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## 2021 Equity Derivatives Outlook

### Volatility Forecasts and Trade Ideas



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#### Global Quantitative and Derivatives Strategy

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## Equity Derivatives Outlook

### Outlook for Markets and Volatility

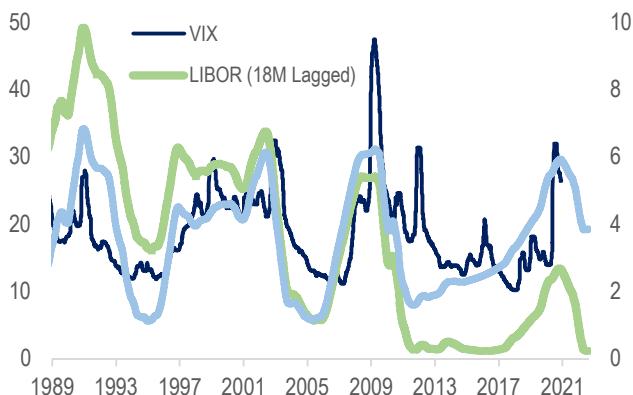
Our outlook for 2021 is positive for equities and more broadly for risky assets (see [Global Asset Allocation](#)). We expect markets to be driven by recovery from the COVID-19 crisis at the back of highly effective vaccines and continued extraordinary monetary and fiscal support. Given the level of interest rates, we expect money managers (pension funds, SWFs, etc.) to initiate a substantial rotation out of bonds and into higher yielding assets such as equities. This would be an environment in which market volatility declines, supported by fundamental and quantitative drivers. A decline in volatility creates a positive feedback loop, where systematic and discretionary hedge fund strategies increase allocation to equities. This process may take most of 2021 to play out, as the economic recovery as well as inflows in the risky strategies are likely to be gradual. For instance, if strategies' exposure goes from current below average levels (CTAs ~40th %tile, VT & RP ~15th %tile, Hedge Funds ~25th %tile) to ~65th historical percentile, this would result in ~\$250bn inflows for systematic funds and ~\$300bn inflows for Hedge Funds. With additional increases in buyback activity, these inflows would overpower equity supply to drive equity markets higher, towards our S&P 500 2021 year-end price target of 4400 (see our [Equity Outlook](#)).

In March 2020, the VIX index reached all-time highs (though it would have been higher in the 1987 crash, had it existed at the time) and averaged ~28 in 2020, well above the historical average of ~19. In 2021, we see the VIX declining further and averaging in the mid-to-high teens, with the most likely average level of ~17. This is derived from various historical relationships driving the VIX, and an assumption of continued economic recovery.

Perhaps the most important driver of equity volatility is the level of monetary accommodation, which was historically well captured by short-term interest rates. Figure 1 below shows that average VIX levels closely follow levels of interest rates with a ~18-month lag. Given the significant increase of monetary accommodation 9 months ago, we expect it to pressure volatility for most of 2021. Volatility also correlates with various macroeconomic variables related to economic growth, employment, housing, consumer confidence, etc. We analyzed ~100 of these relationships and found that most of them (95 out of 100) indicate the VIX should be lower, averaging 17.7 (Figure 2).

In addition to these macroeconomic drivers of volatility, there are several quantitative/technical drivers that are also likely to put pressure on market volatility in 2021. Here we highlight 3 effects that will be particularly important. The first one is a decline in realized correlation at the back of strong factor and sector rotation. We expect that the economic recovery at the back of vaccines being rolled out will lead to a prolonged rotation from growth and momentum stocks to value and cyclical stocks. In particular, we expect sectors such as financials and energy to do well as the economy reopens and unemployment declines throughout 2021. Rotation between sectors reduces the average correlation between the stocks in a broad equity index, and hence its realized volatility. The second effect is the derivatives (gamma) hedging feedback loop. In rising markets, dealers' exposure to index option gamma tends to be long. Hedging long gamma exposure causes intraday mean-reversion, which in turn reduces realized volatility (see [here](#)). Finally, we expect increased supply of volatility (i.e. selling of options) to put direct pressure on implied volatility (and indirectly via gamma hedging). Given that volatility selling (e.g. systematic trading strategies) suffered large losses in March, most volatility sellers reduced exposure or entirely stepped out of the market in 2020. In 2021, we expect these sellers to gradually step back in, attracted by wide risk premia, declining vol of vol, and significant opportunities to generate returns in an otherwise low yield environment.

**Figure 1: Average level of VIX and average level of 3m Libor over the past 30 years, also shown interest rates adjusted for the secular rate of decline (light blue)**



Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 2: The VIX's relationship to 100 macroeconomic variables suggest it should trade in the high teens**

	VIX
Average Predicted	17.7
# Showing VIX rich	95
# Showing VIX cheap	5
By Category	
Growth/Output	17.7
Employment	18.3
Confidence	17.5
Housing	17.3
Inflation	17.8

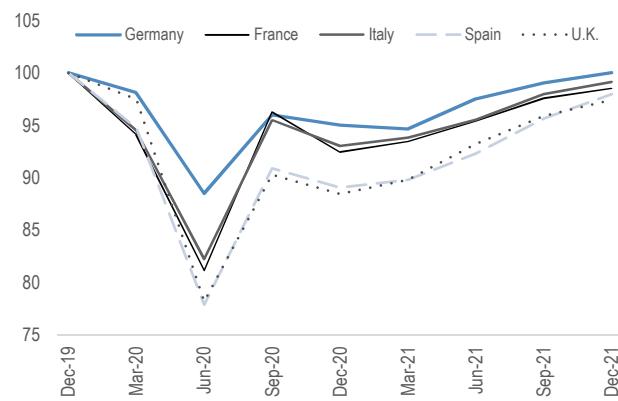
Source: J.P. Morgan Quantitative and Derivatives Strategy

Below we highlight region-specific drivers of market volatility:

**Europe:** The prospect of highly effective vaccines being rolled out in H1-2021, the equity-friendly US elections outcome, and the continued fiscal and monetary policy support set the scene for a further normalization of European volatilities in 2021. We do not anticipate a reversion to the pre-COVID-19 low volatility regime, as uncertainty will remain with respect to the evolution of macro data and of the pandemic. The risk compression should be more material in Europe relative to other regions, as European equity markets have an above average exposure to COVID-19-losers/Value and leverage to global trade. The playbook of risk compression and value outperformance is not materially dissimilar to what we expected one year ago for 2019: the pandemic delayed the reflationary theme and importantly equity derivatives risk parameters are higher now than at the end of last year. We expect an average VSTOXX level for 2021 of ~17, in-line with the VIX (Figure 4).

**Figure 3: Our economists do not expect European countries to fully recover to pre-COVID-19 real GDP levels until 2022**

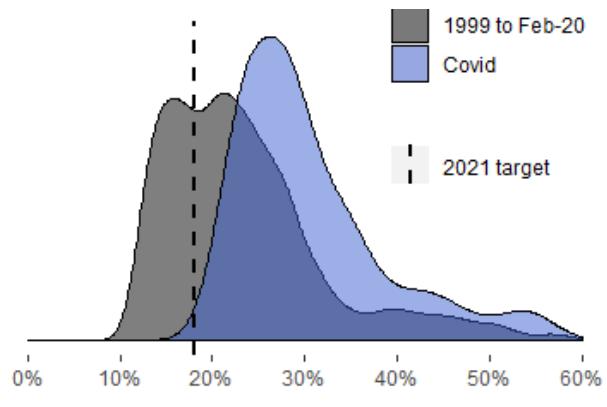
GDP level (rebased at 100 in 4Q19)



Source: Eurostat, ONS, J.P. Morgan.

**Figure 4: We expect on average the VSTOXX to trade in the high teens range in 2021**

VSTOXX distribution (density) and 2021 target range



VSTOXX level

Source: J.P. Morgan Equity Derivatives Strategy.

**GDP:** JPM economists forecast that in the first part of 2021 European economic activity will still remain substantially below pre-COVID-19 levels, and that the progressive deployment of vaccination will lead to a gradual easing of restrictions and thus to a recovery of GDP levels. The level of activity is not expected to fully recover until early 2022 (Figure 3).

**Monetary and fiscal stimulus:** The ECB has managed to contain the March spike in sovereign risk delivering very easy monetary conditions and several programs (TLTRO, PEPP and easing of supervisory requirements). Importantly, monetary policy was delivered together with substantial fiscal support, a very substantial policy shift especially from core European countries. Economic policy is expected to remain accommodative in 2021 and fiscal measures will also likely remain in place. Although there is debate and uncertainty on the medium term fiscal trajectory the stars are aligned for a very supportive 2021. The anticipated removal of the dividend ban on Banks would be an important driver not only for the dividend markets, but for European risk premia compression in general.

**Political risk and trade:** European politics has turned from being a negative to a positive in 2020, as risks linked to political instability subsided while generous support measures were announced. After some initial indecision, European governments delivered a reasonably cohesive response to the pandemic, agreeing on trans-national support and suspending some budgetary rules, and are unlikely to reverse these developments early in 2021. **Global trade tensions** are set to subside following the election of Biden as US president, including the prospects of tariffs on the European Auto sector. We see a **Brexit deal** as the most likely outcome (67% probability) according to [our economists](#). Political upsets in peripheral countries remain a possibility, but pose limited risks to markets thanks to monetary policy support.

**Structured product** re-hedging dynamics impacted very materially volatilities, skew, dividends and funding in 2020. Following the November rally in European equity indices a large fraction of structured products are in the money with respect to their KO levels and lead to a lower vanna sensitivity across the main European indices. Knock-out events and the potential subsequent reinvestment in longer-dated products will likely be the main feature in the first half of the year.

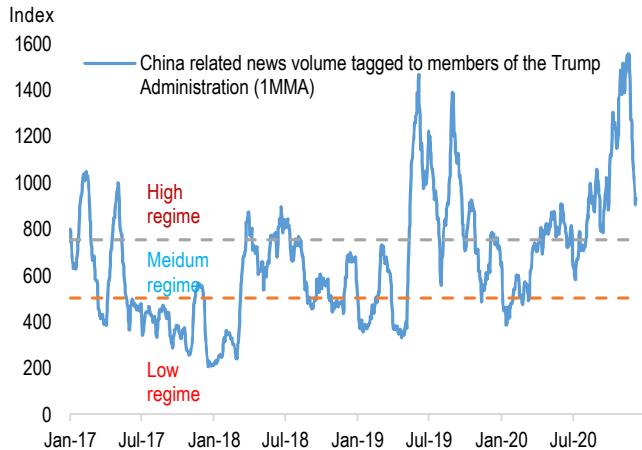
**Asia:** Heading into 2021, we expect Asian implied volatilities to continue to normalize. After a year of historic levels of market uncertainty, we are entering the year of Ox with [one of the best macro backdrops](#) for equities in years. Most notable risk drivers in recent years including COVID-19 and geopolitical tensions will likely diminish, on the back of the arrival of effective vaccines and a favourable US election outcome (Biden as President with a split government). For COVID-19, we expect mass vaccination to take place by early 2H21, a recovery of global growth will likely soon ensue. On US China relationship, we think while it is unlikely for the Biden administration to shift away from combative policy against China, the policy stance should be more consistent and implementation more predictable. The new White House will likely move away from ‘trade war’ tactics, which will remove a major overhang on global trade. From this perspective, risk premium related to geopolitical tensions should be lower overall. Having said that, US-China friction is now an ongoing risk factor, the focus of tensions could shift to market access, domestic liberalization in China, human rights and environmental issues, as well as continued decoupling on the technology front (see [here](#)). Escalation on any of these areas can potentially drive bouts of volatility, especially in Asia.

In Hong Kong / China, we expect the flow dynamics to turn more positive next year, which will cushion sell-off pressure in case of risk shocks. On A-shares, we expect to see continued strength in fund issuance in the domestic market driven by a structural trend of institutionalization; foreign flows will likely turn more positive in an environment of reduced risks of US China tensions. In addition, we note the likelihood of a rise in A-shares inclusion factor by MSCI / FTSE has increased, after significant market reform measures in China. In case of an adjustment of the foreign inclusion factor, we could witness strong structural buying flows from foreign investors (see [here](#)). In Hong Kong, we expect the ADR homecoming process to further accelerate next year driven by risks of potential delisting from US exchanges (see [here](#)); we also think secondary listing companies will be included into the Stock Connect Southbound program next year. The secondary listings are mainly ‘New Economy’ companies, they will likely attract flow support from both Stock Connect Southbound and Hong Kong retail. Both groups of investors historically exhibit a strong preference on such stocks. As far as risks are concerned, we think intensified regulatory oversight on Chinese Internet companies emerged as a notable downside catalyst following the recent introduction of anti-trust guidelines (see [here](#)). In case of any further development on this front, China Internet companies could be vulnerable to profit-taking considering their significant rally this year.

In Japan, we think the policy backdrop will remain supportive next year. Despite a brief period of political uncertainty triggered by the surprise resignation by former PM Abe, the transition into the Suga administration proved to be smooth. Policy-wise, PM Suga announced the new administration will continue to pursue the supportive policies introduced in ‘Abenomics’. The new administration will continue expansionary fiscal spending, and likely will compile an additional budget if he conducts a snap election by January. Our economists expect the Suga administration to deliver potentially higher economic growth in Japan driven by more structural reforms (see [here](#)). In terms of monetary policies, the BoJ

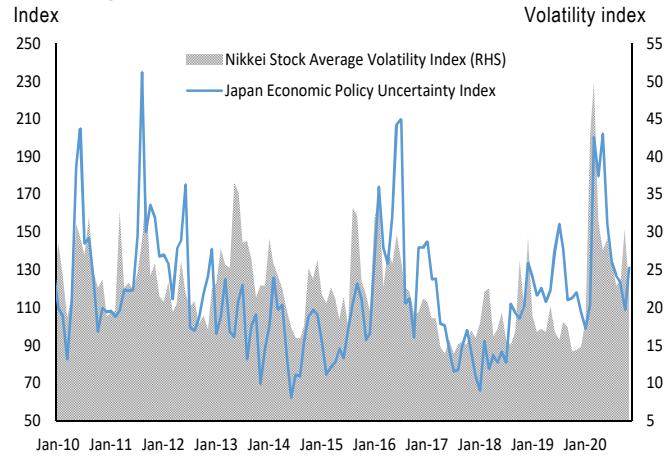
significantly expanded the ETF buying program amid the COVID Crisis (annual target increased from JPY 6trn to JPY 12trn), the Japanese central bank now has more ammunition to support the market. Outside of policy drivers, we note supply/demand picture is supportive in terms of foreign investor positioning. After a year of outsized outflows, foreign net positioning has declined to lows since ‘Abenomics’. From here, overseas investors have ample room to increase their allocation in Japanese equities, while room for further selling is limited.

**Figure 5: JPM US policy on China news volume indicator has normalized from extreme levels post the US presidential election**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 6: VNKY historically tracks Japan Economic Policy uncertainty**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

In terms of the structured product dynamics, technical flows from outstanding product re-hedging are currently not a significantly risk driver. Following the strong spot rally post the US elections, popular structured product underlyings are trading above major knock-out barriers. The bulk of existing products (both Korean and Japanese) will be knocked out by Jan-21; Vega outstanding has declined to multi-year lows on major underlyings including the Nikkei 225, H-shares and KOSPI 200. Amid the rally, autocallable dealers bought back short volatility positions to re-hedge a lower Vega profile, which led to a notable ‘spot up, volatility up’ scenario, especially on the Nikkei 225 (Figure 27). However, we think the aforementioned re-hedging dynamics have largely played out by now. Looking ahead, we expect structured product issuance to recover driven by a combination of re-investment of capital from knocked-out products and potential new demand considering improved risk appetite. The new issuance will result in a significant increase of volatility supply, suppressing longer-dated downside volatility. In the second half, after re-accumulation of Vega positions from new structured product issuance, Asian volatilities would be more vulnerable to spot dependency of dealer hedging flows. Specifically, in case of a moderate spot correction, dealers will need to further sell volatility to re-hedge for risk profile with higher Vega outstanding. This would in turn drive longer-dated volatility lower.

## Volatility Supply and Demand

### Performance of short volatility strategies

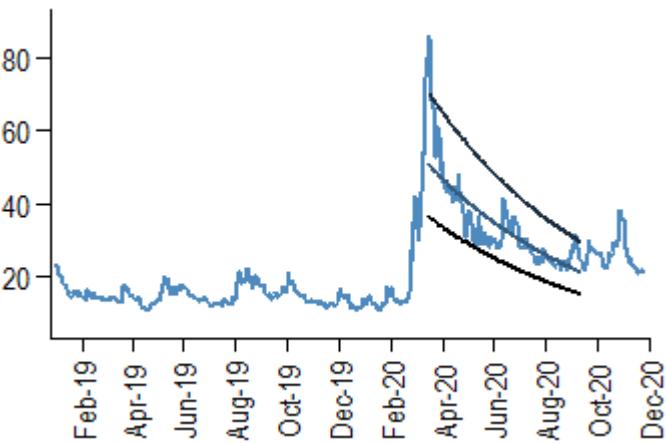
**2020 turned out to be an *annus horribilis* for short-volatility strategies, with losses last seen at the onset of the great financial crisis in 2008** (Table 1). The high velocity of the crash led to a surge in short-dated realized volatilities in March from levels which were low to start with. Short volatility positions in Asian indices fared much better than their US and European counterparts, with substantially lower maximum losses. The volatility normalization which ensued after the crash was also fast (Figure 7), with a half-life (i.e. time to half in an exponential decay) of 142 days vs. 243 after the great financial crisis for the VIX and 142 and 248 days, respectively, for the VSTOXX.

**Table 1: Short volatility strategies on US and European indices performed significantly worse relative to Asian indices, in what was overall a very challenging year for the strategy**

Index	Median PnL	Max 1M loss	Adj. VaR(99)*	Avg Vol Premium	Adj. Sharpe*
S&P 500	4.1%	-102%	-79%	1.5%	-0.15
Euro STOXX 50	2.1%	-80%	-67%	0.3%	-0.21
FTSE 100	1.8%	-78%	-58%	0.7%	-0.19
DAX	2.5%	-80%	-65%	1.5%	-0.16
Nikkei 225	5.7%	-52%	-46%	5.6%	0.11
Hang Seng	3.5%	-45%	-39%	3.7%	0.04
KOSPI 200	1.5%	-75%	-65%	1.3%	-0.20

Source: J.P. Morgan Equity Derivatives Strategy. Calculated based on the PnL of 1M var swap positions (2.5x capped) taken to expiry, daily overlapping 1M periods, 1 vol point bid-mid for all indices. PnL figures are expressed in vegas. \* Adjusted Sharpe is corrected for skewness and kurtosis to take into account non-normality; Adjusted VaR is an univariate Cornish Fisher VaR.

**Figure 7: Implied volatilities retraced much faster than during the GFC following the COVID-19 crash**  
VSTOXX index, exponential decay model following March spike and std error bands

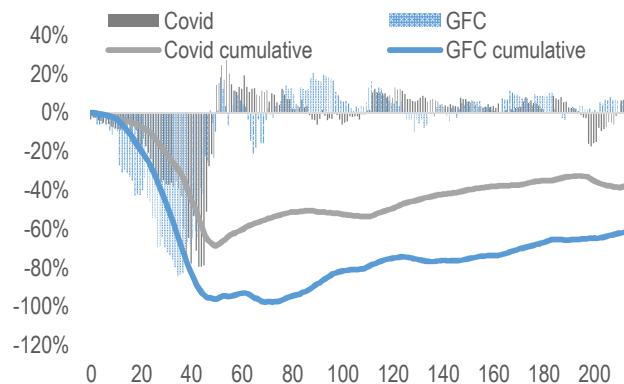


Source: J.P. Morgan Equity Derivatives Strategy.

Short-dated (1M) var swaps hit their caps (2.5x initial strike) for several indices in March. While maximum monthly losses for daily short 1M variance strategies were similar in size to those experienced at the worst point in 2008, **their cumulative worst drawdown was less severe than during the GFC**, as the acute period of the crisis was shorter and the recovery faster than in 2008 (Figure 8). Overall the distribution of short-volatility returns for 2020 was much broader than usual, both to the upside and downside, it displayed lower skewness and had an extremely long but ‘thin’ downside tail (Figure 9).

**Figure 8: The worst draw-down for systematically selling volatility was less severe than during the GFC**

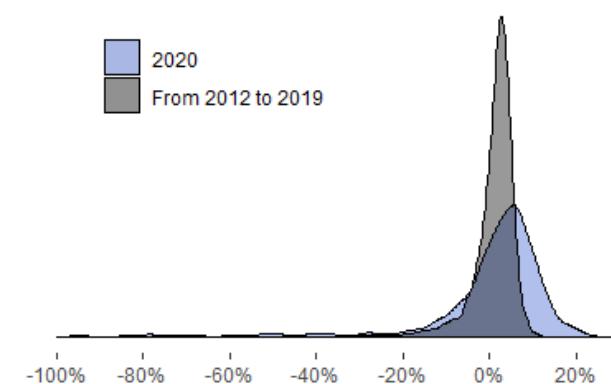
Monthly and cumulative PnL (vega,short 1M SX5E var swap)



Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 9: The distribution for short volatility returns in 2020 had a long downside tail, but also significant density for positive values**

Density



Source: J.P. Morgan Quantitative and Derivatives Strategy

We believe that equity volatility will decline further into 2021 and that equity carry strategies will deliver attractive risk adjusted returns. The positive market outlook and the expectation of a substantial rotation to value are expected to keep realized volatilities lower, as single stock volatilities will decline and average pairwise correlations stay low.

## Regional Trends in Volatility Supply/Demand

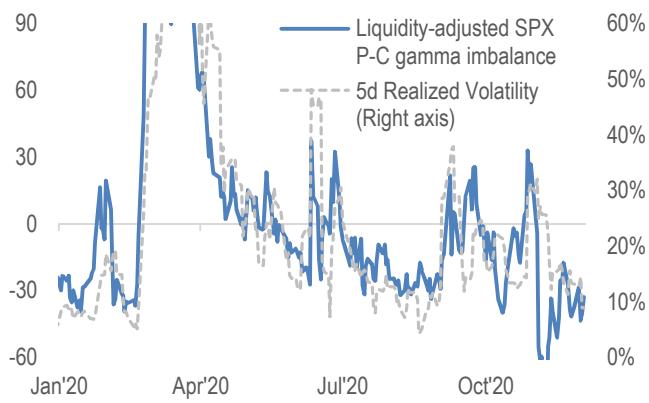
### US:

#### Short-Dated Volatility

The dominant flow in short-dated S&P 500 volatility remains supply of ATM/upside volatility through overwriting, collars, and other yield generation/volatility risk premia strategies (e.g., selling straddles, strangles, iron condors, etc.) given the continued search for yield among investors and elevated volatility levels since the March spike, **and demand for downside volatility for protection** through a variety of put-based hedging strategies. This flow drove the steep S&P 500 skew over the last few years (see the Skew section for discussion), but this year protection strategies tilted more towards put spreads rather than outright puts due to elevated volatility levels/high premiums. Additionally, as we noted previously (e.g., [here](#)), these structural effects can weaken during volatility spikes and the S&P 500 put/call OI ratio plunges since investors monetize existing hedges, sell cash equities, and/or short the market via delta-1 vehicles rather than buy puts, and then buy calls to hedge right tail risk from being underweight/short equities.

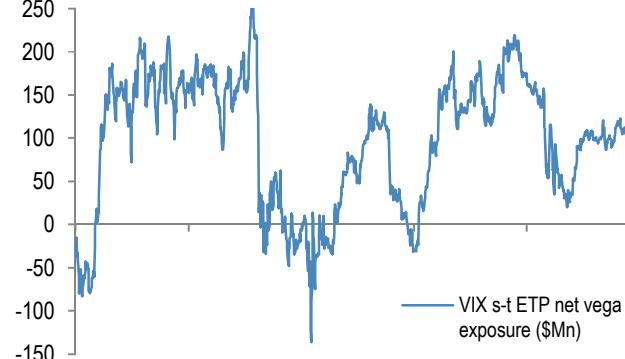
The continuation of these structural option flows maintained a **strong correlation between dealers' gamma positioning and market volatility** again this year (Figure 10). Once the market starts to roll over, dealers are quickly taken short gamma and their hedging flows reinforce market moves in both directions, leading to a significant boost in realized volatility. Then, once the market recovers and we rally into a range with more calls outstanding than puts, dealers turn long gamma and their hedging activity suppresses market moves/volatility. The effects of these flows were further reinforced by weak liquidity conditions during the pandemic, as the poor liquidity environment causes flows to have outsized price impact. The combination of a record collapse in market depth and large short gamma hedging flows in March were strong drivers of the extreme volatility and sharp market plunge we saw during the COVID-19 crisis (see [here](#) for discussion).

**Figure 10: Market realized volatility exhibited strong correlation to our proxy for dealer gamma positioning, adjusted for liquidity conditions**



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 11: VIX ETP investors took profit during the COVID-19 crisis, but rebuilt most of the position as vol declined and were otherwise significantly long most of the year**



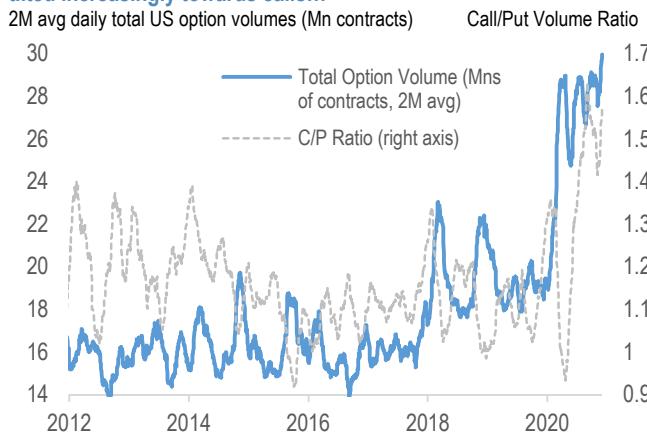
Source: J.P. Morgan Equity Derivatives Strategy.

**VIX ETPs** remain a driver of volatility at the short end of the curve; however, their influence decreased and become more asymmetric after the Feb'18 inverse VIX ETP collapse (see our account of this event [here](#) and [here](#)). We discussed in past Outlooks how VIX ETPs acted like a “long gamma” overhang to short-dated volatility; since investors were buying long/levered ETPs when volatility was low to position for the next VIX spike, and taking profit on these plus buying inverse ETPs on VIX spikes to play a reversion, VIX ETP flows were dampening swings in both directions. The disappearance, effectively, of inverse VIX products since Feb'18 resulted in a weakening of the ETP overhang, but it remained impactful in 2020. Many long VIX ETP investors took profit during the acute VIX spike early during the pandemic, but then rebuilt long positions to hedge the risk of a renewed spike as the VIX normalized in May-June. As a result, VIX ETP investors were significantly long vega for most of this year, and the ETPs’ rebalancing flows acted to steepen the front end of the VIX

futures curve and S&P 500 term structure (see discussion in the Term Structure section). The delisting of TVIX in July, the largest and most levered VIX ETP at the time, had limited impact on VIX ETP positioning overall, as assets in TVIX drew down gradually and investors instead gravitated towards 1.5x levered UVXY. The current net long position remains a moderate headwind for volatility spikes, as we are likely to see investors take profit on these positions to monetize the next VIX spike.

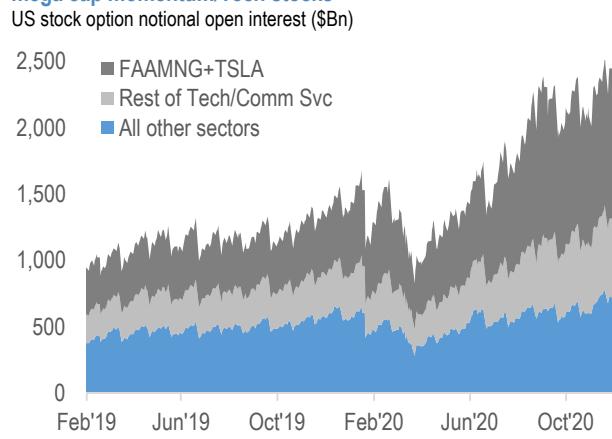
In 2H20 we saw a **record surge in US stock option activity** (Figure 12), driven by mega cap momentum and Tech names such as FAAMNG and TSLA (Figure 13). The ‘K-shaped’ recovery from the pandemic drove people to socialize, work, shop and be educated online and led to a surge in the use of devices, cloud and internet services, while the rest of the economy plunged. Investors clamored for exposure in the segments, with much of this trade put on through option markets (see [here](#) for more details). The large option positions left dealers significantly short gamma and their hedging activity drove an increase in volatility in affected names.

**Figure 12: Option volumes surged to record highs this summer and tilted increasingly towards calls...**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 13: ...with the bulk of the increase in positions coming from mega cap momentum/Tech stocks**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

## Long-Dated Vol

Supply/demand in the long-dated US volatility space comes primarily from three sources: insurance companies hedging long-dated products such as variable annuities (VAs), structured products, and vol spread players (with dealers managing residual risk/timing mismatches between these groups). However, the balance between insurance demand and structured product supply has been increasingly tipping toward the supply side in recent years, due to both decreased insurance hedging demand and increased issuance of S&P 500-linked structured products. These trends similarly impact implied dividends – long-dated puts bought by insurers are long volatility and dividends (since they’re short forwards) and structured products that sell puts are short both volatility and dividends. The result of these shifting structural supply/demand drivers has been gradual pressure on long-dated S&P 500 implied volatility and dividend levels. This year, we also saw a drop-off of vol spread trading which reduced long-dated vol supply. We discuss these trends below.

As we highlighted in past Outlook reports, **insurance hedging flows** have waned in recent years as a number of issuers scaled back or shut down their VA businesses after sustaining losses in the 2008/9 GFC, while new products being issued have shifted toward using volatility/risk control indices, charging higher fees, and offering less generous features, and thus have lower demand for hedges.<sup>1</sup> Based on anecdotal flows, long-term S&P 500 volatility demand from VA hedgers remained subdued again this year, with low net vega demand (though only slightly lower y/y) and a shortened hedging tenor—that is, activity was again concentrated primarily in the 1-3Y bucket, with limited flows 5Y and out. Demand overall was low by historical standards (e.g., compared to the early/mid 2010s) given net VA flows were negative and new issuance remained historically low. There was a pick-up in demand during the COVID-19 crisis given the decline in both equity

<sup>1</sup> See [Variable Annuity Market Trends](#), Jimmy Bhullar, 23-Nov-2020 for additional details on the VA market.

markets and interest rates, but nowhere close to the surge we saw during the 2008/9 GFC, and our Insurance analysts note that VA hedging programs performed relatively well during the crisis.

We expect relatively subdued VA hedging demand for long-term volatility again next year. JPM Insurance analyst Jimmy Bhullar projects VA sales to be down 8% in both 4Q20 and 2020 as a whole, marking seven annual declines out of the last eight years. Despite a small expected rebound in sales next year, our analyst expects the product's complexity, high fees, and liquidity restrictions to preclude it from capturing a greater share of retirement assets longer term. Competition is likely to stay rational, suggesting insurers won't be rolling out aggressive product features that increase their need to hedge.

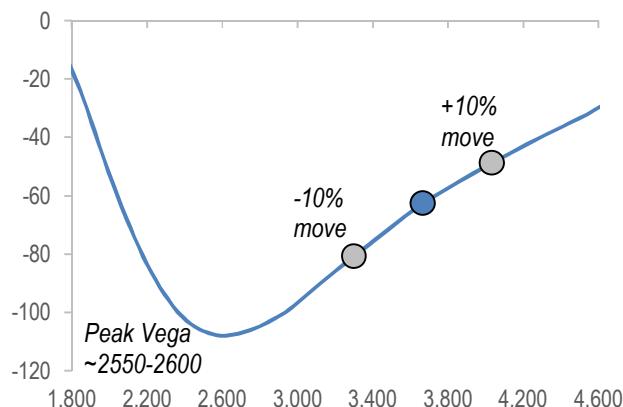
Additionally, our analyst estimates net flows have been strongly negative the past seven years, and will be negative again next year as withdrawals/run-off of legacy books have significantly outpaced new sales (see Figure 3 [here](#)). This suggests continued weak demand for long-term volatility, since most of the incremental VA hedging demand typically comes from new issuance (and the legacy products rolling off generally have more aggressive features, and thus higher hedging needs, than new sales as discussed above). However, insurer flows are likely to periodically surge opportunistically (e.g., picking up cheap hedges when volatility is low) or when conditions warrant adding hedges (e.g., a strong market pullback and/or material decrease in interest rates could drive incremental demand to stem further losses, like we saw during the COVID-19 crisis this year).

Activity in **volatility spreads** dropped this year, as the COVID-19 crisis delivered losses to popular spread trades again. For the third time in ~2 years, S&P 500 volatility outperformed international indices during a vol spike, causing losses on spread trades that mostly use the S&P 500 as the funding leg to go long volatility on cyclical international indices which are supposed to be 'higher beta' (i.e., vol RV trades are primarily long Asia/Europe vs. short S&P 500—effectively aiming to exploit the structured product dynamics discussed below). For example, during March/April 2020, the S&P 500 realized ~12 / 25 / 35 vol points higher volatility than SX5E / NKY / HSCEI, respectively. Vol spread activity was lower going into the pandemic since the two negative P/L events in 1Q18 and 4Q18 had already sapped interest in these trades, so anecdotally investor losses were much less widespread/acute this year than in Feb'18. However, one volatility spread trade that performed well during the pandemic was Russell 2000 vs. S&P 500. We had previously recommended trading this vol spread (e.g. [here](#), [here](#), [here](#)) given the combination of structured products' pressure on Russell long-dated volatility and skew, the potential for a demand spike for RTY volatility on a large sell-off due to structured product dynamics, attractive carry, and extreme positioning and valuation on Value stocks. During the pandemic, the Russell 2000 reasserted itself as a higher beta index, realizing ~15 vol points higher than the S&P 500 during March/April. The Russell 2000 also sold off beyond its peak autocallable vega levels during the crisis, which drove increased demand for RTY long-dated volatility from exotic desks.

**Structured product flows** continue to have a smaller impact on S&P 500 volatility compared to several other major global indices (e.g. Euro STOXX 50, Nikkei, HSCEI, Russell 2000, etc.), but their influence continues to grow as the relative drivers for long-term volatility shift. Annualized issuance through October in S&P 500-linked structured products in the US is running ~60% ahead of its pace last year, due to an increase in product knock outs in Q1 that fed new issuance, and since the surge in volatility during the pandemic reduced the relative advantage of using higher beta indices like Russell 2000 / Nasdaq 100 and likely led issuers to favor the S&P 500 for its deeper option liquidity. We also saw a higher proportion of new S&P 500 linked products with single index underliers this year (roughly 1/3 of all products issued in the US this year vs. ~1/6 last year), but still a majority referenced worst-of index baskets and most included the Russell 2000 in the basket. With the S&P 500 and Russell 2000 both currently trading at record highs, we are likely to see a surge in product knock outs continue over the next couple of months, which could pressure long-dated volatilities as investors roll into new products with higher short vega exposure (since they are being rolled into a product that embeds a closer-to-the-money and longer-dated short KI put). On a trade-by-trade basis the effects of structured products on the S&P 500 are small, but over time issuance tends to weigh on long-dated volatility and skew (see [here](#) for our deep dive on the S&P 500 structured product market).

**Figure 14: A 5% correction in the S&P 500 index would lead to an estimated ~\$9Mn vega change for existing products**

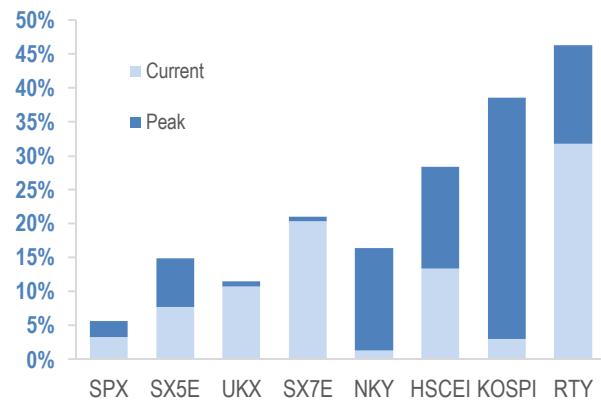
S&P 500 vega vs. spot profile of outstanding products (\$ Mn)



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 15: S&P 500 structured products are much smaller compared to the index's listed option market vs. other major indices**

Ratio of estimated autocallable vega to total vega notional outstanding in listed options with >6M to maturity



Source: J.P. Morgan Equity Derivatives Strategy.

We estimate autocallable structured products have ~\$60Mn vega outstanding in the S&P 500 currently. This figure is around double the risk outstanding at this time last year, even with spot trading higher, due to the surge in issuance and shift toward single index products this year. The S&P 500 is trading ~40% above our peak-vega estimate of ~2550-2600 (Figure 14). While re-hedging flows from these S&P 500-linked autocallables are material, they are more modest relative to option liquidity vs. other major indices and can be offset at times by long-dated volatility demand from the insurance industry (while insurance demand for long-dated vol is far less prominent for other major indices). For example, we note in Figure 15 how S&P 500 autocallable vega exposure is a significantly smaller proportion of its listed option market compared to several other indices.

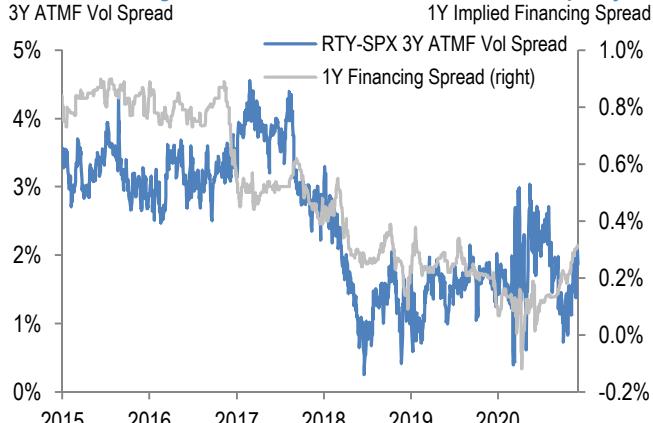
By contrast, structured product flows continue to exert more meaningful influence on the **Russell 2000** due to issuance that is large compared to the index's limited option liquidity and the limited natural buyers of long-dated volatility. In our [deep dive](#) on Russell 2000 structured products, we discussed how this issuance leads to downward pressure on long-dated volatility, a flattening of long-term skew, and upward pressure on equity funding rates. In Figure 16 we illustrate how long-term volatility and financing spreads between the Russell 2000 and S&P 500 remain low relative to historical levels (i.e., pre-2017) due to the impact of continued large Russell 2000-linked structured product issuance.

This year, Russell 2000-linked structured product issuance is running ~40% ahead of last year's pace. The main driver is a jump in issuance in Q1, after many products knocked out (when the market was trading near its highs before the COVID-19 crash), leading investors to roll into newly issued structures. The surge of issuance/KOs in 1Q20 drove an increase in supply of Russell 2000 vega, causing long-dated volatility to fall to cycle lows and a record narrow premium over the S&P 500 (Figure 16). That is, until the pandemic crash upended this trend. During the COVID-19 crisis, the Russell 2000 reasserted its status as a higher beta index, realizing ~12% higher volatility than the S&P 500 between March and July. The sharp sell-off in March also caused the Russell 2000 to fall well below peak autocallable vega levels, causing dealers to become forced buyers of long-term Russell volatility (see [here](#)).

In contrast to the elevated issuance, the vega supply/risk originating Russell 2000 structured products decreased sharply since our last update in October ([here](#)), from ~\$90Mn to ~\$30Mn, due to the index's strong spot rally to record highs and outperformance after last month's positive vaccine news. The Russell 2000 is now trading ~30% above our peak vega estimate of ~1400 (Figure 17). The rally significantly reduced the vega exposure of outstanding products, and caused many products to knock out. With the index at all-time highs, the majority of remaining products will knock out at their next observation dates at current spot levels (other than some products that include underperforming indices in their worst-of baskets, like the Euro STOXX 50 that is still ~10% below pre-pandemic highs). We are thus **likely to see a surge in product KOs continue over the next few months. However, we expect most of the notional in called products to be subsequently rolled into new structures**. Autocallables remain an attractive proposition for investors, given the near-zero yields available in fixed income, still elevated implied volatility levels, and improving investor risk appetite. As products

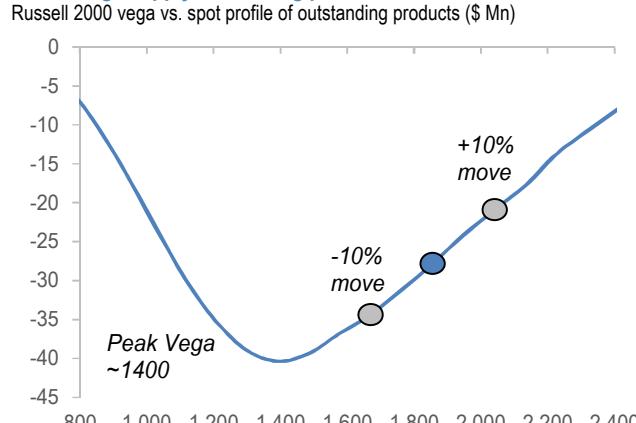
knock out and get rolled into new structures with higher vega exposure, the additional vega supply is likely to weigh on long-dated volatility levels, like it did in 1Q20 before the pandemic market crash.

**Figure 16: The spread between Russell 2000 and S&P 500 long-dated vol and financing rates remains low, but stabilized over the past year**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 17: A 5% correction in the Russell 2000 index would lead to ~\$3Mn vega supply for existing products**



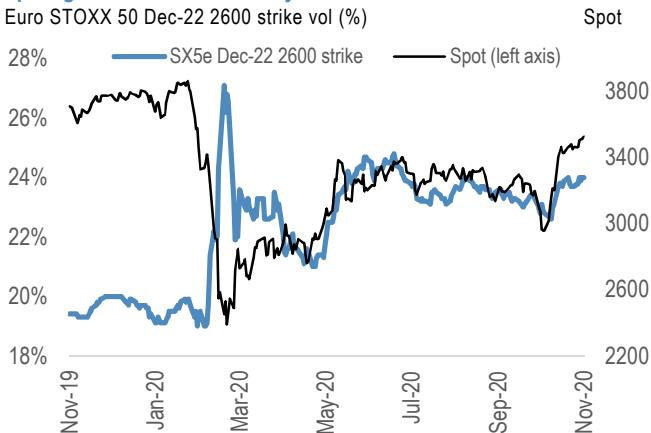
Source: J.P. Morgan Equity Derivatives Strategy. Based on monthly issuance data and average spot levels. Please reach out for additional details on the methodology.

Issuance of **Nasdaq 100**-linked structured products plunged during the pandemic as Nasdaq volatility underperformed (spot outperformed), which weakened the appeal and economics of using the index in structured products. However, issuance rebounded since September once the NDX-RTY long dated volatility spread turned positive again. Nasdaq issuance continues to run at a higher than historic pace, but remains relatively small compared to Russell 2000 and S&P 500. We previously highlighted the Nasdaq's more attractive pricing for non-capital protected structured products. As discussed above, with the environment being favorable for structured products, and many products knocking out with proceeds likely being rolled into new issuance, we will likely see Nasdaq issuance continue to grow next year.

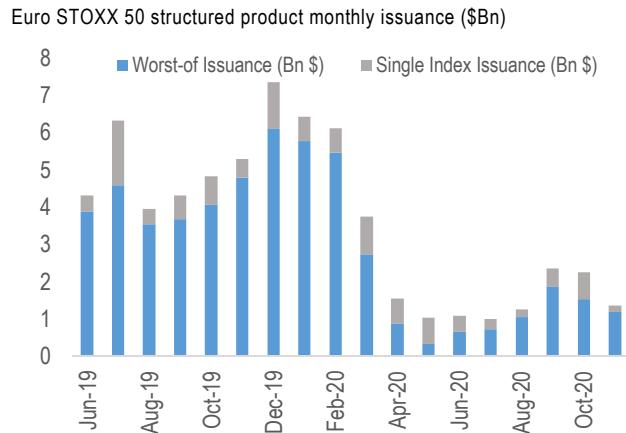
## Europe:

**The Euro STOXX 50 volatility behavior in 2020 was a textbook example of the impact of exotic re-hedging flows.** At the heights of the COVID-19 Crisis in March 2020, the Euro STOXX 50 sold-off rapidly reaching a low of ~2400, well below the peak Vega level at the time (~2800), leading exotic desks to buy back significant amounts of short volatility positions in order to re-hedge Vega risk. The result was a violent shift in the dynamic of long-dated volatility, which transitioned to a “spot down, vol up” regime in a matter of days (Figure 20). The underperformance of the Euro STOXX 50 relative to other indices in worst-of baskets compounded the effect, as a large part of the risk in Korean worst-of structures shifted to the European index.

**Figure 18: Long-dated fixed strike volatilities traded in a “spot up, vol up” regime several times this year**

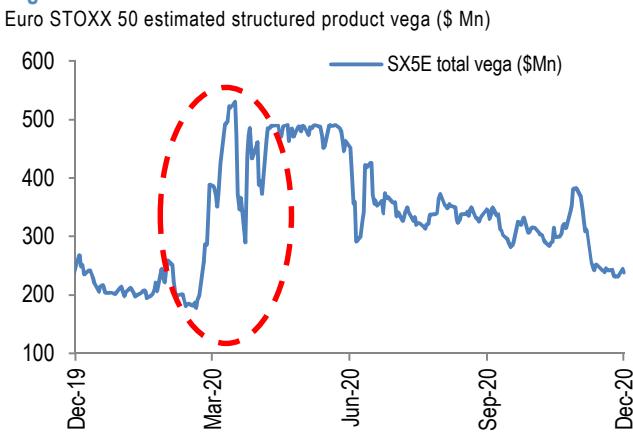


**Figure 19: Issuance of Euro STOXX 50 structured products collapsed in March and hasn't recovered much since then**

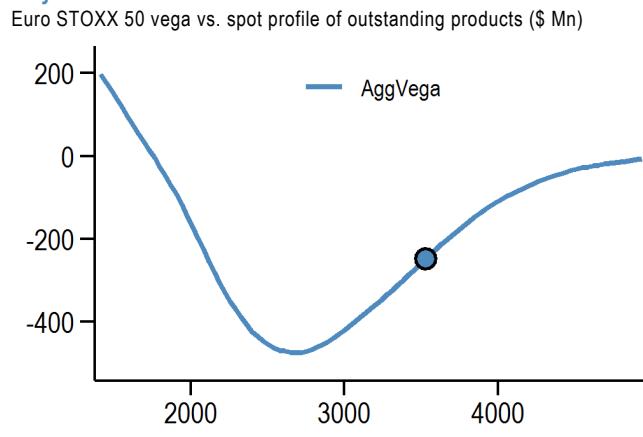


As spot levels found a floor and started recovering, the regime transitioned back to "spot up, vol down" and the sensitivity of Vega to spot moves (vanna) became higher. This behaviour was most evident during the month of May (Figure 18). The following period was rather uneventful as the Euro STOXX 50 traded in a tight range for most of the summer months. The flows from structured product re-hedging were limited while the index was range trading, and issuance (Figure 19) and knock-out activity was depressed, leading to little change in autocallable risk parameters. The prevailing short-term flow during this period was short-volatility range structures such as call spread collars and put spread collars, which worked well as short-dated volatility kept normalizing. The US election led to a build-up of risk premia which we thought was excessive, leading us to recommend trades to sell it into the event. Following the US elections and the announcements of several effective vaccines we transitioned back to a “spot up, vol up” regime, triggered by structured product re-hedging and fundamental flows from investors favouring European equities in this backdrop.

