

## When Volatility Knocks

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### Key Highlights

- ▲ Market volatility usually coincides with lower equity prices, better stock valuations, and growth in the money supply.
- ▲ Liquidity and economic growth measures tend to lead volatility over time.
- ▲ Current market conditions show plenty of liquidity but growth expectations are the wild card.

### Executive Summary

Over the last few months, the markets have been particularly volatile as a host of concerns stressed investors. Worries over European sovereign debt, the downgrade of U.S. debt by Standard and Poors, and persistently

slow economic growth sunk investor confidence. The stock market plunged in early August with selling pressure reminiscent of 2008 and has continued in a highly volatile pattern through September. Investors worry that more unpleasant surprises may haunt us as these persistent troubles have no immediate solutions. In this environment, it is especially important to assess the drivers of market volatility and understand risk management. Of course, surprises are unpredictable (otherwise they would not be surprises) but that should not leave an astute investor defenseless against shocks.

In this edition of Quality Watch, we outline key measures of volatility and discuss other factors that coincide with it. We then review some factors that have historically preceded volatility in an effort to assess likely future direction. Finally, we discuss key risks in the current environment that may impact volatility going forward.

### Understanding Volatility

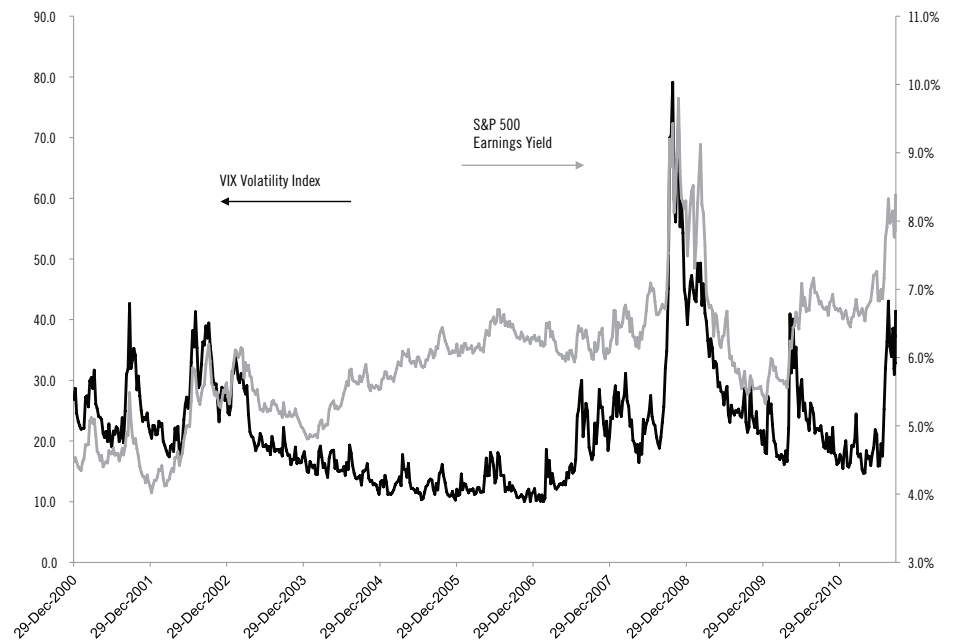
At first blush, the idea of market volatility seems like a nonevent. You might think that a volatile market has as much chance of jumping higher as sinking lower. If markets moved in a symmetrical pattern, that would be true. However, the market usually moves higher slowly through periods of low volatility and tends to drop all at once in periods of high volatility. There is an old saying that the market “goes up an escalator and down an elevator” to capture the idea that gains ascend slowly but losses come in a rush. This pattern results from investor psychology. People are naturally slow to gain confidence and build trust; however, losing confidence can happen in an instant.

The most commonly cited measure of volatility is the Chicago Board Options Exchange Volatility Index (VIX). The VIX, also known as the “Fear Index”, is calculated using 30-day

puts and calls<sup>1</sup> on the S&P 500 in the options market. High levels of the VIX imply that investors expect a wide range of outcomes for the S&P 500 and low levels imply that investors see little change ahead. The VIX tends to move in the opposite direction of the S&P 500. In other words, when stocks go down, the VIX usually goes up<sup>2</sup>.

There are two very important items that tend to move as the VIX moves. First, market valuations tend to improve with higher levels of the VIX. Second, the money supply tends to increase with higher levels of the VIX. Figure 1 illustrates the correlation between the VIX and the earnings yield on the S&P 500. The earnings yield is the reciprocal of the price-to-earnings ratio and can be quoted as a percentage figure to help in comparing potential equity returns to other investment options. For example, a PE ratio of 14x corresponds to an earnings yield of 7.1%. Since high levels of volatility correspond

**Figure 1: VIX Volatility Index vs. S&P 500 Earnings Yield**



Source: FactSet Research Systems, Inc. and Morgan Asset Management

to declines in stock prices, high levels of volatility also bring more attractive earnings yields. The main lesson is that periods of high investor anxiety tend to be the best buying opportunities.

