THE CALM BEFORE THE STORM

By Ed Easterling
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It seems that never before have the bulls and the bears had such strong arguments—the tectonic plates of the markets are intensely balanced in an edgy state of latent eruption. Most investors are actively searching for clues about what might next occur in the stock market: new highs or a correction.

Regardless of the direction of the market's next leg, the move is likely to happen with increased volatility. The historical cycle of stock market volatility has been erratic, yet consistent, for more than five decades. And although the trend in volatility may not be a completely reliable indicator, it does offer key insights about the likely direction of the market. Most of all, portfolios that are best positioned for declining volatility often do not perform well in rising volatility. Therefore all investors can directly benefit from insights about the upcoming conditions.

"…the tectonic plates of the markets are intensely balanced in an edgy state…"

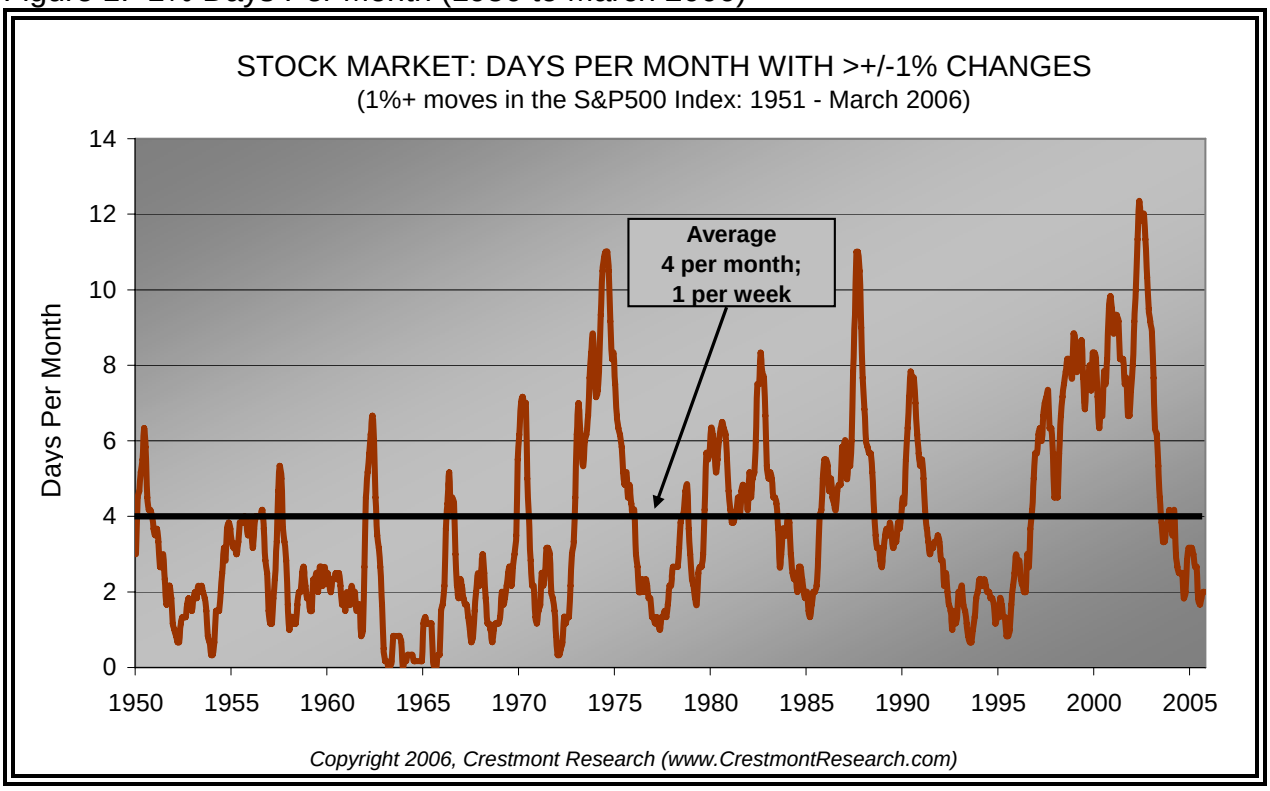
The charts and discussion that follow will present several ways to measure volatility—all of them reflecting volatility at relatively low levels historically—as well as insights about the implications of volatility rising back to average or greater levels.