**Figure 20: The vega risk originating from structured products surged and then dropped sharply as the Euro STOXX 50 traded below peak vega levels**



**Figure 21: The Euro STOXX 50 d vega / d spot profile is relatively steep at current spot levels, and is expected to flatten on a further rally**



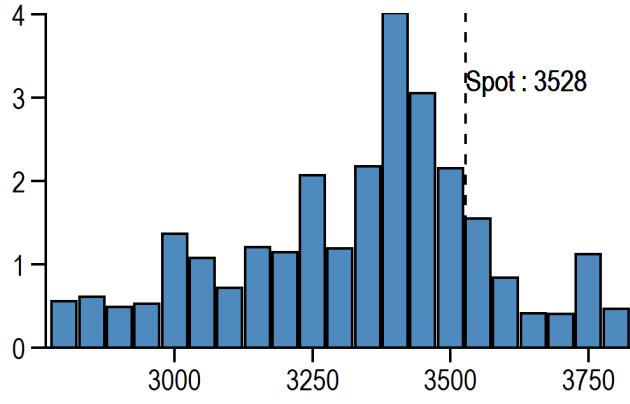
The November rally also led many outstanding structured products to trade in-the-money with respect to their exiting barriers. Leading to the 2020 market crash we had a relatively elevated issuance of European structured products and almost all products were in-the-money with respect to their KO levels (97% as of February for the Euro STOXX 50). The market crash changed the picture dramatically, leading to a sharp decline in knock-out events and depressed issuance of new

products henceforth. Issuance notional declined the most in the Korean worst-of market, which was also affected by regulatory changes. Issuance showed modest signs of improvement since September, but remains well below pre-Covid levels (Figure 19). We **expect a further recovery of issuance levels** over 2021 as products knocking out will be rolled into new, longer-dated structures, but previous levels of worst-of issuance will likely not be reached in the short-term.

Currently over 80% of Euro STOXX 50 single index structured products are ITM with respect to their knock outs (Figure 22). Despite this we will not have a large wave of knock outs in the short term, as the KO observation dates are spread out relatively evenly over the next twelve months (Figure 23). The Euro STOXX 50 remains the worst performing index in approximately 77% of outstanding WoF products and ~70% of these by notional (~\$20Bn) are ITM with respect to their KO level. As the observation dates of WoF are more frequent we expect a large number of Euro STOXX 50 linked structured worst-of products to knock out in H1 2021.

**Figure 22: More than 80% of the Euro STOXX 50 single index autocallables are in-the money with respect to their knock out levels**

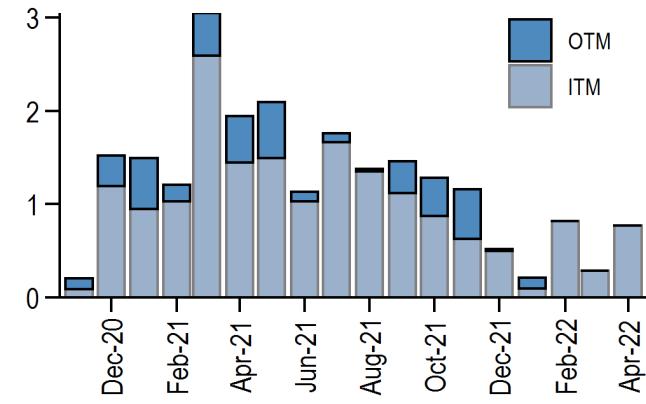
Euro STOXX 50 autocallable notional by KO level (\$Bn)



Source: J.P. Morgan Equity Derivatives Strategy, StructuredRetailProducts.com.

**Figure 23: Knock-out observation dates are spread relatively evenly throughout the year**

Euro STOXX 50 autocallable notional by next KO observation date (\$Bn)

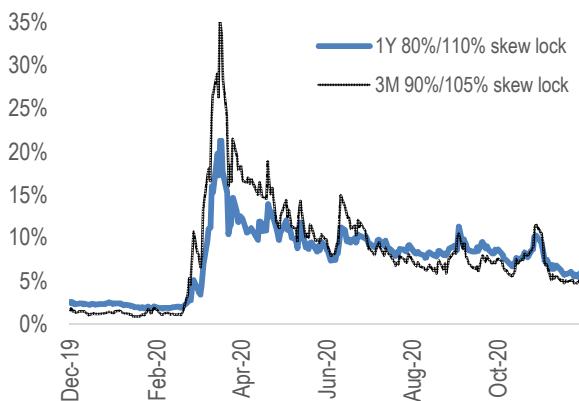


Source: J.P. Morgan Equity Derivatives Strategy, StructuredRetailProducts.com.

**Skew convexity** was very materially impacted by the COVID-19 sell-off, and skew lock and upvar vs. variance trades' implied levels surged. While structured product re-hedging flows were partially responsible for this behaviour, the main culprit was positioning, as short convexity trades were crowded from the start of the year. The combination of large price moves and forced selling was self-reinforcing and led to extreme levels of distress in convexity trades (Figure 24). We highlighted how this parameter was one of the most extreme and recommended monetizing its richness in April.

**Figure 24: Convexity as measured by skew locks or up-var vs. var trades surged in 2020, reaching highly distressed levels**

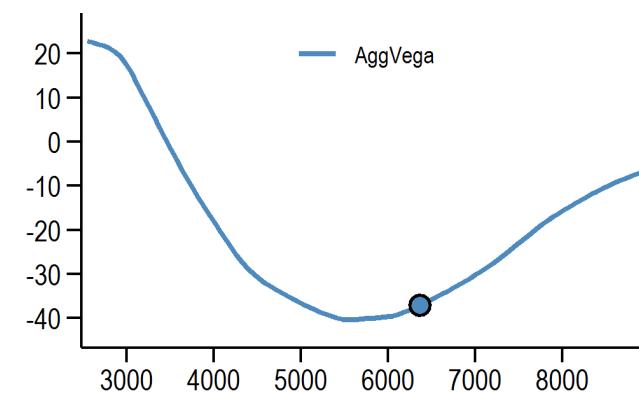
Euro STOXX 50 skew lock levels



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 25: The FTSE 100 index continues to trade close to its peak Vega level**

FTSE 100 vega vs. spot profile of outstanding products (\$ Mn)



Source: J.P. Morgan Equity Derivatives Strategy, StructuredRetailProducts.com. Based on monthly issuance data and average spot levels. Please reach out to us if you are interested in the full methodology.

The FTSE 100 was also heavily impacted by structured product re-hedging flows, and remains one of the global indices with the most dislocated parameters. We calculate that the **FTSE 100** index is the worst performing index in ~97% of the worst-of autocallables in which it is part of the basket by notional, leading to a concentration of risk from these products on the FTSE 100. The current FTSE 100 spot level is only slightly above (Figure 25) the level at which the aggregate peak vega for all autocallables is reached, based on our calculations on single index and worst-of products. Due to the proximity of peak vega, the vanna profile is relatively flat and asymmetric. Only a relatively small fraction of FTSE 100 structured product (~20%) are trading in-the-money with respect to their knock out levels.

### Asia:

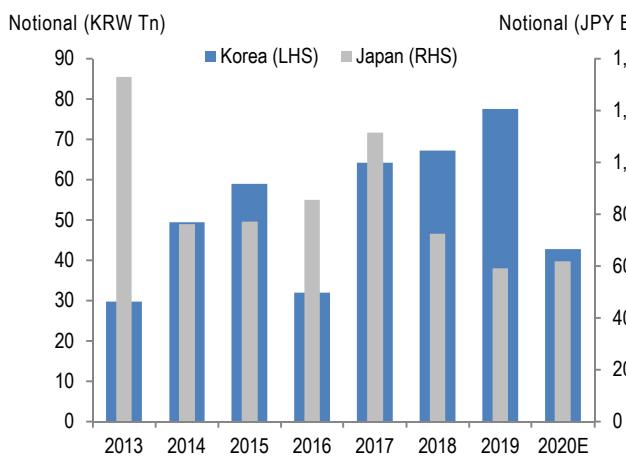
**Volatility supply:** Following a record breaking 2019, Korean autocallables experienced a major setback this year, recording a mere \$3.0bn average monthly issuance notional based on data as of end-October. This represents a striking 45% decline from average levels last year (Figure 26). The sluggish issuance is driven by a lack of legacy product knock-outs and weak retail risk appetite (due to COVID-related uncertainties). On top of that, strengthened regulations also had an influence on issuance from the supply side. In July 2020, the FSC introduced [new regulations](#) over ELS issuance to control systematic risks. Autocallable dealers scaled back their operations to adjust to the new regulatory environment, which in turn constrained new issuance supply. More recently, we noticed a pick-up of new issuance although issuance was a notch below early redemption likely due to supply-side factors mentioned above (see [here](#) for more details). In terms of underlying mix, S&P 500, Euro Stoxx 50 and KOSPI 200 are now the most popular indices in the products, making up 30%, 25% and 15% of the total issuance notional based on year-to-date data. S&P 500 and KOSPI 200 both saw a rise in popularity mainly at the expense of H-shares and Euro Stoxx 50.

In Japan, structured product issuance remained sluggish this year through the first ten months. Average monthly issuance of Nikkei 225-linked products notional stands at \$442mn (based on 10M20 data) – well below the average level in the past five years of \$603mn (Figure 26). The weak issuance in Japan was due to lack of knock-out of existing products (hence lack of re-investment) as spot traded below major knock-out barriers for most of the year. The supply-demand dynamics has changed after the US elections with the Nikkei breaking out of range and rallying above major knock-out barriers. We expect most products will be knocked out by Jan-21, and re-investment demand should begin to pick up from here. In terms of volatility risk profile, Vega outstanding is ~\$30mn as of Oct-20 end, which is near the lows in the past 3 years. The low Vega outstanding is attributable to a combination of 1) below average new product issuance, 2) Vega profile sliding up the curve amid spot rally, and 3) relatively high implied volatility (i.e. Volga dynamics or negative d vega / d vol sensitivity of structured products).

**Vega re-hedging dynamics were in full display on the Nikkei 225 this year, as we witnessed both ‘spot down, volatility up’ in a major sell-off and ‘spot up, volatility up’ during a sharp rally.** Amid the COVID risk shock in March, the Nikkei 225 spot sold off past the peak Vega levels (~19,000). At that point, Vega outstanding shifted lower against a

spot decline, and dealers bought back significant amount of short volatility positions (mainly mid-to-back part of the volatility curve) in order to re-hedge lower Vega outstanding. The dealer hedging impact was amplified given thin liquidity and lack of offsetting supply during the crisis. As a result, Nikkei longer-dated downside volatility saw a sharp spike, and a “spot down, volatility up” phenomenon was observed (Figure 27). More recently, the Nikkei staged a strong year-end rally and broke above regions of high knock-out barrier concentration (24,000 – 26,000 spot levels, Figure 28). The vast majority of legacy products are getting knocked out and Vega outstanding moved to 3yr lows. Dealers had to buy back volatility to re-hedge a risk profile of lower Vega outstanding, which in turn led to a “spot up, volatility up” phenomenon (Figure 27).

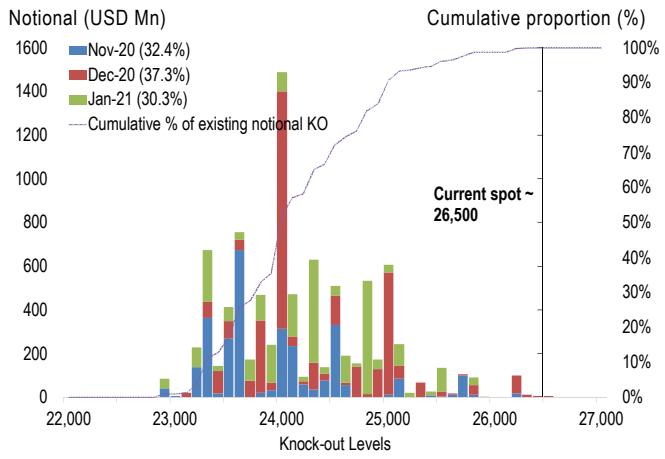
**Figure 26: Korean and Japanese autocallable annual issuance history**



Source: J.P. Morgan Equity Derivatives Strategy, KSD, KIS Pricing, Bloomberg Finance L.P.

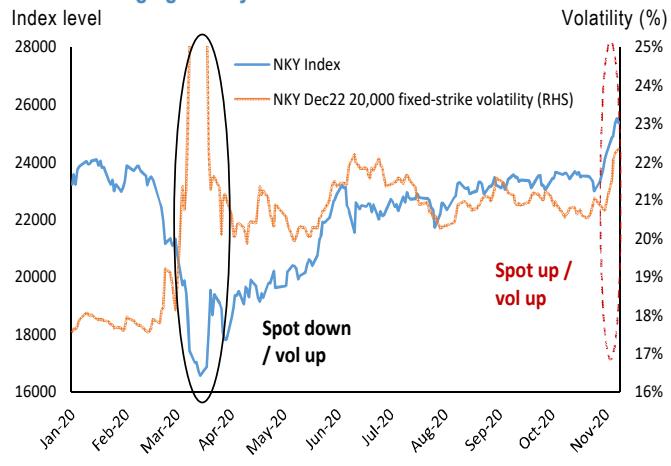
\* Based on the issuance data as of October 2020 end, 2020 estimate is based on annualized issuance of 10M20 monthly average issuance.

**Figure 28: Distribution of outstanding notional for Nikkei-linked structured product by knock-out levels**



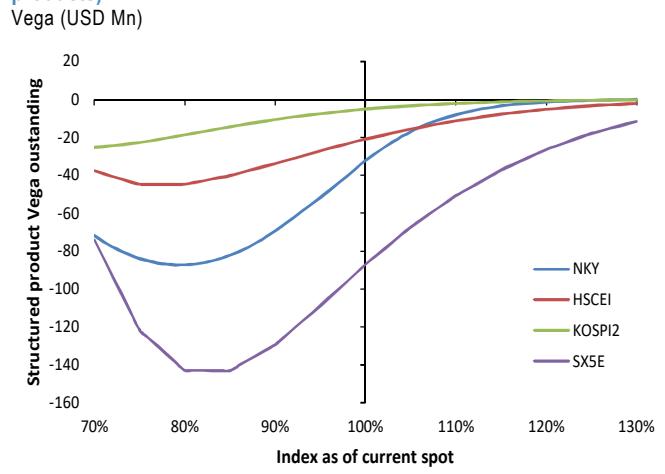
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Data for Japan issuance is for public offerings only and therefore may not represent an accurate picture. We believe private placements are about 1-1.5 times larger in notional.

**Figure 27: Nikkei 225 fixed strike volatility saw both 'spot down, vol up' and 'spot up, vol up' dynamics this year driven by autocallable dealer re-hedging activity**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 29: Estimated Vega profile for Nikkei 225, H-shares, KOSPI 200 and Euro Stoxx 50 - linked structured product (from the perspective of products)**



Source: J.P. Morgan Equity Derivatives Strategy, KSD, KIS Pricing, Bloomberg Finance L.P.

\* Based on the issuance data as of October 2020 end. Data for HSCEI, KOSPI2 and SXSE includes Korean issuance only. Data for NKY includes both Japanese and Korean issuance. Data for Japan issuance is for public offerings only and therefore may not represent an accurate picture. We believe private placements are about 1-1.5 times larger in notional.

Similar dynamics were also in play for the Korean autocallable products. However, the impact is less noticeable on major Asian underlyings such as the H-shares and KOSPI 200 (unlike past episodes of major risk events). Instead, Euro Stoxx 50 saw the largest impact of Vega risk re-hedging, since it was the worst performer in a Korean autocallable basket for most of this year. For example, in the March 2020 sell-off, Euro Stoxx 50 saw a more pronounced back-end term structure inversion move compared to Asian underlyings such as the H-shares and KOSPI 200, due to a sharper decline in spot and more Vega outstanding (see Term Structure section). As of October end, the Vega risk of Korean autocallable products continues to be more significant in the Euro Stoxx 50, and remains relatively muted on the H-shares and KOSPI 200 (Figure 29).

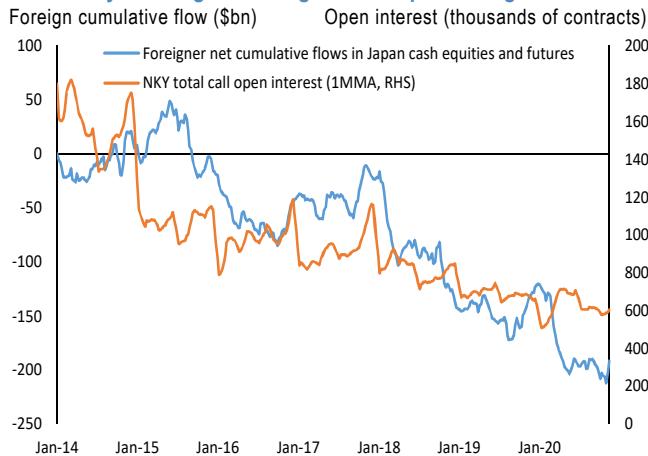
**For the upcoming year, we expect structured product issuance to gradually pick up in Korea, and recover at a faster pace in Japan.** A rise in issuance and related flows will likely exert higher pressure on longer-dated volatility and skew of popular autocallable underlyings such as the Nikkei 225, KOSPI 200 and H-shares. In Korea, we expect issuance to continue the recent recovering trend and extend further next year. Our bullish issuance forecast is built upon the views that 1) early redemption of existing products will continue to be strong as SX5E (currently the worst performer) is now trading above major knock-out barriers, and the observation dates are coming due; 2) We expect risk sentiment to recover amid favorable macro backdrop (see Outlook for Markets and Volatility section), and we could see a rise in new product demand driven by improved retail investors' risk appetite. However, in the near term, we think the pace of recovery will remain gradual, considering autocallable issuers are still adjusting to the new ELS regulations and autocallable supply could remain constrained for now. In the second half, we think dealers will be more comfortable with the new regulations and issuance recovery will likely broaden. In terms of underlying mix, we expect **KOSPI2 to attract a higher portion of issuance** flows next year. This is due to overall low outstanding notional in KOSPI2-linked structures and new ELS issuance regulations that are more friendly to domestic underlyings. In Japan, we expect the vast majority of legacy products to be knocked out by Jan-21 if the Nikkei spot sustains at current levels (Figure 28). **We expect to see a faster rebound in Japanese autocallable issuance and think issuance will recover to above long-term average levels soon.** Sizeable early redemption in recent months points to a material pick-up of re-investment demand ahead. In addition, we could see a rise of new retail demand amid a rallying stock market and an environment of reduced macro risks (see Outlook for Markets and Volatility section).

**We think spot dependency of Vega hedging flows will be a less significant risk factor in 1H21 considering most existing structured products will be knocked out, and re-accumulation will take some time.** Current Vega outstanding is at multi-year lows and we are far from the peak zone across all major Asian underlyings (Figure 29). For Korean products, Vega outstanding has mostly shifted to the Euro Stoxx 50 (worst performer in the basket). Currently, the re-hedging risks are relatively low on Asian underlyings including the H-shares and KOSPI 200. Looking ahead, we expect autocallable notional to gradually accumulate. Impact of the Vega hedging dynamics should remain relatively low before notional of outstanding product increases to more sizable levels. Similarly for Japanese products, we expect limited impact from autocallable re-hedging in the near term. Although we expect a sharper recovery of issuance and faster accumulation of Vega outstanding in Japan. **In the second half, we think Vega re-hedging flows of autocallables will become a more important risk to monitor after months of Vega re-building.** In case of a moderate spot sell-off then, Vega outstanding will increase, and dealers will need to further supply longer-dated downside volatility to re-hedge risk exposure. In an unlikely scenario where spot declines sharply past the peak Vega zone, dealers would need to buy back short volatility positions along with the spot decline to re-hedge for lower Vega outstanding. However, this scenario remains a remote risk considering current benign macro backdrop.

**Volatility demand:** In Japan, upside volatility demand further declined this year to lows since 2014. The move lower of Nikkei call option demand is in line with the downward trend of foreigner net positioning. Both measures are at lows since the onset of 'Abenomics' (Figure 30). More recently, the Nikkei 225 has staged a strong rally and made new highs in nearly three decades. However, foreign participation and upside call demand both remain relatively muted thus far, unlike many previous episodes of strong spot rally. From record spot levels, we think buying calls will gain more traction among foreigners looking for upside participation in a defined loss format.

In the China onshore market, listed option liquidity saw a massive surge, as a result of increased adoption of option investment in the local market and broadened instruments after the launch of CSI 300 options. On a yoy basis, total notional open interest in onshore A-shares options increased 88% (Figure 31). In the next year, we expect the momentum in option liquidity to continue. Moreover, we expect regulators to expand universe of underlyings after seeing the success in the CSI 300 options.

**Figure 30: Nikkei 225 call option open interest continues to trend lower this year along with foreign investor positioning**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 32: Warrant notional outstanding and short dated skew range for Top 10 warrant notional outstanding names**

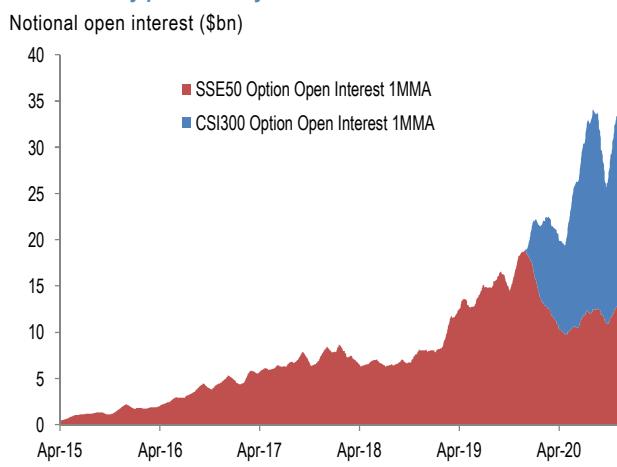
Ticker	Name	Sector	Warrant notional outstanding (\$mn)	3M ATM F - 110% F skew		
				25% tile	Median	75% tile
9988 HK	Alibaba	Discretionary	3,969	-0.4%	0.0%	0.7%
700 HK	Tencent	Communication	3,788	-1.6%	-1.0%	-0.3%
3690 HK	Meituan	Discretionary	2,066	-1.9%	-1.1%	-0.2%
388 HK	HKEX	Financials	1,244	-2.3%	-2.0%	-1.1%
1810 HK	Xiaomi	IT	905	-2.8%	-1.8%	-0.8%
2318 HK	Ping An	Financials	799	-0.4%	0.1%	0.8%
5 HK	HSBC	Financials	685	0.1%	0.7%	1.5%
9618 HK	JD	Discretionary	482	-0.8%	-0.6%	-0.2%
2628 HK	China Life	Financials	363	-0.4%	-0.1%	0.8%
1211 HK	BYD	Discretionary	357	-2.3%	-0.9%	0.5%

Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Skew metrics are based on YTD range.

In Hong Kong, volatility demand via warrants saw a substantial recovery from historically low levels last year. Weekly average Vega is on track to record a 42% yoy growth. The secondary listings of China ADRs played an important role, as these 'New Economy' stocks attracted more retail demand. Figure 32 shows six out of ten most popular warrant names are 'New Economy' companies, including secondary listing names such as Alibaba and JD. Driven by the retail upside demand, these companies witnessed material skew flattening (Figure 32). After a brief dip of warrant activity in 3Q20 due to US election risks, warrant issuance activity recovered in recent weeks. **Going into the next year, we expect the recovery trend to continue as retail risk appetite improves.** Moreover, we think ongoing ADR homecoming process will bring more Growth companies to Hong Kong, which will invite further retail interest. This expectation is in line with the output from our regression based forecast model, which points to a continued rise in warrant trading activity.

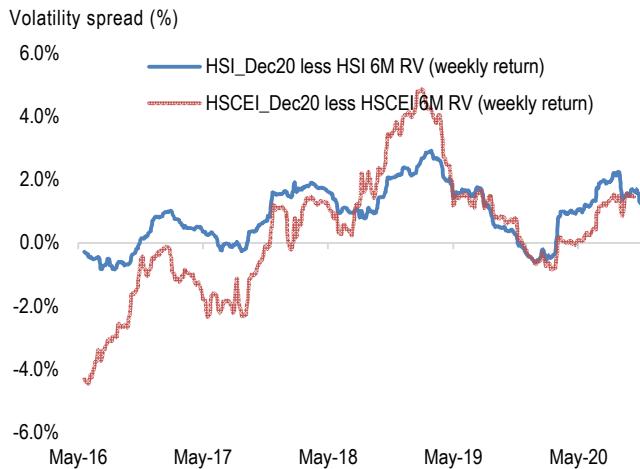
Separately, the ongoing ADR homecoming process coupled with index methodology changes continue to lead to further inclusion / higher weight of 'New Economy' stocks in the Hang Seng and H-shares. After the Dec-20 rebalance, the total weight of "New Economy" sectors (Communications, Discretionary and IT) increase to 34% and 42% for Hang Seng and H-shares, respectively (vs. 20% and 30%, respectively, one year ago). **In the next year, we expect the trend of higher representation of 'New Economy' stocks to continue, which should lead to further pick-up in realized volatility in the**

**Figure 31: China A-shares listed option total notional open interest has materially picked this year**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 33: Simulated Hang Seng and H-shares 6M realized volatility history based on the Dec-20 index composition vs. historical realized volatility**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Hang Seng and H-shares, similar to what we see in recent index reviews (Figure 33).** Having said that, we note the path of inclusion has become more uncertain now due to a recently announced new index methodology change consultation. Depending on the implementation details, the potential range of outcomes, with respect to the timing and weight of inclusions, could vary greatly (see [here](#)).

On longer dated tenors, volatility relative value trades, where volatility arbitragers / pension funds typically go long volatility / skew in Asia and short that in developed markets to mitigate the cost of carry, saw relatively muted activity this year. Investors who remain active in the strategy are also targeting more extreme entry points. The strategy suffered significant losses not only this year during the COVID crisis this year, but also during the volatility spikes in Feb '18 and Dec '18, when DM volatilities significantly overshot Asian ones. These major drawdowns caused a sharp decline in investor interest in such strategies. Activity in convexity risk premia collection strategies (through pair trades of variance / volatility, variance / vanilla and variance / up-variance spreads, etc.) was also low due to unprecedented uncertainties brought by COVID. **In 2021, we expect interest in volatility relative value strategies to see a mild recovery as risk sentiment improves.** However, we think investors will likely look for better matched underlying in terms of risk characteristics for implementation (relative to the common Asia vs S&P 500 pairs). On the other hand, **interest in volatility risk premia collection strategies could see a more meaningful recovery**, as most risk parameters remain relatively elevated, while macro and risk environment should be more stable next year (see Outlook for Markets and Volatility section).

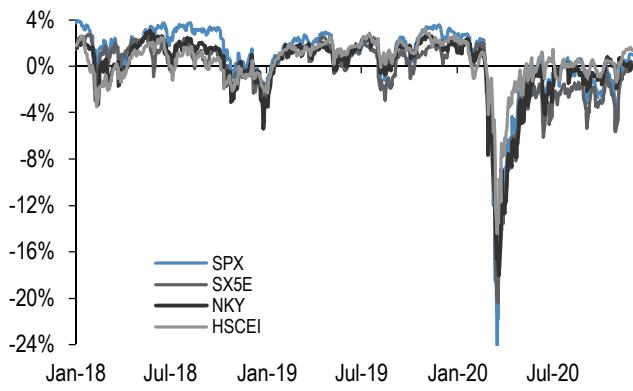
## Term Structure

The COVID-19 pandemic caused the largest spike in short-dated volatility since Black Monday in 1987 (see discussion [here](#)), which drove a sharp inversion of global volatility term structures. The market then spent most of the rest of 2020 in a medium to high volatility regime due to the high level of uncertainty around the pandemic, but in early November we saw a significant abatement in major market risks (the US Election and COVID-19 vaccine) and decrease in volatility levels. As a result, global term structures were inverted for most of the year (Table 2), but they started to normalize during the past month and most are close to flat or in slight contango at the time of writing (Figure 34). Only HSI and HSCEI didn't exhibit significantly more inverted average term structures in 2020 compared to the past couple of years, thanks to China's quicker suppression of the virus and earlier and more complete economic recovery compared to developed economies, which resulted in a much smaller increase in realized volatility for its benchmark indices. Since we expect short-dated volatility levels to continue to decline next year as vaccines are deployed which end the COVID-19 pandemic, **we look for further normalization of global term structures in 2021.**

Table 2 shows 12M-3M term structure stats across indices and compares their YTD averages to the past few years. Below we discuss the volatility term structure drivers for each region in greater detail.

**Figure 34: Term structures inverted sharply during the COVID-19 crisis in March...**

12M-3M ATM implied volatility spread



Source: J.P. Morgan Equity Derivatives Strategy.

**Table 2: ... and spent most of the rest of the year inverted**

12M-3M ATM Vol Spread	2020 YTD Avg	2019 Avg	2018 Avg	Y/Y chg in Realized Vol	% of 2020 Upward Sloping
SPX	-2.0%	1.8%	1.9%	35.8%	32%
NDX	-0.7%	0.9%	1.0%	32.6%	24%
RTY	-1.6%	1.4%	1.4%	42.1%	16%
SX5E	-1.1%	0.8%	0.8%	26.5%	17%
UKX	-0.9%	1.1%	1.1%	25.0%	17%
DAX	-0.9%	0.8%	0.8%	26.2%	18%
NKY	-0.3%	0.6%	0.7%	20.2%	30%
HSI	0.1%	0.2%	0.2%	11.7%	33%
HSCEI	0.4%	0.1%	0.2%	12.6%	48%
AS51	-0.3%	1.4%	1.4%	29.1%	28%
KOSPI2	-0.6%	0.8%	0.9%	22.1%	19%

Source: J.P. Morgan Equity Derivatives Strategy.

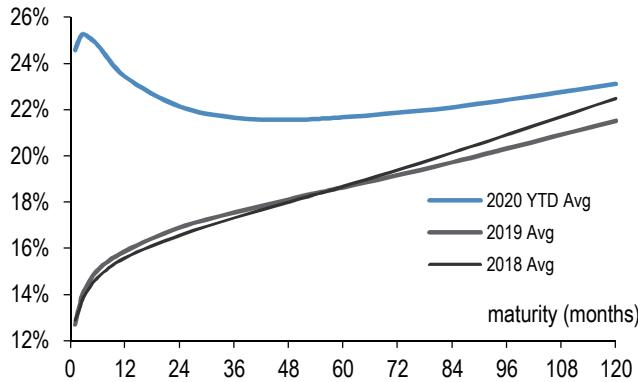
**US:** Volatility term structures on US indices inverted sharply in March during the COVID-19 crisis, and stayed inverted from that point until November as short-dated volatilities remained elevated. The term structures also showed notable kinks and priced large risk premia around the US elections for much of the year. Until mid-July, this risk premium was entirely centered around the Election Day itself, but from that point until the election a sizeable risk premium built up between the Nov'20 and Jan'21 expiries that reflected the possibility of a contested result (see discussion [here](#)). In November, the term structures largely normalized as major market risks that were boosting short-term volatilities subsided - i.e. the arrival of highly effective COVID-19 vaccines allowed the market to look through the Fall surge in cases towards a broader reopening of the economy, and the US election results likely delivered a market-friendly outcome (provided the GA Senate run-off in January doesn't result in a "Blue Wave"). At the time of writing, there is a new kink in the term structure around the GA senate run-off election, to be held on 5-Jan-21 (i.e. the 8-Jan-21 expiry trades at a significant premium to the prior weeks).

Although most of the term structure was inverted (e.g. 3M and out) for most of the year, the front end of the VIX curve and short-dated S&P 500 term structure (i.e. front couple of months) normalized earlier and to a greater extent, in part due to the effects of VIX ETPs' rebalancing (discussed in the Volatility Supply and Demand section). Investors retained a significant net long position in VIX ETPs throughout most of the pandemic, and their VIX futures holdings are rebalanced every day by selling the front contract and buying the second month contract, in order to maintain a fixed 1M average tenor. As a result of this flow pressure, the 1<sup>st</sup>-2<sup>nd</sup> month VIX futures term structure has been upward sloping most of the time since May.

Meanwhile, as discussed in the Volatility Supply and Demand section, demand from VA hedgers remained relatively subdued this year (apart from a pick up during the COVID-19 crisis), supply from structured products increased, and supply via vol spread trades fell. Long-dated volatility experienced a materially smaller increase this year compared to the short-end, but outperformed the front-end based on its historical beta relationship. The shortened hedging tenor used by the insurance industry and lower spread supply this year, contributed to the relative outperformance of 1-3Y vs. 5-10Y volatility (Figure 36), and the current flatness of the curve beyond 1Y (Figure 35). **In 2021 we expect long-dated S&P 500 volatility to remain under pressure** due to supply from structured products and subdued VA hedging demand.

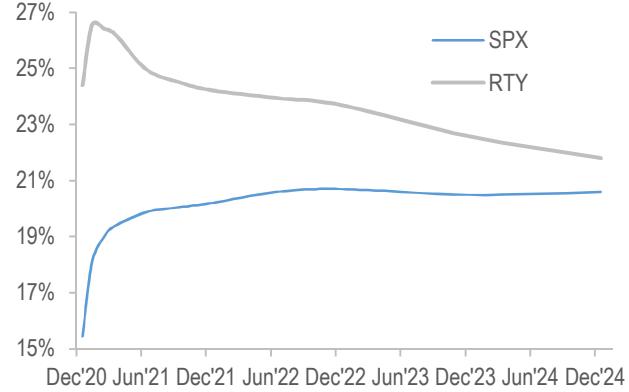
Russell 2000 term structure diverged from the S&P 500 due to its higher realized volatility during the post-election rally/rotation, and the impact of structured product dynamics. While the S&P 500 curve is in contango, the Russell's term structure is largely in backwardation (Figure 36). Given the Russell's heavier autocallable issuance (discussed in the Volatility Supply and Demand section), the index's outperformance resulted in many products knocking out (or expected to KO at their next observation date) and those that remained had significantly lower vega exposure as the product rallied away from the KI put strike, causing dealers to buy back short vega positions as the spot rallied (Figure 17). This put upward pressure on Russell shorter-dated implied volatilities (since the tenor of these products shortened), while newly issued products were pressuring the back end of the curve. In the Trade Ideas section we propose a structure to take advantage of this divergence and monetize the impact of structured product dynamics.

**Figure 35: The whole vol curve rose this year with outperformance of 1-3Y vols on a beta-adjusted basis**  
S&P 500 ATMF vol by tenor



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 36: Structured product dynamics and higher realized during the post-election rally drove a divergence between RTY and SPX term structures**  
ATM volatility by expiry



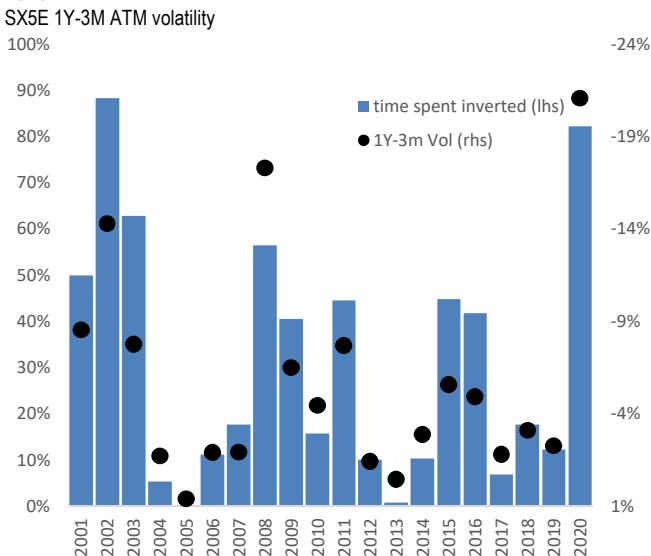
Source: J.P. Morgan Equity Derivatives Strategy.

**Europe:** Term-structures across European indices have been inverted for most of the year. The short-end of the Euro STOXX 50 term structure (1Y-3M ATM) inverted when markets sold-off in February and remained inverted until recently. Figure 37 gives some historic context to 2020.

Figure 38 shows the front end of the curve of SXSE (3M-1M ATM Vol) to highlight the two bouts of renewed stress, that saw this part of the curve invert. In early June fears of a 2nd wave in the US led to markets selling off and term-structures inverted again and further, depending on which part of the curve you consider. This was followed by fears around a 2nd wave in Europe that gathered momentum in September and culminated with various countries announcing renewed lockdown measures, despite previous declarations to the contrary by heads of state. In addition, a very uncertain outlook on US elections with vastly diverging policy outcomes on the one hand and the perception of a potentially chaotic aftermath kept risk parameters in Europe elevated, beyond the November expiry.

We are now seeing flat to upward-sloping term-structures for the first time since February. News of a highly-effective vaccine in short succession of a positive outcome of the US election, presented the trigger to drive this normalization. We expect this normalization to continue into next year, along with a normalization across other risk parameters.

**Figure 37: Rarely has the term-structure remained inverted so consistently throughout the year and, indeed, to the extent seen in 2020**



Source: J.P. Morgan Equity Derivatives Strategy.

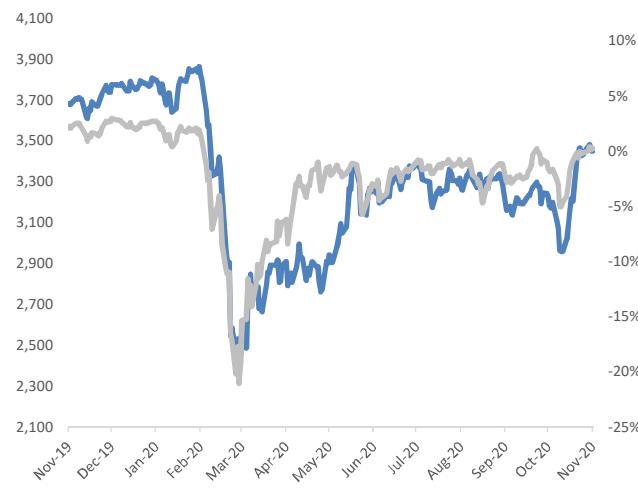
**Figure 38: The front end reflects well the two bouts of additional risk-off after the Feb/Mar sell-off: fears of a 2nd wave in the US in early June, followed by 2nd wave concerns in Europe in Sep coupled with US election uncertainty**



Source: J.P. Morgan Equity Derivatives Strategy.

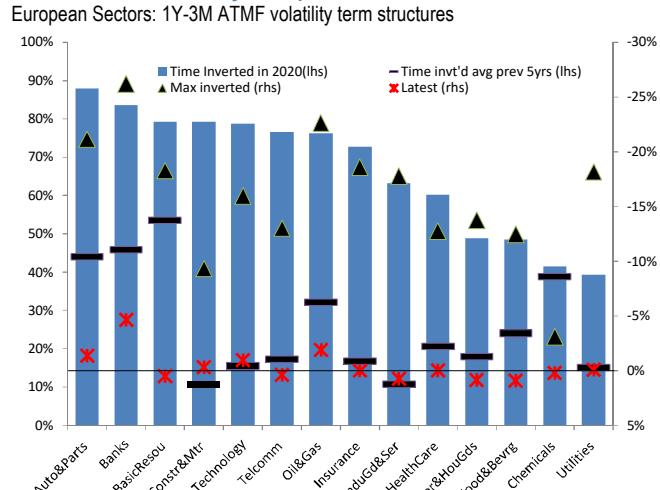
At the **long-end of the curve** the term-structure in Euro STOXX 50, here measured as 5Y ATMF vol minus 2Y ATMF, continues to be influenced by structured product issuance and hedging by exotic desk (see volatility supply/demand section). Figure 39 shows the strong relationship Euro STOXX 50 spot and the steepness of the term structure. The correlation between steepness of the 5Y less 2Y part of the curve and spot in the Euro STOXX 50 is 85% over the last 2 years. In other words as spot goes down, the term-structure flattens at this part of the curve and vice-versa.

**Figure 39: Euro STOXX 50 term-structure shows strong, positive spot correlation (~85%) driven by structured products hedging**  
SX5E 5Y-2Y ATMF volatility term structure; SX5E spot



Source: J.P. Morgan Equity Strategy.

**Figure 40: Term-structures across European sectors spent 40-85% of the year inverted, significantly above 5 year averages; levels have normalized considerably from peaks**



Source: J.P. Morgan Equity Derivatives Strategy.

**At a sector level** the same picture emerges. The term-structures (1Y-3M ATMF Vol) of most sectors spent considerably more time being inverted in 2020 compared to the long term average (Figure 40). Term-structures across European sectors spent 40-85% of the year inverted, with term-structures of cyclical sectors being closer to 80% of the time inverted

compared to defensive sectors closer to 40% of the time inverted. It is above all the consistency across sectors that is remarkable and different to previous risk-off episodes over the last 10 years that we have data for. It is worth highlighting the extent of the invertedness we have witnessed this year, with 3m ATM vol trading up to 25 points above 1y ATM vol across cyclical sectors, especially Autos and Banks. Most recently term-structures have normalized considerably across most sectors, showing on our chosen metric flat to slightly upward sloping term-structures. Notable exceptions are Banks, followed by Autos and Oil and Gas, where violent moves have kept front end vol elevated.

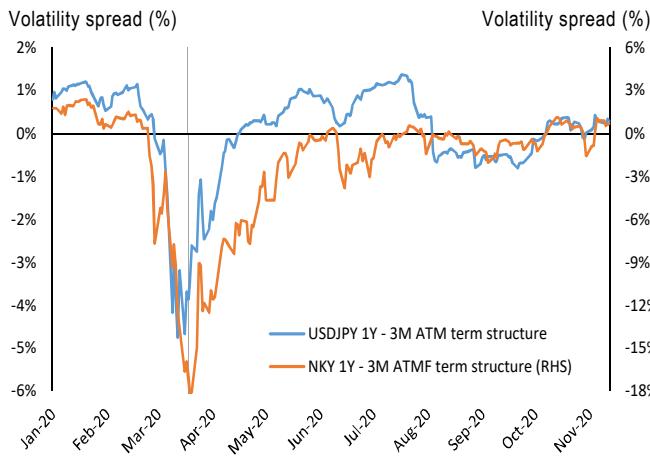
### Asia:

**Front end:** Asian front end volatility term structures witnessed historic levels of inversion in 1H20, mostly driven by uncertainties around the COVID pandemic. At the heights of the risk explosion in March 2020, major Asian term structures recorded the most inverted levels since the GFC, 1Y – 3M ATMF volatility spread reached -19.0%, -18.2% and -14.4% on the KOSPI 200, Nikkei 225 and H-shares, respectively.

In Japan, the COVID shock led to significant risk repricing across asset classes, whereby investors sold off equities and bid up the Yen. As a result, major term structure inversion moves were observed on both the Nikkei 225 and USDJPY (Figure 41). Another major driver for Asian term structure moves was the outsized outflows by foreign investors. The sharp selling amplified the risk repricing on the Asian front end term structure across several major indices including the Nikkei 225, KOSPI 200 and TAIEX. Figure 42 shows the average 1Y - 3M ATMF term structure in these indices saw material inversion in March, when the foreign outflows in Asia was the highest (Figure 42).

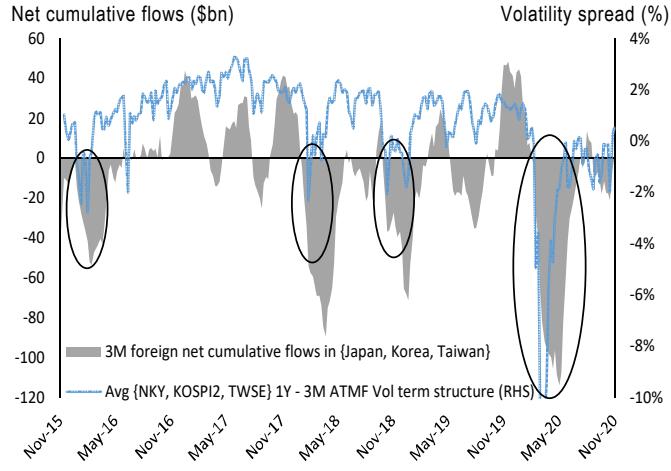
In Hong Kong, while extreme inversion was also observed, the term structure moves were overall less pronounced on the H-shares compared to that of other regional peers. We think this is likely a result of 1) China's first in, first out in the COVID Crisis and more robust economic recovery post COVID led to less acute equity risk pricing and 2) strong Stock Connect Southbound buying flows cushioned off some of the foreign selling pressure and dampened realized volatility. For example, we saw meaningfully lower realized volatility in the H-shares versus MSCI ACWI in the March sell-off, when Southbound registered historically strong inflows in Hong Kong (Figure 43).

Figure 41: Nikkei 225 and USDJPY 1Y - 3M 1Y ATMF volatility spread



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Vertical line denotes time when the BoJ announced expansion of the ETF purchase program

Figure 42: Asia average volatility term structure saw major inversion this year amid historically strong foreign outflows



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Circled periods correspond to episodes of Asia volatility term structure inversion amid strong foreign outflows.

Amid the historic sell-off, major economies rolled out significant fiscal and monetary easing policies, which led to gradual moderation of volatility term premia. In Japan, the BoJ [doubled its ETF purchase program](#) from JPY 6tn to JPY 12tn per year to ease the market stress. As the central bank announced the supportive policy, Japanese risk parameters including Nikkei 225 front-end term structure started to normalize from extreme levels (Figure 41)

**Mid to back end:** As highlighted in the Volatility Supply and Demand section, structured product issuance has been quite sluggish this year. Consequently, the back end of Asian volatility curve saw relatively limited impact from new product

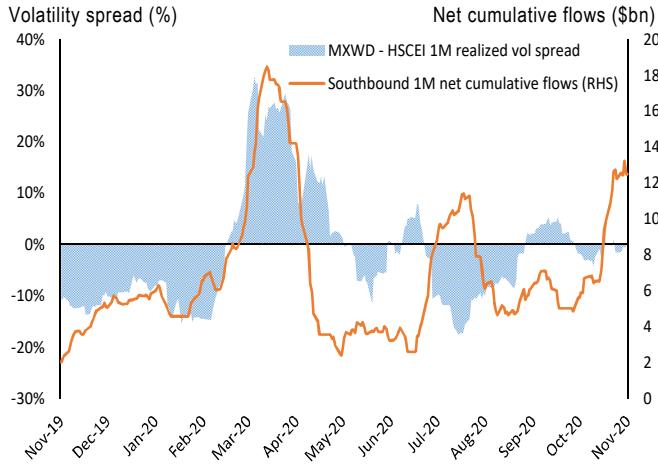
issuance. However, we witnessed significant re-hedging activity for existing products, which led to notable term structure moves in the mid to back end. Specifically, amid the COVID Crisis in March, Nikkei 225 spot dropped below peak Vega levels. At that time, structured product Vega outstanding declines as spot moves lower. To adjust to that, dealers were forced to buy back mid-bucket downside volatility. With thin liquidity back then, the re-hedging activity generated outsized impact on that volatility, pushing it to multi-year high levels (see Skew section). Similar dynamics were in play for Korean autocallable products. But unlike other historical stress periods, Asia ex-Japan underlyings saw relatively low impact from the re-hedging activity this time around. Instead, the Euro Stoxx 50 has been the worst performer and saw the most Vega demand amid the March sell-off. Consequently, the Euro Stoxx 50 observed a more pronounced term structure inversion in the mid-to-back end, while H-shares term structure saw a much smaller move (Figure 44).

**Looking ahead, we expect front-end term structure to further normalize on the back of vaccines and recovery from COVID. We expect the mid-to-back end to potentially flatten due to a recovery in structured product issuance (see Volatility Supply and Demand section). Our global strategists think a combination of favorable US election outcome, a vaccine arrival, as well as continued policy support creates a very constructive macro backdrop. Risk sentiment will likely improve in the next year (see Outlook for Markets and Volatility section).**

In Japan, a potential return of foreign buying flows could drive up demand for calls. History suggests this may cause front-end term structure inversions. Such dynamics were seen during the ‘Abenomics rally’ back in 2013: at the initial stage of the rally, Nikkei term structure steepened driven by volatility short covering amid major structured products knock-outs; in the latter part of the rally, we saw a surge of call buying activity by foreign investors, the volatility demand from foreign investors outweighed the supply from new autocallable issuance. As a result, Japanese equities saw further action of ‘spot up, volatility up’ with upside participation being the main driver, Nikkei 225 term structure witnessed a material inversion. In Hong Kong, we expect the ongoing index transformation to lead to a further pick-up in realized volatility. We also see risks of higher upside volatility driven by continued recovery of warrant demand (see Volatility Supply and Demand section).

