

Index Volatility: Four Observations Ahead of the Upcoming \$3.4tln Expiry

Another surprising inflation reading, a further drop in consumer sentiment, and a Fed meeting that may start laying the groundwork for an even stronger path of rate hikes leave no shortage of fundamental news for investors to process in the coming days, and this week's \$3.4tln option expiration adds a layer of positioning complexity. In this note we make four observations about equity option positioning.

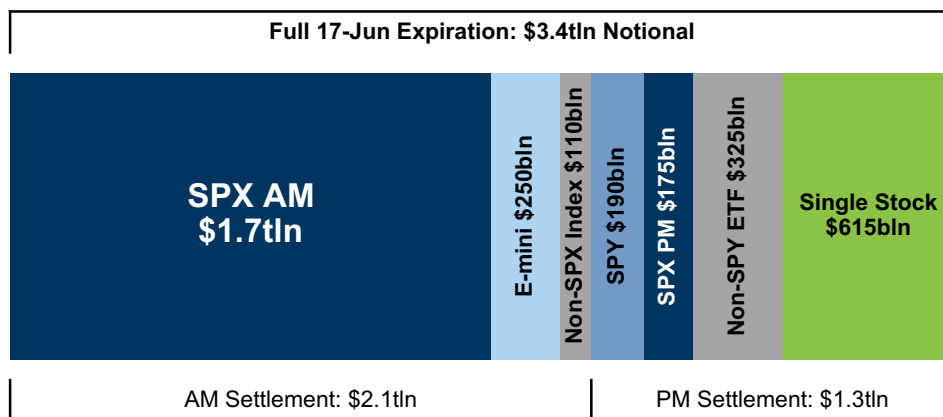
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Exhibit 1: \$3.4tln of option notional expires on 17-Jun
Notional open interest of US-listed options expiring on 17-Jun-2022



Source: Goldman Sachs Global Investment Research, OptionMetrics, Bloomberg

Four observations ahead of the coming expiration:

- 1. Implied volatility has underperformed, indicating reduced demand for options.** Pre-market trading points toward today being the first time the VIX closes above 30 for three weeks, despite the S&P having its first 30%+ realized volatility month since Apr-20 and closing near its 15-month high on Friday (10-Jun). A key driver of weak implied volatility has been the gradual pace of this year's sell-off: the SPX closed at new 3-month lows in five (and likely six by the end of today) consecutive months for the first time since 1974. Key measures of SPX volatility risk premium have generally been negative this month, indicating that options are underpriced. Cheap options are consistent with dealers being long gamma - potentially leading to reduced realized volatility as we approach expiration.
- 2. This week's expiration is large for a non-December.** \$3.4tln of option notional

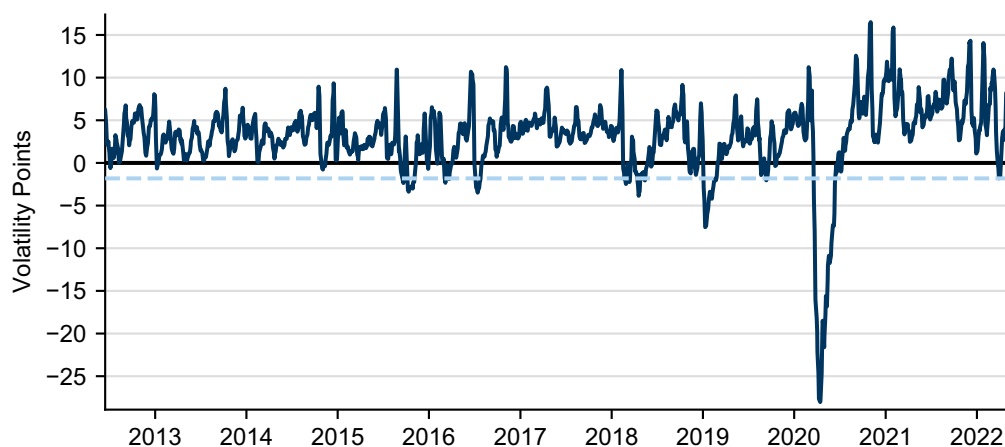
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expires this Friday (17-Jun), including \$1.9tn of SPX index options. The total is closer to a December expiration¹ than to a typical quarterly, reflecting extremely high trading volume while realized volatility surged in May. The spot SPX sell-off leaves most of the open interest at strikes somewhat above the current index level; the biggest concentration of open interest is in the 4000-4500 strike range.

3. **As single stock option activity has slowed, index option volumes have been strong.** A macro-led market has led to soaring index option volumes, averaging \$1.3tn/day of index/ETF option notional over the past month. Ultra-short-dated SPX option volumes have been especially strong (and therefore important to the overall gamma position) as investors have adopted the daily expiration schedule without hesitation. Five of the ten highest single expiry/single day SPX contract volumes have happened in the past month, including \$350bln on Thursday (9-Jun), less than a month after the first Thursday expiration was listed. On the other hand, a macro-driven market has led single stock option volumes to continue dropping.
4. **Falling skew and vol-of-vol point toward long gamma dynamics.** Low vol risk premium and low skew are both consistent with dealers and market makers being net long near-the-money options, which would leave their delta hedging likely to reduce market volatility in the coming days. To the extent a dominant flow has been investors' hedges becoming in-the-money, the expiration and rolling of those positions could be supportive to the market as a whole. The week of quarterly option expiration is typically the highest-volume week of the quarter for option markets, and hedge restructuring is likely to be an important driver of flows in the coming days.