Ringing The Bell

It happened this week…lately, it's not been happening very often: A 1% move in the market. For the Dow Jones Industrial Average (the one that we hear about on the six o'clock news), that's more than 100 points. It made all of us sit up and take note—as though something big had occurred. On average since 1950, 1% moves have come weekly based upon a rate of about four times per month. Lately, we're down to twice a month. That places us in the lowest quarter of all periods—a level of relative calm.

Figure 1 presents the average number of days when the stock market, measured by the S&P 500 Index, has moved more than 1%, up or down, since 1950. There have been a number of periods, including the mid-1970s, late-1980s, and particularly just a few years ago, when 1% days occurred over 10 times per month! Since the markets only trade about 21 days per month, those periods are especially volatile with a super-swing every other day.

Figure 1: 1% Days Per Month (1950 to March 2006)

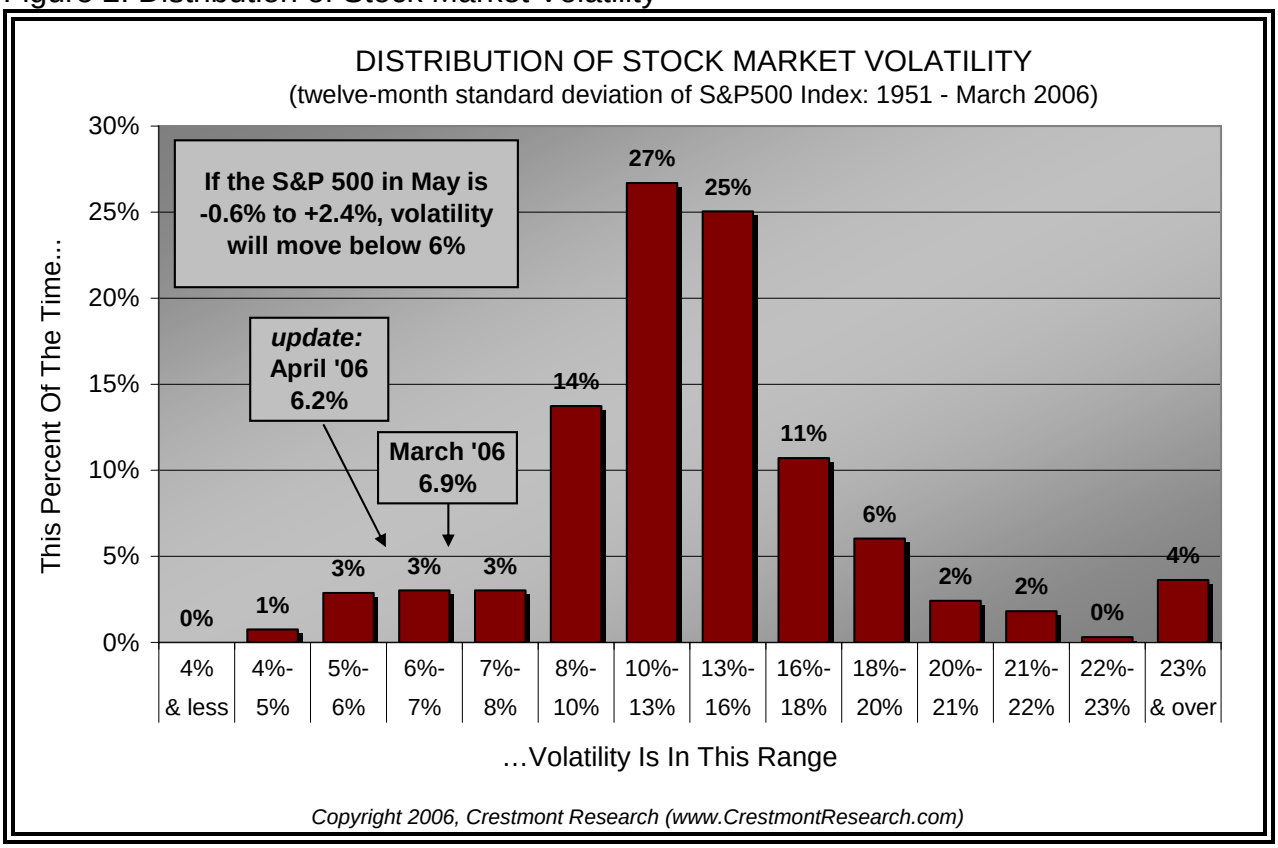


Although 1% moves represent the kind of volatility that affects most investors' throats and stomachs, we can also measure market volatility using a statistic called standard deviation. This is the measure that most market researchers and academics use. The standard deviation for returns is expressed as a percentage and measures the magnitude of market changes compared to the average market change—in other words, it reflects whether the market is really choppy or fairly calm. Over time, the average standard deviation on an annualized basis for the stock market has been just under 15%. That does not mean that the average annual change is 15%, rather it means that about two-thirds of the years fall in a range of 15% around the average.

Enough with the details, let's apply it to the market. Our interest is to assess the daily volatility of the stock market over the past twelve months compared to all rolling twelve-month periods since 1950. As of last month, standard deviation volatility was running 6.9%—compared to an average since 1950 of 13.4%. Just as we saw with 1% daily changes, we're now at about half of the historical average. Yet, as reflected in Figure 2, the standard deviation has recently slipped into the lowest seven percent of all periods since 1950.

Figure 2 reflects a distribution of volatility by ranges. More than half of the time, stock market volatility has been between 10% and 16%. Over the past couple of years, we have fallen below 10%...into the lowest quarter of all periods. As of March, we slid further to less than 7% and, if April is fairly flat, the twelve-month average could further dive to 6.2%!

