

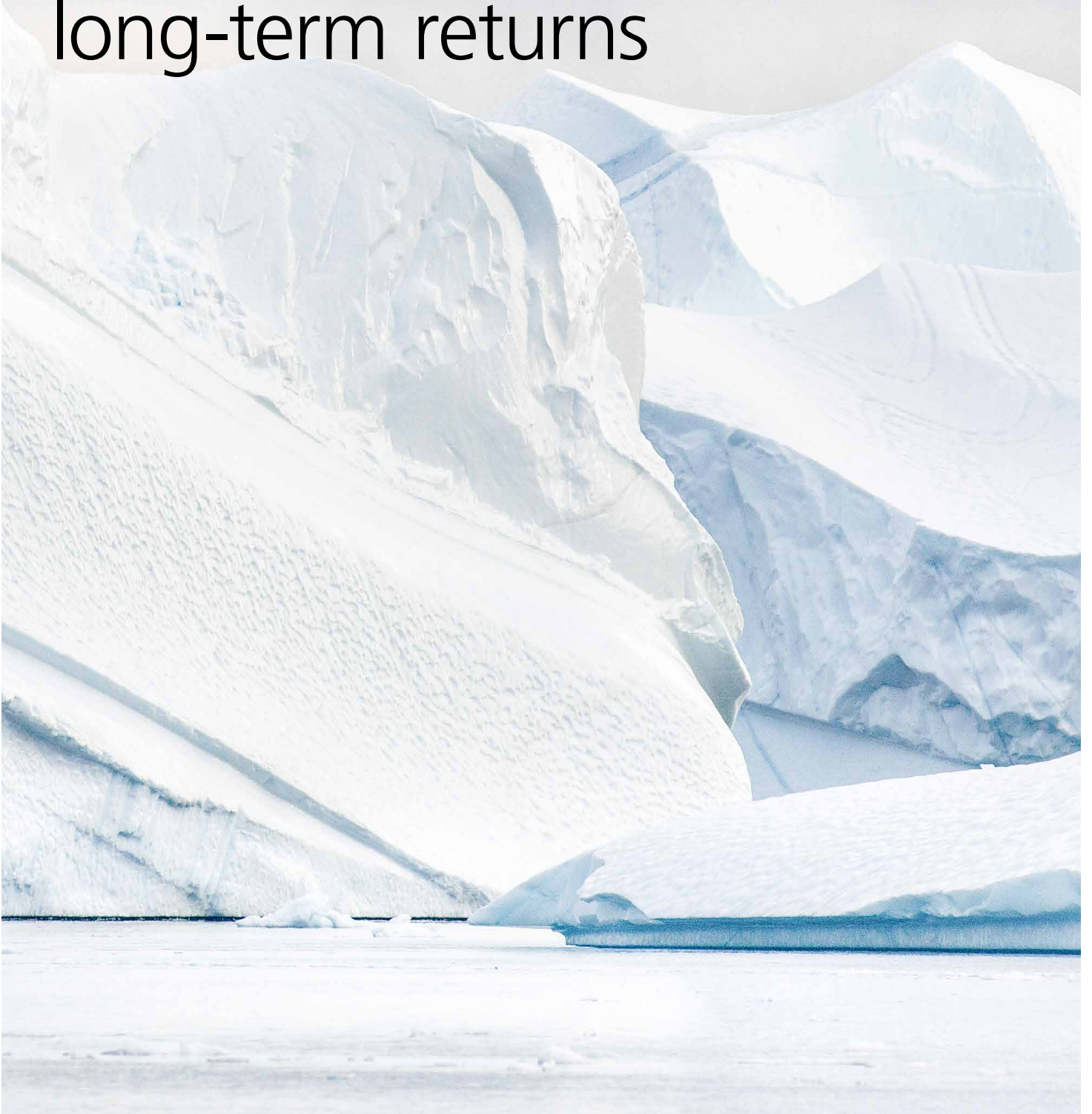
Skating on thick ice

Designing an optimized defensive equity strategy



By **Richard Lloyd**, Global Head of Structured Solutions and
Sotir Dimovski, Director, Structured Solutions

Managing risk is the
key to maximizing
long-term returns



Our aim is to identify strategies which avoid the additional costs and pitfalls of very simple option strategies without introducing unnecessary complexity.

Stock markets have been a reliable source of investment returns in the long run. But over shorter time horizons, equities can be subject to sharp corrections and bear markets which erode capital and accumulated gains. This was starkly demonstrated in the 2008 global financial crisis and again in the sharp selloff in equity markets following the emergence of the COVID-19 pandemic in early 2020 when global equities fell by over 30% in a single month¹, wiping out several years of accumulated profits.

Investors are confronted with the question of how to allocate to equities, which offer high potential returns but where investors are always 'skating on thin ice,' with the ever-present risk of a bear market or crash? One answer is to remain fully invested for the long term and to ride out market lows. This has generally been good advice in the past as steep bear markets have often been followed by a sharp bounce back. However, investors may not be able to tolerate these drawdowns and, as the disclaimer on every piece of investment marketing literature states, past performance isn't necessarily a guide to future returns.

Human psychology also exerts a powerful influence on investment decision-making. It's well known that investors focus more attention on losses than the weight given to equivalent gains (called 'loss aversion bias' in behavioral psychology). When gains which have been slowly accumulated over several years are wiped out in a few weeks the pain is amplified, making it hard for investors to maintain a detached approach and stay invested.

An alternative response to the question above is to consider a strategy which

aims to systematically control equity downside risk. Defensive equity strategies aim to provide high upside potential combined with smoother investment performance and lower drawdowns which can help investors to mitigate timing risks and stay invested through periods of heightened volatility to participate in subsequent market rallies. In other words, investors should aim to skate on 'thick ice.'

Some defensive strategies are more defensive than others

There are many different approaches to designing a defensive equity strategy but we can categorize them into two buckets by their degree of predictability: lower precision, indirect strategies which depend on a repeat of historical patterns or correlations (e.g., minimum volatility equity portfolios, momentum strategies, 'just in time' hedging, cross asset hedging, etc.) or higher precision strategies which directly hedge downside exposure (e.g., option-based approaches, dynamic exposure management strategies, etc.).

Lower precision strategies have not offered consistently effective defensiveness in the past, with many strategies failing to significantly reduce drawdowns during the 2020 COVID crisis, for example, when historical patterns of stock Betas and cross-correlations changed rapidly. Many lower precision strategies have other appealing investment characteristics but in our view are not appropriate when robust downside risk mitigation is required at all times.

For the purpose of this paper we focus on higher precision strategies, in particular equity option defensive strategies which we believe provide

highly reliable drawdown control and minimize the path dependency associated with portfolio insurance approaches. Our aim is to identify strategies which avoid the additional costs and pitfalls of very simple option strategies without introducing unnecessary complexity.

To aid in the identification of viable option-based defensive strategies, we set out below our criteria for success:

Predictable

A defensive equity strategy should provide reliable downside risk control at all times and be simple and transparent

Systematic

A rule-based strategy which doesn't rely on judgement to deliver consistent risk management

Efficient

A strategy which optimizes risk-adjusted returns and controls costs to deliver long term value from downside risk management

The performance reference point for a defensive equity strategy is a simple portfolio which is allocated between an equity index and cash to target a similar level of risk. A successful defensive equity strategy should aim to deliver more upside and/or lower drawdowns than this reference portfolio for the same level of risk.

In the rest of this paper we investigate defensive equity strategies and attempt to provide a better understanding of some of the factors which drive cost and efficiency and, finally, identify optimal approaches that satisfy the criteria listed above.

¹ Total return of MSCI World index in USD from 18 February 2020 to 18 March 2020 was -30.36%. Source: Bloomberg

Decomposing option strategies

Once we have decided to implement a defensive options overlay strategy we are faced with a long list of choices which need to be made. Which option combinations should we employ? Which strike prices should we choose? When should the options start and expire? How should the strategy be adapted as prices and market conditions evolve? These and many more questions make designing an efficient option strategy a complex task and mean that a simple approach may be ineffective. Furthermore, option markets have unique pricing characteristics which can have a significant impact on the expected returns and behaviour of individual strategies.

In the following sections we aim to decompose the drivers of option strategies and analyze how to best adapt strategies. We can use these observations to develop a framework which will help us to build defensive equity option strategies which meet

our objectives of being predictable, systematic and efficient.

Selecting option parameters

Consider the following simple example (which can be extended to any underlying equity market with a liquid option market). We start with a portfolio consisting of passive exposure to the S&P 500 Index and buy a put option with the aim of flooring the market exposure in the event that the market falls. The option selected is a simple 3-month European-style put option on the S&P 500 Index with a strike price set at 95% of the initial index level (for simplicity we assume a total return index including dividends).

