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It’s simple: you want a reasonable rate of return at an acceptable level of risk.

The right downside protection strategies can help protect investors against significant losses. That’s important to preserve the power of their portfolios and allow maximum participation in future gains.

After the hard lessons of the 2008 Global Financial Crisis, many institutional investors and pension funds are under pressure from their stakeholders to find better ways of limiting the risks that they face — meaning that downside protection strategies have assumed new importance for many.

And, with a market consensus expectation of increased volatility, even those investors free of such stakeholder pressure are considering ways of locking in the gains of the 5-year equity bull run.

These downside protection strategies may be beneficial for all investors who wish to preserve and accumulate capital.
VOLATILITY RISING

Volatility is driven by uncertainty and — through coordinated monetary policy, together with central bank bond purchases and more recently policymakers’ forward guidance — uncertainty has been extraordinarily low. However, we expect volatility to rise.

What Are the Causes?
Quantitative easing and related central bank actions mean that we are currently in the midst of one of greatest monetary experiments the market has known.
This, coupled with increasingly divergent monetary policy in the major economies, rising geopolitical stresses and the changing fortunes of powerhouse economies such as China provide conditions that may well lead to rises in volatility.

Why Volatility Matters
Financial market volatility has tended to largely equate to equity volatility, and, even more specifically, the VIX. The VIX is the implied volatility of the S&P 500 Index, and tracks the market’s expectation of 30-day volatility.
Risk-adjusted returns tend to be strongest in low and low–medium volatility periods. Returns can also be good in high-volatility periods but the risk-adjusted return is not as attractive.
Maximum drawdowns in periods of higher volatility have been very significant, so, while returns can indeed be higher, the level of risk increases disproportionately.
In other words, volatility is an important factor to consider in portfolio management as an unexpected rise in volatility has tended to have a strong negative correlation with the returns of the underlying asset. A high degree of uncertainty tends to lead to greater dispersion, therefore over a short period of time the price of a security can be expected to change more.
Market and World Events Drive Volatility

The CBOE Volatility Index (VIX), sometimes referred to as investors’ ‘fear gauge’, shows clear spikes related to world and market events.

Market Factors May Drive Volatility Back to Longer-Term Average

Market factors such as Federal Reserve rates shifting could lead to increases in volatility that shift volatility levels back towards their longer-term norm.

Number of Days Market Moved More Than +/- 2%

WHY PROTECT?

Good downside protection can benefit portfolios in several ways. Studies, such as that by Bhansali and Davis (2010), have shown that downside protection strategies can boost total portfolio profitability since an effectively hedged portfolio allows for a more growth-oriented asset allocation.

In addition, Fama and French (1989) demonstrated that expected returns change over time and that expected returns are likely to rise during periods of market distress, in order to compensate those investors willing to bear market risk. That expected returns are correlated to business conditions and recent market volatility increases the benefits of an efficiently run downside protection program.

If an investor can limit losses during a significant market drawdown, saving their “dry powder,” they can then re-allocate toward riskier assets after the drawdown to help benefit from rising return premiums.

The Limits of Diversification

The first tool that many investment managers use to curtail tail risk is to diversify among asset classes with apparently low correlation.

However, simply diversifying global equity with fixed income, for example, does not do enough to limit tail risk. A portfolio with a traditional 60% equity, 40% fixed income allocation derives over 85% of portfolio risk from the equity component (Qian (2011)) — so true portfolio risk is highly concentrated and actually highly correlated. It also means that investors may not be achieving the true level of protection they require.
Substantial drawdown events are more common than many investors realize and can take longer to recover from than you may think.

More Common Than You May Realize...

The graph shows the magnitude and frequency of tail events illustrated by the peak-to-trough drawdown losses of the US market since 1950. Every time the line hits the top axis, the equity market has reached or exceeded its previous peak. The S&P 500 Index has experienced 18 drawdown events of 20% or more since 1950, averaging one event approximately every 3.5 years.

And Recovery Can Be Harder

Portfolios can be severely damaged during crisis events and it can take longer than expected to earn back those losses. For example, an investment portfolio that loses 10% of its value requires an 11.1% return to break even over a 1-year period. And the same portfolio would need a return of 20.4% over the year to achieve a targeted return of 8%.
WHEN TO ACT?

Timing Considerations
From our conversations with clients we know that there is some concern that adopting a defensive stance may mean missing out on upside potential. This is particularly the case against a backdrop of ultra-low interest rates and quantitative easing where growth is harder to come by. However, in our experience it is better to start implementing defensive portfolio decisions during more favorable market conditions, when there is time to consider alternatives and when the cost of implementing these decisions is lower. When markets are in crisis mode — such as they were in September 2008 or August 2011 — it is often simply too late.

