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MONTHLY

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# MEASURING FEAR

### Introduction

Although our investment process is built on understanding the fundamentals underpinning investment returns – for instance, cash flows and risk – investors are often gripped by fear or greed. These swings in sentiment drive prices away from levels we believe justified by the fundamentals. So, in setting strategy, we consider, in addition to the output of our fundamental valuation modeling, a number of indicators that gauge investor sentiment.

We have talked numerous times in previous *Monthly* publications and strategy change memos about the VIX (CBOE S&P 500 Volatility) index. In those discussions, we mentioned that the VIX is a measure of risk expectations in the US stock market. This month, we will describe what the VIX index is, why it is often referred to as a "fear gauge," and how its behavior is inversely related to equity market movements. This relationship is one we can use to inform our strategy decisions. For example, the spike in the VIX on October 10 to a new high was one of the factors that prompted us to increase equity exposure (Figure 1).

### What is the VIX?

The VIX index measures the *volatility* anticipated in the near term in the US stock market – specifically in the S&P 500 Index. Options on the S&P 500 are used to construct the VIX. In simple terms, these options describe the likelihood of the S&P 500 moving by a lot – high volatility – or a little – low volatility.

The level of volatility as indicated by the VIX can also be thought of as an indicator of risk. For instance, high volatility equates to an elevated probability of a large move in the market, which means that investors are concerned about the potential for large losses. In other

*(Continued on page 2)*

**CURRENT TOPIC**

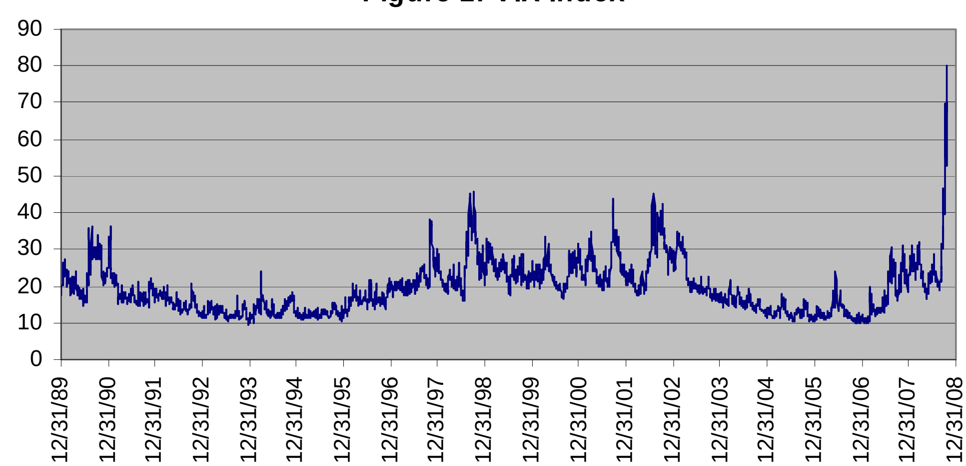
***Measuring Fear***

- *Introduction*
- *What is the VIX?*
- *VIX Behavior*
- *Market Reaction*
- *Strategy*
- *Summary*

***Strategy***

- *When financial markets came under severe pressure, we increased equity exposure to overweight during October*
- *High yield bond allocations were also increased*

**Figure 1: VIX Index**




Sources: CBOE, Bloomberg

"THE SPIKE IN THE VIX ON OCTOBER 10 TO A NEW HIGH WAS ONE OF THE FACTORS THAT PROMPTED US TO INCREASE EQUITY EXPOSURE "

# Measuring Fear - Cont'd

*(Continued from page 1)*

words, the more variability there is in stock prices, the greater is the perceived chance of sustaining a large hit to your investment.

**VIX Behavior**

When the stock market is experiencing a period of relative calm, as it did in 2005-06 when returns were good, the VIX index generally is low (Figure 1). In other words, investors believe the likelihood is low that the S&P Index moves sharply and imposes substantial losses on their equity investments.