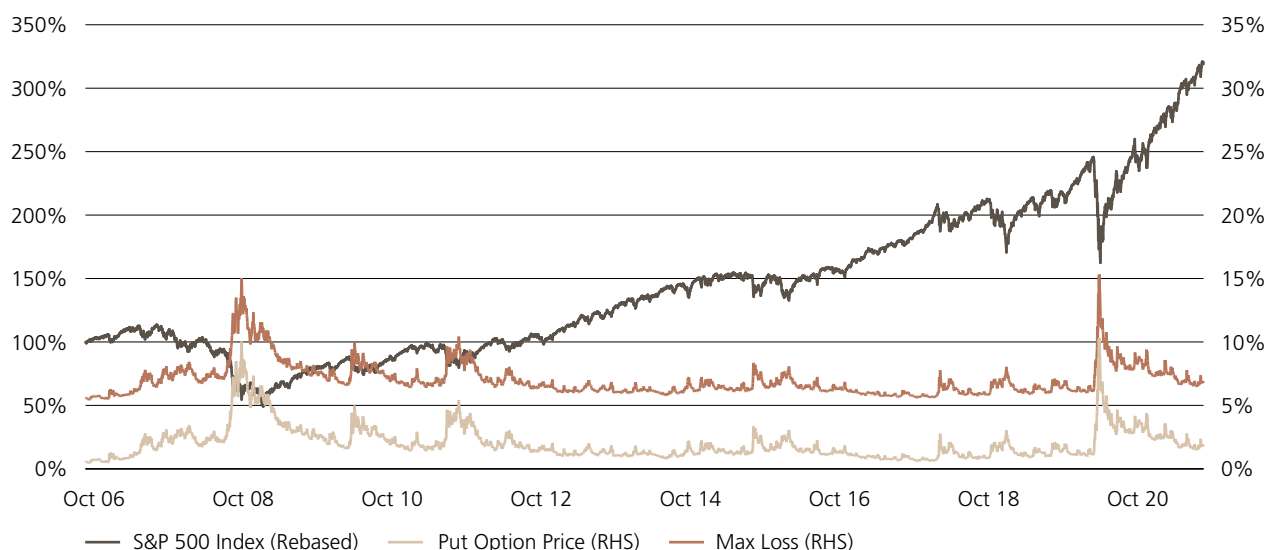
At the end of 3 months the maximum loss on the portfolio will be 5% plus the percentage option premium paid. This premium amount can vary significantly with market conditions, which means

the maximum loss can be less than 6% in periods of relative calm and more than 15% in periods of severe market stress, such as November 2008 and March 2020 (see Chart 1).

Furthermore, the maximum loss calculated above applies if we measure the return over the exact 3-month period. However, if we measure the return achieved between different dates then we see that, even with no changes to other market variables, the maximum loss will vary as the distance between the index level and the strike level varies.

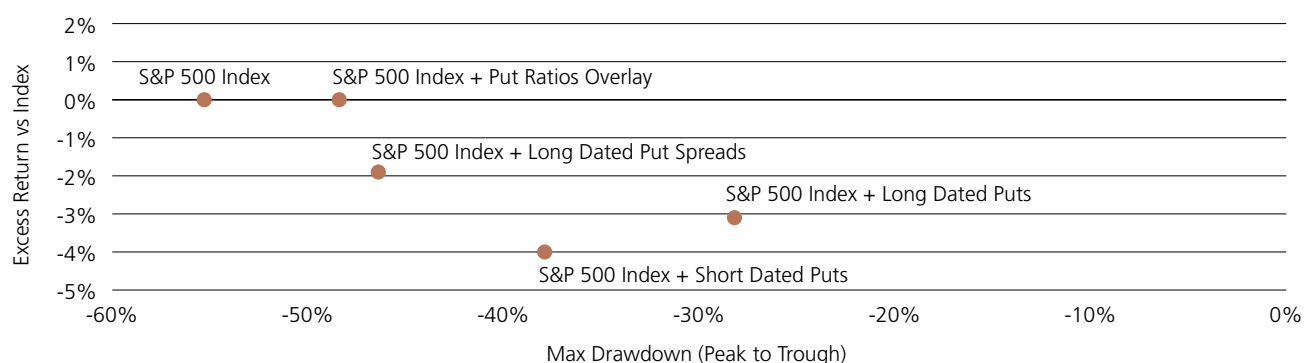
We also have to consider what we will do at the end of the 3-month period (assuming we hold the option until expiry). If we replace the put option with another 3-month put option with a strike price set at 95% then our maximum loss over the combined 6-month period is now much greater and the performance over the period is

Chart 1: Put option premium (3-month 95% strike, S&P 500 Index) and maximum loss



Source: UBS, Bloomberg. Period Oct 2006 to July 2021.

Chart 2: Excess return vs. max drawdown for put option strategies (2006 to 2020)



Source: UBS, Bloomberg. Period Dec 2006 to July 2021.

not just determined by the index return but also by the path taken. As we extend the investment period this path dependency becomes a critical factor in the success or failure of the strategy.

Observation 1:

There is no simple, passive approach to select an option strategy. The performance (and potential drawdowns) of any particular strategy will be affected by option prices and the path of market prices. An effective strategy should aim to control these factors and deliver more predictable outcomes.

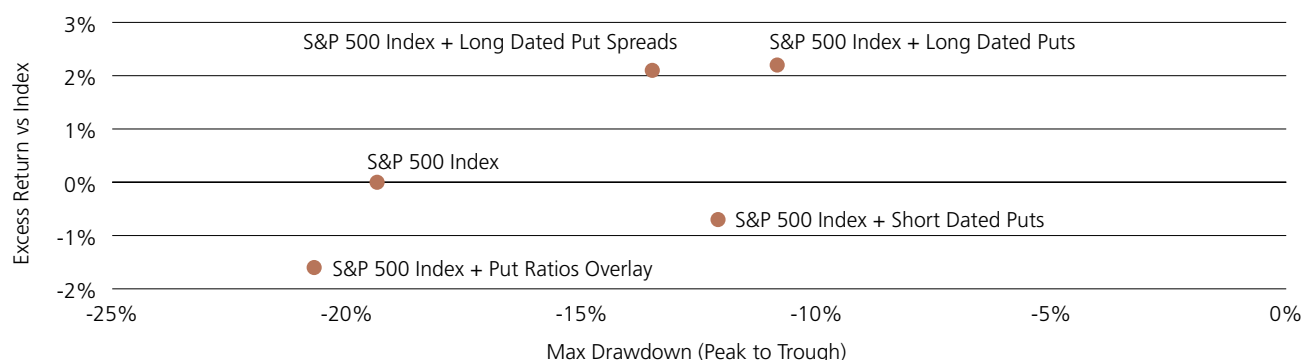
With this observation in mind we investigate the historical performance of various common option strategies in different market environments with the aim of assessing which parameters provide more effective and efficient downside protection.

Common option strategies

- S&P 500 Index + Short Dated Puts (95% strike, 3-month tenor)
- S&P 500 Index + Long Dated Puts (95% strike, 12-month tenor)
- S&P 500 Index + Long Dated Put Spreads Puts (Long 95% strike & Short 80% strike, 12-month tenor)
- S&P 500 Index + Put Ratios Overlay (Short 30% Delta Put & Long 2x 15% Delta Puts, 12-month tenor)

Charts 2 and 3 show the results of these simulations on the S&P 500 Index for each representative option strategy. We compare the impact of each option strategy on the annual return with the impact on the max drawdown recorded over two periods, first in Chart 2 the period from 2006 through to May 2020 (which includes the financial crisis in 2008 and the COVID-19 shock in 2020) and second in Chart 3 the calendar year 2018 only (which includes two less severe drawdowns).

Chart 3: Excess return vs. max drawdown for put option strategies (Calendar Year 2018)



Source: UBS, Bloomberg. Period Dec 2017 to Dec 2018.

As we might expect, the performance of each strategy depends on the period chosen, with some strategies, such as put ratios, performing well in the long run but with marked underperformance in 2018, for example. We have also run this analysis on other sub-periods and other major global indices and we can draw some general conclusions about the relative performance of these option strategies.

One result that is broadly consistent over different time periods and indices is that long dated put options and put spreads (in above charts defined as options with a 1-year tenor, but this applies also for longer expiries) perform better than short dated put options (3-month tenor) with typically lower drawdowns and lower costs. We also note that put spreads generally have higher returns than put options but at expense of higher drawdowns in periods with severe market falls.