Importantly, we believe that there are ways to optimize the balance of needs through a variety of overlay and direct investment strategies. In particular, investors could consider a Target Volatility Trigger (TVT) framework, which seeks to provide downside protection and yet leaves potential for upside participation; or asset allocation strategies that dynamically allocate according to the prevailing market conditions, and can be a good way to help provide downside protection and potential alpha generation.

Removing the Barriers to Protection
State Street Global Advisors recently undertook a major global study* of institutional investors’ attitudes to equity market risk. Amongst the findings were that while some investors are innovating in downside protection, others are holding back. For example, just over 28% of European respondents in our survey have no specific downside protection in place. This could be attributed to the perceived cost of such strategies, since in Europe portfolio protection is often associated with buying options. In practice, many of the strategies now available do not require investors to purchase expensive options.

An even bigger barrier to using downside protection, according to our survey, is the misguided perception of getting the timing wrong and “missing the boat” of upside potential, with some investors saying that this issue prevented their institutions from using downside protection strategies. Again however, there are many very effective protection strategies that enable organizations to continue to capture the growth potential of equity investments.

*Walking the Tightrope: How CIOs are Balancing Upside Participation and Downside Protection. Survey of 480 CIOs and global investment professionals. Commissioned by SS&G and published in April 2015.
In our experience it is better to start implementing defensive portfolio decisions during more favorable market conditions.
# Downside Protection Strategies Compared

<table>
<thead>
<tr>
<th>Main Features</th>
<th>Diversification</th>
<th>Managed Volatility</th>
<th>Dynamic Asset Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diversification</strong></td>
<td>Aims to smooth returns by diversifying the portfolio across equities, bonds and cash.</td>
<td>Targets the purchase of low-volatility equities. These strategies offer similar returns to the equity market over time with less drawdown risk.</td>
<td>Asset-allocation mix is dynamically adjusted to match expectations about market conditions — allocating to less risky assets in higher-risk market regimes and more growth assets in safer times.</td>
</tr>
<tr>
<td><strong>Upside Participation?</strong></td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Explicit Cost?</strong></td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td><strong>Uses Derivatives?</strong></td>
<td>N</td>
<td>N</td>
<td>Could be implemented with derivatives if desired.</td>
</tr>
<tr>
<td><strong>Strength</strong></td>
<td>Simplest and most cost-effective approach of limiting exposure to equity volatility. Traditional, well-understood strategy.</td>
<td>Equity-like returns over time with less volatility.</td>
<td>Absolute return outcome; lower volatility than a traditional multi-asset-class portfolio.</td>
</tr>
<tr>
<td><strong>Drawback</strong></td>
<td>Portfolios tend to have more equity risk than simple asset breakdowns suggest. Correlations between asset classes change over time.</td>
<td>Lags in high beta rallies; does not protect in extreme cases.</td>
<td>Risk of mistiming market regimes; tends to lag equity returns in bull markets.</td>
</tr>
</tbody>
</table>

Source: SSGA as of 30 June 2015.
<table>
<thead>
<tr>
<th>Target Volatility Triggers</th>
<th>Hedge Funds</th>
<th>Multi-Asset Absolute Returns</th>
<th>Managed Futures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rules-based strategy that dynamically adjusts the exposure of assets within a portfolio to target a consistent level of forecast portfolio risk. When volatility is high, exposure to equities is reduced.</td>
<td>Unconstrained investment strategy using discretionary, judgment-based approach to investing to deliver absolute returns. Portfolios can include equities, fixed income, commodities, currencies, and private equity. Uses hedging and derivatives.</td>
<td>Funds that aim for absolute return by investing in multi-asset portfolios such as equities, fixed income, commodities, currencies, and private equity. Uses hedging and derivatives.</td>
<td>Managed futures target absolute returns by trading futures contracts on a wide variety of assets including equities, fixed income, commodities and currencies. Primarily trend-following strategies.</td>
</tr>
<tr>
<td>Dependent on client’s selected volatility target.</td>
<td></td>
<td>Returns may be capped on the upside.</td>
<td></td>
</tr>
<tr>
<td>Higher trading costs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Could be implemented with derivatives if desired.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client can set a targeted volatility level.</td>
<td>Uncorrelated absolute returns.</td>
<td>Absolute return outcome; lower volatility than a traditional multi-asset-class portfolio</td>
<td>Positive performance during equity bear markets. Adds divergence to portfolio of funds.</td>
</tr>
<tr>
<td>Will not protect against sudden shocks in the equity market, or “gap downs,” where stocks open lower than they closed the previous day.</td>
<td>Declining average performance; beta embedded in many hedge fund strategies; high costs.</td>
<td>Risk of mistiming market regimes; tends to lag equity returns in bull markets.</td>
<td>Can be expensive.</td>
</tr>
</tbody>
</table>
Target Volatility Triggers

One way of helping to protect your portfolio against significant stock market falls is to reduce equity exposure in times of high volatility. Target Volatility Triggers are an effective means of helping to limit volatility exposure in a straightforward way.