Figure 2: Distribution of Stock Market Volatility

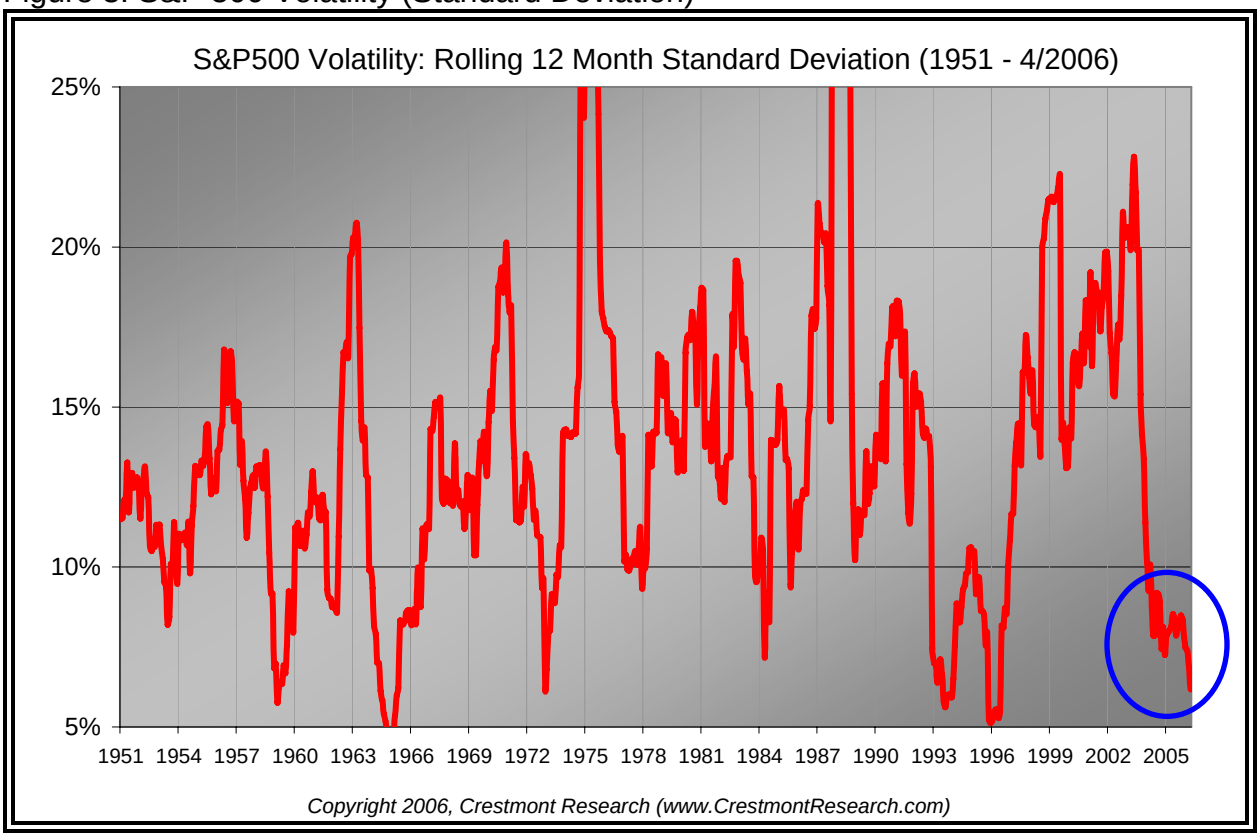


Other than seeing that the markets are extremely calm right now, what else can we understand about volatility and its cycles? Since 1950, the cycle of volatility has been quite erratic, yet fairly pronounced. Although it has taken a jagged path, volatility clearly has vacillated from lows below 10% to highs of more than 20%. The cycle reflects spikes and falls—often one extreme following the other—with interim periods chopping toward the middle of the range.

As reflected in Figure 3, there does not appear to be a longer-term trend toward lower volatility (some would say the result of increased efficiency in the markets), nor is it trending generally higher (others saying the impact of globalization or day trading). Rather the cycle has been bouncing around for decades, while rarely overstaying its welcome in the lowest or highest ranges.

The graph reflects relatively short periods outside of the range from 10% to 20%. On the lower side, market volatility has only fallen below 10% nine times over the past 55 years. Once it passed through that threshold, the time below the line averaged 16 months (with the longest being 33 months and the shortest at 7 months). Thus far as of March, we have been below 10% for 26 months. If we make it past October of this year, the market will be setting a new record—and the current 26 months is already the second longest run.

Figure 3: S&P 500 Volatility (Standard Deviation)



A decline below 7% has occurred even more rarely, with only five occurrences since 1950. As the chart reflects, such extremely low levels rarely persist. The average time below 7% has been 9 months, with none lasting more than 13 months.

Once volatility starts to rise from such a low level, a year later the volatility has averaged almost 12% and then on average in about three years it generally peaks at more than 20%. One extreme follows another until the market rebalances again toward the middle.

All In A Day

Still another measure of volatility is the range from low to high during each trading day. In Figure 4, Average Daily Range: S&P 500 Index (since 1962, when range data was readily available) we can also see the cycles, highs and lows, and a current condition near the bottom of the range. This volatility measure is similar to the measures previously presented and reflects the general level of volatility in the stock market.

Why does volatility matter? As reflected in Figure 5, Volatility & Market Returns, there is a strong relationship between the level of volatility and the performance of the market. As volatility rises, there is a greater propensity for the stock market to experience losses. Volatility tends to decline as the stock market rises and it tends to increase as the stock market falls. For example, in the top half of Figure 5, the average daily range for each month is grouped into four sets, known as quartiles, which are ranked from least volatile to most volatile.

