Asia Pacific Equity Derivatives Highlights

From Reforms to Returns: Opportunities and Risks for Japan Dividend Futures and Buyback Strategies

In April, we presented Nikkei volatility as an asymmetric opportunity for long volatility investors. This trade has been highly successful with the breakout in Nikkei driving volatility to higher levels. As attention shifts to the June AGMs, we review strategies to capture opportunities arising from the TSE reform theme.

- **Capturing Japan Re-rating Potential with Nikkei Dividend Steepener**: As Japan's companies strive to raise their ROE under the TSE reforms, there is a compelling case for higher dividend payments. Higher ROE signifies improved profitability and effective capital allocation. This enhanced financial performance can provide companies with surplus earnings, which they can distribute to shareholders in the form of dividends. We think a key objective of the TSE reforms is to bridge the ROE gap in Japan vs other developed markets. Therefore, it becomes essential to examine the ROE profiles of major sectors in Japan and compare them with their counterparts in the US. This analysis can provide insights into potential avenues for boosting ROE and sources of potential dividend surprises. In our bull case scenario, we anticipate an upside potential of 5% and 14% in Nikkei 2024 and 2025 dividend futures. Apart from favorable fundamentals, we find structured product hedging flows and foreign demand as major tailwinds. With a flat term structure, we recommend investors buying Nikkei 2025 vs 2024 dividend steepener to express a bullish view on long dated dividends while reducing exposure to broader market movements.
- **Japan Buyback Implementation Ideas and Risk Considerations**: Share buybacks by Japanese companies are gaining momentum, driven by TSE reforms and investor engagement. Despite a decrease in year-to-date announced buybacks compared to a record 2022, the average amounts per company remain strong, indicating a commitment to enhancing shareholder value. We expect companies with a low P/B ratio to lead in executing share buyback programs, driven by the TSE's push for ROE improvement. However, investing in stocks with share buybacks and low P/B ratios carries drawdown risks associated with the Value factor, which has seen increased positioning. To potentially capture alpha in the buyback theme, we recommend investors to consider a basket of stocks with buybacks and low P/B ratios, while hedging exposure with the MSCI Japan value index.
- **Monitoring the Ongoing Short Squeeze in Nikkei Volatility**: We think the short squeeze in Nikkei volatility is not finished and sustained upward momentum in Nikkei could drive volatility even higher. If the Nikkei index stays at its current level, more knockouts of structured products may occur, intensifying the situation. Recent dealers' reduced long gamma positions, resulting from investors unwinding short call, make the Nikkei index more vulnerable to price fluctuations. A discount forward level makes buying longer dated call options compelling and we recommend investors buying Nikkei Dec24 call spread for long but more balanced sensitivity to volatility moves.

Global Quantitative and Derivatives Strategy

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Capturing Japan Re-rating Potential with Nikkei Dividend Steepener

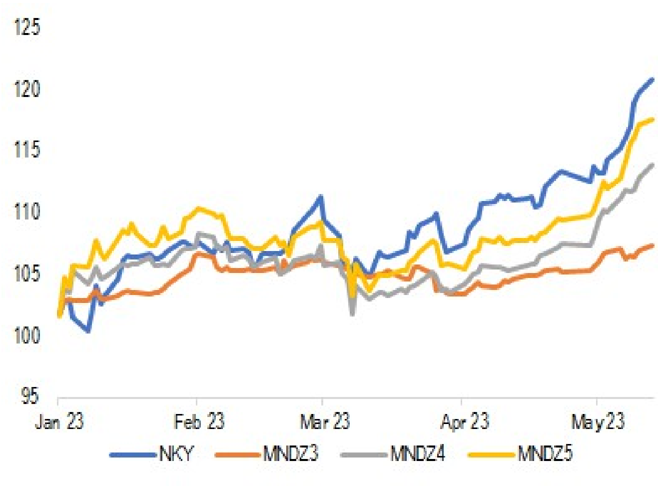
Bottom-up estimates update

Japanese companies have witnessed positive trends in dividends, driven by stronger-than-expected earnings and the ongoing TSE reform push (see here). Our bottom-up estimates for Nikkei 2023 dividends are revised up from 598 pts in mid-April 2023 to 604 pts currently. The memorial dividend from Tokyo Electron (8035) was a major surprise while dividend announcements from Nintendo (7974), Kikkoman (2801) and Fanuc (6954) also contributed positively to dividend revisions. Our dividend estimates for 2024 and 2025 were little changed, as conservative outlooks (e.g., FY3/24 guidance projects net profit falling an average 5% YoY) guided by companies restrained analysts from projecting the optimistic dividend trajectory into the more distant future.

The dividend futures market has responded positively to these developments, with prices rallying and outpacing the upward revisions in analysts' estimates (Figure 1). Nikkei 2023 dividend futures moved from a low of 596 pts in early April to 619 pts currently, suggesting market participants are more bullish on the 2023 dividends than our base case estimate (Figure 5).

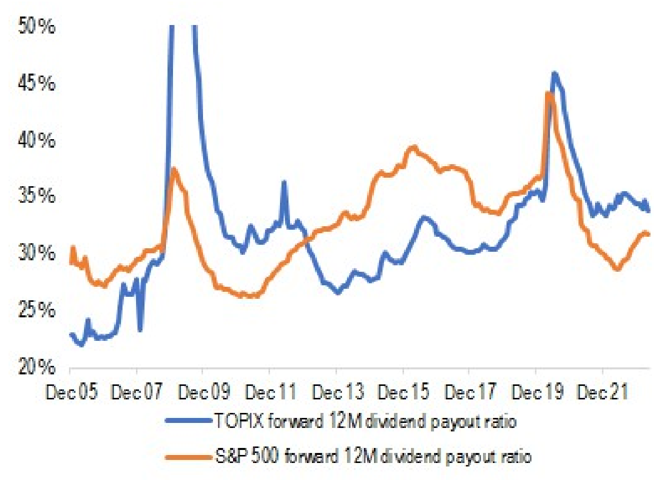
Figure 1: Nikkei dividend futures rallied in response to positive trends in dividends among Japan companies

Rebased index, Jan 1, 2023 = 100



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

Figure 2: Japan companies have been paying out a larger proportion of their earnings compared to their US counterparts in recent years



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

A bull case for Nikkei dividends as TSE reforms unlock Japan dividend growth potential

We think the TSE reform push will become a major marginal driver of dividend growth in Japan. It is noteworthy that Japanese companies have been paying out a larger proportion of their earnings compared to their US counterparts in recent years (Figure 2). This may **limit the incentives for further payout ratio increases** as Japanese corporate may perceive that they are already surpassing their global peers. With a goal of improving ROE in Japanese companies, the TSE reform initiatives (see

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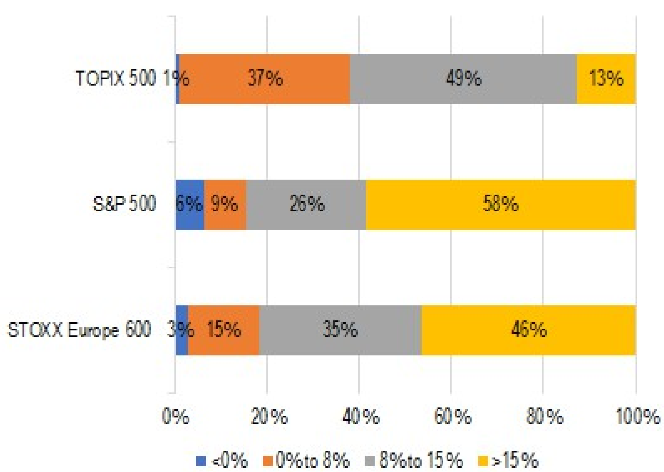
here) are set to play a pivotal role in stimulating dividend growth. These reforms aim to enhance corporate governance practices and encourage more proactive approaches to profitability and shareholder returns, by addressing structural issues and promoting a culture of improved ROE. **The TSE reform push can unlock the dividend growth potential of Japanese companies, even amid uncertain economic conditions**.

