INTRODUCTION

The source of investors’ discomfort about volatility: The market doesn’t move down the same way it moves up. Although typically shorter in duration than market ascents, downward moves can be large and fast. They can cause significant short-term damage to portfolios and undermine investment objectives and even investor confidence.

At Calamos Investments we believe that volatility and down markets are to be expected, planned for and yes, benefited from. Since 1977, we’ve used our experience in growth stocks and convertible securities to create portfolios with risk-reward profiles appropriate for investors looking for a potentially smoother ride through uncertain equity markets.

Volatility leads to investment opportunities, we know from experience—and are happy to share some of our experiences and insights with you in this guide.

On the following pages you’ll read:

» Familiar and not-so-familiar analyses of the impact that volatility can have on markets and investments. While our focus is mostly on extreme volatility, low volatility presents its own challenges and we offer a few thoughts on that too.

» Our ideas on how lower-volatility strategies can simultaneously manage risk and pursue growth, while keeping your clients invested.

» And, peppered throughout, perspectives from Calamos associates—members of our portfolio management and distribution teams—on how volatility brings out the best in us.

Managing volatility is Calamos’ specialty and we welcome the opportunity to help you with your clients’ conversations and investment plans. Your rough patch, as we like to say, is our sweet spot.
Opinions and estimates offered constitute our judgment and are subject to change without
notice, as are statements of financial market trends, which are based on current market
conditions. We believe the information provided here is reliable, but do not warrant its accuracy
or completeness. This material is not intended as an offer or solicitation for the purchase or
sale of any financial instrument. The views and strategies described may not be suitable for all
investors. This material has been prepared for informational purposes only, and is not intended
to provide, and should not be relied on for, accounting, legal or tax advice. References to future
returns are not promises or even estimates of actual returns a client portfolio may achieve. Any
forecasts contained herein are for illustrative purposes only and are not to be relied upon as
advice or interpreted as a recommendation.

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The Roots of the Calamos Risk Management Culture .... Inside back cover
Compared to its historic volatility (as measured by standard deviation), the U.S. stock market has been relatively calm since the end of the 2008-2009 financial crisis. Many believe that the calm was partly a result of the Federal Reserve’s actions to keep interest rates near zero and reflate assets.

The charts below illustrate the number of +/-3% and +/- 2% days in the S&P 500 Index by decade from 1950 through 2018. The decade from 2000 through 2009 clearly stands out as we experienced two drawdowns in the S&P 500 of more than 40% in a single decade.

Despite past stretches of low volatility, we are on pace to exceed the average from 1950-2000 by a significant margin. The overall trend is clearly up. A growing consensus holds that large daily swings, such as those that reappeared at the start of 2016, are more structural than temporary. One reason for higher structural volatility may be technology that has interconnected markets and increased the velocity of trading. When investors decide to de-risk portfolios at the same time, the result can be like a game of musical chairs in which each investor seeks to avoid being the last to hold an unwanted asset.

While technology gives investors better, faster information and the tools to respond, it also creates a transfer mechanism for volatility through algorithmic-based trading. This can lead to a scenario whereby a scare in one corner of the market can quickly spread and intensify. Other forces driving market volatility include the effect of banking regulations that reduce the amount of capital committed to securities trading and liquidity and rebalancing by leveraged and short exchange-traded funds (ETFs).
Volatility is in our DNA, it’s how we think. Volatility and risk management go hand in hand, it’s part of our process.

Volatile markets are an opportunity for us to show what we’re made of. We talk about limiting downside risk year in and year out. But the relationships we make with advisors during volatile markets are among the strongest we have. By helping advisors reduce the volatility of their clients’ portfolios, we help them solve a problem.

BOB BEHAN, CFA
PRESIDENT AND HEAD OF GLOBAL DISTRIBUTION
HOW TO RESPOND TO MARKET VOLATILITY
JOHN P. CALAMOS, SR., FOUNDER, CHAIRMAN AND GLOBAL CIO

As volatility returns to the stock market, many investors are feeling unsettled and maybe even panicked. Since founding Calamos Investments more than 40 years ago, I’ve had the chance to invest through many different market environments, including extremely turbulent periods. Here’s what I encourage investors to remember:

1. Corrections are a normal part of bull markets.
   The chart below shows how much the market has gained since March of 2009. Down periods have been a part of this advance. In fact, there have been 21 corrections since 2009.

   **BULL MARKET CORRECTIONS**
   S&P 500 INDEX, CLOSING PRICE

   - March 2009 Low: 677
   - Dec. 31, 2018: 2,507
   - Corrections of 5% or More Since 2009: 21
     Average Per Year: 2.1
     Average Decline: -8.5%

   Past performance is no guarantee of future results. Source: Bloomberg.
2. **Stay invested for the long term. Don’t time the market.**
Investors who try to predict exactly when the market will hit its highs and lows may end up capturing far more of the downside than the upside. The chart below illustrates the benefits of staying invested.

3. **The flipside of volatility is opportunity—for active managers.**
When markets experience periods of short-term volatility, active managers can purchase attractive investments at lower prices. At Calamos, our teams take a long-term approach and use corrections as buying opportunities. (Passive or index strategies aren’t able to capitalize on downside moves in this way. They just have to ride them out.)

4. **Rely on your financial advisor, not the media.** If you’re getting anxious about your asset allocation, reach out to your financial advisor or wealth management professional. They can give you the personalized advice you need. It may be a good opportunity to discuss any changes to your personal circumstances to see if you should enhance your asset allocation. This may be a timely opportunity to consider risk-managed equity or convertible strategies, alternatives or fixed income allocations.

When markets are turbulent, a disciplined approach can be hard. But in my experience, it can be well worth it in the long run.

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**STAYING INVESTED IS THE BEST LONG-TERM STRATEGY**
S&P 500 INDEX, ANNUALIZED RETURNS OVER 20 YEARS, 1999-2018

![Chart showing annualized returns over 20 years]

Source: Morningstar. Data ranges from 1/1/99 through 12/31/18. **Past performance is no guarantee of future results.**
STAYING INVESTED IN INTERNATIONAL MARKETS MAKES GOOD SENSE, TOO

What’s true of investing in U.S. markets also applies to those who invest for the long term in non-U.S. markets. Efforts to time international markets can be costly, as well.