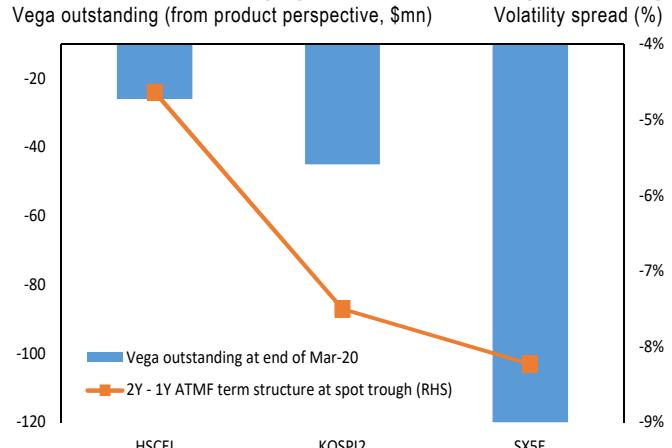
On the back end of Asian term structures, we expect a recovery of autocallable issuance to return as a major driver next year. We think issuance will recover in both Japan and Korea, as the vast majority of existing products will get knocked out by Jan-21; new demand could also emerge as risk appetite improves in a more benign macro risk environment. However, we expect the recovery in issuance to be gradual in Korea, as dealers are still adjusting to the new regulatory environment, which may constrain supply of new products in the near term. The new autocallable issuance in Japan and Korea will exert downward pressure on back-end volatility of popular underlyings including the Nikkei 225, KOSPI 200 and H-shares. We expect the mid-to-back end term structure of these indices to flatten as a result.

**Figure 43: MSCI ACWI – H-shares 1M realized volatility spread versus Stock Connect Southbound 1M net cumulative inflows**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 44: Amid the Mar20 sell-off, term structure inversion in popular Korean autocallable underlying was correlated with Vega outstanding.**



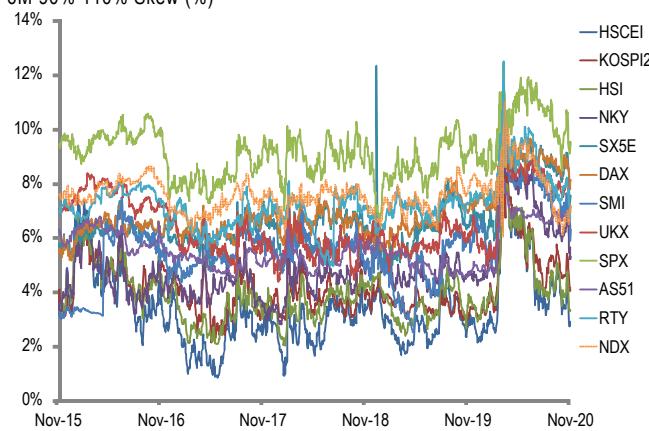
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Data are based on Korean issuance only.

## Skew

In 2020, skews of major global indices richened, mostly driven by the COVID shock. At the heights of the COVID led sell-off, global skews recorded new multi-year highs, average 6M 90% - 110% skew of major global indices was as high as 9.8 volatility points in March. In the second half, skew risk premia gradually cheapened, especially after the US presidential elections and the arrival of COVID vaccines. On a comparative basis, Asian skews saw a larger decline versus US and European counterparts, likely due to better containment of COVID risks. At the time of writing, the S&P 500 ranks the highest in absolute skew levels, while Asian indices occupy the spots at the opposite end of the spectrum; on a relative basis, skews of DAX and Euro STOXX 50 are among the highest compared to respective own 5Y history (Table 3).

**Figure 45: Global index skews spiked due to COVID crisis, but have trended lower after the US elections**

6M 90%-110% Skew (%)



Source: J.P. Morgan Equity Derivatives Strategy.

**Table 3: Summary of 6M skews across the globe – sorted by current 6M 90%-110% skew spread**

6M 90%-110%

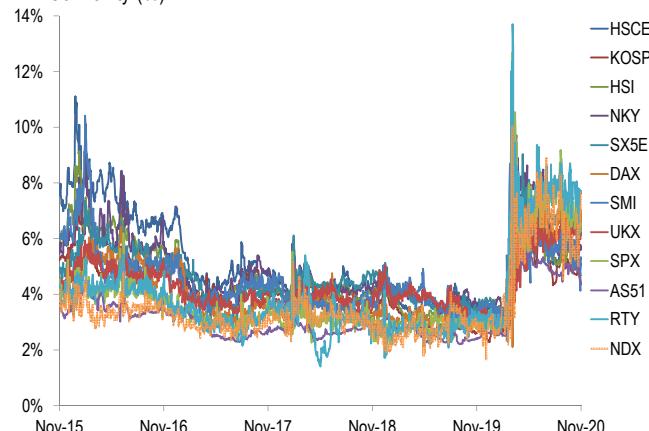
Skew	Current	5Y %tile	Avg	Max	Min
SPX	9.5%	64%	9.1%	12.4%	6.6%
DAX	8.1%	86%	6.8%	9.8%	5.1%
SX5E	7.5%	84%	6.6%	12.3%	4.7%
NDX	7.2%	26%	7.6%	11.0%	6.0%
RTY	7.1%	46%	7.2%	12.5%	4.9%
UKX	6.9%	64%	6.5%	10.9%	4.3%
AS51	6.4%	82%	5.5%	8.1%	4.4%
SMI	6.3%	79%	5.6%	10.8%	2.5%
NKY	5.3%	78%	4.9%	9.4%	2.8%
KOSPI2	4.0%	57%	4.1%	9.5%	2.1%
HSI	3.3%	30%	3.9%	8.0%	2.0%
HSCEI	2.9%	41%	3.3%	8.4%	0.8%

Source: J.P. Morgan Equity Derivatives Strategy.

Similar to skew, convexity, measured by the spread between variance and ATM volatility, also re-priced sharply higher this year across major global indices. Despite some recent softening, convexities on most indices continue to trade at the high end of the past 5yr range. Interestingly, Asia-ex Japan convexities, which historically have been more expensive than US and European counterparts, are now among the lowest globally. The phenomenon is likely a result of 1) diminished activity in volatility arbitrage trades (long Asia, short US / Europe) and 2) higher pricing of COVID related convexity risk premia on US and European underlyings with the resurgence of COVID infections. In absolute terms, 12M convexity is the highest on Russell 2000 and Nasdaq. KOSPI 200, ASX 200 and Hang Seng rank at bottom by the same measure (Table 4).

**Figure 46: Index convexities across major global indices repriced higher in 2020**

12M Convexity (%)



Source: J.P. Morgan Equity Derivatives Strategy.

**Table 4: Summary of 12M convexities across the globe – sorted by current 12M convexity level**

12M

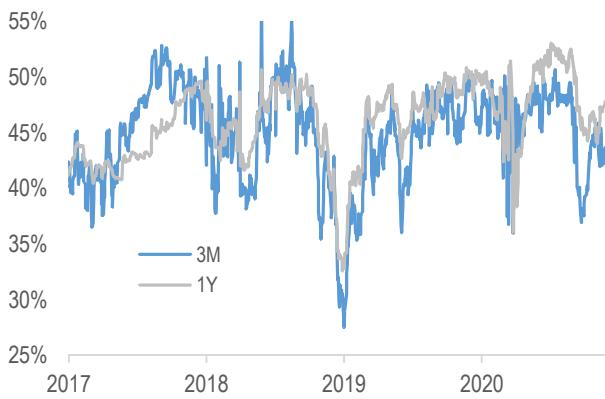
Convexity	Current	5Y %tile	Avg	Max	Min
RTY	7.7%	94%	3.9%	13.7%	1.4%
NDX	7.7%	99%	3.5%	10.0%	1.6%
DAX	6.7%	95%	4.2%	8.3%	2.1%
SX5E	6.5%	89%	3.9%	12.7%	2.1%
SPX	6.3%	95%	4.3%	8.3%	2.7%
UKX	5.7%	71%	5.0%	10.1%	2.9%
SX5E	6.3%	85%	4.8%	9.8%	2.4%
NKY	5.3%	78%	4.5%	11.6%	2.8%
SMI	5.0%	60%	5.2%	11.1%	2.9%
HSCEI	4.7%	62%	4.6%	9.2%	2.8%
HSI	4.4%	86%	3.2%	7.6%	2.2%
AS51	4.4%	57%	4.2%	9.5%	2.3%
KOSPI2	4.4%	57%	4.2%	9.5%	2.3%

Source: J.P. Morgan Equity Derivatives Strategy.

**US:** S&P 500 skew steepened sharply in absolute terms during the market crash in March (Figure 45), but underperformed the even larger spike in implied volatility levels (Figure 47), due to the shift in demand/supply forces discussed below. As the volatility shock began to normalize, skew declined slower than implied volatility levels in Q2 and early Q3. However, shorter-dated skew came under pressure both in absolute and relative terms in September, due to investor flows that were selling it (primarily buying of put spreads and OTM calls), and since it failed to realize during the late-summer—i.e., implied volatility reset higher during the rally in late-Aug/early-Sep as investors became nervous that the market had gone too far too fast, and then fell during September's sell-off. As the market rallied into and post-election, skew recovered on a pickup in hedging demand as the market pushed to new highs. At the time of writing, longer-dated (e.g. >1 year) S&P 500 skew remains historically steep, but shorter-dated (e.g. <3M) skew is below average levels, in part due to a larger than normal proportion of protection strategies using put spreads rather than outright puts because of the elevated implied volatility levels. While skew levels aren't exceptional on a historical basis, the S&P 500 still retains the steepest skew among major equity indices by a significant margin, and we continue to favor monetizing this risk premium (see the Trade Ideas section).

Figure 47: S&P 500 long-dated skew is steep

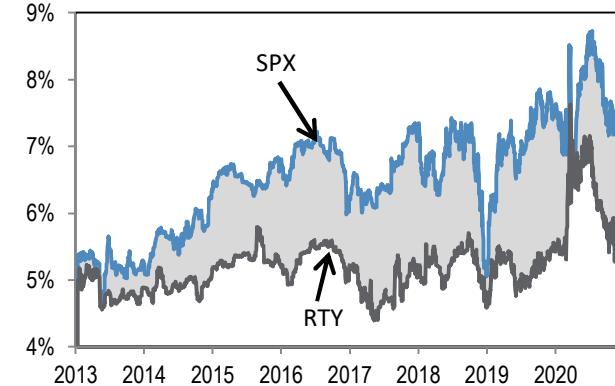
S&P 500 25d skew as a % of ATM vol



Source: J.P. Morgan Equity Derivatives Strategy.

Figure 48: The spread between Russell 2000 and S&P 500 long-dated skew remained wide last few years due to structured product flows and more limited hedging demand in the former

1Y 90-110% Skew



Source: J.P. Morgan Equity Derivatives Strategy.

As we discussed in past Outlooks, a number of factors contribute to the S&P 500's steep skew:

1. Structural demand/supply forces—as discussed in the Volatility Demand and Supply section, we generally see robust demand for OTM put hedges on the S&P 500, and persistent upside call supply from overwriters to generate yield. However, during large sell-offs, we often see a plunge in the put/call OI ratio as investors reduce exposure via delta-1 vehicles rather than buying expensive puts, monetize their existing hedges, and buy calls to hedge right tail risk from being underweight or short equities (as discussed [here](#)). This shift in option demand/supply dynamics can cause skew to flatten during these large sell-offs. However, March's sell-off was so sharp (it was the quickest ever bear market and delivered the highest realized volatility since 1987 – see [here](#)) that skew rose sharply in absolute terms (e.g. as a simple spread like 90-110% or 25d put less 25d call) as investors scrambled for protection and traders priced in the sharply higher vol of vol.
2. In conjunction with these structural flows, the effects of dealer gamma hedging of the large index option complex reinforces a steep skew. Given a clustering of hedges (dealer short put positions) below the spot level and overwrites (dealer long call positions) above the spot, dealers typically turn short gamma during sell-offs and long gamma when the market rallies. This causes a large dependency of realized volatility on relative spot movements (Figure 10), which is priced into the skew.
3. Regulatory and capital requirements support steep skew as they require dealers to hold additional capital against instruments that are subject to losses in stress scenarios, such as being short puts. Given the S&P 500's deep option liquidity and the US market's large market cap share of global equity markets, the S&P 500 is the world's main hedging underlier and is thus the main contributor to the capital requirements surrounding banks' index option books.

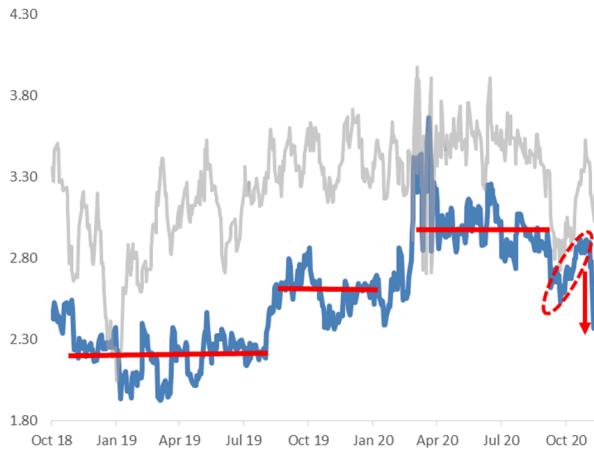
Additionally, S&P 500 long-dated skew remains steeper than its major international counterparts due to the relatively smaller structured product market and the demand for long-dated puts from the Insurance industry (discussed in the Volatility Supply and Demand section). However, the relatively larger impact of structured product hedging and lower natural hedging demand on the Russell 2000 index (discussed in the Volatility Supply and Demand section) continues to drive a significant divergence between Russell 2000 and Nasdaq vs. S&P 500 longer-dated skew (Figure 48).

**We expect the same skew drivers to largely remain in place heading into 2021, keeping S&P 500 skew steep compared to other major global indices**—i.e., continued structural protection demand and overwriting supply, gamma hedging effects, persisting regulatory impacts, and more limited structured product supply effects. However, we are likely to continue to see skew flatten during large market corrections due to changes in structural option flows. The steep S&P 500 long-dated skew makes short skew structures attractive in our view, which we discuss in the Trade Ideas section.

**Europe:** Along with other risk premia skew steepened significantly with the advent of Covid-19 in Europe and the sell-off in markets in March (Figure 49). Euro STOXX 50 along with other European index skews shifted up as the pandemic hit and remained at historically elevated levels even as spot remained range-bound for much of the year. Max skew reached the highest levels on record in late March and early April. At the time we highlighted these extreme levels in our weekly Outlook and recommended [Monetizing expensive European Skew](#) among others via barrier options. Normalized 25 delta skew in Europe converged temporarily with structurally steeper skew in the US. Euro STOXX 50 skew re-steepened as the 2<sup>nd</sup> wave of case numbers and new lockdown measures loomed ahead of US elections and reset lower markedly only as news of a highly effective vaccine broke. This said, skew continues to trade steeper than average levels in 2019.

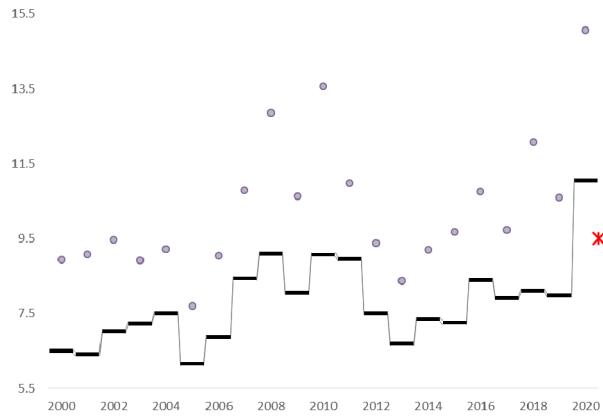
Average skew (90-110 F Vol) levels in 2020 exceeded any previous years on record (Figure 50). The picture was largely homogenous across European indices and commensurate across maturities. Country specific risks such as potentially failing Brexit negotiations in the UK failed to leave a noticeable mark.

**Figure 49: Euro STOXX 50 skew shifted up as the pandemic hit and remained at historically elevated levels even if spot was range-bound**  
SXSE (blue) and SPX 3M, normalized 25D Skew



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 50: Average and max skew exceeded levels on record over the last 20 years and remains at elevated levels**  
SXSE 3m, 90-110% skew, annual average (black bar), annual max (circle) + latest

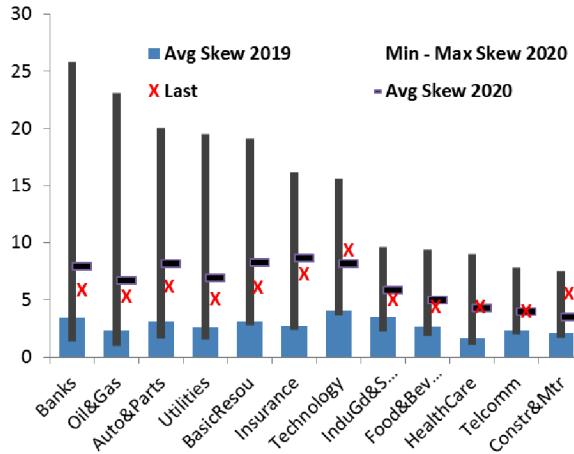


Source: J.P. Morgan Equity Derivatives Strategy.

At a **sector level**, a very similar picture emerges. We have seen and largely continue to see very steep skew levels across European sectors. Figure 51 displays neatly the scale at which skew steepened when you compare minimum 2020 levels, reached before the pandemic hit, to max levels at the heights of the crisis. Congruent to index skew, levels remained at historically elevated levels across the board and average 2020 skew levels far exceeded levels seen in 2019. While skew in most sectors reset somewhat and is now trading below average annual levels, Tech and Construction are two noteworthy exceptions. The biggest increases y/y were observable in sectors with the highest exposure to the underperforming value

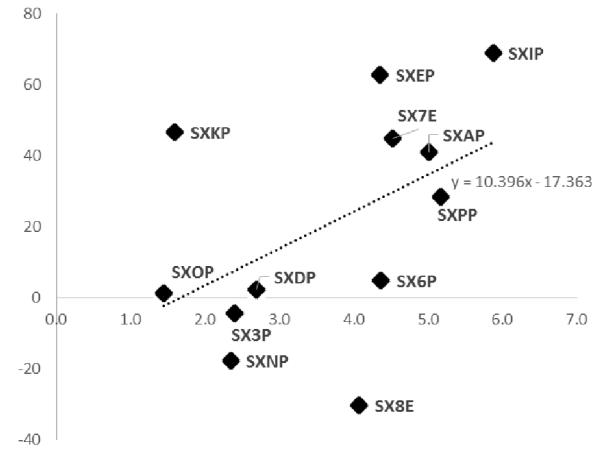
factor including in Banks, Oil&Gas, Autos and Insurance (Figure 52). We highlighted the steepness of skew at various points throughout the year and recommended trades that aimed to take advantage of elevated skew, mostly while net selling vol via call-spread collars, including on [Banks](#), [Basic Resources](#), [Tech](#) and [Utilities](#).

**Figure 51: Skew across European sectors has mostly reset to below avg 2020 levels but continues to trade materially above 2019 levels**  
3m 90%-110% Skew by Sector: Min, Max, Avg 2020, latest vs Avg 2019



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 52: Value-exposed sectors saw the steepest increases in y-o-y avg skew levels**  
Change in Avg 3m, 90%-110% Skew (2020-2019) vs Value factor score (Y-axis)



Source: J.P. Morgan Equity Derivatives Strategy.

**Asia:** Short dated skews of major Asian indices saw a material steepening in March mainly driven by the COVID shock. Amid the sell-off, 6M 90% - 110% skews of H-shares, Nikkei 225 and KOSPI 200 recorded highs of 8.4%, 9.4% and 9.5% respectively, as major economies introduced strong support measures (both fiscal and monetary) to address the COVID impact. Skew risk pricing gradually normalized from extreme levels. Throughout the year, we observe DM markets (S&P 500 and Euro Stoxx 50) exhibited materially higher implied skew pricing than EM counterparts (H-shares and KOSPI 200). We think this is partly driven by more extreme realized downside moves in the DM markets this year. The sharper spot declines resulted in higher realized down-variance versus up-variance in DM markets (i.e. higher realized skew). On a comparative basis, the spread between realized down-variance and up-variance is much lower in H-shares and KOSPI2, their implied skews were also less bid (Figure 53). In Japan, upside option demand remains relatively muted despite the strong year-end rally (see Volatility Supply and Demand section). While upside convexity has richened amid the spot upside moves, a sharp re-pricing of upside convexity similar to that in 4Q17 is not seen thus far.

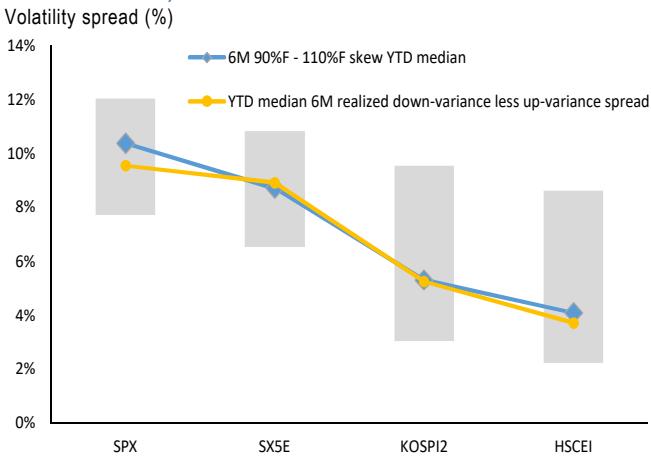
For the mid to long end of Asian skews, structured product dynamics continue to be the main driver. In the March sell-off, many Asian indices were trading close to or below peak Vega levels of structure products. Due to the sharp sell-off beyond around peak Vega levels, dealers had to buy back significant portion of short volatility positions (downside volatility roughly at 1Y bucket) in order to re-hedge the Vega risk profile. This resulted in a “spot down, volatility up” phenomenon. As a result, correlation between spot and volatility reached multi-year low levels (Figure 54). Among popular Asian underlyings for structured products, the dealer re-hedging dynamics were most notable in Japan due to highest Vega outstanding. At the time, dealers were forced to buy back mid- to back-end volatility in thin liquidity, and Nikkei 225 fixed strike volatility thus spiked up along with downside skew (Figure 55).

**Looking forward next year, we think Asian skews should likely flatten overall.** In Hong Kong, we expect warrant trading volume to continue the recent recovering trend driven by improved risk sentiment, and new ADR secondary listings. As a result, we think Hong Kong stock and index skews could see further flattening driven by a rise of upside convexity.

From a structured product perspective, we expect issuance to recover in both Japan and Korea next year, largely driven by re-investment from knocked-out products and potential new demand driven by improved risk appetite. We think the issuance recovery should be more pronounced in Japan in the near term, while the process should be more gradual in Korea

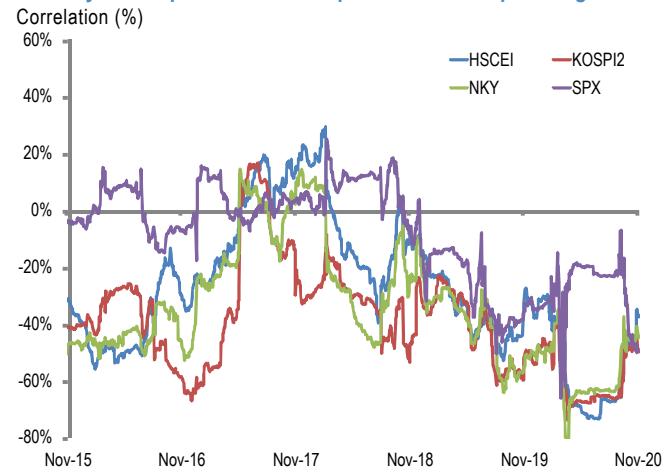
due to new regulations. The new issuance will put downward pressure on longer-dated downside volatility and skew in Nikkei 225 / KOSPI 200 / H-shares. In the second half, after months of re-accumulation of the products, the spot dependency of Vega hedging flows will become a more notable risk factor (see Volatility Supply and Demand section).

**Figure 53: A higher realized skew led to higher implied skew pricing in DM markets (S&P 500 and Euro Stoxx 50) versus EM markets (KOSPI 200 and H-shares)**



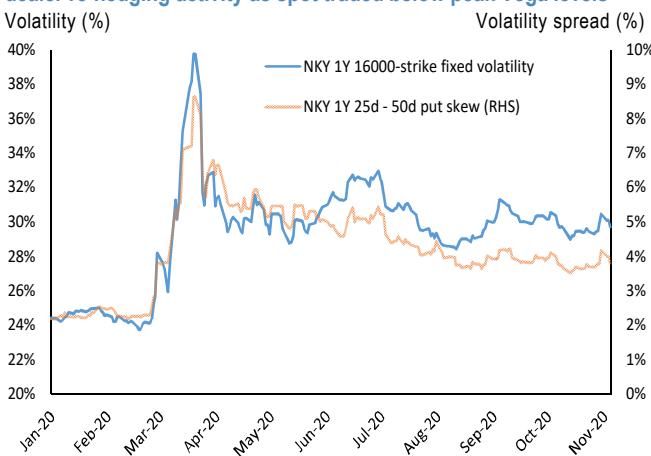
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Grey area denotes the YTD skew range.

**Figure 54: 6M correl between spot moves and 1Y ATM vol ex-skew moves reached 5yr lows for Asian indices, exhibiting a “spot-down volatility-down” phenomenon as spot traded below peak Vega**



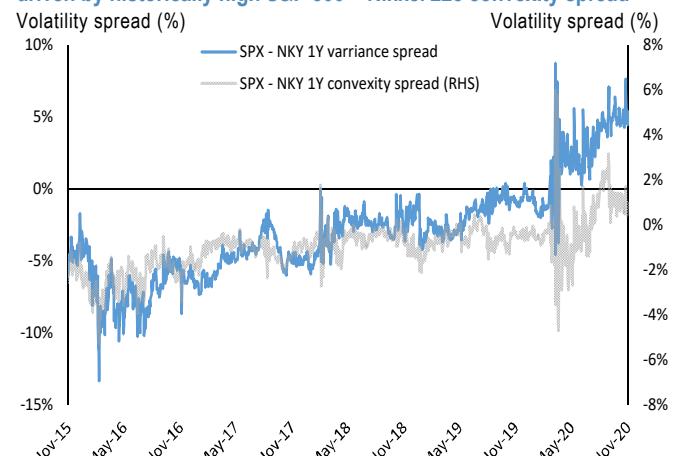
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 55: Nikkei 225 downside fixed strike volatility spiked, driven by dealer re-hedging activity as spot traded below peak Vega levels**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Grey shaded area denotes periods when spot is below 19,000, then peak Vega level for Japanese products.

**Figure 56: S&P 500 – Nikkei 225 variance spread is at 5yr highs partly driven by historically high S&P 500 – Nikkei 225 convexity spread**



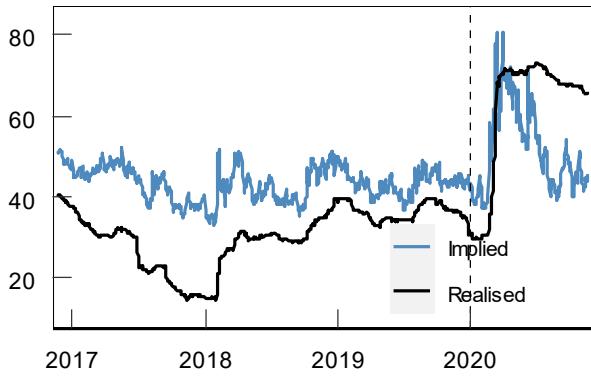
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Convexity is measured by variance – ATM volatility spread.

Similar to skews, Asian index convexities re-priced higher this year overall. After seeing a major spike amid the COVID crisis, the risk premia remained expensive throughout the year in Asia despite some softening. On a relative basis, Asia-ex Japan convexities are cheaper compared to US and European counterparts, a phenomenon that has rarely occurred in the past few years. Activity in volatility relative value trades substantially diminished this year. The remaining volatility relative value trades continue to shift from outright variance spread to corridor variance swaps (CCVS), which have minimal exposure to convexity. On the supply side, the interest in convexity risk premia collection strategies also diminished in Asia due to higher risks. With limited impact from the aforementioned dynamics, Asian convexities are overall less bid than US and European counterparts (Figure 56). **Going into 2021, we think Asian index convexities will likely see further normalization from current levels.** This is mainly driven by an expected further compression of risk premia in a more equity friendly market environment. The demand from volatility relative value trades, particularly outright variance spread, should stay relatively low next year (see Volatility Supply and Demand section).

## Correlation

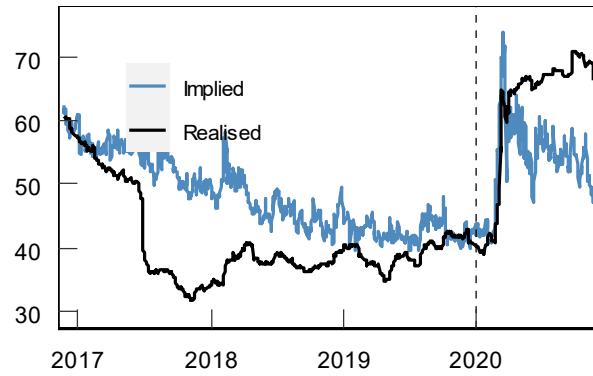
Given the extreme volatility in 2020, it is no surprise that the implied and realized volatility experienced their largest increase in years. What is more surprising, however, is that the implied correlation levels for both the SPX and SX5E recovered quickly, and are now back to pre-pandemic levels (Figure 57 and Figure 58). In our view, the resilient performance of dispersion trades vs. other volatility carry trades contributed to the rapid renormalization of implied correlation levels.

**Figure 57: S&P top 50 rolling 1Y implied and realized correlation**



Source: J.P. Morgan Equity Derivatives Strategy.

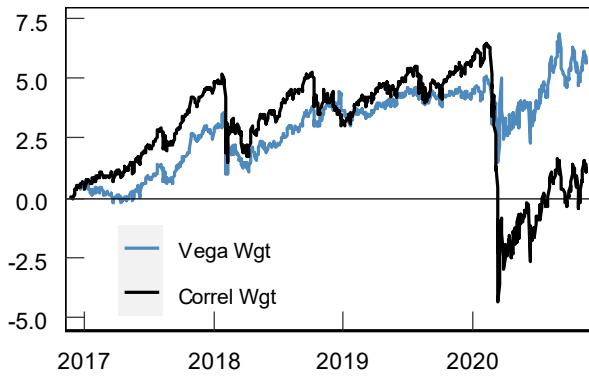
**Figure 58: SX5E rolling 1Y implied and realized correlation**



Source: J.P. Morgan Equity Derivatives Strategy.

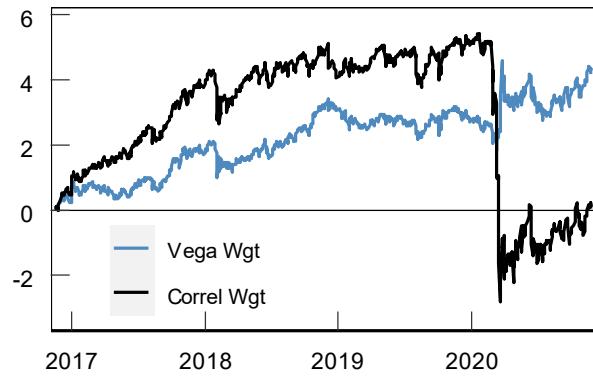
While the classical correlation-weighted dispersion trades suffered heavily during the depth of the crisis due to their short volatility bias, vega weighted dispersion weathered the crisis much better, as seen in Figure 59 and Figure 60, where we show the hypothetical cumulative P&L of the 1Y volatility swap dispersion trade<sup>2</sup>. Moreover, as discussed in a [previous report](#), SX5E was better positioned to benefit from the vega weighted dispersions, thanks to its more balanced equity factor profile (Figure 61).

**Figure 59: Cumulative P&L for S&P 500 top 50 1Y dispersion trade P&L in vega**



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 60: Cumulative P&L for SX5E 1Y dispersion trade P&L in vega**



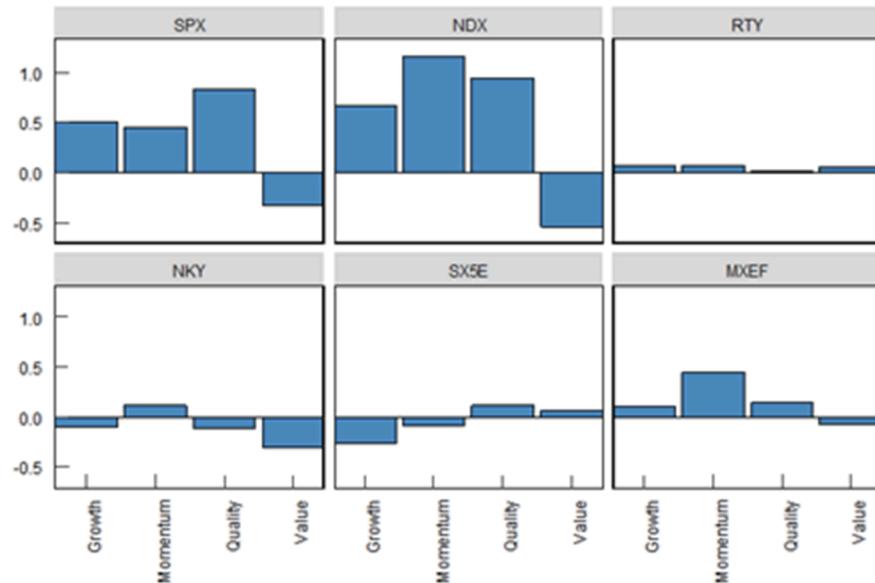
Source: J.P. Morgan Equity Derivatives Strategy.

<sup>2</sup> Vega weighted dispersion P&L = (Index Implied – Index Realised) + (Singles Realised – Singles Implied)

Correlation weighted dispersion P&L = (Index Implied – Index Realised) + sqrt(Implied Correlation) x (Singles Realised – Singles Implied)

**Figure 61: Global indices fundamental factor exposures**

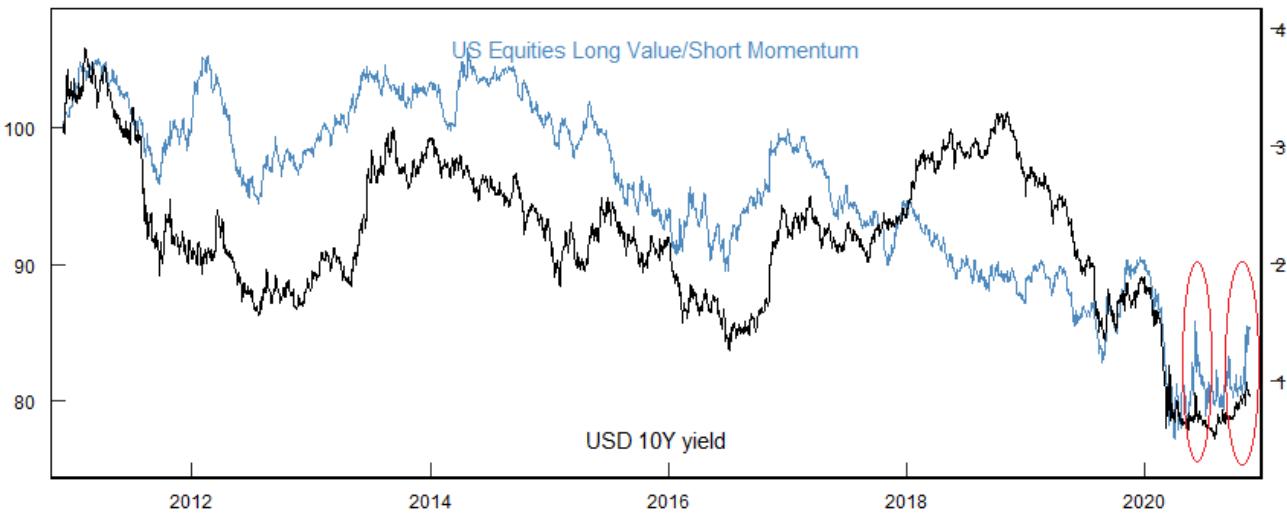
Factor loading (Z-score between -3 and +3)



Source: J.P. Morgan Equity Derivatives Strategy.

**US:** In our view, with the major catalyst of the US election out of the way, the performance of dispersion trades will be mainly driven by sector and style rotations in 2021. As seen in Figure 62, in 2020 the US equity market experienced two major episodes of Value/Momentum rotation, which helped with dispersion trade performance. In 2021, we see two potential catalysts that could lead to further rotation, namely the renormalization of the economy helped by COVID-19 vaccines, and potential US government fiscal stimulus. Naturally, in the downside scenario, if both catalysts fail to materialize, we are likely to see Value/Momentum rotation unwinds, which could equally boost dispersion performance.

**Figure 62: Historical performance of long Value/short Momentum factors (Indexed to 100 in 2009, left) vs. 10Y yield (right axis)**



Source: J.P. Morgan Equity Derivatives Strategy.

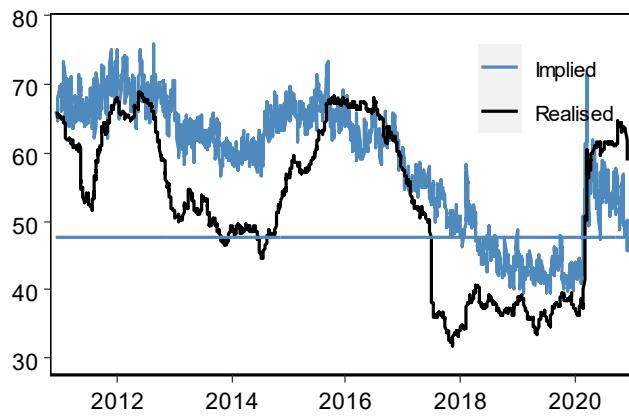
It appears that dispersion trades should do well regardless of the outcome of Value/Momentum rotation. Why is it that S&P top 50 dispersion seemed to have benefitted relatively little from the Value/Momentum rotation? In our view, the reason is that the S&P index itself has highly biased factor exposures, which also coincide with its largest members. This contrasts with SX5E, for instance, which has relatively balanced factor profile, as discussed above (Figure 61). Therefore, we believe

that in order to take advantage of the rotation, it is necessary to construct bespoke dispersion portfolios with factor exposures in mind. In addition, we expect them to outperform S&P top 50 dispersion.

**Europe:** Implied correlation was low entering into 2020 (i.e., implied vol spread of single names versus index was high). In March 2020, Euro STOXX 50 implied and realized correlation reached 2011/2012 and 2015/2016 levels on the back of the Covid-19 driven sell-off. Since then, both implied and realized correlation levels have come down as market started to normalize but they remain elevated compared to recent years (Figure 63).

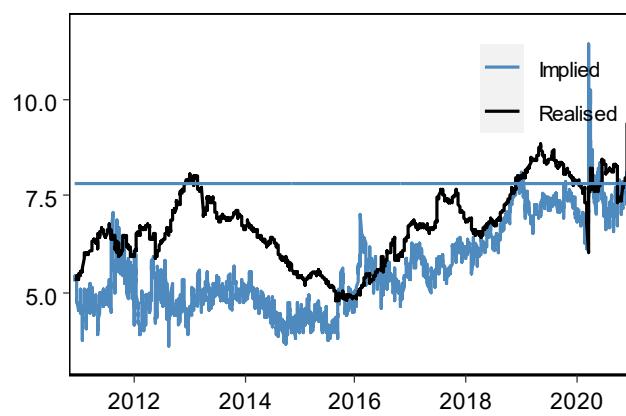
Going forward, we think the aggressive style and sector rotations we have witnessed recently will likely continue and drive realised correlation back down to pre Covid-19 levels. Progress on the development of a vaccine for Covid-19 will likely affect particular sectors (Airline/Transport/Leisure) more than others. Similarly on style, we expect to see investors rotate into Value from Growth/Momentum with the roll out of an effective vaccine.

Figure 63: SX5E 1Y implied and realized correlation



Source: J.P. Morgan Equity Derivatives Strategy

Figure 64: SX5E 1Y index and single stock volatility spread

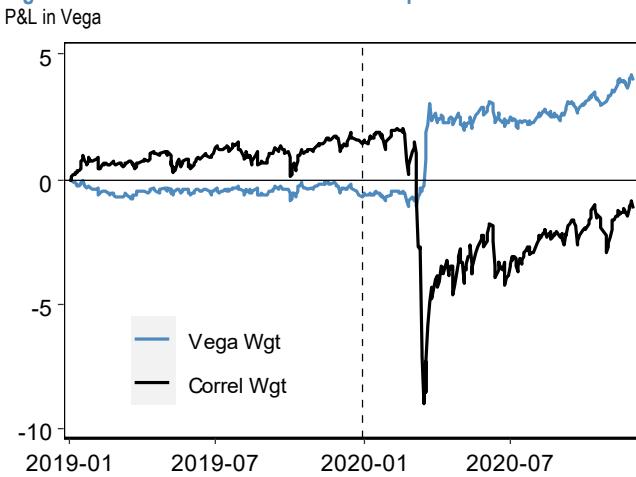


Source: J.P. Morgan Equity Derivatives Strategy

In Figure 65 we show the pro-forma cumulative PnL of a 1Y volatility swap dispersion strategy on Euro STOXX 50. Unsurprisingly, correlation weighted dispersion significantly underperformed vega weighted dispersion during the Covid-19 crisis. The correlations weighted dispersion strategy recouped some of the losses in 3Q and 4Q.

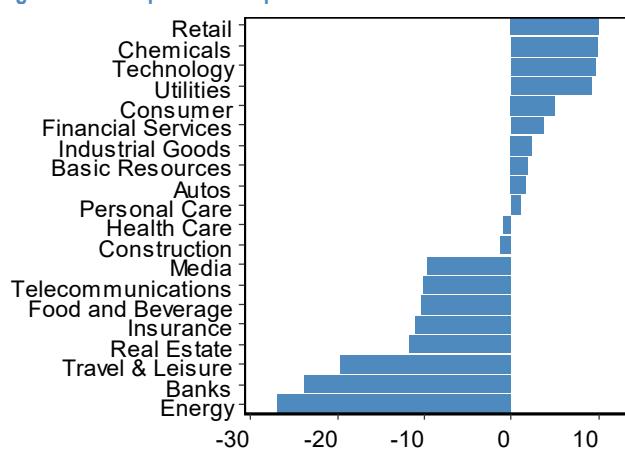
Looking into next year, we continue to favor dispersion trades, but with a cautious stance as current entry levels are challenging. J.P. Morgan equity strategists see a continuation of the current equity market recovery into H1 2021 driven by further sector and style rotation into cyclicals/value stocks, an environment which would be supportive for dispersion strategies. We have a preference for vega weighted dispersion over correlation weighted dispersion going into 2021, as experienced in 2020, vega weighted dispersion tend to outperform during periods of crisis as the strategy is long volatility.

**Figure 65: Cumulative P&L for SX5E 1Y dispersion trade**



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 66: European sector performances YTD**

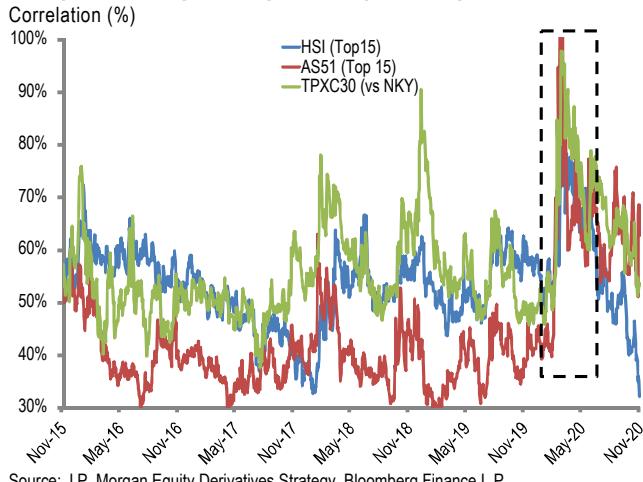


Source: J.P. Morgan Equity Derivatives Strategy.

**Asia:** Implied correlations of major Asian indices overall richened this year, especially in the first half (Figure 67). At one point, market was essentially pricing 100% correlation in anticipation of a sell-off of all stocks in tandem. While global equities later recovered driven by strong fiscal / monetary policy support, implied correlations remained elevated for an extended period of time. Later in the year, uncertainty around the US presidential elections emerged as an additional driver for implied correlation moves: correlation saw a mini spike in September due to rising likelihood of a contested election. As the US elections concluded with a pro-market outcome, correlations gradually softened. In particular, Hang Seng and H-shares correlations retraced at a materially faster pace compared to global and regional peers, due to a combination of 1) more robust recovery from COVID crisis in Hong Kong / China; 2) ongoing index transformation of WVR and secondary listing inclusion, which leads to a more diversified sector composition (Figure 68) and 3) strong performance bifurcation between Growth and Value stocks amid ‘K-shaped’ recovery. At the time of writing, the 6M ATM implied correlations for Hang Seng, ASX 200 and Nikkei 225 are trading at 32%, 63% and 53% respectively, placing them in the 0<sup>th</sup>, 80<sup>th</sup> and 46<sup>th</sup> percentiles relative to history of the past 5 years.

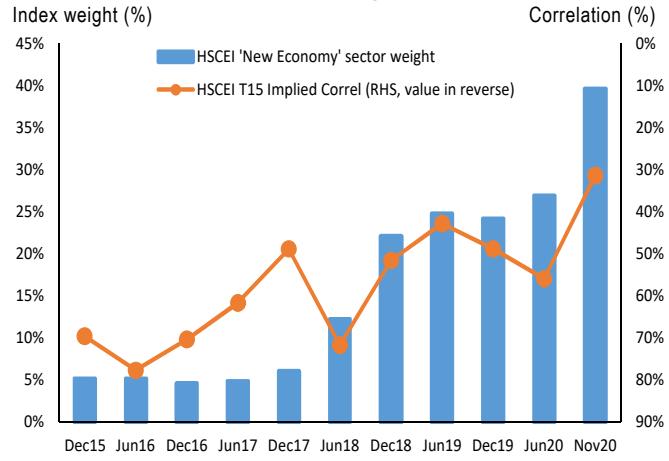
**Looking into 2021, DM correlations could continue to soften from current levels due to benign environment for equities, Hang Seng / H-shares correlations will likely remain low due to ongoing index transformation** (see Outlook for Markets and Volatility section). Among major Asian indices, ASX 200 implied correlation still trades at high end of historic range, it has the most room for softening in an environment of reduced macro risks. In Japan, while we expect correlation to be lower on average next year, we remind investors of the risk where foreign investors chase upside via call options or futures. Nikkei 225 implied correlation could move higher as a result of increased demand. For Hang Seng and H-shares, correlations will likely remain low. The further inclusion of WVR and secondary listing companies would lead to more diversified and balanced sector composition, which will keep index correlation relatively low. Moreover, the anticipated Value rotation will continue to suppress correlation between ‘Old Economy’ and ‘New Economy’ stocks, which suppresses the index correlation.

**Figure 67: Hang Seng, ASX 200 and Nikkei 225 6M implied correlations mostly repriced higher this year mainly driven by COVID crisis**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 68: H-shares implied correlation continues to trend lower as the index includes more 'New Economy' stocks**



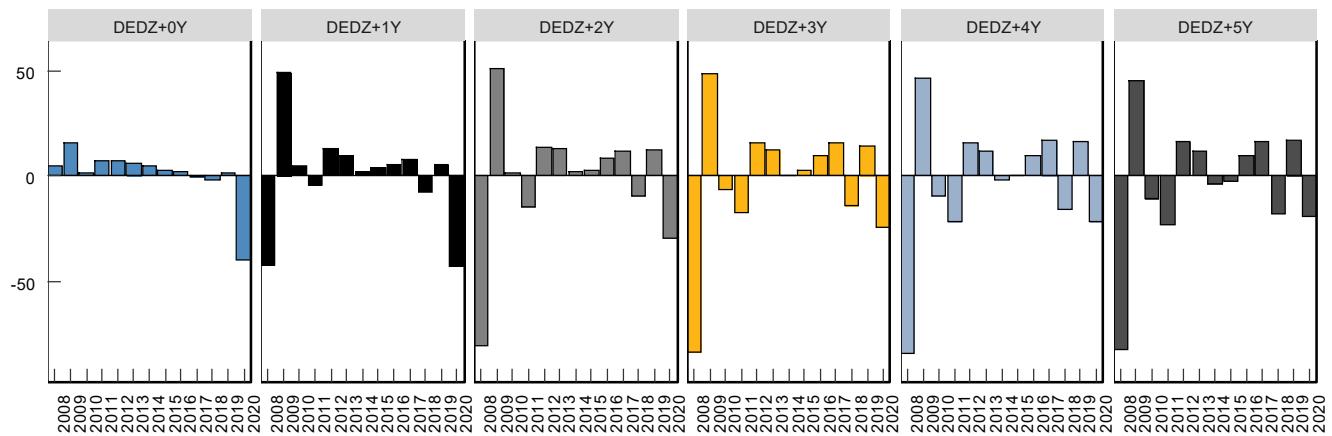
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* New Economy sectors are Communication Services, Consumer Discretionary and IT.

