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True Partner
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Could equity volatility come from behind to win in 2023?

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Being a True Partner

About True Partner Capital

True Partner Capital is a global volatility trading firm founded by a team of former market makers and technology specialists, with a primary focus on equity volatility strategies. The Firm has offices in the US, Europe and Asia and the key personnel have been working together for over 10 years. The Firm has over \$1.5 billion in capital and invests on behalf of a varied global investor base. Our investment expertise is accessible via commingled funds, separate mandates and customized solutions where we offer tailored volatility solutions, for example for tail risk hedging. The Firm's longest running commingled fund has an over 10 year track record pursuing the Firm's relative value volatility strategy. The Firm trades close to 24 hours a day across liquid global derivative markets and leverages proprietary technology developed by our experienced team, enabling the portfolio management team to identify and capitalize on trading opportunities.

Could equity volatility come from behind to win in 2023?

As we write, the World Cup is well underway. We have already seen some notable upsets, with the biggest arguably Saudi Arabia, ranked 51st in the world, beating Lionel Messi's Argentina, ranked third. For football fans, the potential for such unlikely results is one of the great joys (and sorrows!) of the game. But imagine it for a moment from the perspective of odds. At the start of the game, betting odds gave Argentina an over 90% chance of winning, with just a 4% implied probability of a Saudi Arabian victory.¹ Were the odds dramatically wrong? Following the matches, the odds for Saudi Arabia to win the Cup remained very long. Are sports betters and bookies slow to absorb new information? Or maybe sports fans were right in saying the long-term form books were still the most relevant factor.

2022 has seen big macro shifts

When it comes to financial markets, 2022 also has been an unusual year, with big shifts in the macroeconomic backdrop that have played out in sometimes surprising ways across markets. From a macro perspective, a few inter-related issues stand out: inflation, war, interest rates and valuations. For us, a key lens is also volatility, where we have seen sharp rises in places such as fixed income, but a surprisingly subdued reaction from equities thus far. The issues in cryptocurrency have also driven many headlines, but their impact on mainstream markets has—if anything—been less than one might have expected, despite over \$2 trillion of apparent “wealth” being eradicated relative to the peak. So, a big question for investors is whether the 2022 playbook is the new normal? Or is a longer-term history still relevant?

First, let us step back a little. While we are not economists,

we of course monitor macro issues as risk factors that could potentially create or limit opportunities. From early in Q4 2021, we (and several others) had been warning that inflation could be a persistent issue. This was initially due largely to pandemic-related supply constraints and stimulus-aided demand boosts, later followed by a further commodity price shock resulting from the Russian invasion of Ukraine, which looks ever more like a structural break. After more than a decade of policy makers focusing primarily on trying to generate inflation and avoid deflation, it took persistently high inflation data to create a material shift in mindset that we were back to the ‘old normal’, and a realization that inflation could become entrenched. Gradually, the word “transitory” was replaced by inflation fighting rhetoric. That shift has led to the path of tightening we are now on.

1. Source: Boardroom, “Saudi Arabia vs. Argentina: The Biggest Upset in World Cup History?”, 22 November 2022

The shift in data and central bank mentalities has had major effects in fixed income markets, where a multi-decade downtrend in yields has been firmly broken and long-term bonds are nursing losses normally associated with their more volatile cousins in equity markets. As an example, TLT, a popular 20 Year + Bond ETF with over \$25 billion in assets under management (AUM), is down 30% YTD as we write.²

With risk-free rates a crucial input into valuation models across asset classes this shift has been accompanied by a reconsideration of the low discount rate equity markets appeared to be applying to future earnings, the potential cost of generating growth in an environment with supply constraints and less easy money, and the realization that it may take a recession to rebalance supply and demand. This in turn had led to a decline in valuations, and particularly

of the value of growth stocks whose expected earnings are further in the future and may require more financing to get there. That combination can be highly sensitive to even minor changes in the expected path.

This is most starkly seen in some of the more speculative names where investors were highly valuing growth potential and largely looking past negative cashflows. The ARK Innovation ETF is perhaps a simple illustration: after a more than 200% rise from the start of 2020 (let alone from its March 2020 lows) to early 2021, it has fallen around 80%, mostly since November 2021, and is now back roughly where it was 5 years ago. More investors have seen the loss than the gains: in 2017 the ETF had around \$100-150mn in assets. At its peak it had almost \$30bn in AUM.

What happened to equity volatility?

From a volatility perspective, 2022 has also been unusual. The behavior of volatility has been puzzling for many. Over the past decades, implied volatilities have consistently been negatively correlated to equity markets, with equity market declines coinciding with (sometimes sharp) increases in volatility. This dynamic makes intuitive sense from a statistical perspective, as historically, downside volatility has usually occurred in sharp bouts, whereas upside movement tends to be more gradual. From a behavioral perspective, most investors tend to have a long bias, and hold and add to positions during rising equity markets. This can result in complacency, leading investors to be caught out when the eventual down-move arrives.

Particularly since the 1987 crash, when the market fell 20% in a single day, this behavior has been somewhat anticipated by option market participants, with the volatility surface pricing a skew, whereby out-of-the-money downside options command a higher implied volatility than at-the-money or (generally) out-of-the-money upside options. However, we have seen many times that the market cannot price this perfectly, with equity market turmoil often leading to jumps

in volatility and shifts in relative volatility relationships. Again, that is not a surprise: the market anticipates all sorts of behavior to different degrees – but a simple look at the fluctuations in stock prices over the past 2-3 years makes it clear that investors do not have perfect foresight.