TIME OUT OF NON-U.S. DEVELOPED MARKETS…
MSCI WORLD EX USA RETURNS AND THE GROWTH OF $10,000 OVER 15 YEARS (2004-2018)

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<th>Fully Invested</th>
<th>Missed 5 Best Days</th>
<th>Missed 10 Best Days</th>
<th>Missed 15 Best Days</th>
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AND TIME OUT OF EMERGING MARKETS CAN ALSO HURT PERFORMANCE RESULTS

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<th>Fully Invested</th>
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A SELLER’S PAIN CAN BE A BUYER’S GAIN

Investors should never put themselves in the position of being a forced seller. Periods of volatility in markets are quite common and serve as strong reminders that investors must have a deep understanding of their liquidity needs.

Long-lasting bull markets often lead investors to a false sense of security. Frequently, these investors stretch and take positions outside their long-standing risk tolerance or, even worse, overreach on margin in an effort to maximize short-term gains. They then see these gains as permanent and any reduction to these (unrealized) gains as a loss. For most investors, losses hurt more than gains satisfy.

For example, let’s look at the S&P 500 Index through 2018. Investors celebrated reaching 2800 on the S&P in July and yet had the opposite response when those levels were retested in October.

For most investors, losses hurt more than gains satisfy.

Market volatility can lead to margin calls, regret over “losses” or anxiety over the risk profile of a portfolio—resulting in investors becoming forced sellers, and forced sellers are price-takers, typically at unattractive prices. That’s unfortunate.

But there is an upside to market dynamics. For those investors who maintain healthy cash balances, manage leverage and take a long-term view, market volatility provides opportunities. This is especially true when the volatility is not related to changes in the underlying fundamentals of their investments. When an investment’s fundamentals are unchanged but now available for purchase at a more attractive price, that can be a positive. The seller’s pain is the buyer’s gain.
S&P CROSSED 2800 MULTIPLE TIMES, PROMPTING DIFFERENT REACTIONS

Past performance is no guarantee of future results. Source: Bloomberg.
MARKET VOLATILITY TESTS INVESTORS’ ABILITY TO BUY AND HOLD

In December 2018—the worst December for the S&P 500 since 1931—a record $89 billion flowed out of equity mutual funds.

Can you guess what happened in the weeks that followed?

The S&P climbed 7.9% in January, booking its best performance in 30 years. This is a fresh version of an old story. Attempts to time the market—to invest at the right time and to sell at the right time—don’t work.

Investors tend to enter markets late and leave too early. They have not demonstrated an ability to buy and hold unhedged equities across recent full market cycles, as this chart shows.

The blue bars in Figure 1 illustrate the buying and selling patterns of investors, represented by trailing 12-month domestic equity mutual fund flows. Since 2000, the peak selling over the past two cycles occurred at market bottoms, and the selling continued after the financial crisis.

**FIGURE 1. INVESTOR BEHAVIOR ACROSS MARKET CYCLES**


Performance data quoted represents past performance, which is no guarantee of future results.
ended. Investors were largely absent from the post-crisis rally, which many believe was partly caused by the recent volatility triggering emotional reactions.

Markets can be volatile, and that volatility can test an investor’s ability to buy and hold. This is true of investing in established U.S. markets and it’s also true of investors in emerging markets. Investors who sell when they’re uncomfortable tend to have unfortunate timing—selling at a market’s bottom and missing when the markets rally.

Figure 2 tracks the growing investment, via mutual funds, in emerging markets since 1993. In February 1993, the first month Morningstar began reporting Diversified Emerging Markets category net flows, $39 million was in funds whose benchmark was the MSCI Emerging Markets Index.

The blue bars in Figure 2 illustrate the buying and selling patterns of investors, represented by the estimated net flows into the category. The green line illustrates the jagged ascent of the index. As can be seen at multiple times over the years, those who took part in peak selling at market bottoms were largely absent from rallies that followed.

**FIGURE 2. MORNINGSTAR DIVERSIFIED EMERGING MARKETS FLOWS VS. MSCI EMERGING MARKETS INDEX**

Active managers are price-seekers every day in the market. ETFs are not, they represent a basket of securities and there’s no need for them to do price discovery. But there’s the opportunity for an active manager—when you’re a constant price-seeker, you detect changes in value and you can pursue them.

SCOTT BECKER, CFA
SENIOR VICE PRESIDENT, HEAD OF PORTFOLIO SPECIALISTS GROUP
SIGNIFICANT INTRA-YEAR DRAWDOWNS ARE COMMON

SCOTT BECKER, SENIOR VICE PRESIDENT, HEAD OF PORTFOLIO SPECIALISTS GROUP

Market pullbacks occur more often than many people realize. From late 2016 through January of 2018, the S&P 500 went a record number of days without a 3%+ pullback. The market also experienced an unusually long number of days without a 5%+ pullback, ending a run not seen since the 1950s.

After such a long period without significant pullbacks, many people may not realize significant pullbacks are actually quite common. This chart shows the maximum intra-year equity market drawdowns since 1980. From this, we can see how frequently at least one double-digit decline occurs within any given calendar year. In 20 of the last 39 calendar years—over 50% of the time—the S&P 500 saw a double-digit pullback within the year. In every year, there was a market pullback and on average the market experienced a 13% decline. In the years when the S&P did experience a double-digit decline, 12 of those 20 times—or 60% of the time—the market ended the year with a positive return.

S&P 500 MARKET DECLINES IN PERSPECTIVE: EVEN UP MARKETS SEE DRAWDOWNS

AS OF 12/31/18

Source: Morningstar daily total return data. Past performance is no guarantee of future results.
Market volatility creates opportunities. It is how advisors deliver alpha to their clients. So it’s important for advisors to know that this is their moment.

TIM BRAND
SENIOR VICE PRESIDENT,
HEAD OF U.S. DISTRIBUTION
Amid the doubts, skepticism and even pessimism surrounding emerging markets, there is this: Since the 1988 inception of the MSCI Emerging Markets Index, there have been seven major (25% or more) drawdowns in emerging markets. In each instance—seven out of seven times—the major drawdown was followed by a significant rally.

Notably, the average returns for the 12- and 18-month periods following a major EM drawdown illustrate the potential for gains. As the chart below shows, the last datapoint in the 18-month series confirms that this was true of the 2016-2017 rebound, too: From January 21, 2016, to July 21, 2017, the MSCI EM Index returned more than 60%. This is in line with the average 59% bounceback after the previous six drawdowns. Emerging market equites roared back yet again.

