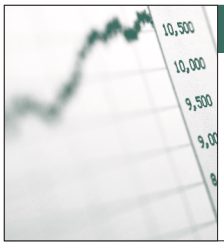

Insights on...

TRANSITION MANAGEMENT

A REVIEW OF MARKET VOLATILITY AND IMPLICATIONS WHEN RESTRUCTURING ASSETS

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The late economist Hyman Minsky proposed that periods of stability and prolonged prosperity lead to increased risk taking. Eventually, this increased appetite for risk, he believed, brings about periods of instability. His theory, called the financial instability hypothesis, asserted that market participants undertake increasingly speculative positions and utilize more and more leverage when times are good. Eventually, a tipping point is reached where borrowers' cash flow is no longer sufficient to service the debt. Often this is also accompanied by the intervention of regulators to contain such speculation in the form of increased interest rates or other regulation. Borrowers will start to liquidate their positions to cover their loans, credit tightens, and asset values collapse. This situation has been referred to as a Minsky moment.

The primary tenet of Minsky's theory is that business cycles are not necessarily the result of external shocks to the system. Rather, business cycles and market fluctuations are a result of normal dynamics inherent to the capitalist system as participants seek efficient use of capital and compete for returns. A low-risk environment encourages more risk taking. This, in turn, leads to more speculation and use of debt. Once the Minsky moment is reached and assets are sold down, the market eventually returns to a low-risk environment and the process starts anew. Minksy did not believe that the economy is ever in a state of equilibrium, but rather is constantly moving from stability to instability and back.[i]

Minksy's financial instability hypothesis would therefore suggest that volatility, which is a measure of risk, is also cyclical. Periods of stability would exhibit periods of low volatility, but as risk increases so too does volatility. Regardless of whether or not you subscribe to his theory, it has some interesting connections to the markets in recent years, including the subprime mortgage crisis in the United States. And there does seem to be a connection between volatility and the cycle that Minksy suggests.

MEASURING VOLATILITY

The key measure of volatility in the U.S. equity markets today is the Volatility Index (VIX). VIX is an indication of near-term volatility as implied by the price of S&P 500 Index Options (SPX) with 30 days left to expiration. The calculation of VIX today uses SPX options contracts with a variety of strike prices, some in the money and some out of the money. The VIX is often referred

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to as the investor fear gauge. This is because the VIX tends to rise during periods of increased market tension and risk.

Predicting volatility is difficult. Using volatility to predict markets is even more difficult, especially since it typically lags initial market declines. However, there are two important observations on volatility that can be made. The first is that an examination of VIX over the past 15 years illustrates that volatility tends to be cyclical in nature. Periods of heightened volatility have been followed by periods of stability. Herein lies one of the connections with Minsky's theory.

