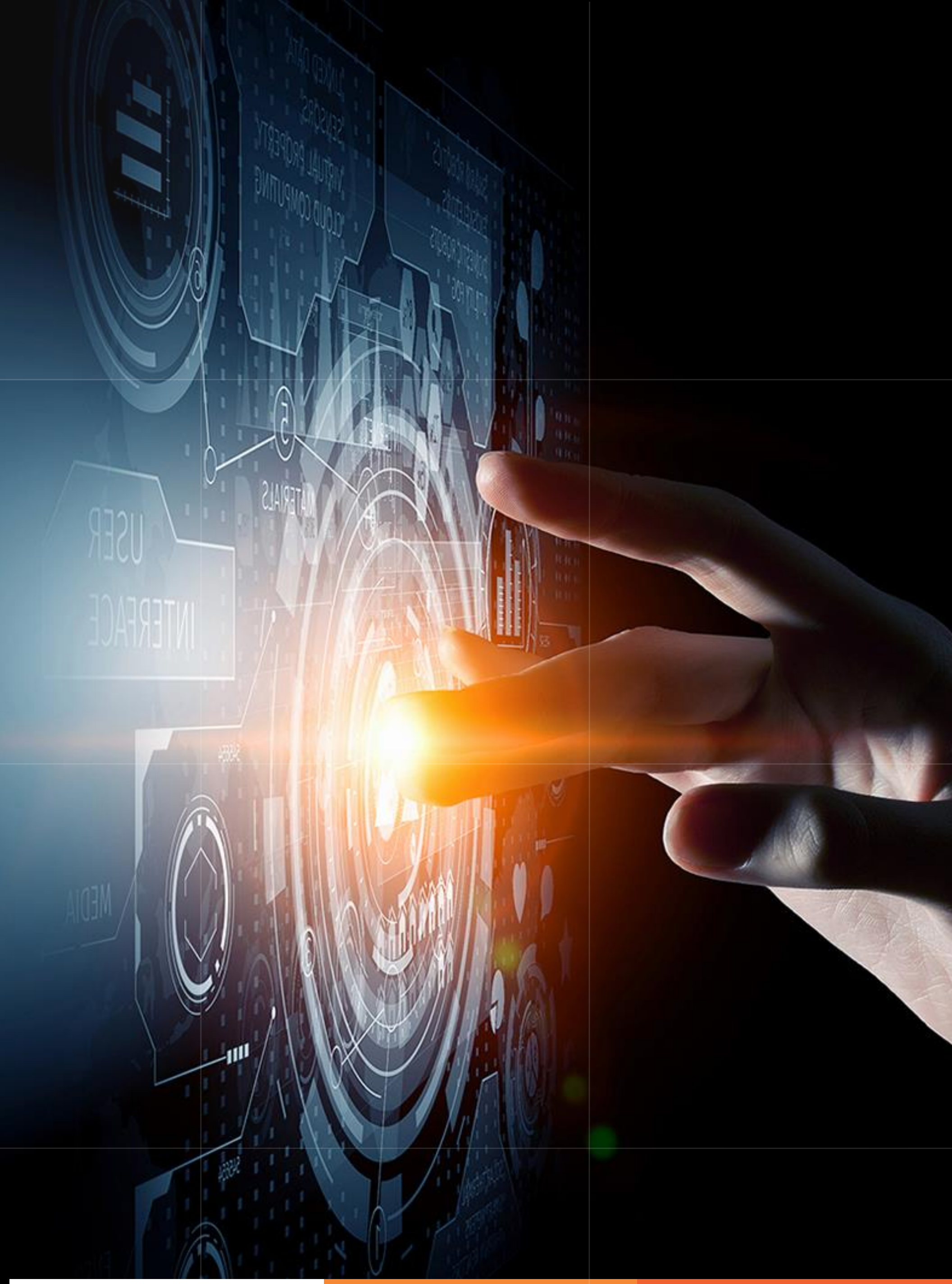
Derivatives Quarterly

August 2023



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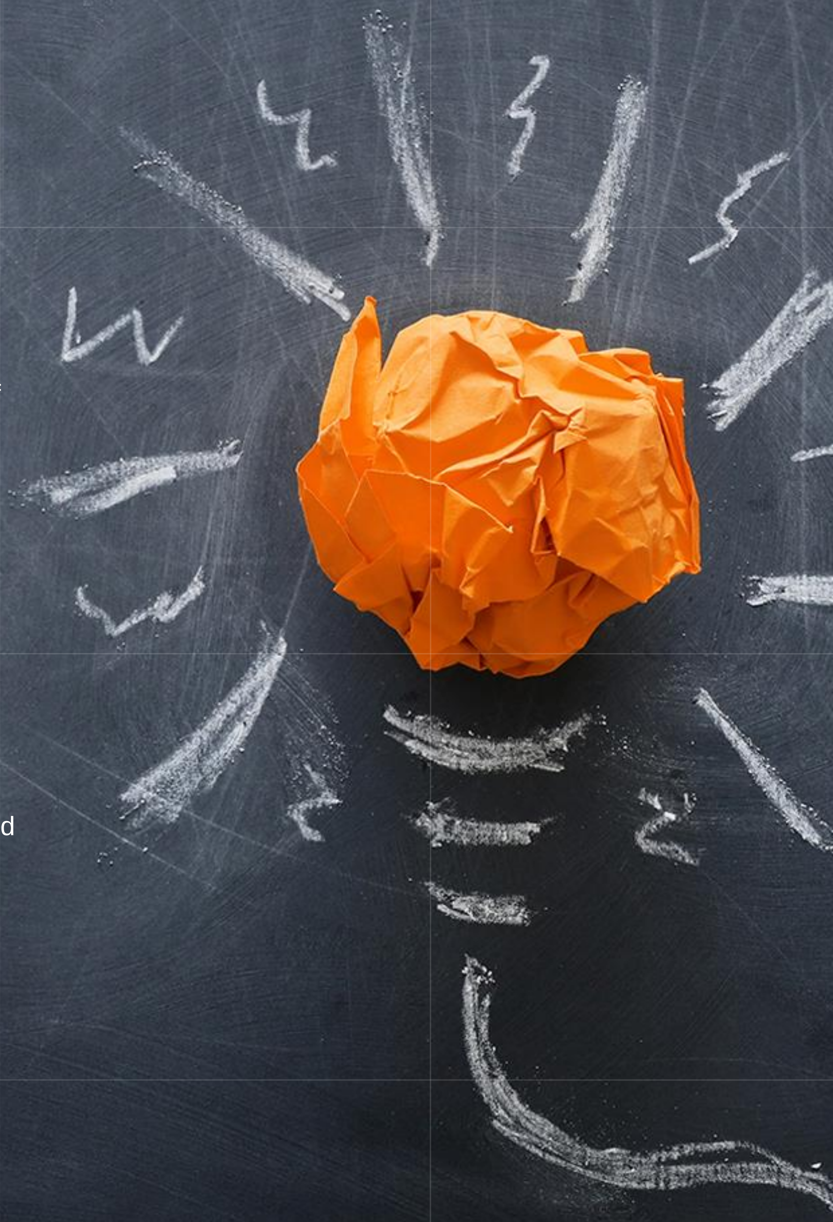
Introduction

Derivatives Quarterly is designed to highlight a range of derivative strategies suitable for institutional investors. While there is a strategic focus on equity market protection, other return-enhancing or diversifying thematic trade ideas are also explored.