Emerging markets experienced another significant correction over 20% in 2018 in an environment of tighter Fed monetary policy and a stronger dollar, slowing growth in China and persistent trade tensions. Time will tell whether markets experience a similar recovery and rebound akin to prior downturns.

**EMERGING MARKET EQUITIES, MAJOR DRAWDOWNS AND SUBSEQUENT PERFORMANCE**

Past performance is no guarantee of future results.
VOLATILITY: PURSUING THE OPPORTUNITIES
HOW CONVERTIBLES CAN HELP BREAK A FALL

Investors gravitate to growth stocks for their potential to produce substantial returns. And yet, growth stocks can be especially volatile, and that volatility can be enough to discourage some investors.

At Calamos, we use convertible bonds to offset the risk of high-flying growth stocks. Convertible instruments combine characteristics of stocks and traditional fixed-income securities, providing investors with unique opportunities for managing risk and enhancing returns.

Like stocks, convertibles typically offer upside appreciation in rising equity markets and are less sensitive to rising interest rates. Like bonds, convertibles provide income and potential downside protection in declining markets.

These charts, based on an actual technology stock, illustrate how a convertible bond can help break a fall. While its stock price dropped sharply (down over 70%), the convertible security (the yellow line in the second chart) largely retained its value. It lost only about 10 cents on the dollar over the same 18-month period.

THE STOCK PRICE WAS DOWN OVER 70%...

…BUT THE CONVERTIBLE RETAINED 90 CENTS ON THE DOLLAR.

Historically, many convertible bonds have participated in a greater portion of their underlying stocks’ upside performance than their downside. This dynamic can be appealing to an investor who desires equity participation and is willing to exchange maximum upside for a great deal of downside protection.
Throughout this guide, we’ve demonstrated that volatility is a normal part of the markets. One of the best ways to navigate volatility is by having a well-diversified asset allocation that reflects your risk tolerance and financial goals.

Of course, because every investor is different, there’s no one “right” asset allocation. Good asset allocation strategies have something in common, however: They make it easier to stay invested during periods of market turbulence.

Convertible allocations may be particularly attractive for long-term investors who recognize the dangers of market timing. The unique structural characteristics of a convertible bond can lessen the temptation to make timing decisions about the stock market or interest rates.

Because the convertible universe is very equity-sensitive at times and very bond-like at other times, an active approach is essential for controlling risk and managing upside and downside participation without making a market timing call. With active management, convertibles can fill diverse asset allocation needs—from core equity to alternatives.

Convertibles and Asset Allocation

Convertible securities are equity-linked instruments that offer equity market participation with potential downside resilience when equity markets decline. In simplest terms, a convertible is a fixed-income security that includes an embedded option. Structurally, the risk/reward characteristics of convertibles allow them to support a range of asset allocation goals. However, convertible securities are complex. The attributes of convertibles may differ considerably and a specific convertible may be more equity-like at certain periods and more fixed-income-like in others. As a result of this dynamic, convertible securities demand active management.

Often, convertible securities are thought of as a single asset class; this ignores the variations within the convertible universe. Our approach is to use different convertibles within specific investment strategies. It is not simply the convertibles that make a strategy work but how convertibles are managed to achieve a particular investment objective.
FIGURE 1. CONVERTIBLE BONDS: AN OVERVIEW

A convertible bond has three main parts: its value as a straight bond (investment value), its value as a stock (conversion value) and the theoretical fair value. The three factors are interdependent, and each must be considered for a proper valuation of a convertible security.

» Yield Alternatives: Exhibit more fixed income characteristics and lower levels of equity sensitivity

» Total Return Alternatives: Offer a balance of equity and fixed-income characteristics

» Equity Alternatives: Exhibit higher levels of equity sensitivity

Source: Calamos Investments.

FIGURE 2. CONVERTIBLES CAN PROVIDE A HEDGE AGAINST RISING INTEREST RATES

Past performance is no guarantee of future results.
Lower Volatility Equity Participation

Convertibles with higher levels of equity sensitivity may be utilized within lower-volatility equity allocations, providing an innovative solution for investors who wish to participate in equity markets but are concerned about downside equity volatility. In volatile markets, the bond value provides a floor, and through coupon income, investors are “paid to wait” for the markets to turn. Furthermore, in volatile markets, the convertible’s embedded option can also increase in value.

A Proactive Way to Address Interest Rate Increases

Convertibles have historically performed well during periods of rising interest rates and inflation. Convertible strategies may be used to diversify a traditional fixed-income portfolio (i.e., government bonds) as a high yield corporate bond allocation might. Bonds tend to lose value in an environment of rising interest rates. However, convertible returns have tended to more closely reflect equity returns than bond returns when the 10-year Treasury yield rose more than 100 basis points (Figure 2).

While convertibles are influenced to a degree by interest-rate fluctuations, they also are affected by the price movements of their underlying stocks, a factor that historically has helped soften the negative effect of rising interest rates. In general, the more a convertible’s price is determined by the value of its underlying equities, the greater its tendency not to be influenced by changing interest rates.

Alternatives

Convertibles with a range of characteristics can be used within alternative allocations, such as hedged strategies that employ convertible arbitrage. (For more information, please see “Gamma Trading: Why Big Swings Can Be Good News” on page 32). Including convertible-based alternative strategies can provide an added layer of diversification to an asset allocation.

Conclusion

Calamos Investments’ experience with convertible securities dates to the volatile financial markets of the 1970s. During this period, convertible strategies often provided better returns than either the stock or bond markets. Since then, our teams have used convertibles to enhance asset allocations through full and multiple market cycles, providing benefits that stock and bond allocations alone cannot. As a fixed-income security with equity attributes, a convertible may be viewed as offering the best of both worlds; and with active management, convertible securities can address many different types of asset allocation needs.
VOLATILITY: AN ALLY, NOT AN ENEMY

As a member of the portfolio management team for our convertible bond strategies, I view volatility as an ally, not an enemy. Volatility provides us the opportunity to readjust the risk/reward of portfolios to provide what we believe will be the best profile given where we are in an economic business cycle. Although some convertible bonds can act just like equities and some convertible bonds can act like corporate bonds, we generally choose to stay in the “sweet spot” of the convertible spectrum where we can maximize upside with equity markets, while simultaneously minimize downside.