Likewise, as investor anxiety rises, investors tend to hoard cash. When this occurs, the money supply figures that measure money in circulation, time deposits, and money market fund holdings will also increase (see Figure 2). Eventually, the buildup of cash presents a problem for investors who need a better rate of return. As this cash pile works its way back into riskier assets, volatility usually declines.

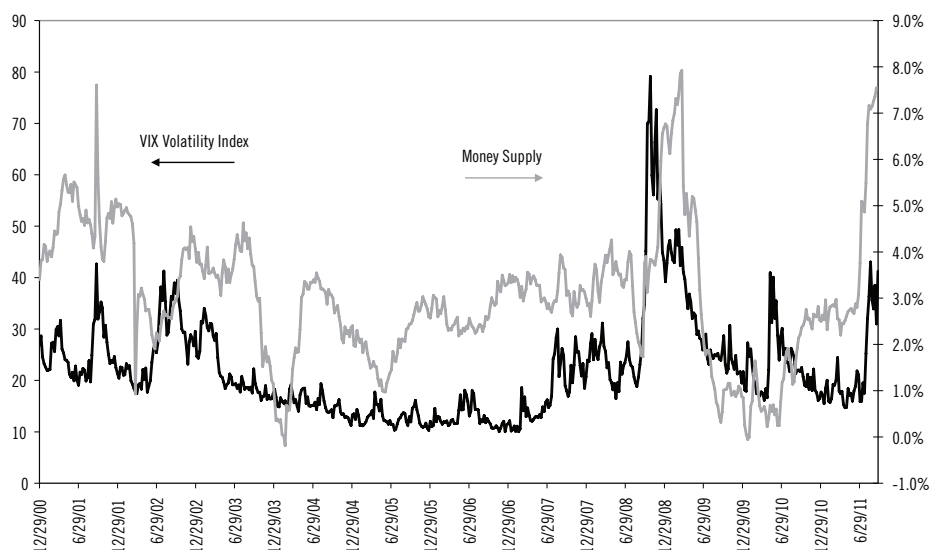
## Forecasting Volatility

Even though unexpected spikes in volatility occur from time to time, long term trends tend to follow certain patterns. There are two interrelated factors that usually drive volatility over time: 1) liquidity conditions, and, 2) expectations for growth. During periods of expansion, earnings growth tends to be robust, corporate cash flows strengthen, and investor confidence improves. When examining the typical business cycle, the period of strongest growth tends to occur early in expansions as the economy recovers from recession.

<sup>1</sup> A "put" is the option to sell a security at a predefined price and a "call" is an option to buy at a predefined price. The VIX measures expected volatility and acts like a coincident indicator to the stock market, especially at extremes.

<sup>2</sup> It is possible for the S&P 500 and the VIX to move in the same direction but that is not a common occurrence. For more details on the VIX, see "Understanding VIX" by Robert E. Whatley, Owen Graduate School of Management Vanderbilt University, 2008.

**Figure 2: VIX Volatility Index vs Money Supply (M2)**



Source: FactSet Research Systems, Inc. and Morgan Asset Management  
Money supply defined as M2 and shown as a change over six months

These periods are usually characterized by excess liquidity (via easy monetary policy) and improving growth expectations. Volatility usually moves lower as investors seek higher return and higher risk assets at a time when borrowing is easy due to low interest rates. As the business cycle matures, monetary policy tightens, corporate profits peak, and investors begin to sense a slowdown ahead. As a result, people are more apt to avoid risky assets and demand a higher risk premium to own stocks. Investor uneasiness at this late stage in the business cycle usually brings higher trend rates of volatility.

Given that volatility tracks business cycle dynamics, it follows that leading

indicators of business cycle activity should also lead volatility. Moreover, since we see that expectations for growth and liquidity impact investor sentiment, we can monitor these factors for clues regarding the direction of volatility. In our analysis, we have found two indicators that capture liquidity and growth trends well: 1) the yield curve, and, 2) the real Fed Funds rate.