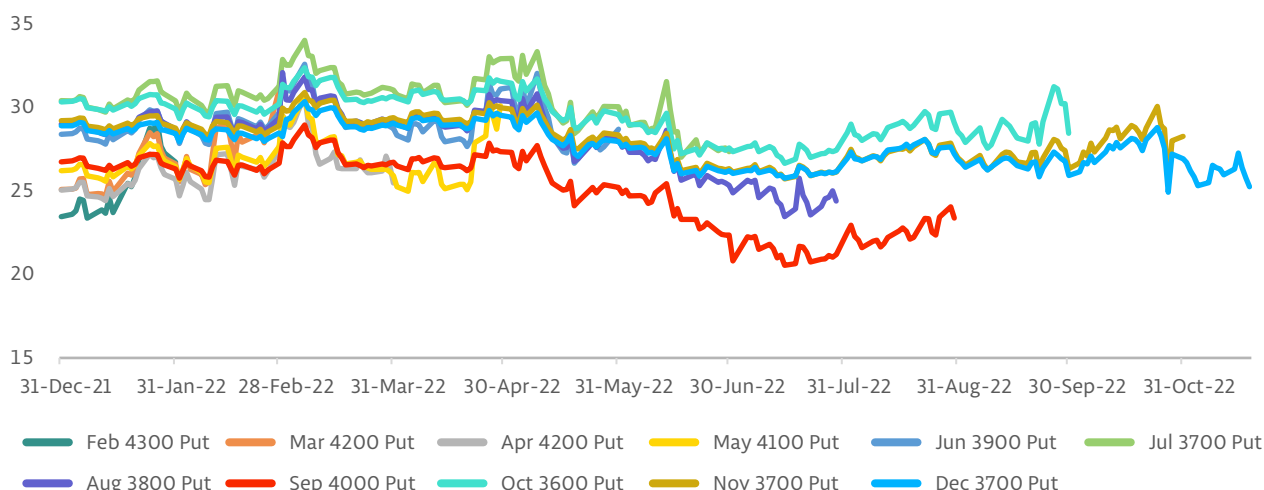
We can separate the moves in the volatility surface into changes in generic measures, such as at-the-money volatility, which reference ever changing strikes, and changes in per-strike volatility, whereby we focus on the behavior of the implied volatility of specific options. Said another way, is the change in the generic measure (e.g. at-the-money volatility or an index like the VIX) simply driven by a move ‘along’ an unchanged volatility surface, or is the surface itself shifting? Often, we see significant moves in both aspects, as in periods like 2020. Thus far in 2022, there have been only minor changes in per-strike volatility. The movement in measures such as the VIX Index (which references an ever-evolving basket of options) has generally been movement along the surface driven by the changes in the underlying index level, rather than being driven by changes in the implied volatility of individual options themselves.

². Source: Bloomberg, as of 25 November 2022

The VIX spot index is not directly tradable. VIX futures, a common expression of volatility positions, can be impacted by both aspects described above, and effectively have a measurable sensitivity (delta) to equity markets. Nevertheless, a popular short-term VIX futures ETF (which had a beta to the S&P 500 of -5 during 2021) is down almost 20% YTD through 25th November, on top of a 72% loss in 2021. A mid-term VIX futures ETF has fared better and is roughly flat for the year (after being down 17% in 2021), as longer-term implied volatilities have stayed relatively elevated. However, it would still have negative alpha for the year after accounting for its embedded beta to equities.³

We believe that observing volatilities on a per-strike basis is generally a better representation of the impact of supply and demand on implied volatilities than using generic measures. This is because excess demand for a certain option contract will have the effect of raising the implied volatility for such a contract, independent of the movement of the underlying instrument. Excess supply will have the opposite effect. As a result, shifts in per-strike volatility can also be seen as representing changes in expectations relative to what has already been priced in. Intuitively, periods of shifting expectations are more likely to generate trading opportunities.

Implied Volatilities of Selected S&P 500 options



The above chart plots the volatility for the S&P 500 on a per-strike basis. Specifically, we show the implied volatility of a set of individual options on the S&P 500 through the year. To illustrate that this effect has been broad-based, we show one option for each maturity (e.g. one for February expiry, one for March expiry) and track it over time. We pick the strike based on the low of the previous month (e.g. the February strike is selected based on the market low in January). We round the strikes to the nearest 100

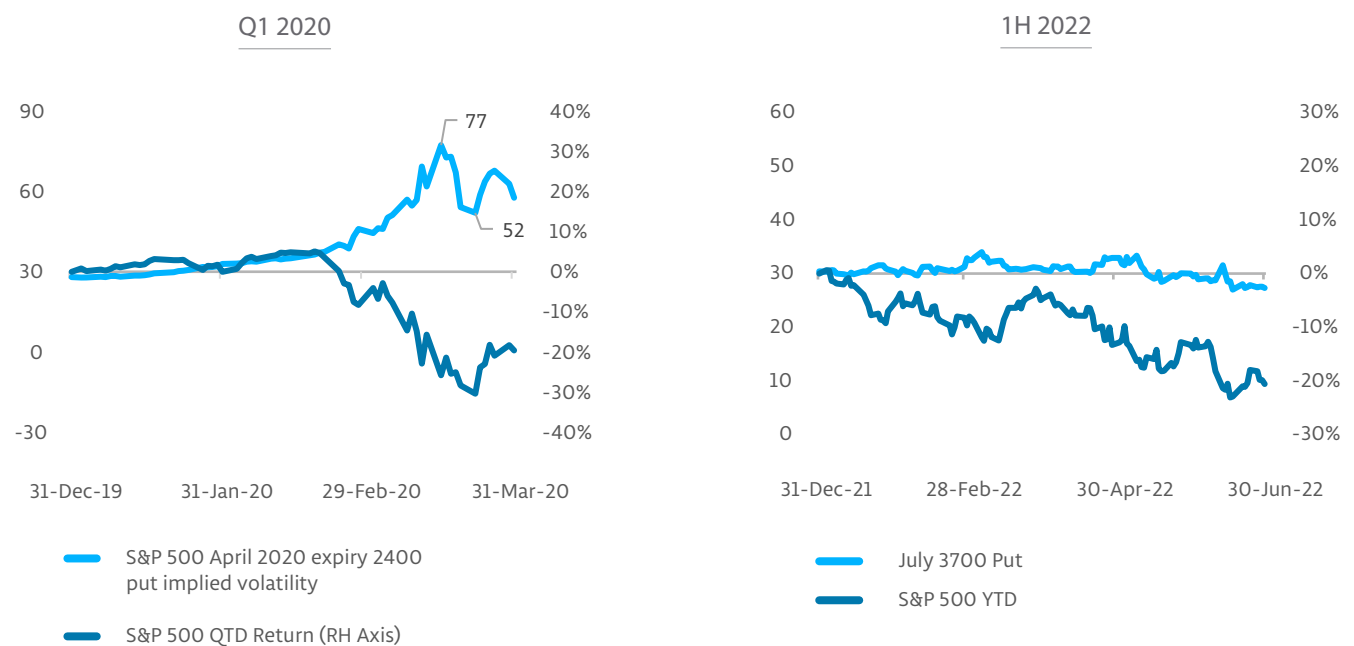
for simplicity and because these round numbers tend to be some of the most traded strikes. Thus, over the year this shows the implied volatility of a set of options that were at some points close to at-the-money and at other points out-of-the-money, and at different but overlapping distances to expiry. We stop each series at the month-end before expiry (thus the February expiry is shown until January month-end, the March expiry is shown until February month-end, and so on). With that long introduction, there are two

3. The ETFs referenced are VIXY and VIXM and are referenced for illustrative purposes only.

obvious takeaways from the chart: 1) none of the per-strike volatilities moved very much; and 2) over the year, per-strike implied volatilities generally drifted a little lower. Notably, it is also visible that implied volatilities have been under

pressure not only during the periodic recoveries but also sometimes during periods of more sizable market declines, such as in June.