## Implied Dividends

### Euro STOXX 50 Dividends

**Performance review:** For the 1 – 2 year maturity dividends, 2020 represents the worst performing year on record, eclipsing even 2008. For the longer dated dividends, the performance was roughly in line with 2011 (Figure 69). On a relative basis, dividends vastly under delivered comparable asset classes (Figure 70 and Table 5). Relative to the SX5E, dividends suffered from high exposures to Bank (SX7E -25% YTD) and Energy (SXEE -24% YTD) dividends. Relative to credit, dividends were placed at a clear disadvantage by the ECB policies during the crisis. On the one hand, the asset purchase programs were expanded to include high yield debt, and on the other, Eurozone banks were restricted from paying out dividends. The combination of the above factors led to significant underperformance of dividends relative to equities and credit.

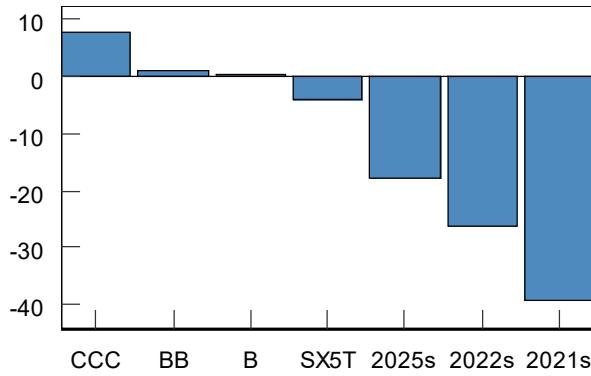
Figure 69: Annual performance of dividend futures contracts



Source: J.P. Morgan

Figure 70: Year-to-date total returns across comparable asset classes (SX5E total return and € HY credit)

% YTD return



Source: J.P. Morgan

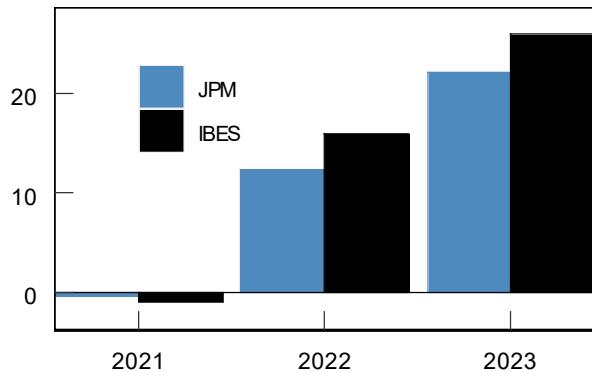
**Looking into 2021**, we see potential for double digit returns across the SX5E dividend curve. The upside return potential is supported by the discount to bottom up estimates (Figure 71). Moreover, in our view, the 2011/2012 period is likely to be the template of the dividend futures performance (rather than 2008/2009) where the curve rebounded between 13 – 15% in 2012. We believe the renormalization of the economy, combined with the resumption of bank dividends will likely lead to a reset higher in dividend estimates. We continue to prefer the front end (2022/23) since they are likely to be the main beneficiary of the economic recovery. The 2021s are highly exposed to the binary bank dividend risks (note our bottom up estimates assume 0 bank dividends in 2021), and the 2024s and beyond suffer from lower liquidity and bottom up transparency.

Table 5: Historical returns of SX5E dividend futures and comparable asset classes

	2016	2017	2018	2019	2020 YTD
DEDZ+1Y	5.5%	7.9%	-7.7%	5.5%	-39.4%
DEDZ+2Y	8.7%	12.0%	-9.4%	12.8%	-26.2%
DEDZ+5Y	9.8%	16.3%	-17.8%	16.8%	-18.0%
SX5T	3.6%	8.8%	-12.8%	24.8%	-4.0%
JPM Euro BB	8.6%	5.5%	-2.8%	10.3%	0.9%
JPM Euro B	11.4%	4.4%	-4.7%	10.5%	0.2%
JPM Euro CCC	10.5%	12.7%	-20.5%	13.2%	7.7%

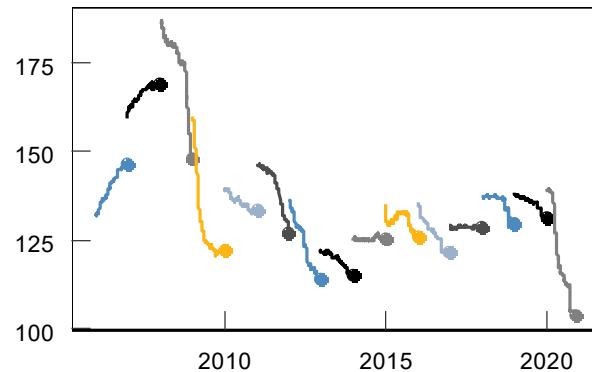
Source: J.P. Morgan, Bloomberg, Return of dividend futures include 1Y bund yield

**Figure 71: Expected returns to bottom up estimates**  
Expected return (%)



Source: J.P. Morgan

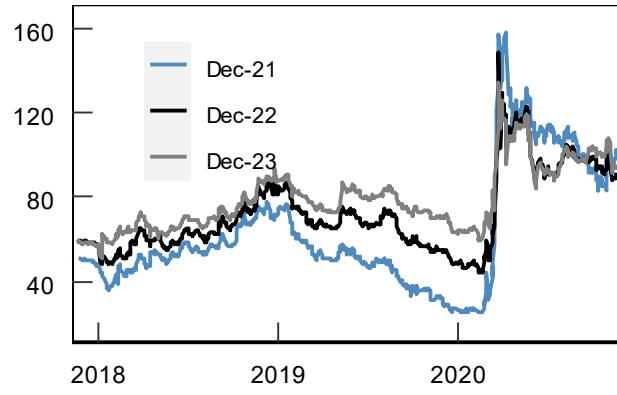
**Figure 72: Two year ahead IBES consensus DPS estimate for SX5E**  
Index points



Source: J.P. Morgan

**Dividend volatility** are trading at levels very close to the like maturity, like strike SX5E index volatility. Moreover, we are in the highly unusual situation that the term structure is inverted (2021 vol is above 2023 vol). In our view, this excess volatility premium is a result of the paucity of dividend volatility supply. In the coming months, investors should consider selling dividend volatility as an attractive alternative to selling European equity volatility.

**Figure 73: Dividend 50 delta volatility as % of like maturity, like strike SX5E volatility**



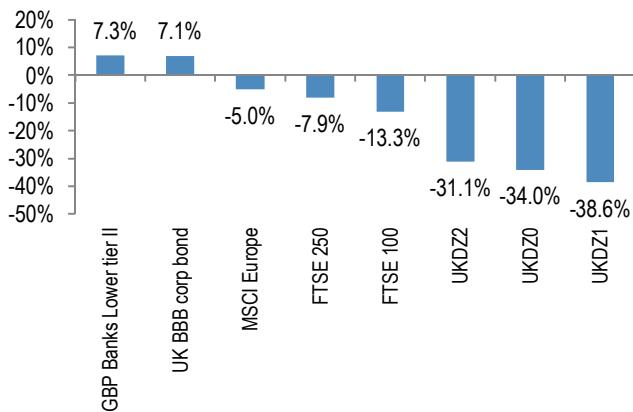
Source: J.P. Morgan

### FTSE 100 Dividends

FTSE dividend futures delivered double-digit negative returns across the curve, materially underperforming UK equities and UK credit (Figure 74). Structured product re-hedging flows and dividend cancellations led to extremely distressed valuation for FTSE 100 dividend futures (Figure 75), which later recovered as spot found a floor and most of the forced selling came to an end. Our recommendation to buy UKDZ2 [in April](#) and UKDZ0 [in June](#) to take advantage of the pull-to-par effect worked out well thus far.

**Figure 74: FTSE 100 dividend futures underperformed UK equity and credit investments in 2020**

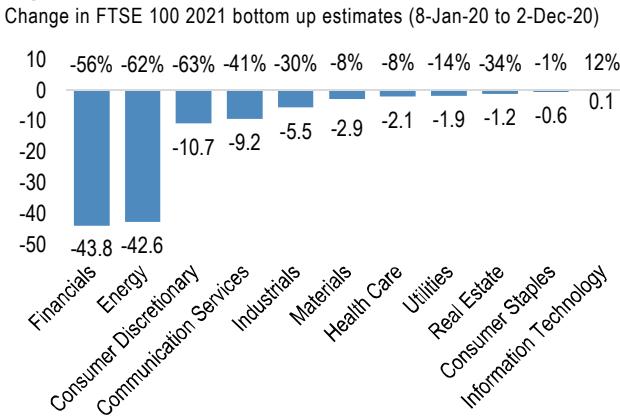
Year-to-date performance (as of 01-Dec-20)



Source: J.P. Morgan Equity Derivatives Strategy. Excess return performance for the dividend futures.

The downward revisions of dividend expectations were very concentrated in a few sectors. **Energy** and **Banks** saw the largest index point drop for 2021 dividend expectations from January to December (Figure 76), and also the largest and third largest percentage decline, respectively, from the January baseline. These two sectors by themselves account for 86 of the 120 index point negative dividend revision over this period, leaving FTSE 100 dividend 2021 bottom-up consensus expectations at 219.9 currently (Figure 77).

**Figure 76: Banks and Energy account for the vast majority of the negative FTSE 100 dividend revisions**



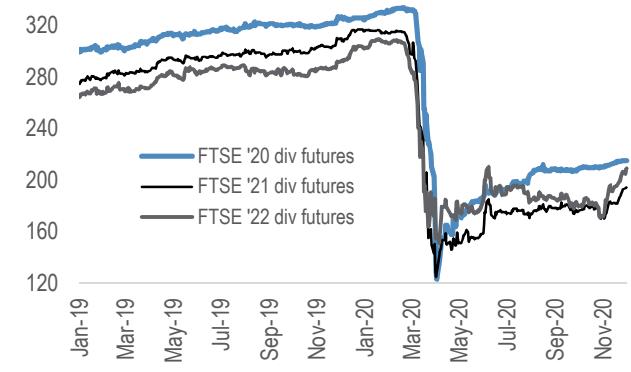
Source: J.P. Morgan Equity Derivatives Strategy.

**We continue to favor 2022 FTSE 100 dividend futures over 2021 contracts.** The discount of FTSE 100 dividend futures to bottom-up estimates tightened considerably over the last month (Figure 78). UKDZ2 offers only a marginally larger upside relative to UKDZ1, which is uncommon in historical terms, but the current relative valuation of the two contracts makes sense to us considering likely drivers of dividends and their respective timelines.

We think that **three main fundamental factors will affect UK companies' ability to pay dividends next year:** the evolution of the virus and of the economic recovery, UK regulator's decisions with respect to the Banks dividend ban and the trajectory of Oil prices. Despite the positive developments on Covid vaccines, the UK recovery will be relatively slow and GDP is not expected to revert back to pre-Covid levels by the end of 2021. As for **Banks dividends**, according to the press and to our Banks analysts there are some encouraging signals on the willingness of UK regulators to end the dividend

**Figure 75: FTSE 100 dividend futures recovered from the March distress, but remain 30 to 40% below pre-Covid levels**

FTSE 100 dividend futures (mid levels)



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 77: FTSE 100 bottom-up estimates based on JPM and IBES consensus estimates and their respective potential upside**

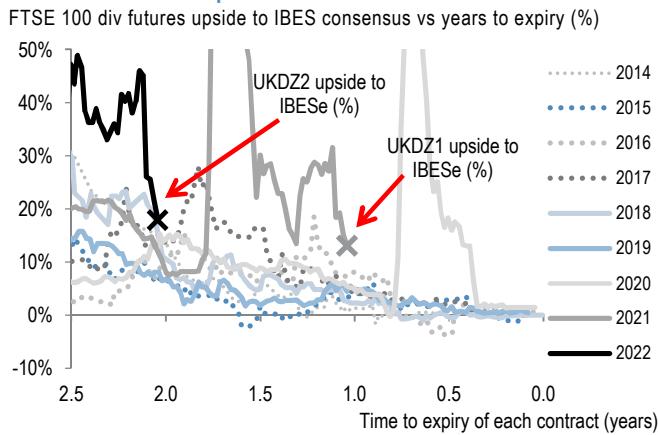
	2021	2022	2023
JPM Estimates	218.3	247.0	266.5
Upside to JPM	12.3%	18.2%	30.3%
IBES	219.9	246.6	259.4
Upside to IBES	13.1%	18.0%	26.8%
<b>Dividend Futures</b>	<b>194.4</b>	<b>209.0</b>	<b>204.6</b>

Source: J.P. Morgan Equity Derivatives Strategy.

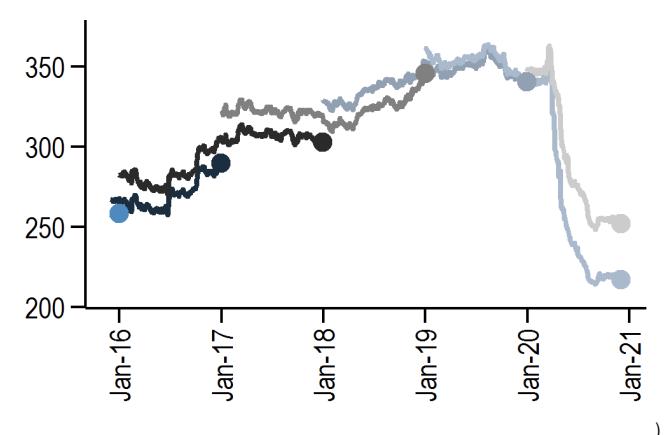
ban for Banks, but significant uncertainty remains on the timeline. As for the prospect of [Energy companies](#), demand for **Crude Oil prices** is expected to pick up during the year, with a relatively subdued H1.

The **GBP/USD** will continue to affect FTSE 100 dividend futures performance, due to the high fraction of FTSE 100 index points paid in USD, but we think that **the impact of FX will likely be less important in the near future**. Assuming no last minute surprises on the Brexit deal (which we see at 67% probability), [our FX strategy colleagues](#) see GBP/USD at values close to the current (1.35 in Q1, 1.32 in Q4). A moderate strengthening of the GBP following a deal could act as a moderate drag to for FTSE 100 dividend trades, but the effect will in our view be modest. **DPS revisions** (Figure 79) are providing a more positive signal as they have stabilized after falling sharply and for a protracted period of time this year

**Figure 78: FTSE 100 2022 dividend futures are not trading at distressed levels anymore, but continue to offer historically high discounts to bottom-up estimates**



**Figure 79: FTSE 100 dividend estimate revisions have stabilized after falling sharply**  
FTSE 100 IBES FY1 and FY2 bottom up dividend revisions (index points)



## SX7E Dividends

Along with other risk assets Bank dividends have rallied significantly since late October. We have held the view that regulatory risk for DBEZ1 is substantial and recommended to buy Dec-22 dividends instead [here](#) and reiterated the call [here](#), where we provided a scenario analysis as to possible outcomes of an ECB update on the current ban on dividends expected in mid-December. Since then DBEZ2 is up ~35%.

We have now had various ECB board members making public comments giving us more insights into their thinking (see [here](#) and [here](#)). With this additional information we extended our scenario analysis ([here](#)). **We see potential for Dec-21 of around 1.40 to 2.50 compared to futures at 2.00 (mid), offering a risk-reward of -31% to +24%** under the scenarios that appear most likely (see Figure 82 and Figure 83). This appears uninspiring compared to other, diversified markets (Figure 81). While the broad outline of the ECB's update is emerging, details will be key and there is little to go on. Uncertainty remains high.

**We retain our preference for DBEZ2 over DBEZ1.** DBEZ2 is offering 23% upside on IBES estimates, with a potential additional 0.27 IP (10%) + 0.18 IP (6%) from blue-sky scenarios relating to Intesa Sanpaolo, yielding a **total potential upside to bottom up estimates of 39%**. We find this attractive risk-reward, especially against the backdrop of J.P. Morgan's reflation scenario for 2021 that could drive consensus numbers further up from a low base ([here](#)).

**Figure 80: The headline upside potential to bottom-up estimates for Dec-21 overstates the true potential following any update on dividends by the ECB after December 10<sup>th</sup>**

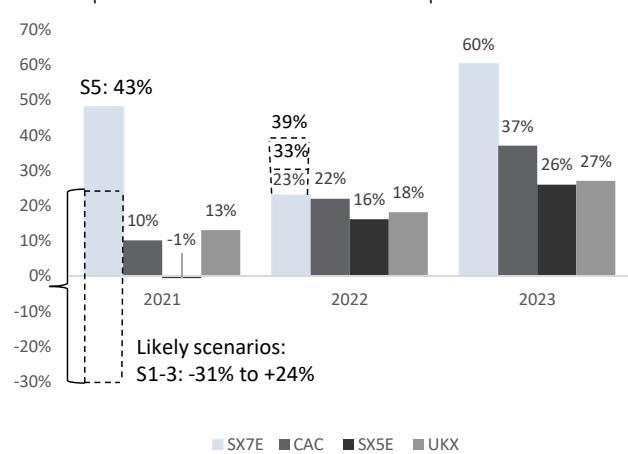
Potential upside of SX7E dividend futures offer levels vs. bottom-up estimates

Source	2021	Potential Upside	2022	Potential Upside	2023	Potential Upside
JPM Est.	1.52	-24%	2.88	4%	3.77	32%
IBES Cons.	2.96	48%	3.42	23%	4.58	60%
BBG Cons.	2.90	45%	3.41	23%	4.26	49%
DBEZ Futs	<b>2.00</b>		<b>2.78</b>		<b>2.86</b>	

Source: J.P. Morgan Equity Derivatives Strategy. \*Dec-21 assumes ISP shifting to a semi-annual payment schedule during 2021 as announced by the company worth ~0.27 IP

**Figure 81: A balanced risk-reward of -31% to +24% under a likely scenario for Dec-21 (DBEZ1) seems uninspiring given the lack of visibility and compared to other markets; we continue to prefer Dec-22 (DBEZ2)**

Potential upside of dividend futures vs. IBES bottom-up estimates



Source: J.P. Morgan Equity Derivatives Strategy.

Our assumptions for the ECB update in mid-December on the current dividend ban are: 1) **The regulator will be cautious and conservative** in the face of continued uncertainty, and is aware of political constraints. Banks cannot benefit from regulatory easing of capital requirements and use proceeds to pay shareholders. 2) **Measures will be temporary only**, not affecting dividends beyond FY20. 3) The enforceability of a **blanket ban on dividends appears legally questionable** and a short extension at best is what we are probably in for, despite calls by the Basel committee ([here](#)) or members of its supervisory board ([here](#)). 4) **A case-by-case approach** as per our original analysis is seen to be the most appropriate route, thus following the path of other regulators ([here](#) and [here](#)). 5) **Pay-out ratios need to come down** and are likely to be capped given that provisions and internal models regarding loan losses are seen to be too optimistic in many instances, especially if governments withdraw loan-guarantees early. According to a recent [article](#) that claimed insight into current ECB thinking, a cap of 15-25% is being considered.

Crucially, what we do not know yet is 1) what requirements will be applied to determine the case-by-case approach, 2) how restrictive will pay-out caps be, 3) will weaker banks be allowed to pay dividends at all and 4) will cash disbursements relate specifically to a financial year (e.g. FY19 and FY20) or will the focus be on cash flows during the calendar year, i.e. to limit total cash outlays during 2021.

The latter (4) has important implications as it appears to affect Intesa Sanpaolo's decision to shift to semi-annual payments from FY21 onwards. If delayed, this decision would shave off 0.27 Index Points from our Dec-21 headlined bottom-up numbers and shift them to Dec-22 (see [here](#) for further explanation). Under a blue-sky scenario, Dec-22 would also see Intesa increase its pay-out ratio to 90%, according to our banks analysts ([here](#)) adding ~4c to DPS per year, worth 0.18 IP to DBEZ2 bottom up potential.

In Figure 82 and Figure 83 we provide details of the aforementioned scenario analysis for Dec-21, details of which can be found [here](#).

**Figure 82: Reverting to unrestricted payment of dividends is unlikely; the introduction of a cap to cash disbursements, qualified by balance-sheet strength most likely; boost from ISP may be delayed to benefit Dec-22 instead of Dec-21**

Dec-21 bottom up analysis under various assumptions

	tier 1+2	Only tier 1	
S-1	Only strongest pay, cap 40% (no ISP*)	2.04	0.97
	to all	Only tier 2+3	Only tier 3
S-2	All pay, cap 40% applied ... (no ISP*)	2.21	2.47
All pay, cap 30% applied ... (no ISP*)	1.81	2.17	2.65
All pay, cap 20% applied ... (no ISP*)	1.38	1.84	2.63
S-3	All pay, cap 40% applied ... (+ ISP*)	2.48	2.75
All pay, cap 30% applied ... (+ ISP*)	2.09	2.45	2.94
All pay, cap 20% applied ... (+ ISP*)	1.66	2.12	2.93
S-4	Lift ban, after short extension (no ISP*)	2.69	
S-5	Lifting ban, crnt IBESe (+ ISP*)	2.96	
Probability	Low	Medium	High

Source: J.P. Morgan Equity Strategy. \*ISP = additional payment from shift to semi-annual payment

**Figure 83: Risk reward in Dec-21 appears uninspiring at -31% to +24% under most likely scenarios depending on ECB update after December 10<sup>th</sup>**

Dec-21 bottom up analysis: implied up/down-side vs DBEZ1 (ref 2.0)

	tier 1+2	Only tier 1	
S-1	Only strongest pay, cap 40% (no ISP*)	2%	-52%
	Only strongest pay, cap 30% (no ISP*)	-16%	-57%
S-2	All pay, cap 40% applied ... (no ISP*)	11%	24%
All pay, cap 30% applied ... (no ISP*)	-10%	9%	33%
All pay, cap 20% applied ... (no ISP*)	-31%	-8%	32%
S-3	All pay, cap 40% applied ... (+ ISP*)	24%	38%
All pay, cap 30% applied ... (+ ISP*)	4%	23%	47%
All pay, cap 20% applied ... (+ ISP*)	-17%	6%	47%
S-4	Lift ban, after short extension (no ISP*)	35%	
S-5	Lifting ban, crnt IBESe (+ ISP*)	48%	
Probability	Low	Medium	High

Source: J.P. Morgan Equity Derivatives Strategy.

## CAC-40 Dividends

We find the risk premia embedded in CAC40 dividend futures for Dec-22 and Dec-23, expressed in form of the upside potential to consensus bottom-up estimates, attractive here to buy. **Dec-23 looks particularly interesting, in our view.** Figure 85 shows the current upside to IBES consensus bottom-up estimates across the four main dividend indices in Europe. Risk premia in general are likely to compress over the next few months as growth numbers and forecasts are lifted, and we believe, dividends still provide interesting entry levels to take advantage of. Our order of preference in Dec-22 is SX7E, CAC 40, FTSE 100 and Euro STOXX 50.

**Figure 84: Substantial upside to bottom-up estimates remains in dividends, including CAC40, which is likely to normalize further along with other risk premia**

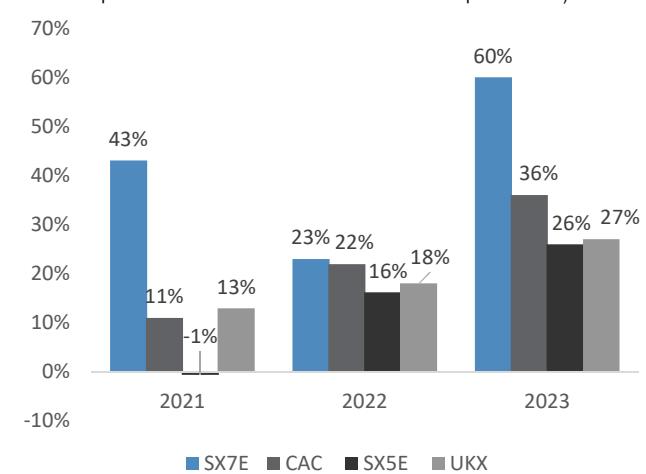
Potential upside of CAC40 dividend futures vs. bottom-up estimates

Source	2021	Upside Potential	2022	Upside Potential	2023	Upside Potential
JPM Estimates	130	0%	160	16%	181	31%
IBES	144	11%	168	22%	189	36%
BBG Consensus	146	13%	167	21%	187	35%
SSDF	130	0%	132	-4%	129	-7%
Bear Scenario	97	-25%	126	-9%	146	5%
Bull Scenario	188	45%	199	44%	222	60%
<b>Div Future</b>	<b>130</b>		<b>138</b>		<b>139</b>	

Source: Bloomberg Finance L.P.

**Figure 85: CAC40 is offering the largest upside to bottom up estimates in Dec-22 and Dec-23 among European diversified indices**

Potential upside of dividend futures vs. IBES bottom-up estimates)



Source: J.P. Morgan Equity Derivatives Strategy.

For both aforementioned maturities the CAC 40 shows the highest upside potential among diversified indices. Only SX7E is still providing superior upside potential, especially in Dec-23 as per consensus forecasts and in Dec-22, under our blue-sky scenario (see SX7E section).

We took the lowest and highest available analyst forecast for each stock and provided a top-down Bear and Bull Scenario for each maturity, along with providing the implied, aggregated level from individual single-stock dividend futures (Figure 84). The risk-reward reflected through the Bear and Bull scenarios, nestled around the Base case scenario looks very interesting for both Dec-22 and, especially, for Dec-23 – note here that the bear case scenario is still offering 5% upside.

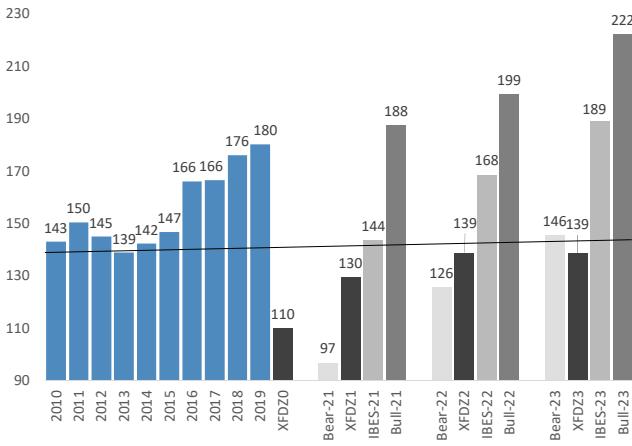
In Figure 86 and Figure 87 we take a closer look as to how realistic the forecasts at index level are. Again, we find the picture that is emerging encouraging. The comparison to historically realized dividends suggests that projected dividends (IBES Base) for Dec-22 and Dec-23 look wholly realistic, given the fact that we assume GDP recovery to pre-pandemic levels will be completed by then. Futures are currently trading close to the lowest realized level on record in 2013, while the IBES forecast for Dec-22 is in line with numbers last realized in 2016 and 2017. **Forecast numbers for Dec-23 take us back to realized dividends last achieved in 2019. Again, we do not think that seems unrealistic at all.**

In Figure 87 we focus on Dec-23 and look at the 18 most important dividend contributors. We compare the underlying 2 and 3 year forward IBES consensus forecasts to the last realized DPS for each stock to highlight any names where implied growth in dividends seems unrealistic. Overall the picture that emerges appears rather benign. Especially for the top 7 contributors accounting for 52% of the total IBES forecast for the CAC40 growth numbers appear fully achievable - in fact there are only four names where in absolute terms forecasted growth appears ambitious (AI, KER, EL and RI).

Using the SSDFs we back-out the contribution to the 36% of potential upside to bottom up estimates at index level for Dec-23 and break it down to stock level. Note that **the aggregate of all SSDF is indeed trading close to the Index future levels** as per Figure 84. On that basis, 31.5% of the expected upside in Dec-23 is attributable to the top 18 names we highlight. Almost one third of the upside is attributable to Total. There is no growth implied in the IBES forecast relative to what the company paid in FY19 (in fact -2% growth). We think the fact that the company has in 40 years never cut its dividends should give a lot of comfort, especially if the **oil price continues to recover over the next two years** as we expect. Otherwise, the high concentration in the CAC40 compared to SX5E is one downside that needs highlighting. In terms of cyclicalities, the sector exposure of the two indices is comparable.

While we like the upside CAC40 dividends and especially, Dec-23, is offering, we need to highlight that the CAC's other Achilles heel is liquidity, or the lack thereof, reflected among others in much higher bid-offer spreads than for the SX5E (2.9% vs 0.5%).

**Figure 86: The comparison to history suggests that projected dividends (IBES Base) for Dec-22 and Dec-23 look wholly realistic**  
CAC40 realized historic dividends, and Dividend futures vs Base, Bear and Bull scenario for z1-3 compared to the lowest level realized hitherto (line)



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 87: 31.5% of the 36% upside in Dec-23 stem from top 18 constituents; individual forecasts do not appear overly-ambitious considering the implied growth vs last paid DPS**

Dec-23: CAC40 top 18 dividend contributors, comparing 2+3 yr frwd IBES with last paid DPS and SSDF; breakdown of index upside to bottom-up

Dec23	IBES DPS	Cumulative contribution to IBES Dec-23	FY19 ("last paid") DPS	IBES-23/FY19 ("18") DPS	z3 SSDF (mid)	Upside to IBES	IBES IP	SSDF IP	Contribution z3 discount
1 FP FP	2.63	15%	2.68	-2%	1.44	82%	29.1	16.0	9.5%
2 SAN FP	3.52	25%	3.15	12%	3.01	17%	17.6	15.0	1.8%
3 CS FP	1.60	32%	1.43	12%	0.92	73%	13.6	7.9	4.1%
4 BNP FP	3.05	40%	3.02*	1%	2.28	34%	15.1	11.3	2.8%
5 MC FP	7.50	45%	6.80	10%	5.90	27%	9.2	7.2	1.4%
6 SU FP	2.89	48%	2.55	13%	2.00	44%	6.8	4.7	1.5%
7 ENGI FP	0.84	52%	1.12*	25%	0.63	34%	6.7	5.0	1.2%
8 AI FP	3.20	55%	2.70	19%	3.20	0%	6.7	6.7	0.0%
9 BN FP	2.24	59%	2.10	7%	1.84	21%	6.4	5.3	0.8%
10 DG FP	3.20	62%	3.05	5%	1.98	62%	6.9	4.3	1.9%
11 ORA FP	0.73	66%	0.70	4%	0.53	38%	6.0	4.3	1.2%
12 OR FP	4.86	69%	4.25	14%	3.99	22%	5.4	4.4	0.7%
13 KER FP	11.69	71%	8.00	46%	10.76	9%	3.9	3.6	0.2%
14 URW NA	4.89	72%	10.8	-55%	7.00	-30%	3.0	4.3	-0.9%
15 SGO FP	1.40	74%	1.38	1%	1.05	33%	3.0	2.3	0.5%
16 EL FP	2.45	75%	2.04*	20%	1.56	57%	3.3	2.1	0.9%
17 RIFP	3.48	77%	2.66	31%	2.10	66%	3.0	1.8	0.9%
18 GLE FP	1.43	80%	2.2*	-35%	0.30	377%	5.1	1.1	2.9%
<b>Total</b>							<b>151</b>	<b>107</b>	<b>31.5%</b>
% of corresponding bottom up aggregate									
% of XFDZ3									

Source: J.P. Morgan Equity Derivatives Strategy.

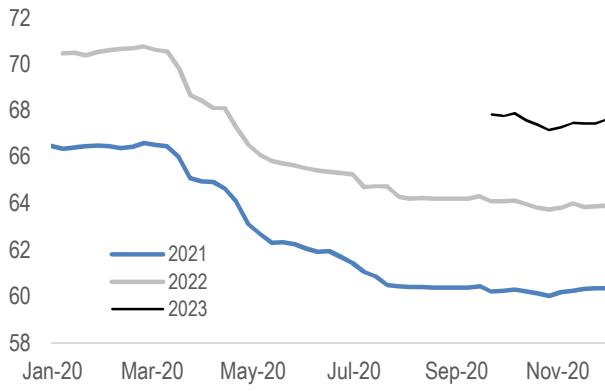
## S&P 500 Dividends

S&P dividend futures crashed during the COVID-19 pandemic in March, as they were pushed down by a combination of fundamental repricing, extreme investor risk aversion, and technical selling flows by structured product hedgers who became longer dividends on the sell-off and had to sell dividends to flatten their books (see [here](#)). As a result of these selling flows, at their trough, dividend futures were pricing in cuts of more than 40% for S&P 500 members, a scenario that was 2x worse than the 2008/9 GFC outcome (which was itself the largest post-war decline in dividends). Dividends have come back a long way since their peak stress in early April, but throughout the pandemic have persistently embedded a large risk premium and lagged the fundamental outlook.

Fundamentally, dividends held in much better than expected – in stark contrast to the dire cuts being priced into the dividend futures curve earlier this year, 2020 realized dividends are on track to finish close to unchanged vs. last year. Of the S&P 500 members that were paying dividends at the start of the year, nearly 90% maintained or raised their payouts throughout the pandemic, and those that cut or suspended dividends are generally smaller companies, so the index-level impact was muted. During the past few months, analysts' bottom-up estimates have been relatively stable for the past few months (Figure 88), and not only were there no new dividend cuts announced among S&P 500 members, but as liquidity conditions continued to improve we've seen 6 companies reinstate dividends that were suspended during the crisis and 1 company initiate a new dividend.

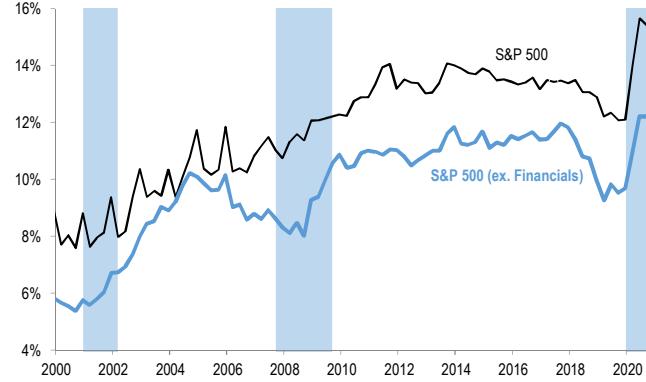
US corporate balance also appear healthy, suggesting corporates' ability to pay dividends shouldn't be constrained next year. Cash balances have sharply recovered and are near record highs (Figure 89). While non-Financial debt levels are moderately above historical levels, they declined in 3Q20, and debt service shouldn't be an impediment to dividend payments given the record low interest rates and a strong earnings rebound expected next year (i.e. corporates maintain high interest coverage ratios).

**Figure 88: S&P 500 dividend bottom-up estimates have been stable in recent months**



Source: J.P. Morgan Quantitative and Derivatives Strategy

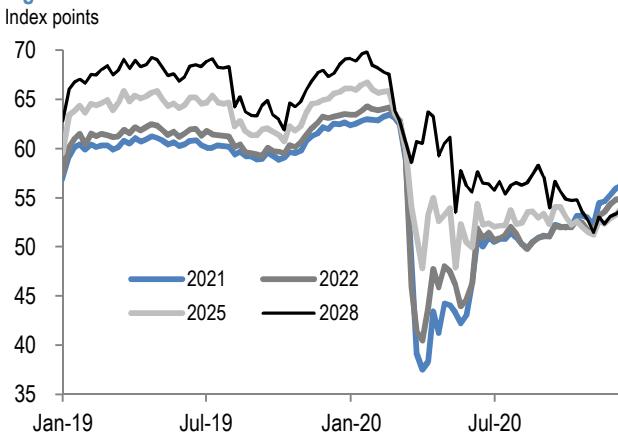
**Figure 89: Cash balances have recovered near record highs**



Source: J.P. Morgan Quantitative and Derivatives Strategy

Despite the favorable fundamental picture, S&P 500 dividend futures continue to embed a large risk premium – for example the 2021-23 dividend futures trade at high single digit % annualized discounts to bottom-up estimates. There are risks to dividends near-term, but the risk premium is more than enough to compensate for these, in our view. For example, as we discussed [here](#), crude oil is trading near or below dividend coverage breakeven levels for most Energy companies. We expect crude prices to continue to rally as the economy reopens and mobility rebounds, and the arrival of two (and counting) highly effective vaccines should ensure the pandemic's days are numbered. These companies can additionally maintain dividends below breakeven levels for a while, but if a prolonged period of low oil prices persists, it could put additional Energy dividends at risk. Additionally, banks continue to be subject to dividend restrictions imposed by the Fed to shore up capital during the pandemic, and it remains uncertain when these dividend caps will be lifted. However, our analysts believe that banks are in good shape for the Q4 stress tests and don't expect any to have to cut dividends. Also, to put these risks in context, even if Energy dividends were cut drastically and banks dividends held flat, dividend futures could have upside to bottom-up estimates.

**Figure 90: S&P 500 dividend futures levels**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

S&P 500 EPS fell significantly this year due to the pandemic, but we look for it to more than fully recover and reach record highs in 2021 (our Strategists' 2021 EPS estimate is \$178 vs. 2019's realized \$163). Additionally, the market has rallied y/y and is trading at record highs. Corporate dividend policy is driven in part by a combination of earnings (as some companies target a payout ratio) and stock price (as some target a dividend yield), so we run a top-down model based on the historical relationship between earnings growth, market return, and dividend growth. Our model suggests dividends should grow at a slower pace in 2021 compared to typical expansion years, but still exhibit positive growth (in contrast to the implied dividend curve which embeds a y/y decline next year). Our top-down model predicts a ~3% increase in dividends next year, which is close to the consensus bottom-up estimated growth for next year, but both are significantly higher than the -3% growth priced into 2021 dividend futures (Table 6).

The risk premium in near-term contracts still appears large despite the strong fundamental backdrop, so we **recommend staying long the 2021 and 2022 dividend contracts** (see our previous recommendation [here](#), and the Trade Ideas section for more details) to position for further upside and convergence to bottom-up forecasts as these contracts are pulled to realized next year.

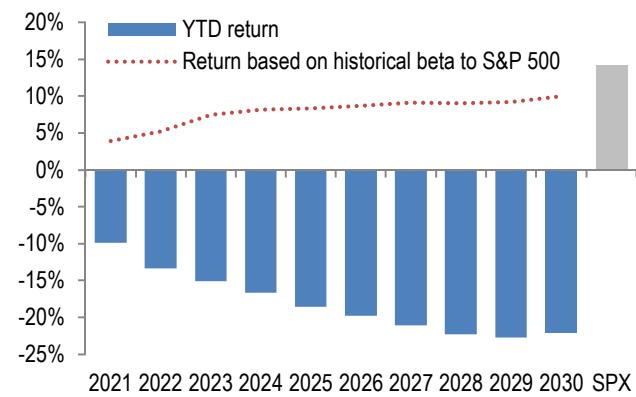
**Table 6: Short-dated S&P 500 dividend futures vs. estimates**

	2020	2021	2022	2023
Dividend Future	57.9	56.2	54.95	54.75
Bottom-up Estimate		59.8	63.0	66.9
Up/Downside)		6.4%	14.6%	22.2%
Top-down Estimate*		59.6	65.9	
Up/Downside)		6.0%	20.0%	

Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg. As of 7-Dec-2020

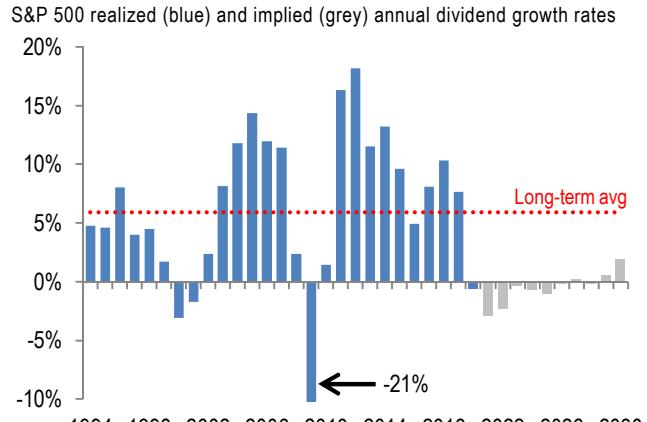
\* Top-down estimate based on regression vs. S&P 500 return and EPS growth, assuming S&P 500 is flat into 2020 year-end, and 2021 performance based on our Equity Strategists' 2021 YE price target of 4400 and EPS estimate of 178

**Figure 91: YTD returns across the S&P 500 dividend curve**



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 92: S&P 500 dividend curve prices in a decline next year and nearly zero subsequent growth over the following decade**



Source: J.P. Morgan Equity Derivatives Strategy.

The dividend curve is quite flat, making **long-dated dividends** fundamentally attractive, given their underperformance again this year. Long-term S&P 500 dividend growth has averaged ~6% per annum (even factoring in the zero/negative growth years during recessions), but the dividend curve is implying a decline next year followed by virtually zero growth

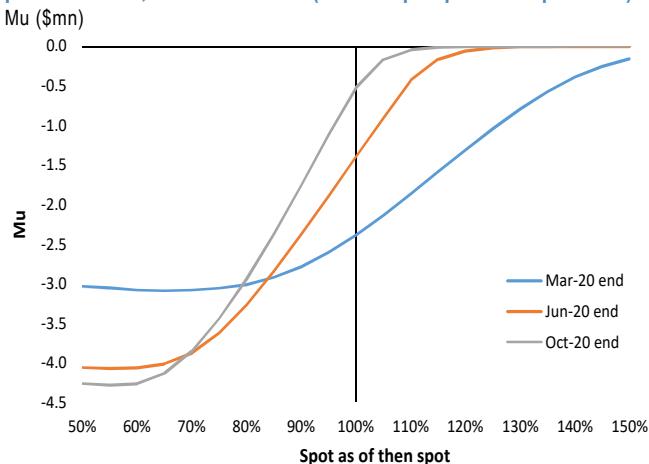
over the subsequent decade (Figure 92). On a hold to maturity basis, we find the long-dated dividends attractive as they are likely to be profitable at expiry, even if we have a typical recession at some point during the life of the contracts. However, investors may need to hold these positions for a long period of time to realize gains. Additionally, the growing S&P 500-linked structured product market and shrinking demand for long-dated puts from variable annuities has resulted in increased supply and reduced demand for both long-dated volatility and dividends (discussed in the Volatility Supply and Demand section). These shifting structural supply/demand drivers have resulted in downward pressure on long-dated dividends (flatter term structure) in recent years, and these trends appear unlikely to abate near term.

### Nikkei 225 Dividends

**Nikkei dividend performance in 2020:** Nikkei 225 dividends witnessed a historic plunge amid the COVID-19 crisis, with futures across tenors posting more than 36% drawdowns in March / April. At the time, the market was pricing in more severe dividend cuts than the realized decline during the GFC. The extreme risk pricing was driven by a combination of factors including 1) general de-risking of Japanese assets, 2) structured product dealer re-hedging of Nikkei dividend exposure (dealers became longer dividends during spot sell-off and would need to sell dividend futures to neutralize risks), 3) spill-over of dividend future sell-off in the US and Europe, which stemmed from proxy hedging of Mu risk on S&P 500 and Euro Stoxx 50 and forced unwinds / liquidations of dividend accounts, and 4) uncertainties around AGM cancellations and potential delay in dividend payments (see [here](#) and [here](#)). Later in the year, risk pricing normalized from stress levels; autocallable dealers bought back dividend futures as Mu exposure declined amid the spot rally (Figure 93), Nikkei 225 dividend futures have recouped more than two thirds of the YTD losses.

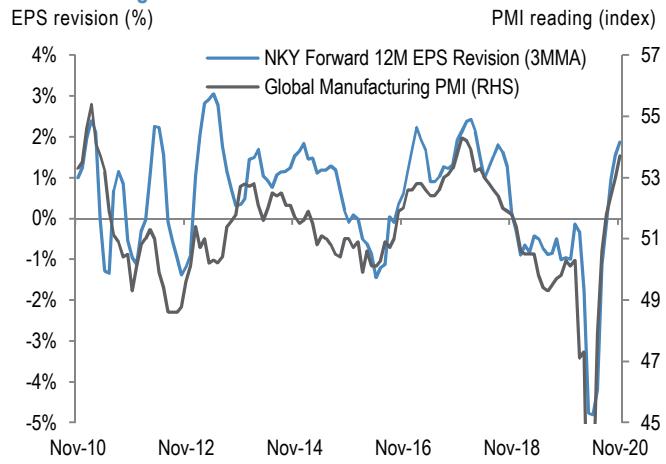
**Bottom-up estimate is not reflecting the improved fundamentals:** Notwithstanding substantial upward revisions on economic growth and corporate earnings recently (Figure 94), we find the Nikkei bottom-up dividend estimate lagging the improved fundamentals. For example, the stock-based aggregate estimates for 2021 and 2022 remained at roughly the same levels as that 6M ago, while Nikkei forward 12M EPS has returned to positive territory now. Based on current bottom-up estimate, Nikkei 225 dividend upside seems limited with ~3% implied upside on the 2021 tenor, 7% upside for the 2022 tenor (Figure 95). We expect the bottom-up estimates to move higher next year particularly after the full year results in May, where updated dividend guidance should spur more revisions. Dividend future pricing will likely follow the dividend revision higher.

**Figure 93: Estimated Mu profile for Nikkei 225-linked structured product at Mar, Jun and Oct end (from the perspective of products)**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Data for NKY includes Japanese issuance only. Data is for public offerings only and therefore may not represent an accurate picture. We believe private placements are about 1.1-1.5 times larger in notional.

**Figure 94: Nikkei 225 earnings revision closely tracks global manufacturing PMI**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**On a top down level, we expect to see a double digit growth in Nikkei 225 realized dividends driven by a strong global cyclical recovery.** Historically, a strong global manufacturing PMI typically leads to material EPS upward revisions, as well as strong growth in Nikkei realized dividend in the following year (Figure 96). Our Japan Equity Strategist expect corporate earnings to grow 48% in FY2021 on the back of the global cyclical recovery (see [here](#)). The sharp EPS recovery

will likely translate into decent dividend growth in the Nikkei. Historically, we see a strong relationship between global manufacturing PMI and subsequent dividend growth. Based on a regression model using data from the past 15 years, we forecast ~15% growth in realized dividends in 2021 in a moderate PMI expansionary scenario. **This implies ~11% upside relative to current market levels for the Nikkei 2021 dividend futures.**

**Dividend payout ratio will likely normalize from current elevated levels.** Nikkei realized dividend remained relatively resilient this year as Japanese corporates sharply increased dividend payout ratio. This is in line with historical trend where Japanese corporates prioritized dividend payments amid earnings recessions. However, we note payout ratio typically does not stay elevated for long and tends to normalize as EPS recovers (Figure 97). We expect payout ratio to return to average levels in the past recent years.