Summary of observations:

- Continued moderation in equity volatility increases the attractiveness of direct equity option protection strategies (and reduces the attractiveness of defensive proxy hedges).
- Elevated interest rate volatility (both historic lookback and versus equity) remains symptomatic of the active monetary policy environment. Credit volatility has moderated, which is somewhat contrary to the deteriorating macroeconomic environment.
- US money markets are pricing in less easing activity than the last quarter (150bp of cuts by December 2024 versus 200bp in May), as the market begins to realign with the current macroeconomic data. The US money market yield curve remains inverted and front-end steepeners still have some merit.
- While the US Government yield curve has modestly steepened recently, the curve remains inverted after a sustained period of bear flattening. The recent steepening has been bearish in nature and somewhat contrary to the perceived end of the monetary tightening cycle. Any mean reversion is likely to result in yield curve bull steepening. Historic precedent suggests bull steepening coincides with softer forward looking equity performance.
- US regional banking stocks have modestly retraced after a period of notable dislocation compared to mega banks (and US equity). Assuming diversified regional banking exposures via an ETF traded against a basket of mega banks, may limit losses from idiosyncratic defaults.
- Commercial property drawdowns have been comparable in magnitude across different levels of capital subordination. While differences exist in both sectoral composition and liquidity, this is evident in BBB-rated CMBX and US REITs.



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Cross-asset volatility landscape

Continued moderation in equity volatility accompanied by cheapening in credit and currency volatility. Interest rate volatility is still elevated.

Implied volatility across asset classes

	11/08/2023	LEVEL 3M	LEVEL 6M	LEVEL 1Y	3M CHANGE 3M	3M CHANGE 6M	3M CHANGE 1Y	12M CHANGE 3M	12M CHANGE 6M	12M CHANGE 1Y	10Y PERCENTILE 3M	10Y PERCENTILE 6M	10Y PERCENTILE 1Y
EQUITY	S&P 500	14.20	15.56	17.28	-2.30	-2.52	-2.00	-5.14	-5.53	-4.74	47	51	59
	ASX 200	11.05	12.25	13.48	-1.79	-0.96	-0.72	-3.66	-3.63	-3.22	16	23	28
	NIKKEI	17.15	17.47	17.86	2.03	0.89	0.35	-0.47	-1.09	-1.09	31	30	29
	STOXX50	16.07	16.30	16.54	-0.28	-1.31	-1.59	-4.08	-4.37	-3.71	43	38	35
	FTSE	12.71	13.29	13.99	-0.10	-0.81	-0.97	-3.00	-3.83	-3.48	40	37	38
	NASDAQ	20.14	20.98	21.96	-0.35	-1.39	-1.31	-5.17	-5.46	-4.89	62	64	66
	VIX	74.48	62.59		1.51	2.29		1.94	-1.31		50	50	
FX	AUD.USD	10.45	10.43	10.34	0.10	-0.06	-0.32	-1.11	-0.99	-1.03	62	60	57
	AUD.JPY	11.65	11.82	11.98	-0.69	-0.65	-0.61	-1.26	-1.08	-0.93	62	62	60
	USD.JPY	9.46	9.37	9.24	-1.14	-1.09	-0.88	-0.63	-0.38	-0.25	65	61	54
	GBP.USD	7.80	8.00	8.29	-0.14	-0.14	-0.02	-1.84	-1.61	-1.37	38	35	36
	EUR.USD	6.67	6.69	6.81	-0.89	-0.85	-0.70	-2.92	-2.60	-2.29	33	29	28
RATES	AUD 10yr bps/pa	106.28	107.15	104.61	-20.94	-13.76	-7.33	-17.99	-11.30	-5.51	85	87	88
	USD 10yr bps/pa	115.40	114.30	112.39	-3.11	-0.76	3.41	8.32	11.23	15.27	91	93	95
	JPY 10yr bps/pa	47.52	46.21	46.03	6.04	3.43	3.11	16.18	9.29	5.51	92	90	90
CREDIT	CDX.NA.IG	1.16	1.19		-0.71	-0.71		-0.44	-0.49		28	24	
	ITraxx Crossover	5.96	6.17		-2.41	-2.68		-4.77	-4.39		49	49	
COMMOD	Gold	11.44	12.60	14.19	-4.96	-4.27	-3.42	-3.35	-3.12	-2.86	22	24	27
	Crude Oil			28.62			-9.77			-29.17			34

Source: Citi, Frontier Advisors. Data covers the period of August 2013 – 11 August 2023.

Equity market snapshot – term structure

Equity implied volatility remains modestly below (albeit broadly consistent) with the longer-term median across major markets.