But when times are chaotic and the stock market tumbles, the VIX spikes upward. Investors become fearful of sustaining further losses and bid up the prices of options that provide some protection (insurance) against further large market movements. This is what gives the VIX its nickname of "investor fear gauge."

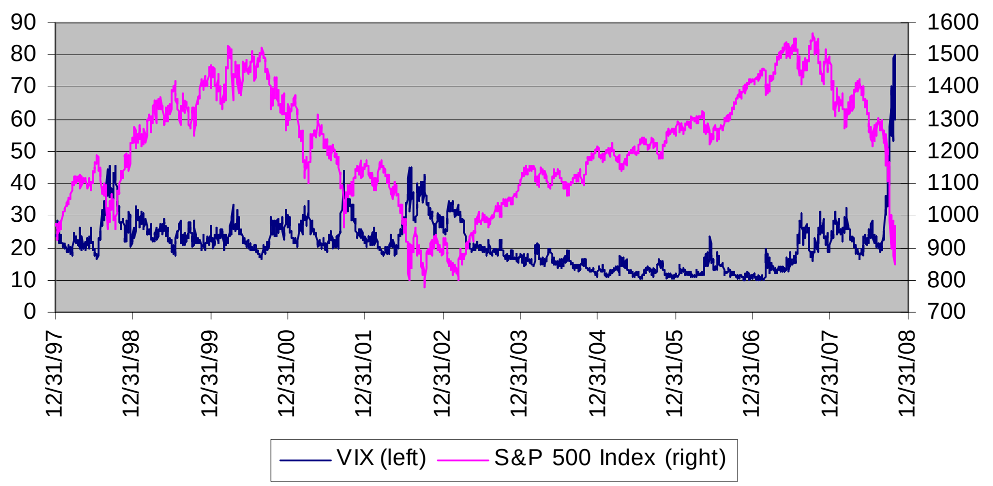
Figure 2 shows that this inverse relationship between the stock market and the VIX has held in the past. A number of episodes of sharp market declines and simultaneous VIX spikes are evident in the figure: the LTCM/Russia default crisis in late summer 1998, the bursting of the tech bubble in 2001/02, and the unfolding credit crisis of fall 2007 and more recently this year. In each of these situations, the decline in the stock market was especially severe when the VIX index rose above 35-40.

The correlation between the daily moves of the S&P 500 index and the VIX has been nearly -0.80 over the last 10 years, and has been even closer to -1.00 in the more recent crisis period (Figure 3). Correlation close to -1.00 means that there is a nearly perfect inverse relationship between the VIX and the level of the S&P 500: when the stock market drops, the VIX almost always increases, and the VIX falls when the market rises.