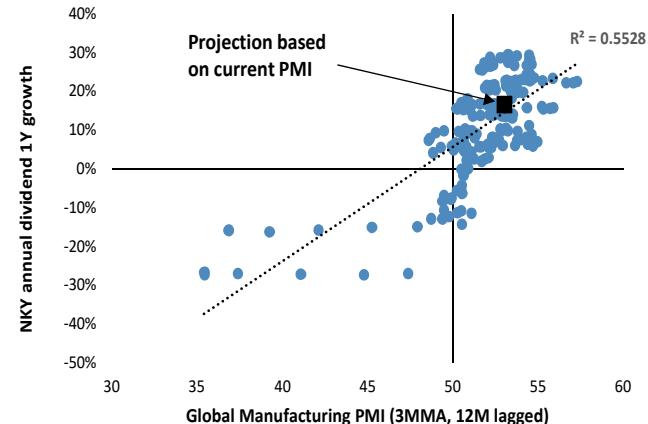
**2021 dividends are currently more attractive than longer-dated tenors:** Among liquid listed dividend futures, we currently favor the 2021 tenor. We think longer-dated dividends are less attractive due to the steep term structure. At the time of writing, the 2022-2021 dividend spread is trading at ~25.6 pts or ~83th %tile in the five-year history of constant maturity 2Y-1Y spread (Figure 98). A steep dividend term structure leaves longer dated dividends vulnerable to dividend supply risks arising from structured product issuance.

Figure 95: Nikkei 225 dividend overview

Calendar Year	2021	2022	2023
Ticker	MNDZ1	MNDZ2	MNDZ3
Current Price	427.5	453.2	472.7
JPM Bottom-up Estimate	440.6	484.3	532.4
Implied Upside	3%	7%	14%
JPM Top-down Estimate	473.3	-	-
Implied Upside	11%	-	-
% of Estimate Confirmed/Guided	37%	0%	0%
1Y High	483.1	485.4	488.3
1Y Low	292.0	304.5	299.2
Turnover (3M Avg, USD Mn)	3.8	1.4	0.1
Open Interest (3M Avg, USD Mn)	280.6	47.5	17.9

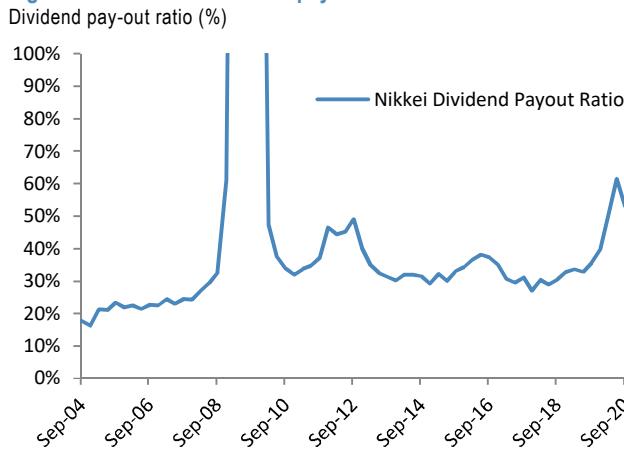
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Note: 2023 estimate assumes a dividend growth rate same as 2022/2021.

Figure 96: A strong Global Manufacturing PMI historically points to a material increase in Nikkei realized dividend growth



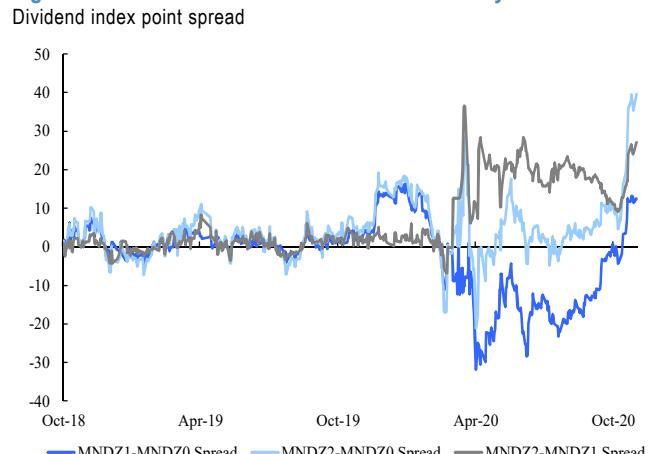
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Based on monthly data in the past 15 years.

Figure 97: Nikkei 225 dividend pay-out ratio



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

Figure 98: Nikkei 225 dividend term structure history

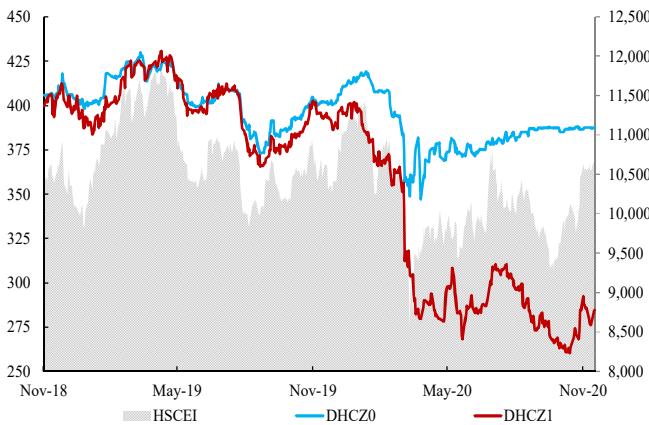


Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

## H-shares Dividends

H-shares dividend futures underperformed the H-shares index this year, more so in the longer dated tenors (DHCZ0 -6.2%, DHCZ1 -27.0% and HSCEI -5.6% as of end-November 2020, Figure 99). The COVID-19 pandemic catalyzed the first major leg lower in dividend futures as investors were adjusting dividend expectations and structured product dealers were reducing their dividend risks (see [here](#)). From oversold levels, H-shares dividend futures partially recovered its loss ground in 2Q20. However, a combination of developments, such as accelerated homecomings of Chinese ADRs, further changes to the H-shares index compositions (see [here](#)) and concerns on Chinese banks cutting dividends (see [here](#)), applied fresh selling pressure on H-shares dividend futures in the second half. More recently, following a strong set of 3Q20 earnings results and a strengthening CNH, discount in H-shares dividend futures versus our fair value estimates have narrowed, although they remain sizable in absolute basis. Currently our bottom-up estimates suggest an upside potential of ~7% for DHCZ1 and ~15% for DHCZ2. Going into next year, we **stay cautious on H-shares dividend**. We think **the discount embedded in dividend futures could widen** as the negative impact of index rebalances will likely outweigh the positive impact of a better fundamental outlook.

**Figure 99: H-shares dividend futures lagged the H-shares index**



Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 100: H-shares dividend futures overview**

Calendar Year	2020	2021	2022
Ticker	DHCZ0	DHCZ1	DHCZ2
Current Price	387.5	284.6	283.1
JPM Base-Case Estimate	387.4	304.4	325.3
Upside to Target	0%	7%	15%
% of Estimate Confirmed	100%	0%	0%
1Y High	419.3	402.0	403.2
1Y Low	347.0	260.3	258.0
Turnover (3M Avg, USD Mn)	0.2	1.4	0.4
Open Interest (3M Avg, USD Mn)	188.7	68.1	11.1

Source: J.P. Morgan Quantitative and Derivatives Strategy

From a fundamental perspective, **we expect the positive earnings momentum from 3Q20 results to carry into next year**. On a static index composition basis, we expect H-shares dividend to record a year-on-year growth of 3% for CY21 and 9% for CY22. Among major dividend paying sectors, we think [insurance](#) (upside from underlying business recovery, improving risk reward on the balance sheet, scope for increasing dividend payout), [property](#) (strong property sales, deflationary pressure may bring forth more rate cuts into 2021) and [telecom](#) (benign competition, 5G migration, industrial digitalization) will be leaders in dividend distribution. Our views on [banks](#) and energy are less optimistic. We expect banks to deliver flat to low-single digit dividend growth over the next two years. Potential risks around SOE bond default and further NIM compression suggest profit growth recovery for banks would be relatively muted. For energy, we concede the sector benefits from an effective vaccine and faster recovery in energy consumptions. However, we think the normalization in earnings will be more back-loaded and it will take longer than end-CY21 for the sectors' dividends to recover to pre-COVID levels. Besides earnings, we believe CNY will remain as a favorable factor to H-shares dividend. Our FX strategists project [USD/CNY](#) to end 2021 around 6.25 (~4% lower from current levels). Further strength in CNY would provide added gains in addition to our bottom-up estimates.

**Index rebalance risks remain a major overhang.** H-shares index rebalances have been a major focal point since 2017. Despite multiple phases of implementations, uncertainties on the index composition have increased, mainly as a result of accelerated homecomings of Chinese ADRs and fluid nature of potential index inclusion paths. Recent development on this front include a jump of Alibaba Hong Kong registered shares (potential higher weight of Alibaba in the index, possibly higher weights for other secondary listing names if they follow suit), HKEX relaxing secondary listing rules (more names would become eligible for index inclusions) and another round of Hang Seng index methodology consultation (on matters such as increasing the number of constituents). The lack of visibilities on inclusion details prohibits us producing dividend estimates with high conviction for calendar year 2021 and onward. Our [preliminary assessment](#) on the rebalancing impact

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suggests a 25% year-on-year drop in index dividend points in CY22 from CY21 based on our assumptions around Hong Kong registered free float shares and share migration process from US to Hong Kong. Taking account of the recent developments, we think the possibility of index rebalance causing a lower index dividend profile versus our preliminary estimates is higher especially for longer dated tenors.

## Delta 1 Funding

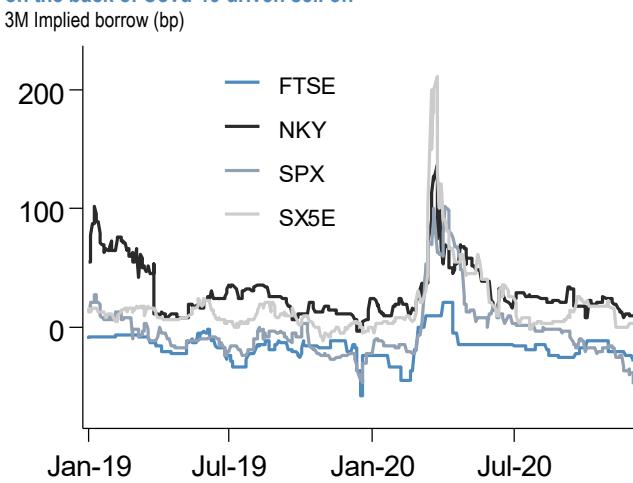
Short-dated implied borrow (-funding spread) for global equity indices spiked during March 2020. This was largely driven by increasing demand for synthetic shorts as the market sold off on the back of Covid-19 crisis.

After the March sell off, short-dated implied borrow for global equity indices normalized to pre Covid-19 levels. The elevated JPY/USD cross-currency basis is causing the **Nikkei 225** short-dated funding to be near the lower range defined in the last five years.

Longer-dated (1Y) equity funding spreads dropped in March 2020 following short-dated funding spreads. During H2 2020, Long-dated funding spreads recovered back to its historical 5Y average as market recovered.

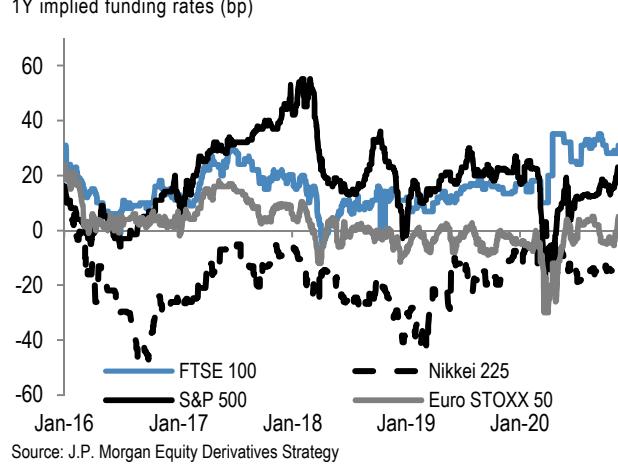
Looking into 2021, we expect demand for short-dated funding to increase moderately for Equity indices, most likely driven by increasing demand for equities exposure from investors.

**Figure 101: 3M implied borrow for global equity indices spiked in Q1 on the back of Covid-19 driven sell off**



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 102: The S&P 500, FTSE100 and Nikkei 225 long-dated implied funding increased slightly over the year**



Source: J.P. Morgan Equity Derivatives Strategy

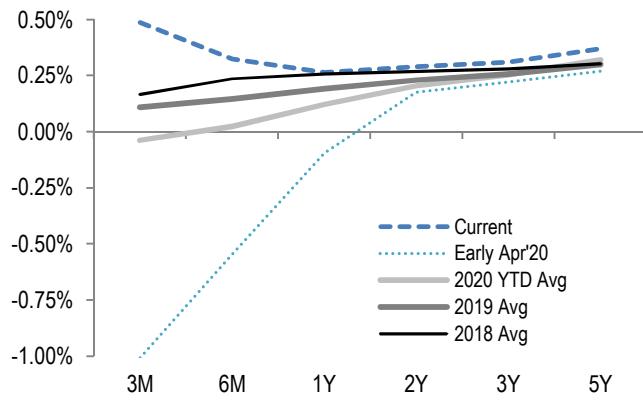
**US:** Equity financing rates fell sharply in March as demand for levered equity exposure evaporated and investors increasingly shorted futures as a beta hedge for further downside in their portfolios, causing short dated financing rates to plunge to their lowest levels in more than a decade. Meanwhile, long-term rates were supported by demand from structured product hedgers, since the products became longer delta as the market sold off (i.e. exotic desks got shorter and bought long-term forwards to hedge). The combination of these effects drove an extremely steep financing term structure in March/April (Figure 103). As the market recovered and flows normalized, short-term funding rates rallied and the funding curve flattened. Long-term spreads are unremarkable at the time of writing – while the S&P 500 5Y-1Y funding spread blew out in Mar/Apr, it has since come back to pre-pandemic levels and is now near its historical median.

As we've discussed in past Outlooks, changes to the regulatory environment/capital requirements in recent years continue to pressure banks' balance sheets, limiting supply to equity financing markets. In particular, equity financing rates exhibit strong seasonality around year-end due to GSIB dynamics (e.g. discussed [here](#)). This year, there is risk of financing rates moving higher into year-end, with equities trading at record levels. However, a disruptive squeeze higher appears unlikely (though not impossible) given a couple of mitigating factors: relatively light positioning / demand for equity financing, and increased provision of balance sheet by buy-side investors and Canadian banks (see our [US Futures Roll Outlook](#) for details). At the time of writing, short-dated financing rates have moved above long-term averages and are exhibiting typical year-end seasonality, but so far do not exhibit year-end funding stress (Figure 104).

We expect funding costs to decline early in the New Year as the year-end seasonal premium is priced out, but for **financing spreads to be generally biased higher next year** given our positive outlook for equity markets that could drive increased demand for levered equity exposure.

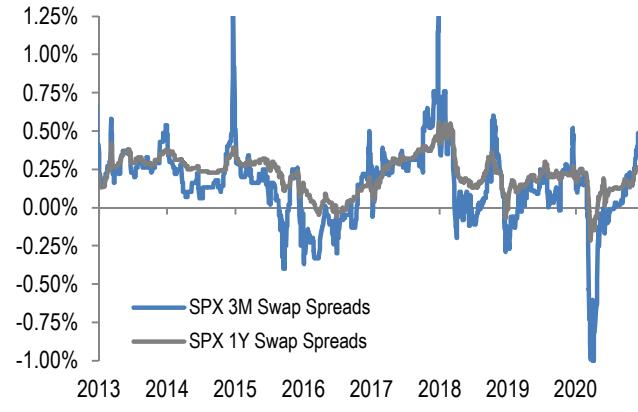
As noted in the Volatility Supply and Demand section, Russell 2000 financing rates were boosted by hedging demand from structured products, causing the Russell's financing spread discount vs. other US indices to narrow significantly in the past few years (Figure 16). Russell 2000 financing should trade at a historically narrow spread vs. the S&P 500 next year given this driver, and given likely stronger demand for long Russell 2000 exposure as investors continue to rotate into Value and Cyclical as we discussed in the Outlook for Markets and Volatility section.

**Figure 103: S&P 500 implied funding curve**



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 104: Short-term equity financing rates have normalized from their pandemic plunge, but so far don't exhibit year-end stress**



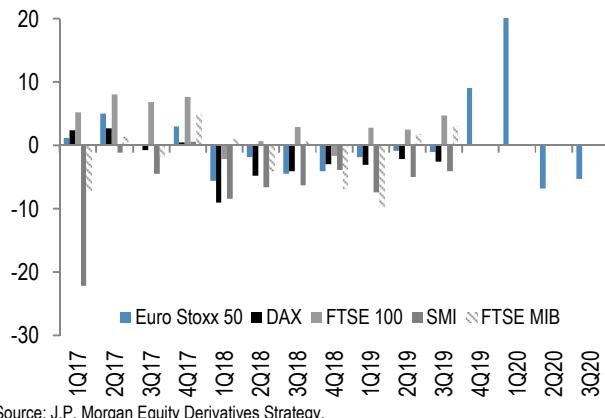
Source: J.P. Morgan Equity Derivatives Strategy.

**Europe:** During the March market selloff, demand for synthetic shorts led to an increase in short-term implied borrow, which is equivalent to a cheapening of implied funding levels. Short-term implied funding is largely driven by the supply and demand for synthetic equity exposure (e.g. swaps and futures).

Long-dated funding spiked for most European indices in March 2020 (Figure 108). This can mainly be explained by the sell-off in equities that drove issuers of structured products to buy long-dated funding to hedge their exposure. Since March, long-dated implied funding (- implied borrow) has progressively come down as equity markets recovered. Currently the implied funding curve for Euro STOXX 50 has largely normalized back to pre Covid-19 (Figure 106).

**Figure 105: European short-dated implied funding stayed cheap during 2019**

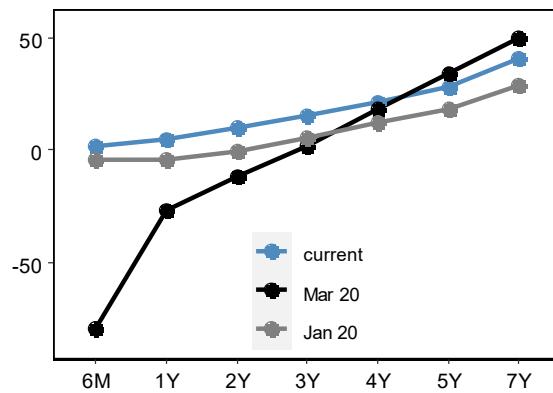
Futures roll cost (VWAP over roll period, non-annualized) (bp)



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 106: Euro STOXX 50 implied funding curve normalized to pre Covid-19 levels**

SX5E implied funding (- implied borrow) Term structure (bps)



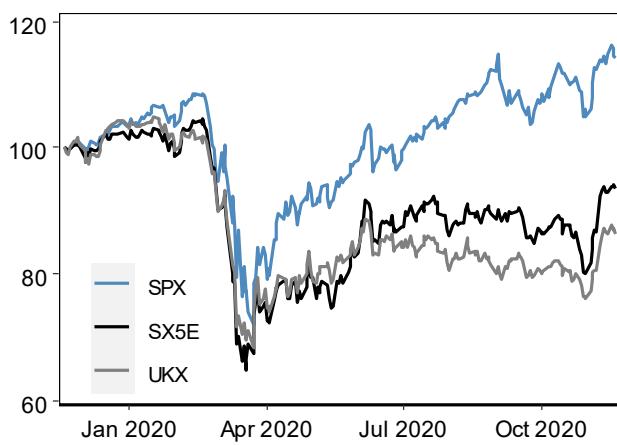
Source: J.P. Morgan Equity Derivatives Strategy.

The FTSE 100 index has been one of the worst performing global indices since the start of the year and also over the longer term (Figure 107). The poor performance of the index affected the risk originating from FTSE 100 single index and worst-of autocallable products, as the index's underperformance relative to global indices shifted most of the risk originating from worst-of (WoF) index autocallables structures to the FTSE 100 index.

Figure 108 shows the FTSE100 long-dated funding curve remains very steep compared to Euro STOXX 50 (Figure 108).

**Figure 107: The FTSE 100 index severely underperformed the other indices used most commonly in WoF basket products**

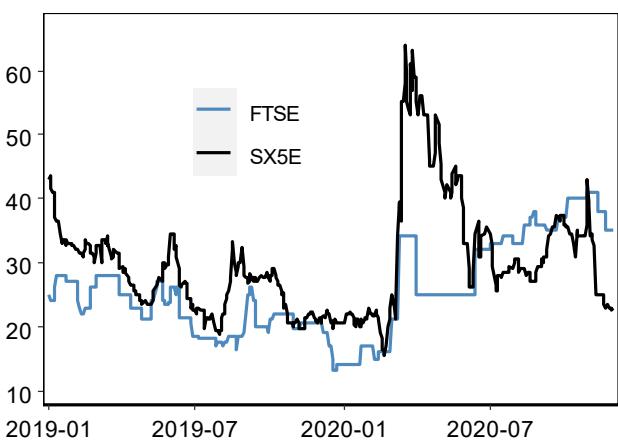
Performance since the start of the year (%)



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 108: FTSE100 long-dated funding curve remains very steep compared to Euro STOXX 50**

5Y -1Y funding spread (bp)



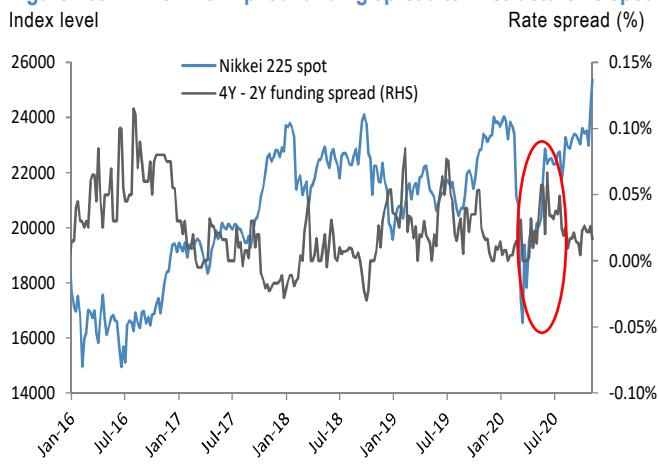
Source: J.P. Morgan Equity Derivatives Strategy.

Going forward, we see two factors potentially leading to a further decline in long dated funding. First, issuance of new structured products continues to be very slow, limiting the demand for long dated funding. Second, a further market recovery will progressively reduce the demand in long-dated funding by exotic desks.

**Asia:** Similar to that of other global major indices, Nikkei 225 short term implied funding spiked lower amid the March sell-off driven by an increase of hedging / short demand. However, the funding cost gradually normalized as global governments announced massive fiscal and monetary policy support. The back end of the funding curve also posted notable moves during the COVID Crisis mainly driven by secondary impact from structured product hedging activity. Indeed, during the COVID sell-off in 1H20, a sharp decline in spot resulted in lower likelihood of knock-out of outstanding structured products and thus longer effective duration of the products; to re-hedge the risk exposure, dealers bought long-dated forwards and sold short-dated counterparts, which in turn resulted in a notable steepening of the curve (Figure 109).

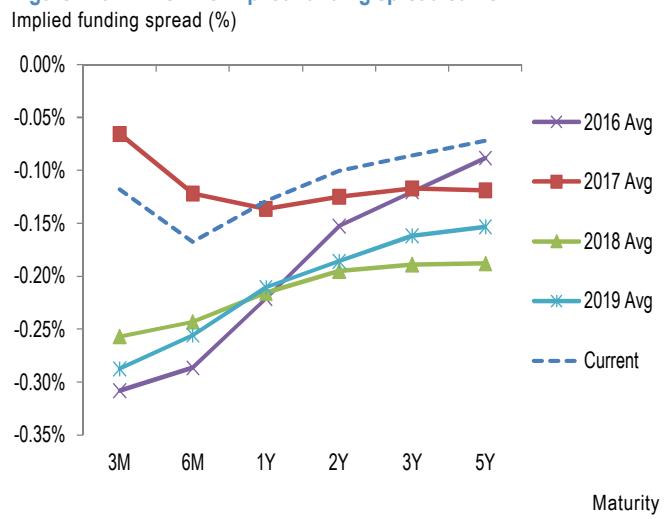
Post the COVID sell-off, the Nikkei 225 implied funding curve remained in negative territory amid the negative interest rate environment, but has overall re-priced higher compared to the average levels seen in the last few years due to increased long demand (Figure 110). **Going into 2021, we expect the short end of the funding curve to continue to trade at relatively high levels as we believe equity sentiment should remain relatively bullish with current benign macro backdrop.** On the long end of the curve, we expect autocallable issuance to materially pick up (see Volatility Supply and Demand section) from current sluggish levels, driven by reinvestment of capital from knocked-out products and potential new demand given bullish equity sentiment. **This will likely push implied funding cost higher on the back end.**

**Figure 109: Nikkei 225 implied funding spread term structure vs spot**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 110: Nikkei 225 implied funding spread curve**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

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09 December 2020

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## Derivatives Trades for 2021

## Macro/Directional Trades

### US Macro Trades: Position for continuation of Cyclical rotation via Russell, EM and Brazil outperformance; range-bound Gold; and sector relative value

The COVID-19 pandemic upended the trends we were looking for in last year's Outlook, but in our view only delayed them by a year. So some of our trades for 2021 explore similar themes as those we discussed last year: in particular, we look for an unwind of crowded longs in Momentum assets and rotation into under-owned Cyclical and Value assets. The backdrop of a globally synchronized reflationary expansion, legislative gridlock and vaccine rollout should result in a risk-on environment and mark a breakout point for Cyclical and Value stocks, which have been beaten down due to the COVID-19 crisis. Meanwhile, Momentum and Tech stocks, which benefitted from lockdowns and social distancing measures as economic activity was forced online, should lag as the economy reopens. This rotation began over the past month after news emerged of highly effective vaccines on the verge of approval. However, we believe the rotation is likely to continue well into next year, as the market prices in an end to the pandemic, and a broader reopening and recovery of the economy.

Below we highlight trades to position for this continued convergence between Cyclical/Value and Tech/Momentum assets via outperformance calls or call switches on the Russell 2000 over Nasdaq 100, MSCI EM over the S&P 500 and Europe over the US (see p.64), and by buying bull risk reversals on Brazil, selling strangles on GLD, put switches on Utilities vs. Banks, and call switches on Semiconductors vs. Software.

#### Buy Russell 2000 over Nasdaq 100 outperformance options or call switches

As we discussed in the Outlook for Markets and Volatility section, the end to the global pandemic and broader reopening of economies next year should favor small caps that underperformed during the pandemic, and see Tech and momentum stocks who benefitted from lockdown conditions and social distancing measures underperform as these measures end. US small caps should also offer better risk-reward than large as they represent a GARP and Value play relative to large caps and could see multiple re-rating on a pickup in M&A and an improving growth outlook next year. Seasonality could also provide a boost to small caps early next year given the well-documented "January effect." Even factoring in its recent outperformance, the Russell 2000 is still underperforming the S&P 500 by ~25% and the Nasdaq 100 by ~60% over the past ~2.5 years. We thus recommend positioning for continued outperformance via (limited-loss) outperformance options on the Russell 2000 vs. the Nasdaq 100.

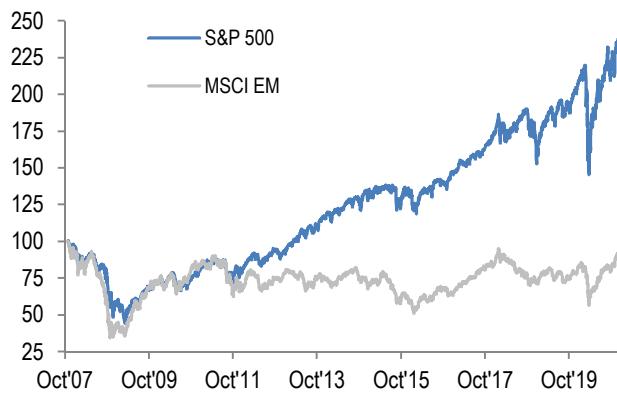
Correlation between the Russell 2000 and Nasdaq 100 weakened during the pandemic but remains elevated longer-term (nearly 80% over the past two years), and implied correlation levels are closer to the long-term average than recent realized. As such, outperformance options are relatively inexpensive, allowing investors to cheaply position for small caps outperformance through these defined loss structures. For example, a **6M 102.5% call on the outperformance of Russell 2000 over Nasdaq 100, contingent on the Nasdaq being up at expiry, costs ~1.75% of notional**, indicatively. This represents a saving of ~70% vs. a vanilla RTY call and ~65% vs. an unconditional outperformance option. Alternatively, investors who are willing to risk uncapped losses in case the Nasdaq outperforms can consider call switches, buying a **6M 102.5% call on Russell vs. selling a call on Nasdaq for zero cost**, indicatively.

#### Position for EM outperformance into 2021

Our [Cross Asset](#) and [EM](#) Equity Strategists recommend overweighting GEM equities, since (1) the incoming US administration should drive a lower geopolitical risk premium, (2) EM valuations are cheap and trade at a wider-than-historical discount to DM, (3) FX should provide a tailwind due to expected USD weakness, (4) the EM growth premium to the US is likely to reaccelerate in 2021, (5) EM remains under-owned by global investors, and (6) EM equities should be a regional beneficiary of investors' rotation into Value and Cyclical assets. Our strategists' base case price target for EM equity is 1,450 for 2020 year-end (+16%), and they see ~30% upside (1,600 price target) in a bull case of stronger global and EM relative growth acceleration, lower equity risk premium, and larger USD weakening. Despite a surge of inflows since the US election, EM flows are significantly negative YTD and were negative last year (see [here](#)), and EM's share of global AUM is materially below its historical average. There also remains a large performance gap between EM and US equities - MSCI EM is still trading a bit below its cycle high in Jan'18 and down ~7% from its all-time high in 2007, while the S&P 500 is at record highs and up ~140% over that period—a ~145% relative underperformance (Figure 111).

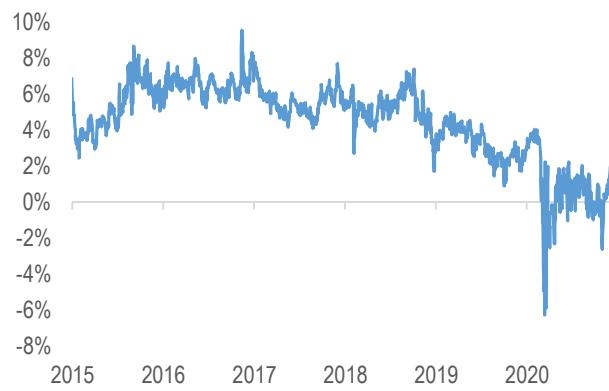
As such, we recommend positioning for the outperformance of EM equities into 2021 by **buying 6M 102.5% call on the outperformance of EEM over S&P 500**, contingent on S&P 500 finishing higher, for 1.7% of notional or **6M 102.5% call switches** (long EEM, short SPX calls) for 1.0%, indicatively. EEM volatility appears relatively cheap vs. the S&P 500, with the 6M ATM vol spread in its ~20<sup>th</sup> %ile relative to the past 5 years of history (Figure 112).

**Figure 111: EM equities strongly underperformed over the last cycle**  
Price performance (rebased to 100 in Oct'07)



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 112: EEM less SPX volatility spread is low**



Source: J.P. Morgan Equity Derivatives Strategy.

### Buy Bull Risk Reversals on Brazilian equities as reforms spur economic growth and drive upside for equities

Our LatAm equity strategy team is Overweight Brazil amid three key fundamental drivers: growth, rates and reforms. Our Brazilian equity strategists sees significant upside for Brazilian equities with a YE21 price target for the Ibovespa of 134,000 (~20% upside from current levels). While a low rate environment in Brazil remains in place, economic reforms are paramount to spur economic/GDP growth, and appreciation in equities for 2021. Specific advancements in economic reforms our strategists foresee include tax, administration (e.g., gas law, bankruptcy law and cabotage shipping), and federative pact, among others. Continued improvements related to COVID-19 and a risk-on global scenario are also viewed as favorable, assisting in a reversal of the BRL devaluation. Light foreign positioning also stands to increase the appetite for emerging markets such as Brazil, allowing for asset inflows, while emerging market assets appear under-owned by global investors (as discussed above). To position for the advancement of Brazilian equities, **we recommend investors purchase EWZ Jun'21 90%-107.5% bull risk reversals for zero cost**, indicatively.

### Sell GLD Strangles as vaccine optimism, declining trade tensions & global economic supports restrict upside in Gold

After two and a half years with a bullish bias on gold, our Commodity strategists have turned neutral amid expectations of rising real yields in 2021, resulting in a YE21 price target of \$1,744, down from its current price of ~\$1,860. COVID-19 vaccine optimism, declining global trade tensions via U.S. Presidential transition, and continued global economic supports (i.e., fiscal and monetary) are driving investor optimism that recent economic improvements will continue as global economies reopen. Employment is rebounding and global manufacturing PMIs are inflecting higher amid the early indications of this global economic rebound. However, despite the economic improvements and global equities recouping much, if not all, of their COVID related collapse, CFTC non-commercial gold futures positioning remains near a record high (Figure 114). Given the limited upside for gold in relation to our strategists' FY21 target, and elevated implied GLD implied volatility (Figure 113), we **recommend investors sell GLD Jun'21 97.5%-102.5% strangles, collecting 8.5% of notional**, indicatively.

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Bram Kaplan (Americas)

**Figure 113: GLD 6M ATM IV ranks in its 85<sup>th</sup> %-ile over the last 5 years**



Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 114: Gold futures speculative positioning is near an all-time high (last 5 years shown)**



Source: J.P. Morgan Quantitative and Derivatives Strategy

### Sell Overweight Banks volatility to purchase Underweight Utilities volatility via put switches

Financials (Overweight) stand to benefit from a sustained economic recovery (higher spreads) and positive vaccine news, limiting credit losses. Our equity strategists believe Bank/Consumer Finance companies in particular will be significant beneficiaries of this economic reflation, especially if long-term rates drift higher / yield curve spread widens, and labor markets firm. While revenue growth and credit concerns remain, a combination of fiscal and monetary supports should sustain an easier credit environment for businesses and consumers in the short-to-medium term. As the recovery picks up momentum, Bank payouts (Dividends + Buybacks) stand to improve in 2H21 with confirmation from positive Bank Stress Test results. Conversely, Bond Proxies, such as Utilities, should underperform given their high sensitivity to rising rates and lower exposure to cyclical / pent-up economic demand. Finally, with further confirmation of the sustainability of the current economic recovery (e.g. jobs, GDP, etc.), we expect rising inflation and long term rates to trigger further rebalancing among equity investors out of Bond Proxies (e.g., Utilities) into more Cyclical industries (e.g., Banks). To monetize the anticipated sector divergence via economic reflation and rate sensitivity, **we recommend investors purchase 6M 95% XLU puts vs. selling puts on the KRE to collect 3.9% of notional**, indicatively. The KRE less XLU 6M 95% volatility spread currently ranks in its 88<sup>th</sup> %-ile over the last 4 years (Figure 115).

### Favor Semiconductors over Software in a Technology relative value trade

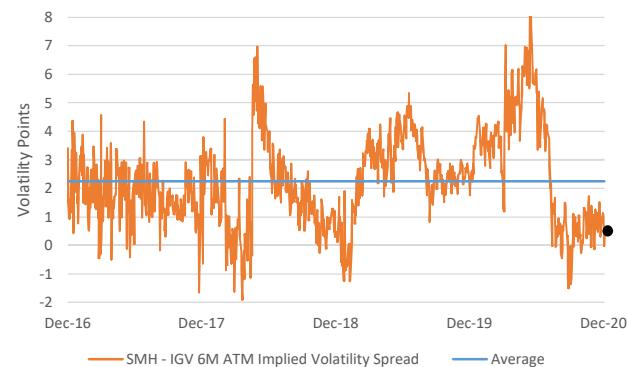
Our equity strategy team expects a recovery in business spending, a resilient consumer and continued cloud/data center growth to drive the Technology sector higher and deliver above-market fundamentals. However, our strategists favor names that have not been primary beneficiaries of the work from home trend and maintain a higher conviction on more cyclical Semis/Tech Hardware, which should benefit from demand recovery supported by the global economic rebound, cloud/capex growth, production increases for 5G smartphones/autos and normalizing supply chain. As a result, **we recommend investors buy 6M 105% SMH calls vs. selling calls on the IGV for 0.3% of notional**, indicatively, to position for a continued outperformance of Semiconductor stocks over Software. The SMH less IGV 6M ATM volatility spread currently ranks in its 29<sup>th</sup> %-ile over the last 4 years (Figure 116).

**Figure 115: KRE - XLU 6M 95% vol spread ranks in its 88<sup>th</sup> %-ile over 4Y**



Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 116: SMH - IGV 6M ATM Implied Volatility Spread ranks in its 29<sup>th</sup> %-ile over 4Y**



Source: J.P. Morgan Quantitative and Derivatives Strategy

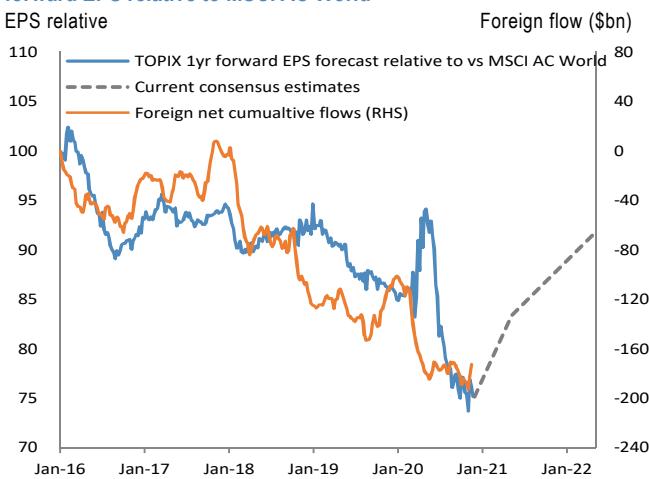
## Buy Nikkei upside on global cyclical recovery and favorable supply/demand

**Recovery from COVID is on the horizon, Japanese equities are among key beneficiaries:** In 2021, our global equity strategists expect equities to deliver solid performance on the back of a strong earnings rebound and supportive monetary policy backdrop. Among major economies, Japan is highly leveraged to the global growth cycle, hence will be a key beneficiary from the global cyclical recovery. Historically, Japanese corporate earnings exhibit strong correlation to the global activity momentum (Figure 94). Moreover, Japan is a Value style play and will gain from any pickup in bond yields and legs of Value rotation (see [here](#)). Positioning-wise, we see favorable supply demand dynamics in 2021 on potential return of foreign buying flows and strong BoJ ETF buying program. Our Japan Equity Strategist expects the Nikkei to reach 30,000 in 1H21 (see [here](#)). For investors who share our bullish view on Japanese equities next year, we recommend a menu of strategies for investors to position for Nikkei upside.

**Positioning and flow picture is supportive for Japanese equity rally:** Foreign positioning in Japanese equities is currently at historical lows, after a net sale of \$71bn Japanese equities (cash and futures combined) this year. This leaves plenty of room for foreign investors to add positioning. Looking ahead, we expect Japanese corporate earnings to catch up with global peers amid the cyclical recovery, which could lead to a pick-up of interest in Japanese equities and catalyze a shift towards buying among foreign investors (Figure 109). As discussed in the Term Structure section, a return of foreign interest could lead to a surge strong call buying activity for upside participation, which would in turn translate into further 'spot up, volatility up' action.

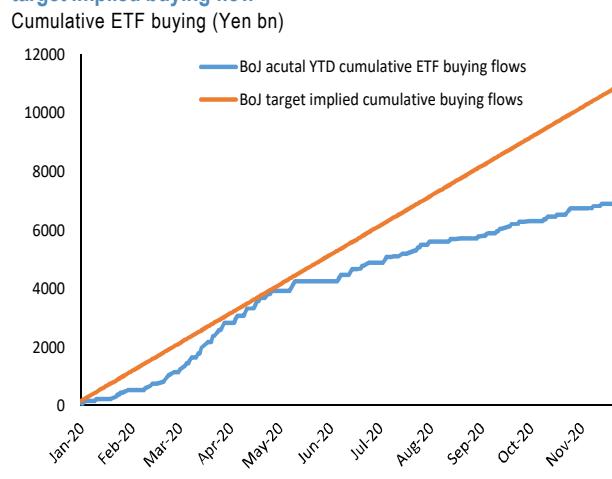
**Strong BoJ ETF buying should lend support to continued equity strength:** In a bid to alleviate the impact from the COVID Crisis, the BoJ expanded the annual target of the ETF purchase program from Yen 6tn to Yen 12tn. However, as the market recovered and made new highs, the central bank slowed down the purchase, current cumulative buying is running materially behind the target implied level (Figure 110). We think the BoJ is saving up ammunition for potential future risk shocks. In case of a risk event, the Japanese central bank will step up the buying flows substantially to support the market. Overall, we think the markedly higher ETF purchase target together with unused buying quota will remain a strong flow tailwind for Japanese equities next year.

**Figure 117: Foreign net flows in Japanese equities versus TOPIX 1yr forward EPS relative to MSCI AC World**



Source: J.P. Morgan Equity Derivatives Strategy, Japan Equity Strategy, Bloomberg Finance L.P. \* We measure foreign flow by accumulative net purchases in cash equities and futures (NKY, TPX, NKY mini, TPX mini, JPNK etc.). See more details about EPS forecast [here](#).

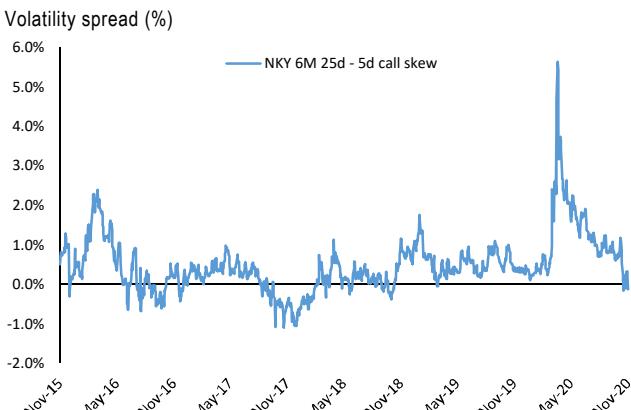
**Figure 118: Bank of Japan ETF cumulative buying flows versus target implied buying flow**



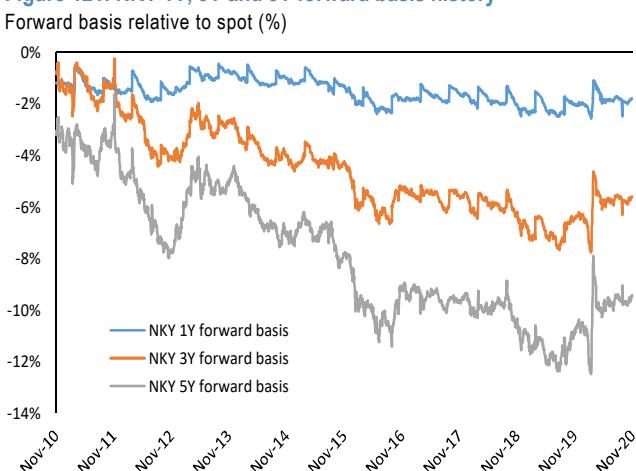
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Look for opportunities beyond major structured product knock-outs:** We anticipated a 'spot up, vol up' scenario in Japan driven by major knock-outs of legacy autocallables and recommended owning volatility to position for the move (see [here](#) and [here](#)). By now, we think the bulk of Vega short covering has already taken place with Vega profile declining to the lows. While further 'spot up, volatility up' driven by call buying remains a risk scenario, we steer away from long volatility outright and look for alternative trades to position for upside.

**Figure 119: NKY 6M 25d - 5d call skew history**



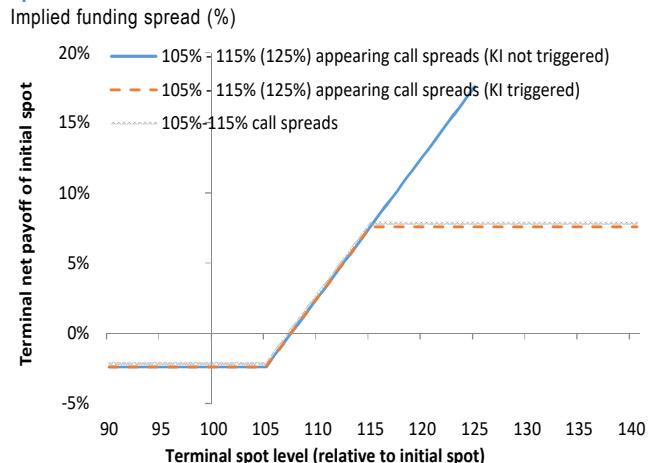
**Figure 121: NKY 1Y, 3Y and 5Y forward basis history**



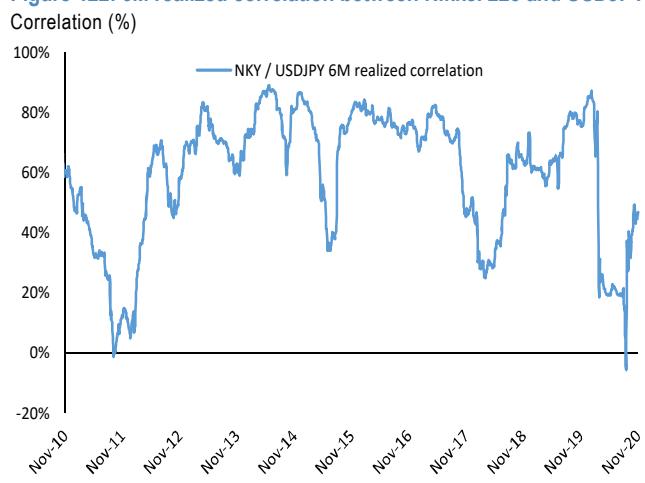
**Buy Nikkei 6M appearing call spreads:** With Japanese equities posting a strong year-end rally, Nikkei upside convexity has materially richened recently, particularly on the shorter tenors. At the time of writing, Nikkei 6M 25d – 5d call skew is trading at the 14<sup>th</sup> %tile in the past five years (Figure 119). We recommend buying Nikkei appearing call spreads to take advantage of the rich upside convexity. By paying a small extra premium than a vanilla call spread, investors can potentially get a payoff similar to a call outright in the case the knock-in barrier on the short call is not breached. For example, a Nikkei Jun21 105% 115% call spread with 125% KI barrier costs only 11% more than the vanilla counterpart, based on current pricing. If the barrier is not triggered by the Jun21 expiry, buyers of the appearing call spread will receive the same terminal payoff as a vanilla 105% call (Figure 120). We think the risk for the knock-in barrier to be breached is low considering our year-end target for the Nikkei (30,000) is ~12% above current spot levels. In terms of risk exposure, the appearing call spread has lighter Vega than calls outright, hence would have lower decay in case of volatility re-pricing significantly lower. We select the Jun21 expiry considering most of the upside in Japanese equities is expected to materialize in the first half (see [here](#)).

**Buy Nikkei longer-dated call spread collars:** Investors with a longer horizon can consider buying Nikkei 5Y call spread collars. We expect the Suga administration to continue to follow the supportive 'Abenomics' policies, the continued policy easing stance in the foreseeable future could drive sustained upside in Japanese equities (see Outlook for Markets and Volatility section). From a derivative pricing perspective, Nikkei long-dated forward basis continues to trade at the low end

**Figure 120: Net terminal payoff demonstration for NKY appearing call spreads**



**Figure 122: 6M realized correlation between Nikkei 225 and USDJPY**



of the range in the current zero interest rate environment (Figure 121). In case interest rates tick up amid a global cyclical recovery, the mark-to-market of the call spread collar will be pushed higher driven by higher forward, all else being equal. The call spread collar is short Vega and skew (which remain relatively rich on longer tenors); it will benefit from a potential further compression in longer-dated downside volatility due to the recovery of autocallable issuance (see Volatility Supply and Demand section). Indicatively, investors can buy a Nikkei Dec25 110% 140% call spread versus selling a 65% put for zero cost.