Implied Volatilities vs Equity Market Behaviour: Q1 2020 vs 1H 2022



As a comparison, above we show per-strike volatility changes in Q1 2020, and a second chart zooming in on one of the options shown above. In both charts, we also include the S&P 500 YTD return over the relevant period on the right-hand axis. Note that the scales also have larger intervals on the Q1 2020 chart – for example, the scale for implied volatility (left-hand axis) peaks at 90 whereas the scale peaks at 60 for the 2022 chart.

In Q1 2020 we saw around a 50-point change in the implied volatility of the April 2020 expiry 2400 put option, going

from a starting point of around 30 to a high of 77. We pick the 2400 strike as that was the at-the-money level at the peak in implied volatility on 18th March 2020. In 2022, we pursue a similar approach to identify an option, picking the 3700 July expiry, which was approximately the at-the-money strike at the lows for the S&P 500 in mid-June 2020. That option started the year at around 30 and ended Q2 2022 at 27, trading in a narrow range throughout.

The pattern we have seen in the US has been similar across other major equity index options markets too. Again, that is

unusual. In past episodes of market turmoil, we have usually seen significant changes in per-strike volatility in at least some indices if not all. Q1 2020 was indeed a large move, but periods like February 2018, October 2018, August 2015 and the Summer of 2011, also saw some notable shifts to greater and lesser degrees: it has not usually required a 2020 style sell-off to shift the volatility surface. However, in 2022, we have generally seen little movement in per-strike volatility in any of the major indices. That has resulted in fewer relative value opportunities.

What could have worked? We would like to acknowledge one area that did well early in the year: the shifts in single stocks and sub-sectors 'under the surface' of the equity market created an unusually favorable environment for dispersion strategies early in 2022, as many single stocks saw outsized moves, while there was relatively little action at the index level, rewarding those who were short correlation. If we had seen a more typical macro shock reaction from index volatility to the Russian invasion of Ukraine, it could have been a different story, as correlation can rise dramatically at such times, but in the end, it did not. From our observations, dispersion has mostly had a less exciting period over the subsequent months, similar to several other equity volatility strategies.

In the event, per-strike index volatility had a surprisingly muted reaction to the Russian invasion of Ukraine. While there was a risk premium built in before the event, even with hindsight it feels odd. As an example, the Euro Stoxx 50 May 3,500 put (the at-the-money strike at the market low) had an implied volatility of 33.2 on 18th February, before Russian troops entered the breakaway regions on the 21st.

This was 2 points higher than its value of 31.4 at the end of January, while realized volatility was a little lower. On 24th February, the day of the full-scale invasion, the implied volatility of this option was almost unchanged at 33.7. At the trough of the market on 8th March, this volatility was only marginally higher at 34.5 despite much higher realized volatility and a 14% drop in the Euro Stoxx 50 relative to its 18th February level. By the end of March, with the war clearly lasting longer than many expected, it had dropped back to 32, below its pre-invasion level. We would be very cautious of extrapolating such limited reactivity to planning for future macro shocks.

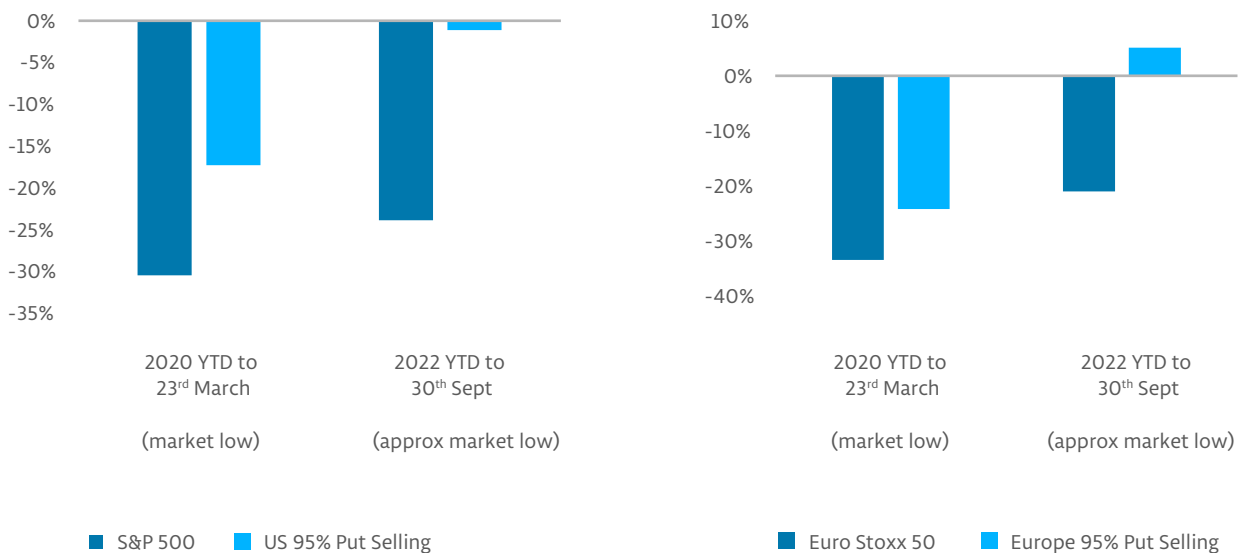
It is also possible to have a short equity position implicitly embedded in an options position – buying VIX futures would give this to some degree. But as we've seen above, this would have been flat or down YTD, and a simple short equity position would have fared better. What else? Strangely, and with the considerable benefit of hindsight, selling equity tail risks would have been a favourable strategy – precisely the approach that would have had large losses in March 2020. The combination of declines in per-strike implied volatilities, coupled with relatively muted realized volatility in equity markets so far this year has been somewhat of a boon for strategies which engage in selling (downside) volatility. Of course, with jumps in other asset class volatilities, selling tails broadly would have been another story.