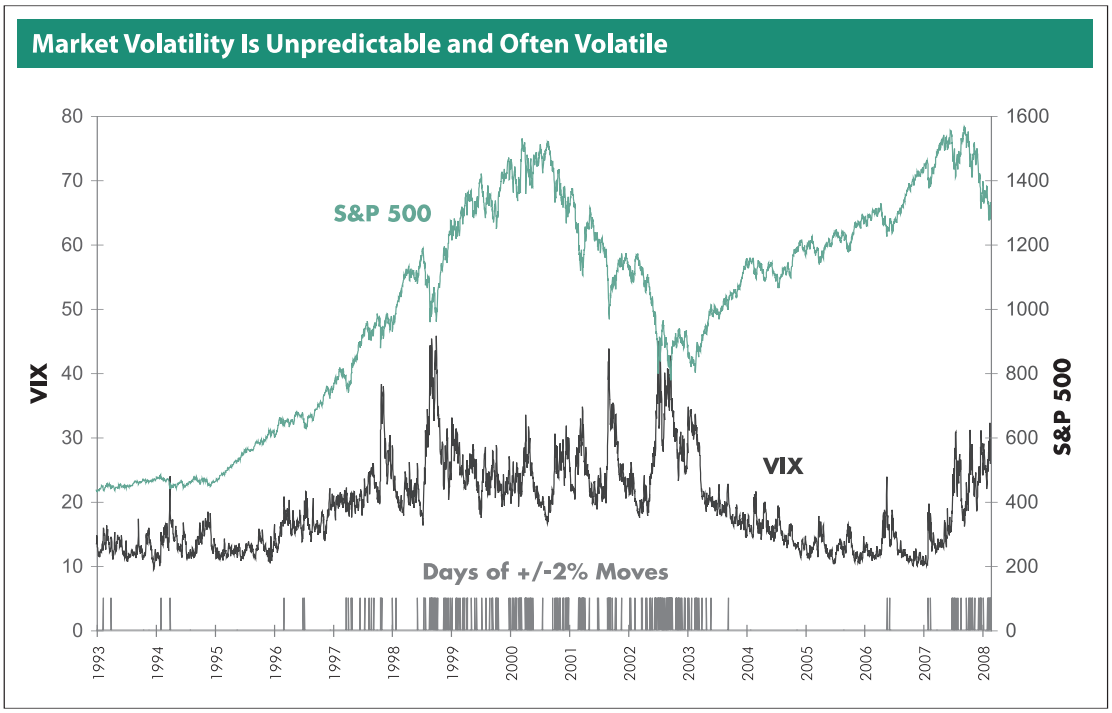
Much of the bull market run in the 1990s was characterized by relatively low volatility. Over a five-year period starting in 1992, the S&P 500 Index closed 2% higher or 2% lower than the previous day's close only seven times (less than 1% of the time), and the VIX averaged just over 14 during this time. Conversely, the three years spanning 2000 to 2002 witnessed 132 such days of +/-2% moves (about 13% of the time) and a VIX average of almost 25. The peak of volatility occurred in 2002. During the year, the S&P 500 closed 2% higher or lower on 53 occasions (21% of the time, or one in every five trading days, on average). Volatility then decreased sharply over the next four years until picking back up in 2007.

Days of +/-2% Moves in the S&P 500

Year	+/- 2% Days	Total Days	Pct.	VIX Average
1992-1996	7	1265	1%	14.17
1997-1999	60	757	8%	24.12
2000-2003	132	1004	13%	24.58
2004-2006	2	756	0%	13.70
2007-2008	25	296	8%	18.82

Data from Bloomberg, L.P.

The other observation that can be made is that volatility itself is volatile. During periods of cyclically low volatility, there were still some instances where the VIX would spike. One such time occurred in May 2006 during an otherwise stable market environment. Likewise, volatility levels sometimes drop temporarily in a highly volatile market. Perhaps the best recent example is the drop in the VIX amid stable market conditions during the late summer of 2000, at the peak of the market and inconveniently just before the start of a three-year bear market. This provides a clear illustration of the poor predictive quality of volatility.



Data from Bloomberg, L.P.

THE IMPACT OF VOLATILITY

Volatility is critically important in the context of restructuring and transitioning assets, as the costs from unexpected market movements can dwarf all the other costs combined. The potential costs arising from volatility when trading assets will vary from situation to situation. A shift from one asset class to another will inherently be more risky than a restructure within the same asset class. Volatility has greater implications when transitioning among portfolios or markets where the correlation is low. Liquidations to raise cash also take on an added element of risk because cash has essentially a zero correlation to most investments.

Many risk models and systems have been developed to estimate these costs, which are often referred to as opportunity cost or volatility cost. The pre-trade analysis typically incorporates these cost estimates. There are several challenges in order to accurately quantify the risk from market volatility. The first hurdle is that risk modeling relies in part upon past data and market observations. Volatility is unpredictable and often volatile. It becomes even more unpredictable as risk increases. Therefore, historical data often proves to be a poor indicator of what the future will hold. During periods of increasing or decreasing volatility, these models are susceptible to further errors as a result of the cyclical nature of risk.