Target Volatility Triggers (TVTs) aim to provide downside protection and potential upside participation.

These are rules-based, cost-efficient strategies that seek to improve the long-term risk/return characteristics of investors’ portfolios. They’re also efficient strategies in a sideways- or upward-moving market.

How They Work

The investor decides their desired target volatility level, say 11%, and SSGA calculates the forecasted volatility of the investor’s equity portfolio. When equity volatility is greater than 11%, the trigger is breached and equity exposure will be reduced. As equity volatility reduces back to 11%, equity exposure will be increased. Reduced equity exposure can be achieved by either partial sale of the equity portfolio or through the use of derivatives (futures).

Equity exposure is therefore reduced in times of high volatility, with the extent of the reduction being determined by a rules-based approach.

What They Offer

TVTs can help provide better risk-adjusted returns with reduced volatility and a reduction in maximum drawdown but the mechanism also means that the portfolio may not participate fully in rebounds where volatility remains high.

Source: SSGA, as of 30 September 2014.
The simulated performance shown is not necessarily indicative of future performance, which could differ substantially.
Please see the back page for additional disclosure.
Past performance is not a guarantee of future results. Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income.
Managed Volatility

By constructing an optimized portfolio of stocks our managed volatility strategies generate competitive returns relative to their benchmark over the long term, but with lower expected volatility.

We expect to reduce volatility by 20–30% relative to the benchmark index over the long term, though the volatility reduction is not constant and will depend on market conditions.

How They Work

We identify securities with low absolute risk, rather than securities with low risk relative to a benchmark. To help achieve portfolio diversification, risk constraints at the security, industry, sector, and size exposure levels are also implemented.

Through this process of security selection and portfolio diversification, the portfolio is expected to exhibit lower volatility compared to its specified benchmark index, but with the potential to provide competitive returns relative to the cap-weighted equity market over the longer term.

We believe a managed volatility equity strategy that reduces exposure to stocks with high expected volatility may offer investors stronger risk-adjusted returns than the respective cap-weighted investable universe.

What They Offer

These strategies have delivered competitive returns coupled with low volatility. They seek to offer investors a smoother ride to meet their investment objectives.

Source: SSGA, April 1989 to December 2013, USD. Past performance is not a guarantee of future results. Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income.
Dynamic Asset Allocation

These type of strategies have inbuilt investment processes that dynamically respond to approaching volatility spikes with the aim of quickly reducing risk, providing downside protection and alpha generation potential.

Investors are increasingly looking at ways to achieve competitive returns while reducing downside risk. There is broad recognition among practitioners and academics alike that one static asset allocation cannot weather all market conditions. This is particularly the case during periods of market stress when many risky asset returns tend to fall almost in lockstep — a persuasive argument against maintaining a diversified but static allocation and thinking that it will provide the required degree of downside protection.

How They Work — Volatility and Asset Allocation are Key

From our research we have found that when strategic asset allocation fails to deliver it is normally because of drawdowns. As a result, timing is of particular importance — ‘being in the right assets at the right time’.

Our research indicates that it pays to be in risk assets when market volatility is low — but that care must be taken when volatility rises because you may do well, but you also run the risk of substantial losses from extreme drawdowns.

By dynamically allocating from a suite of diversified building blocks Dynamic Asset Allocation strategies aim to optimize the asset allocation mix in a timely, dependable and cost-effective manner.

What They Offer — Participation and Protection

These strategies aim to deliver absolute returns with growth potential whilst avoiding the worst of market drawdowns. They offer investors a wide-ranging investment solution with the inbuilt capability and flexibility to dynamically manage asset allocations.
Market Regime Aware Investing

Market Regime Aware investing can help investors optimize their portfolio for downside protection and alpha generation.

Asset allocation is central to investment returns. We researched and developed a proprietary forward-looking indicator, the Market Regime Indicator (MRI), that continuously monitors market conditions so that asset allocation can be tailored to capture opportunities for growth whilst seeking to minimise downside risks.

The MRI is an integral component of our Dynamic Asset Allocation strategies but it can also be used standalone to help guide asset allocation and gauge the market. The MRI can help ensure that a portfolio has better-managed exposure to risky assets by signalling when to switch out of risk assets when other asset allocations make a more compelling investment prospect. Consequently, drawdowns are reduced in severity and occur less frequently.