Impact analysis

Bottom-up dividend estimates tend to adapt slowly to changing fundamental and macroeconomic situations. When a significant structural shift like the TSE reform occurs, it's essential to complement these bottom-up dividend forecasts with scenario analysis that consider developments in the corporate governance landscape.

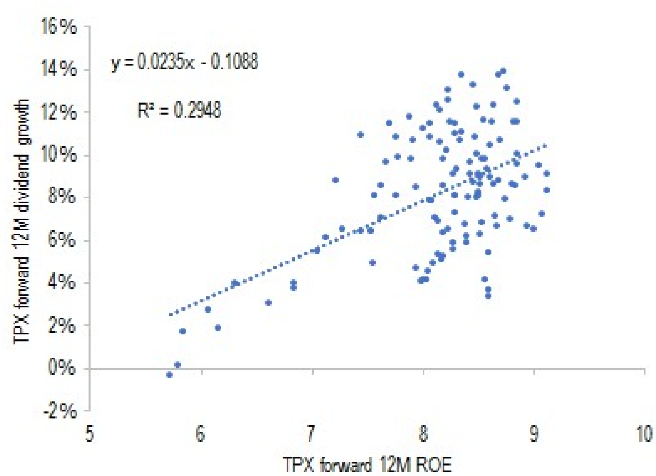
We think a key objective of the TSE reforms is to bridge the ROE gap in Japan vs other developed markets. For years, Japan has struggled to keep pace with US and Europe in terms of ROE (Figure 3). Historically, Japanese companies have been burdened by various structural issues, including risk-averse corporate cultures and rigid business practices. These factors have constrained profitability and limited the ability to generate higher ROE, leaving investors seeking better returns elsewhere. Therefore, it becomes essential to **examine the ROE profiles of major sectors in Japan and compare them with their counterparts in the US**. This analysis can provide insights into potential avenues for boosting ROE and sources of potential dividend surprises.

Figure 3: For years, Japan has struggled to keep pace with US and Europe in terms of ROE.



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

Figure 4: Over the last 10 years, a 1%-pt increase in ROE typically led to a 2.4% increase in forward dividend growth in Japan.



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

The starting point of our analysis is to gauge the **sensitivity of ROE improvement on dividend growth expectations**. As Japan's companies strive to raise their ROE under the TSE reforms, there is a compelling case for higher dividend payments. Higher ROE signifies improved profitability and effective capital allocation. This enhanced financial performance can provide companies with surplus earnings, which they can distribute to shareholders in the form of dividends. Based on last 10 years data, we find 1%-pt increase in ROE expectation typically leads to a 2.4% increase in forward dividend growth (Figure 4). The sensitivity of dividend growth to ROE changes enables us to measure the additional dividend growth that can be ascribed to an increase in ROE expectation.

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We then proceed to define **sector specific ROE scenarios** by considering the ROE gap between Japan and US sectors. Acknowledging that ROE improvement is a gradual process, **we assume that Japanese firms will reduce the ROE gap with their US peers by 20% annually**. However, some sectors may have exceptionally wide ROE gaps, making it challenging for Japanese companies to close even a small portion of the gap in practice. To account for these outliers, we impose a **3% annual limit on potential ROE improvement** for the sectors included in our study. With a goal to capture the different dividend growth potential brought by an improving ROE outlook, the ROE scenarios are used in conjunction with the sensitivity of dividend growth to ROE changes to formulate sector specific dividend risks.

Table 1: Nikkei 225 bottom-up dividend estimates and scenario analysis

		Forward 12M ROE			Potential improvements		Nikkei dividend scenarios					
GICS sector	GICS industry group	MSCI Japan	MSCI US	US-Japan	ROE	Div. growth	2023 base	2023 bull	2024 base	2024 bull	2025 base	2025 bull
Communication Services	Media & Entertainment	10.5	15.1	4.6	0.9	2.2	16.7	16.9	16.5	16.9	17.5	17.8
Communication Services	Telecommunication Services	11.3	15.5	4.2	0.8	2.0	42.0	42.4	44.7	45.5	47.9	48.8
Consumer Discretionary	Automobiles & Components	7.7	12.6	4.9	1.0	2.3	51.6	52.3	59.6	60.8	60.9	62.3
Consumer Discretionary	Consumer Durables & Apparel	9.2	18.5	9.3	1.9	4.4	21.7	22.0	22.9	23.9	25.4	26.4
Consumer Staples	Food, Beverage & Tobacco	9.6	28.5	18.9	3.0	7.1	25.1	26.3	24.9	26.6	25.5	27.2
Financials	Insurance	6.0	14.7	8.7	1.7	4.1	12.1	12.3	13.8	14.3	15.3	15.9
Health Care	Health Care Equipment & Servic	20.3	16.8	-3.5	0.0	0.0	10.9	10.9	11.3	11.3	12.6	12.6
Health Care	Pharmaceuticals, Biotechnology	7.4	21.3	13.9	2.8	6.5	45.7	47.5	51.2	54.1	56.6	60.0
Industrials	Capital Goods	10.1	22.7	12.6	2.5	5.9	102.5	105.2	110.1	116.2	115.7	122.2
Industrials	Commercial & Professional Serv	8.3	17.4	9.2	1.8	4.3	10.5	10.7	10.8	11.2	12.2	12.6
Industrials	Transportation	9.5	25.9	16.4	3.0	7.1	16.8	17.3	14.2	15.4	16.2	17.2
Information Technology	Semiconductors & Semiconductor	16.4	12.6	-3.8	0.0	0.0	57.7	57.7	51.9	51.9	66.6	66.6
Information Technology	Software & Services	11.7	22.7	11.1	2.2	5.2	10.4	10.8	11.0	11.5	12.0	12.6
Information Technology	Technology Hardware & Equipmen	7.8	60.9	53.1	3.0	7.1	59.0	61.1	59.7	63.8	64.5	68.7
Materials	Materials	8.0	13.6	5.7	1.1	2.7	47.8	48.4	48.6	49.9	51.2	52.5
Real Estate	Real Estate Management & Devel	9.0	10.2	1.2	0.2	0.6	12.1	12.2	13.3	13.4	14.2	14.3
Others	Others				2.4	5.6	61.8	63.5	65.2	68.7	71.9	75.5
Index total	Index total	8.7	18.1	9.5	2.4	5.6	604.3	617.6	629.7	655.4	686.2	713.3

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

In Table 1, our scenario analysis is presented on a sector-by-sector basis. By GICS industry group, the most significant ROE gaps are in **Food, Beverage & Tobacco**, **Pharmaceuticals & Biotechnology**, **Capital Goods**, **Transportation** and **Technology Hardware & Equipment**. These sectors exhibit the greatest potential for re-rating and, consequently, the largest opportunity for increased dividend growth.