We like to use the favorable attributes convertible bonds afford us. An increase in volatility often means an increase in uncertainty and with more uncertainty, ensuring an optimal risk/reward is paramount to long-term success—volatile markets give us the chance to maintain that favorable risk profile.

Markets move up and markets move down, but we have long cautioned investors to not let short-term events lead them away from their long-term strategies. We remind ourselves of that when we see volatility and heightened uncertainty. Sticking to a multifaceted, repeatable and continually improving investment process designed to maximize success and persevere over the long term has been key for us in volatile times. The convertible strategies’ investment process is focused on risk management, equity valuation, convertible bond structure, quantitative screening, credit analysis, a macro overlay and identifying long-term secular themes.

Let’s take a closer look at one part of this process: our focus on secular themes. We believe our emphasis on companies tied to long-term societal themes or multi-cycle trends helps minimize errors and enhances the prospects for success over time.

Twelve years ago we wrote an article to our clients about the secular trends we were seeing, which included demographic shifts, the global war on terror, infrastructure rebuild, accessing all information anywhere and any time, and biotechnology/genetics. These themes have helped guide us in volatile times and are still very prevalent today.

Currently, we see other multi-cycle trends that we believe also will serve as a “beacon in a volatile storm,” by keeping us focused on the long term. Among others, these include artificial intelligence, big data, automated driving, cyber security, and blockchain technology.
After the financial crisis in 2008, many investors questioned the usefulness of diversification in protecting their assets during periods of financial stress. While this makes sense, as many investors’ portfolios were down considerably despite having been what they considered diversified, diversification was not to blame. The complexity of portfolio construction and understanding the source of risk in their allocations were most likely not fully understood, leading to underdiversified allocations.

Portfolio construction has become more complex and investors should rethink their overall approach. One approach is to think in terms of risk diversification and including new building blocks, such as alternatives, in order to minimize downside risk and create a much more diversified portfolio.

BENEFITS OF ADDING ALTERNATIVES TO AN ASSET ALLOCATION

HYPOTHETICAL ILLUSTRATION

Source: Morningstar. Alternative investments are not suitable for all investors. Annualized Standard Deviation is a statistical measure of the historical volatility of a mutual fund or portfolio. Asset allocation/diversification does not guarantee investment returns and does not eliminate the risk of loss.
The Dominance of Equity Risk

Diversification in its simplest form is based on combining two asset classes with low or negative correlations, spreading risk across the portfolio. To illustrate this concept, three basic portfolios were created using two traditional asset classes that have low correlations over long periods of time: equities and fixed income. Over 20 years, correlations between these two assets has been about -0.02.

On the chart on the previous page, the left axis represents return and the bottom axis represents risk, over the same 20-year time period. The center portfolio is an equal allocation of equities and bonds, the portfolio to the bottom left would be considered more conservative with a 70% allocation to fixed income and the portfolio up and to the right would be more aggressive with a 70% allocation to equities.

Of course, this is a basic example and while the allocation has spread risk among equities and fixed income, it is still under diversified. Equity risk dominates all three portfolios. Surprisingly, even the portfolio with 70% fixed income has a high correlation to the S&P 500 over a 20-year period.

Create a Higher Probability of Favorable Outcomes

Asset allocation is evolving from the building of portfolios with traditional asset classes into risk-diversification. New portfolio building blocks are available such as alternatives and multi-asset class products to help construct portfolios that spread risk, increase diversification by adding products with low correlations to equities and bonds, and create a higher probability of favorable outcomes, especially during market downturns. These new asset classes, when added to a traditional asset allocation, can have a positive effect on portfolio risk and reward and downside protection.

To illustrate how alternatives can add value, we created an allocation that includes a 20% mix of alternatives. The alternative sleeve is represented by a mix of strategies that includes an allocation of 5% to real estate, 5% to private equity and 10% to a HFR composite that includes multiple alternative strategies.

When adding this sleeve to the original allocations, the new portfolios move up and to the left on the chart. This indicates that a more efficient allocation has been created, with lower risk and higher return expectations.

Depending on an investor’s risk tolerance and investment objective, an allocation of 10%–20% in alternatives may make sense in order to have a meaningful impact. That may seem high, but consider that many investors subject their asset allocations to 70% exposure to long-only equities across the globe. During financial stress these become highly correlated, exposing investors to potential large drawdowns.
High Volatility: The Lowest Risk Moments to Own Equities

The origin of the idiom “Don’t stare a gift horse in the mouth” is ancient and unknown. It expresses the advice to not refuse something that is fundamentally good (“the gift”) while spending time finding fault with what is being offered (“the horse’s bad teeth”).

When confronting volatility in financial markets, investors are inclined to stare the gift horse in the mouth. They struggle to see through volatility for what it is: the opportunity to position for higher equity returns. Of course, investors do not want to be told that volatility is a gift when they have just watched the value of their portfolio decline!

Most investors abhor volatility and will gladly sacrifice returns to avoid it. But for those with a long-term horizon, this does not make sense. As Warren Buffett noted, he would always pick a strategy that could provide 12% compound returns over five years than one that promised a lesser but more stable 5% return. Most investors mistakenly prefer the more stable 5% return, especially in difficult times.

Volatility is usually associated with a disruptive market environment and investors seek to avoid these moments in financial history. From our perspective, volatility is the sign that one should prepare to buy. While it may not feel like it at the time, periods of high volatility are invariably the lowest risk moments to own equities because the “problems” are more widely understood. There is always the chance that stocks become cheaper still, but this is a short-term rather than long-term risk.
One corollary is to be well positioned entering the period of disruption. Volatility is irregular and unpredictable. The advantage of long/short investing, as well as other risk-adjusted alpha investments, is that they seek to avoid overexposure to equity downside.

Equally, this is why we adopt an incremental approach to adjusting our equity exposures. We do not want to jump 100% into our long exposures after a 10% pullback, when the final correction might be more like 20% to 30%.

Judging the context of a volatility cycle is critical. Good information, thoughtful analysis, quick but not impulsive reactions and knowledge of economic and social history are all important ingredients for getting it right. At moments of extreme fear, the power of daily price momentum and the passions of “the crowd” are important psychological influences upon all of this.