Chart 1: ASX 200 implied volatility term structure

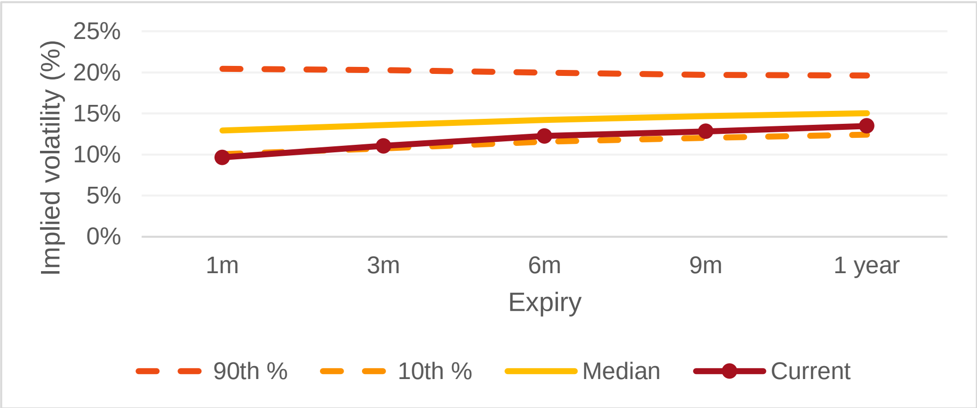


Chart 2: S&P 500 implied volatility term structure

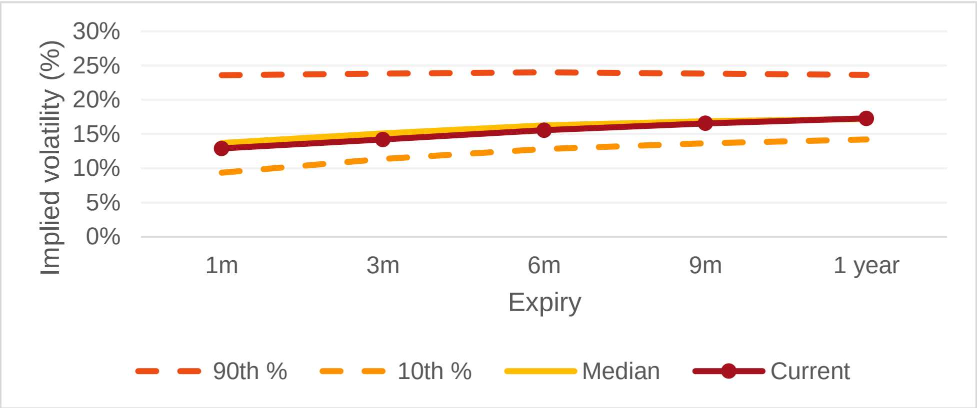


Chart 3: STOXX 600 implied volatility term structure

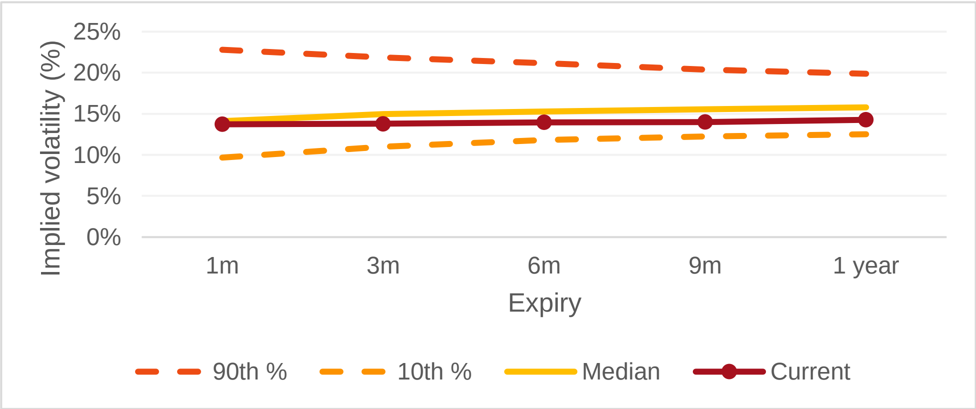
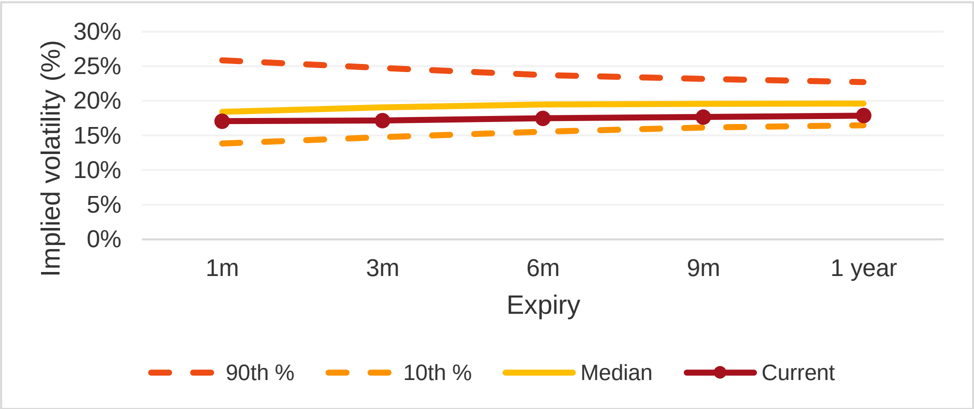


Chart 4: NIKKEI 225 implied volatility term structure



Source: Frontier Advisors, Citi. Data from August 2013 to 11 August 2023.

Equity market snapshot – moneyness

Out-of-the-money equity puts are priced consistently with longer term average and remain expensive relative to calls.

Chart 5: ASX 200 implied volatility

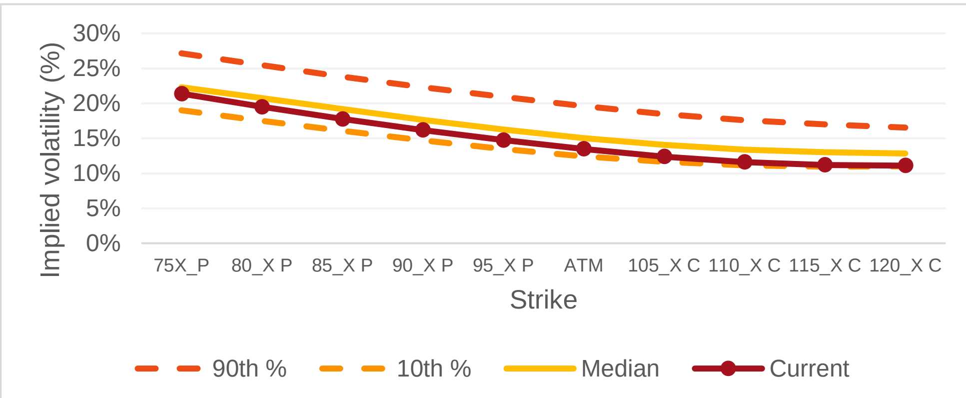


Chart 6: S&P 500 implied volatility

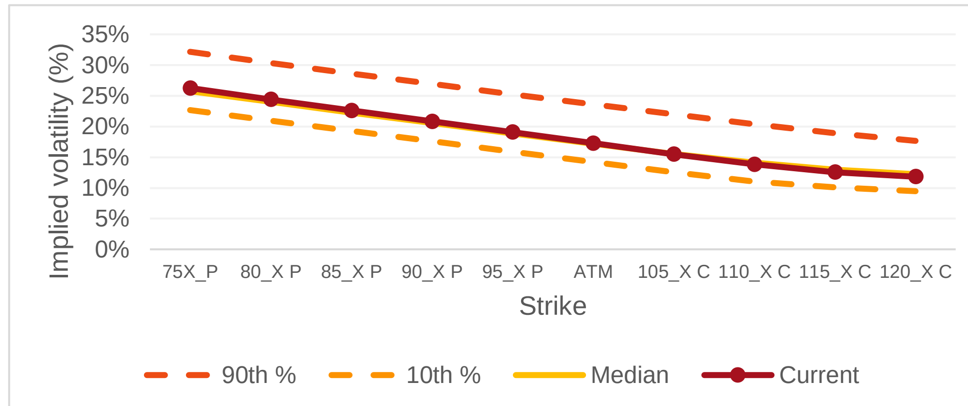


Chart 7: STOXX 600 implied volatility

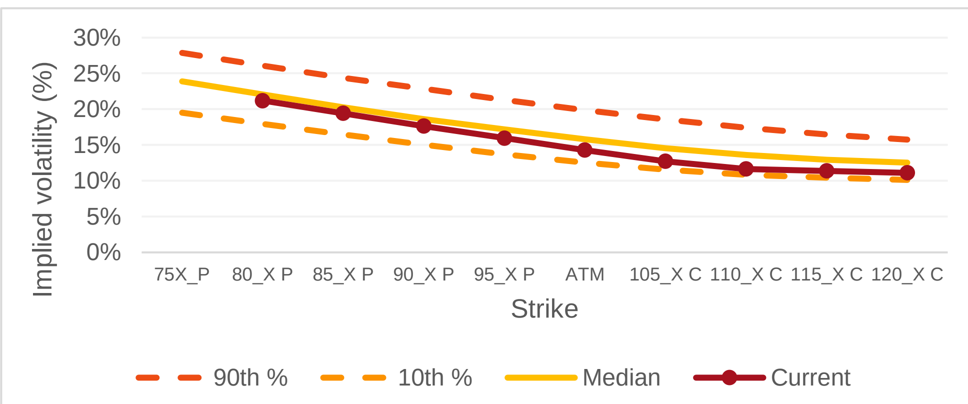
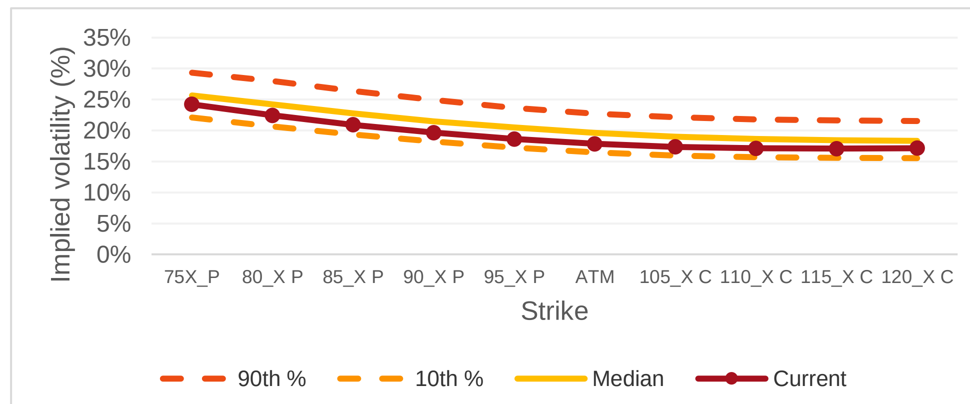