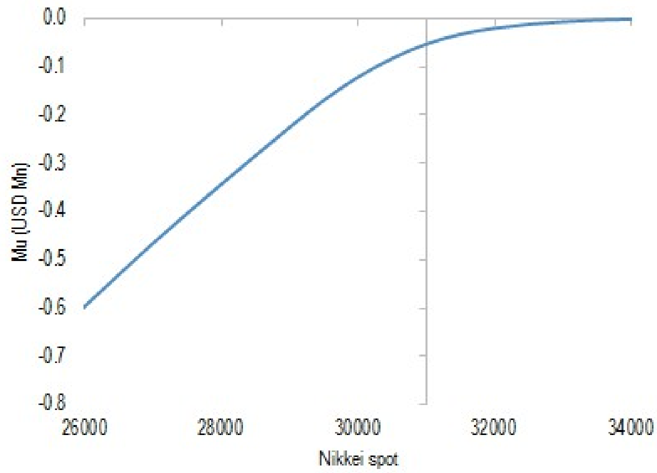
In our bull case scenario, we anticipate a positive revision of 25.7 and 27.0 points respectively for the Nikkei 2024 and 2025 dividends. This implies an upside potential of 5% and 14% compared to the mid-price of the dividend futures in these tenors. However, the upward revision for the 2023 dividend estimate under our bullish outlook is relatively modest, as approximately 50% of the dividend points have already been confirmed by companies. The current dividend future price for 2023 dividends aligns closely with our bullish case estimate, indicating that the potential increase in near-term dividends is already factored in. Thus, we conclude that **the Nikkei 2024 and 2025 dividend futures may undervalue the growth potential arising from an improving ROE outlook.**

Figure 5: Our bull case scenario suggests the Nikkei 2024 and 2025 dividend futures may undervalue the growth potential arising from an improving ROE outlook.

Calendar Year	2023	2024	2025
Ticker	MNDZ3	MNDZ4	MNDZ5
Base case estimate	604.3	629.7	686.3
Upside potential	-2%	0%	9%
% of estimate confirmed	48%	0%	0%
Bull case estimate	617.6	655.4	713.3
Upside potential	0%	5%	14%
Dividend futures price (mid)	619.0	626.0	628.0
1Y High	619.0	631.6	629.0
1Y Low	555.5	528.8	501.8
Turnover (3M Avg, USD Mn)	5.9	4.0	1.6
Open Interest (3M Avg, USD Mn)	207.1	130.7	36.5

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

Figure 6: Estimated Mu profile for Nikkei-linked structured product (from the perspective of products)



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

Improving supply and demand dynamics for Nikkei dividend futures

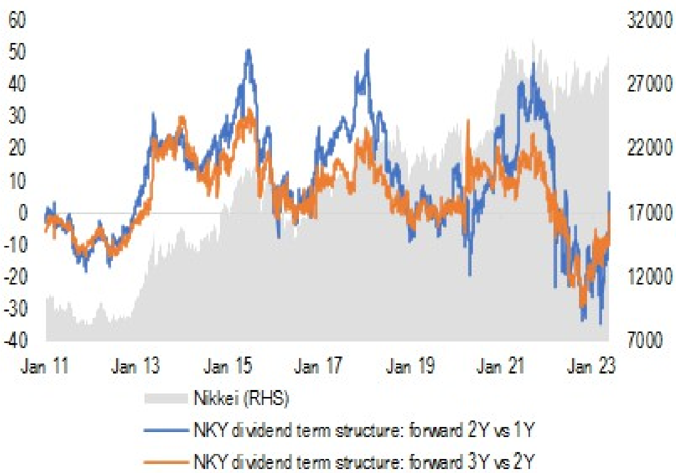
Apart from favorable fundamentals, we think an improving supply and demand dynamic is another major tailwind for Nikkei dividend futures.

One important factor influencing the demand for Nikkei dividend futures is the concept of **structured product knockouts**. The knockout event occurs when Nikkei-linked structured products reach certain trigger levels. This event prompts the dealers to buy back the dividend futures they had initially sold to hedge their positions. Currently, the **product knockout process in the Nikkei dividend futures market is incomplete**. If the Nikkei index remains at its current level, we expect more structured products will knock out over the next three months. As a result, dealers will need to buy back additional dividend futures, further driving demand for these instruments.

The flat term structure between Nikkei 2025 and 2024 dividend also supports the view that structured product hedging flows is not yet over (Figure 7). In periods where the Nikkei index breaks out of its trading range, the spread between constant maturity 3Y and 2Y dividends can trade at a positive spread of ~20 pts. This indicates that if the strength in Nikkei is sustained, the demand for longer-term dividend futures may rise due to structured product knockouts, ultimately resulting in a steeper divide term structure.

Over the medium term, we expect **better foreign demand for Nikkei dividend futures**. Japan's equity risk premium, as measured by the 2Y implied dividend yields over 10Y local bond yields, is currently at its highest level compared to the US and Europe. This implies that investors are receiving more compensation for taking equity risks in Japan compared to other regions. Buying dividend futures provides a direct exposure to this equity risk premium. As the shareholder return theme gains traction among foreign investors, there has been a notable increase in foreign inflows into Japanese cash markets since April 2023. This growing optimism surrounding shareholder returns and the attractiveness of Japanese equities could potentially spill over into the Nikkei dividend futures market. As a result, the demand for dividend futures may see an uptick, driven by investors seeking to capitalize on the equity risk premium available in Japan.

Figure 7: The flat term structure between Nikkei 2025 and 2024 dividend also supports the view that structured product hedging flows is not yet over.



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

Figure 8: The spread of 2Y implied dividend yield and 10Y local bond yield shows Japan currently offers the most attractive equity risk premium among developed markets.

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

Buy MNDZ5 - MNDZ4 spread

We recommend investors buy Nikkei 2025 dividends over 2024 dividends. The strategy aligns with our bullish view on Nikkei dividends. Our scenario analysis suggests that longer-dated dividends are currently underpricing the potential for dividend growth driven by an improving ROE outlook. In our bullish scenarios, we project potential upsides of 14% and 5% for 2025 and 2024 dividends, respectively (Figure 5).

Furthermore, we believe that the term structure between Nikkei 2025 and 2024 dividends is too flat when compared to historical periods during which structured products were set to knock out. This observation implies that dividend futures market prices may not have fully accounted for the potential influence of structured product hedging activities. By implementing the spread strategy, we aim to capture higher potential gains in longer dated dividends when the dividend term structure adjusts.

Lastly, by choosing a spread implementation, investors can reduce their exposure to market fluctuations compared to holding dividend futures outright. This approach enables a more dividend-centered strategy while minimizing risks linked to broader market movements.

Please see indicative prices as of May 22, 2023 (for 100x contract).