That selling tail risk was a profitable strategy is another oddity in a year of double-digit equity declines, and we would be wary of extrapolating this into the future, particularly as pricing has shifted against this, as we will see

later on below. First, let us look at a simple version of being short downside. The graph below compares the year-to-date (“YTD”) performance of strategies selling 95% puts on the S&P 500 and on the Euro Stoxx 50 to the performance of the underlying equity indices. These are strategies selling outright equity tails, with potentially large losses, but

receiving a premium for doing so. Whereas such a strategy tends to incur sizable losses in periods of significant market drawdowns, as in 2020, in 2022 this approach was able to notch a flat / positive return even around the trough of the drawdowns at the end of September.⁴

Returns to Selling Downside Protection vs Equity Market Returns: 2020 vs 2022



Is the lack of equity index volatility shifts simply a reflection of general volatility behavior? No. We have seen higher implied volatility in other asset classes such as fixed income and foreign exchange, creating a marked disconnect with the relationships with equity implied volatility seen in recent years (see charts below). Is it because there aren't

concerns about corporate health? That seems unlikely, because we have also seen a widening in credit spreads (see charts on the next page), particularly in Europe. Again, credit spreads tend to be closely related to equity volatility, which is intuitive given the capital structure relationship.

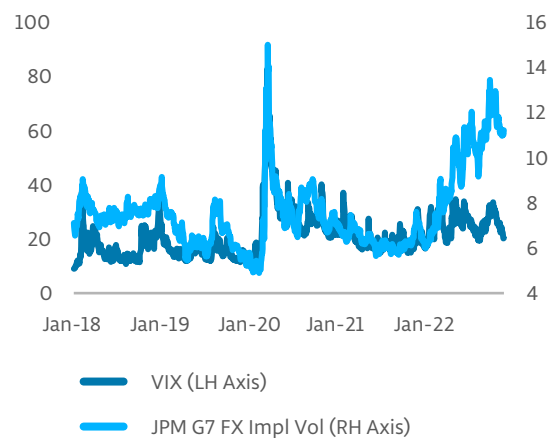
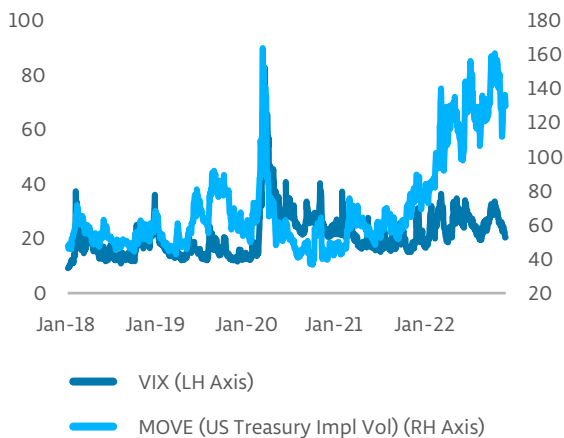
⁴ Metrics shown are based on JP Morgan 95% fortnightly put selling indices. Source: Bloomberg.

What is priced in now?

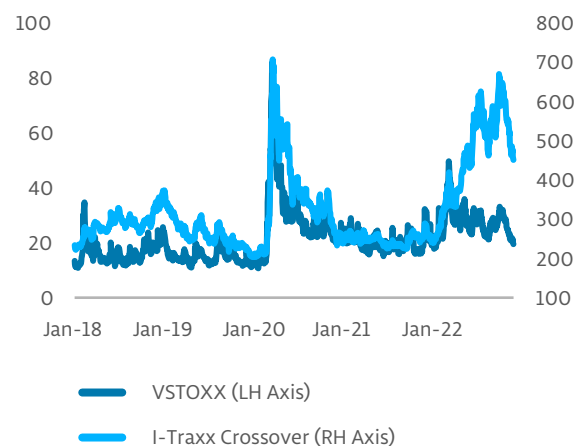
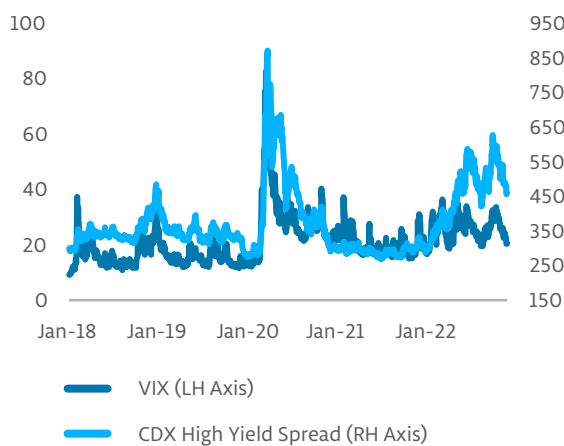
This leaves markets with an interesting set up, whereby equity index volatility looks to be the odd one out,

potentially underpriced vs implied volatility and risk measures in other asset classes.

Equity Index Volatility vs Non-Equity Volatility – 2018 to 2022 YTD



Equity Index Volatility vs Credit Spreads



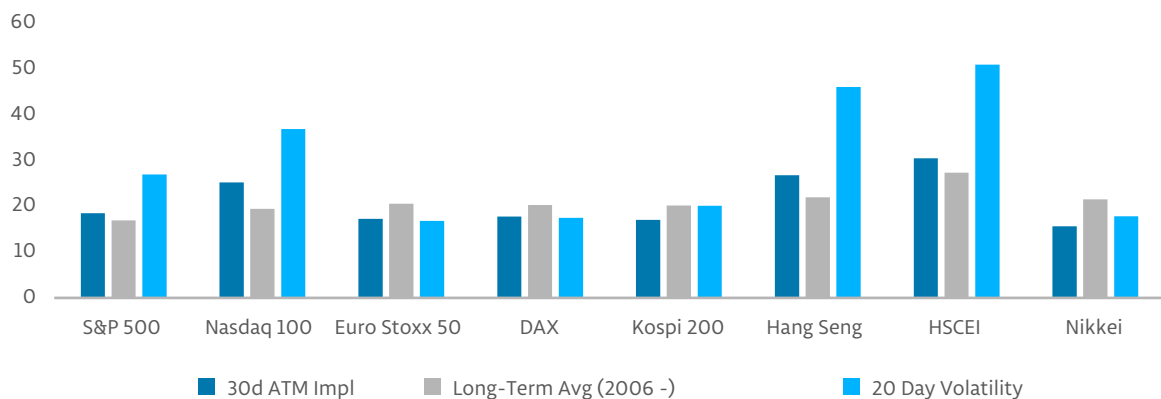
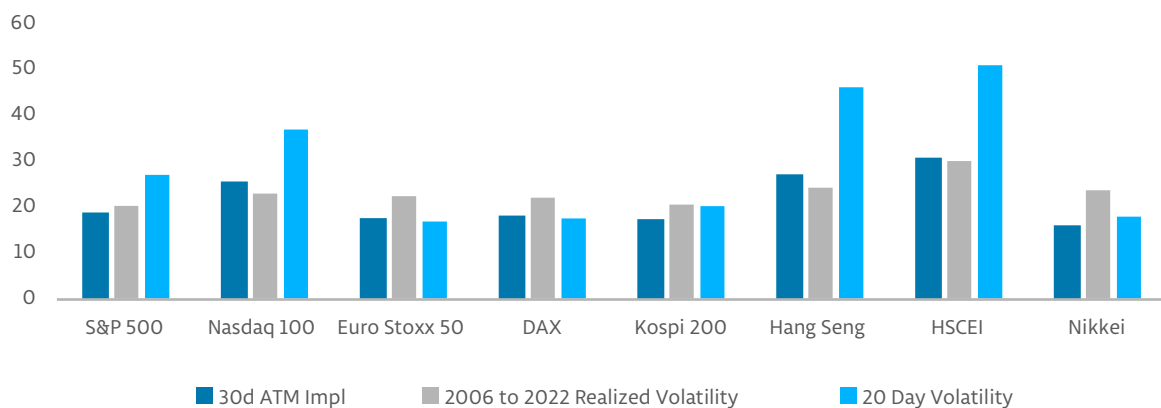
One factor influencing implied volatility is of course realized volatility and it is notable that realized volatility in equity indices has been somewhat muted relative to the kind of sell-off behavior we are used to, while we have seen more