Chart 8: NIKKEI 225 implied volatility

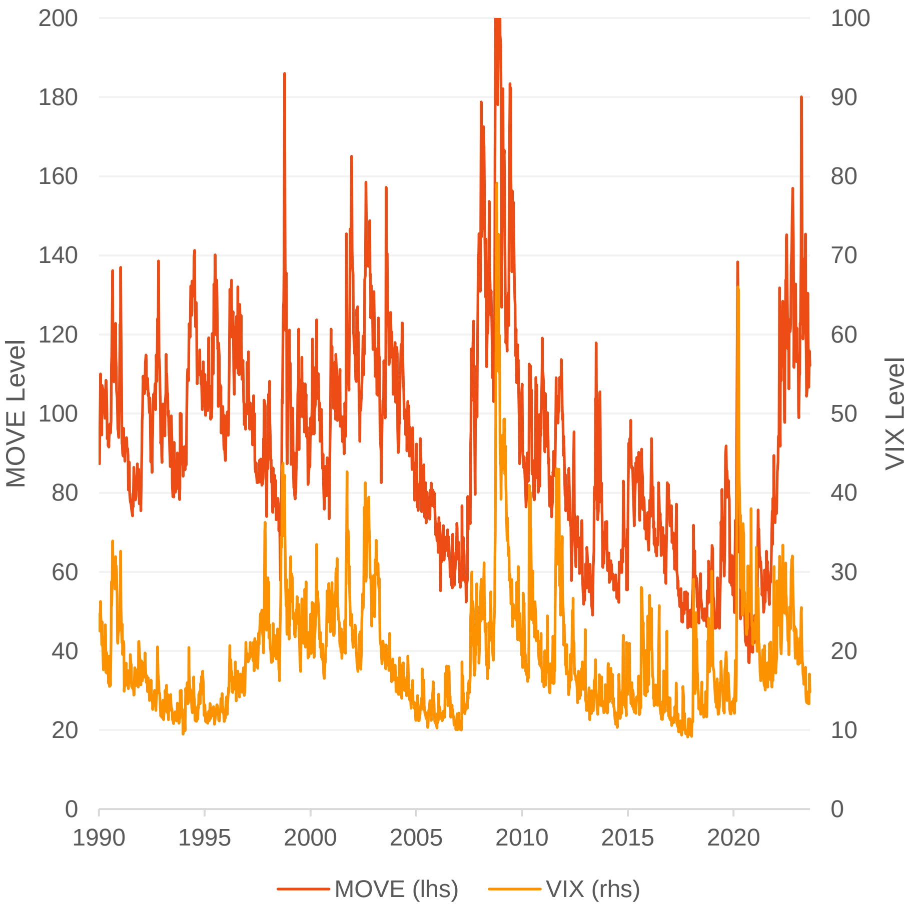


Source: Frontier Advisors, Citi. Data from August 2013 to 11 August 2023. Moneyness represented for one-year expiries.

MOVE versus VIX

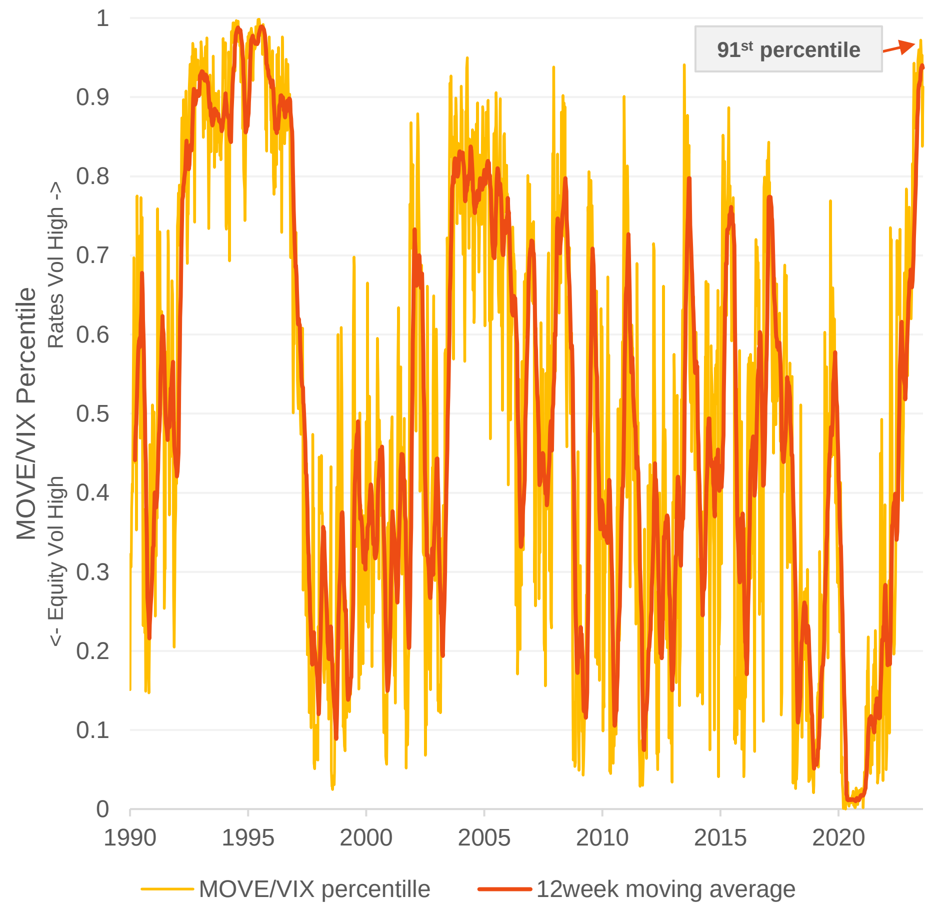
Interest rate volatility remains comparatively high versus equity volatility

Chart 9: MOVE and VIX indices



Source: Frontier Advisors, Bloomberg. Data to 11/08/2023

Chart 10: MOVE (US Treasury volatility)/VIX ratio percentile



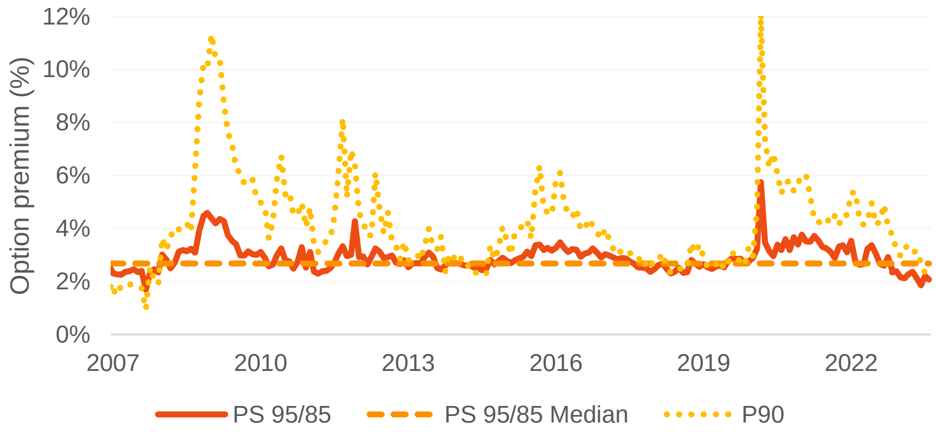
Source: Frontier Advisors, Bloomberg. Data to 11/08/2023

Minimising premium spend

Index put spreads (and puts)