When we look for the underlying reasons for these results we note two critical factors that affect the performance of a put option strategy:

- **Strategy parameters**, in particular the degree to which parameters make the strategy sensitive to changing market conditions; and
- **Volatility exposure**, in particular the extent to which options are typically either expensive or cheap relative to theoretical fair value (known as the volatility risk premium)

We note, for example, that the reason for the outperformance of longer dated put options is because they are less sensitive to changing market conditions and are less expensive relative to theoretical fair value. However, longer dated put options by themselves still tend to trade at a premium to fair value so it is worth considering how we can construct strategies which are more

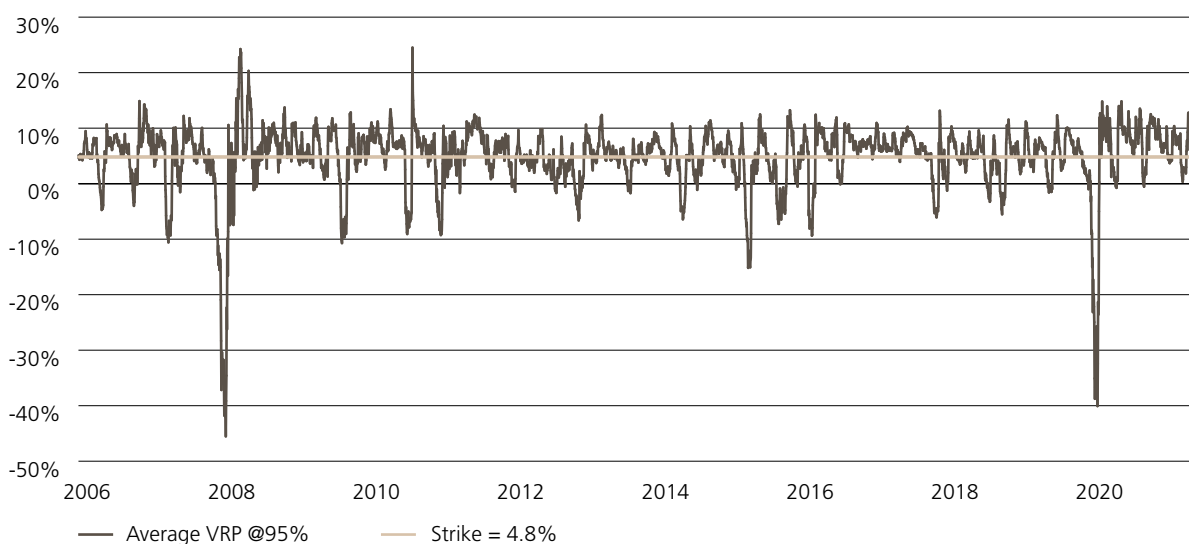
attractively priced. To do this we need to understand a feature of option pricing known as the ‘volatility risk premium.’

What is the volatility risk premium?

The Black Scholes option pricing model allows us to calculate a fair value for options if we know the key market inputs. Most of these inputs can be estimated fairly accurately from market data except for the key unknown which is the expected volatility of the underlying instrument. We can also reverse this equation, using the traded price of an option to calculate the ‘implied’ volatility, i.e., the forward-looking volatility which would be required for the option price to be fair.

When we compare implied volatilities from traded equity options with the volatilities which were actually realized during the option terms we observe

Chart 4: 1-month volatility risk premium (average of S&P 500, Eurostoxx50, and Nikkei 225 indices implied minus realized volatility for a 95% strike option)



Source: UBS, Bloomberg. Period Nov 2006 to July 2021.

that the average implied volatility from equity option prices is persistently higher than the realized volatility. This difference between implied and realized volatilities is known as the 'volatility risk premium.' There is substantial academic literature and empirical evidence from market practitioners² which shows that this risk premium is persistent over time and is pervasive across global equity option markets (see chart 4).

As referenced above, the implied volatility premium varies with maturities as well as with strike prices. Chart 5 below shows the volatility risk premium for an option strike price of 95% of initial level for various maturities and global equity indices. We note that, independent of the underlying market, the volatility risk premium is persistent but declines as we go further out on the option term structure. This implies that

buying longer dated options is generally more efficient than buying shorter dated options and, equally, that selling shorter dated options is preferable to selling longer dated options.

We also note that the volatility risk premium varies by market and index. For example, we observe a lower volatility risk premium for longer dated put options in Europe and Asia than in the US. One explanation for this is the higher issuance of structured products on European and Asian stocks which create a demand to sell longer dated options from the investment banks that create and hedge these products.

An additional feature of option markets is that the implied volatility varies according to the strike price of the option. Lower strike options (for instance put options with strike

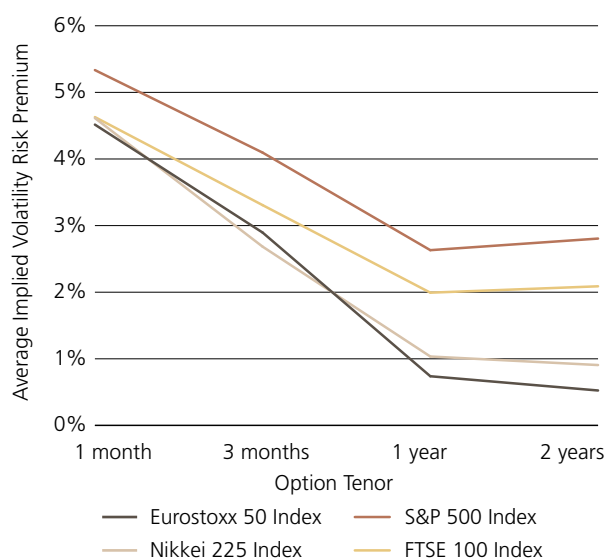
levels below the current index level) persistently exhibit higher implied volatility. This phenomenon is known as 'implied volatility skew' and partially reflects an adjustment for the fact that market returns aren't precisely normally distributed. Nevertheless, the implied volatility skew often overstates this effect and options with lower strike prices generally carry a higher implied volatility premium.

Observation 2

The volatility risk premium and implied volatility skew represent additional costs for investors who purchase put options to protect against drawdowns. These additional costs are particularly high for short dated out of the money put options and a simple strategy buying these options will suffer lower performance and lower risk-adjusted returns over time.

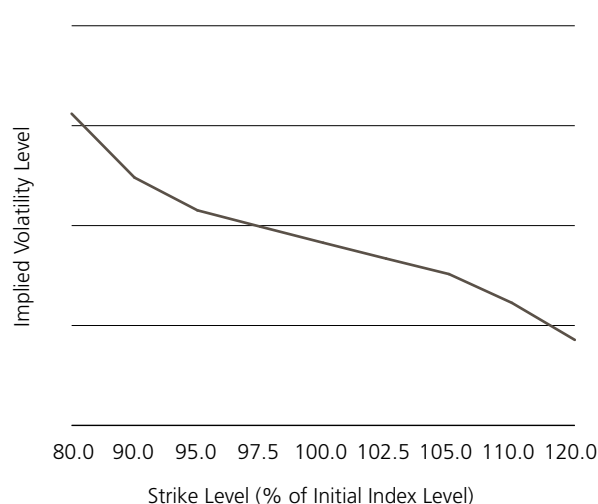
² For example: Eraker, Bjorn and Wu, Yue, 2014, "Explaining the Negative Returns to VIX Futures and ETNs: An Equilibrium Approach" Garleanu, N., Pedersen, L.H., and A. M. Poteshman, 2009, "Demand-Based Option Pricing." Review of Financial Studies. Vol. 22
Eraker, Bjorn, 2009, "The Volatility Premium"
PIMCO, 2012, "The Volatility Risk Premium"
AQR, 2018, "Understanding the Volatility Risk Premium"

Chart 5: Average implied volatility risk premium (95% Strike) vs. option tenor



Source: UBS, Bloomberg. Period Nov 2006 to July 2021.

Chart 6: Implied volatility vs. strike (Average of 1-year options on S&P 500 Index)



Source: UBS, Bloomberg. Period Oct 2006 to July 2021.

Engineering a better defensive equity strategy

The above observations help us to understand some of the drivers of option prices but also highlight some of the pitfalls in designing and implementing defensive equity option strategies.

A better defensive equity strategy will **avoid these pitfalls**, or even turn them around to turn a cost into a benefit. We can achieve this by:

- Choosing parameters which offer more predictable outcomes; and
- Buying cheaper put options which are more efficient; and
- Selling more expensive options to harvest the volatility risk premium

We outline below three strategy components which can be used to meet these aims.