Buy MNDZ5 and sell MNDZ4: offer +3 pts

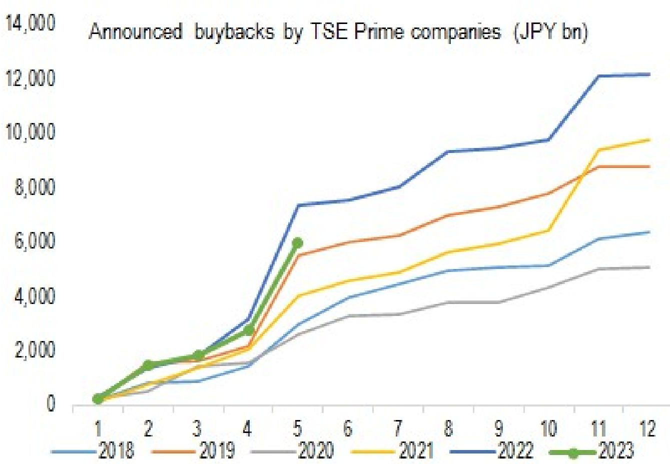
Buy MNDZ5: offer +629 pts

Buy MNDZ4: offer +627 pts

Japan Buyback Implementation Ideas and Risk Considerations

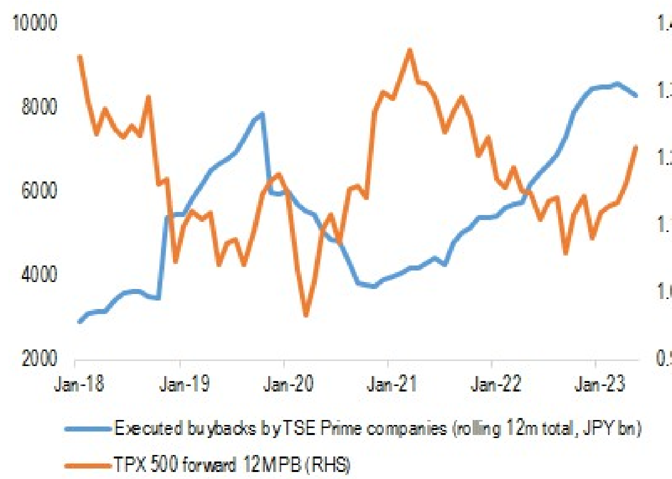
Share buybacks by Japanese companies are gaining renewed momentum in response to pressure from Tokyo Stock Exchange (TSE) reforms and increased engagement from investors. Although the year-to-date announced share buybacks are ~20% below the record set in 2022 (Figure 9), the average announcement amounts per company remain strong (see here), indicating a sustained commitment to enhancing shareholder value . Notably, these buyback announcements have elicited substantial reactions in share prices (see here). With the TSE's ongoing efforts to improve corporate governance and shareholder returns, companies conducting share buybacks are likely to attract the attention of investors seeking capital appreciation and increased returns. This trend underscores the growing importance of share buybacks as a strategic approach for Japanese companies and highlights the potential trading opportunities they offer in the market.

Figure 9: Share buybacks by Japanese companies are gaining renewed momentum in response to pressure from TSE reforms



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. Note: Data as of May 19, 2023. Buyback notional = announced max number of shares x share price on the day of the announcement.

Figure 10: Historically, Japanese companies have tended to engage in share buybacks when valuations are relatively inexpensive



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

This year, we anticipate that companies with a low price-to-book (P/B) ratio will take the lead in executing share buyback programs in Japan. Historically, Japanese companies have tended to engage in share buybacks when valuations are relatively inexpensive (Figure 10). However, this year presents a difference in the landscape. The Nikkei index has broken out of its trading range, resulting in less attractive entry levels for companies looking to repurchase their own shares. Additionally, the Tokyo Stock Exchange (TSE) has been urging companies with low P/B ratios to improve their Return on Equity (ROE) and conducting share buybacks is one strategy to enhance shareholder returns. As a result, companies with low P/B shares are expected to have greater incentives to carry out buyback activities. This suggests that overlaying the low P/B factor with the buyback factor may potentially generate significant alpha for investors. By considering companies with low P/B ratios engaging in share buybacks, investors may uncover compelling alpha opportunities and potentially outperform the market.

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Investing in Japanese stocks with share buybacks and low P/B ratios entails significant drawdown risks that should not be overlooked. These stocks exhibit a strong correlation with the value factor, which has witnessed increased investor positioning in recent years (Figure 11). The initial driving force behind this trend was the anticipation of higher interest rates and the end of deflation in Japan, favoring value stocks like banks and insurance companies. This year, foreign investors, influenced by long-term value investors such as Warren Buffet, also displayed heightened interest in these investments. However, in March 2023, the value factor experienced a notable drawdown as investors adjusted their positions in response to expectations of policy changes by the Bank of Japan (BoJ). This repositioning presents a significant challenge for investors with substantial exposure to stocks with share buybacks and low P/B ratios. To potentially capture alpha within the buyback theme, we recommend assuming a long position in a diversified basket of stocks with buybacks and low P/B ratios while hedging the exposure with the MSCI Japan value index. This approach seeks to mitigate the risks associated with crowded positioning in the value factor and adopt a more balanced strategy to capture potential alpha within the theme.

Backtesting the buyback factor

We backtested the performance of three factors: 1) buyback factor; 2) buyback factor with low P/B tilt; 3) buyback factor with high P/B tilt. To construct portfolios with buyback factor, we identified companies with largest ongoing buyback programs in terms of notional. To tilt buyback factor towards low P/B or high P/B ratio, we construct portfolios by selecting high or low P/B ratio companies with ongoing buyback programs and simulate the performance since Jan 2021 to May 2023.

A more detailed methodology is described as below:

- **Selection universe**: TSE Prime Index (TSEP Index)
- **Rebalance frequency**: Monthly rebalancing at the start of the month
- **Constituent selection**:
    - **Buyback strategy**: At each rebalance date, stocks with ongoing buyback programs and at least 1 month till the expiry of the program are eligible for selection. Stocks are ranked by buyback notional, defined as max number of buyback shares multiplied by the share price at the date of the share buyback announcement. The highest 30 ranked stocks are selected for corresponding index construction.
    - **Buyback with low (high) P/B tilt strategy**: At each rebalance date, stocks with ongoing buyback programs and at least 1 month till the expiry of the program are eligible for selection. Stocks are further ranked by their forward 12M P/B ratio. The lowest (highest) 30 ranked stocks by forward 12M P/B ratio are selected for corresponding index construction.
- **Weighting scheme**: Liquidity weighted with an individual weighting cap of 6.7% (e.g. 2/30).
- **Stock liquidity filter**: 3M ADTV ≥ JPY 250mn