Extreme volatility is the sign that it is time to become a long-term investor again. Being bearish or cautious always sounds smarter than being bullish like staring the gift horse in the mouth. The advantage of a long/short strategy is that it weighs against the crowd and seeks the full upside of equities on an opportunistic basis.
MANAGE VOLATILITY BY USING LIQUID ALTS TO HEDGE EQUITIES

After the 2008 financial crisis, institutional investors recognized that market volatility and high correlations among asset classes called for a revised approach to portfolio allocation. In response, many state pension funds reduced unhedged equity risk in their portfolios by sharply increasing allocations to alternatives, some in the form of hedged equities.

Individual investors, on the other hand, continued a traditional allocation with comparatively more unhedged equities, much more cash, and much less in risk-managed strategies such as alternatives.

In our view, a more strategic response for individuals would be to increase exposure to hedge equities. We believe that increasing exposure to hedged equity strategies may provide the downside protection—and therefore emotional reassurance—that individual investors need to stay in the market. Why? This allocation strategy helps address market volatility. With potential for downside protection in place, investors may avoid running to the sidelines and missing out on gains—as happened during the bull market that began in 2009.

By making the decision to hedge a portion of their unhedged equity holdings, investors may be better able to stay the course and weather the storms. This way, hedged equities can serve as tools to address the human response to market conditions. This may be increasingly important given the historical shift of “typical” market behavior toward higher structural volatility.

Individual investors’ high allocations to cash—on average 15% of assets—essentially showed a simpler reaction to the same issues that prompted institutional investors to increase allocations beyond long-only strategies.

The majority of risk in a diversified equity portfolio... cannot be diversified away in a long only portfolio.

Correlations and Diversification

Higher correlations among assets have also increased the inherent risk of unhedged equities.

The organizing principle of Modern Portfolio Theory (MPT) is that combining assets with low correlations to each other can reduce portfolio variance and improve risk-adjusted returns. For example, many investors diversify their equity exposure internationally, with both developed and emerging market holdings.

Prior to 1990s, the long-term correlation between international (developed) equities and the S&P 500 Index was under 0.50. The pre-1990 value for emerging markets was even lower, at 0.18. These relatively low correlations allowed meaningful diversification while staying within equities as a broad asset class.
Note how much correlations have risen in the last 25 years. Now, the S&P 500 Index is highly correlated to both international developed and emerging markets.

Such increases in correlations may underscore the need for including hedged equity strategies in a well diversified portfolio. As a risk management tool, hedging offers significant benefits relative to solely diversifying across types of equities. Given that the majority of risk in a diversified equity portfolio is market-based risk (rather than company-specific risk), it cannot be diversified away in a long-only portfolio. However, hedged equities, by design, can address market-based risk.

**Long/Short Equity and Covered Call Writing**

Two types of equity strategies may be especially useful to investors seeking to hedge a portion of their equity exposure.

» Long/Short Equity: Managers of long/short equity strategies seek to benefit from stocks that are appreciating in price as well as from those that are declining in price.

» Covered Call Writing: Managers of covered call strategies seek to reduce risk and generate income from:
  - Writing call options against long equity positions
  - Purchasing puts to provide downside protection to the portfolio

### CORRELATIONS BETWEEN EQUITY MARKETS HAVE BEEN RISING FOR DECADES

<table>
<thead>
<tr>
<th>DATE RANGE/ CORRELATION</th>
<th>INTERNATIONAL EQUITY TO S&amp;P 500</th>
<th>EMERGING MARKETS TO S&amp;P 500</th>
<th>INTERNATIONAL EQUITY TO EMERGING MARKETS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to 1990</td>
<td>0.49</td>
<td>0.18</td>
<td>0.17</td>
</tr>
<tr>
<td>1990-1999</td>
<td>0.54</td>
<td>0.57</td>
<td>0.53</td>
</tr>
<tr>
<td>2000-2009</td>
<td>0.88</td>
<td>0.79</td>
<td>0.88</td>
</tr>
<tr>
<td>2010-2018</td>
<td>0.85</td>
<td>0.73</td>
<td>0.83</td>
</tr>
</tbody>
</table>


**Portfolio Variance** is the measurement of how the actual returns of a group of securities making up a portfolio fluctuate. Portfolio variance looks at the standard deviation of each security in the portfolio as well as how those individual securities correlate with the others in the portfolio.
I am in the camp that gets excited about volatile times. Increased volatility creates additional opportunities. Also, since we are on the hedged side of the business, we are in a unique spot to be able to capitalize off market swings.

Market movement creates opportunities for us to adjust our hedges, but also to alter or exit many of our trades and enter into new trades that didn’t exist previously. And, as volatility increases we find that asset class correlations break down.

In ordinary uneventful times there is high correlation among securities of the same or similar issuers across asset classes. While equities, convertibles, high yield and options are traded by largely different players and desks, and ultimately held by different end investors, they are highly correlated. Convert guys know what price the high yield bonds trade at and at what volatility the options trade. Those desks in turn should be focused on convert and equity valuations.

THE OPPORTUNITIES THAT ARISE WHEN MARKETS MOVE FAST

Which names will benefit or suffer and has the market adjusted them yet?

Normally, markets are fairly efficient and quick to adjust when other asset classes move. When volatility increases, though, markets move fast and each player has a tendency to focus more on their market and less on the other markets.

We can take advantage of these dislocations to create arbitrage situations or to adjust positions. Additionally, we can take them as a warning sign that other markets are pricing in risks that our market hasn’t yet.
The first thing I do when markets are moving fast is make sure we are positioned well and prepared. After that, I look for opportunity:

» How can I take advantage of this move to adjust our trades and hedges (i.e., lock in profits on shorts or puts, buy back calls we have sold, etc.)?

» Are single name option volatilities spiking and can I take advantage of this to create an arbitrage vs. our convertible positions?

a. The listed option market moves faster and has larger moves than converts.

b. We can use listed options opportunistically.
   i. Hedge—forward trade our gamma (sell puts or calls instead of covering or shorting stock—see page 34).
   
   ii. Lock in value or create arbitrage—we are long volatility through our converts and can sell in listed market to create arbitrage.