Higher levels of volatility and fear are not confined to the

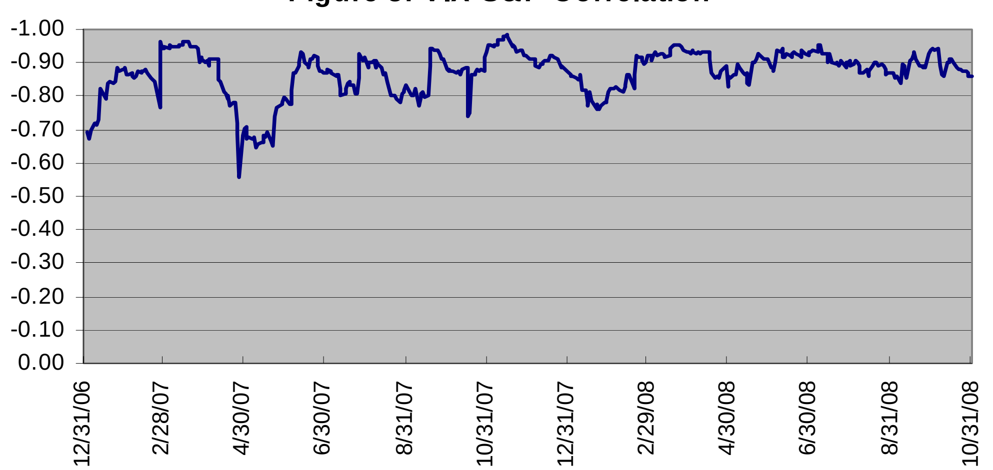
*(Continued on page 3)*

**Figure 2: VIX & S&P 500**




Sources: CBOE, Bloomberg

**Figure 3: VIX-S&P Correlation**




Source: Stairway Partners

Note: Rolling 20-day correlation

"CORRELATION CLOSE TO -1.00 MEANS THAT THERE IS A NEARLY PERFECT INVERSE RELATIONSHIP BETWEEN THE VIX AND THE LEVEL OF THE S&P 500"

## About Stairway Partners, LLC

Stairway Partners was formed to provide our clients (starting with ourselves) with an effective and comprehensive solution for managing their wealth. Our disciplined and rigorous approach comes from our collective knowledge in serving large institutional clients over many years.

Our core investment belief is that asset allocation is the single most important determinant of success in any investment plan. The dominant amount of risk and return comes not from your choice of individual investments but from your asset class mix. Stairway Partners focuses our resources on risk management and asset allocation. This includes building your custom blueprint (investment policy and benchmark) and aligning your portfolio with our investment strategy utilizing the global capital markets.

US. As Figure 4 shows, the risk index for the German stock market, the VDAX, has moved closely in line with the VIX.

### Market Reaction

As we have pointed out many times, when prices crash and investors perceive risk to be high, they tend to flee. There is very strong herd behavior in financial markets. Recent evidence from data provider TrimTabs indicates that investors pulled record amounts of money out of the stock market during the second week in October, just when prices were declining fastest. In fact, causation could run from herd behavior – massive amounts of panicked selling – to steep drops in prices. In just the first 2 weeks of the month, Trim Tabs estimates that $56 billion was shifted out of stock funds, including $9 billion on Friday, October 10 alone (Financial Times; October 15, 2008).

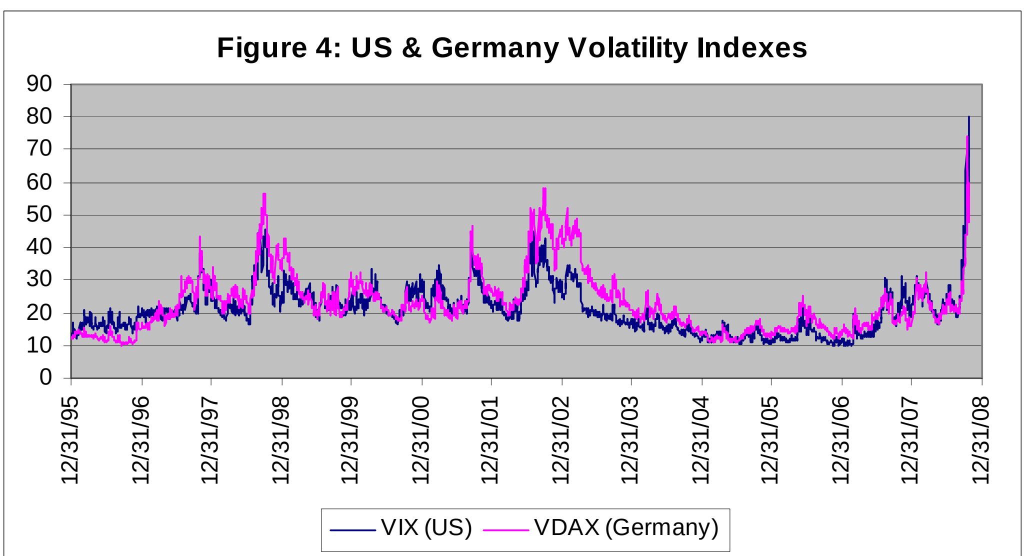
This provides another great example of the momentum-driven herd behavior of investors buying high and selling low.