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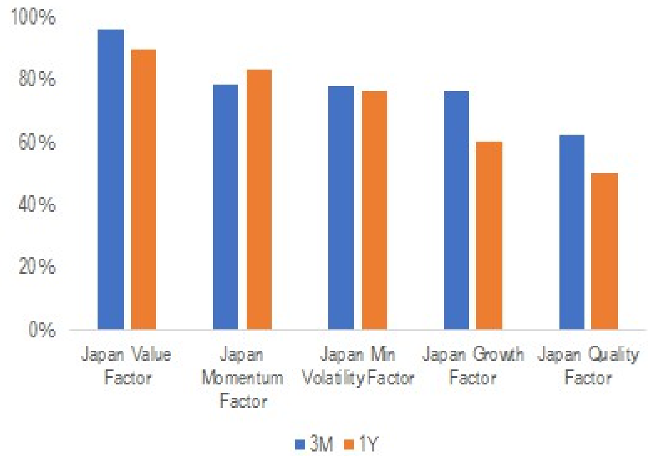
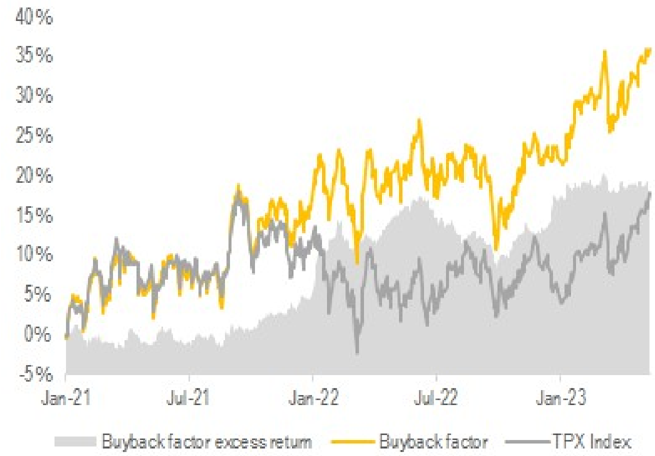
Figure 11: Correlation between value factor and buyback with low P/B shows an increasing trend.



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

Figure 12: Buyback strategy has outperformed the market since 2021, with an excess return of 18%.



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

Buyback strategy has been outperforming TPX since the beginning of 2021. Our backtest shows that buyback strategy by selecting companies with largest ongoing buyback program in terms of notional has been outperform the market since 2021, generating an excess return of 18% (Figure 12). The outperformance in the buyback factor vs the broader market widens following the revision of the Corporate Governance Code in June 2021 and the TSE market restructuring in April 2022.

Tilting towards low P/B will boost the performance of buyback strategy. The inclusion of P/B ratio as a tilting mechanism further influences the performance of the buyback factor. While tilting towards companies with high PB ratios has a damping effect on the performance of the buyback factor (Figure 13), tilting buyback strategy towards companies with lower P/B ratio has been beneficial, during the back test period. With the requirement of TSE reforms, companies with low P/B ratio are more incentivized to conduct share buyback program due to their relatively lower valuation compared to companies with high P/B, providing more downside support for the share price.

The high exposure to financials sector has contributed to the drawdown during March this year . Buyback with low P/B tilt strategy tends to have a higher allocation of companies from financials sector due to their low P/B ratio. Throughout our backtest periods, the average weight in financials sectors is 34% for this strategy, compare to 12% for the buyback strategy (Figure 14). This allocation also contributes to the -9.5% drawdown of the buyback with low P/B tilt strategy in March of this year (Figure 15).

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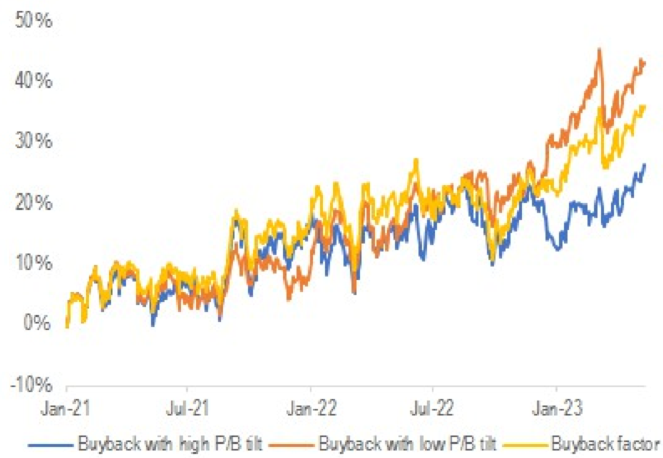
Figure 13: Tilting buyback strategy towards low P/B companies will further boost the performance



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

Figure 14: Liquidity, turnover and sector allocation for buyback with low P/B tilt strategy

	Buyback with low PB tilt			Buybabck		
	High	Average	Low	High	Average	Low
Liquidity (USD Mn)	225	132	72	879	468	127
One way rebal turnover	76%	38%	2%	69%	31%	5%
Sector allocation						
Communication Services	29%	8%	0%	29%	14%	0%
Consumer Discretionary	33%	15%	0%	26%	18%	8%
Consumer Staples	15%	2%	0%	34%	19%	1%
Energy	15%	3%	0%	7%	1%	0%
Financials	57%	31%	0%	20%	4%	0%
Health Care	21%	3%	0%	47%	24%	8%
Industrials	40%	23%	11%	18%	10%	0%
Information Technology	10%	5%	0%	8%	2%	0%
Materials	12%	5%	0%	3%	0%	0%
Real Estate	6%	0%	0%	16%	5%	0%
Utilities	14%	5%	0%	9%	3%	0%

Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. Note: Averaged over the backtest period from 2021 to 5M2023 with monthly rebalance.

Liquidity: Both buyback strategy and buyback with low P/B tilt strategy are liquid with buyback factor being more liquid. Assuming 20% of the flows fully utilized average basket liquidity is US$132mn for buyback factor with low P/B tilt and US$468mn for buyback factor over the periods covered in our backtest (Figure 14)

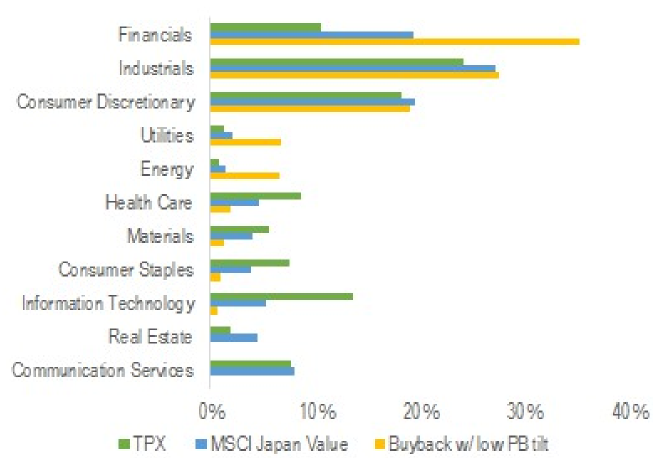
Rebalance turnover: Over the period our backtest covers, the average one-way rebalance turnover is 38% for buyback factor with low P/B tilt and 31% for buyback factor (Figure 14)

Figure 15: Buyback with low P/B tilt factor incurred a drawdown of -9.5% during March 2023

	Year	Return	Max Drawdown	Annualized Vol	Sharpe Ratio
Buyback Factor	2021	15.7%	-8.4%	17.1%	0.9
	2022	2.8%	-12.9%	18.5%	0.2
	2023YTD	13.6%	-7.4%	14.5%	2.9
Buyback w/ high PB tilt	2021	14.9%	-10.8%	17.8%	0.9
	2022	-3.5%	-11.6%	18.6%	-0.2
	2023YTD	14.2%	-5.1%	13.3%	3.3
Buyback w/ low PB tilt	2021	7.4%	-8.1%	17.0%	0.4
	2022	17.6%	-11.4%	18.2%	1.0
	2023YTD	11.6%	-9.5%	15.6%	2.2
TPX	2021	11.0%	-9.1%	17.8%	0.7
	2022	-6.8%	-13.7%	18.6%	-0.4
	2023YTD	15.5%	-6.8%	13.3%	3.7

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

Figure 16: Secotr weight comparison for the buyback with low P/B tilt basket (JPJPBLPB Index), MSCI Japan Value and TOPIX.