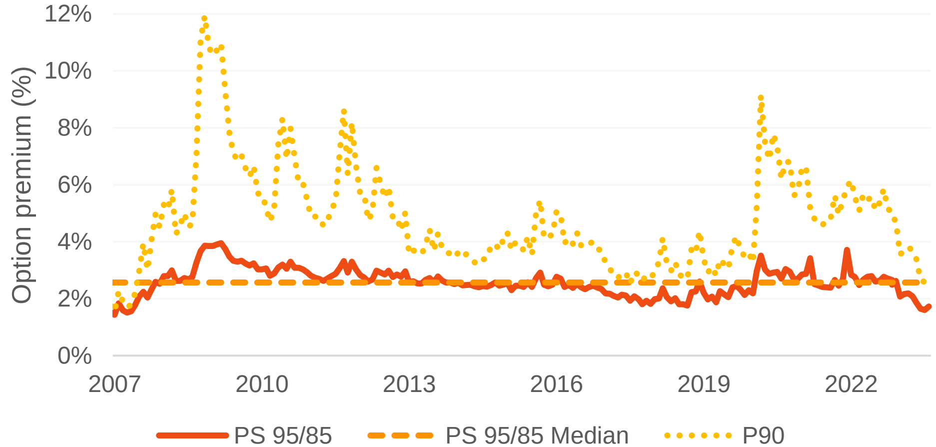
Lower premium costs but less protection in large moves

Chart 11: ASX 200 12-month 95/85 put spreads



Source: Bloomberg, Frontier Advisors. Data to 11/8/2023

Chart 12: S&P 500 12-month 95/85 put spreads



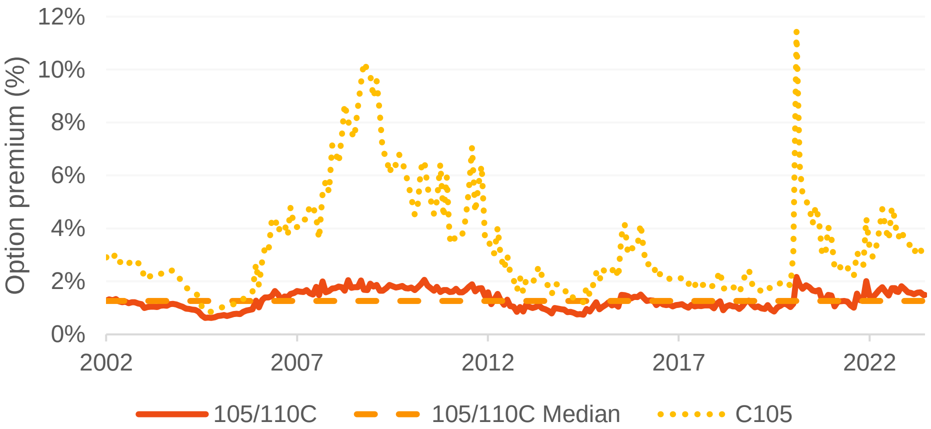
Source: Bloomberg, Frontier Advisors. Data to 11/8/2023

Option strategy	Option performance	Considerations
Purchasing put spreads reduces the cost of downside protection relative to outright put options.	A 12-month 95/85 equity put spread performs when the equity market falls between 5-15% within the next twelve months. We prefer a laddered monetisation profile when using equity options for downside protection. That is, setting predefined levels to close out the option position if markets fall. When monetising the option, investors can choose to roll the downside protection into a new option position by re-striking, i.e. keeping downside protection in place or choose not to roll, which locks in the profit but removes further downside protection. The appropriate monetisation strategy should be discussed with your options manager or Frontier Advisors.	This strategy would suit an investor looking for protection against shallow equity market drawdowns, e.g. 5-15%. This strategy does not provide further protection against large equity market drawdowns, e.g. drawdowns in excess of -15%.

Index call spreads (and calls)

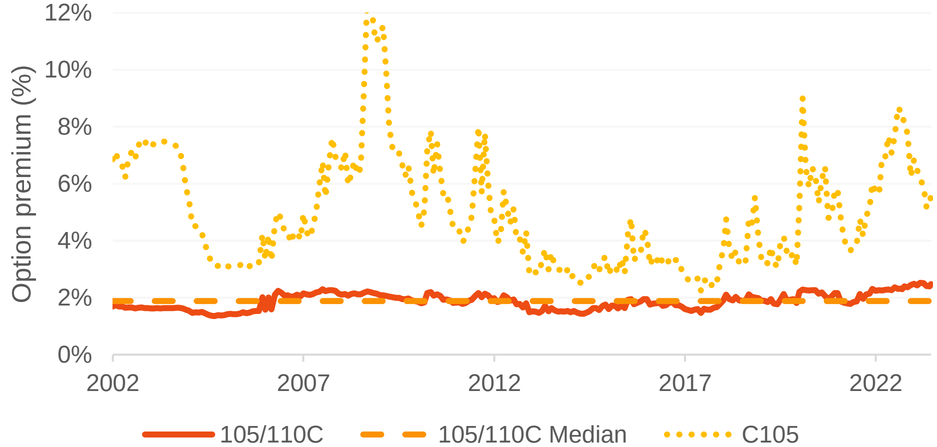
Finite upside capture for a reduced premium cost

Chart 13: ASX 200 12-month 105/110 call spreads



Source: Bloomberg, Frontier Advisors. Data to 11/8/2023

Chart 14: S&P 500 12-month 105/110 call spreads



Source: Bloomberg, Frontier Advisors. Data to 11/8/2023

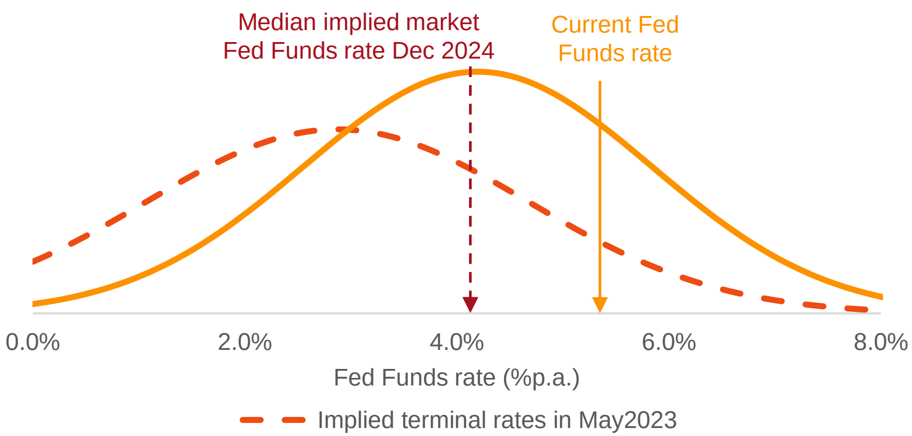
Option strategy	Option performance	Considerations
Purchasing call spreads allows finite upside participation at a reduced cost relative to outright call options. Losses are limited to the premium paid.	A 12-month 105/110 equity call spread performs when the equity market rallies between 5-10% within the next twelve months. While we prefer laddered monetisation profiles with predefined exit levels, market rallies are typically more incremental than market falls. Potential monetisation for call spread programs may therefore be less time sensitive than downside protection approaches. When monetising the option, investors can choose to roll into a new call spread position by re-striking, i.e. allowing further upside participation or choose not to roll, which locks in the profit. The appropriate monetisation strategy should be discussed with your options manager or Frontier Advisors.	This strategy would suit an investor looking to access upside participating in modest equity rallies, e.g. 5-10%. This strategy has loss limited to premium spend and upside participation is capped in moves in excess of 10%.