extreme realized volatility in places like fixed income. In equities, realized volatility has generally been in line with long-run behavior, rather than the typical fatter left tails (i.e. big down days) we normally see during major sell-offs.

One common measure is to compare implied volatility to realized volatility. Implied volatility typically trades above realized – creating the famous volatility risk premium. However, in several markets implied volatility is now below

both recent realized volatility and long-term average realized volatility. Implied volatility itself is generally at or around long-term averages, and is below in some markets.⁵

Implied and Realized Volatility vs Long-Run Averages – Snapshot as of 25 November



This configuration of realized volatility exceeding implied volatility tends to occur in periods of high volatility, where the market expectation embedded in implied volatilities is that high movement will retreat from its peaks. This time around, however, realized volatility levels are not particularly high (except in Hong Kong). As noted above, many indices' implied volatility trades at or below long-run implied and realized levels. Furthermore, most volatility curves (as well

as the VIX curve) are upward sloping. In other words, the low or negative risk premium is not because volatility has been oddly high. This begs the question as to whether an expected further decline of equity volatility is realistic or stems from a perceived self-fulfilling prophecy of limited reactivity of implied volatility on downside movement, which invites additional sellers of downside volatility into such movement.

⁵ As with any short-run measures it is important to note that these can be sensitive to the time period chosen; for example, the S&P 500 realized volatility over the period is notably influenced by the market's reaction to the CPI; the implied volatility also includes the period over the upcoming FOMC meeting. Both of these are examples of factors we take into account when making trading decisions. However, we believe the general point above is robust to a more nuanced analysis.

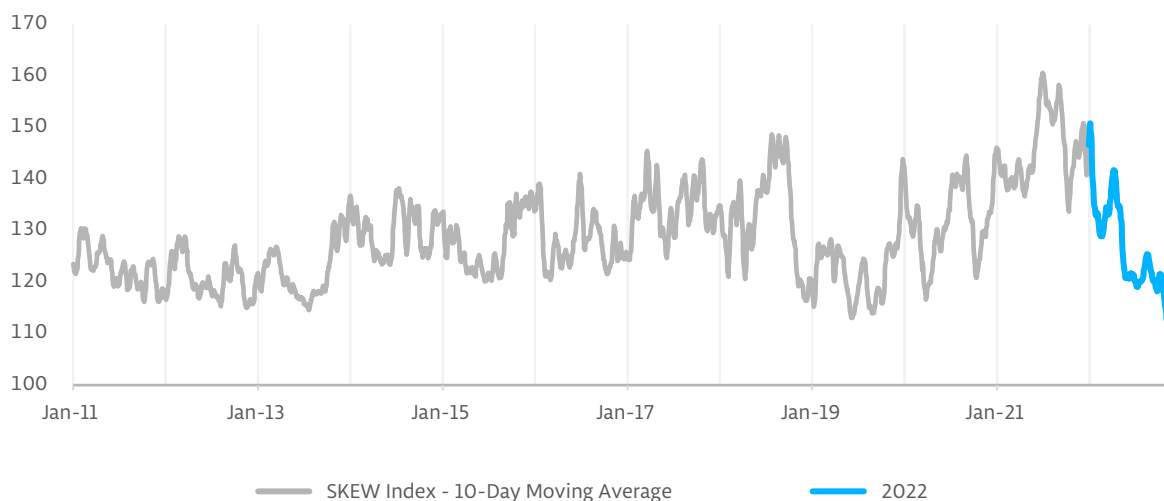
What does pricing tell us about the potential for volatility surprises?

Some have attributed this lack of reactivity in equities to positioning. In a sense, in a free market every price is a function of relative buying and selling pressures, so positioning is always some part of the explanation, but it can be hard to pin down. That said, we see some evidence that positioning was likely a factor in the limited reactivity seen thus far in 2022. One observable metric is the relative cost of protection. That can be seen in the chart below of CBOE's Skew index, which compares the implied volatilities of out-of-the-money downside and upside options. There is

a notable peak in mid-2021, and levels at the start of 2022 were still relatively high.

The cost of downside protection in equities was somewhat elevated at the start of 2022 relative to upside volatility, likely because more market participants than normal had hedged coming into the year. This has the implication that the market was pricing in a more significant reaction from implied volatility to down moves in equities. As we have seen above, we did see a very big reaction in 2020, so that

CBOE Skew Index – 2011 to 2022 YTD



was not necessarily irrational. Nevertheless, it set the bar at a higher level for seeing notable per-strike volatility changes.

That has since markedly shifted, with skew recently at multi-year lows. The unlikely success of various short

volatility strategies despite market losses, may have sparked increased interest in selling volatility into market declines, which could have been perpetuating this phenomenon – at least for now. While we stick to listed instruments, we heard from dealer conversations over the last few months that OTC exotic options that make downside ‘hedges’ conditional on

short volatility positions, for example via knockout features whereby 'hedges' would disappear entirely in a volatility spike, had been popular with some investors. It is worth recalling that some players caught out by portfolio positions with a similar dynamic (profitable in a small volatility rise / steady market decline but losing in a volatility spike / large sell-off) were one exacerbating factor in 2020's sell-off.

Another anecdotal example of this dynamic was the immediate aftermath of the release of the CPI number on 13 October. The number itself was perceived to be an unpleasant surprise and markets sold off instantaneously in the subsequent minutes, during pre-market trading. But in a similar instantaneous fashion, implied volatilities collapsed as well in that decline. From the shortest dated expiries all through to 3-month options, per-strike volatilities dropped by 2 points or more. Having also been on the other side of the table as market makers, we believe we have some insight as to how and why pricing shifts. The immediacy of the reaction does not necessarily point to monetization of hedges (unless various market participants opted at the same instance to unwind their hedges, not only taking profit on in-the-money shorter dated puts, but also in less obvious ones such as the new 3-month at-the-money). From observing the trading screens, it more resembled a large volatility seller making his (or her) mark into the decline.

