Quality Watch

Fourth Quarter 2009

Managing Risk When Risk Metrics Fail

Guillermo R. Araoz, CFA, Director of Equity Research for Morgan Asset Management

Key Highlights

- "Beta," a key market indicator of risk, can be inaccurate in periods of market euphoria or panic.
- Before the recent financial crisis, beta indicated that financial stocks were among the lower risk segments in the market. It could not have been more wrong.
- Morgan Asset Management employs fundamental analysis to understand risk.

Executive Summary

Risk is one of the most important and most elusive concepts in finance. During the happy days of bull markets, investors tended to ignore risk. However, bear markets have a way of sobering the investment community by reminding people that losses can mount during market turmoil. The year 2008 was just such an event. If history is an accurate guide, investors will soon forget the lessons of the bear market and chase risky assets once again. A savvy investor will maintain consistency of approach regardless of how the crowd is behaving. Therefore, risk monitoring should be a standard practice for every investor in any market.

In this edition of Quality Watch, we outline the theoretical importance of "beta," the most prevalent risk metric. We then discuss the practical problems of using beta as a measure of risk. These problems are very real and very hazardous to your wealth. Relying on beta as a measure of risk can steer an investor toward risky securities at exactly the wrong time. We will use the recent financial crisis as a case study of this problem. Beta was signaling that financial stocks were low risk just before they crashed. Since risk cannot be estimated with one simple calculation, Morgan Asset Management employs a staff of research analysts who apply fundamental analysis to help clients. We illustrate how our approach led us to reduce exposure to commercial banks and other financials before the worst hit.

The Theoretical Importance of Beta

There are two kinds of risk that investors need to consider. There are risks that can be eliminated from a portfolio through diversification and risks that cannot. By managing well diversified portfolios, we can mitigate the first kind of risk. After that, portfolio managers should focus on those risks that cannot be eliminated through diversification. That risk is called market risk and it explains the extent to which the value of an investment is affected by changes in overall market values. Market risk is measured by a statistical calculation known as "beta[1]".

Beta measures the sensitivity of a stock to the overall market. According to theory, a stock with a beta of 1.0 will move in tandem with the market. A stock with a beta greater than 1.0 will rise more than the market during upswings and will fall more than the market during downswings. A stock with a beta less than 1.0 will not rise as much when the market rises and will not fall as far when the market falls. If you are managing a portfolio of stocks, you can calculate the weighted average beta for all the stocks that you hold and find the portfolio beta. This metric should help portfolio managers understand risk. Portfolios tilted toward lower beta securities should offer more downside protection but less upside opportunity than the market.

Beta is calculated using the volatility of a stock over a certain period and comparing that volatility to the market in the same period. According to efficient market theory, stock prices are an accurate reflection of all available and relevant information. Therefore, changes in stock prices reflect the amount of new information hitting the market that can impact future earnings. Under the assumption of an efficient market, beta should provide investors with all the relevant information necessary to estimate the riskiness of a security or a portfolio. Unfortunately, risk management is not so simple.

The Practical Problems with Beta

There are a host of troubles associated with beta. First, calculating beta is not an easy exercise because it takes into consideration various assumptions. Second, beta can change over time. Third, during periods of market inefficiency such as booms or busts, beta estimates can be an inaccurate measure of risk.

Problems with Calculating Beta

Since beta looks at the volatility of a stock and the volatility of the market, you need to decide on a time period in order to calculate it. The beta of a stock can be very different if you calculate it over a one-, three-, or five-year period. Also, an assumption must be made about how to represent the market. You can assume that the market is the Russell 1000 index, the S&P 500 index, all stocks on the New York Stock Exchange (NYSE) or something else entirely. The assumptions made when calculating beta can yield different results. Because of these calculation assumptions, different data providers often present different beta figures for the same stocks. Academic research tends to favor using five years of monthly data that compares stocks against a value-oriented benchmark. This rule of thumb has been tested and called into question[2]. For the purposes of this paper, we define beta over a five-year period using the NYSE as a proxy for the market.