### Strategy

In our strategy memo describing our reasons for purchasing equities on Friday, October 10, we mentioned that in addition to equities becoming very attractive in our fundamental models, the VIX spiked to 75+, an all-time record. This jump in the "investor fear gauge" was, to us, a strong signal that panic had set in and indiscriminate selling was occurring. In the past, this kind of wholesale run for the exits has signaled a buying opportunity, so we stepped in to buy when it seemed that everyone else was selling.

### Summary

Volatility indexes, such as the VIX, change as investors modify their expectations of risk. The greater the volatility in a financial market, the higher the probability of sustaining a significant loss – hence, the label "investor fear gauge." As we have observed many times in the past, at times of heightened fear and depressed prices, investors sell. Unfortunately for their wealth, these are typically times that provide the best future returns. Because of the herd mentality and the "buy high-sell low" behavior of the crowd, we like to use the VIX and other volatility measures as indicators of stress or complacency. When investors are panicked, which is reflected in a high VIX level and investor selling, it is usually a good time to buy assets at knock-down prices.




Sources: CBOE, Bloomberg

"Higher levels of volatility and fear are not confined to the US. The risk index for the German stock market, the VDAX, has moved closely in line with the VIX."

## Strategy

| Asset Class | Expected Return | Hurdle Return | Strategy Exposure | Comment |
|---|---|---|---|---|
| **Equities** | | | | |
| US | 23.5% | 7.1% | over | Exposure increased above benchmark weight due to improved pricing |
| Non-US Developed | | | over | Asset class has become more attractive as markets have fallen |
| Eurozone | 26.9% | 7.9% | | |
| Japan | 18.3% | 4.7% | | |
| UK | 25.5% | 8.8% | | |
| Emerging | 24.3% | 12.3% | neutral | Price declines have made asset class attractive |
| **Fixed Income** | | | | |
| US Treasury Bonds | | | under | Treasuries expensive, but non-Treasury sectors priced better |
| 2-Year | 1.4% | 3.1% | | |
| 5-Year | 1.7% | 3.9% | | |
| 10-Year | 2.6% | 4.6% | | |
| 30-Year | 1.6% | 4.9% | | |
| US Municipal Bonds | | | under | Longer-term maturities have become more attractive |
| 2-Year | 2.5% | 2.9% | | |
| 5-Year | 3.5% | 3.5% | | |
| 10-Year | 5.3% | 4.1% | | |
| 30-Year | 10.7% | 4.8% | | |
| US High Yield | 22.6% | 5.5% | over | Sector is pricing for deteriorating fundamentals |
| Non-US Government Bonds | | | under | Yields remain below fair levels |
| Euro 10-Year | 2.9% | 4.5% | | |
| Japan 10-Year | 0.0% | 2.0% | | |
| UK 10-Year | 3.4% | 5.0% | | |
| Emerging Markets Debt | 12.2% | 5.8% | under | Although spreads have widened, other asset classes offer better value |
| Cash | 3.6% | --- | minimal | |

| Currencies | Expected FX Change | Equity Return with Currency | 10-Year Bond Return with Currency | |
|---|---|---|---|---|
| Euro | -2.4% | 24.5% | 0.4% | Euro is nearing fair value |
| Japanese yen | 0.0% | 18.3% | 0.0% | Yen is close to fair value |
| UK pound | 1.1% | 26.6% | 4.6% | Pound is near fair value |

**Notes:** **As of: October 31, 2008**

The expected return is our estimate of the annualized return likely to be generated over a 3-year horizon.
The expected returns are expressed in local currencies (e.g., Japanese equity return is stated in yen terms).
The hurdle rate represents the annualized return that an asset needs to generate in order to cover its risk.
Equity Return with Currency (in Currencies section) is the annual return we would expect a US dollar investor to earn from holding foreign equity markets.