### The Yield Curve

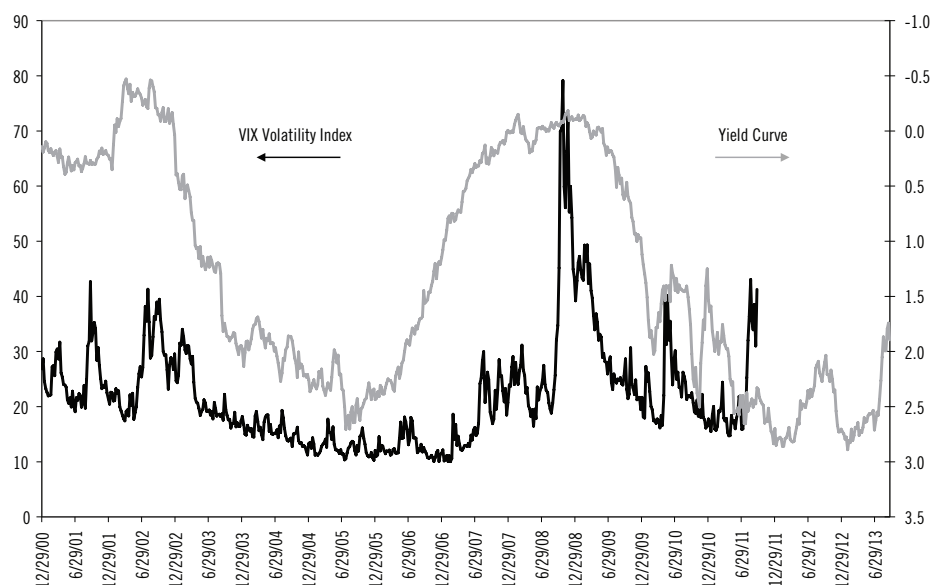
The most commonly traded bond in the world is the U.S. Treasury bond and it comes with different maturities (2 year, 5 year, 10 year, 30 year, and more). These bonds are similar in every

way except for their maturity dates and yields. Investors examine these differences for clues. When future growth and inflation are expected to rise, yields on short-term bonds should be lower than long-term bonds because investors demand higher rates of return from longer dated bonds to compensate them for losses from inflation and the expectation of higher interest rates in the future. On the other hand, if future growth is expected to be weak and inflation lower than today, long-term bond yields will fall as investors no longer demand higher premiums to hold longer dated paper.

The yield curve is constructed by looking at the difference between longer term yields and short term yields. A steep yield curve implies expectations for growth while a flat or negatively sloped curve implies expectations for economic weakness<sup>3</sup>. As a result, we would expect a steep yield curve to be associated with declines in volatility. Figure 3 illustrates this relationship. We can see that changes in the yield curve tend to lead changes in the VIX by about two years. Given the slope of the curve today, we would expect the VIX to trend lower over time.

<sup>3</sup> For more details on Yield Curve analysis, see "Forces That Shape The Yield Curve : Parts 1 & 2" by Mark Fisher, Federal Reserve Bank of Atlanta, Working Paper 2001-3, March 2001.

**Figure 3: VIX Volatility Index vs the Yield Curve**



Source: FactSet Research Systems, Inc. and Morgan Asset Management

The Yield Curve is calculated using the difference between the 10-Year and 2-Year Treasury bonds and is shown with a two year lead time. The Yield Curve scale is inverted to recognize the inverse correlation of the two series.

## Real Fed Funds Rate

In addition to market expectations of growth and inflation, the Federal Reserve Bank (The Fed) has significant influence over interest rates. The Fed engages in buying and selling of bonds to influence the rate that banks borrow from one another overnight. They set a target overnight rate (known as the Fed Funds Target) and change it from time to time given their expectations for growth and inflation<sup>4</sup>. When the Fed expects slow growth and low inflation, they lower the Fed Funds Target and when they expect strong growth and higher inflation, they raise it. A lower Fed Funds Target implies added

liquidity in the system which can help dampen volatility.

When evaluating rates of return, an expectation for inflation is often included because inflation lowers purchasing power. For example, a 5% return on an investment will not offer an investor an improvement in purchasing power if inflation is also 5%. As a result, we can examine the “Real” Fed Funds rate by subtracting a rate of inflation from it. Figure 4 illustrates the VIX index against the Real Fed Funds rate with a two year lead time. A low real Fed Funds rate implies ample liquidity that tends to dampen volatility over time. With the Fed Funds Target near zero and inflation running near 3.8% (as

measured by the Consumer Price Index change from a year ago), the real Fed Funds rate is negative implying significant liquidity in the system.