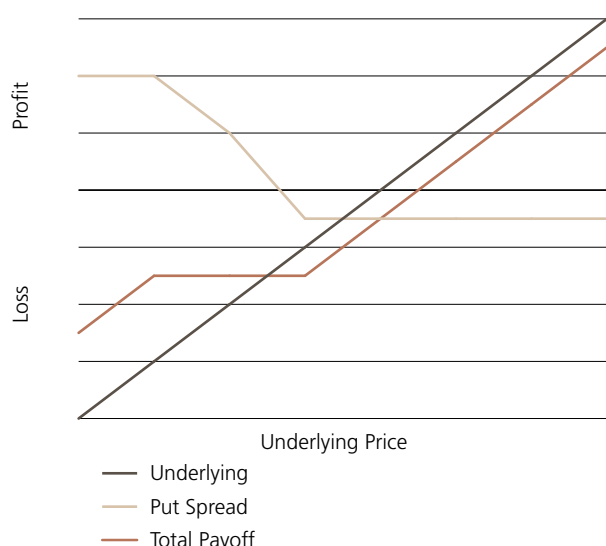
1. Put spreads

One way to mitigate the effect of the implied volatility premium and benefit from implied volatility skew is to combine the purchase of put options with the sale of put options (with the same expiry date) which are struck further out of the money. This combination of options is known as a 'put spread.' The sale of the put option further out of the money partially offsets the cost of the put option purchased at a strike closer to current index levels. This strategy generally has minimal exposure to the implied volatility premium and in periods of higher implied volatility or volatility

skew, when buying outright put options at strike prices close to index levels may be prohibitively expensive, put spreads can offer much better value.

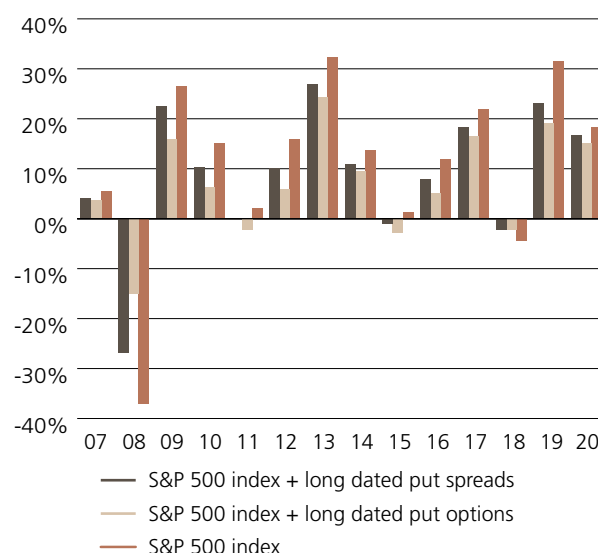
The trade-off is that buying put spreads, instead of simple put options, reduces the sensitivity to falling markets and the degree of downside protection in periods of extreme market stress. A reasonable defensive equity strategy might therefore allocate between put spreads and put options with the aim of improving consistency while seeking a balance between cost and downside convexity. The allocation might also take account of the level of implied volatility when options are purchased, which can have a significant impact on returns, as well as the specific investment objectives and constraints.

Chart 7: Put spreads vs. payoff
(Average of 1-year options on S&P 500 Index)



Source: UBS Asset Management. Data as of July 2021.

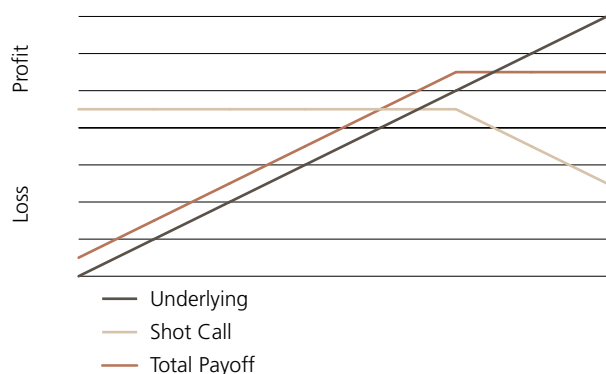
Chart 8: Simulated returns of option overlays on S&P 500 Index



	S&P 500 index + long dated put spreads	S&P 500 index + long dated put options	SPX Index
Annual Return	8.4%	7.2%	10.2%
Volatility	16.4%	11.6%	20.2%
Sharpe Ratio	0.45	0.54	0.46
Max DD	-46.4%	-28.2%	-55.3%

Source: UBS, Bloomberg. Period Dec 2006 to July 2021.

Chart 9: Simulated returns of call overlays on S&P 500 Index



Source: UBS Asset Management. Data as of July 2021.

2.Call overwriting

An approach which doesn't just mitigate but actually seeks to benefit from the volatility risk premium is call overwriting: selling out of the money call options to receive premium in exchange for capping equity upside. This is also a defensive strategy which can complement the purchase of put options or put spreads.

Including call overwriting in a defensive equity strategy has the potential to provide benefits. First, the premium paid for put options or put spreads creates a negative carry which means

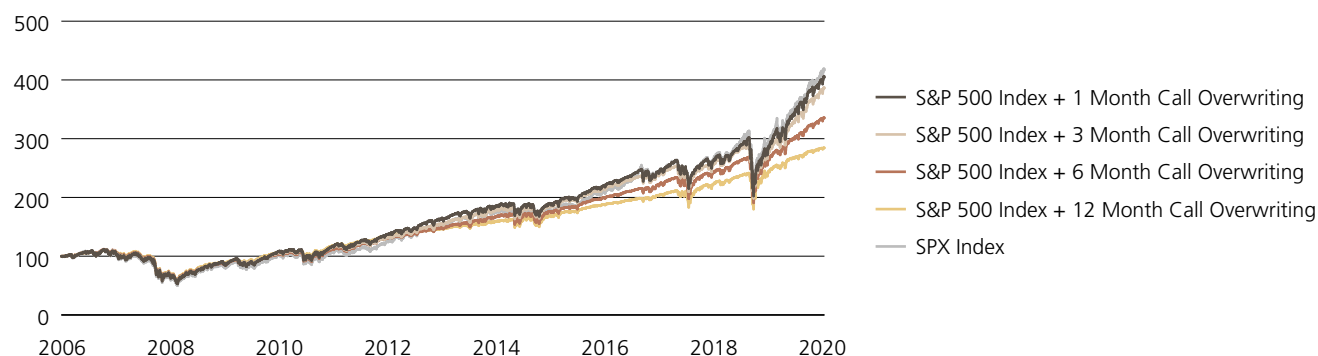
the strategy will lose money when markets are flat. Selling call options generates a positive carry which can be used to offset the premium for put options and create a strategy which is expected to be flat (or even positive) in sideways equity markets.

Second, as mentioned above, selling call options gives positive exposure to the volatility risk premium. We can optimize this benefit by selling short dated options (e.g., with tenors up to 3 months) which, as noted above, have historically offered a richer premium to be harvested than longer-dated call options. Short dated options also offer

the advantage of frequent dynamic adjustment as option positions expire and are re-established. This can be beneficial in periods of market stress as a spike in implied volatility can allow the strategy to quickly increase the cap on upside (or the premium harvested) before a subsequent market rally.

The below chart demonstrates this benefit with a comparison of simulated systematic call overwriting strategies on the S&P 500 Index with options of varying tenors (while controlling for timing effects).

Chart 10: Simulated returns of call overwriting strategies on S&P 500 Index (targeting annual premium of 4%)



	S&P500 Index + 1 Month Call Overwriting	S&P500 Index + 3 Month Call Overwriting	S&P500 Index + 6 Month Call Overwriting	S&P500 Index + 12 Month Call Overwriting	SPX Index
Annual Return	10.0%	9.7%	8.6%	7.4%	10.2%
Volatility	18.9%	18.4%	17.6%	16.5%	20.2%
Sharpe Ratio	0.48	0.48	0.43	0.39	0.46
Max DD	-52.6%	-52.2%	-51.7%	-49.8%	-55.3%

Source: UBS, Bloomberg. Period Dec 2006 to July 2021.



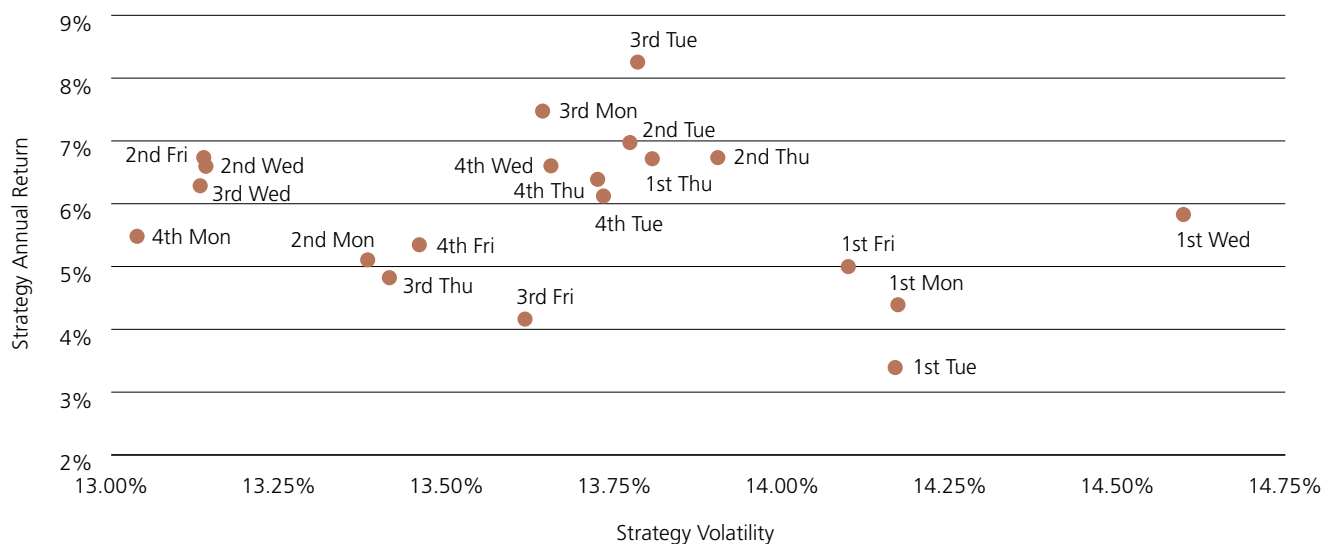
3. Diversifying strikes and dates

The act of closing one option position at (or close to) expiry and simultaneously executing a new option position with a later expiry date is referred to as 'rolling.' It is a fundamental part of the