**Buy Nikkei upside contingent on USDJPY capped:** Correlation between Japanese equity and FX saw a historic break amid the COVID led sell-off, where the Yen did not exhibit strong ‘haven’ characteristics as it used to in severe risk events. As market recovered from extreme stress levels, correlation between the pair gradually normalized (Figure 122). Investors can leverage the positive implied correlation between the Nikkei and USDJPY to cheapen equity upside exposure. Fundamentally, our FX strategists expect further appreciation of the Yen in 2021, with the USDJPY trading into the high 90’s by year end. The bullish Yen thesis is driven by a combination of differentiated growth in Japan (among the G10) and US – Japan inflation spreads at widest since the late 1990s, together the dynamic should keep real rates spreads heavily skewed in Japan’s favor, translating into persistent, and potentially faster, Yen appreciation ahead (see [here](#)). Investors who share the view can consider adding a condition of USDJPY capped below 100 at expiry, this will provide 87% cost savings for a Nikkei Dec21 28,000-strike call relative to the vanilla counterpart.

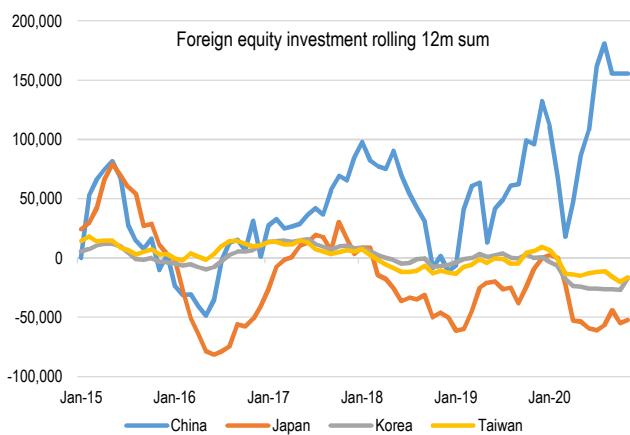
Please find below indicative pricing:

- **Buy NKY 11Jun21 105%-115% call spreads with the short call knocking in at 125% (continuous barrier):** offer 2.37% (24% delta, 0.11% Vega, 11% more expensive than vanilla 105% 115% call spreads)
- **Buy NKY 12Dec25 110%-140% call spreads versus selling 65% puts:** offer zero cost (19.3%/18.5%/22.4% volatility, 38% delta, -0.32% Vega. For reference, 110% calls are offered at 9.21%, 110% 140% call spread are offered at 5.76%)
- **Buy NKY 10Dec21 28,000-strike calls contingent on USDJPY < 100 at expiry:** offer 0.60% (spot reference: NKY 26,467, USDJPY 104.05. For reference, vanilla NKY 28,000 calls cost 4.61%)

## Trades for a return of foreign investors to Asia

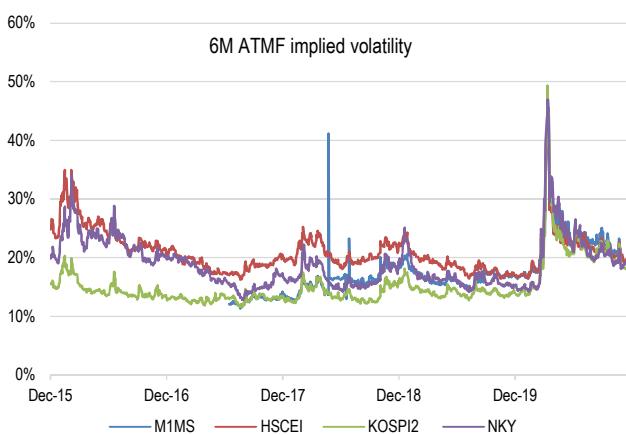
We witnessed significant fund flow dispersions in Asia equity markets in 2020 (Figure 123). China onshore equity markets are the major beneficiaries of foreign flows helped by further opening up of the A-shares market and structural capital inflows from index trackers. On the other hand, foreigners retreated from markets including Japan, Korea and Taiwan. While we expect the China exceptionalism to continue, major Asia markets outside of China should attract higher foreign allocations next year. A combination of factors, including underweight of EM equities by global investors, lessening geopolitical risk premium and reaccelerating EM growth premium to the US, suggest Korea and Taiwan will be among the main destinations of foreign investors within EM markets (see [here](#)). For Japan, the case of foreign fund flows is based upon its leverage to the global economic cycle, rotation into Value stocks and light positioning (see [here](#)).

**Figure 123: Foreign flows to Asia equity markets dispersed in 2020**



Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 124: Asia equity volatility on track of further normalization**



Source: J.P. Morgan Quantitative and Derivatives Strategy

**Buy call spread collar on MSCI EM Asia:** Our strategists are bullish on EM equities and FX for next year. MSCI EM Asia net total return index (M1MS) is our preferred underlying to express this view as the USD-denominated index is well positioned to capture outperformance opportunities in EM equity and FX returns. In 2017, the most recent year featuring significant EM vs DM outperformance, the M1MS index delivered 43%, beating major local benchmarks including HSCEI (30%), KOSPI2 (26%), TWSE (18%) and NIFTY (30%) on a total return basis. We recommend buying call spread collars as further normalization in risk parameters could send volatility and skews in the index back to the pre-COVID range. **Buying M1MS 18Jun21 105%-115% call spread and sell 92% put is offered at zero cost (50% delta, -0.13% vega).**

**Buy call spread collar on KOSPI2:** Korea is among our OW-rated country in EM (see [here](#)). Our strategists expects the rally in Korean equites to extend on return of foreign investors and a strong upcycle in memory & datacenter upgrade. With 6M ATM implied volatility in KOSPI2 trading ~85th percentile in 5Y, we like call spread collar for its short vega exposure. **Buying KOSPI2 6M 105%-115% call spread and sell 89% put is offered at zero cost (44% delta, -0.09% vega).**

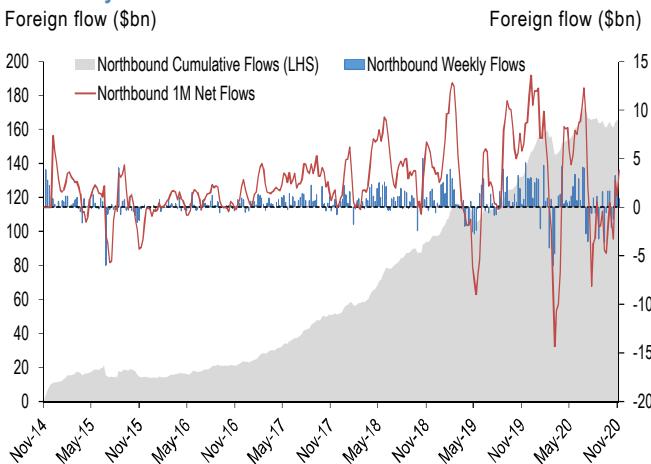
**Buy worst of call on (KOSPI2, TWSE, NKY) conditional USDCNH floored at expiry:** Our FX strategists expect the CNY strength to endure. However, further appreciation in CNY is likely to be moderate as the economic growth gap between China and RoW is expected to narrow. JPM strategists forecast USDCNY to reach 6.35 by Jun 2021 (see [here](#)). Adding a floored condition on USDCNH can considerably cheapen the cost of buying the worst of call. **Buying 11Jun21 105% worst of call on (KOSPI2, TWSE, NKY) conditional USDCNH > 90% at expiry is offered at 0.81% (68% discount to average of vanillas, 51% discount to cheapest vanilla, 31% discount to vanilla worst of call ).**

**Buy worst of (KOSPI2, NKY) vs SPX outperformance option:** Following the recent upgrade of EM, our equity strategists now add to Eurozone and Japan, moving them to OW, at the expense of US, which we cut to N (see [here](#)). The outperformance option with the condition that SPX trading higher at expiry allows investors to express this view in a cost efficient format. **Buying 18Jun21 ATM outperformance option on (worst of (KOSPI2, NKY) - SPX) conditional on SPX>100% at expiry is offered at 0.81%.**

## Position for China A-shares upside on supportive flows

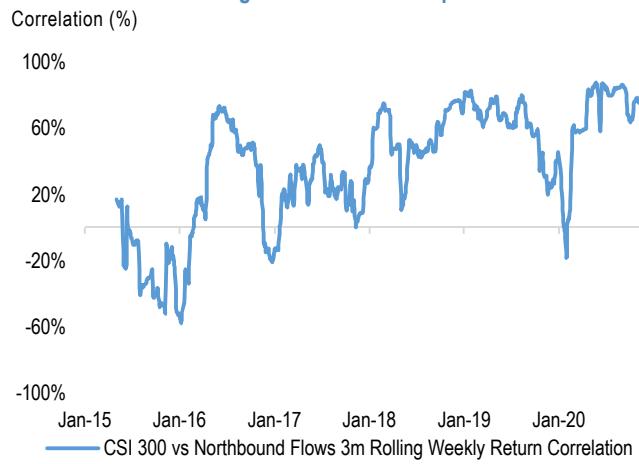
In 2021, we believe A-shares could deliver relatively strong performance driven by potential structural inflows from both foreign and domestic investors. While foreign investors sold off A-shares in 3Q20 due to US-China tensions and profit-taking, they returned as buyers after the US elections (in line with [our expectations](#)) as reflected by Northbound flows turning positive (Figure 125). Looking ahead, we expect the trend of foreign buying flows in A-shares to continue the recent momentum on the back of potential easing of US-China tensions under the Biden administration. Positioning-wise, foreigners remain significantly underweight China A-shares, so there is plenty of room for them to increase allocation (see [here](#)). Another driver for further structural foreign inflows is a further inclusion of China A-shares into major global benchmarks. We think the increase of inclusion factor is drawing near after Chinese regulator rolled out a series of market opening and reform measures. Domestically, we expect mutual fund issuance to remain strong in the next year (Figure 127), driven by a structural shift towards institutionalization and increased equity allocation at the expense of wealth management products (see [here](#)). We recommend investors to consider entering our Stock Connect Northbound Flow Momentum Strategy or buy CSI 500 NTR swaps to position for upside in China A-shares driven by the supportive flows.

**Figure 125: Stock Connect Northbound net cumulative and weekly flow history**



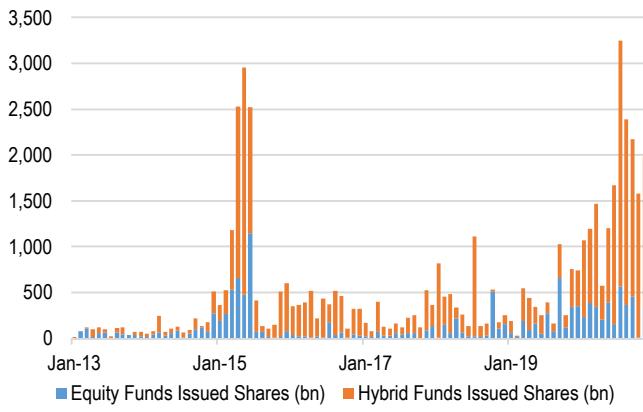
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P., Wind

**Figure 126: 3M correlation between Northbound flows and CSI 300 returns is close to the highest level since inception**



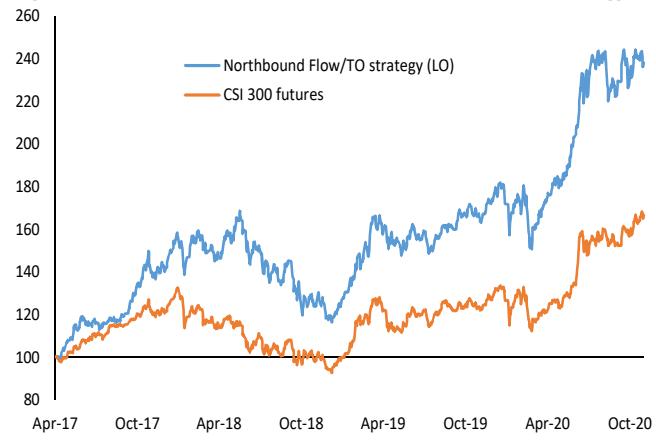
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P., Wind

**Figure 127: China onshore equity and hybrid fund had a record year**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P., Wind

**Figure 128: Performance of Northbound Flow Momentum strategy**

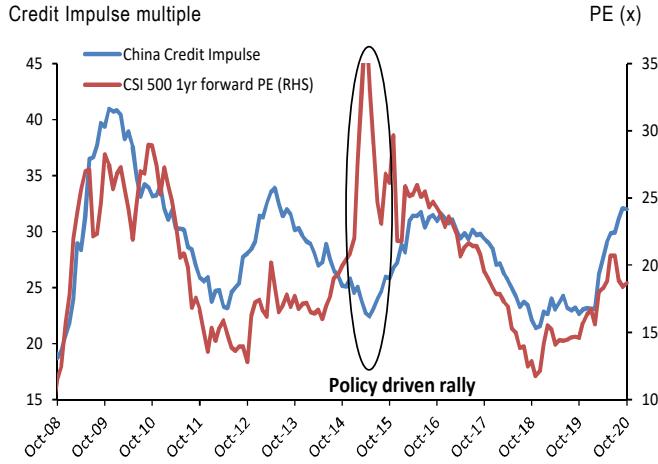


Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P., Wind. \* CSI 300 performance is based on that of rolling a long CSI 300 future position. Grey vertical line denotes start of live performance.

**Ride potential structural foreign inflows via Stock Connect Flow Momentum strategy:** In July 2020, we [introduced](#) a rule-based Stock Connect Northbound Flow Momentum strategy to capture the ‘flow factor’. The strategy identifies and invests in a basket of stocks that are seeing most impactful foreign inflows (i.e., stocks with highest net inflow normalized by turnover), in order to capture ‘alpha’ from the continued foreign inflows in these companies. As the pricing power of foreign investors increases in the A-shares market, the strategy delivered strong performance in recent years, on both an absolute and risk-adjusted basis. In particular, we note strategy performance is most noticeable when A-shares are seeing consistent structural foreign inflows. In 2H20, despite foreign sell-off and higher market volatility, the strategy held up relatively well, gaining 10.6% since the start of live performance versus 6.7% of CSI 300 price return (From Jul 6, 2020 to Nov 27, 2020; Figure 128). Looking ahead, considering our expectation of consistent strong foreign buying flows in 2021, we believe the Stock Connect Flow Momentum strategy will deliver attractive performance. **Please check our China Flow Monitor for periodical updates on the strategy and check with J.P. Morgan sales representatives for indicative basket pricing.**

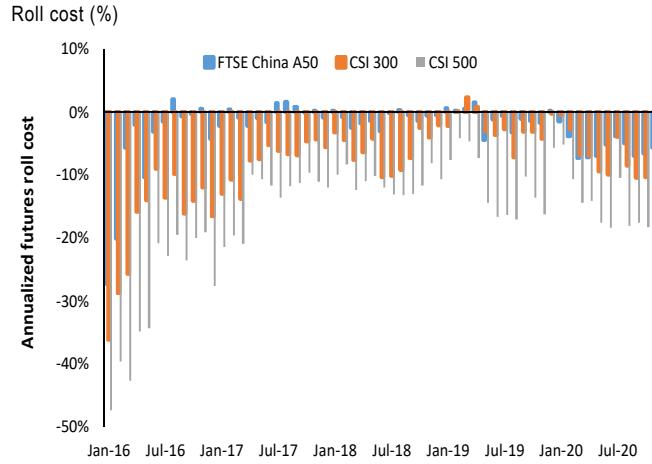
**Long CSI 500 net total return swaps for attractive outperformance:** Among major China A-share indices, we recommend going long CSI 500 considering re-rating potential in current supportive credit cycle and more significant outperformance opportunities. Historically, we find valuations of SME-heavy CSI 500 closely tracks the China credit cycle (except for the policy driven rally in 2H14-1H15). As such, we think SMEs should continue the recent re-rating trend driven by the expansion of China Credit Impulse (Figure 129). In terms of implementation, we favor net total return swaps. Due to excessive short demand, and a lack of efficient stock-lending facilities in the China A-shares market, long futures rolls typically trade at a relatively large discount. Our historical analysis suggests current entry point is attractive for going long A-shares futures / swaps (Figure 130), CSI 500 future rolls have been trading at an average of 16.2% discount versus fair value in the past six months (16.2% outperformance opportunity). The discount is significantly larger than that of FTSE China A50 and CSI 300. **Please check with J.P. Morgan sales representatives for indicative swap pricing.**

**Figure 129: CSI 500 trailing 12M PE and China Credit Impulse**



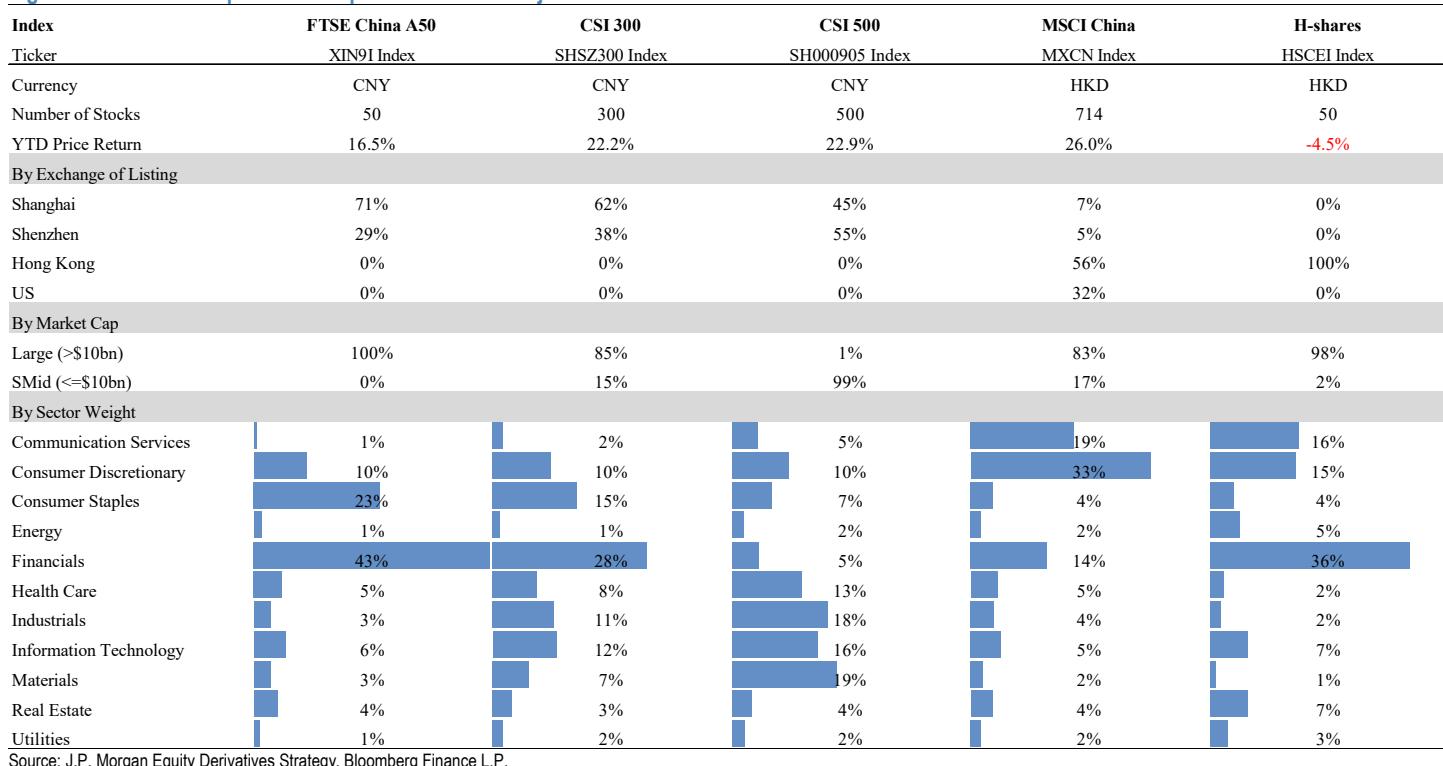
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* China Credit Impulse (CHBGREVO index) is the rolling 1Y sum of total social finance, net of equity issuance, plus local government bond issuance, divided by the 1Y rolling sum of nominal GDP.

**Figure 130: Annualized roll cost for major China A-shares futures**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 131: Sector composition comparison between major China indices**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

## AI and big data approach to thematic investing

Natural Language Processing (NLP) and Machine Learning techniques applied to big data can be of great help in identifying themes and thematic stock selection. In our report [AI and Big Data Approach to Thematic Investing](#), we demonstrate that analyzing a large volume of text is an effective way to design and rebalance thematic exposure. We believe the big data and machine learning approach can capture thematic exposure more accurately, be more timely (i.e. early on), and allow for far greater scaling, compared to qualitative stock screens. Our NLP powered stock selection process is mainly comprised of three steps as described as in Figure 132. Here is a list of themes we covered this year.

Figure 132: Our Natural Language Processing (NLP) powered stock selection process overview



**Defining the theme:** The step involves the conversion of a section of JP Morgan analysts' research report to vector representations using phrase embedding models. The process allows us to build the desired word associations and define an investment theme in the form of a word cloud.

**Stock selection:** The rise in popularity of an investment theme is often associated with increasing attention in the financial press. We leverage alternative data vendors in the process of collecting and processing vast amount of news articles. Through the transformation of textual data to machine readable format, we can quantitatively measure the relevance of a stock to a target investment theme over a period of time.

**Risk Allocation:** Factor tilting is among the mainstream portfolio construction techniques. We recommend a weighting scheme that considers liquidity and thematic exposure. Each selected stock is weighted proportionally to liquidity times our estimated theme relevance. To reduce concentration risks of the portfolio, we further introduce an individual weighting cap.

Source: J.P. Morgan Quantitative and Derivatives Strategy.

**Cloud computing:** The availability of low-latency access from edge devices, more reliable security on networks, and the ability to pool processing power, storage, infrastructure and software makes cloud computing (storage and processing at centralized and potentially distant and third-party locations) the backbone of the current digital transformation. Beneficiaries of this trend include hardware (storage, compute, network, physical space and power), software (operating systems, applications providers) and wireless/broadband data service providers. Our basket also includes companies that leverage cloud computing to optimize their business, and those that provide security services on the cloud.

**Online gaming and eSports:** Over the course of the pandemic, as people have spent more time at home and in isolation, demand for online entertainment and channels of socialization has been strong. With current trends in AI and the future of work, we believe there will be structural demand for entertainment in the years ahead. Apart from game/content creators and gaming hardware (both console and PC-related) makers, live streaming companies like HUYA and Herman Miller (which recently launched a gaming-oriented chair) are picked up in our basket.

**Telehealth:** The online provision of healthcare services (sometimes aided by video or hosted at “near home” sites) has helped patients maintain access to care during the pandemic when their ability to see their doctors was curtailed. Much of this adoption can carry forward. Apart from direct telehealth plays and service providers, companies like Nuance (that make conversational AI systems for use in telehealth) and Apollo Hospitals (with a large telehealth arm) make the cut. For investors, one added benefit of investing in this theme is the generally above-average ESG scores.

**Cybersecurity:** With near-ubiquitous connectivity as well as more and more critical personal and corporate data and controls on the internet, the vast opportunities for individuals and corporations come with new types of vulnerabilities. Every new connection to a network presents new entry points for hackers, raising the challenges in managing security and privacy for firms and individuals. Stocks for exposure to this theme include both those offering security in the online space as well as offering digital technologies to deliver physical security.

**5G:** The rationale behind the move to 5G – the next generation wireless technology standard – is to not only enhance mobile network capabilities such as virtual reality, but to support factory automation, autonomous driving, smart cities and tactile internet. In 2020, we find more 5G-related investment opportunities are available outside of US. The industry exposure of 5G-related stocks also becomes more diversified towards industries geared towards the wireless ecosystem.

## European upside and Europe over US outperformance trades

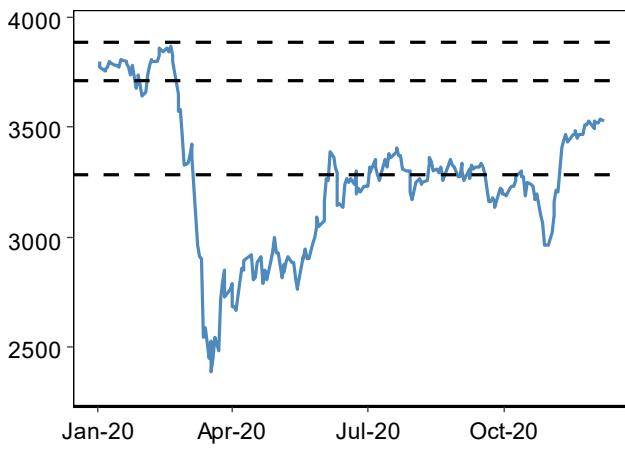
JPM Equity strategists [Marko Kolanovic](#) and [Mislav Matejka](#) are bullish Eurozone equities in 2021 and hold an OW recommendation on the region, with a Dec 2021 target price for MSCI Eurozone of 1,830 (expecting double digit total returns).

### Directional vanilla option trade

In our view Euro STOXX 50 implied volatilities remain expensive after the latest sharp rally in European equities, especially the short-end versus recent realized. We therefore recommend an upside structure that net sells volatility and skew to play further upside of European stocks into 2021:

**Buying 1.95x SX5E Mar-21 105%-110% call spread and selling 1x SX5E Mar-21 93% put, indicatively flat (ref. 3,539)**

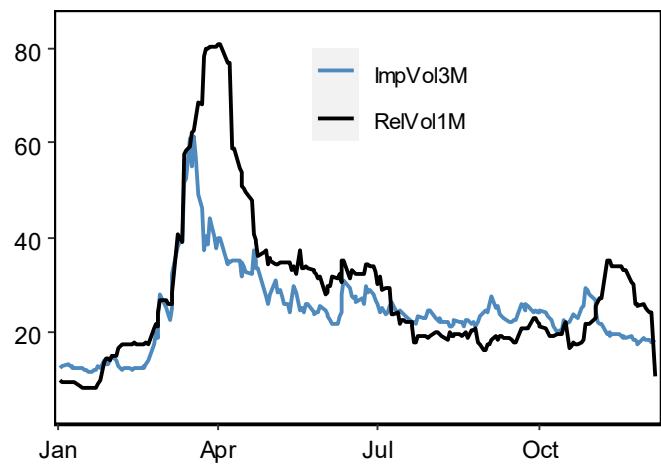
**Figure 133: Euro STOXX 50 index spot level and strikes of the proposed call spread vs. put option structure**



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 134: Euro STOXX 50 3M ATMf implied volatility vs 1M realized volatility**

3M implied ATMf volatility vs 1M realized volatility (%)



Source: J.P. Morgan Equity Derivatives Strategy.

### Derivative considerations

- **Volatility:** With the latest market rally, we find current short-dated SX5E implied volatility expensive with the drop in recent realized (Figure 134).
- **March Expiry:** We favor the March expiry as it screens relatively high in the ATMF volatility curve (Figure 135).
- **Skew:** SX5E skew remains elevated relative to pre-COVID-19 crisis levels (Figure 14), and has room to normalize more.
- **Positioning:** As highlighted in our latest [European Roll Report](#), we find evidence that European futures positioning has become more tilted to longs, but **not stretched at this point**. Our fund flows and futures open interest analysis points to a moderate rather than large shift in positioning over the quarter.

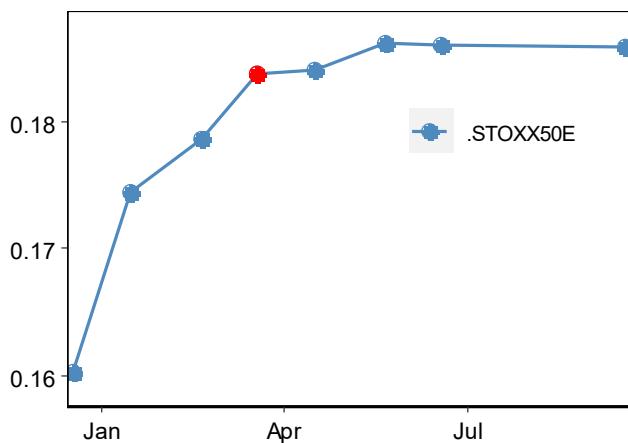
Alternatively, we propose the following structure, a defensive alternative to delta one holding into year-end while taking advantage of steep 1Y skew (Figure 137):

**Buy SX5E Dec-21 106.3% call funded by selling Dec-21 90% put with knock-in barrier at 65% (~2,300, continuously monitored), for zero cost (VGZ0 ref. 3,515, 58Delta).**

We recommended a [similar structure](#) early this year and it performed particularly well despite the March sell off.

**Figure 135: March expiry screens relatively high in the ATMF volatility curve**

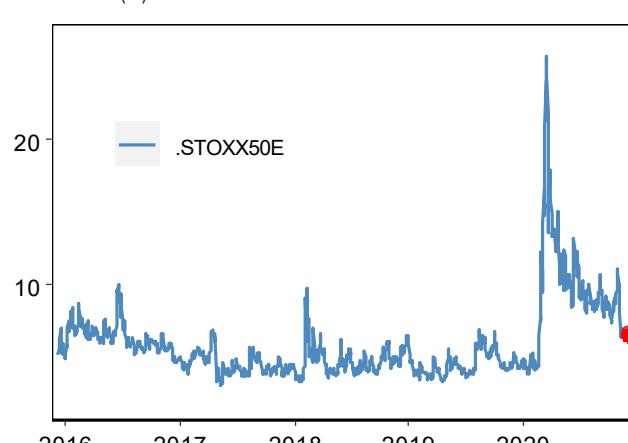
SX5E ATMF volatility term structure (%)



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 136: SX5E skew remains well above pre- Covid19 levels and has further room to normalize**

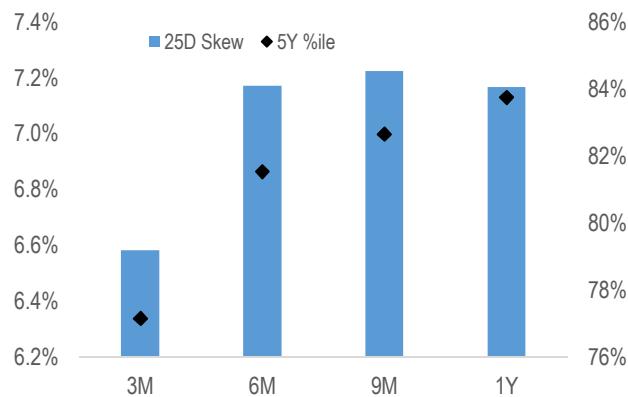
3M 25D skew (%)



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 137: SX5E Long-dated skew currently screens elevated versus history**

SX5E 25D skew and 5Y %ile

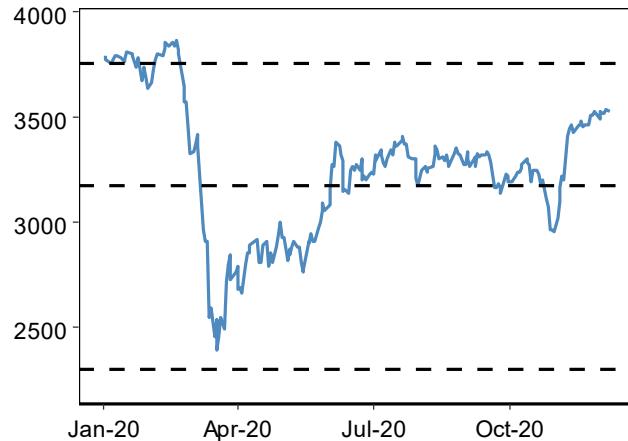


Source: J.P. Morgan Equity Derivatives Strategy.

### Europe vs. US relative value

Our Equity Strategy team believes that we are on the cusp of a sustained rally in Value comparable to what we saw in 2016/2017 (see [here](#)). One way to express our preference for Value over Growth and Quality over the forthcoming months is a relative play on the Euro STOXX 50 vs. S&P 500, a case we made initially in May [here](#) as a short-term tactical trade. The more cyclical SX5E features a much higher Value, and lower Momentum and Quality score compared to the SPX, promising superior returns against the reflationary backdrop JP Morgan is forecasting for 2021. Figure 139 shows the congruent, relative performance of the two indices compared to that of the MSCI Europe Value vs Growth.

**Figure 138: Euro STOXX 50 index spot level and strikes of the proposed KI RR**



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 139: Growth backdrop conducive for Europe & Value to start outperforming US & Growth after years of underperformance**

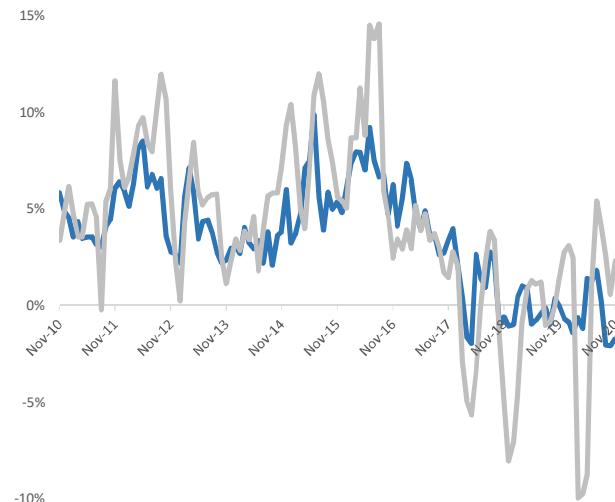
Euro STOXX 50 vs S&P500 (blue); MSCI EU Value vs Growth (grey)



Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 140: SX5E Vol is cheap compared to SPX, trading at the 9th percentile over 5 years**

Monthly data for spread of Euro STOXX 50 - S&P 500 3m ATM Vol (blue) and 3m realized Vol (grey)



Source: J.P. Morgan Quantitative and Derivatives Strategy

This is fundamentally underpinned by our equity strategists' regional call in their [Outlook 2021](#) (page 15 to 18), with **Europe upgraded to OW and the US downgraded to Neutral**: 1) Europe is currently trading close to a 20 year relative valuation low to the US, at a 22% P/E discount. 2) Earnings growth for the EuroStoxx50, however, is forecasted to grow more than twice as fast next year at close to 50% compared to 22% for the S&P500. 3) The S&P500's perennial ROE outperformance is looking to peak. 4) Activity indicators for Europe suggest a strong rebound from current levels. 5) The backdrop for fiscal support in response to the fall-out from Covid-19 looks more encouraging in Europe, and 6) so does the development of case numbers. 7) Finally, relative positioning for Europe looks weak.

We propose two option trades to express the relative outperformance of the Euro STOXX 50 vs. the S&P 500. Both structures capture the results of the outstanding Senate decisions in Georgia in January, with the potential, (even if highly unlikely) to yield Democrats control of the upper house – an outcome that is likely to weigh considerably on US equities.

For a short-dated play of this theme, investors can indicatively, **Buy Feb-21 ATM Call on the outperformance of SX5E > SPX at 0.99%, quanto USD, conditional on both indices being >100% at expiry**.

This structure allows to play the relative performance with losses limited to the upfront premium paid, while allowing for decent leverage. It reflects our overall bullish view on equities including US equities into year-end (see Lakos-Bujas [here](#)). Adding the conditionality, and thereby approximately doubling leverage, is all the more advantageous as European equities tend to outperform US equities during periods of strong growth where risk assets in general tend to do well. The backtest of this option reflects the strong underperformance of Europe vs US in recent years. Over the last 5 years the proposed option provided positive returns just under one fifth of the time, yielding an average return of 3.1 % (Max 12%) when returns were positive Figure 142.

To get longer-dated exposure to this theme, we recommend to use a more cost effective, vanilla call switch.

The volatility spread can be entered at attractive levels (Figure 140) compared to history in absolute terms and relative to realized volatility. Maturities from Jun-21 onwards look particularly attractive, trading as low as the 9th percentile over the last 5 years.

Investors, can indicatively **Buy SX5E Jun-21 100% Call (d47, 18.1v) vs Selling SPX Jun-21 100% Call (d51, 19.8v) at a credit of 1.1% (ref. 3530.08; 3691.96)**

Davide Silvestrini (EMEA)  
Bram Kaplan (Americas)

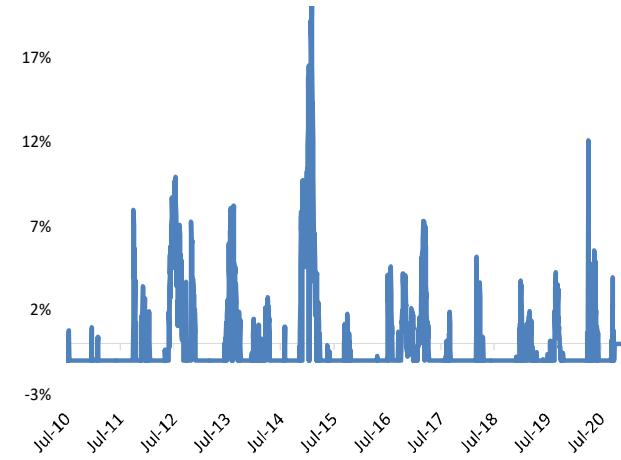
**Figure 141: The more cyclical SX5E features a much higher Value, and lower Momentum and Quality score compared to the SPX, promising superior returns in the current environment**

Euro STOXX 50 and S&P 500 sector exposure and key factor weights

Sectors	SX5E	SPX
Energy	4%	2%
Information Technology	14%	28%
Consumer Discretionary	17%	12%
Materials	11%	3%
Health Care	7%	14%
Financials	12%	10%
Consumer Staples	11%	7%
Industrials	14%	8%
Utilities	6%	3%
Communication Services	3%	11%
Real Estate	1%	3%
<b>Defensives</b>	<b>29%</b>	<b>37%</b>
<b>Cyclicals</b>	<b>59%</b>	<b>53%</b>
<b>Financials</b>	<b>12%</b>	<b>10%</b>
<b>Value</b>	6	-27
<b>Growth</b>	2	4
<b>Momentum</b>	-11	30
<b>Quality</b>	-4	37

Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 142: Over 5 years the proposed option provided positive returns 18% of the time yielding an average of 3.1% (Max 12.0%)**  
Backtest 11 week ATM Call on Outperformance SX5E > SPX at 0.99%



Source: J.P. Morgan Quantitative and Derivatives Strategy

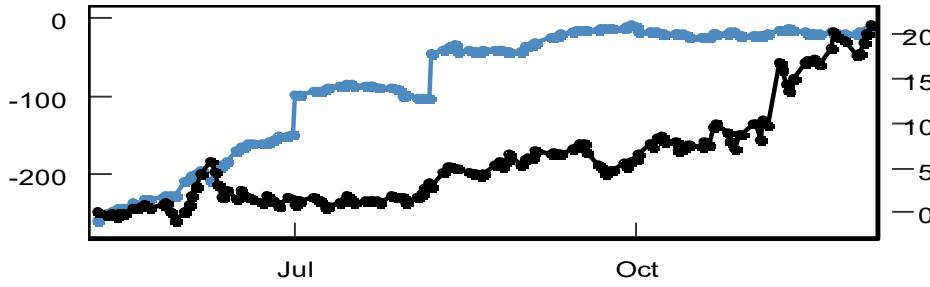
## J.P. Morgan Recession Risk Baskets

In a [previous report](#), we introduced a pair of long/short equity baskets, which aim to track the J.P. Morgan Recession Risk model and are rebalanced monthly. Given our strategists' constructive outlook on the equity markets and the economy in 2021, we suggest investors go long the Recession Risk Down basket and short the Recession Risk Up basket. The performance and membership of the baskets can be accessed via the following Bloomberg Tickers:

- Recession Risk Up basket: **JPAMRRUP Index**
- Recession Risk Down basket: **JPAMRRDN Index**

In Figure 143, we show the spread between the two baskets since inception (in black, RHS), and the un-truncated model recession probability (in blue, LHS). Since the inception of the baskets in May, the Recession Risk Down basket has outperformed the Up basket by 21.9%.

**Figure 143: Long/short basket performance since inception (black, RHS) and JPMorgan Recession Probability Risk (blue, LHS inverted)**  
% Recession Probability (inverted)      Long RRDN/ short RRUP Performance %



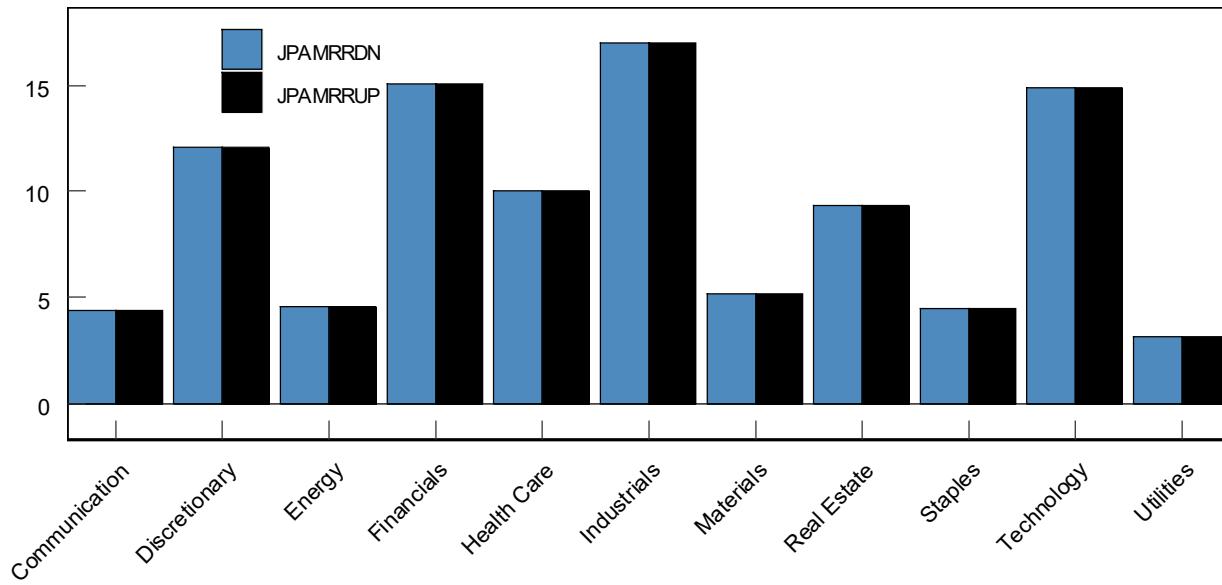
Source: J.P. Morgan

In our view, there are several advantages of using the baskets as an expression of positive economic outlook, compared to using sectors or country indices. The baskets are constructed to track directly the J.P. Morgan economists' forward looking recession risk measures. Moreover, to the extent that is possible, the baskets are constructed so that sector and style biases are neutralized, and only pure exposure to the Recession Risk are retained. For instance, as can be seen in Figure 144, the sector weights are identical in the RRUP (Recession Risk Up) and RRDN (Recession Risk Down) baskets.

Of course, having neutral sector weights does not imply our baskets treat all sectors equally. Figure 145 shows the average stock factor loading to the Recession Risk, sorted by sector. Cyclical sectors, such as Discretionary, Industrials, and Materials have negative factor loadings to Recession Risk, while Health Care and Staples have positive factor loadings. The average factor loadings conform to our economic intuition and provides us with the correct risk exposure to economic recovery.

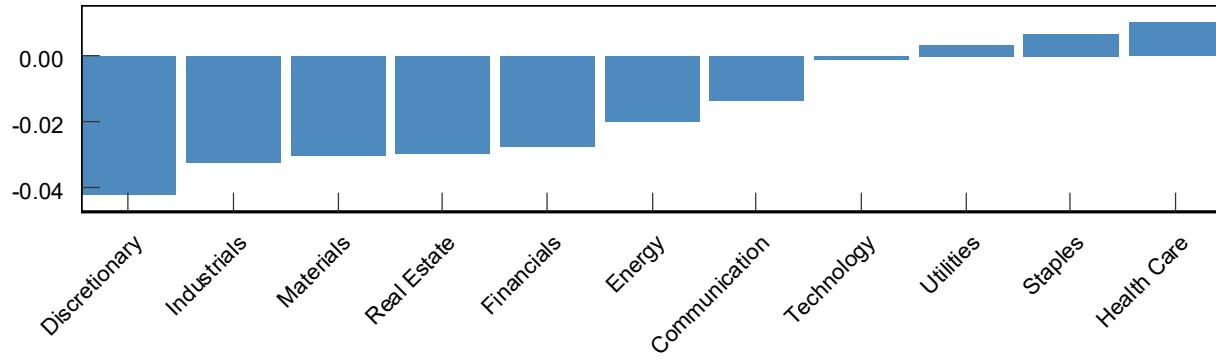
Davide Silvestrini (EMEA)  
Bram Kaplan (Americas)

Figure 144: Current sector weights (%) of the Recession Up (RRUP) and Down (RRDN) baskets



Source: J.P. Morgan

Figure 145: Average recession risk factor loading by sector



Source: J.P. Morgan

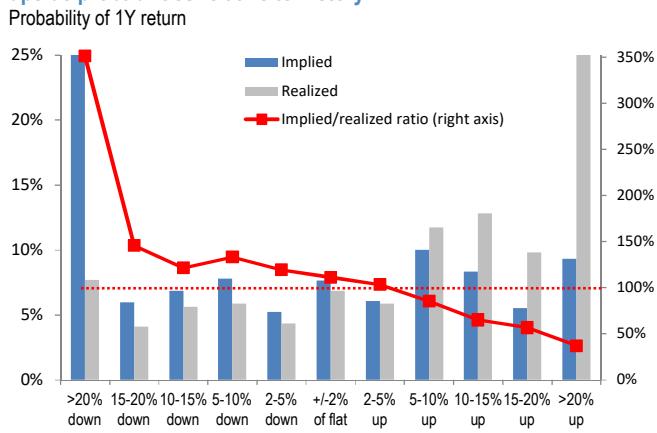
## Volatility/Risk Premia Trades

### Monetize the steep S&P 500 skew and still elevated convexity

As discussed in the Skew section, the S&P 500's longer-dated skew remains historically elevated, and the index retains the steepest skew among major global indices, supported by protection demand, supply from yield seeking strategies, more limited structured product supply, and dealer capital constraints. Figure 146, below, illustrates the dislocation between the implied return probability distribution derived from S&P 500 options and the historical probability of similar size moves. We note from this figure that option markets are overestimating the chance of large downside moves and underestimating the chance of large upside moves relative to history.

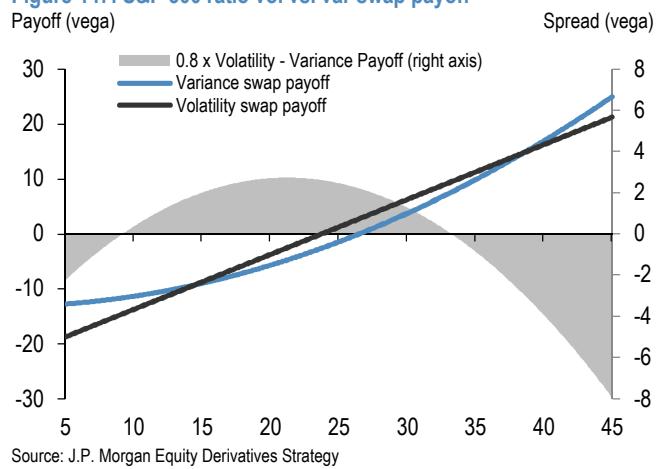
We recommend adding asymmetric delta exposure while monetizing this rich skew premium by **buying an SPX 1Y 107% call funded by selling a 90% put that knocks in at 63%** (daily barrier observation) for zero cost, indicatively—this structure is only exposed to losses if the index trades down more than 37% (i.e., the S&P 500 would need to re-test its COVID-19 crisis lows).

**Figure 146: S&P 500 skew overprices downside and underprices upside probabilities relative to history**



Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 147: S&P 500 ratio vol vs. var swap payoff**



Source: J.P. Morgan Equity Derivatives Strategy

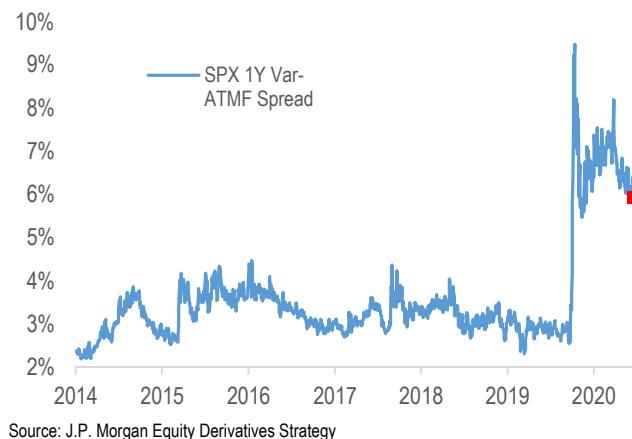
Additionally, **convexity on the S&P 500 remains rich and we continue to recommend monetizing it** (see our previous recommendation [here](#)). This risk premium has only modestly declined in recent months, remains historically elevated, and US indices exhibit the highest convexity among global regions (Figure 148). Implied convexity, for example measured by the spread between variance swaps and ATM volatility, continues to trade at elevated levels and lags the recovery in other risk premia – e.g. spot, equity volatility, implied dividends, equity funding and credit spreads have all normalized to a greater extent (Figure 149). Additionally, as discussed in the Outlook for Markets and Volatility section, we expect equity volatility and vol of vol to continue to decline into next year, which should pressure convexity levels.