The 5 Key Market Regimes

<table>
<thead>
<tr>
<th>Regime</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crisis</td>
<td>Extreme risk aversion ('Fear/Panic')</td>
</tr>
<tr>
<td>High Risk Aversion</td>
<td>Aversion to risk-taking and growth assets</td>
</tr>
<tr>
<td>Normal</td>
<td>Neutral market sentiment</td>
</tr>
<tr>
<td>Low Risk Aversion</td>
<td>Appetite for risk-taking and growth assets</td>
</tr>
<tr>
<td>Euphoria</td>
<td>Extreme risk appetite ('Greed/Complacency')</td>
</tr>
</tbody>
</table>

Source: SSGA.

Custom Solutions

We understand that our clients have different investment objectives, time horizons and risk appetites. Sometimes the ideal solution is a custom one.

Our specialist Investment Solutions Group works in close partnership with clients on these issues and brings substantial downside protection experience to the table. From options-based overlays and put–spread or put–spread collar strategies to volatility futures, the Group can assist in analyzing and selecting the most appropriate solutions and helping with efficient implementation.
WHEN TO START, WHAT TO DO?

Move Now
We know from our clients that some are concerned that adopting defensive strategies may mean missing out on potential upside. That’s why we offer a range of strategies specifically designed to allow investors to both participate and protect.

So, in our opinion it makes more sense to engage and benefit from these downside protection strategies now, when the cost of implementation is low, rather than when the markets are in crisis and protection comes at a far higher price.

Get the Balance Right
Modest allocations to downside protection strategies can improve portfolio performance in times of tail risk events. Protecting against tail events can help improve long-term performance for even well-diversified investors seeking to capture premia from risky assets.

Protection during periods of market distress allows managers to reallocate to riskier assets in the aftermath of the event, just when expected returns are at their highest.

From Target Volatility Triggers to Dynamic Asset Allocation solutions, State Street Global Advisors has a number of downside protection strategies that offer low performance drag and high certainty of protection.
About Us

For nearly four decades, State Street Global Advisors has been committed to helping our clients, and those who rely on them, achieve financial security. We partner with many of the world’s largest, most sophisticated investors and financial intermediaries to help them reach their goals through a rigorous, research-driven investment process spanning both indexing and active disciplines. With trillions* in assets, our scale and global reach offer clients unrivaled access to markets, geographies and asset classes, and allow us to deliver thoughtful insights and innovative solutions.

*Assets under management were $2.42 trillion as of 31 December 2014.

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Ask the Right Questions

☐ What is our tolerance for a significant deceleration in equity market returns?

☐ Could we lock in our recent gains?

☐ What level of protection would we and our stakeholders feel safest with?
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Past performance is not a guarantee of future results. Investing involves risk including the risk of loss of principal. Risk associated with equity investing include stock prices which may fluctuate in response to the activities of individual companies and general market and economic conditions.

Bonds generally present less short-term risk and volatility than stocks, but certain interest rate risk (as interest rates rise, bond prices usually fall); issuer default risk; issuer credit risk; liquidity risk; and inflation risk. These effects are usually pronounced for longer-term investments.

Any fixed income security sold or redeemed prior to maturity may be subject to price risk (as interest rates rise, bond prices usually fall); issuer default risk; issuer credit risk; liquidity risk; and inflation risk. These effects are usually pronounced for longer-term investments.

Asset Allocation is a method of diversification which positions assets among major investment categories. Asset Allocation may be used in an effort to manage risk and enhance returns. It does not, however, assure enhanced returns. Derivative investments may involve risks such as potential illiquidity of the markets and additional risk of loss of principal. Investing in futures is highly risky. Futures positions are considered highly leveraged because the initial margins are significantly smaller than the cash value of the contracts. The smaller the value of the margin in comparison to the cash value of the futures contract, the larger the leverage. There are a number of risks associated with futures investing including but not limited to counterparty credit risk, currency risk, derivatives risk, exchange risk, interest rate risk, inflation risk, and concentration risk, levering and liquidity risks. Investing in foreign domiciled securities may involve risk of capital loss from unfavorable fluctuation in currency values, withholding taxes, from differences in generally accepted accounting principles or from economic or political instability in other nations.

Investments in emerging or developing markets may be more volatile and less liquid than investing in developed markets and may involve exposure to economic structures that are generally less diverse and mature and to political systems which have less stability than those of more developed countries.

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The simulated performance data is reported on a gross of fees basis, but net of administrative costs. Additional fees, such as the advisory fee, would reduce the return. For example, if an annualized gross return of 10% was achieved over a 5-year period and a management fee of 1% per year was charged and deducted annually, then the resulting return would be reduced from 5% to 5.4%.

The performance includes the reinvestment of dividends and other corporate earnings and is calculated in US dollars. The simulated performance shown is not necessarily indicative of future performance, which could differ substantially.

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