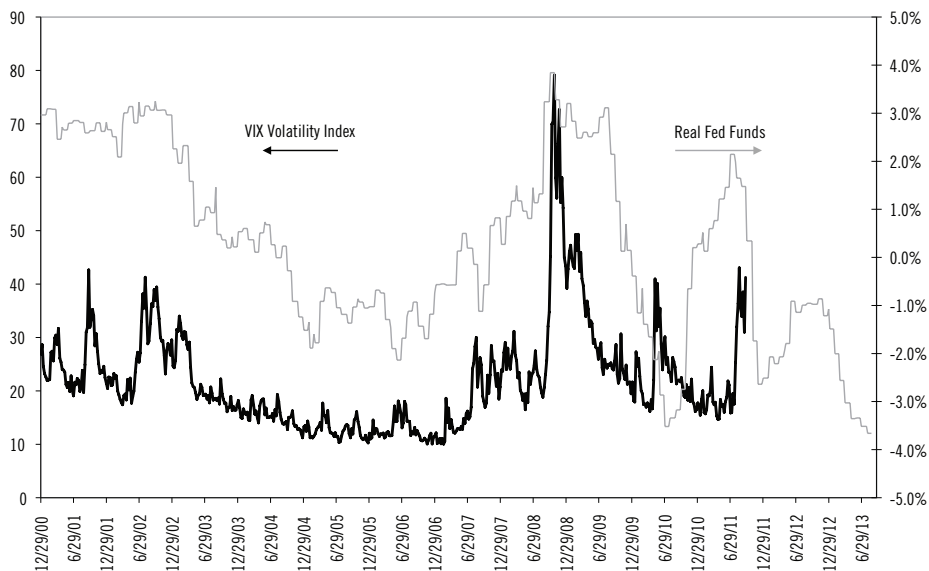
## Liquidity Traps

As noted earlier, growth and liquidity are closely aligned in a typical business cycle. In most cases, low interest rates reduce the cost of capital for new investment and help spur growth. There are times, however, when the relationship breaks down. In some cases, low interest rates fail to entice new investment as investors prefer the safety of cash to new ventures. In these environments, normal monetary policy tools do not have the same power to boost growth. The term “Liquidity Trap” refers to the apparent uselessness of monetary policy as more liquidity is pumped into the economy without spurring an increase in growth. A central bank in this environment is trapped into conducting more stimulus with little effect.

Behind the Liquidity Trap is a belief among investors that deflation is a more significant risk than inflation. In a deflationary world, falling prices induce a paralysis among buyers who do not want to buy anything today that

<sup>4</sup> For more details on Federal Reserve Bank read, “The Federal Reserve System Purposes and Functions” available at the Fed website <http://www.federalreserve.gov/>

**Figure 4: VIX Volatility Index vs the Real Fed Funds Rate**



Source: FactSet Research Systems, Inc. and Morgan Asset Management

The Real Fed Funds Rate is calculated using the difference between the Fed Funds Target and change in CPI over a year ago. It is shown with a two year lead time.

will be cheaper tomorrow. In order to combat this expectation, a central bank will engage in activities that would be extraordinarily inflationary in a normal environment. In fact, this has been the case over the last few years as the Fed has lowered Fed Funds to essentially zero and engaged in asset purchases to lower interest rates across the yield curve.

If the relationship between growth and liquidity is significantly impaired, then the relationship between volatility and liquidity will also be diminished. The leading indicators of the VIX presented in Figures 3 and 4 may not hold the same explanatory power should the

economy fall into a deflationary environment. In that case, volatility would likely rise despite added liquidity.

Liquidity Traps are diagnosed far more frequently than they actually occur. At this time, inflation is running at a 3.8%<sup>5</sup> pace and market expectations for future inflation are about 2%<sup>6</sup>. Weakness in the dollar is inflationary via higher import prices and can help spur growth through exports. Consumers expect higher prices over the next twelve months according to the University of Michigan consumer confidence report. In sum, while worries over future deflation are warranted, we are a long way from that outcome right now.

## Conclusion

The investing environment today may feel rougher than years past, but in reality volatility spikes have always been with us. Sound investing through these periods requires a thorough understanding of underlying securities, diversification among holdings, and recognition of total portfolio risk. To this end, our team of dedicated analysts reviews earnings, balance sheets and the portfolio composition of our equity strategies. We also track signals from the yield curve, real Fed Funds rate, and a host of other economic factors. At this time, there appears to be ample liquidity coupled with reasonable growth expectations which should lead to lower trend volatility over time. A positively sloped yield curve with a negative real Fed Funds rate gives ample support for lower volatility and an improvement in equity returns. As such, we are recommending that clients position their portfolio with an asset allocation tilt that favors stocks over bonds. Given that these factors can change, we monitor events regularly to help provide risk-adjusted returns for our clients. ▲

<sup>5</sup> Total CPI is 3.76% and Core CPI is 1.95%.

<sup>6</sup> 10 Year Treasury Yield minus 10 Year Treasury Inflation-Protected Securities shows a 200 basis point spread.

## About Morgan Asset Management

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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 Araoz, CFA**, serves as the Director of Equities 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 board member of the Alabama Chartered Financial Analyst Society.



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