We continue to recommend investors monetize this rich premium by trading variance swaps vs. volatility swaps (ratioed to skew the breakeven range lower and add a short volatility tilt), where the terminal payout (if held to maturity) is linked solely to the underlying index's realized volatility over the life of the trade. The rich convexity premium allows investors to obtain a wide breakeven range (i.e. a wide range of realized volatility outcomes where the trade is profitable) and an elevated maximum payout.

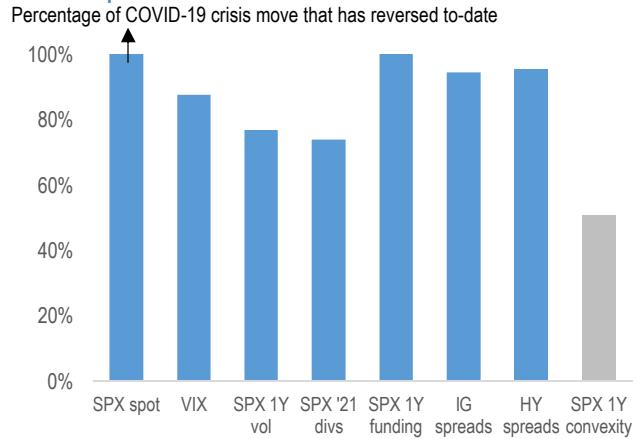
**We recommend selling 1x Dec'21 variance swaps vs. buying 0.8x the vega notional in Dec'21 vol swaps on the S&P 500.** The variance-vol swap spread is currently indicatively bid at 2.75 points; this structure allows investors to collect a maximum 2.7 times the vega notional if the index realizes near 21%, and returns a positive P/L if realized volatility over the next year falls between 9% and 33% (Figure 147). The structure returns >2 vega profit if realized falls between 15% and

27.5%. Investors can also consider similar structures on the Russell 2000 and Nasdaq 100, where convexity is also rich (Figure 46).

**Figure 148: S&P 500 convexity remains rich...**  
1Y variance less ATMF vol spread



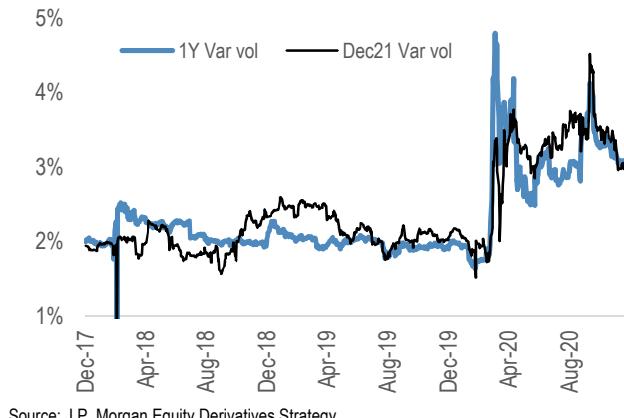
**Figure 149: ...and has retraced much less of its pandemic spike than other risk parameters**



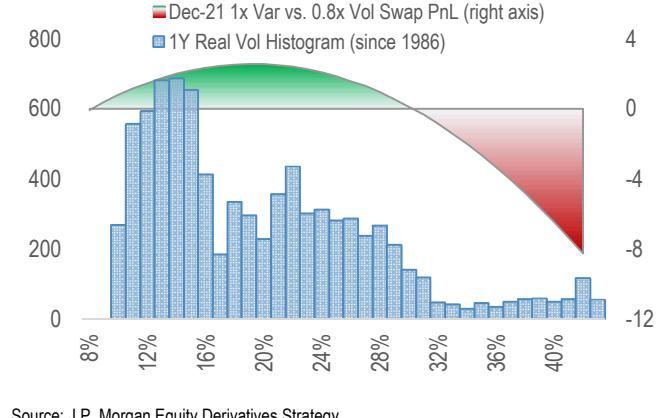
The same structure also works on the Euro STOXX 50. Euro STOXX 50 convexity as measured by the spread between variance and volatility swaps (Figure 150) remain elevated and the entry level for short Euro STOXX 50 convexity trades remain attractive. The spread of Euro STOXX 50 Dec-21 variance is in fact only marginally lower than where it traded in April when we first recommended this trade. Convexity is expected to decline in line with skew and volatility into next year and has so far retraced less of its widening that other equity derivatives parameters (e.g. short term volatility).

We reiterate our recommendation to **sell 1x Euro STOXX 50 Dec'21 var swaps and buy 0.8x Euro STOXX 50 Dec'21 vol swaps for 2.6 vol points**, indicatively (var reference strike 24.0). Lower breakeven at 8.0 vol, upper breakeven at 30.2 vol points. The payout of the structure is above 2.0 vol points between 14.0 and 24.2, thus capturing our expected volatility range for the year (Figure 151).

**Figure 150: Similar to S&P 500, Euro STOXX 50 convexity is also elevated**  
SX5E 1Y and Dec-21 variance less volatility swap spread



**Figure 151: The proposed SX5E convexity trade offers an attractive way to play our expected European volatility range for 2021**  
Histogram of 1Y RMS realized volatility (since 1986)      Trade PnL (vegas)



## RTY up-var vs. SPX var spread to trade structured product dynamics

As discussed in the Volatility Supply and Demand and Term Structure sections, the large issuance of Russell 2000-linked structured products dampened the index's long-dated volatility, and Russell 2000 term structure diverged from the S&P 500 recently due to its higher realized volatility during the post-election rally, and the impact of structured product hedging flows. While the S&P 500 curve is in contango, the Russell's term structure is largely in backwardation (Figure 36), driven by the knock-out of many autocallable products (that put upward pressure on Russell shorter-dated implied volatilities as dealers buy back hedges), and heavy reissuance of new products that is pressuring the back end of the curve. Additionally, the Russell 2000 sees much less hedging demand from insurers than the S&P 500, which provides a larger boost to S&P 500 ~2-3Y volatility. These drivers have resulted in a narrowing of longer-dated and forward volatility spreads between the Russell 2000 and S&P 500. However, both indices, and the Russell 2000 particularly, have expensive convexity (see the Skew section) due to rich deep downside wings.

The Russell 2000 less S&P 500 volatility spread was one of the few popular volatility spread trades that performed well during the pandemic, as the Russell reasserted itself as a higher beta index, realizing ~15 vol points higher than the S&P 500 during March/April. The Russell 2000 also sold off beyond its peak autocallable vega levels during the crisis, which drove increased demand for RTY long-dated volatility from exotic desks who were forced to cover shorts.

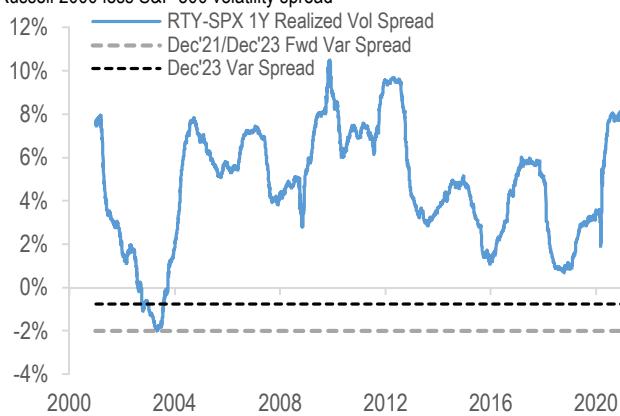
Our favored structure to trade this spread is to **go long Russell 2000 50% up-var vs. selling S&P 500 (unconditional) variance, which can be entered at a negative spread** (i.e. investor collects), while the Russell 2000 has been realizing 12/6/7/8% higher volatility than the S&P 500 over the past 1/3/6/12M, respectively. This structure exploits the term structure dislocation, structured product supply/demand dynamics, and expensive downside wings/convexity to generate strong carry. For example:

- **Long RTY Dec'21/Dec'23 forward starting 50% up-var vs. short SPX Dec'21/Dec'23 forward var @ -2 vega spread, indicatively**
- **Long RTY Dec'23 50% up-var vs. short SPX Dec'23 var @ -0.75 vega spread, indicatively**

On a hold to maturity basis, the main risk for these structures is in case the Russell 2000 declines by more than 50% from current levels, in which case the investor is left naked short S&P 500 variance for as long as the Russell 2000 trades below this threshold (though the trade would also likely suffer negative interim mark-to-market on a large sell-off approaching this threshold). However, the Russell 2000 has only ever seen a 50%+ sell-off during the 2008/9 GFC (Figure 153). Additionally, in exchange for this tail risk, the investor is receiving strong carry, by going long the RTY-SPX vol spread well below where it realized in recent years (Figure 152). Meanwhile, Russell 2000 realized volatility should continue to be supported by factor rotation trades, as we discuss in the Outlook for Markets and Risk section above.

**Figure 152: The RTY up-var vs. SPX var spread carry is strong...**

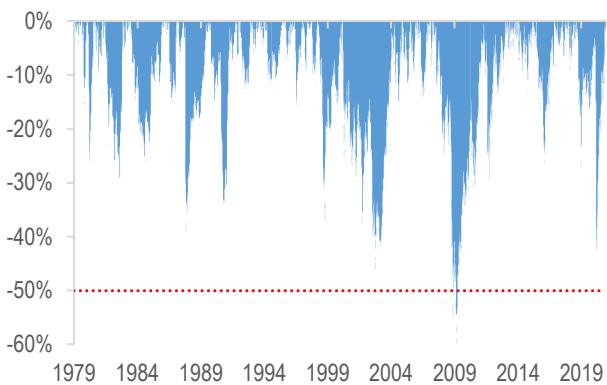
Russell 2000 less S&P 500 volatility spread



Source: J.P. Morgan Equity Derivatives Strategy

**Figure 153: ...and the Russell 2000 has only ever seen a 50%+ sell-off in the GFC**

Russell 2000 drawdown from previous peak



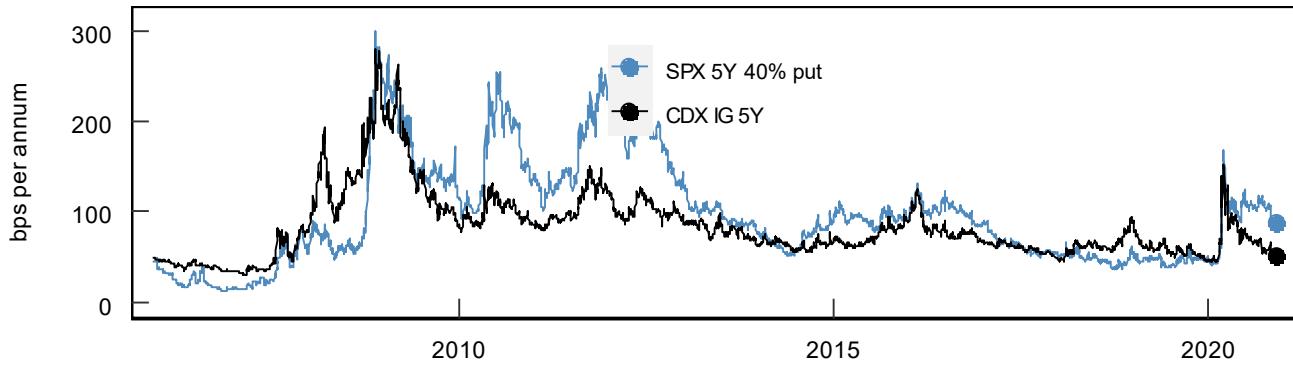
Source: J.P. Morgan Equity Derivatives Strategy

## Macro credit-equity relative value opportunity

Given our strategists' constructive outlook on equity markets and the economy in 2021, we suggest selling protection on equity indices against buying protection on credit. On the one hand, equity cost of protection remains elevated after a year of extreme volatility, and may rapidly compress once the market digests a number of upcoming positive catalysts. On the other hand, the cost of credit protection has been suppressed by the central bank support, and may underperform if the economic recovery continues to take hold as our economists projected. This is consistent with the relative value view expressed in [2021 US Credit Outlook](#).

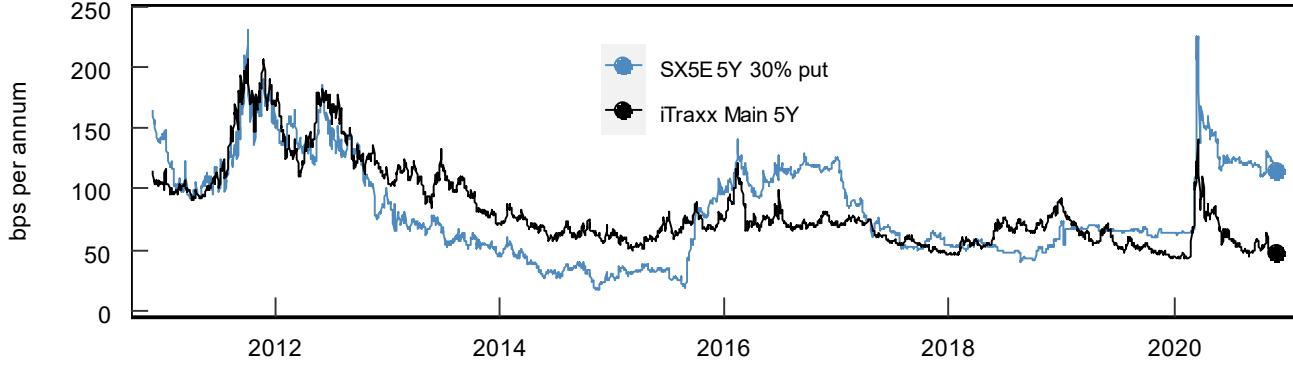
The valuation differences between credit and equity are illustrated in Figure 154 and Figure 155, where we compare the US and European credit index spreads to the normalized deep OTM equity put protection premium. Since the start of the pandemic, the costs of equity puts have remained elevated, whereas credit spreads have recovered rapidly, thanks to the central bank backstop.

Figure 154: Historical comparison of SPX put option premium vs. CDX IG 5Y



Source: J.P. Morgan

Figure 155: Historical comparison of SX5E put option premium vs. iTraxx Main 5Y

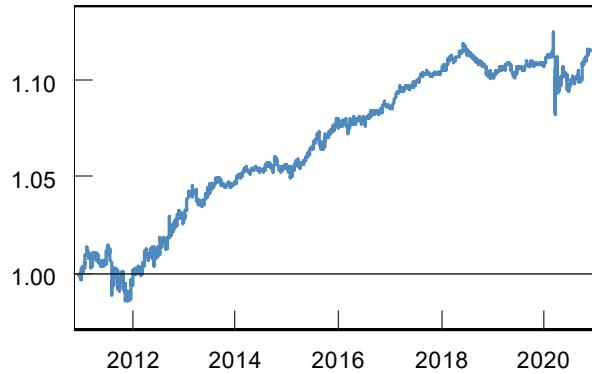


Source: J.P. Morgan

In Figure 156 and Figure 157, below, we show the effectiveness of our trade signals from above. That is, we sell protection on the asset class with the higher cost, and buy protection on the asset class with the lower cost, sized at the ratio of 1.5x equity vs. 1x credit notional. The ratio is set to be approximately volatility neutral. The positions are rebalanced every 6 months in keeping with the credit index rolls. As we can see, the signals have generally been profitable. Combined with our credit and equity strategists' fundamental views, we find it attractive to enter into the relative value trades.

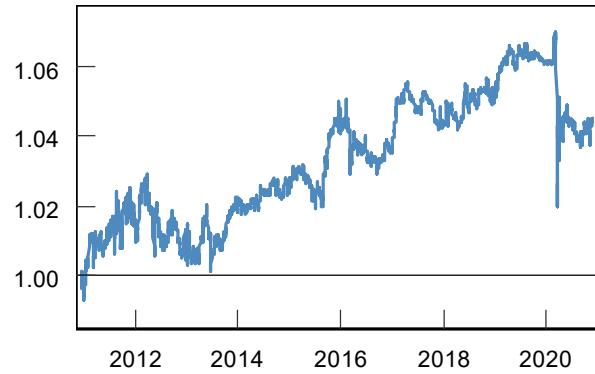
Davide Silvestrini (EMEA)  
Bram Kaplan (Americas)

Figure 156: SPX put vs. CDX IG carry based signal strategy P&L



Source: J.P. Morgan

Figure 157: SX5E put vs. iTraxx Main carry based signal strategy P&L



Source: J.P. Morgan

In terms of implementation, we recommend the following (all pricings are indicative). The positions are sized so that they are approximately premium and volatility neutral.

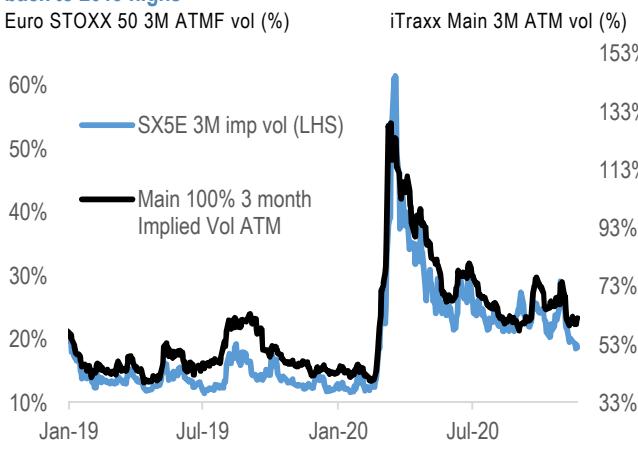
- 1) Sell \$150MM notional 5Y 40% put on the SPX at 1.71% vs. buying \$100MM CDX IG 5Y protection at 51.17bps
- 2) Sell €150MM notional 5Y 30% put on the SX5E at 1.70% vs. buying €100MM iTraxx Main 5Y protection at 47.375 bps

## Equity vs. credit call switches

The latest market rally led to a **drop of European equity volatilities versus credit volatilities**. Throughout 2020, the implied volatility of Euro STOXX 50 remained elevated compared to credit options implied volatility. This is mainly attributed to the strong outperformance of European credit indices versus European equities, year to date.

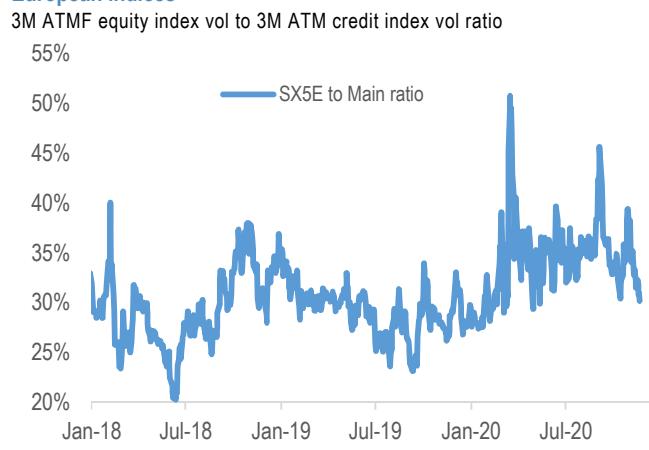
Figure 158 shows the comparison of the Euro STOXX 50 implied volatility and the iTraxx Main option volatility. With credit near all-time highs and equities still playing catch up, we think it presents us with an interesting opportunity to initiate equity vs. credit relative value trade via options.

**Figure 158: Euro STOXX 50 and iTraxx main vol have normalized back to 2019 highs**



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 159: Equity to Credit implied volatility ratios have dropped for European indices**



Source: J.P. Morgan Equity Derivatives Strategy.

Given the recent drop in equity implied vol versus credit implied vol, investors should consider buying calls on equity indices funded by selling receivers on CDS indices:

- 1) **Buying Euro STOXX 50 Mar-21 3675 call options for 60.1 IP (ref. 3,521, 31delta) funded by selling 12.6x 45bp strike iTraxx Main S34 Mar-21 receivers for 13.6 cents (spot ref. 47, 31delta).** Table 7 reports the sizing of the two legs for a zero cost structure.

**Table 7: Trade structure for costless long Euro STOXX 50 calls and short iTraxx Main receivers**

Leg	B/S	Instrument	Expiry	Strike	Quote	Notional	Cost
1	B	SX5E Calls	Mar-21	3725	60	226 contracts (€7.96mm)	-135,826
2	S	Main S34 Receivers	Mar-21	45	13.6	100,000,000	136,000

Source: J.P. Morgan Equity Derivatives Strategy.

The implied betas of the two trades (in equity index points per bp of credit spread change) is ~23 for Euro STOXX 50 vs. iTraxx Main, lower than the current level of realized volatility ratio (Figure 160, realized volatility ratio using 30d windows), and is significantly lower than the volatility ratios realized in 4Q19/1Q20 when Main was below 50 and SX5E above current levels.

We expect the ratio of the equity-to-credit realized volatility to remain elevated or go higher as markets continue to rally. This is the scenario where the trade is expected to perform best.

In a scenario where markets stabilize or pull back, both legs should eventually expire worthless at maturity.

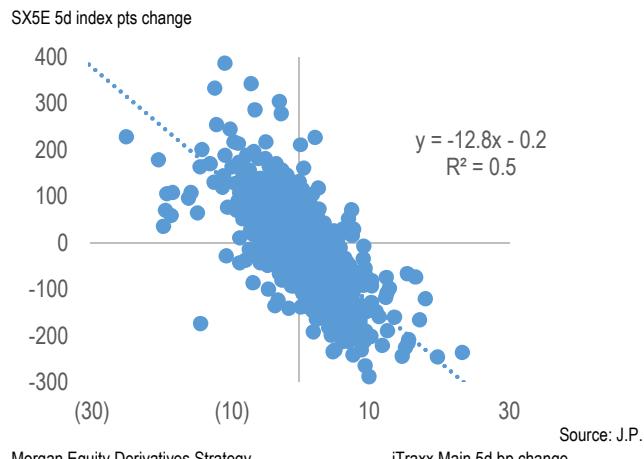
Davide Silvestrini (EMEA)  
Bram Kaplan (Americas)

**Figure 160: iTraxx Main vs SX5E realized beta**  
SX5E / Main realized volatility ratio (30d windows)



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 161: SX5E 5d index pts change vs Main 5d bp change over last 5 years**



Morgan Equity Derivatives Strategy.

Source: J.P.  
iTraxx Main 5d bp change

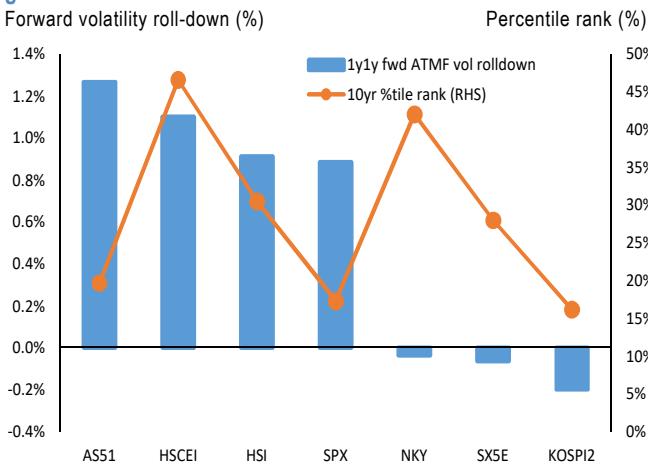
## Long KOSPI2 FVA as a carry friendly tail risk hedge

**KOSPI2 forward screens most attractive for volatility tail hedge:** While we expect fewer and less impactful risk shocks next year (see Outlook for Markets and Volatility section), there remain a few tail risks that may lead to market distress and volatility spikes if materialized. Such risk factors include: 1) the virus lingers for longer or keeps returning due to slow vaccine rollout, 2) growth momentum falters because political arrangements cannot mitigate fiscal drag, 3) a debt-related aftershock hits, similar to EMU Crisis or EM credit crunch, 4) US China tensions do not fade under the Biden administration (see [here](#) and [here](#)). For investors who seek to hedge volatility tail risks, we recommend long forward volatility for more friendly carry profile (compared to long spot volatility). Screening among major global and Asian indices, we find volatility roll-down is most attractive on the KOSPI2 in both absolute and historical ranking terms, making the index the ideal underlying for the long forward volatility strategy. At the time of writing, KOSPI2 1Y1Y forward ATMF volatility roll-down stands at -0.2%, at the 16<sup>th</sup> %tile in the past 10 years (Figure 162).

**Long KOSPI2 FVA straddles:** Long forward volatility can be achieved via buying fixed strike forward starting straddles. The fixed strike level and number of options are determined at the start of the trade, while the fixed strike options will come into existence on the forward start date. Before the forward start date, the forward starting straddles have no direct exposure to realized volatility. In terms of strike selection, our analysis shows the FVA is more attractive for out-the-money downside strikes in terms of volatility roll-down versus spot volatility (Figure 163). On the other hand, we note Vega exposure of the FVA diminishes as we move further OTM. To strike a balance, we recommend investors to select a moderately OTM 85% strike, where the strike corresponds to 10yr median of annual worst drawdowns.

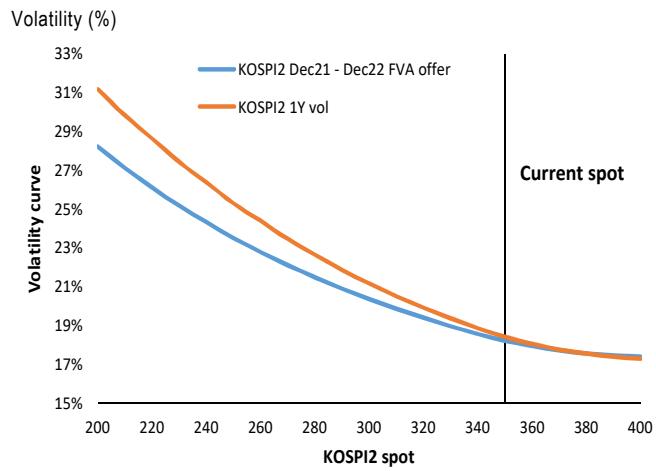
Dissimilar to past years, structured product re-hedging dynamics will have limited impact on the long KOSPI2 FVA trade in 2021 (at least in the first half). As discussed in the Volatility Supply and Demand section, the bulk of existing Korean autocallable products will get knocked out by Jan-21, and we expect the re-accumulation of dealer Vega position to be very gradual. As of end of Oct-20, KOSPI2 Vega outstanding sits at \$5mn, and peak Vega is 60% of current spot. In case of major risk event in the near term, dealers will need to further supply Vega, but the impact should be limited relative to the increased hedging demand during stress times.

**Figure 162: 1Y1Y ATM forward volatility roll-down profile for major global and Asian indices**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 163: KOSPI2 Dec21 – Dec22 FVA and KOSPI2 1Y volatility curve**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Spot reference 352

**How has the KOSPI2 FVA performed in the COVID sell-off?** In case of a significant tail risk event, such as the COVID sell-off in Mar-20, the KOSPI2 FVA would have delivered substantial hedging benefits, driven by a re-pricing of the entire volatility curve amid market stress (Figure 164 and Figure 165). For example, a long KOSPI2 Dec20 – Dec21 85% FVA position entered at the beginning of the year would have gained +5.8% volatility points on a mark-to-market basis (gross) at the height of the volatility spike. At the time, structured product re-hedging dynamics also worked in favor of the long FVA trade. KOSPI2 spot sold off levels past peak Vega, where dealer Vega profile declined as spot declined. Autocallable

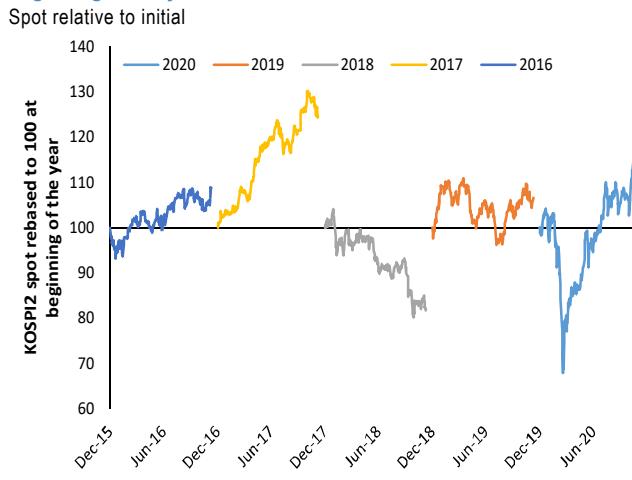
dealers had to buy back short volatility positions, which pushed KOSPI2 longer-dated downside volatility higher (see Volatility Supply and Demand section).

**Carry profile for long KOSPI2 FVA tends to be attractive in a rising market:** Absent a major risk event, the long KOSPI2 FVA strategy would carry relatively well especially in a rallying market. Historically, if we enter a long 1Y1Y 85% FVA trade on the KOSPI2 at the beginning of the year each year, we tend to observe attractive volatility PnL in a rising market such as 2017 and 2H20. For example, YTD, the strategy would have gained +8.7% in terms of gross volatility PnL. Overall, the strategy has an attractive carry profile in a bull market and solid hedging benefits in case of a risk event (Figure 164 and Figure 165). The strategy could underperform in a market grind-lower scenario with muted volatility reaction, similar to what we saw in 2018. However, we think such a scenario is unlikely to occur in 2021.

Please find below indicative pricing:

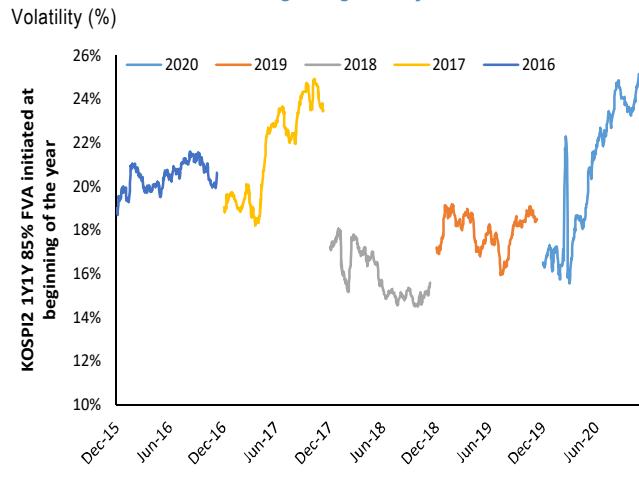
- **Long KOSPI2 09Dec21 – 08Dec22 300 fixed strike forward starting straddles:** volatility offer 20.35% ( $Q = 0.87\%$ ,  $R = -0.09\%$ , spot reference: 352.1; 09Dec21 300 fixed strike volatility 21.81%)

**Figure 164: KOSPI2 annual performance curve relative to spot at the beginning of the year**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Back-tested result is not indicative of future performance.

**Figure 165: KOSPI2 85% FVA annual volatility performance, where the trade is entered at the beginning of the year**

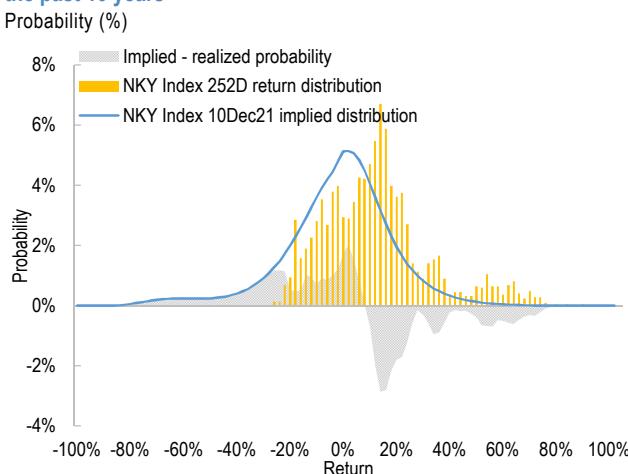


Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Back-tested result is not indicative of future performance.

## Short NKY variance vs up-variance to play post-COVID risk normalization

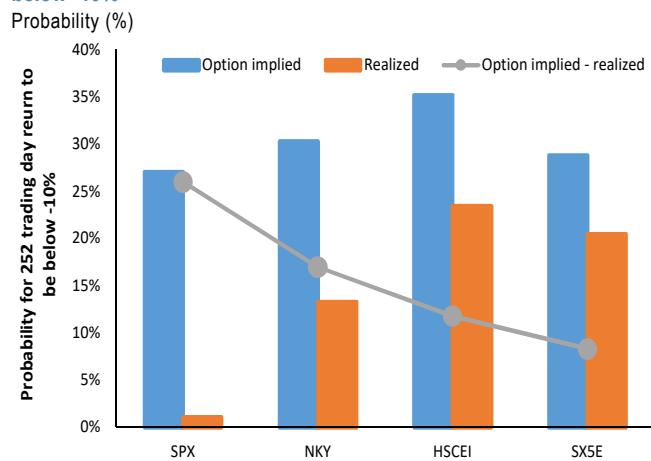
As discussed in the Outlook for Markets and Volatility section, we think volatility risk parameters remain elevated, we expect risk pricing to continue to normalize from current levels, driven by a recovery from COVID. Looking at the current implied versus realized 1yr return distribution, we find the option market continues to price a high risk premium in Nikkei 225 downside (Figure 166). For example, the current implied probability of the Nikkei posting a larger than 10% decline in the next year is ~30%, versus 13% realized probability in the past 10 years. The 17% implied – realized return distribution gap is among the highest in a universe of major global indices (versus 26% in the S&P 500, 12% in the H-shares and 8% in the Euro Stoxx 50, Figure 167). For investors who share our view of overpriced implied downside on the Nikkei 225, we recommend entering a short Nikkei variance - up-variance spread trade for risk premium collection. Entry level for the spread is attractive currently due to still elevated convexity (see Skew section). Downside risk on the trade is low as our Equity Strategist expects a strong rally with limited scope of downside for Japanese equities next year (see [here](#)).

**Figure 166: NKY current implied and realized 1y return distribution in the past 10 years**



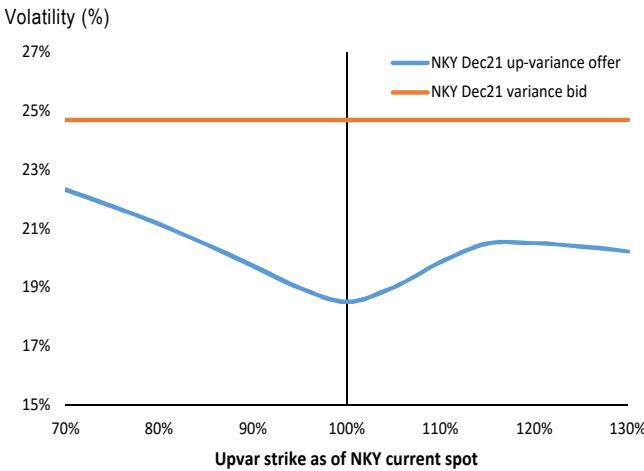
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 167: Option implied versus realized probability of 1Y return below -10%**



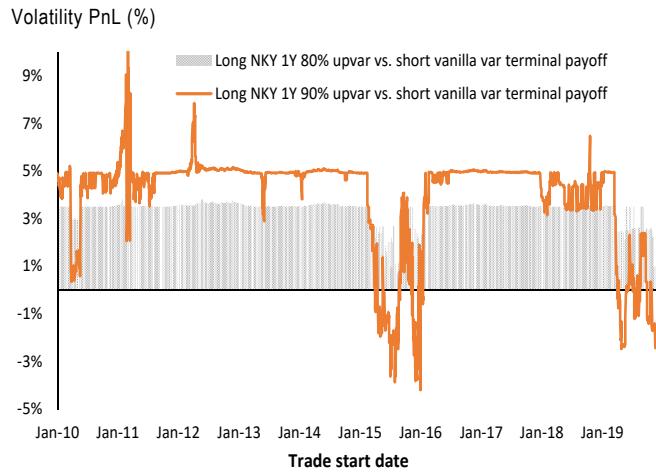
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* The analysis is based on past 10 year price data history. Indices are ranked option implied – realized probability spread.

**Figure 168: NKY Dec21 variance and up-variance pricing for various strike levels**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Based on current pricing.

**Figure 169: Terminal PnL of long NKY 1Y 80% / 90% up-variance versus short vanilla variance**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Based on current pricing, back-tested result is not indicative of future performance.

**Picking the optimal up-variance strike:** Figure 168 shows indicative pricing for Nikkei 225 Dec21 up-variance across various strikes. The up-variance is most attractively priced for strikes near current spot, and is expensive as we move the strike further out-the-money. On the other hand, we note the risk to the trade is the Nikkei spot selling off materially past the up-variance strike while accruing significant realized volatility. Our back-test analysis shows the risk reward for the trade is significantly better if 80% up-variance is bought versus that if we buy 90% up-variance, despite slightly less attractive volatility spread. Based on current pricing, the short Nikkei 225 1Y variance, long 80% up-variance trade would have delivered positive terminal PnL 100% of the time in the past 10 years, versus 91% of the time in the case where 90% up-variance is bought (Figure 169). We think the additional volatility premium is insufficient to compensate for the potential losses in a downside scenario for the latter version. We recommend buying 80% up-variance for the spread trade.

Please find below indicative pricing:

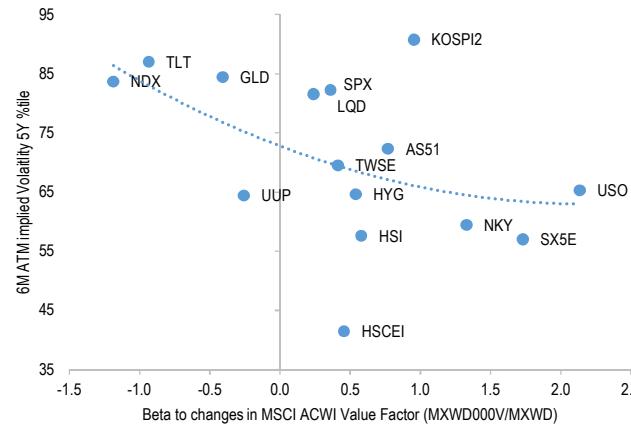
- **Short NKY 09Dec21 variance versus long 80% up-variance:** 24.6%/20.8% volatility

## Asia equity vs gold volatility spread trades amid further value rotation

While value rotations in recent years are mostly short lived, we believe this rotation has legs (see [here](#)). This is mainly driven by our views that bond yields will start moving higher, political tail risks ease, adverse COVID impact on market peaks, further stimulus starts to be priced in, as well as on the expected re-acceleration in economic activity in 1H21.

**We expect the ongoing shift in style preferences in favor of value will produce lasting impact on cross asset volatility.** Using history as a guide (Figure 170), we have observed that oils (USO) and Nasdaq (NDX) are the two extremes on the value factor sensitivity spectrum. Among a list of equity index and cross asset ETFs, oils exhibit the highest positive sensitivity to value as better growth outlook typically bodes well to energy consumption. On the other hand, Nasdaq exhibits the highest negative sensitivity to value, likely as a result of polarized leadership of growth over value in the past few years. The magnitude of the value sensitivity carries implications on volatility in our view. If value were to become a major market driver, we expect assets with higher absolute value sensitivity to become more volatile and vice versa. Nevertheless, a status check of the value sensitivity vs implied volatility (normalized by their 5Y range) shows mixed reaction in implied volatility to value thus far. For example, gold (GLD) volatility is among the most expensive ones relative to our regression based estimates. Conversely, Hang Seng (HSI) and H-shares (HSCEI) to a lesser degree due to rebalance distorted volatility history) are examples of assets with cheap implied volatility.

**Figure 170: Implied volatility in GLD and HSI are among most dislocated vs levels implied by their sensitivity to the value factor**



Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 171: Statistically current levels are in favor of owning equity volatility vs gold for indices including SX5E, and HSI etc**

	Equity vs gold current spread			Realized spread 5Y range		
	6M ATM IV spread offer	6M RV spread	IV spread 5Y %tile	10th %tile	50th %tile	90th %tile
SX5E	-0.3	0.5	1%	-0.3	3.3	12.6
TWSE	-2.1	-1.5	6%	-3.5	-0.7	6.1
HSI	0.9	0.3	7%	0.5	4.5	10.3
HSCEI	2.1	1.9	7%	2.8	7.0	13.1
KOSPI2	0.7	9.4	9%	-3.2	1.5	7.3
AS51	-1.0	-1.5	13%	-2.5	-0.1	8.0
NKY	1.6	0.7	17%	0.2	7.4	12.5
SPX	2.3	3.3	47%	-3.7	0.6	10.6
NDX	7.2	8.0	59%	-1.7	4.6	18.0

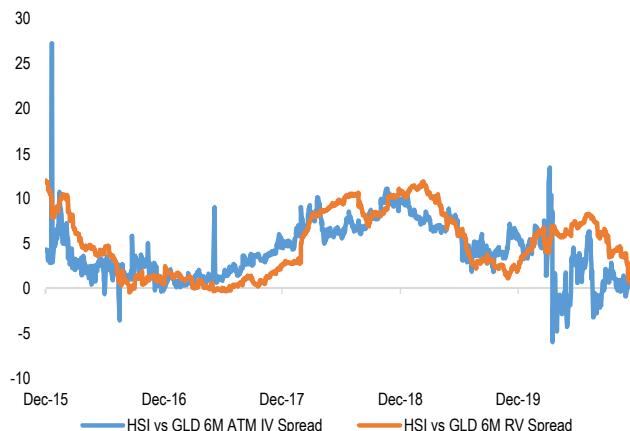
Source: J.P. Morgan Quantitative and Derivatives Strategy

**We prefer spread trades to play the volatility convergence amid further value rotation.** We see better risk reward in spread trades compared to outright positions considering our view that volatility risk parameters are likely normalize back to the pre-COVID range next year. A further look into the volatility spreads shows equity vs gold volatility spreads are statistically attractive at current entry levels (Figure 171). We find a pattern in favor of owning equity volatility vs gold for indices including SX5E and HSI etc. The attractiveness of the pairs are best illustrated by a low implied volatility spread entry level (implied spread trading below 10<sup>th</sup> 5Y percentile) and high hit ratio (implied spread close to 10<sup>th</sup> 5Y percentile of the realized spread).

**We recommend buying HSI/HSCEI vs gold volatility spread via straddle switch.** Our analysis on the value sensitivity vs implied volatility relationship and historical entry levels leads to the preference of the pair. We think the HSI/HSCEI volatility vs gold are more likely to perform in a risk-on environment. While the arrival of an effective vaccine and rebound in economic activities are bearish factors for both equity and gold volatility, we see more offsetting factor on the equity side. We think the long HSI/HSCEI volatility positions will benefit from [pickup in warrant flows](#), [demand for upside volatility](#) due to the wealth of investment opportunities brought by the secondary listings of Chinese ADRs in HK, [re-shuffling of Hang Seng and H-shares](#) gearing toward a higher volatility profile and [a change in Korea autocallable underlying preference](#) in favor of KOSPI 200 but at the expense of H-shares. A main risk to the trade is increased money printing under a Biden administration if lockdowns were to become more widespread and longer in duration. If this happens, equity volatility could underperform gold volatility. Please refer to Figure 171 for indicative pricing.

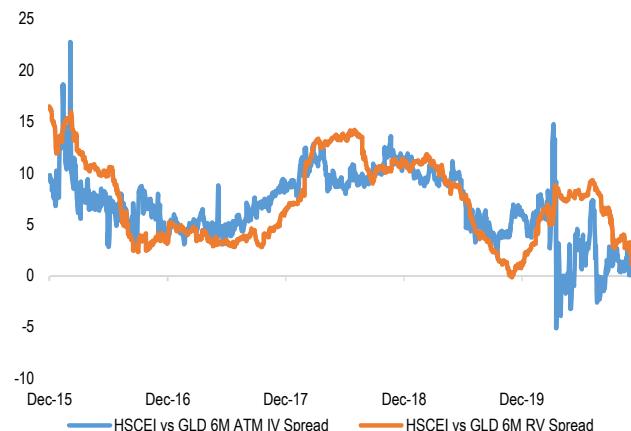
Davide Silvestrini (EMEA)  
Bram Kaplan (Americas)

Figure 172: HSI vs GLD volatility spread history



Source: J.P. Morgan Quantitative and Derivatives Strategy

Figure 173: HSCEI vs GLD volatility spread history



Source: J.P. Morgan Quantitative and Derivatives Strategy

## Dividend futures trades

### S&P 500: stay long 2021 and 2022 dividend futures

In the Dividend section we laid out the rationale for remaining constructive on S&P 500 dividends. In short, the fundamental environment for dividends is strong, with companies delivering strong shareholder remuneration, earnings expected to rebound strongly next year, and corporate balance sheets solid. Yet, despite a favorable fundamental picture, S&P 500 dividend futures continue to embed a large risk premium.

While we're fundamentally positive across the whole dividend curve, we prefer the short-end where pull-to-realized exerts greater influence, the holding period to realize gains is smaller, and supply from structured product hedging flows is less impactful. As such, **we recommend staying long the 2021 and 2022 S&P 500 dividend futures** (which we previously recommended going long [here](#)). The current upside to bottom-up estimates stand at ~6% for 2021 and ~15% for 2022 dividend futures, after factoring in the expected negative impact of TSLA's addition to the S&P 500 later this month (see [here](#) for details).

### European dividend trades: favor 2022 over 2021, SX7E > FTSE 100 > CAC40 > Euro STOXX 50

We continue to find European dividend futures attractive. We **favor 2022 dividend futures over 2021** as they are substantially less exposed to the digital risk posed by the ECB dividend ban on Banks (see SX7E dividend section for a full discussion). Furthermore, 2021 calendar year dividend will be largely paid out of FY20 earnings, which were affected by the lockdowns, and the recovery in European economic activity will likely be progressive as it will take time to deploy vaccines in 2021. The **pecking order** of our 2022 dividend futures recommendations is SX7E, FTSE 100, CAC 40 and finally Euro STOXX 50. This different conviction level is mostly driven by differences in expected upside, but the sector exposure of the various indices and their exposure to value/cyclicals also play an important role (see dividend section for full detail).

### Nikkei 225: Buy MNDZ1 on strong global cyclical recovery

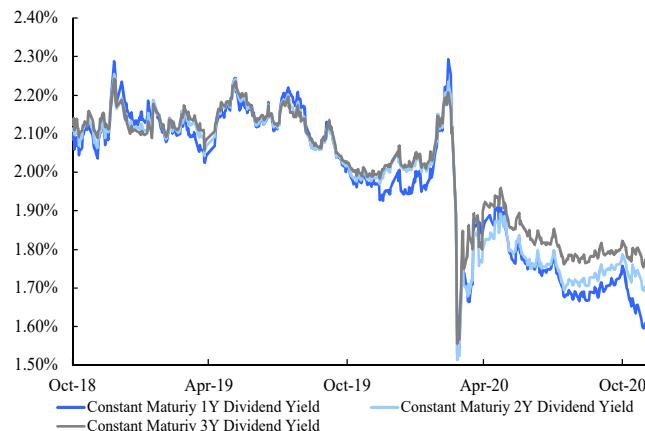
After seeing a major setback in Nikkei dividends in 2020 amid the COVID shock, we are entering the New Year with incrementally positive fundamental outlook. Our bullish view is mainly driven by our expectation of continued economic recovery and Japan's high leverage to the global cycle. Historically, a strong global manufacturing PMI typically leads to material EPS upward revisions and realized dividend growth in Japan. Based on our global PMI based regression model, we expect Nikkei realized dividends to grow 15% in 2021, which implies ~11% upside for Nikkei 2021 dividend futures. We recommend investors to enter long MNDZ1 to position for upside. We think longer-dated dividends are less attractive due to the steep term structure.