Figure 4: Average Daily Range: S&P 500 Index

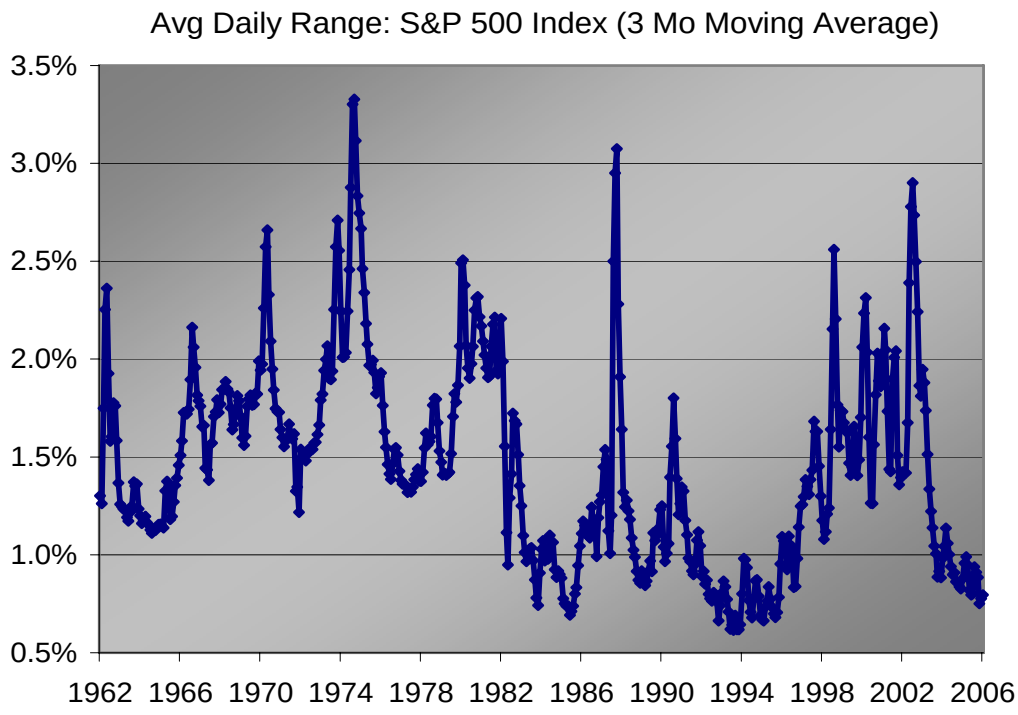


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Figure 5: Volatility & Market Returns

Relationship Of Volatility & Market Returns
(S&P 500 Index: 1962–March 2006)

MONTHLY DATA: S&P 500 INDEX AVERAGE DAILY RANGE

Quartile	Volatility Range	% Chance Up Month	% Chance Dn Month	If Up Avg Gain	If Down Avg Loss	Expected Gain/(Loss)
1st	0% - 1.1%	80%	20%	3.0%	-1.9%	2.0%
2nd	1.1% - 1.4%	63%	37%	2.8%	-2.2%	0.9%
3rd	1.4% - 1.8%	57%	43%	3.3%	-3.1%	0.6%
4th	1.8% - 4.8%	43%	57%	5.1%	-4.7%	-0.5%

ANNUAL DATA (1962–2005): S&P 500 INDEX AVERAGE DAILY RANGE

Quartile	Volatility Range	% Chance Up Year	% Chance Dn Year	If Up Avg Gain	If Down Avg Loss	Expected Gain/(Loss)
1st	0% - 1.1%	91%	9%	15.0%	-1.5%	13.5%
2nd	1.1% - 1.5%	82%	18%	18.6%	-9.0%	13.6%
3rd	1.5% - 1.8%	82%	18%	14.0%	-11.6%	9.4%
4th	1.8% - 2.6%	36%	64%	16.3%	-16.6%	-4.7%

You will notice that the least volatile periods have the lowest frequency of down months. As the volatility increases across the quartiles, the frequency of down months consistently increases. Further, as the volatility increases, the magnitude of the loss during down months consistently increases. Higher volatility brings not only a greater chance of loss, but greater losses as they occur.

The column on the right provides a summary measure of the expected return during each period. The expected return is determined by multiplying the chance of a gain times the average gain and subtracting the product of the chance of a loss times the average loss. As you can see in the table, the expected return consistently declines and becomes an expected loss in the most volatile markets. A similar analysis using annual data is provided on the bottom half of the table reflecting the same conclusions.

Secular Cycle Implications

Volatility has different implications during secular bull markets and secular bear markets. For this analysis, principles from *Unexpected Returns: Understanding Secular Stock Market Cycles* will be employed. This article will include all of the charts and information needed to assess the market's current vulnerability. For more information about the book and secular market cycles, please visit www.UnexpectedReturns.com.

Secular stock market cycles refer to extended periods of above-average returns and below-average returns that result from trends in the price/earnings ratio ("P/E"). The P/E is a measure of valuation applied to stocks that compares their price to their current earnings. In effect, the P/E represents how many years of today's earnings that investors are willing to pay for a stock or basket of stocks. Over the past hundred years, P/Es for the stock market have tended to cycle from near 10 to somewhat more than 20.

Over longer periods of time, the earnings of companies in the market have in the aggregate increased in a close relationship to growth in the economy. During periods when P/Es are generally rising, investors realize above-average returns from the multiplier effect that rising P/Es have on increasing earnings. During periods when P/Es are generally declining, however, investors realize below-average or negative returns from the offsetting effect of declining P/Es and increasing earnings. There have been eight complete secular bull and secular bear cycles since 1900.