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

Trading the buyback factor

As our Japan strategist pointed out the substantial share-price reaction following buyback announcement this year under current context of TSE reforms (see here), we anticipate the outperformance of buyback factor to persist going forward. Investors looking to build long exposure to Japan share buyback themes can consider our **buyback with low P/B tilt basket (JPJPBLPB Index)**. The baskets are constructed following the methodology described earlier in the report and the stocks are selected based on data as of May 18, 2023. The basket trades US$150mn a day assumes 20% of the 3M ADTV is fully utilized.

Hedge the potential downside risk of value factor with MSCI Japan Value Index: Despite the outperformance of the strategy, we are cautious with the potential drawdown risks. While recommending investment in defensive and value names as our core strategy for the first half of 2023, our Japan Quant strategist also pointed out that their currently excessive long tilt may leave them open to instability in a reversal (see here). Moreover, tilting towards value factor also makes the strategy overweight the Financials sector. Notably, financial sector accounts for 35.3% of the current basket weight. Investors can consider adding overlay of put spread collar on MSCI Japan Value Index to hedge the potential downside risk of value factor and the high exposure to Financials sector (Figure 16).

- **Long buyback with low P/B tilt basket (JPJPBLPB Index) via swaps**
- **Hedging overlay - buy 3M 95%-86.4% put spread vs selling 105% call on the MSCI Japan value index (M1JP000V) for zero cost**

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Monitoring the Ongoing Short Squeeze in Nikkei Volatility

We think the short squeeze in Nikkei volatility is not finished and sustained upward momentum in Nikkei could drive volatility even higher. Here we review the structured product and options hedging impact on Nikkei volatility.

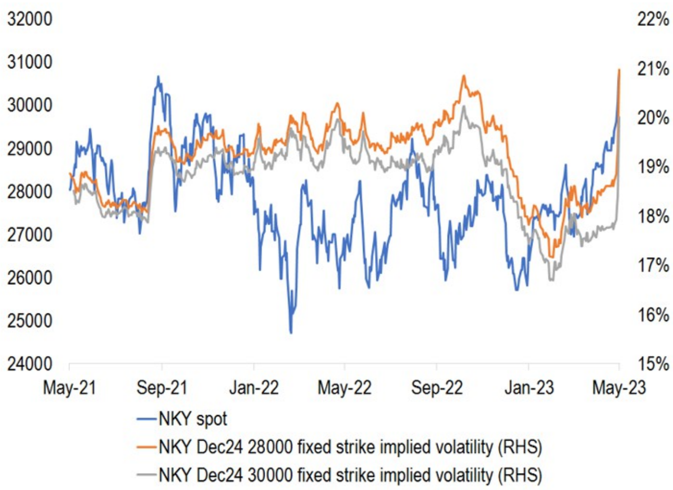
Structured product hedging impact on Nikkei volatility

Japan structured products market has experienced a period of quietness due to weak issuance and lack of knock-out events. The supply-demand dynamics are changing with the NKY breaking out of range and rallying above major knock-out barriers. As structured products are getting knocked out, dealers have to buy back short volatility positions to re-hedge a risk profile of lower Vega outstanding, in turn leading to a "spot up, volatility up" phenomenon (Figure 17). While longer dated volatility has remarked higher, call skew remains downward sloping: implied volatility of more out of the money call options is trading below that of near the money call options (Figure 18), suggesting that there is potential for upside volatility to increase further. We anticipate more volatility demand from structured product dealers, should the spot remain at current levels and expect vol of vol to stay elevated in the coming months.

The nearest knock-out barriers for NKY-linked structured products with observations in May-July are concentrated in the 29,000-31000 range. Besides those with observation dates in May, knock-out barriers have not yet triggered for a large portion of outstanding structured products, as their observation dates are distributed in June and July. We estimate product notional of ~$2bn with knock-out barriers in the 26,000-31000 range and knock-out observation dates in June and July (Table 3). As more products face knock outs in the coming months, dealers will continue buying volatility, particularly longer dated volatility, which could result in a reset to higher levels. The impact would likely be amplified in the current environment given the lack of offsetting supply. Unlike historical episodes in which fresh supply came in following early redemptions, the limited sale of structured products in Japan would at-least temporarily restrict the volatility and dividend supply, thus easing selling pressure on volatility.

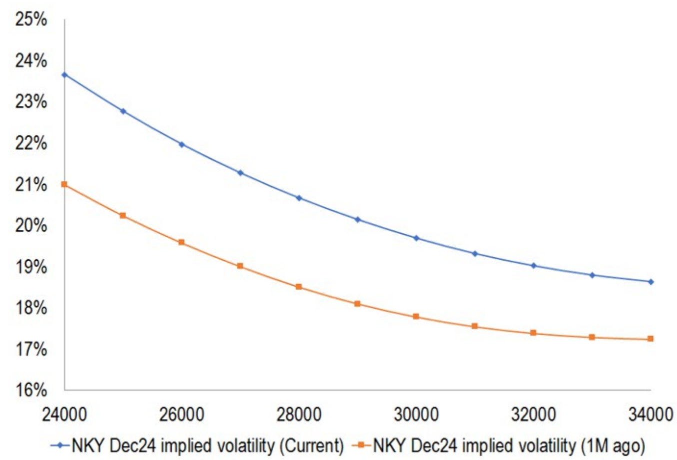
At a spot level of 31000, we estimate there is ~US$7.25mn Vega outstanding in NKY (Figure 19). Our estimate suggests that the next 2,000 pts rally in spot would lead to Vega demand of ~US$5.4mn, while the next 2000 pts decline in spot would lead to Vega supply of ~US $12.7mn. The high Vega sensitivity to spot moves further suggests that there is support for high vol of vol in the near term.

Figure 17: We expect the recent spot up vol up dynamics to prevail in the coming months



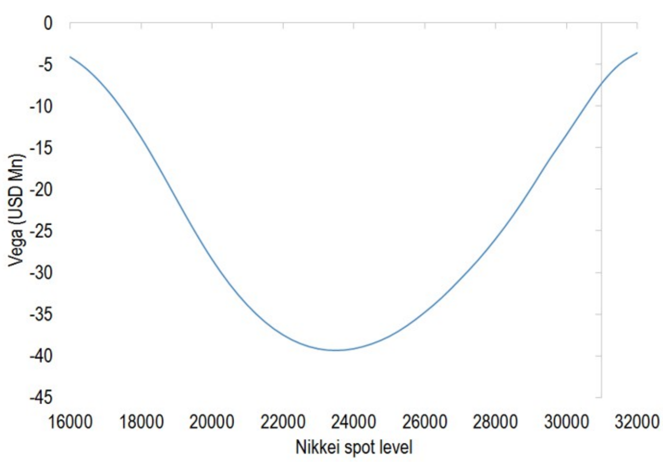
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P.