process of implementing options in an ongoing strategy without a defined end date. A critical - but often overlooked - factor in such option strategies is timing risk, i.e., the risk that returns will be reduced because the roll dates selected turn out to be unfavourable

for the strategy. The impact of selecting different dates for the roll can be significant, as illustrated in the chart below, which shows this phenomenon for simulated monthly call overwriting strategies.

Chart 11: Roll date impact on call overwriting (ATM Calls) by weekday of the month



Source: UBS, Bloomberg. Period Dec 2006 to Dec 2018.



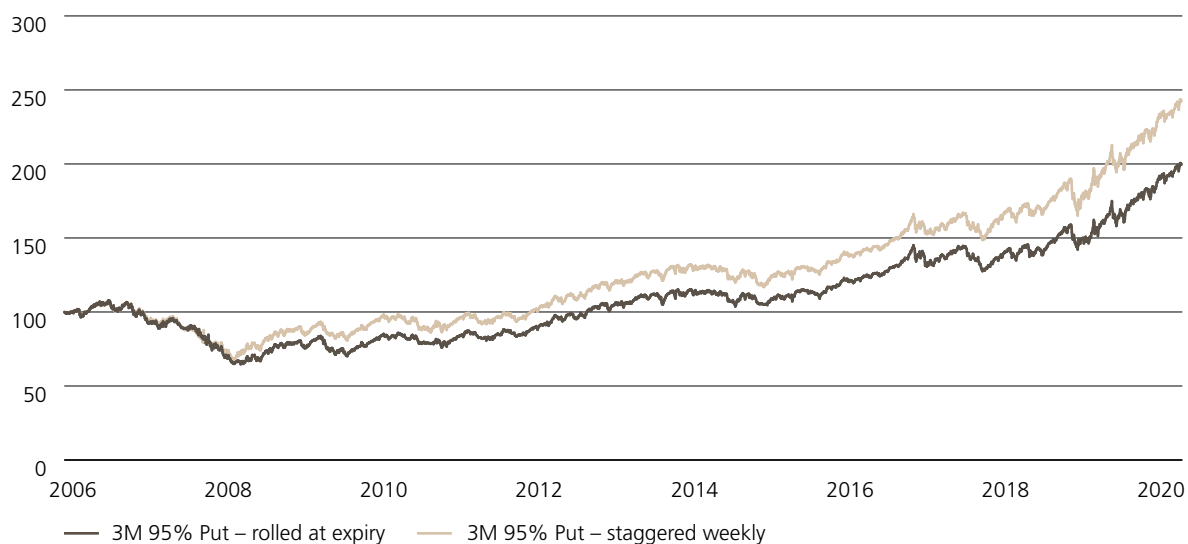
To counteract the potential for negative timing, we advocate staggering option positions. Instead of buying or selling a single option which is rolled on expiry we can split the position into a number of different options which expire each month or week (or even every day). This approach aims to diversify strike levels and expiry dates to **mitigate**

the timing risks which are inherent to option strategies and thereby produce more stable and predictable outcomes.

As an example the chart below shows the simulated returns of an S&P 500 Index position combined with a rolling 3-month 95% strike put option strategy. One path shows the results

from buying a single option to cover the full notional which is held to expiry and then rolled while the other path buys 12 options, staggered to expire and roll each week. In this instance the single put option strategy performed poorly because of the specific path of the equity index, which led to underperformance of over 1.1% p.a.

Chart 12: Simulated returns of simple put option strategies (95% Strike) combined with S&P 500 Index



	3M 95% Put – rolled at expiry	3M 95% Put – staggered weekly
Annual Return	4.8%	6.2%
Volatility	11.6%	11.9%
Sharpe Ratio	0.33	0.44
Max DD	-40.0%	-37.9%

Source: UBS, Bloomberg. Period Dec 2006 to July 2021.



Dynamic management

A dynamic strategy that aims to deliver predictable, systematic and efficient investment outcomes

In the previous sections we set out some insights into the major return drivers for defensive equity option strategies. We have proposed systematic component strategies which employ highly liquid options. The final step is combining these components into a dynamic strategy that aims to deliver predictable, systematic and efficient investment outcomes.

When we combine the components we recognize that the interaction of individual strategies results in changes to the market exposure through time. This means that a simple 'set

and forget' approach won't provide consistent outcomes. For example, if equity markets rise strongly then the protection level offered by the portfolio of put options will decrease. Similarly, if equity markets fall sharply then the exposure to equity markets will fall and subsequent upside potential may be constrained. These effects can be compounded by the difference in tenor between the short dated call option portfolio and the longer dated put option portfolio.

We can address these important factors within the framework of dynamic

management, for instance by adjusting put option strike prices when the difference between current market levels and current strike prices exceeds a threshold or when the degree of instantaneous downside risk control on a stress test is less than desired. We can also take account of extreme swings in the pricing of options, for example by spending all of our premium budget on put spread options in periods when implied volatility is near historic highs and avoiding outright put options which are temporarily expensive.

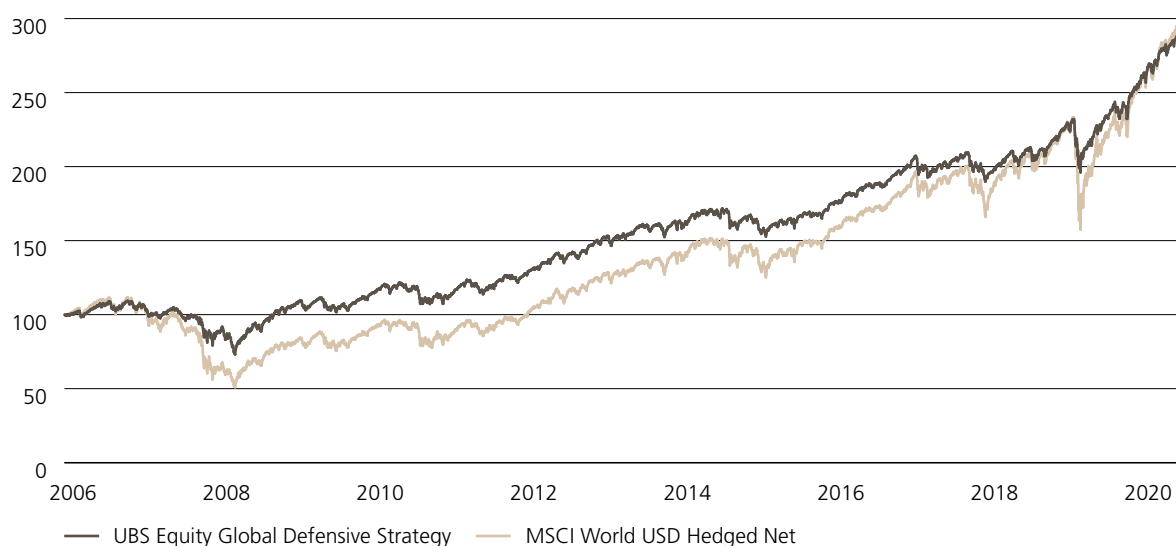
UBS Defensive Equity Strategy

We can use all of the research insights set out above to build an illustrative dynamic defensive equity strategy and assess whether it meets our desiderata for an effective defensive strategy.

To illustrate performance we simulated historical returns for the strategy applied to a passive global equity portfolio (invested 65% in S&P 500 Index, 25% in Eurostoxx50 Index and 10% in Nikkei 225

Index, in line with market cap weighted global indices and hedged in USD).

Chart 13: Simulated returns of UBS Equity Global Defensive Strategy (invested in 65% S&P 500, 25% Eurostoxx 50, 10% Nikkei 225)



Source: UBS Asset Management, Bloomberg; Gross of fees. UBS EGD Strategy simulated returns from 15 December 2006 to 24 June 2020 – and live fund data thereafter (UBS Equity Global Defensive composite) data as of June 2021.