The second problem encountered with most risk models is that a certain measurement threshold is used. The most widely used threshold is one standard deviation. A volatility cost

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estimate using one standard deviation will only hold true 68% of the time even if the calculation is accurate to begin with. This means that 16% of the time, the realized costs from volatility will be higher, and 16% of the time, costs will be lower than the estimate. Thus, actual costs from volatility will, on average, be higher than expected in approximately one out of every six days.

A further complication is that using conventional probability theory in this manner assumes that market volatility will be normally distributed (as depicted on a bell curve). However, most analyses of volatility in the financial markets indicate that extreme market movements happen more frequently than the efficient market theory would suggest. Market volatility tends to have larger tails than a normal distribution curve. One extreme example is the market crash of October 19, 1987, when the market fell 20% in one day. This represents a 20 standard deviation event, which should not happen in over 4 billion years if market returns were normally distributed.[ii] In other words, the chance of extreme volatility is perhaps even greater than probability theory would estimate. Adjusting risk models to reflect this anomaly is challenging and inexact.

MANAGING VOLATILITY

Despite these challenges, the first step in managing volatility when transitioning assets is to calculate the potential costs using the best risk models available. The mistake often made is that the output from these models is frequently relied upon without looking back and without additional consideration. To further manage volatility, there are additional steps that can be taken that will assist risk management in any market, no matter how volatile.

Identify the Key Contributors

Volatility can be broken down into three specific components: market risk, common factor risk, and security specific risk:

- Market risk represents the general exposure of a portfolio to a particular asset class. A portfolio with a higher beta, which is a measure of risk compared to the overall market, can be expected to be more volatile. A portfolio with a large portion of cash holdings will tend to be less volatile. The portfolio benchmark is also a driver of market risk.
- Common factor risk arises from exposure to particular characterizations or subgroups within the portfolio. Overexposure to a sector or style would be examples of common factor risk. Other drivers include capitalization, market, currency, and country.
- Security specific risk, at the micro level, is the risk attributable to a single holding in the portfolio. The concentration of the portfolio and relevant news pertaining to a holding are key drivers.

All types of volatility risk fall into these categories. A review of the portfolios involved in the transition will help determine the primary sources of risk. Identifying this risk is a vital step in the risk management process.

Evaluate the Current Market Environment

Once identified, the sources of risk should be evaluated with respect to current conditions. The impact of a recent pick-up in volatility, for example, needs to be considered, especially as it pertains to the asset classes involved in the transition. Upcoming news events, such as economic reports, interest rate decisions, or earnings announcements, will likely have some effect on market fluctuations. The current market conditions may ultimately require a reevaluation of risk, especially during cyclically volatile times.

Critically Assess the Risk Model

After considering the drivers of risk and implications of current market conditions, the output from the risk model must be reassessed. Does the model consider all the elements of the upcoming transition event? Are there risk factors in the portfolios that may not be fully appreciated by the model? Does the cost estimate reflect upcoming news or market conditions? How well does the model make adjustments to consider extreme market events?

These steps will prove immensely valuable, not only to better evaluate risk, but also to help when developing strategies for risk minimization during a transition. The bottom line is that even with the growing sophistication of risk tools and computers, risk management only starts with these models and does not end there.

SUMMARY

Much is made of volatility in the marketplace. News stories herald a new era of low volatility and less risky financial markets during stable times, with sharply differing moods prevailing during more volatile episodes. In reality, volatility seems to be cyclical, as Minsky's theory implies. At the same time, volatility cannot be relied upon to predict market movements, nor can it be expected to stay at one level for long. In the long run, volatility may represent just a small blip on performance. But this is little comfort when trading or transitioning assets over a relatively brief period of time, especially if you happen to trade on this blip. Therefore, it is best to understand the implication of volatility as it pertains to each specific portfolio restructuring and transition situation. After all, volatility represents the single largest potential cost in any asset transition. And this should be remembered in both periods of stability and otherwise.

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[i] Minksy, Hyman. 1992. "The Financial Instability Hypothesis." The Jerome Levy Economics Institute of Bard College.

[ii] Reider, Rob. 2007. "Volatility Forecasting I: GARCH Models."

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