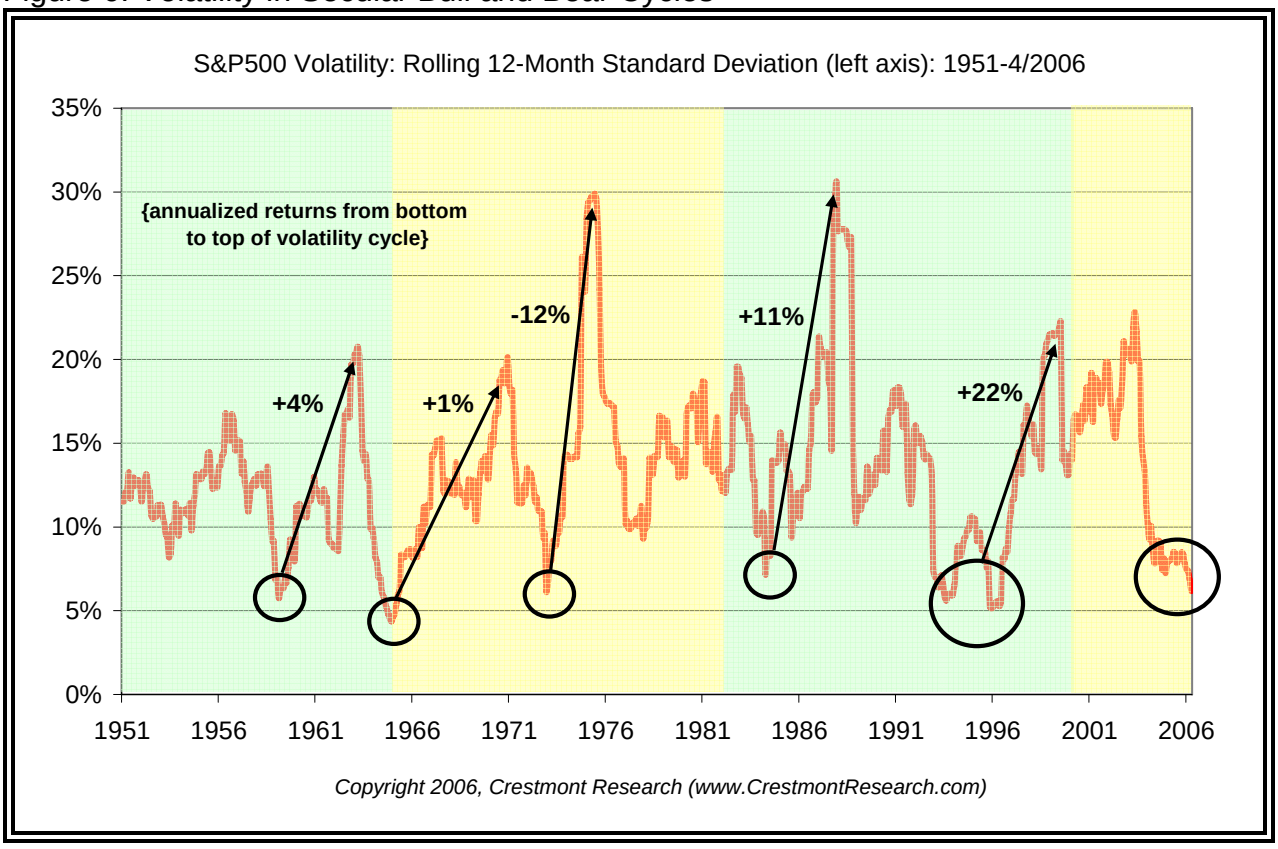
When the concepts of volatility are assessed in secular bull and secular bear markets, the volatility characteristics that we saw in Figure 3 (reflecting the rolling volatility of the S&P 500 since 1950) are further revealed. In secular bull markets, rising volatility can still allow profitable periods. In secular bear markets, however, there is a higher percentage of downside volatility than upside volatility. As a result, the negative effects of volatility surges in secular bull markets can be overcome by strong market performance and the stock market can experience gains amidst the volatility. In secular bear markets, the downside volatility and negative effects of volatility create adverse market conditions.

Figure 6, Volatility in Secular Bull and Bear Cycles, reflects the performance of the stock market during the volatility cycles presented earlier in Figure 3. Green shading has

been added to reflect periods of secular bull markets and yellow shading reflects periods of secular bear markets. This will help to show that volatility surges have different effects on the market during secular bull periods and secular bear periods.