Past performance is not indicative of future results.

Chart 14: Key simulated performance statistics* (USD returns from 15 December 2006 to 26 February 2021)

	UBS Equity Global Defensive Strategy	MSCI World USD Hedged	65% MSCI World USD Hedged & 35% USD Cash
Annual Return	7.5%	7.7%	5.5%
Volatility	10.3%	16.3%	10.6%
Sharpe Ratio (risk-free rate = 0.95%)	0.64	0.41	0.43
Max Drawdown (peak to trough)	-33.2%	-54.4%	-38.7%
Time to recovery after drawdown	11 months	40 months	38 months
Max drawdown in Q1 2020	-15.5%	-32.6%	-22.2%

Source: UBS Asset Management. Data as of July 2021.

*Simulation incorporates estimated transaction costs but does not include management fees or other potential expenses. Since June 24th 2020 the strategy is represented by the UBS Equity Global Defensive composite. Average USD cash rate for period of 0.98% p.a.. Please refer to disclaimer below for full details.

Source: UBS Asset Management, Bloomberg; Gross of fees. UBS EGD Strategy simulated returns from 15 December 2006 to 24 June 2020 – and live composite data thereafter (UBS Equity Global Defensive composite). **Past performance is not indicative of future results.**

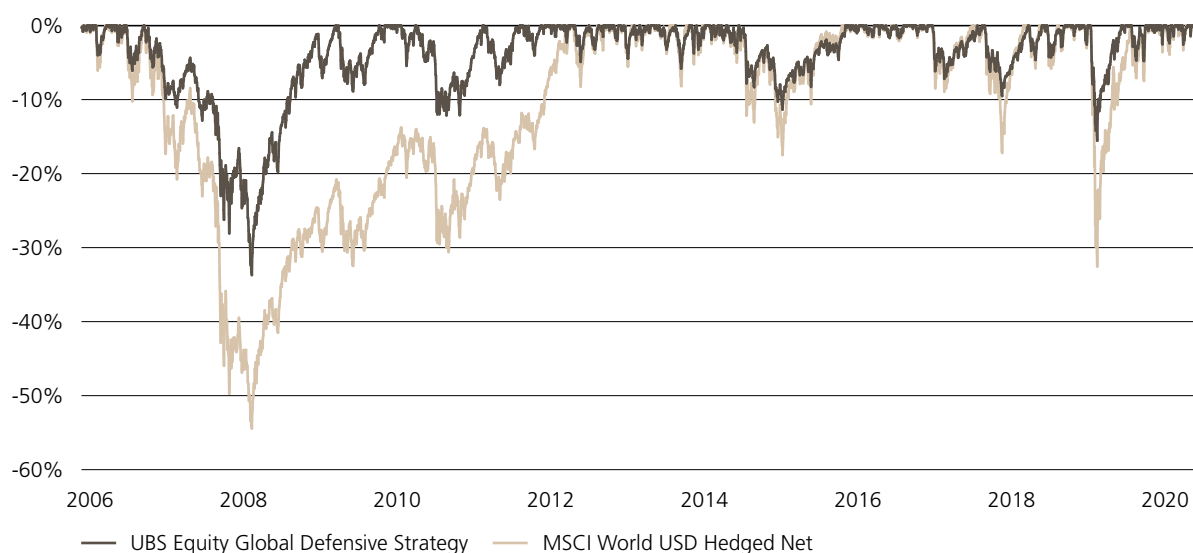
The strategy combines passive equity exposure on each underlying index with a systematic overlay comprising:

- A portfolio of 1-year puts and put spreads on each index, with staggered expiries and strikes
- A portfolio of 1-month short calls on each index, with staggered expiries and strikes

- Dynamic exposure management to balance upside potential and defensiveness

Simulated performance of this illustrative strategy is set out below in Charts 13, 14 and 15.

Chart 15: Maximum drawdown



Source: UBS Asset Management, Bloomberg; Gross of fees. UBS EGD Strategy simulated returns from 15 December 2006 to 24 June 2020 – and live composite data thereafter (UBS Equity Global Defensive composite). **Past performance is not indicative of future results.**

Conclusion

We believe that a smart approach which systematically manages risks and seeks to mitigate or take advantage of the anomalies in option prices can deliver superior performance and an optimized balance between defensiveness and upside potential.

A need to generate robust gains in a more challenging interest rate environment is pushing investors further out on the risk spectrum. But an embrace of equities warrants a keen focus on how to better balance the higher expected advances in the asset class against its elevated volatility to support a more consistent performance and return profile.

Defensive equity strategies were growing in popularity even before the steep declines in equity markets seen in the first quarter of 2020. Investors are increasingly aware of downside risks and are searching for strategies which can reduce volatility and offer genuine protection when it is needed most, especially as traditional safe assets may provide a more limited cushion for diversified multi-asset portfolios going forward.

The trouble is that the simplest expressions of a more conservative approach to equities have failed to prove their worth for an investor seeking reliable defensiveness. The S&P 500 Low Volatility Index suffered a bigger drawdown than the benchmark US equity gauge during the first quarter of 2020, for example. Meanwhile, plain vanilla put protection strategies quickly became untenably expensive as implied volatility brushed all time peaks.

We focus in this overview on option-based defensive equity approaches

which explicitly target reliable and continuous downside protection (as opposed to stock selection approaches based on purely statistical properties). After illustrating some common pitfalls in using options for protection and determining that a naive or simplistic approach is unlikely to deliver the desired combination of effective protection and strong risk-adjusted returns, we conclude that a dynamic approach is required.

To provide the most efficient defensive equity solution, we aim to provide active protection through a blend of relatively cheap longer-term puts and put spreads, with diversified expiries to mitigate timing risk, offsetting the premium through the sale of relatively expensive shorter-term call options. This approach is systematic and adaptable to prevailing volatility regimes, providing better visibility into the range of potential returns over the investment horizon.

Before we implement investment strategies we test them extensively, looking at simulated returns over different time periods, with different global markets and in different scenarios. We also employ forward looking models such as Monte Carlo analysis to counteract biases of recent data sets. While no strategy will work perfectly in every market scenario we aim to identify strategies which fully reflect our research-led beliefs about markets and are expected to display consistent, repeatable performance.

Our approach is founded on research into the drivers of option performance combined with our experience as practitioners. We believe that a smart approach which systematically manages risks and seeks to mitigate or take advantage of the anomalies in option prices can deliver superior performance and an optimized balance between defensiveness and upside potential.

Option overlays can be applied to most well diversified equity portfolios and we have experience in managing derivative overlays on both active and passive equity portfolios. It is also possible to combine an option overlay with an ESG-focused equity portfolio to combine sustainable investment exposure with sustainable investment outcomes.

Our experience implementing option strategies for clients over many years, gives us confidence that the defensive equity strategy outlined above can be applied to meet specific investor needs and to satisfy the high-level investment objectives we set out at the beginning of this paper for predictable, systematic and efficient results.

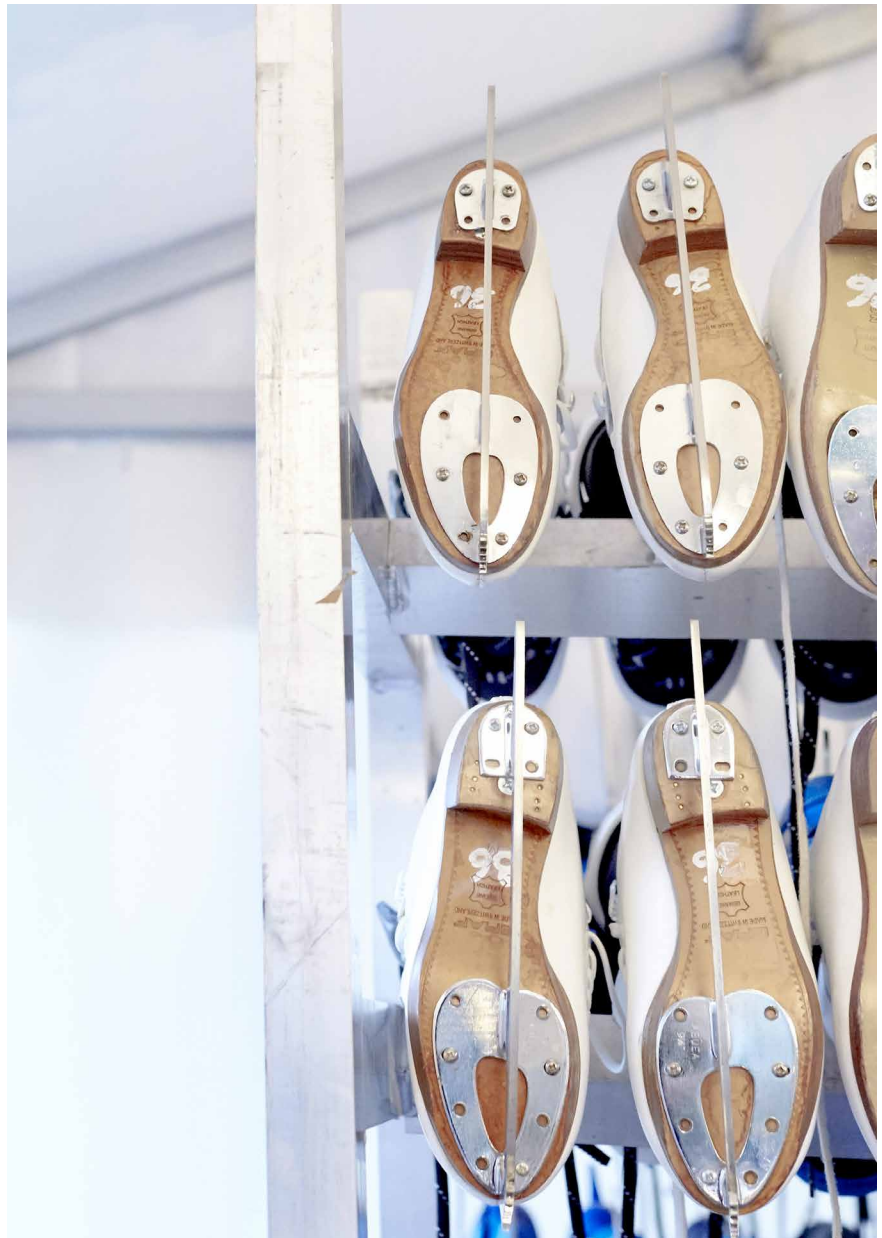
In summary, we are confident that a well-engineered defensive equity strategy - designed and meticulously executed by experienced practitioners - can deliver a superior outcome, balancing wealth preservation and capital growth.

