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What is beta?

You may have heard your Client Advisor discuss the concept of investing in low-beta stocks. You may even have low-beta stocks in your existing portfolio and may wonder what they are and what makes them low beta.

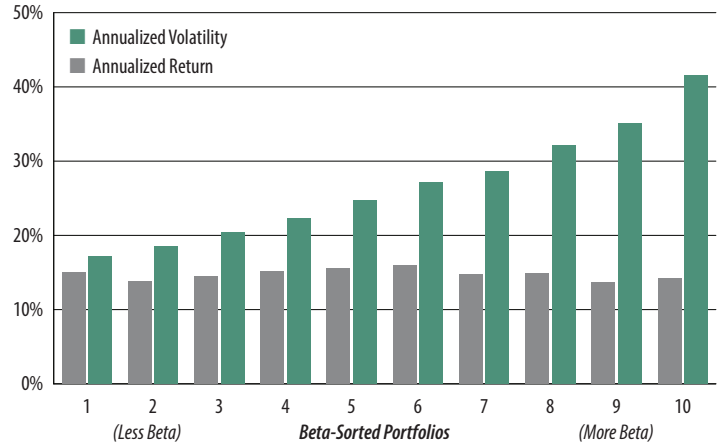
Low-beta stocks, sometimes referred to as "defensive" or "quality" stocks, are stocks that generally exhibit lower-than-average sensitivity to movements in the broader market as represented by an index (i.e., the S&P 500 Index). A stock with a beta of exactly 1 moves point for point with the broader market. Subsequently, when the broad market rises 1%, the value of a stock with a beta of 1 would likewise move up 1%. In this sense, beta is a measure of risk since it's basically just a measure of volatility relative to the market.

If we follow this logic through to its logical conclusion, it means that higher returns can be earned by investing in higher beta stocks. However, with these higher returns comes higher risk (volatility). Indeed, the Capital Asset Pricing model (CAPM) constitutes one of the pillars of modern financial theory and is built exclusively around the concept of beta as a predictor of expected returns. So much so that generations of MBAs, CFAs, CPAs, and CFP®s were taught the CAPM as gospel. The model's attractiveness lies in its simplicity since it directly stipulates that returns are a direct function of beta (and only beta). Want higher returns? Load up on more beta. Want less risk? Reduce your beta.

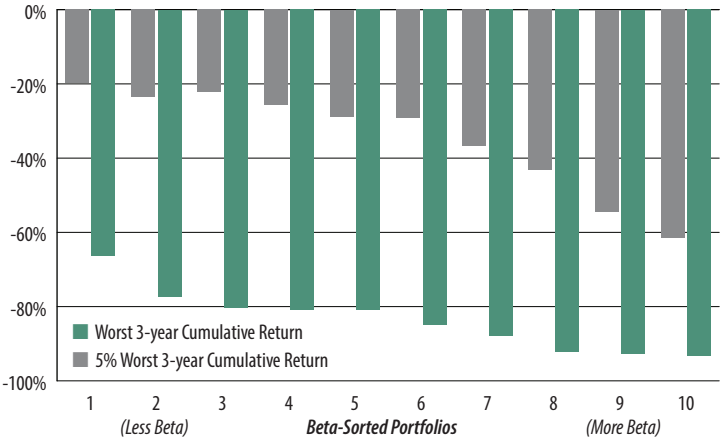
If only investing were so simple. Unfortunately for the CAPM world view, mountains of real-world and academic evidence suggest quite strongly that beta is not the only predictor of returns. In fact, there is significant evidence that beta should be avoided if investors wish to earn higher returns. This is a direct contradiction of the CAPM's prediction that higher beta results in higher long-term returns. Let's examine the charts that shows the returns on 10 groups of stocks, ranked by beta from left to right. Those on the left have the least beta; those on the right have the most.

Notice anything interesting? While beta rises from left to right (the green bars), stock returns (the gray bars) don't seem to change much. This tells us that positive returns don't seem to be related to a stock's beta. Notice anything else? In down years, stocks with lower beta actually lose less than high-beta stocks! Hence the characterization of low-beta stocks as "defensive" stocks. The lesson? Since there appears to be no upside to owning high-beta stocks and reduced risk with owning lower-beta stocks, it makes logical sense to own stocks with lower-than-average beta.

Less Equity Beta, Same Equity Premium…
January 1927 – June 2011



…and Smaller Equity Trails
Worst 3-year cumulative returns, January 1927 – June 2011



Source: AQR Capital Management. Data includes all available common stocks on the Center for Research in Security Prices (CRSP) from January 1927 to June 2011. Betas are calculated with respect to the CRSP value-weighted market index.

Where does beta come from?