The source of the supply of volatility is relevant. At the start of the year, coming off the highs of 2021, downside

protective strikes were relatively elevated compared to at-the-money options, as noted above. In our opinion, the pricing of such skew is indicative of the degree of hedges outstanding (as dealers price on inventory, large sales by dealers of downside protective strikes to other market participants would result in higher pricing of these protective strikes going forward). From that perspective, while markets still behaved remarkably calmly, the supply of volatility at the troughs in January and February did make some sense from monetization of hedges. But in the remainder of the year, the premium for downside protective strikes has markedly come down. This could indicate both less demand for downside protective strikes, and/or higher supply (from non-dealers) of such strikes. Both of these configurations would likely feed into less supply in volatility in subsequent market declines. In a way, the environment in which volatility gets sold on declines is an elaborate (and a tad more risky) version of the traditional buy-the-dip to which we have been so accustomed over the years. Perhaps the rapid recovery after the Q1 2020 lows taught investors an overly optimistic lesson about risk. And just as the buy-on-dip strategy grew in popularity, reinforcing the mechanism with each new instance, it would not be unrealistic to assume that market participants could for some period more readily engage in selling downside volatility in expectation of volatility compression in declines, at least until relationships revert and some are stopped out. In that light it is interesting that we saw very high retail selling of volatility in November.

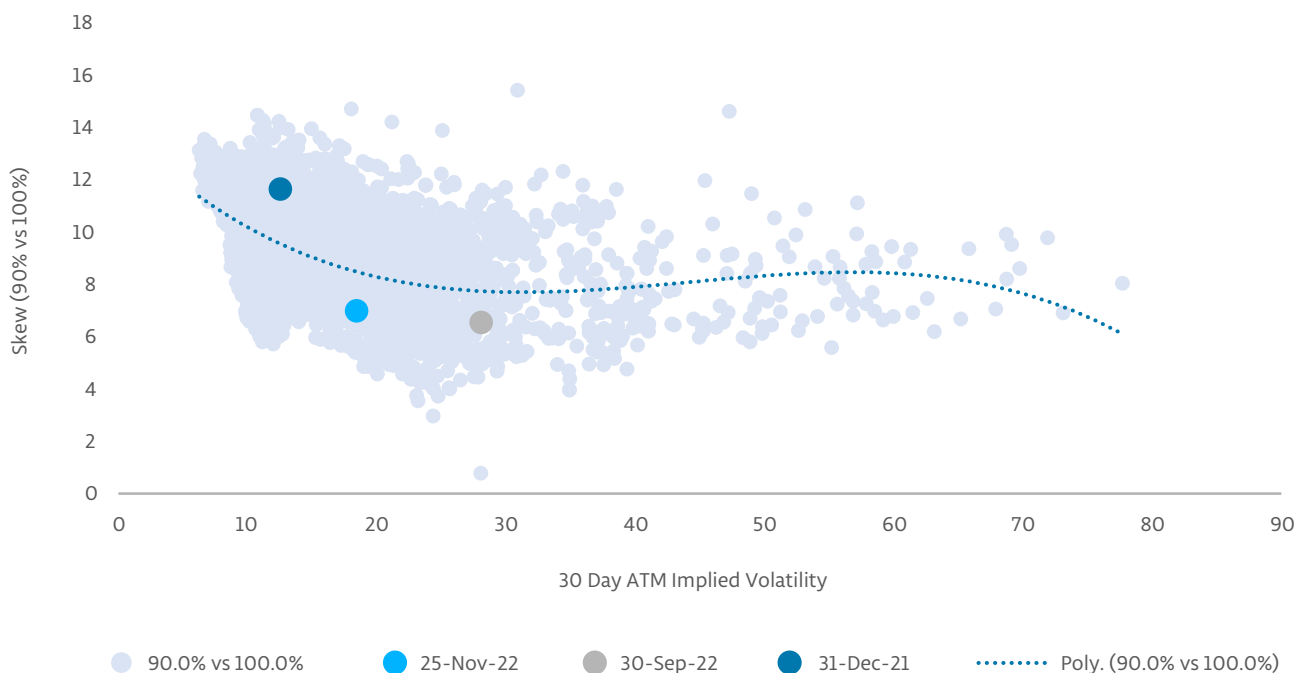
Below we look at this relationship in more detail, focusing in on just the downside component. The graph represents the volatility premium (in volatility points) in the market for purchasing a put with a strike of 90% of the current spot compared to purchasing an at-the-money option. This premium is plotted on the vertical axis, whereas the at-the-money volatility itself is plotted on the horizontal axis. We do this because skew is to some extent a function of the level of at-the-money volatility. We can see from the chart below that even adjusting for shifts in the level of at-the-money volatility, the premium for downside options has gone from being above average at end-2021 (the dark blue dot) to below average (the light blue dot, as of 25th November), with the depression in skew happening over

Q1 to Q3, i.e. during the market decline (the grey dot shows the end of Q3).

But in our view, this configuration is even more significant given the fact that the level of at-the-money volatility has come down as well over the past months. Since the end of Q3, we have seen at-the-money volatility compress while skew has remained at similar levels.

While a trader could purchase downside protective strikes outright, a common position would be to purchase downside skew in combination with selling at-the-money (or upside) volatility. Such positioning is more volatility neutral compared to a pure long position in outright

S&P 500 Downside Skew vs ATM Volatility – 2006 to 2022 YTD



downside puts, but it does become a more pronounced long volatility position in the event of downside movement: On market declines, the long 90% put would become more near-the-money, while the short 100% call would become out-of-the-money. This flips the net position into a volatility (and gamma) long one.

This is where the overall volatility level comes into play. The scattering of the dots along the horizontal axis indicates the degree to which volatility can spike during market turmoil. An increase in volatility indicates that the market adjusts its expectations of movement going forward, and a sharp increase in volatility thus reflects a genuine market surprise. The potential for these surprises to occur in market drops is an important driver why market participants are inclined to pay a premium for downside volatility. At lower volatility levels in general, the threshold for what would constitute a market surprise would be lower as well, thus generally from a lower starting point one would rightfully expect the reactivity of volatility in a market surprise to be larger. As a result, this is generally reflected in a higher skew premium in lower volatility environments, as is visible

in the chart on the previous page.