Highly experienced team

UBS Asset Management's Structured Solutions team has decades of experience in designing, managing and implementing risk management overlays and derivative hedging strategies. UBS Asset Management has managed option based strategies for clients since 1992 and currently manages and advises on assets of approx. USD 8bn. in structured strategies (as of June 30, 2021).

The team's approach combines proprietary research with expert management and fully independent best execution to deliver investments which target superior performance and precise outcomes.

The team believe that more predictable and repeatable performance can be achieved by systematic investment strategies, which remove human behavioral biases. As markets evolve these strategies are continuously refined and updated to adapt to dynamic market conditions and to incorporate ongoing research.



Simulated research disclosures

This presentation contains simulated research prepared by UBS Asset Management. The analysis contained herein is based on historical analyses and numerous assumptions. Different assumptions could result in materially different results. Detail of assumptions used in deriving modeled returns contained within this research piece can be made available on request.

The simulated research includes derivatives, which presents risks different from, and possibly greater than, the risks associated with investing directly in securities and other instruments. If incorrect forecasts are made regarding the value of securities, currencies, interest rates, or other economic factors in using derivatives, a strategy might have been in a better position if the strategy had not entered into the derivatives. While some strategies involving derivatives can protect against the risk of loss, the use of derivatives can also reduce the opportunity for gain or even result in losses by offsetting favorable price movements in other investments. Derivatives also involve the risk of mispricing or improper valuation, the risk that changes in the value of a derivative may not correlate perfectly with the underlying asset, rate, index, or overall securities markets, and counterparty and credit risk (the risk that the other party to a swap agreement or other derivative will not fulfill its contractual obligations, whether because of bankruptcy or other default). Gains or losses involving some options, futures, and other derivatives may be substantial (for example, for some derivatives, it is possible for the strategy to lose more than the amount the strategy invested in the derivatives). Some derivatives tend to be more volatile than other investments, resulting in larger gains or losses in response to market changes. Derivatives are subject to a number of other risks, including liquidity risk (the possible lack of a secondary market for derivatives and the resulting inability of the strategy to sell or otherwise close out the derivatives) and interest rate risk (some derivatives are more sensitive to interest rate changes and market price fluctuations). Finally, the use of derivatives may cause the strategy to realize higher amounts of short-term capital gains (generally taxed at ordinary income tax rates) than if the strategy had not used such instruments.

The forgoing presentation includes simulated performance based on historical analyses and assumptions as noted. The simulated results are presented for illustrative purposes only and are not based on the results of any actual strategy managed by UBS Asset Management. Simulated results are subject to inherent risks and limitations. Investors should not take the example herein as an indication, assurance, estimate or forecast of future results and actual results may differ materially from the simulated results shown. The simulated results do not represent actual trading using client assets. Such simulated results may not reflect the impact that material economic and market factors might have had on our decision making if actual client assets were managed during the time periods portrayed.

Additional disclosures

This commentary contains simulated results prepared by UBS Asset Management. The simulated results are presented for illustrative purposes only. Simulated results are developed with the benefit of hindsight and have inherent limitations. The analysis contained herein is based on historical analyses and numerous assumptions. Different assumptions could result in materially different results. The simulated results do not represent actual trading using client assets and are not based on the results of any actual strategy managed by UBS Asset Management. Investors should not take the example herein as an indication, assurance, estimate or forecast of future results. Actual results may differ materially from the simulated results shown. Simulated results may not reflect the impact that material economic and market factors might have had on UBS Asset Management decision making if actual client assets were managed during the time periods portrayed. No representation is being made that any strategy will achieve results similar to the simulated performance shown in this commentary. The simulated performance is presented gross of investment management fees. Actual returns would be reduced by advisory fees and other expenses incurred by the client. © UBS 2021. The key symbol and UBS are among the registered and unregistered trademarks of UBS. All rights reserved.

UBS Asset Management sources model parameters from recognized data providers and relevant market participants in deriving modeled returns.

Additional disclosures

Past performance is no guarantee of future results. Potential for profit is accompanied by possibility of loss. Any statements made regarding investment performance objectives, risk and/or return targets shall not constitute a representation or warranty that such investment objectives or expectations will be achieved.

No part of this presentation may be reproduced or redistributed in any form, or referred to in any publication, without express written permission of UBS Asset Management. This material supports the presentation(s) given on the specific date(s) noted. It is not intended to be read in isolation and may not provide a full explanation of all the topics that were presented and discussed.

The information and opinions contained in this document have been compiled or arrived at based upon information obtained from sources believed to be reliable and in good faith. All such information and opinions are subject to change without notice. A number of the comments in this document are based on current expectations and are considered "forward-looking statements." Actual future results, however, may prove to be different from expectations. The opinions expressed are a reflection of UBS Asset Management's best judgment at the time this report is compiled, and any obligation to update or alter forward-looking statement as a result of new information, future events, or otherwise is disclaimed. UBS Group AG and/or its affiliates may have a position in and may make a purchase and/or sale of any of the securities or other financial instruments mentioned in this document.

The information contained in this presentation should not be considered a recommendation to purchase or sell any particular security. There is no assurance that any securities discussed herein will remain in an account's portfolio at the time you receive this information or that securities sold have not been repurchased. The securities discussed do not represent an account's entire portfolio over the course of a full market cycle. It should not be assumed that any of the securities transactions or holdings referred to herein were or will prove to be profitable, or that the investment recommendations or decisions we make in the future will be profitable or will equal the investment performance of the securities referred to in this presentation.

The gross performance figures reflect the deduction of transaction costs but not investment advisory fees or external custodial charges. A client's actual return will be reduced by investment advisory fees and other expenses. The deduction of investment advisory fees would have a compounding effect, which will increase the impact of the fees by an amount directly related to the gross account performance. For example, on an account with an initial value of \$10,000 and a 0.5% annual fee, if the gross performance is 10% per year over a five-year period, the annual compound net rate of return would be 9.45% per year and the total value of the client's portfolio at the end of the five-year period would be \$16,105 without the fee and \$15,707 with the fee. Performance results include all cash and cash equivalents, are time weighted, annualized for time periods greater than one year and include realized and unrealized capital gains and losses and reinvestment of dividends, interest and other income. A client's returns will be reduced by advisory fees and other expenses incurred by the client. Advisory fees are described in Part 2A of Form ADV for UBS Asset Management (Americas) Inc.

This presentation does not constitute an offer to sell or a solicitation to offer to buy any securities and nothing in this presentation shall limit or restrict the particular terms of any specific offering. Offers will be made only to qualified investors by means of a prospectus or confidential private placement memorandum providing information as to the specifics of the offering. No offer of any interest in any product will be made in any jurisdiction in which the offer, solicitation or sale is not permitted, or to any person to whom it is unlawful to make such offer, solicitation or sale.

The achievement of a targeted ex-ante tracking error does not imply the achievement of an equal ex-post tracking error or actual specified return. According to independent studies, ex-ante tracking error can underestimate realized risk (ex-post tracking error), particularly in times of above-average market volatility and increased momentum. Different models for the calculation of ex-ante tracking error may lead to different results. There is no guarantee that the models used provide the same results as other available models.