» Which names will benefit or suffer from this move and has the market adjusted them yet? (A deep-in-the-money name which now will become balanced, for example, or a balanced name where the credit is deteriorating.)

» Formulate a game plan for the next move—after an equity sell-off we look at what will we do and which names/trades will benefit if we continue lower or if we snap back.

a. If market continues lower
   i. Which names/trades benefit from the next leg down
   
   ii. What opportunities might the next leg present (volatility arbitrage, hedge adjustments, etc.)

b. If we snap back
   i. Which names didn’t recover (but should have?)
   
   ii. Which opportunities do I get a second chance to add that I realize I missed before?
   
   iii. Did our portfolios/securities perform as we expected and if not should we adjust?
When it comes to your investment portfolio, volatility can be an unsettling word. For strategies that utilize convertible arbitrage, though, market volatility can be a welcomed phenomenon, as we may be able to profit from it through what is referred to as gamma trading. In a convertible arbitrage strategy, we are buying convertible bonds and selling short shares of the underlying stock as a hedge. If the stock rises, we will lose money on the shares we are short but we will make money on the bonds we own as they appreciate in value.

This brings us to our topic, gamma trading. To understand gamma trading, we have to begin with another Greek letter: delta. Keep in mind that from here on out, we’ll be discussing theoretical outcomes, not the performance of any security.

If you look at the convertible fair value price track (Figure 1), you can see that as the price of the underlying stock rises, the convertible value rises, and as the stock value falls, the convertible value falls as well. (For more on the convertible fair value price track, see the Calamos guide, “Convertible Securities: Structures, Valuation, Market Environment, and Asset Allocation.”) How much the convertible value rises or falls for a given stock move is referred to as delta. The higher the delta, the higher the sensitivity to the stock’s moves.
Now the big question: how might we profit from this?

As noted earlier, in a convertible arbitrage strategy, if a stock rises, we will lose money on the shares we are short but we will make money on the bonds we own as they will appreciate in value. If we think the stock is undervalued, we can short fewer shares (a bullish hedge). Or, if we think a stock is overvalued, we can short more shares (a bearish hedge). More frequently however, we implement what is called a delta neutral hedge. If we are on a delta neutral hedge, the money we make on the bond and the money we lose on the stock should be equal and offset. Unlike a bullish or bearish hedge where we are seeking to profit from the stock rising or falling, a delta neutral hedge seeks to profit simply from stock volatility.

As we discussed earlier, as the stock moves, our delta changes (gamma) and we need to adjust our position if we wish to maintain a similar hedge. As the stock rises, our delta increases, which means we need to short additional shares to stay on a similar neutral hedge. Conversely, as the stock falls, our delta falls and we need to cover shares to remain on the neutral hedge. From a mechanical standpoint, we continually sell as a stock advances (sell high) and buy as a stock declines (buy low). The more volatility in the market, the more stocks rise and fall—which can give us more opportunities to sell high and buy low.

Let’s look at a hypothetical example. We own an XYZ convertible bond that converts into 100 shares of XYZ stock and has a .50 delta. On Day 1, we would short 50 shares of XYZ stock to be on a neutral hedge. If on Day 2 the stock rises and our delta increases to .60 we would short another 10 shares of stock to remain neutral. Let’s say on Day 3 or Day 4 the stock price declines back down to the original Day 1 level. We would then buy back the extra 10 shares we shorted. We would still be on a neutral hedge with the same bond and stock prices as on Day 1 but we now have real profits booked on shares we sold high and then bought low.

In Figure 2, we show an example of gamma trading over a longer period. The chart shows five sales and five purchases of XYZ, which together produce the desired pattern of buying low and selling high. As the stock price moves, we buy or sell based on the change in delta (gamma). At the end of the period, the stock price is very similar to where it was at the start of the period, and theoretically, the convertible bond price and the delta would be fairly similar to their starting levels, as well. If we had simply held the position, we may have only minimal profits or losses. However, in this hypothetical example, we have locked in realized profits from the five sets of gamma trades.
So while big market swings may not be comfortable for most investors, they can provide a convertible arbitrage strategy with lots of gamma trading opportunities.

Alternative investing strategies, such as gamma trading, are not appropriate for all investors. The value of a convertible security is influenced by changes in interest rates, with investment value declining as interest rates increase and increasing as interest rates decline. The credit standing of the issuer and other factors also may have an effect on the convertible security’s investment value.

**Convertible Arbitrage Principal Risks:** The value of a convertible security is influenced by changes in interest rates, with investment value declining as interest rates increase and increasing as interest rates decline. The credit standing of the issuer and other factors also may have an effect on the convertible security’s investment value.

**Convertible Hedging Risk:** If the market price of the underlying common stock increases above the conversion price on a convertible security, the price of the convertible security will increase. The portfolio’s increased liability on any outstanding short position would, in whole or in part, reduce this gain.

**Short Sale Risk:** A portfolio may incur a loss (without limit) as a result of a short sale if the market value of the borrowed security increases between the date of the short sale and the date the portfolio replaces the security. The portfolio may be unable to repurchase the borrowed security at a particular time or at an acceptable price.

The opinions referenced are as of the date of publication and are subject to change due to changes in the market or economic conditions and may not necessarily come to pass. Information contained herein is for informational purposes only and should not be considered investment advice.
Risk management is always part of the conversation we have with advisors. We urge advisors to anticipate and plan for volatility. The best preparation for volatility is to be proactive, not reactive.

BRIAN WAeyaert
Senior Vice President, National Sales
Director for Hybrid and Internal Sales
THOUGHTS ON INFORMATION, VOLATILITY AND A LESSON FROM TEXAS HOLD ‘EM

We live in an era of nearly unlimited information access. But, I am also fascinated by the dichotomy between the massive trove of available information and, yet, the occasions when a marginal piece of information results in significant spikes in market volatility and changes in asset prices. After all, in an era of big data and machine learning, one might think the impact of a single piece of information would be marginalized. I would argue otherwise, and I believe global markets show us this time and again.

Market volatility in the face of additional information reminds me of the advent of the table camera in Texas Hold ‘Em poker games on television. Before these camera angles revealed each player’s hand, it was somewhat interesting to watch player strategy in a game of raw odds and emotions. But after this innovation, the game became far more captivating because it showed how people respond to additional information—where the “flop” and the “river” cards might be equated to a company earnings report or central bank decision for investors.