Revisiting previous trade ideas

Duration neutral US money market steepener

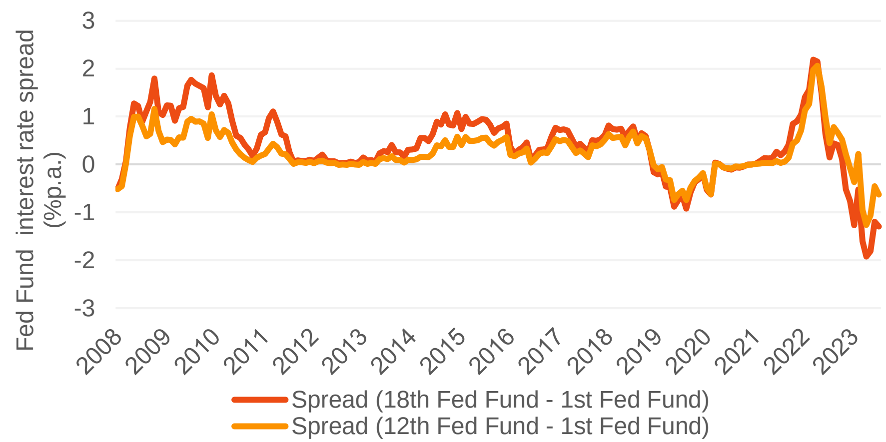
Designed to benefit from a less pronounced US monetary policy easing

Chart 15: Implied Fed Fund distribution for December 2024 meeting



Source: Frontier Advisors, Bloomberg. Data implied from December 2024 Fed Funds future as at 4 May 2023 and 11 August 2023, respectively.

Chart 16: US Fed Fund futures spreads



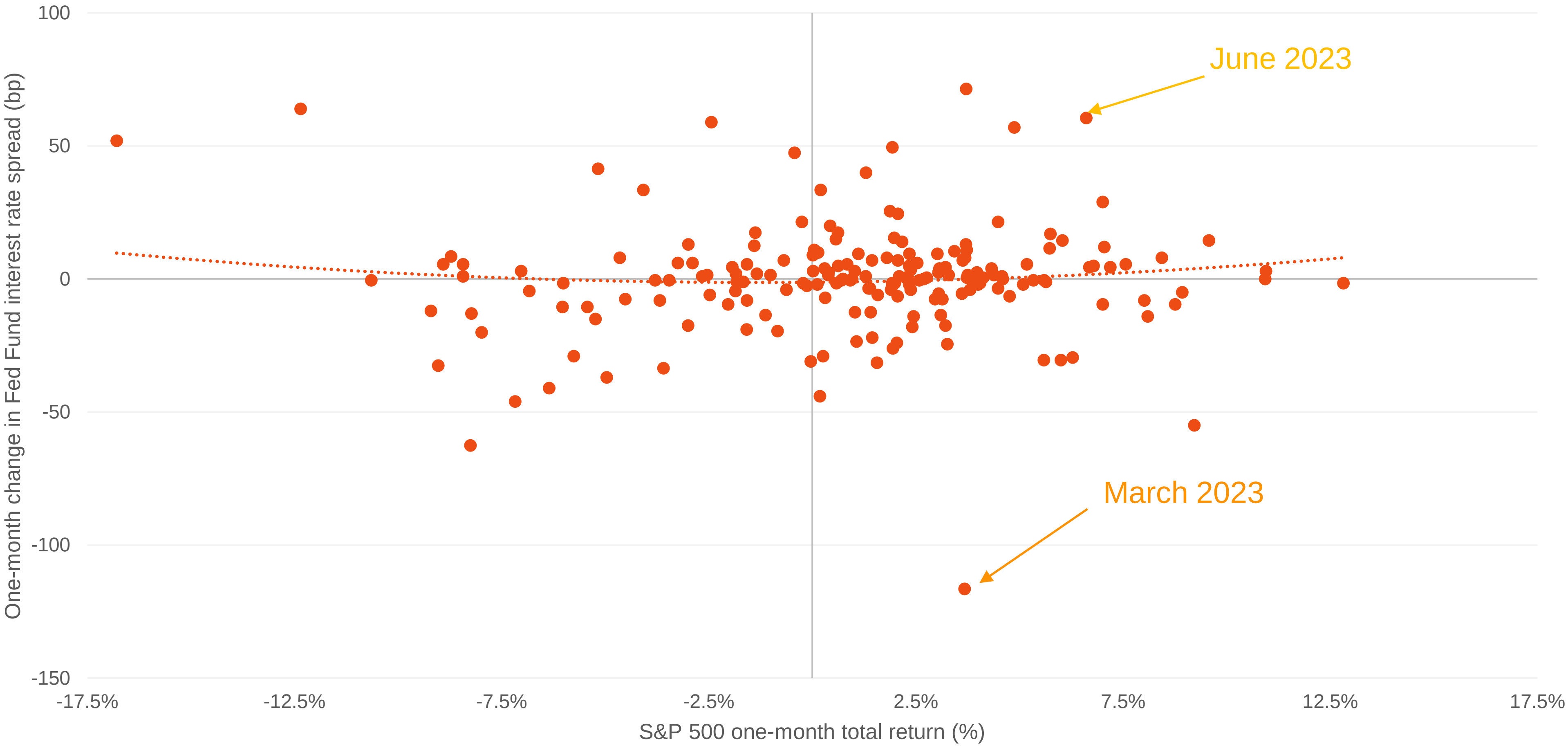
Source: Frontier Advisors, Bloomberg. Monthly data from January 2008 to 31 July 2023. First Fed Fund future refers to a contract maturing in one-month on an underlying 30-day Fed Funds rate. 12th and 18th refer to contracts maturing in one-year and 18-months, respectively.

Strategy	Performance	Considerations
Selling 18-month forward starting Fed Fund futures versus buying one-month Fed Fund futures. The notional exposure on each leg is equal, such that the structure is market neutral in both duration and net notional terms. The money market yield curve is representative of US monetary policy (and interest rate expectations). Market pricing currently reflects a rapid monetary easing from the US Fed (circa 150bp of cuts by December 2024). While this is possible, the current macroeconomic backdrop (i.e. inflation/labour market) remains modestly irreconcilable with the magnitude and speed of the market's interest rate pricing. In recent months, the extent of easing priced has moderated substantially.	The current slope is at post GFC lows and deeply inverted. This suggests potential for a reversion back towards the mean (i.e. back to a positive sloping curve and a more static monetary policy setting) at some point in the future.	MTM losses are possible in the event of further money market curve inversion. This may reflect the Fed easing in greater magnitude, sooner than the market's current expectations. While long and short legs are both duration and notional matched, gross derivative notional will be greater than 100% (and likely significantly higher given duration-based sizing considerations). There are roll requirements to maintain a market neutral exposure as one-month futures mature. Liquidity for these instruments is typically very high. This trade may evidence positive correlation with other US curve steepening structures (e.g. 2s10s).