Currently, the depressed skew in combination with the current at-the-money volatility levels has resulted in relatively low absolute volatility levels for downside protective strikes. The absolute current implied volatility for a 1-month 90% put option is not materially different from the absolute implied volatility for a 1-month 90% put option at the end of 2021, while 20-day and 90-day realized volatilities are each around 10 points higher. The more recent compression of per-strike volatilities and of downside skew has impacted the risk/reward of selling (downside) volatility. While, if anything the magnitude of a volatility increase in the event of a market surprise has grown, the potential premium decay has come down in line with the lower levels of volatility and skew. This makes profitability from such positioning more dependent on the continuation of the pattern in which skew gets further depressed on downward movement (i.e. the expectation being volatility changes as those witnessed following the CPI surprise on 13 October).

What does this mean for the next 12 months?

Overall, we think the pricing and positioning set up coming into year-end and 2023 is thus more favorable than that seen coming into 2022: referencing purely equities, implied volatility is below realized volatility in several markets, realized and implied volatility are generally around long-run averages, skew is relatively low and there is still a troubling macro backdrop. Relative to other asset classes, equity index implied volatility also looks to have undershot so far. If we do see more drama over the coming months, equities seem to us to be very much at risk and we expect to see more trading opportunities.

Indeed, it is worth remembering that the correction in

equities so far looks relatively mild by historical standards. While all the talk is of recession risks, consensus estimates are still forecasting earnings growth next year. Most homeowners are yet to reset to higher mortgage interest costs, and most companies are yet to refinance at the new higher rates.

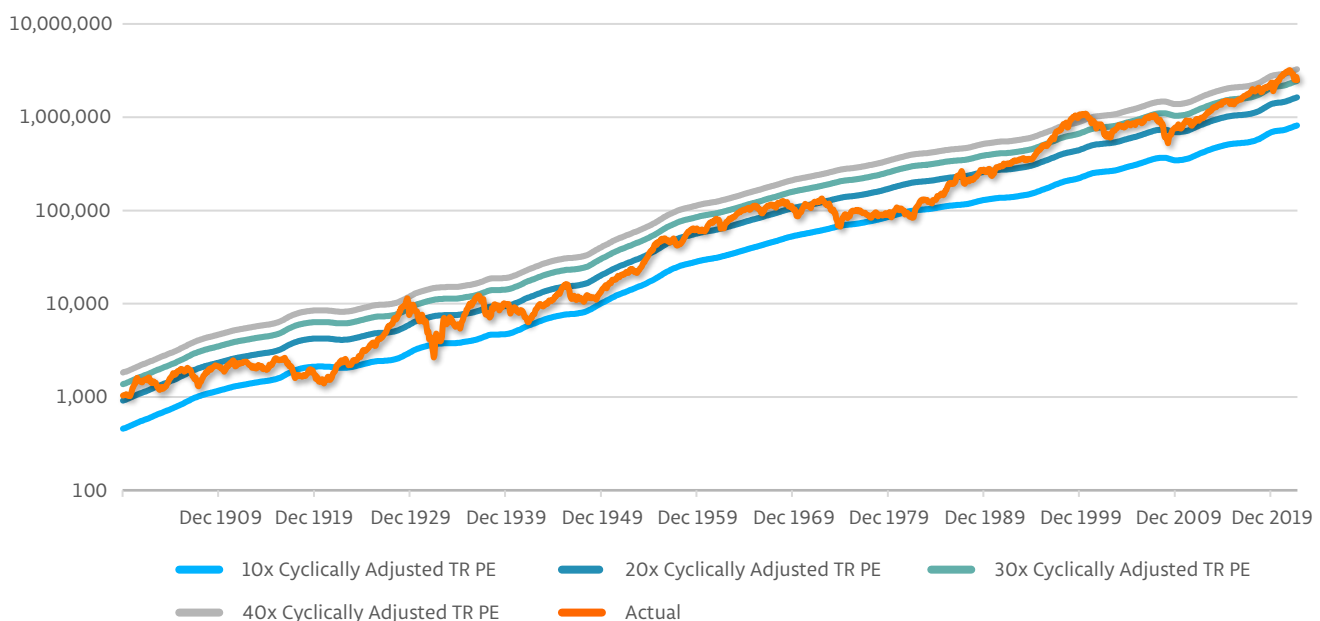
Bond yields have risen, but their future path is uncertain, and the diversification benefits relative to equities now look more questionable. It is important to remember that a large part of the move higher in rates has been simply a reversal of a shift lower in long-term rates seen in 2019 and the first half of 2020. That saw very long-term interest rates

hit incredibly low levels. For example, US interest rate swaps had the 10-year rate, 10 years forward, at 1% in August 2020. Until late 2019 the rate had only been below 2% for a brief period in mid-2016. Bear in mind the FOMC's median projection of the long-run neutral rate was at 2.5% from mid-2019 and remains there today. 10-year US Treasury yields, now just below 4%, were rarely below 4% from 1993 to 2007, and averaged over 5%. During this time, core PCE inflation never exceeded 3% year-on-year (it is currently around 5%). Persistently positive real rates would be just a return to historical norms but could mean a permanent repricing of risk assets.

In the chart below, we borrow the approach of the widely followed cyclically adjusted total return P/E ratio created

by Nobel Prize winning economist Robert Shiller. This has historically been a relatively good predictor of multi-year future returns. We then compare his series for the actual real market total return to ones based on constant P/E multiples. If we focus in on prior downturns, multiples typically compress more than we have seen thus far and, perhaps more worryingly, bottom out well below current levels. During the 2000-03 downturn, the cyclically adjusted total return P/E ratio approximately halved from 48 in December 1999 to 23 in March 2003. During the financial crisis, the ratio also approximately halved, from 29 in October 2007 to 15 in March 2009. At the end of 2021, the ratio was at 42. At the end of September, the ratio was at 31, roughly the starting point for the last financial crisis.

S&P 500 Real Total Return Index – Actual vs Constant P/E Multiples⁶



6. Sources: True Partner, Robert Shiller. Provided for illustrative purposes only. No representations are made regarding index performance. Data is based on returns and earnings data sourced from Robert Shiller's data website (<http://www.econ.yale.edu/~shiller/data.htm>). Information is the latest available as of 25 November 2022.

But are markets just more efficient?