As measured by the rolling standard deviation, there have been five surges in volatility from extreme low levels since 1951. Each of these volatility surges is noted on Figure 6 with black circles, lines, and arrows. In addition, a percentage value is presented next to each black line representing the annualized rate of change in the S&P 500 Index from the bottom to the top of the move in volatility. The average change in the stock market during volatility spikes is positive during secular bull periods and negative during secular bear periods, yet the gains and losses can be much more extreme at times within the period. Time, totals, and averages have the tendency to blur the magnitude of intra-cycle swings.

Figure 6: Volatility in Secular Bull and Bear Cycles



Another Indication

An additional measure of volatility during secular market cycles is the frequency of years when the market is within or outside of certain percentage ranges. For this analysis, we use the same ranges and format that were presented and discussed in *Unexpected Returns*. The profile for the current secular cycle reflects an environment of low volatility and downside vulnerability. Figure 7, Annual Dispersion of Market Changes, presents the frequency that annual changes in the market occur either within or outside of two key ranges. Note the general consistency between secular periods for the frequency inside both ranges. Historically, almost 30% of the years have annual

changes between -10% and +10%. Further, almost 50% of the years have annual changes between -16% and +16%. *Most notably, these frequencies occur fairly consistently during both secular bull and secular bear periods at the same rate as they occur in the aggregate.* Yes, the "inside-range" occurrences are remarkably consistent. The differences occur outside the range—secular bull markets have a strong bias to upside occurrences and secular bear markets have a notable bias to downside occurrences.

Figure 7: Annual Dispersion of Market Changes

Dow Jones Industrial Average
DISPERSION OF ANNUAL STOCK MARKET CHANGES
Percent Of Years During Secular Cycles
(8+ Cycles: 1901–2005)

RANGE	105 Yrs AVG	54 Yrs BULL	51 Yrs BEAR	'00-'05 BEAR
<-10%	21%	4%	39%	17%
-10% to +10%	31%	30%	33%	67%
>+10%	48%	67%	27%	17%

RANGE	105 Yrs AVG	54 Yrs BULL	51 Yrs BEAR	00-05 BEAR
<-16%	15%	0%	31%	17%
-16% to +16%	50%	50%	51%	67%
>+16%	34%	50%	18%	17%

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So far in this secular bear market cycle, the past six years have been atypically concentrated toward the center. More concerning, however, the frequency of large declines (more than -16%) is unusually low. Based upon the typical secular bear market profile, we appear susceptible to double digit moves, especially large declines.

CONCLUSION

The current state of volatility is an indicator of a potentially sharp stock market decline based upon (i) the currently low level of volatility, (ii) the tendency for upward spikes to follow extreme low volatility, (iii) the relationship of market direction to volatility trends, and (iv) the propensity for downside volatility during secular bear markets. Volatility could decline further and could remain low for some time longer; however, based upon history, it has not stayed low without subsequently spiking and, as it goes lower, the likelihood of a spike increases significantly.

When volatility does start to rise and the stock market likely declines, the bulls will call it a “pullback” or a “correction” in advance of the next major upward move in the market. Because we are currently in a secular bear market (at the least, a bear-in-hibernation), the market can be expected to act as it has during the past secular bear markets. Keep in mind: over the course of secular cycles, the market is driven by recognized principles of economics and finance. The current market conditions are not positioned to provide another secular bull market at this time—it is not a sleeping bull. The current conditions reflect a secular bear or a bear-in-hibernation because the price/earnings ratio (“P/E”) is above its historical average. Without a rising P/E, future returns will be below average and investors are likely to experience an extended, choppy, and often volatile period.

There are strategies to employ to capitalize on volatility and to protect downside risk. Recognition is empowering. It is incumbent upon investors to understand the environment and to seek profit-oriented investments rather than hope that the market will again provide the passive rewards that occurred during the secular bull market of the 1980s and 1990s.

Ed Easterling is the author of Unexpected Returns: Understanding Secular Stock Market Cycles*, President of an investment management and research firm, and a member of the adjunct faculty at SMU’s Cox School of Business where he teaches the course on alternative investments and hedge funds for MBA students. Mr. Easterling publishes provocative research on the financial markets at www.CrestmontResearch.com.*