Figure 18: NKY longer dated call skew remains downward sloping



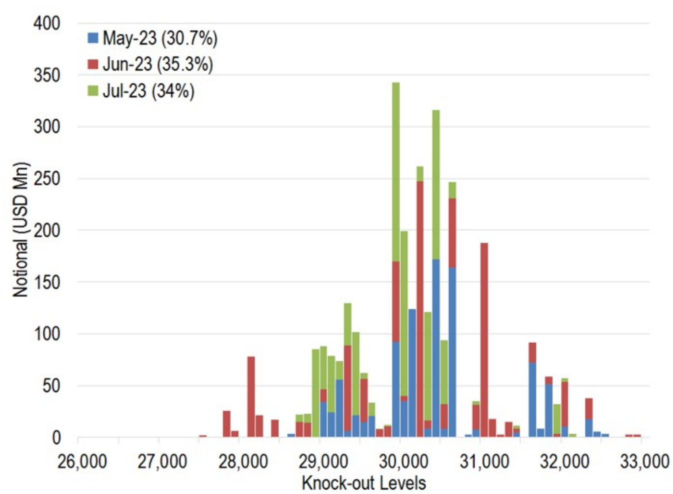
Source: J.P. Morgan Equity Derivatives Strategy.

Figure 19: Estimated Vega profile for NKY-linked structured product (from the perspective of products)



Source: J.P. Morgan Equity Derivatives Strategy. * Based on the issuance data as of April 2023 end. The data are for public offerings only.

Figure 20: Distribution of outstanding notional for NKY-linked structured product by knock-out levels



Source: J.P. Morgan Equity Derivatives Strategy. * Based on the issuance data as of April 2023 end. The data are for public offerings only.

Table 2: Vega (USD Mn) by spot levels (from the perspective of products)

NKY	Vega	Vega Change
30000	-13.5	
31000	-7.2	6.2
32000	-3.6	3.7
33000	-1.8	1.8

Source: J.P. Morgan Equity Derivatives Strategy. * Based on the issuance data as of April 2023 end. The data are for public offerings only.

Table 3: NKY (USD Mn) by KO levels and observation month

NKY	May23	Jun23	Jul23
26000-30000	311	422	697
30000-31000	493	565	347
31000-32000	149	114	36
>32000	114	37	70

Source: J.P. Morgan Equity Derivatives Strategy. * Based on the issuance data as of April 2023 end. The data are for public offerings only.

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Options hedging impact on Nikkei volatility

We update our analysis on Japan equity derivatives gamma positioning, considering delta hedging flows that include listed options, autocallables and leveraged ETFs. The total gamma is the dollar value of the index that needs to be traded (to adjust all delta hedges) following a 1% move in the market. At a spot level of 31,000 in NKY, we estimate dealers are long US$781mn of gamma, which is equivalent to ~4% of 3M average turnover in futures (Table 4). We note a decrease from our last update, when we estimated dealers' long gamma at ~US$1237mn (at 31,000 spot) as clients are now less short on the call side and more long on the put side (see here). The current gamma profile suggests that dealers' long gamma exposure is around peak and would decrease for a +/- 2000 pts spot move.

While the delta hedging flows of long gamma positions (buy low, sell high) have an impact of dampening volatility, the current profile suggests dealers' long gamma exposure has declined to less influential levels, which is positive for long volatility investors (Figure 21). Position in the options market remains light, as reflected in NKY options open interest (Figure 23), which is close to lower end of historical range. Recently, we see improvement in foreign equity flows (Figure 24), however the 5Y cumulative foreigners flows still remain negative. An increase in foreigner equity flows bode well for the use of options, in our view. We see room for dealer hedging activities to make a larger impact should options open interest rise to more meaningful levels.

Table 4: Japan dealers' gamma positioning overview (from the perspective of products)

Nikkei spot	25,000	26,000	27,000	28,000	29,000	30,000	31,000	32,000	33,000	34,000
Listed options gamma (USD mn)	950	917	625	166	-469	-829	-940	-732	-525	-348
-Calls gamma (USD mn)	-676	-911	-1,113	-1,386	-1,734	-1,780	-1,625	-1,219	-902	-640
-Puts gamma (USD mn)	1,626	1,828	1,737	1,552	1,264	951	686	487	377	293
Autocallable gamma (USD mn)	-151	-137	-121	-102	-85	-161	-65	-46	-31	-19
Leveraged ETF gamma (USD mn)	181	188	195	202	210	217	224	231	239	246
Total gamma (USD mn)	980	968	699	267	-345	-773	-781	-546	-317	-121
Gamma as % of futures t/o (3MMA)	5%	5%	4%	1%	-2%	-4%	-4%	-3%	-2%	-1%

Source: J.P. Morgan Equity Derivatives Strategy. Note: A positive number indicates investors (dealers) are long (short) gamma.

Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. Note: A positive number indicates investors (dealers) are long(short) gamma. Data as of May 18th, 2023

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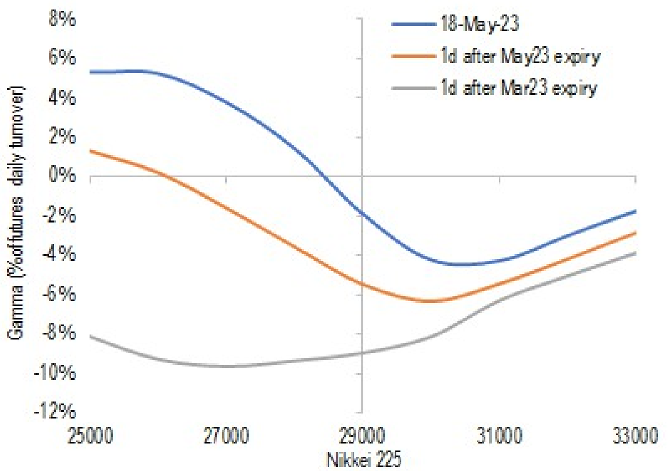
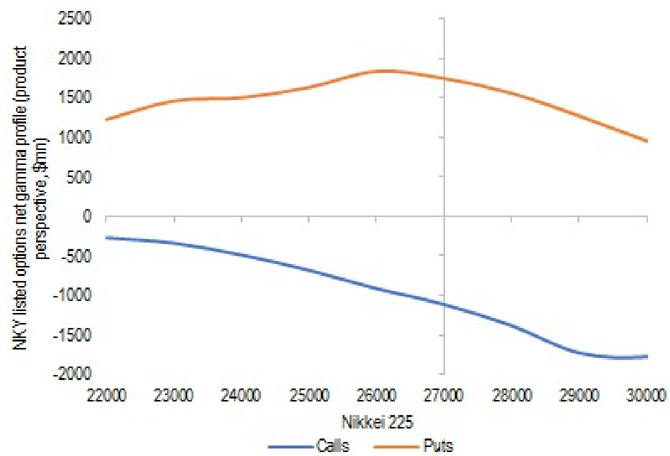
Figure 21: Our gamma positioning proxy suggests dealers' long gamma exposure has declined to less influential levels



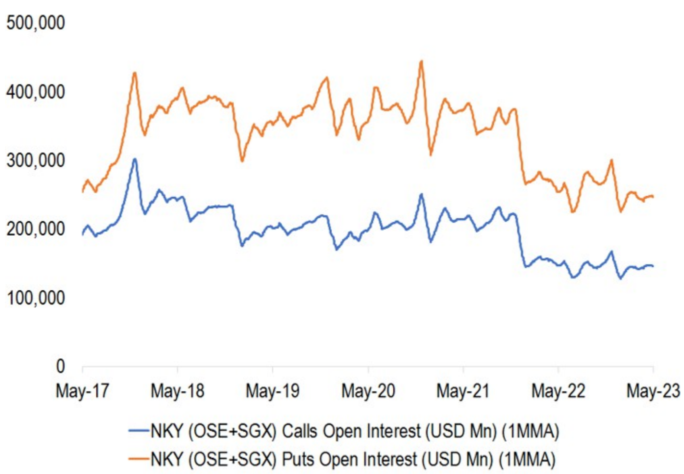
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. Note: A positive number indicates investors (dealers) are long (short) gamma.