In investing, information and volatility tell you a great deal about how other investors are positioned, their central expectations, and the outcomes they anticipate. After all, higher volatility (in terms of the VIX index) in essence reflects a broader range of potential outcomes and higher options prices.

2018 provided several of these “information jolts,” and I thrive on these days. I always talk with our team about their perspectives in real time and it’s one of the advantages of working together in one office across our set of investment strategies.
The first such jolt arrived in early February 2018, in response to routine U.S. data showing higher average hourly earnings than forecast. The force and depth of selling in risk assets told me that investors were very nervous about inflation and the Fed policy path, with important implications across a range of investments.

Markets faced another volatility spike in early October when Fed Chairman Jerome Powell said—somewhat off the cuff during a conference—that we are a “long way from neutral.” Stocks dropped across all regions and volatility spiked about 30% in a couple days, as markets re-priced the “range of outcomes.”

For our team, this occasion gave us another critical look at investor positioning and behavior. Investors weren’t sure of the Fed’s stance, and most would stay away from emerging markets and hunker down in defensives. But the patterns in equities, currencies, and inflation expectations over the next several weeks were enormously insightful and, to us, spelled opportunity.

In summary, data and information are ubiquitous today and should be commoditized. But, the reality is quite different. The discovery of marginal information over several trading days can determine an entire year of asset returns. At Calamos, we believe investing is a mix of art and science—and we wouldn’t want it any other way.
In 2017, volatility reached historically low levels—the S&P 500 had zero moves greater than 2% and only eight between 1-2%. In 2018, volatility kicked into a higher gear, with 64 days where the S&P 500 Index moved 1-2% and 20 days with moves greater than 2%.

While 2018 may have seemed particularly volatile, the average VIX level for the year was only 16.6, below the 10-year average of 18.5. With volatility returning to more normal levels, 2019 could see even more volatility.

Investors may not like the return of volatility, but it can strengthen the tailwinds for the gamma trading we do in our market neutral income strategy (see page 32). The more volatility in the market, the more stocks rise and fall—which can give us more opportunities to sell high and buy low.

But, what if volatility declines again or stays at more normal levels? The good news is that gamma trading is a versatile strategy. In an environment like 2017 when overall market moves were at a minimum, one might assume there were limited opportunities for us to profit from gamma trading. Although we did see somewhat muted convertible arbitrage returns because of the low vol environment, low volatility in the S&P 500, VIX and other major indexes does not always mean low volatility for individual stocks.

We can still find many gamma trading opportunities even in low volatility environments:

1. **Sector rotations and individual stock volatility versus index volatility.** For example, if the market is experiencing a sector rotation, Utility Stock A could be down 10%, while Tech Stock B is up 10%. Individually, these are very large stock moves, but if Stock A and Stock B were in the same index, their moves would cancel each other out, in theory. So, while there could be a major sector rotation going on along with substantial single-stock moves, overall index volatility could still be very low.
VOLATILITY SOMETIMES GOES UNREPORTED

It’s not uncommon for volatility to go unnoticed. This occurs on days when big moves within an index or sector cancel one another out. Observers may conclude that nothing has happened, but owners of individual stocks have a very different experience.

A convertible arbitrage strategy doesn’t need index or sector volatility. Large moves in individual stocks are enough to provide gamma trading opportunities and price dislocations.

2. Company-specific events. Companies release earnings throughout the year and this creates many opportunities to trade. It is common to see greater than 2 or 3 standard deviation moves following earnings releases as well as other company-specific events and announcements.

3. Smaller market-cap companies. Small and mid-sized companies represent about half of the U.S. convertible market. These smaller market-cap companies typically have higher historic and forecasted volatility levels than larger cap stocks.

Conclusion

While we’ve seen index volatility snap back in a major way, it is important to remember that gamma trading can be profitable in many different market environments and does not rely solely on elevated broad market volatility.
Volatility plays an important role in how we manage some of our hedged strategies and generate returns. This has led to the question “How do we manage volatility-aided strategies in periods of low volatility?”

Because our convertible arbitrage strategy relies on individual stock volatility rather than index volatility to provide gamma trading opportunities and price dislocations, a reduction in market volatility can have less of an impact than it has on our hedged equity strategy, which relies more on index volatility.

In general, we think of covered call (collared) strategies as short volatility. We generally take in more premium from the calls we sell than we spend on our put protection, and the strategy can perform well in a slow-grinding upward market that often coincides with low volatility periods. Therefore, the strategy has tended to work well during the transition phase from a normal volatility environment to a low volatility environment. (Our calls decrease in value while our equities might slowly rise.)

However, if low volatility persists once we get past the transition phase, we often adjust our focus. One of the guiding principles of our market neutral income and hedged equity income strategies is to take advantage of the opportunities the market presents, not the ones we hoped it would present. In normal markets, we are able to generate income from our option hedge as the money we take in selling calls can exceed the money we spend on puts. This becomes challenging with index volatility low and nearly impossible at historic lows like we saw in 2017. That said, any time we find ourselves talking about “historic” levels, there are often opportunities as well.

For strategies like ours that rely on providing downside protection, the opportunity presented in low volatility environments is clear. Just as the price of the calls we sell is lower, the price of the puts we need to buy is lower too. This allows us to add more hedge through puts than we would normally be able to purchase. Similar to a shopper at a store, with the price of downside protection low, we can afford to stock up. We need to manage the cost of that in conjunction with the decreased income we discussed earlier, but the lower cost can allow us to be more hedged should a period of complacency end with a downside move.

If the low volatility persists, we will continue to focus on capturing individual equity volatility in our convertible arbitrage strategy, while aggressively monitoring our option income/spend. Also, as always, we are working to identify and take advantage of opportunities the market presents. Although it may limit our income, a reduced call overwrite combined with increased put protection can leave us positioned favorably whether the low volatility environment is just a pause before the next leg of a continued bull market or simply the calm before the equity storm.
Glossary

Correlation: Correlation is a statistical relationship between two variables. A positive correlation occurs when two variables move in tandem—one variable increases as the other increases and vice versa. Negative correlation occurs when they move in opposite directions—one variable increases as the other decreases and vice versa.

Covered Call Writing: Writing (selling) of call (buy) options against owned stock positions; the option writer receives income from the option premium and is obligated, if and when assigned an exercise, to deliver stock according to the terms of the contract. Only the option buyer can exercise an option. This strategy works well in a low volatility environment.