### H-shares dividends: Index rebalance headwind to outweigh improving fundamentals, Short 2022 vs 2021 spread

We think the current discount in H-shares dividend futures is far from sufficient to compensate for the loss in a worst index rebalance scenario. From a fundamental perspective, we expect the positive earnings momentum from 3Q20 results to carry into next year. On the index rebalance front, our [preliminary assessment](#) on the rebalancing impact suggests a 25% year-on-year drop in index dividend points in CY22 from CY21 based on our assumptions around Hong Kong registered free float shares and share migration process from US to Hong Kong. Recent development suggests the inclusion of WVRs and secondary listings into the H-shares index may happen earlier in time and higher in index weights compared to our preliminary assessment. This would likely lead to major downward revisions in our dividend estimates, which are unlikely to be offset by the improving fundamentals. We expect the index rebalance to affect DHCZ2 more negatively. We recommend investors to take advantage of the current flatness between DHCZ1 and DHCZ2 to enter a short term structure trade. Indicatively, buying DHCZ1 vs selling DHCZ2 can be entered a spread of 2 points.

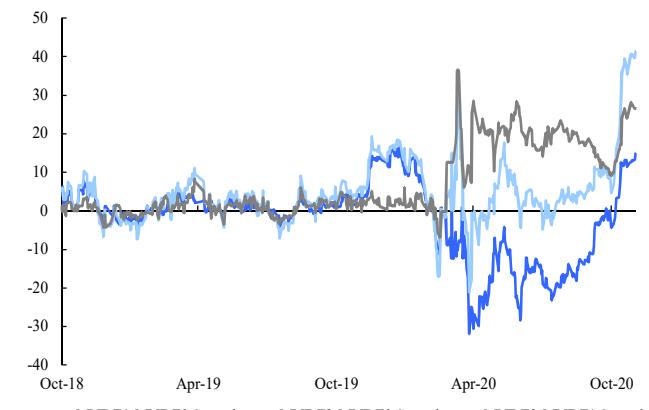
Davide Silvestrini (EMEA)  
Bram Kaplan (Americas)

**Figure 174: NKY constant maturity dividend yield**



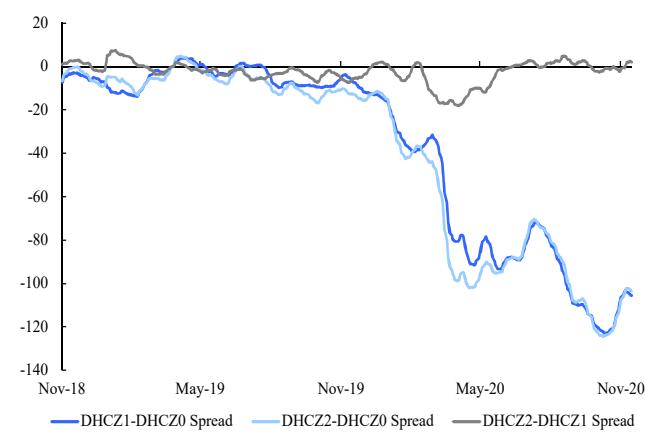
Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 175:NKY dividend term structure history**



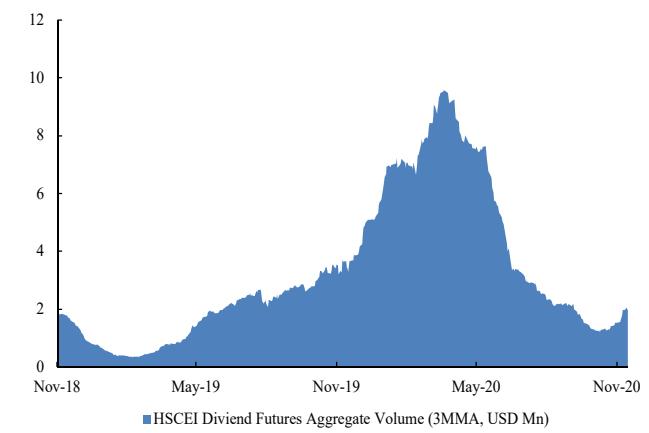
Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 176: H-shares dividend term structure history**



Source: J.P. Morgan Quantitative and Derivatives Strategy

**Figure 177: H-shares dividend futures aggregate volume in USD mn (3MMA)**



Source: J.P. Morgan Quantitative and Derivatives Strategy

## SMI dispersion

At the beginning of 2020 we [recommended](#) SMI dispersion positions, both in vanilla and bespoke basket formats. Both trades performed well in 2020. Our bespoke basket aimed to capture two macro themes, the trade war/China slowdown and rates volatility. First, with the outbreak of Covid-19 starting in China, our China sensitive names outperformed the rest of the index in vol terms in Q1. Then as Covid-19 went pandemic, single stock volatility generally outperformed index volatility, and our proposed bespoke basket significantly outperformed SMI volatility, partly thanks to its overweight in financials and consumer discretionary names.

For 2021, we think these two themes will continue to be relevant and we reiterate our recommendation. Specifically, the basket is comprised of the following names:

- **NESN, NOVN, ROG:** The largest index constituents by far. They are included to ensure that the basket doesn't diverge materially from the vanilla dispersion basket
- **CFR, UHR:** Both companies are consumer discretionary names leveraged to Chinese consumption growth with substantial sales exposure to Greater China (CFR 27%, UHR 35%). After the US election, market consensus view is that relationship between the US and China should improve from here. This might be true but inevitable friction between the US and China might still arise leading to a market correction.
- **UBSG, CSGN:** In our earlier [report](#), we analyzed the market-adjusted betas of each SMI constituent stock versus 10y UST. Specifically, we regress each index constituent against SXXP, and we then regress the residual of the first regression against 10Y UST. We find UBSG and CSGN display the highest beta to rates historically. Unsurprisingly, Financials is one of the sectors most exposed to interest rates.

As shown in Table 8, we apply an equal weight to each name in our basket.

**Table 8: SMI customized dispersion basket**

Ticker	Weight	Sector	Theme
SMI Index	-100.0%	Index	
NESN SE	14.3%	Consumer Staples	Index weight
NOVN SE	14.3%	Health Care	Index weight
ROG SE	14.3%	Health Care	Index weight
CFR SE	14.3%	Consumer Discretionary	Chinese consumption growth
UHR SE	14.3%	Consumer Discretionary	Chinese consumption growth
UBSG SE	14.3%	Financials	Rates volatility
CSGN SE	14.3%	Financials	Rates volatility

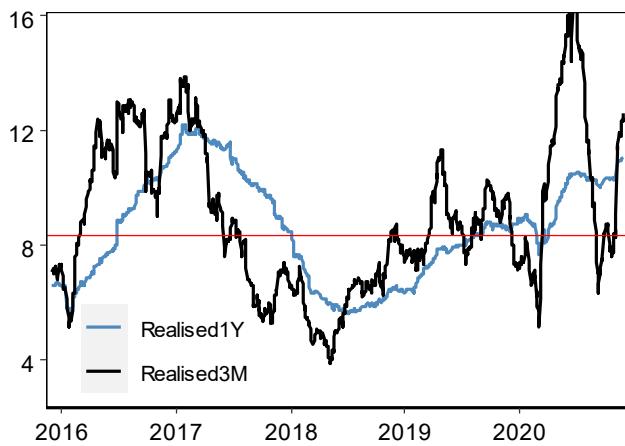
Source: J.P. Morgan Equity Derivatives Strategy

Indicatively, **the Dec-21 basket of vol swaps vs. SMI index is offered at 8.30%** (2.5x capped on both sides). The 3M realized volatility of the basket is 12.7%.

The entry level of our proposed bespoke basket (Figure 179) has improved gradually since the March sell-off.

**Figure 178: Realized volatility spread and entry level of our proposed SMI dispersion basket**

Volatility spread (%)

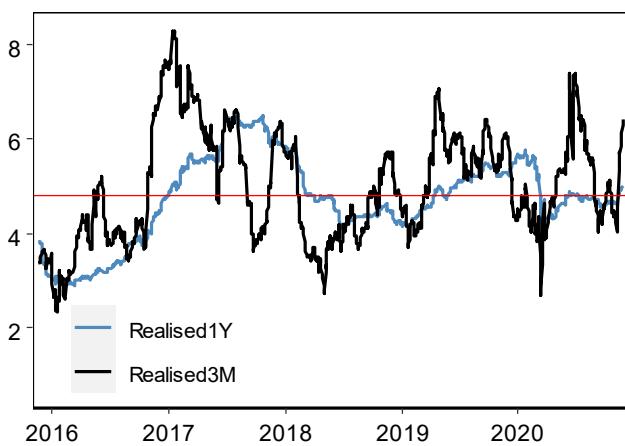


Source: J.P. Morgan Equity Derivatives Strategy.

Figure 105 shows the backtest of **Top10** SMI vanilla dispersion versus current entry level. Despite the attractive near term carry (3M realized volatility spread currently stands at 6.6%), we find the current entry level of **4.75%** for Dec21 challenging versus historical 1Y realized levels.

**Figure 180: Realized volatility spread and entry level of Top10 SMI dispersion basket**

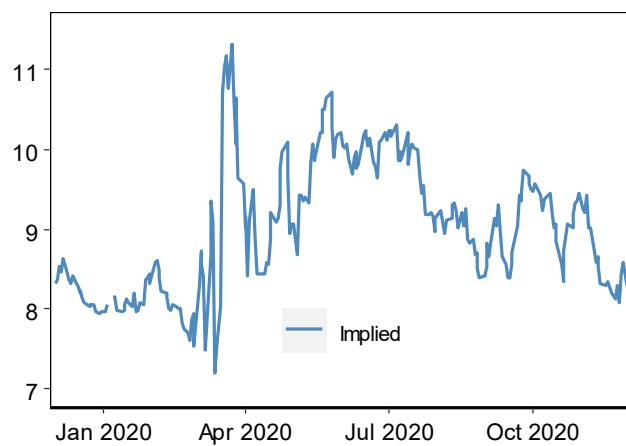
Volatility spread (%)



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 179: Historical entry level of our proposed SMI dispersion basket**

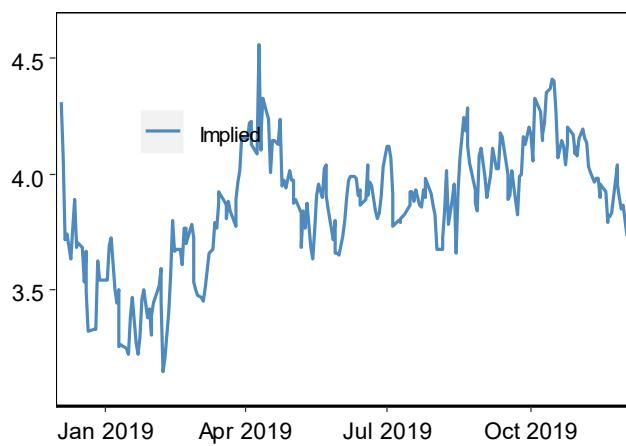
1Y implied volatility spread (%)



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 181: Historical entry level of the vanilla top10 (ex-ALC) SMI dispersion basket**

1Y implied volatility spread (%)



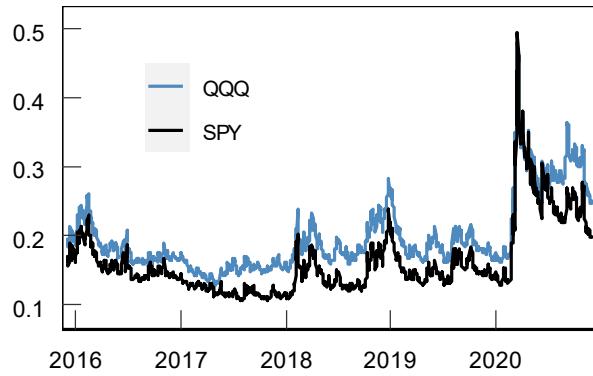
Source: J.P. Morgan Equity Derivatives Strategy.

## Hedging Trades

### Long tail protection on NASDAQ

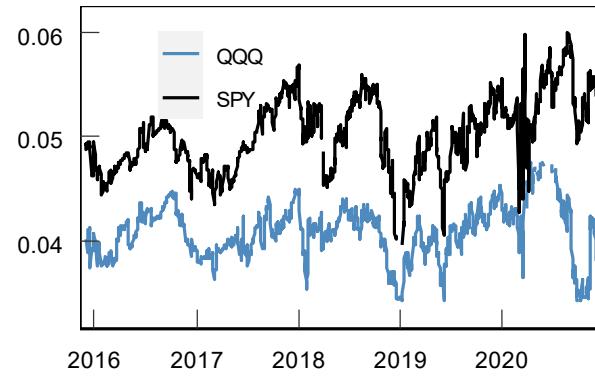
From a volatility perspective, we find outright buying of NASDAQ volatility to be unattractive. The level of its implied volatility to be elevated compared to the S&P 500 (Figure 182). At the same time, the NASDAQ ATM-90% skew continues to be flat (Figure 183). Moreover, in terms of the rate of change, we are again witnessing a recent flattening in the NDX skew to a much greater extent than the SPX.

Figure 182: 6M ATM Implied volatility



Source: J.P. Morgan

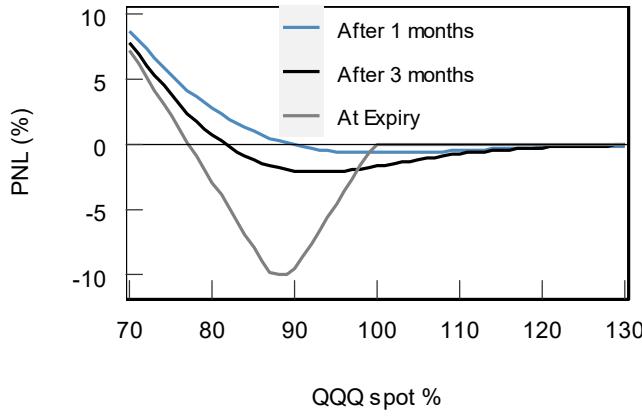
Figure 183: 6M ATM – 90% skew



Source: J.P. Morgan

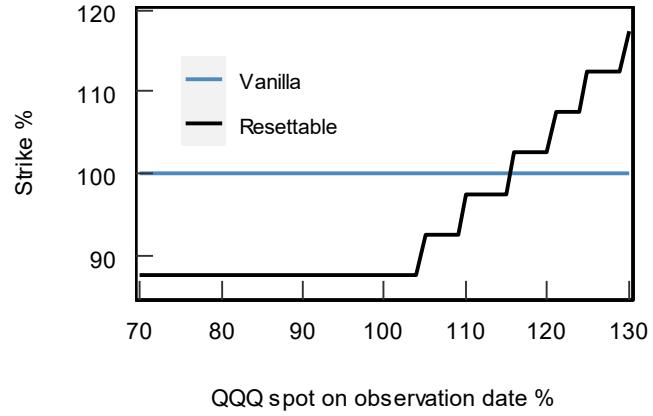
We propose a 6M ATM-90-87.5% put ratio on QQQ (selling ATM and buying OTM puts) for approximately zero cost, indicatively. Given the volatility parameters described above, we find put ratios to be an attractive protection structure. The payoff and hypothetical mark to market of the structure can be seen in Figure 184. As an alternative exotic option implementation, we propose selling 1x 6M ATM put to buy 1.75x 6M 87.5% resettable puts on QQQ, for zero premium. The resettable puts will reset its strike 5% higher for every 5% higher in spot, observed at monthly frequency, with no cap on resets. The added the resettable feature reduces the strike risk. The structure begins its life as a 1x1.75x put ratio (long 1.75x OTM puts), and will turn into a 1.75x1 put spread (long 1.75x near the money puts) if the QQQ rallies by more than 15% in six months (Figure 185). Regardless of the spot moves, the structure is net long puts and offers tail risk protection at all times.

Figure 184: Hypothetical P&L of the vanilla put ratio at various stages of the trade



Source: J.P. Morgan

Figure 185: The resettable structure changes from short ATM put ratio to long put spread if QQQ rallies more than 15%

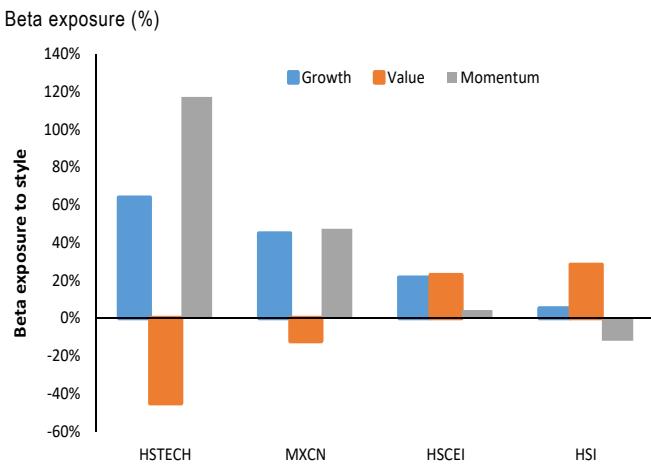


Source: J.P. Morgan

## Hedge against China style rotation and tighter Internet regulations

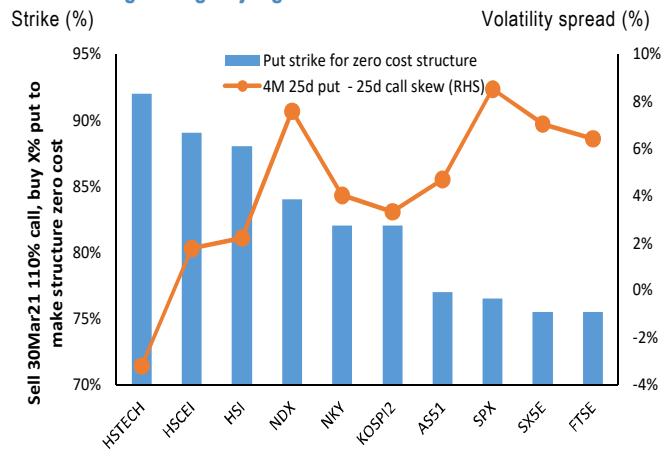
**Hang Seng Tech is among indices most affected by a potential style rotation.** In 2021, we expect Value to deliver strong outperformance on the arrival of a vaccine and an expected cyclical recovery (see Outlook for Markets and Volatility section). Growth and Momentum, on the other hand, could come under pressure in case of a major style rotation after seeing record performance this year. Among major China offshore indices, the Hang Seng Tech has the highest exposure to Growth / Momentum by far (Figure 186), which makes the index most vulnerable to potential rotation flows and profit taking. **Tighter regulations on Internet companies is another major downside risk for the Hang Seng Tech** (see Outlook for Markets and Volatility section). We think the introduction of anti-trust rules signals a shift towards strengthened regulatory oversight on China Internet companies. In case of any update on implementation details on the anti-trust regulations or introduction of new regulations, major Internet stocks could experience another leg of sharp sell-off, similar to what we saw in early November (Tencent, Alibaba and Meituan dropped 7.4%, 9.8% and 9.7% respectively on Nov 11, 2020). This will in turn translate into material downside in the Hang Seng Tech considering the high representation of these Internet stocks in the index.

**Figure 186: Major China offshore index exposure to Growth, Value and Momentum**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 187: Put strike for 30Mar21 zero-cost risk reversal and 25d skew ranking among major global and Asian indices**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. \* Based on current pricing.

**Hedge HSTECH downside while exploiting inverted skew via risk reversals:** Looking at the volatility surface of the Hang Seng Tech, extremely inverted skew is among the most notable characteristics. The rich upside convexity driven by strong retail warrant demand on the ‘New Economy’ companies (see Volatility Supply and Demand section), which in turn drives upside volatility in both single names and the index higher. We recommend investors to consider hedging strategies that can leverage the elevated implied upside volatility. For example, bearish risk reversal screens attractive on the Hang Seng Tech compared to other major global and Asian benchmarks due to inverted put – call skew. By selling a 4M 110% call, investors can buy a 92% put for zero-cost, the put strike the highest in a universe of major indices (Figure 187). For implementation, investors can consider the zero-cost structure, or buy a Mar21 90% put versus sell a 110% call for asymmetric risk profile and receive 0.79% net credit upfront.

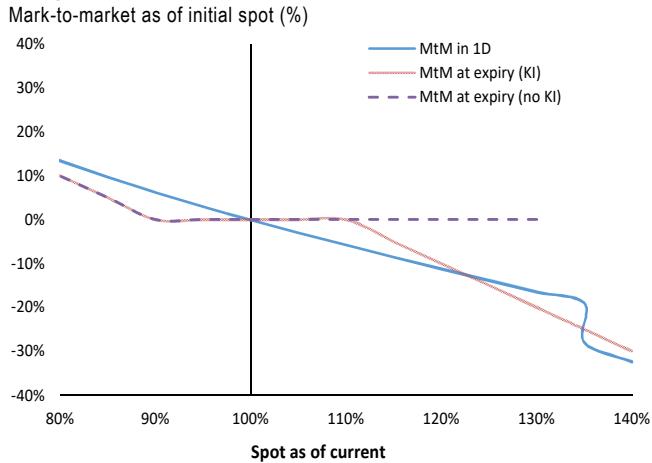
**Utilizing knock-in feature on the call to limit upside risks in a moderate upside scenarios:** Investors can consider selling a knock-in call instead of a vanilla call to fund protection for the benefit of potentially lower upside risks. For example, a Hang Seng Tech Jun21 90% put can be fully funded by selling a 110% call knocking in at 135%. If the barrier is never triggered by the expiry of the trade, the payoff is the same as a vanilla 90% put; however, in case spot ever trades above 135% of current spot, the call option would knock in and investors would receive the payoff same as a 90% - 110% bearish risk reversal at the expiry of the trade (Figure 188 and Figure 189).

Please find below indicative pricing:

- **Buy HSTECH 30Mar21 90% puts versus selling 110% calls:** offer -0.79% (33.2%/34.0% volatility, -60% delta, -0.03% Vega; the trade is net credit upfront)

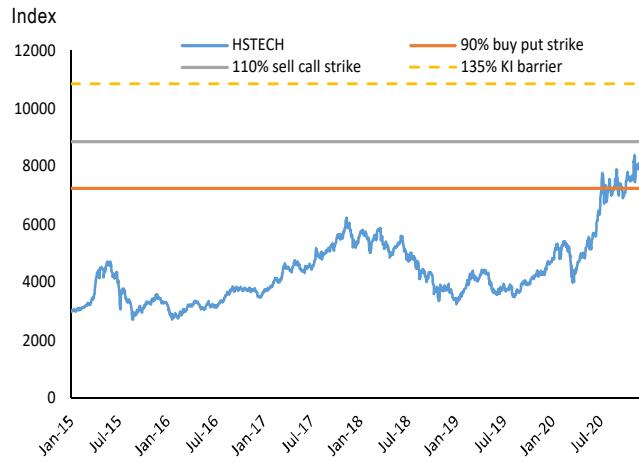
- **Buy HSTECH 30Jun21 90% puts versus selling 110% call knocking in at 135% (continuous barrier): offer zero cost (-56% delta, -0.05% Vega )**

**Figure 188: Indicative mark-to-market profile 1D into the trade and at expiry for the HSTECH knock-in bearish risk reversal**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 189: HSTECH spot history versus knock-in bearish risk reversal strikes and barrier**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

## Stock market concentration risk hedge

Stock crowding is among the major risk factors that contributed to a highly uncertain market environment this year (see [here](#) and [here](#)). We argued high stock market concentration does not necessarily lead to a rise in volatility. However, history suggests positioning crowding lays the groundwork for market swings should unexpected surprise come through. The broad-based post-election rally prompted us to review to what degree the stock market concentration risks have eased.

**Measuring stock concentration risks:** We construct a composite stock market concentration score based on signals include factor dispersion, market breadth and index efficiency. **Factor dispersion** aims to capture the return correlation between equity style factors. More concentrated fund flows typically lead to a decline in factor correlation and vice versa. **Market breadth** can be measured as the percentage of MSCI country index members trading above 200D moving average. A narrow market breadth means only a few stocks are leading the index higher, which is a sign of stock concentration. **Index efficiency**, as measured by the reciprocal of the Herfindahl Hirschman Index (sum of weights of squared), compares how diversified a benchmark is relative to an equal weighted portfolio. The reciprocal of the HHI is commonly interpreted as the effective number of stocks in the index and takes the value of N for an equal weighted portfolio comprising N stocks. The lower the index efficiency, the higher the stock concentration. The output of the model is standardized to a value from 0 to 1 by taking the average of the percentiles of the components. A standardized output makes it easier to compare stock concentration across markets as well as relative to history.

**Figure 190: Measuring stock concentration risks in major Asia and global markets (sorted by composite stock market concentration score vs history)**

Measure	Definition	Japan	China	US	Taiwan	Korea	Australia	Europe
Factor dispersion	3M return correlation between MSCI growth and value factor, 10Y %tile	0.02	0.00	0.14	0.29	0.67	0.21	0.31
Market breadth	% MSCI country index member above 200D moving average, 10Y %tile	0.69	0.81	0.98	0.95	1.00	0.83	0.91
Index efficiency	Reciprocal of the Herfindahl Hirschman Index (sum of MSCI country index weights squared), 10Y %tile	0.50	0.14	0.04	0.01	0.05	0.70	0.74
Composite stock market concentration score (0 to 1, small value is more concentrated)	Average of the components	0.40	0.32	0.39	0.42	0.57	0.58	0.65
Stock market concentration vs history	10Y %tile of the composite stock market concentration score	11%	15%	27%	30%	72%	74%	87%

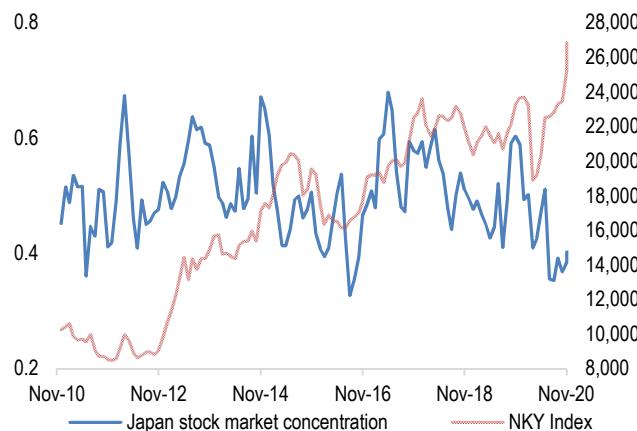
Source: J.P. Morgan Quantitative and Derivatives Strategy.

**Our stock market concentration score suggests Japan, China (MSCI universe) and US could be most vulnerable to unexpected crowded long positions unwind** (Figure 190). Broadly speaking, while improved market breadth have meaningfully reduced stock market concentration risks from historical extremes observed earlier in the year, we find factor dispersion and index efficiency to a lesser degree remain as major contributors to a high reading in our stock market concentration score for Japan, China and US. Current reading of the stock market concentration score for Japan/China/US are ranked at the 11<sup>th</sup>/15<sup>th</sup>/27<sup>th</sup> percentile versus their history over the last 10 years. This suggests stock crowding continues to be a looming risk for heightened market volatilities in those countries. Our expectation is for stock market concentration risks to decline next year mainly as a result of continued value rotation. However, before the concentration risk fade, we think investors should stay vigilant. Catalysts for a fast unwinding of crowded long positions could come from the global cycle (recovery does not play out as expected), US government (a divided government cannot deliver meaningful stimulus) and US-China tensions (broadening of the disputes to tech, trade and financial issues).

**Buy best of put on SPX, HSCEI, and NKY:** We think it is prudent to stay hedged as our stock market concentration score suggests we are not out of the woods yet when it comes to crowding risks. In case of unwind of crowded long positions, we think the three markets could fall in tandem. As a result, we recommend investors buying best of put on SPX, HSCEI and NKY as a hedge against a more correlated correction. While historically the HSCEI index lacks in coverage of new economy stocks, we note the index is transforming into a more growth stocks driven index following the inclusion of Alibaba (9988 HK), Meituan (3690 HK) and Xiaomi (1810 HK) this year. A better liquidity profile in derivatives linked to

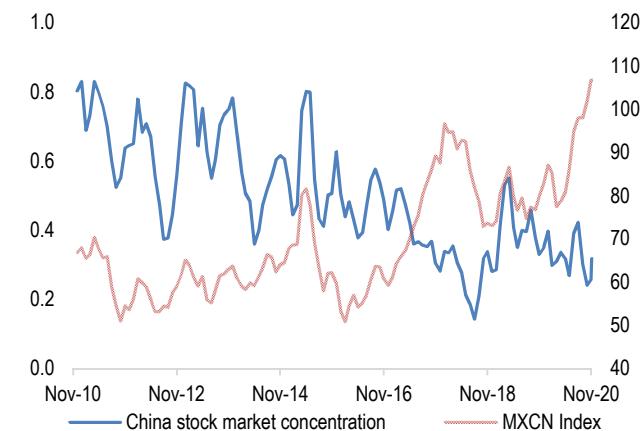
HSCEI makes the index a good substitute for MSCI China index in the best of put. Indicatively, **buying 19Mar21 90% best of put on (SPX, HSCEI, NKY) is offered at 0.67%** (47% discount to average of vanillas, 39% discount to cheapest vanilla). In addition, investors can buy a switch put for a small extra premium to exchange for the potential of basket put-like payoff provided that the switch barrier is not triggered. Investors receive the payoff of a basket put (if none of the underlying falls below the barrier) or a best-of-put (if one of the underlying falls below the barrier) at options expiry.  
**Buying 19Mar21 90% switch put on (SPX, HSCEI, NKY) with 80% daily switch barrier is offered at 0.80%** (39% discount to average of vanillas, 30% discount to cheapest vanilla).

**Figure 191: Japan composite stock market concentration score vs Nikkei**



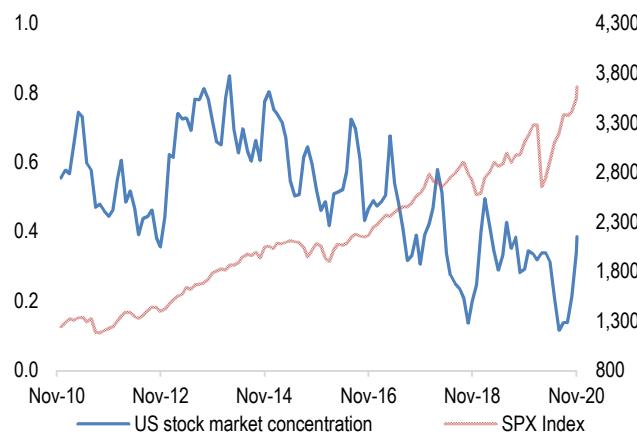
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 192: China composite stock market concentration score vs MSCI China**



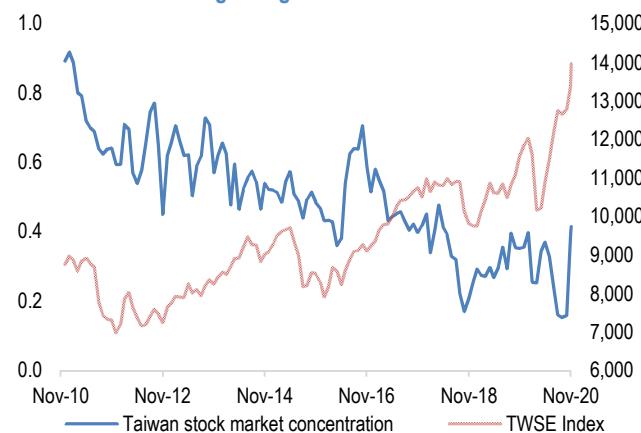
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 193: US composite stock market concentration score vs S&P 500**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

**Figure 194: Taiwan composite stock market concentration score vs Taiwan Stock Exchange Weighted Index**



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

## Cheap European Hedges

European equities had an impressive rally since November after announcements of several highly effective COVID-19 vaccines. J.P. Morgan strategists [Marko Kolanovic](#) and [Mislav Matejka](#) continue to be bullish equities into Q1 2021 and see a further rotation into value/cyclical stocks.

Despite the latest rally, short dated volatility continued to be elevated across European indices. Investors who are concerned about the effectiveness of the vaccines and are looking to add protection, we recommend cost effective structures against a potential market correction.

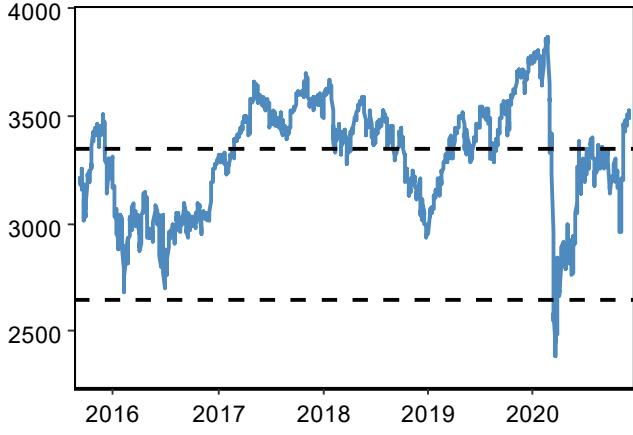
For investors who agree with our strategists' views, we recommend the following cost-effective structure:

**Buying SX5E Mar21 95% Puts with knock-out at 75% (continuously monitored): indicatively offered at 1.27% versus 2.52% for a vanilla 95% Put, 50% discount (ref: 3,525)**

The payoff of the knock-out put at expiry will be the same as a vanilla 95% put provided that the barrier is not breached from now until option expiry. If the barrier condition is triggered, the put option would cease to exist. We recommend to set the knock-out barrier at 75%. Given the current macro backdrop, we think the likelihood of it being breached before Mar21 is small even if SX5E goes below 95%.

Figure 196 shows the historical discount of a 4M 95% KO put with barrier at 75% versus a vanilla 95% put, current discount screens attractive versus pre-Covid levels.

**Figure 195: SX5E spot vs Strike and Barrier of our proposed KO put**  
SX5E spot



Source: Bloomberg Finance L.P., J.P. Morgan Equity Derivatives Strategy.

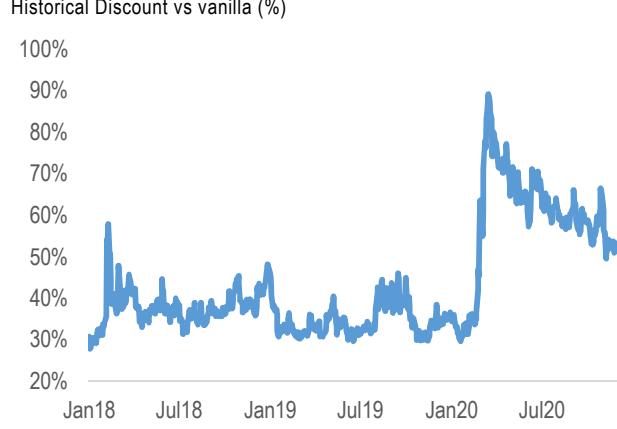
Alternatively, investors who would like to keep some protection in a sell off scenario can consider:

**Buying SX5E Mar21 95%-85% put spreads with the lower strike put knocks in at 75% (continuously monitored): offer 1.80%, 16% more expensive than vanilla 95% - 85% put spreads (ref: 3,525)**

For the appearing put spread, the investor pays a slightly higher premium than the vanilla put spread for a potentially higher payout if the lower barrier 75% (2,644) is not triggered (Figure 197). In the event that the lower barrier is triggered, the payout of the appearing put spread would be the same as a vanilla 95%-85% put spread.

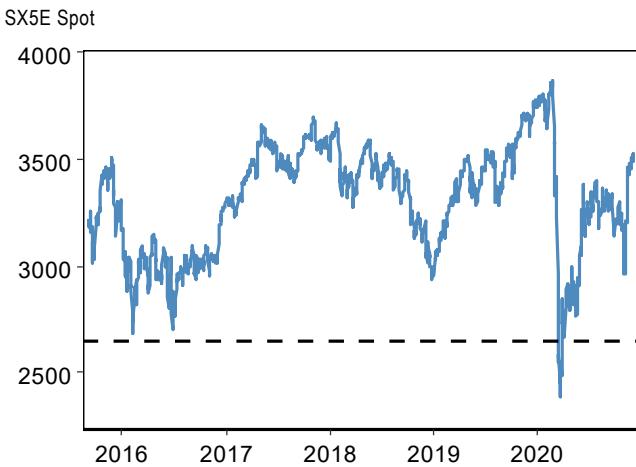
Currently the premium of the appearing put spread over the vanilla put spread is low due to the steep downside skew (Figure 198).

**Figure 196: historical discount of a 4M 95% KO put with barrier at 75% versus a vanilla 95% put**



Source: Bloomberg Finance L.P., J.P. Morgan Equity Derivatives Strategy.

**Figure 197: SX5E spot and lower barrier of our proposed appearing put spread**

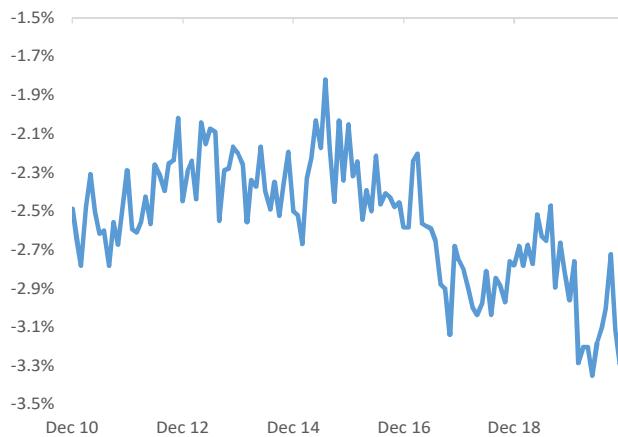


Source: J.P. Morgan Equity Derivatives Strategy.

Cognizant of the fact that many investors are not be allowed to trade exotics by mandate or simply prefer vanilla options for reasons of liquidity, transparency and ease of management, we highlight that the price of vanilla hedges has declined materially. We favor Put Spreads to take advantage of steep skew (Figure 199). The price of a SX5E 3M 95/90 put spread (Figure 200) still trades above 2018/2019 levels, but appears reasonably priced compared to longer history. The structure trades at around the 50th percentile over 5 years, similar to longer maturities put spreads up to 1Y. Investors, can indicatively

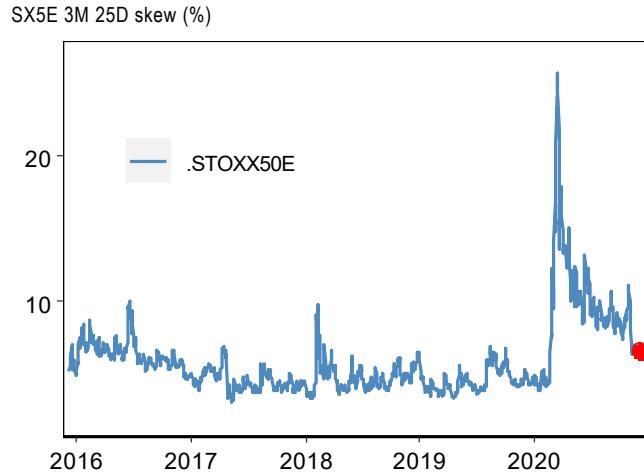
**Buy SX5E Mar-21 95-90 put spreads at 0.96% (ref 3530.08), for a max-payout to premium ratio of 5.2x**

**Figure 199: Downside skew remains at historically steep levels even if vol levels have normalized considerably since March highs**  
Monthly data for SX5E 3m 95 – 90% Vol (%)



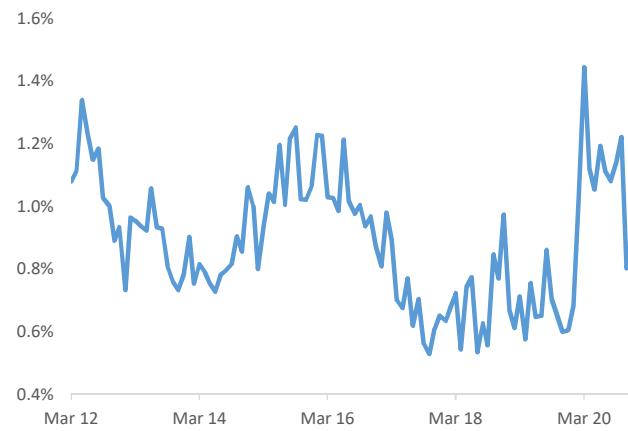
Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 198: SX5E 3M 25D skew is still elevated versus pre-Covid levels and continues to normalize**



Source: J.P. Morgan Equity Derivatives Strategy.

**Figure 200: Euro STOXX 50 3m Put Spreads continue to trade above 2018/2019 levels, but are relatively cheap against long-term history**  
Monthly data for Price SX5E 3m 95/90% Put Spread (%)



Source: J.P. Morgan Equity Derivatives Strategy.

## Buy SX5E Puts conditional on EURUSD down as a cheap tail hedge in 1H21

As a hedge to an otherwise bullish stance for equities into next year, we recommend considering the following hybrids. We are looking for high leverage structures for these hedges commensurate with the low probability of actually needing them.

Underpinning our bullish stance, there are only a few ‘known unknowns’ or visible risks on the horizon, (1) one being the Senate decisions in Georgia. A win by the two Democratic challengers would hand Democrats a Senate majority after all and potentially weigh on markets. Other wildcards for 2021 J.P. Morgan Cross Asset Strategist, John Normand, discusses [here](#) include (2) further adverse impact by the virus and a slow rollout of the vaccine, (3) slowing growth momentum due to fiscal drag, (4) a debt-related aftershock similar to the EMU crisis or EM credit crunch.

The current Equity / FX correlation discount provides an interesting opportunity to obtain just this kind of high leverage and be positioned for any large risk-off period in the first half of 2021. One can buy, indicatively:

**18Jun2021 SX5E 90% Put conditional on EURUSD being below 97.5% of spot at 0.99%** compared to the vanilla at 3.15%, thus offering a 69% discount to the vanilla.

Alternatively, investors can buy the following dual-digital structure indicatively:

**18Jun2021 SX5E/EURUSD European dual digital (down-down), with SX5E < 90%, EURUSD < 97.5% at 8.8%,** providing a pay-out ratio of 11.34 (6% correl offer, spots: 3,524/1.2035, barriers observed at expiry 3,171.6/1.1734)

The equivalent **SX5E digital on its own costs ~24%**, so adding the **EURUSD conditionality with moderate strikes adds ~2.7x leverage** to this trade – we think this makes the risk reward sufficiently interesting to propose this trade.

Looking at the two assets, the most important point to make is that in times of stress they sell off together and correlation can spike to over 60% as we have seen this year. This compares to the implied correlation offer at 6% imbedded in the pricing of these structures.

Moreover, it is beneficial to this structure that we see little further upside to EURUSD from here. Adding the FX conditionality is thus interesting also from a spot perspective. EURUSD has experienced strong appreciation over recent weeks, and is currently closing-in on levels last seen in 2018, having just broken 1.20. This run has been helped by optimism over a Brexit deal, signs the 2nd wave of COVID-19 has peaked in Europe and dollar weakness.

As a consequence the EUR is currently trading at cycle highs on the basis of weighted averages of bilateral exchange rates against major trading partners. When EURUSD last broke current levels back in September the ECB's chief economist, Philip Lane, acknowledged ([here](#)), that the euro's level 'does matter' for monetary policy, thereby talking down the currency. Similar interventions are likely if the Euro continues to strengthen. Fundamentally, our FX strategist, Paul Meggyesi ([here](#)), thinks that **three of the four bullish drivers of EUR have played out**, i.e. the improvement in rate spreads, the EU recovery fund that re-defined tail risk and valuation, leaving only balance of payments as a source of potential upside. Paul sees the currency treading water as it has already reached his 2Q21 target of 1.20. Especially, the larger shock to economic confidence and growth in Europe resulting from the second lock-down, in combination with the relative trend in inflation and the resulting, relative policy expectations between the FED and the ECB presents a headwind for the currency pair.

Ultimately, the relative “**safe haven**” status of the USD remains intact as it continues to be the major economic funding currency. Cross-border funding is USD is ~3x larger than in EUR (\$12.1tn vs \$3.5tn). The deleveraging of corporate balance sheets in times of distress results in significantly more buying of USD than of EUR ([here](#)) – as such the pair will trade anti-cyclical to global growth and is likely to decline if any rocks were thrown at the rather rosy growth outlook in 2021.

Davide Silvestrini (EMEA)  
Bram Kaplan (Americas)

**Figure 201: EUR is trading at cycle high. Policy makers may start talking the EUR down again if it strengthens further.**

ECB Monthly Nominal EER-38 Effective Weighted Exchange Rate -



Source: Bloomberg Finance L.P.

**Figure 202: SX5E and EURUSD have sold off in unison throughout the year, with 70d correlation at +50. We like cheapening downside exposure via FX conditionality at +6% correlation, especially at current EURUSD spot levels**

EuroStoxx50 (blue, lhs), EURUSD (grey, rhs), respective barriers (dashed)



Source: J.P. Morgan Equity Derivatives Strategy.

## Risks of Common Option Strategies

**Risks to Strategies:** Not all option strategies are suitable for investors; certain strategies may expose investors to significant potential losses. We have summarized the risks of selected derivative strategies. For additional risk information, please call your sales representative for a copy of "Characteristics and Risks of Standardized Options." We advise investors to consult their tax advisors and legal counsel about the tax implications of these strategies. Please also refer to option risk disclosure documents.

**Put Sale:** Investors who sell put options will own the underlying asset if the asset's price falls below the strike price of the put option. Investors, therefore, will be exposed to any decline in the underlying asset's price below the strike potentially to zero, and they will not participate in any price appreciation in the underlying asset if the option expires unexercised.

**Call Sale:** Investors who sell uncovered call options have exposure on the upside that is theoretically unlimited.

**Call Overwrite or Buywrite:** Investors who sell call options against a long position in the underlying asset give up any appreciation in the underlying asset's price above the strike price of the call option, and they remain exposed to the downside of the underlying asset in the return for the receipt of the option premium.

**Booster :** In a sell-off, the maximum realized downside potential of a double-up booster is the net premium paid. In a rally, option losses are potentially unlimited as the investor is net short a call. When overlaid onto a long position in the underlying asset, upside losses are capped (as for a covered call), but downside losses are not.

**Collar:** Locks in the amount that can be realized at maturity to a range defined by the put and call strike. If the collar is not costless, investors risk losing 100% of the premium paid. Since investors are selling a call option, they give up any price appreciation in the underlying asset above the strike price of the call option.

**Call Purchase:** Options are a decaying asset, and investors risk losing 100% of the premium paid if the underlying asset's price is below the strike price of the call option.

**Put Purchase:** Options are a decaying asset, and investors risk losing 100% of the premium paid if the underlying asset's price is above the strike price of the put option.

**Straddle or Strangle:** The seller of a straddle or strangle is exposed to increases in the underlying asset's price above the call strike and declines in the underlying asset's price below the put strike. Since exposure on the upside is theoretically unlimited, investors who also own the underlying asset would have limited losses should the underlying asset rally. Covered writers are exposed to declines in the underlying asset position as well as any additional exposure should the underlying asset decline below the strike price of the put option. Having sold a covered call option, the investor gives up all appreciation in the underlying asset above the strike price of the call option.

**Put Spread:** The buyer of a put spread risks losing 100% of the premium paid. The buyer of higher-ratio put spread has unlimited downside below the lower strike (down to zero), dependent on the number of lower-struck puts sold. The maximum gain is limited to the spread between the two put strikes, when the underlying is at the lower strike. Investors who own the underlying asset will have downside protection between the higher-strike put and the lower-strike put. However, should the underlying asset's price fall below the strike price of the lower-strike put, investors regain exposure to the underlying asset, and this exposure is multiplied by the number of puts sold.

**Call Spread:** The buyer risks losing 100% of the premium paid. The gain is limited to the spread between the two strike prices. The seller of a call spread risks losing an amount equal to the spread between the two call strikes less the net premium received. By selling a covered call spread, the investor remains exposed to the downside of the underlying asset and gives up the spread between the two call strikes should the underlying asset rally.

**Butterfly Spread:** A butterfly spread consists of two spreads established simultaneously – one a bull spread and the other a bear spread. The resulting position is neutral, that is, the investor will profit if the underlying is stable. Butterfly spreads are established at a net debit. The maximum profit will occur at the middle strike price; the maximum loss is the net debit.

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