1 Students of finance will recognize beta as a central element of the Capital Asset Pricing Model. Beta is calculated as the covariance of a stock to the market divided by the variance of the market. Beta is a standardized measure of systematic risk.

2 The Relative Efficiency of Beta Estimates, Jan Bartholdy, Social Science Research Network, Aarhus School of Business Department of Finance, March 16, 2001.

Beta Can Change Over Time

Once you overcome the calculation obstacles with beta, you find that beta can be a very unstable metric. A recent academic paper studied swings in beta for 3,813 companies and found large fluctuations in beta figures even when grouped by industry.[3] Under the assumption that stock prices are rational, changes in beta should be explained by changes at the company. For example, the company may be undergoing a high risk acquisition or may be taking on an unusual amount of debt. If beta were to change for these reasons, it would be an accurate reflection of the underlying risk. However, beta changes rapidly even for companies that are not undergoing significant internal events. Also, industry betas would be fairly stable in an efficient market. A diverse set of companies engaged in a variety of end markets would not undergo significant changes in their fundamental risk characteristics frequently. Yet beta seems to suggest that these changes occur all the time. Clearly, something else is going on.

3 *Are Calculated Betas Worth For Anything?, Pablo Fernandez, Social Science Research Network, IESE Business School, October 16, 2008.*

Market Inefficiency Can Impact Beta

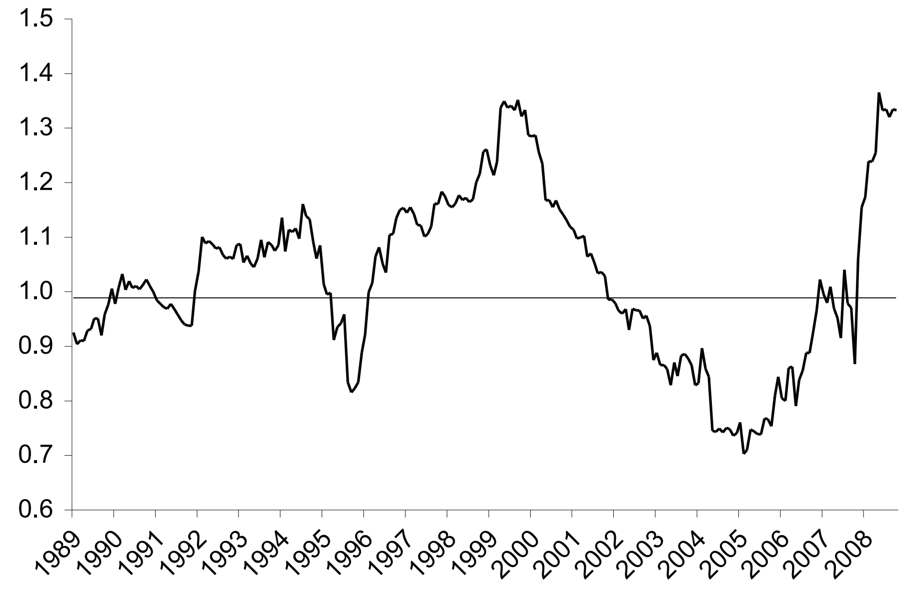
The calculation of beta looks at historical volatility of a stock and the market. In periods of investor euphoria, stock prices can reach extreme levels that are unsubstantiated by the underlying earnings potential of the company. A steady stream of optimistic buyers can reduce the observed volatility of a stock. As volatility falls, the calculated beta falls as well. This dynamic can give the impression that a stock is becoming less risky even as the risk of owning it is increasing. The same is true in periods of market panic when volatility becomes extreme and betas rise. The recent financial crisis is a perfect case study for this phenomenon.

How Beta Patterns in Financial Stocks Led Unwary Investors Astray

The recent financial crisis built itself slowly over the years through an excessive appetite for debt from households, financial institutions and government entities. Investors participated by lapping up risky securities such as low grade mortgage backed securities (MBS) and the stocks of highly leveraged banks or brokerages. The market was liquid and investors were overly optimistic about returns. Investors underappreciated the amount of risk that they were taking. With the benefit of hindsight, it seems obvious that the market was out of balance. However, investors who focused on risk metrics such as beta were given false signals. Beta gave the impression that risk was decreasing!

