represent equally-weighted portfolios rebalanced monthly from equities sorted by trailing 60 months standard deviation (minimum of 20 months for partial data). Average monthly returns on S&P 500 constituents from August 1978 through March 30, 2019. For illustrative purposes only.

Figure 1: S&P 500 Index Equity Returns and Risk

August 1978 - March 2019

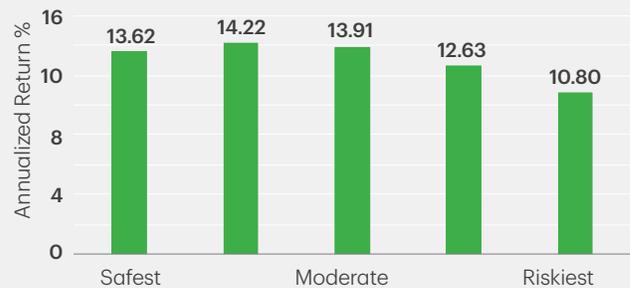


Figure 2: Average Monthly Returns During Strong Market Rallies

Average return > 4% (occurs 24% of months)

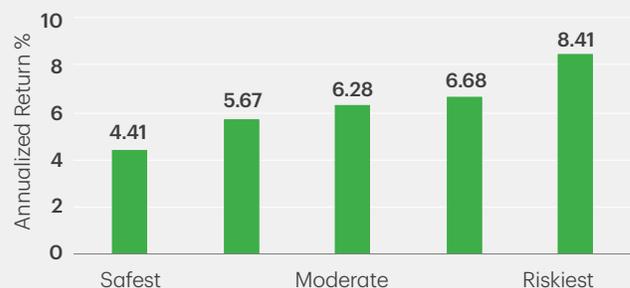


Figure 3: Average Monthly Returns During Significant Market Declines

Average return <=-4% (occurs 11% of months)

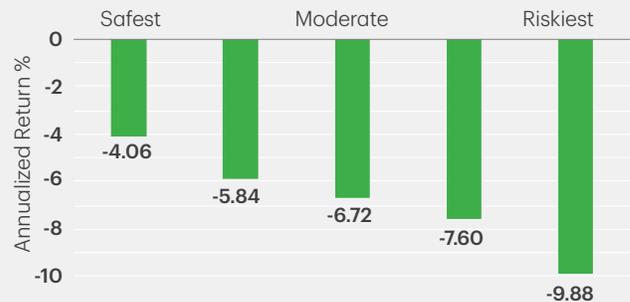


Figure 4: Average Monthly Returns During "Normal" Markets

Average return +/- 4% (occurs 65% of months)



Why have riskier equities not delivered higher returns?

Most explanations originate from the field of behavioural finance. One hypothesis is that investors have been willing to “overpay” for volatile equities because they over extrapolate the future growth of popular equities. Another explanation is that many investors are drawn to the lottery aspects of volatile stocks with positively skewed returns. What’s more, many investors are overconfident about future prospects.

Overconfidence is more important for highly uncertain volatile stocks than for more established defensive equities. Even cool-headed fund managers can be drawn to volatile stocks if they believe they can pick winning stocks that will give them an edge versus their cap-weighted benchmark indices. However, the evidence shows that it would be more efficient to build a portfolio that minimizes expected return volatility by maximizing the Sharpe ratio (the measure of return per unit of risk).

Why take on additional risk if it’s seldom rewarded?

Low volatility equities can offer higher risk-adjusted returns than cap-weighted equities. This quality alone should make low volatility equities attractive to most investors. However, low volatility equities do not outperform in all market conditions.

They tend to underperform during strong bull equity markets, but outperform during severe bear markets. In other words, the lower level of volatility dampens both the highs and the lows of returns.



*Black, Jensen & Scholes (1973)

The statements contained herein are based on material believed to be reliable. Where such statements are based in whole or in part on information provided by third parties, they are not guaranteed to be accurate or complete. The information does not provide individual financial, legal, tax or investment advice and is for information purposes only. Graphs and charts are used for illustrative purposes only and do not reflect future values or changes. Past performance is not indicative of future returns. All products contain risk. Important information about the pooled fund trusts is contained in their offering circular, which we encourage you to read before investing. Please obtain a copy. The indicated rates of return are the historical annual compounded total returns of the funds including changes in unit value and reinvestment of all distributions. Yields, investment returns and unit values will fluctuate for all funds. All performance data represent past returns and are not necessarily indicative of future performance. Pooled Fund units are not deposits as defined by the Canada Deposit Insurance Corporation or any other government deposit insurer and are not guaranteed by The Toronto-Dominion Bank. Mutual fund strategies and current holdings are subject to change. TD Emerald Funds are managed by TD Asset Management Inc. sCertain statements in this document may contain forward-looking statements (“FLS”) that are predictive in nature and may include words such as “expects”, “anticipates”, “intends”, “believes”, “estimates” and similar forward-looking expressions or negative versions thereof. FLS are based on current expectations and projections about future general economic, political and relevant market factors, such as interest and foreign exchange rates, equity and capital markets, the general business environment, assuming no changes to tax or other laws or government regulation or catastrophic events. Expectations and projections about future events are inherently subject to risks and uncertainties, which may be unforeseeable. Such expectations and projections may be incorrect in the future. FLS are not guarantees of future performance. Actual events could differ materially from those expressed or implied in any FLS. A number of important factors including those factors set out above can contribute to these digressions. You should avoid placing any reliance on FLS. Index returns are shown for comparative purposes only. Indexes are unmanaged and their returns do not include any sales charges or fees as such costs would lower performance. It is not possible to invest directly in an index. TD Asset Management Inc. is a wholly-owned subsidiary of The Toronto-Dominion Bank. All trademarks are the property of their respective owners.

® The TD logo and other trade-marks are the property of The Toronto-Dominion Bank.

(0519)