We are commonly asked whether markets have simply become more efficient, such that downturns can now happen in a more orderly fashion. It is always a good question to ask, and we are always researching to make improvements – and we hope research in 2022 will be incrementally additive to our 2023 returns. But in short, we think the answer is no, this is not a structural break in equity volatility behaviour. Looking over the long-term, 2022 is unusual but not unprecedented. Volatility does not spike 2020-style every time equities are down, and not every equity drawdown looks like Q1 2020. But 2022 has been odd. In periods like the early 2000s drawdown and in 2008, we saw both volatility spikes and some periods when equities declined without spikes. Post 2008, we saw periodic volatility disruptions amid a long bull market. Net, we are confident there will be enough movement in volatility over time to provide attractive trading opportunities. We are focused on deploying risk capital at the right time, continuous improvement and learning from the past without forgetting the lessons of a longer-term history.

One analogy we have observed with interest is 2008. As in 2008, housing seems to be potentially another downside risk, given the negative shock to affordability from interest rate rises. But it is more the path of information flow and market reaction that we find interesting. There were very widely known problems in US housing and credit markets by mid-2008, with subprime delinquencies at historical highs and several companies and buy-side funds already having hit serious trouble (e.g. Bear Stearns' hedge funds in Summer 2007, subprime lender Countrywide seeing its stock falling almost 80% in 2007, the Bear Stearns bailout in March 2008, ABX 2006 vintage single-A tranche trading below 50).⁷ However, markets were generally assuming the

worst would be avoided. At the end of August 2008, the VIX was at 21. Indeed, on Friday 12th September, the close of business before the Lehman bankruptcy on the 15th, the VIX was at 26. Over the next 3 months it had an average level of 56 and peaked at over 80. In 2020 we saw something similar. Covid was a known risk, but widely assumed to be manageable. The VIX was at 14 on the 19th February 2020, and then averaged almost 50 over the next 2 months, again peaking at over 80.

We are not necessarily forecasting a 2008 or 2020 style crash, but rather cautioning against trusting too much in a linear extrapolation of the last 12 months, or current market pricing as a reliable forecast of a benign outcome. To come back to where we started with the World Cup, an unexpected loss for Argentina doesn't suddenly mean that most managers would not want Messi and company on their teams.

Within equity volatility, the set up now offers more interesting opportunities, with various metrics suggesting to us that volatility could easily move sharply. In an environment where bond correlations are now highly uncertain, diversification is tough to find. We think that equity volatility strategies can play an important role for investors in the year ahead.

Now is a time when many investors are revisiting strategic and tactical asset allocation choices, in light of a shifting economic landscape, changing cost of capital and adjustments in fundamentals across many assets. One big question we see: if government bonds are no longer a clear hedge, should that mean less equities and risk assets in general, or new hedges? Should alpha orientated strategies

⁷ For ABX pricing, see for example: https://www.bis.org/publ/qtrpdf/r_qt0809h.pdf

play a larger role in overall asset allocations? In that light, equity volatility strategies can be very complimentary not only to equities but also to other types of diversifiers, as different types of market environment can favour different types of strategy. Equity volatility shone in both 2018 and Q1 2020, while 2022 has been the year of global macro and trend-following. Interestingly, we hear that profits in both macro and trend have generally come from capturing the large directional moves outside equities, rather than calling the equity downturn.⁸ That would align with our comments that equity behaviour has been atypical this year, while other asset classes have seen some outsized moves. We are always happy to see our fellow industry participants have success and over the long-term we believe there will be opportunities for many strategies, making them complimentary to one another. Will 2023 bring opportunities for all, or perhaps a shift in leadership?

Within equity volatility, we believe that after a period where apparently cheap trades have sometimes gotten cheaper, it is important to be disciplined in risk taking, to be actively scanning markets to find the best implementations of views, and to understand shifts in cross-market correlations. Markets could break suddenly, potentially offering outsized returns given current pricing. But you have to be engaged to be ready. Being in liquid markets and having co-CIOs split across the US and Asia gives us the ability to process news flow real-time across the world and to be able to engage with markets rapidly as opportunities arise, as we have done in the past. That enables the implementation of a wider range of trades and more dynamic risk taking. We think that leaves us well placed to capitalize on the opportunities ahead, as we have at many times in the past. We continue to be focused on markets and maximizing risk-adjusted returns and thank all our investors for their continued trust.

8. Attribution comments based on industry conversations and sources such as the SG Trend Indicator: https://cib.societegenerale.com/fileadmin/indices_feeds/ti_screen/index.html?tradeDate=2022-11-25

About the authors



Mr. Govert Heijboer, Co-CIO of True Partner, has been active as a market maker trading in the European and Asian derivatives markets as well as positional trading since 2003. Govert started as a trader/researcher at Saen Options in Amsterdam and rose to become the director of derivatives trading and a member of the executive team in 2007. In 2008 he moved to Hong Kong to set up and assume responsibility for all trading activities in the new Saen Options Hong Kong branch office. Govert holds a PhD in Management Science and an MSc in Applied Physics from the University of Twente, Netherlands. He is a founding partner and has worked on the launch of the True Partner Fund since March 2010.



Mr. Tobias Hekster, Co-CIO of True Partner, has been actively trading for the past 24 years in various different roles in several markets across the globe. Starting at IMC in 1998 as a pit trader in Amsterdam, Tobias has established the off-floor arbitrage desk, headed the Chicago office in the transition from floor trading to electronic trading and set up the Asian volatility arbitrage desk in Hong Kong. Tobias holds an MSc in Economics from University of Groningen, Netherlands. Next to his role as Senior Strategist, he taught as an Adjunct Associate Professor at the Chinese University of Hong Kong and as an Adjunct Professor of Financial Practice at National Taiwan University.



Mr. Robert Kavanagh, CFA, Head of Investment Solutions of True Partner, has been in the hedge fund industry since 2004 and joined True Partner in 2019. Prior to joining True Partner he was an Executive Director at Goldman Sachs Asset Management where he spent 15 years within the Alternative Investments & Manager Selection (AIMS) group. Robert has extensive experience investing in hedge funds and working with a wide range of hedge fund investors. Robert is a CFA charterholder and holds a First Class (Honours) BSc in Philosophy and Politics from the University of Bristol, UK, where he was awarded a Social Sciences Scholarship.

About True Partner Capital

True Partner Capital is a global volatility trading firm founded by a team of former market makers and technology specialists, with a primary focus on equity volatility strategies. The Firm has offices in the US, Europe and Asia and the key personnel have been working together for over 10 years. The Firm has over \$1.5 billion in capital and invests on behalf of a varied global investor base. Our investment expertise is accessible via commingled funds, separate mandates and customized solutions where we

offer tailored volatility solutions, for example for tail risk hedging. The Firm's longest running commingled fund has an over 10 year track record pursuing the Firm's relative value volatility strategy. The Firm trades close to 24 hours a day across liquid global derivative markets and leverages proprietary technology developed by our experienced team, enabling the portfolio management team to identify and capitalize on trading opportunities.

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