Figure 1 shows the median beta of stocks in the financial services sector of the S&P 500. There are roughly 100 firms in this group that represent very different industries such as Commercial Banks, Insurance, Brokerage, Asset Management and Real Estate Investment Trusts. If the market were highly efficient, we would expect that an aggregate of a diverse group of stocks from different industries would show fairly stable beta metrics over time. However, the illustration in Figure 1 contradicts the efficient market theory. The chart shows that the beta of this large and diverse group can be quite unstable. Beyond the instability of beta, it is apparent that beta decreased significantly from 2000 to 2006. Beta was signaling that the risk in financials was

Figure 1: Median Beta of Financial Services Stocks in the S&P 500



Source: FactSet Research Systems, Inc.
Note: Beta is calculated using 5 years of monthly data and the NYSE as a proxy for the market.

low. We now know that these were the years of an incredible increase in leverage based primarily on skyrocketing home prices. Beta was not just inaccurate, it was wrong in the most disastrous way possible. The financial crisis broke in July 2007 when the median beta in the financial services sector of the S&P 500 was a "safe" 0.89. Only after the problem was apparent and financial stocks collapsed did beta indicate that risk was present. Clearly, an investor who relies on beta to measure risk will get burned, no matter what the textbooks say. What then is the solution? How should an asset manager monitor risk?

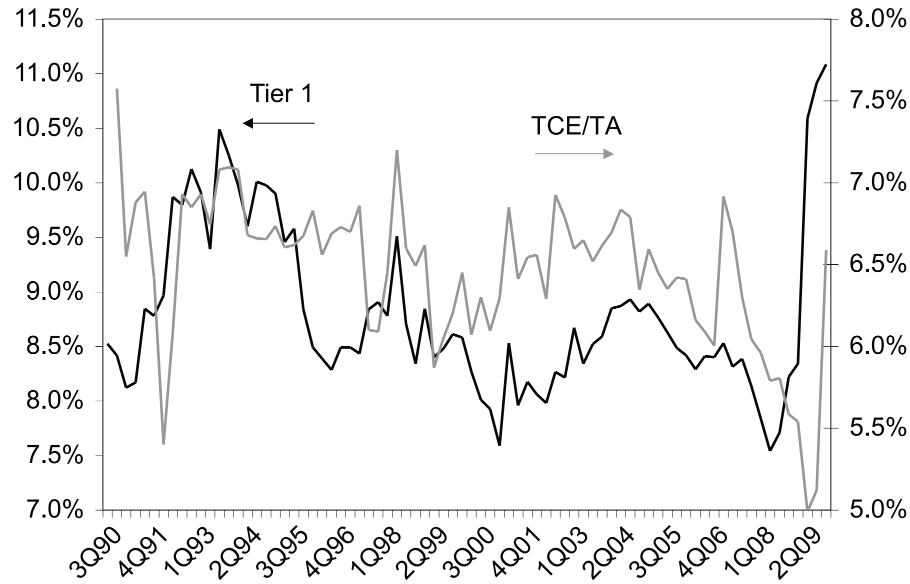
Managing Risk Requires Fundamental Analysis

In order to effectively manage the risk of a portfolio, there is no substitute for a detailed fundamental understanding of the companies owned. A well-diversified portfolio will hold stocks from various sectors of the market. This requirement demands that portfolio managers have a detailed understanding of diverse businesses. That is a challenging task. Frankly, no individual can understand the specifics behind Energy, Retail, Transportation, Pharmaceuticals and Semiconductors at the same time. To overcome this obstacle, Morgan Asset Management employs a full time staff of research analysts dedicated to different areas of the market. Our task is to understand the companies in detail and participate in the construction of a well-diversified portfolio that takes risk management into consideration. For the sake of illustration, we will follow the path of financials further.