While financial types generally solve for a firm's beta using statistics and scary Greek formulas,[1] a firm's beta has its genesis in something much more straightforward: the relative amount of debt and equity that makes up the firm's balance sheet. This is logical since all firms are basically made up of debt and equity.

Firms generally do two things to get the money they need to finance operations: they borrow money from lenders and they issue stock to shareholders. In return, stockholders expect cash flows from dividends; lenders expect interest payments. To the firm, the return paid to stockholders is the "cost of equity" and the return paid to lenders is the "cost of debt". Together, the cost of debt and cost of equity are simply the costs of renting money. In the finance world, we call this the "cost of capital". We can state a firm's debt and equity

continued…

as a ratio, such as "debt to equity". A firm's total assets always equal its debt plus equity. This is a basic (though sacred) accounting formula that is pounded into the heads of aspiring CPAs everywhere.

The beta of a firm's equity basically comes from its debt-to-equity ratio.[2] The value of a firm's equity is the market value of its outstanding stock. The value of a firm's debt is basically the book value of all its outstanding bonds. The higher a firm's debt to equity (more debt, less equity), the higher the beta of the firm's stock (all other things held constant). Less debt relative to firm equity results in a lower beta.

How does Mercer Advisors invest in low-beta stocks?

Mercer Advisors invests in low beta stocks either directly or through institutional-class mutual funds. For example, many clients own the AQR U.S. Large Cap Defensive Style Fund (AUEIX) and AQR International Defensive Style Fund (ANDIX). Both seek to invest in stocks with lower-than-average betas. AUEIX has returned +2.34% YTD and ANDIX has returned +1.70% YTD,[3] despite a volatile start to the year.

This is not to say that advisors and clients should abandon the Capital Asset Pricing Model and load up exclusively on low-beta stocks. Diversification is still critical in any investment portfolio and that includes investing across many different types of stocks. It's also important to remember that the CAPM is only a model; models are by definition flawed since they are oversimplifications of the real world. Further, research has evolved the CAPM quite significantly in the five decades since its birth in the halls of academia. But despite all its flaws, the many investing lessons we continue to learn from this simple, yet elegant model continue to help investors earn superior risk-adjusted returns. And as always, Mercer Advisors continues to stay at the very cutting edge of scientific developments in finance to ensure that everything we do in your investment portfolio is always academically validated, institutional caliber, and implemented in the most cost-effective manner possible.

NOTE: *We welcome your feedback and questions. Feel free to send us an email at CIOForum@merceradvisors.com.*

Eye on the Week Ahead

There's plenty of information available this week. Reports on producer prices, retail sales, industrial production, and the Fed's announcement from its latest meeting are sure to have some influence on the equity markets.

3/15: Producer Price Index, Retail Sales, Business Inventories, Housing Market Index

3/16: Consumer Price Index, Housing Starts, Industrial Production, FOMC Meeting Announcement

3/17: Job Openings and Labor Turnout Survey (JOLTS)

3/18: Consumer Sentiment

Sources: J.P. Morgan Asset Management, Bloomberg, FactSet, Broadridge/Forefield. [1]The statistical formula for beta is: $\beta_i = \frac{COV_{im}}{\sigma_m^2} = \frac{\sigma_i}{\sigma_m} x \rho_{im}$ [2]Formally, a firm's equity beta is defined as: $\beta_E = \beta_A + \frac{D}{E}(\beta_A - \beta_D)$ [3]As of close of business on March 11, 2016.

Market/Index	52-week High	52-week Low	Prior Week	3/11/16	Week Change	YTD Change	1-year Change
DJIA	18351.36	15370.33	17006.77	17213.31	1.34% ▲	-0.53% ▼	0.20%
NASDAQ	5231.94	4209.76	4717.02	4748.47	0.69% ▲	-4.91% ▼	-0.92%
S&P 500	2134.72	1810.10	1999.99	2022.19	1.19% ▲	-0.56% ▼	1.30%
VIX	53.29	10.88	16.86	16.50	-2.14% ▼	-9.39% ▼	-2.19%
Russell 2000	1296.00	943.10	1081.94	1087.56	0.57% ▲	-4.00% ▼	-9.25%
MSCI EAFE	1956.39	1471.88	1628.83	1644.94	1.03% ▲	-3.73% ▼	-6.59%
MSCI ACWI	443.98	351.25	387.33	391.75	1.19% ▲	-1.55% ▼	-4.10%
Euro/USD	1.17	1.05	1.10	1.12	1.37% ▲	2.71% ▲	5.77%
10 Year Treas.	2.48%	1.66%	1.88%	1.98%	10 bps ▲	-29 bps ▼	-13 bps
Oil (WTI)	61.83	26.21	35.92	38.50	7.18% ▲	3.94% ▲	-20.07%
Gold	1277.50	1049.40	1277.50	1264.75	-1.00% ▼	19.32% ▲	9.98%

Source: Bloomberg