Delta: How much the convertible value rises or falls for a given stock move.

Drawdown: The peak-to-trough decline during a specific record period of an investment. A drawdown is usually quoted as the percentage between the peak and the trough.

Gamma: The change in delta as stock price moves.

Hedged Equities: The performance of traditional equity investments, or “unhedged equities,” tends to rise and fall with the stock market. Some alternative investments, such as equity long/short and covered call strategies, are referred to as “hedged equities,” which seek to reduce portfolio risk while maintaining equity exposure. The term “hedged equities” does not necessarily mean long and short equally offset each other. Rather, that a measure of risk control is in place.

In the Money: A call option is said to be in the money when the current market price of the stock is above the strike price of the call. It is “in the money” because the holder of the call has the right to buy the stock below its current market price. When you have the right to buy anything below the current market price, then that right has value.

Long/Short: A strategy in which a portfolio manager or investor holds both long (buy) and short (sell) positions designed to offset each other and hedge against market volatility.

Semi-Variance: Semi-variance breaks down deviation from the mean into two more meaningful parts: the upside and downside. Upside semi-variance shows how much of the investment’s overall volatility is the result of upward price movements, and downside semi-variance represents downside movements.

Sharpe Ratio: Sharpe ratio is a calculation that reflects the reward per each unit of risk in a portfolio. The higher the ratio, the better the portfolio’s risk-adjusted return is.

Standard Deviation: Standard deviation is a measure of volatility.
Disclosure
Opinions and estimates offered constitute our judgment and are subject to change without notice, as are statements of financial market trends, which are based on current market conditions. We believe the information provided here is reliable, but do not warrant its accuracy or completeness. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The views and strategies described may not be suitable for all investors. This material has been prepared for informational purposes only, and is not intended to provide, and should not be relied on for, accounting, legal or tax advice. References to future returns are not promises or even estimates of actual returns a client portfolio may achieve. Any forecasts contained herein are for illustrative purposes only and are not to be relied upon as advice or interpreted as a recommendation.

Past performance is no guarantee of future results.
The opinions referenced are as of the date of publication and are subject to change due to changes in the market or economic conditions and may not necessarily come to pass. Information contained herein is for informational purposes only and should not be considered investment advice.

The S&P 500 Index is considered generally representative of the U.S. stock market. Indexes are unmanaged, do not entail fees or expenses and are not available for direct investment.

The MSCI World Index is a market capitalization weighted index composed of companies representative of the market structure of developed market countries in North America, Europe, and Asia/Pacific region.

ICE BofAML All U.S. Convertibles Index (VXA0) is comprised of approximately 700 issues of only convertible bonds and preferreds of all qualities.

The Bloomberg Barclays U.S. Aggregate Bond Index covers the U.S.-denominated, investment-grade, fixed-rate, taxable bond market of SEC-registered securities. The index includes bonds from the Treasury, Government-Related, Corporate, MBS (agency fixed-rate and hybrid ARM passthroughs), ABS, and CMBS sectors.

The Dow Jones Industrial Average is a price-weighted average of 30 blue-chip stocks that are generally the leaders in their industry.

The MSCI EAFE Index is an arithmetic, market value-weighted average of the performance of securities listed on the stock exchanges of selected countries in Europe, the Far East and Australia.

The MSCI Emerging Markets Index represents large and mid cap companies in emerging markets countries.

The MSCI World ex USA Index captures large and mid cap representation across 22 of 23 Developed Markets (DM) countries excluding the United States.

The HFRI Equity Hedge Index consists of funds where portfolio managers maintain long and short positions in primarily equity and derivative securities.

The Nasdaq Index is the market-capitalization weighted index of the more than 3,000 common equities listed on the Nasdaq stock exchange.

The Russell 2000 Index measures U.S. small-cap stocks.

The VIX (CBOE volatility index) is the ticker symbol for the Chicago Board Options Exchange (CBOE) Volatility Index, which shows the market’s expectation of 30-day volatility. It is constructed using the implied volatilities of a wide range of S&P 500 index options.

The Morningstar Diversified Emerging Markets Category is comprised of funds with at least 50% of stocks invested in emerging markets.

Important Risk Information. An investment in the Fund(s) is subject to risks, and you could lose money on your investment in the Fund(s). There can be no assurance that the Fund(s) will achieve its investment objective.

Investment in the Fund(s) is not a deposit in a bank and is not insured or guaranteed by the Federal Deposit Insurance Corporation (FDIC) or any other government agency. The risks associated with an investment in the Fund(s) can increase during times of significant market volatility. More detailed information regarding these risks can be found in the Fund’s prospectus.

Some of the risks associated with investing in alternatives may include hedging risk, derivative risk, short sale risk, interest rate risk, credit risk, liquidity risk, non-U.S. government obligation risk and portfolio selection risk. Alternative investments may not be suitable for all investors.

Before investing carefully consider the fund’s investment objectives, risks, charges and expenses. Please see the prospectus and summary prospectus containing this and other information which can be obtained by calling 1-800-582-6959. Read it carefully before investing.

NOT FDIC INSURED | MAY loose VALUE | NO BANK GUARANTEE
THE ROOTS OF THE CALAMOS RISK MANAGEMENT CULTURE

John Calamos learned about convertible bonds while studying investment books in his downtime as a B-52 pilot on alert in 1970.

The 1970s was an extremely volatile era for the financial markets. Rapidly ascending energy prices, inflation, economic slowdown, high unemployment and soaring government debt together fueled market turmoil and investor anxiety. After the Air Force, while working as a stockbroker, John used convertible bond strategies to preserve capital during market downturns and make money during short-lived upturns.

John went on to found Calamos Investments and established himself as a recognized authority on risk-managed investment strategies. But both his military and his early investing experience shaped his views on risk and continue to influence the investment culture of Calamos Investments today.

When John flew fighters, his goal was not to avoid risk but to understand and control it.

How do you control risk as a pilot? “By knowing as much as possible about your airplane, especially the emergency procedures,” John says. “If a fire breaks out, you don’t have time to get the manual out and study what to do. You’ve got to know what to do—which means preparing before the event. That’s risk management.”

“Your risk management needs to be in place before the event, not after,” John says.