Duration neutral US money market steepener

Money market steepener returns show limited correlation to equity returns

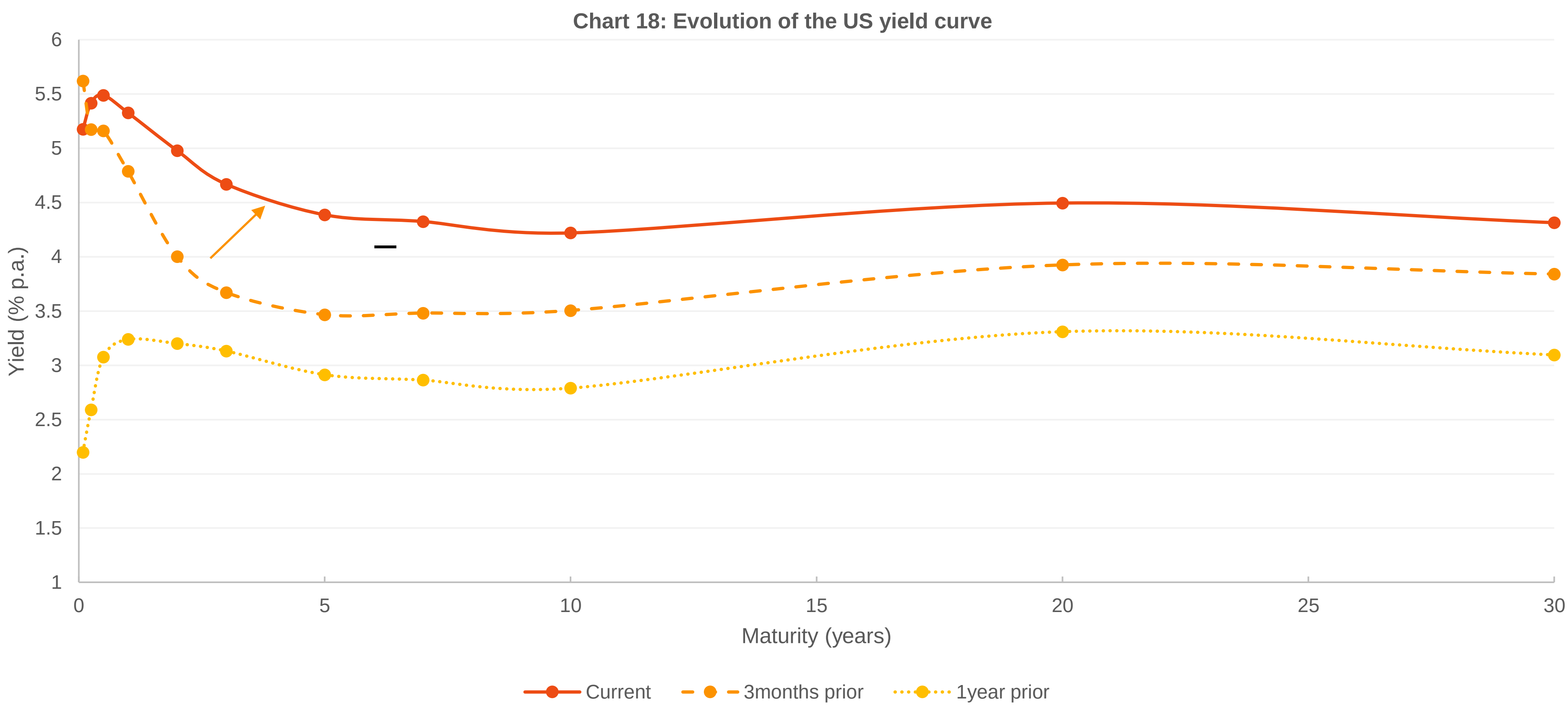
Chart 17: US money market steepener versus S&P 500 returns



Source: Frontier Advisors, Bloomberg. Monthly data from January 2008 to July 2023. Spread change represented by 18th Fed Fund versus 1st Fed Fund contract.

US Government yield curve observations

Recent steepening (while modest) has been bearish and potentially contrary to the end of the tightening cycle limited correlation to equity returns. Medium term trend has been one of bear flattening with pronounced inversion still evident



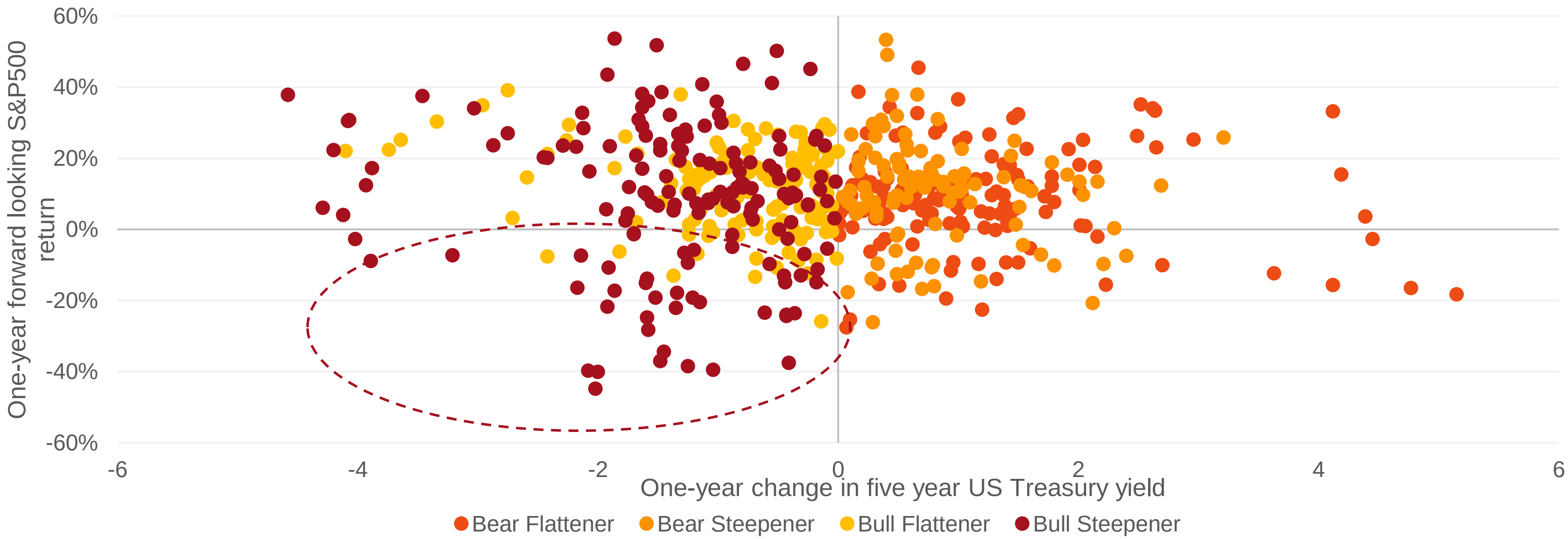
Source: Frontier Advisors, Bloomberg. Current represented as at 15 August 2023

US Government yield curve observations

Bull steepening environments have historically coincided with weaker forward-looking equity returns (a bias exacerbated by the GFC)

One-year forward looking S&P500 return by regime	Average	Minimum	10th percentile	Median	% of positive months
Bear flattener	9.1%	-27.5%	-9.3%	9.7%	82%
Bear steepener	10.6%	-26.1%	-10.1%	12.3%	79%
Bull flattener	11.7%	-25.9%	-3.1%	13.6%	81%
Bull steepener	**8.7%**	**-44.8%**	**-20.9%**	10.4%	**71%**

Chart 19: Implying forward looking equity return potential from yield curve moves

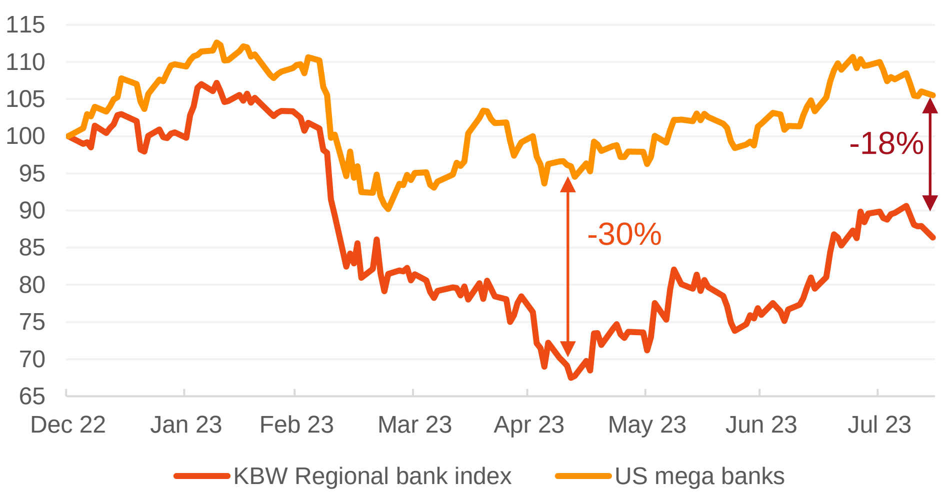


Source: Frontier Advisors, Bloomberg, Federal Reserve Bank of St Louis. Bull (yields down) and Bear (yields up) environment defined by one-year backward looking change in US five-year Government yield. Steepening versus flattening defined by one-year backward looking change in US 2s10s. Monthly data used from June 1976 to July 2023.