The financial crisis impacted the stock prices and earnings of a variety of financial services companies. Commercial banks were largely at the heart of the mess. Even as beta was indicating that risk was decreasing, the balance sheet metrics of banks were deteriorating. Two indicators that we watch are the Tangible Common Equity to Tangible Assets Ratio (TCE/TA) and Tier 1 Ratio. TCE/TA takes out intangible assets such as goodwill and compares assets to equity. Tier 1 measures the capital adequacy of a bank relative to the riskiness of assets. These fundamental metrics take a much higher priority in our analysis than a volatile beta statistic.

As shown in Figure 2, both TCE/TA and Tier 1 were drifting lower from the 1990s until the onset of the credit crisis. These trends raised red flags in our analysis and prompted us to look more closely at the banking environment. We noticed that home values began to decline in 2006. Since home prices are a key source of collateral for the banks, declines in these values indicate higher risk. Finally, the interest rate environment was unfavorable for lenders. Banks borrow in the short term markets and lend in the long term markets. If short term interest rates rise above long term rates, banks have a difficult time generating profits from lending. In isolation, these indicators are not enough to form an opinion. Taken together, however, they paint a picture of increasing risk. As a result, Morgan Asset Management had been reducing exposure to the commercial banking industry in the years leading up to the crisis. Although we did not anticipate the magnitude of the financial crisis, we were able to help protect client assets through these risk management techniques.

Figure 2: S&P 500 Commercial Banks TCE/TA and Tier 1 Ratios



Source: KBW Research, SNL Datasource, Standard & Poor's, Morgan Asset Management
Note: TCE/TA measures Tangible Common Equity to Tangible Assets; Tier 1 Ratio measures Paid-In Surplus, Retained Earnings, Common & Preferred Stock, and Minority Interests less Intangible Assets and Identified losses versus a risk-weighted Balance Sheet. Both measures are indicators of balance sheet strength among Commercial Banks.

Conclusion

Investing would be very simple in an efficient market. If the market were an accurate gauge of all relevant information, then stock prices and betas would be reasonable at all times. Technology bubbles, currency turmoil and financial crisis would be extremely infrequent events. Unfortunately, the real world is riddled with these shocks and they are unlikely to abate. Investors who rely on simple metrics such as beta will get burned again. There is simply no substitute for old fashioned research. An investor must have an in-depth understanding of the companies they own. There are no shortcuts. At Morgan Asset Management, our team employs a fundamental quality-oriented approach intended to generate above market returns for clients while managing risk.

About Morgan Asset Management

Morgan Asset Management is an active investment manager focused on achieving long-term investment goals for our clients through diversified, high-quality portfolios. We offer a variety of domestic fixed-income and equity strategies, as well as several liquidity/cash management products.

Our proven philosophy and established processes give us consistent long-term performance. We are committed to building long-term relationships by providing enhanced performance and excellent client service. We have the ability to customize portfolios to meet individual client needs and objectives.

Through our relationship with Regions Morgan Keegan Trust, we are proud to serve corporations, public funds, healthcare and insurance companies, educational institutions, Taft-Hartley plans, endowments and foundations, employee benefits, defined contributions and retirement plans and individuals. We have offices throughout 16 states and are able to provide superior local service to all of our clients.

We look forward to serving you. For more information, please contact us at 1-866-917-8730.

About the Author

Guillermo R. Araoz, CFA, *serves as the Director of Equity Research for Morgan Asset Management and joined Regions Financial in 2003 after an eight-year banking career on Wall Street. Before Regions, he worked in the Investment Banking Division of Goldman Sachs evaluating high-tech start-ups that served the banking industry. Prior to Goldman, Guillermo worked for JP Morgan in the Economic Research and Investment Banking Departments. He holds an MA from the Johns Hopkins School of Advanced International Studies and a BA in Economics from the University of California, Davis. Guillermo is also a CFA charterholder and member of the Alabama Chartered Financial Analyst Society.*

Morgan Asset Management