This document is not intended to provide, and should not be relied upon for, accounting, legal or tax advice, or investment recommendations. Any accounting, legal or taxation position described in this presentation is a general statement and should only be used as a guide. It does not constitute accounting, legal or tax advice and is based on UBS Asset Management's understanding of current laws and their interpretation. As individual situations may differ, clients should seek independent professional tax, legal, accounting or other specialist advisors as to the legal and tax implication of investing.

Strategies may include the use of derivatives. Derivatives involve risks different from, and possibly greater than, the risks associated with investing directly in securities and other instruments. Derivatives require investment techniques and risk analyses different from those of other investments. If a manager incorrectly forecasts the value of securities, currencies, interest rates, or other economic factors in using derivatives, the portfolio might have been in a better position if the portfolio had not entered into the derivatives. While some strategies involving derivatives can protect against the risk of loss, the use of derivatives can also reduce the opportunity for gain or even result in losses by offsetting favorable price movements in other portfolio investments. Derivatives also involve the risk of mispricing or improper valuation, the risk that changes in the value of a derivative may not correlate perfectly with the underlying asset, rate, index, or overall securities markets, and counterparty and credit risk (the risk that the other party to a swap agreement or other derivative will not fulfill its contractual obligations, whether because of bankruptcy or other default). Gains or losses involving some options, futures, and other derivatives may be substantial (for example, for some derivatives, it is possible for a portfolio to lose more than the amount the portfolio invested in the derivatives). Some derivatives tend to be more volatile than other investments, resulting in larger gains or losses in response to market changes. Derivatives are subject to a number of other risks, including liquidity risk (the possible lack of a secondary market for derivatives and the resulting inability of the portfolio to sell or otherwise close out the derivatives) and interest rate risk (some derivatives are more sensitive to interest rate changes and market price fluctuations). Finally, a portfolio's use of derivatives may cause the portfolio to realize higher amounts of short-term capital gains (generally taxed at ordinary income tax rates) than if the portfolio had not used such instruments.

Services to U.S. persons are provided by UBS Asset Management (Americas) Inc. ("Americas") or UBS Asset Management Trust Company. Americas is registered as an investment adviser with the US Securities and Exchange Commission ("SEC") under the Investment Advisers Act of 1940. From time to time, Americas' non-US affiliates in the Asset Management Division who are not registered with the SEC ("Participating Affiliates") provide investment advisory services to Americas' U.S. clients. Americas has adopted procedures to ensure that its Participating Affiliates are in compliance with SEC registration rules.

Copyright © UBS 2021. The key symbol and UBS are among the registered and unregistered trademarks of UBS. All rights reserved.

UBS Asset Management – a truly global asset manager.

UBS Asset Management is a large-scale asset manager, with a presence in more than 20 countries worldwide. We take a globally connected approach to find the answers to our clients' investment challenges and draw on the best ideas and capabilities of our global set-up.

To provide you with first class solutions, UBS Asset Management may outsource business areas and services to (other) business divisions of UBS Group AG, affiliated companies of UBS Group AG and carefully selected third party service providers on a global level. This applies both with respect to different services provided to you as a prospect and as a client, such as analyzing and providing investment solutions, negotiations regarding our future relationship, onboarding, as well as to ongoing know-your-client due diligence, transactions, processing of securities and other financial instruments, compliance, risk management and monitoring, data processing, and IT and back- and middle-office services. Such a global approach may require transmitting client data to affiliated companies and carefully selected third party service providers. This might include entities that are not subject to banking secrecy (if applicable at all) and or that are not subject to the data protection laws applicable in your location, the location of the UBS Asset Management entity you are in contact with, or to your future relationship with UBS Asset Management. This global approach also may require storing client data in global IT systems.

UBS Asset Management is subject to statutory obligations regarding the confidentiality of data relating to the business relationship with its clients. You can rely on UBS Asset Management and its affiliated companies treating all data with strictest confidentiality; third party service providers are carefully selected and contractually bound to strictest confidentiality obligations in line with highest UBS standards.

UBS Asset Management (the Firm) claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. UBS Asset Management has been independently verified for the periods January 1, 2002 through December 31, 2019. The verification reports are available upon request. A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm's policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. Verification does not provide assurance on the accuracy of any specific performance report. GIPS® is a registered trademark of CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein.

Performance : UBS Equity Global Defensive
July 01, 2020 Through December 31, 2020
Amounts and returns expressed in USD (US DOLLAR)

Year	Gross Asset-Weighted Return (%)	Net Asset-Weighted Return (%)	Benchmark Return (%)	Composite 3-Yr St Dev (%)	Benchmark 3-Yr St Dev (%)	# of Portfolios End of Period	Total Composite Assets End of Period (millions)	Asset Weighted Dispersion (%)	Composite Assets as % of Firm Assets	Firm Assets (billions)
2020*	13.41	13.13	12.97	N/A	N/A	1	2	N/A	0.00	993

* Performance Presented for Jul, 2020 through Dec, 2020. No statistics are annualized.

** 3 yr standard deviations are based on the gross returns

1. This actively managed composite invests worldwide in equities. The composite aims to reduce risk (volatility) and drawdown by applying systematic and research based options overlay. The Composite Creation Date is 30 Jun 2020. The Composite Inception Date is 30 June 2020. The actual benchmark for this composite always reflects the best match to the investment strategy. Benchmark changes over time are necessary to underline this fact. The benchmark is 65% MSCI World (hedged USD)+35%USD Fed Funds Rate.
2. The Firm is defined as all actively and passively managed institutional and retail accounts of UBS Asset Management ("the Firm") throughout the world. The Firm was inceptioned in January 01, 2002 following the reorganisation of the asset management divisions of UBS AG under a single Asset Management brand. A list of all entities that are included and excluded from the GIPS firm is available upon request. The performance record prior to 2002 is that of the local asset management division which managed the composite, and has been prepared in compliance with GIPS from the inception date of this composite. The composites are administrated out of UBS Asset Management Basel office. The firm, UBS Asset Management - Fund Management Switzerland has complete discretion for all investment activities within the fund. As per January 1st, 2010 the three Firms: UBS Global Asset Management Switzerland - Retail Fund Management, UBS Global Asset Management Switzerland - Institutional Fund Management and UBS Global Asset Management Switzerland - AST Fund Management were merged into UBS Global Asset Management - Fund Management Switzerland. The Firm includes all traditional UBS branded Wholesale, Institutional and AST Funds domiciled in Switzerland or Luxembourg. Policies for valuing portfolios, calculating performance and preparing GIPS reports are available upon request. As per October 5th, 2015 the company name was changed from UBS Global Asset Management to UBS Asset Management. This change of the firm's name does not impact the definition and scope of the GIPS firm or the composites.

Year	Total Risk %	Derivative Risk %
2020	159.2	62.6

Explanation of the table above: All figures presented are fully in-line with the KKV-FINMA guideline on the use of derivative instruments for collective investments. The Total Risk is the sum of the direct investment exposure and the derivative risk. The direct investment exposure is calculated as the market value of all direct investments, excluding cash and other liquid assets. The derivative risk is the sum of the net credit-, currency- and market-risk. The market risk consists of equity-, interest- and commodity-risk. Derivative financial instruments are only used in the course of ordinary management of portfolio assets and to hedge the currency risk exposure. Leverage in the sense of short sales may not be used. Investment Transactions are accounted for on a trade date basis.

4. Performance is calculated on a time-weighted return basis, taking into account the accrued interests and dividends. Where applicable, returns are shown net of non-recoverable withholding taxes.
5. The performance is calculated net-of-fees. The gross-of-fee returns are calculated based on all fee components excluding transaction costs. This composite has a 100% flat fee of max. 200 bps p.a. (this represents the highest possible standard fee for this composite). Due to the varying client segmentation the charged fee for this composite can differentiate. The bundled fee includes all charges for portfolio management, custody, and other administrative fees. The only costs not covered are transaction costs incurred in the administration of the fund's assets (brokerage fees in line with the market, fees, duties, etc. as well as any applicable taxes).
6. Composite dispersion represents the consistency of the Firm's composite performance results with respect to the individual portfolio returns within the composite. Presented is the asset-weighted dispersion (standard deviation) of the portfolios within the composite. Only portfolios in the composite for each full time period are included in the dispersion calculation and no dispersion is presented for composites consisting of only a single portfolio. The 3 year annualized ex-post standard deviations are based on monthly returns, shown starting with the first full 3 year calendar period.
7. A complete list of all Firm composite descriptions, pooled fund descriptions for limited distribution pooled funds, and broad distribution pooled funds is available upon request. The composite's past performance is not necessarily an indication of how it will perform in the future.

Follow us on LinkedIn 

© UBS 2021. All rights reserved.
www.ubs.com/am