US regional banking – dislocated valuations within the sector

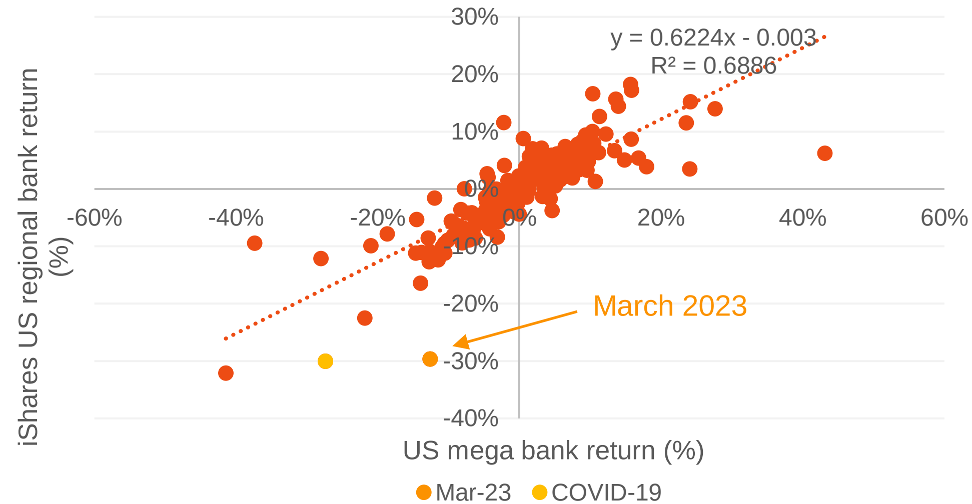
US banking sector weakness most pronounced in regional banking entities

Chart 20: Cumulative return of US banking subsector



Source: Frontier Advisors, Bloomberg. Cumulative returns to 14 August 2023 exclude dividends.

Chart 21: Monthly price returns on US banking subsectors



Source: Frontier Advisors, Bloomberg. Mega bank returns proxied by an equal weighted basket of JPM, Wells Fargo, Bank of America and Citigroup stocks. Monthly data from May 2006 - April 2023.

Strategy	Considerations
Long a US regional bank ETF (funded by a short basket of US mega banks).	• Cumulative returns reflect the recent dislocation between long-term banking sector returns versus those of the S&P 500. Such dislocations have evidenced modest reversion over the market cycle. • The PE ratio of regional banks is comparatively cheap versus both mega banks and broader S&P 500 index. • It remains unclear whether the regional banking weakness is consistent with a broader deterioration of banking fundamentals or simply a manifestation of the tighter monetary conditions. For example, thus far incumbent bank collapses have evidenced mismanagement of asset/liabilities or idiosyncratic borrower base (e.g. crypto/venture capital aligned activities). Regional banks also have greater commercial-property backed lending activities, which may exacerbate risks. • While there is a high degree of dispersion between individual regional banks, there is diversification apparent in owning a basket of 30+ regional stocks and has typically traded lower beta versus a small basket of US mega banks. March 2023's drawdown is an outlier relative to the historic precedent.

REITs versus CMBS observations - capital structure arbitrage

Different levels of capital subordination with broadly comparable drawdowns (US REITs versus BBB- CMBX)

Chart 22: REIT benchmark performance versus CMBX prices

Source: Frontier Advisors, Bloomberg. Daily data to 14/8/2023. CMBX represented by price. FTSE NAREIT index represented by cumulative price returns.

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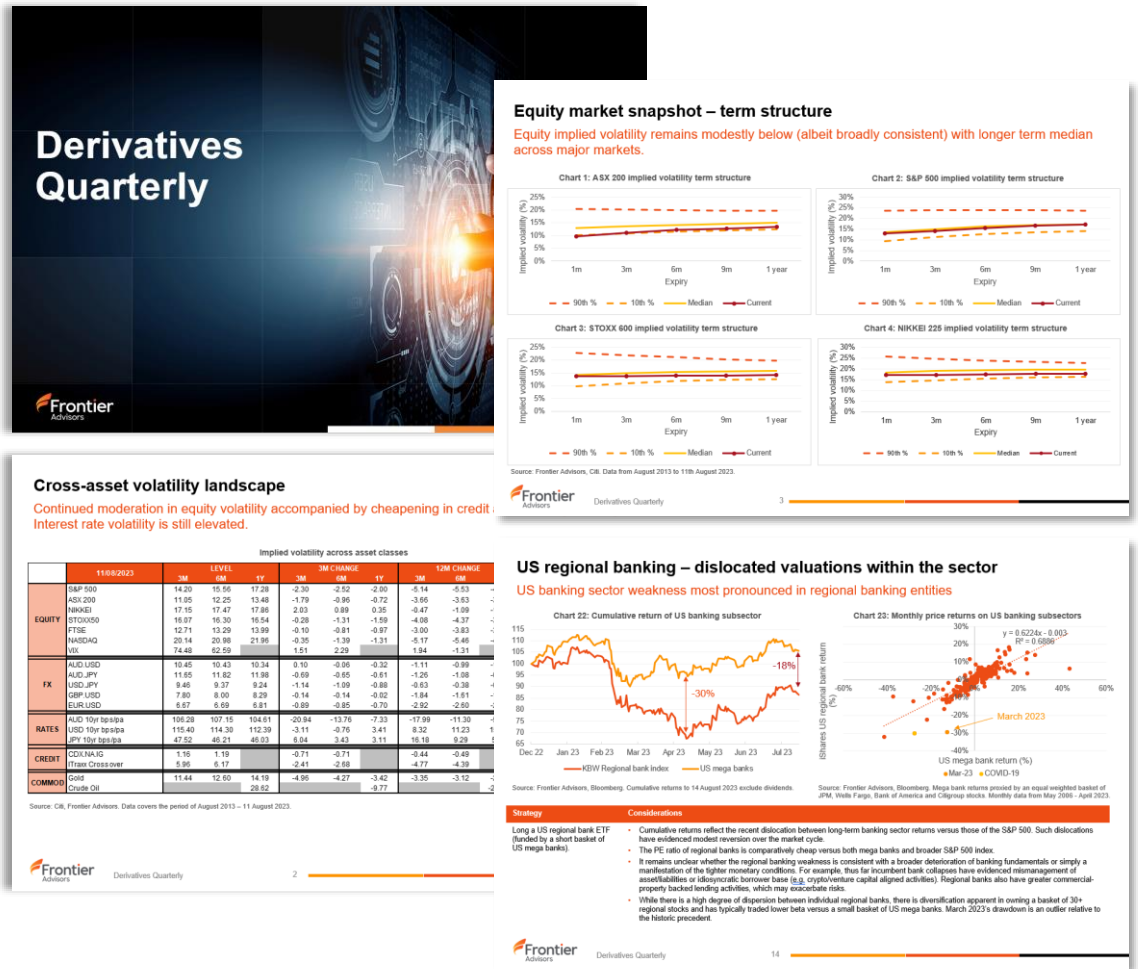

Frontier's Defensive Assets Team

Frontier Advisors has been advising clients on the use of options since 2014. We have advised defined contribution, defined benefit and insurance clients and have worked with various option implementation managers.

We advise clients on a range of derivative issues including:

- overlay manager selection
- strategy selection
- structuring
- monetisation.

If you or your fund are interested in derivatives, particularly to manage risk, we can assist. Please reach out to a consultant or to a member of Frontier's Defensive Assets Team.

Andrew Kemp – Principal Consultant

Iain McMahon – Senior Consultant

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