Figure 22: Dealers options gamma breakdown



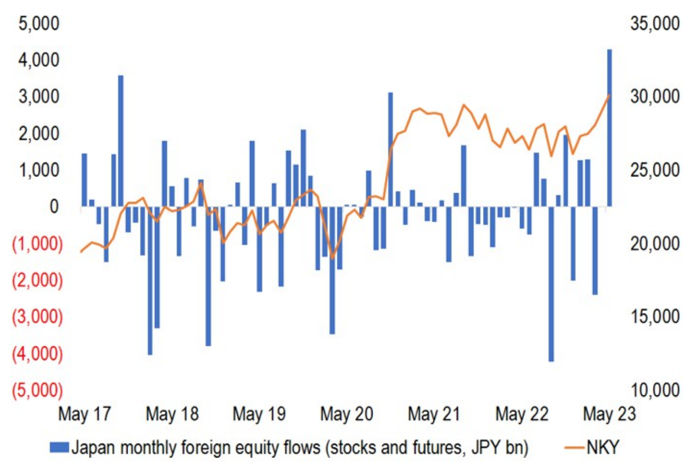
Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. Note: A positive number indicates investors (dealers) are long (short) gamma

Figure 23: Nikkei index options open interest history



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

Figure 24: Japan foreign equity flows history



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg Finance L.P. Note: Stock flow includes trading in cash equities on Tokyo and Nagoya stock exchanges, Futures flows include trading in Nikkei 225 futures, Nikkei 225 mini futures, TOPIX futures, TOPIX mini futures and JPX-Nikkei 400 futures. Data as May 12 , 2023.

Trade recommendations

Our Japan equity strategist believes the recent rally in Japan equities is sustainable given various structural factors including the Japanese economy's exit from deflation, corporate ROE reforms, Japan's relatively favorable positioning amid a global economic slowdown, and its stability in terms of geopolitical risk (see here). Moreover, looking to 2024 and beyond, after the US economy passes through a recession, if structural changes in Japan continue, she thinks P/E could rise above the historical average and reach 16x, and the NKY could near 35,000 to 36,000.

If the NKY continues to gain momentum, we are likely to see a simultaneous increase in spot and volatility, driven by autocallable dealers' hedging flows and foreigners seeking to capitalize on the upside. This presents a potential opportunity for long volatility investors to benefit from the resulting increase in volatility. For investors agreeing with the view, we reiterate our earlier trade recommendations (see here): 1) buy NKY Dec23 100% up-var, 2) buy NKY vs SPX Dec23 outperformance and Dec23 dual-digital options, and 3) buy NKY Dec24 105%-125% call spreads.

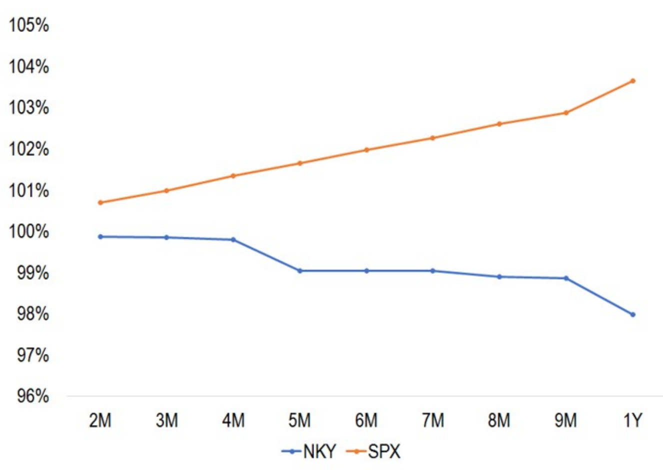
Buy NKY Dec23 100% up-var: The recent uptick in implied volatility has been favorable for the MtM of the trade as the vega exposure of up-var is relatively high early into the trade. The Dec23 28500 upvar we recommended earlier is indicatively priced at ~19.1 v vs ~16v in April. We still like long up-var trade in NKY to position for 'spot up volatility up' scenario in the near term as the structure provides discount vs vanilla swap to gain long exposure to upside volatility. Additionally, based on our latest global index volatility chartbook (see here), the variance convexity in NKY still screens as relatively cheap, with 6M NKY variance vs vol swap currently trading at ~14th percentile based on 2Y history.

NKY vs SPX Dec 23 outperformance and dual digital option: The NKY vs SPX derivatives structures benefitted from the recent rally in NKY spot and volatility. The trades exploit the forward differential between NKY and SPX as the structure buys NKY forward at a discount and sells SPX at a premium. Being long Japan equity and short US equity has positive decay due to forward curves (Figure 25). Apart from the forward differential, the dual-digital option also takes advantage of relatively low equity implied volatility in NKY and SPX and will benefit from a potential rise in equity implied volatility.

Buy NKY Dec24 call spreads to position for long term upside in Japan equities: A discount forward level makes buying longer dated call options compelling and we recommend investors buy Nikkei Dec24 105% 125% call spread for long but more balanced sensitivity to volatility moves. The higher call strike of selling leg corresponds to ~38750, close to highs last observed in late 1980s.

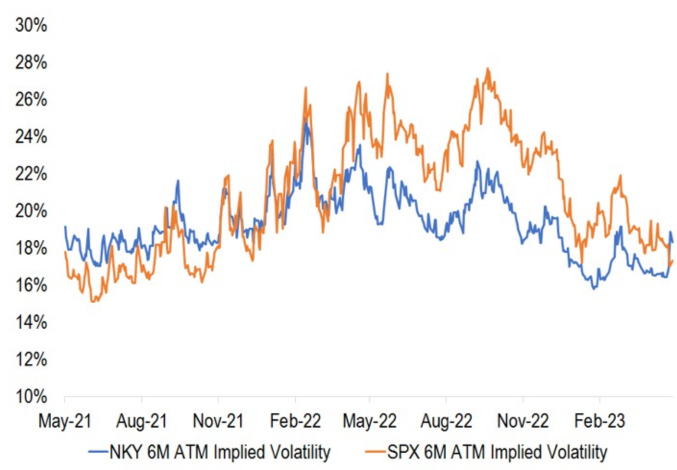
Buy NKY 13Dec24 105%-125% call spread @ 4.53% (volatility 19.3%/18.5%)

Figure 25: Being long NKY and short SPX has positive decay due to forward curve



Source: J.P. Morgan Equity Derivatives Strategy

Figure 26: Both NKY and SPX 6M ATM implied volatility are trading at the low end of historical range.



Source: J.P. Morgan Equity Derivatives Strategy

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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.

Pricing Is Illustrative Only: Prices quoted in the above trade ideas are our estimate of current market levels, and are not indicative trading levels.

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