Exhibit 2: The VIX (27.8 as of Friday's close) has had a small and often negative premium to high recent realized volatility (current exponentially-weighted RV: 28.5)

Vol risk premium: VIX minus exponentially-weighted SPX realized vol (13-day half-life); 5-day rolling average

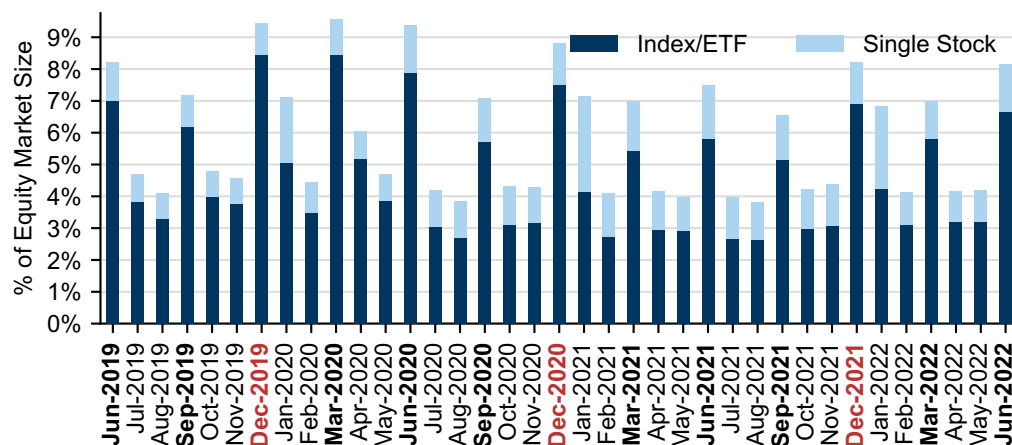


Source: Goldman Sachs Global Investment Research, Bloomberg

¹ Because they are listed years in advance, December SPX option expirations generally have higher open interest than other maturities.

Exhibit 3: With options referencing 8% of the US equity market expiring, Friday's expiry is more like a December than a regular quarterly

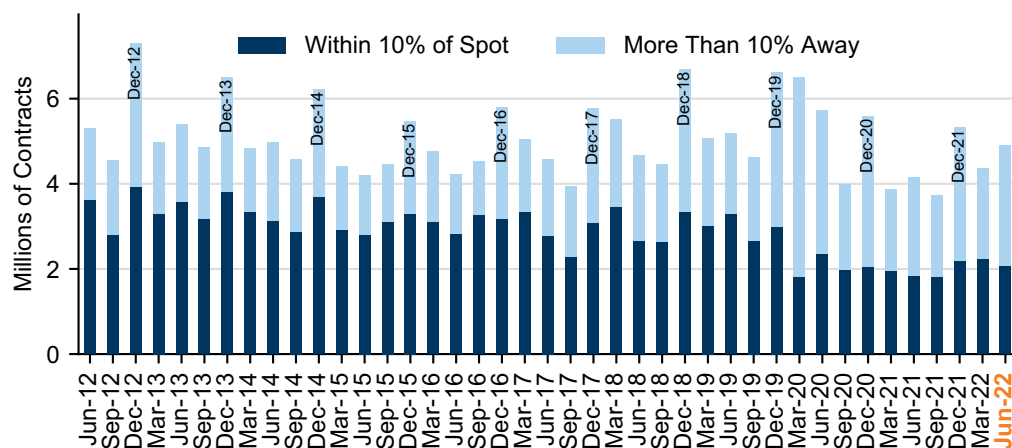
Total expiring US-listed index, ETF, and single stock option notional on third Friday expirations, as a percentage of the Russell 3000's market cap



Source: Goldman Sachs Global Investment Research, OptionMetrics

Exhibit 4: The sell-off has left a significant percentage of SPX open interest well above the current spot level

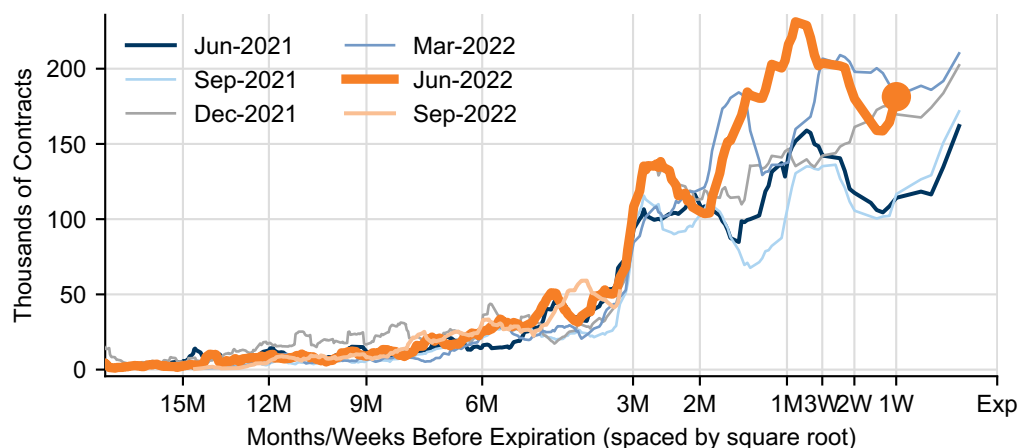
SPX quarterly expirations' open interest, 7 days before expiration based on distance from spot



Source: Goldman Sachs Global Investment Research, OptionMetrics

Exhibit 5: The June expiry's open interest was boosted by extraordinary trading volume in May

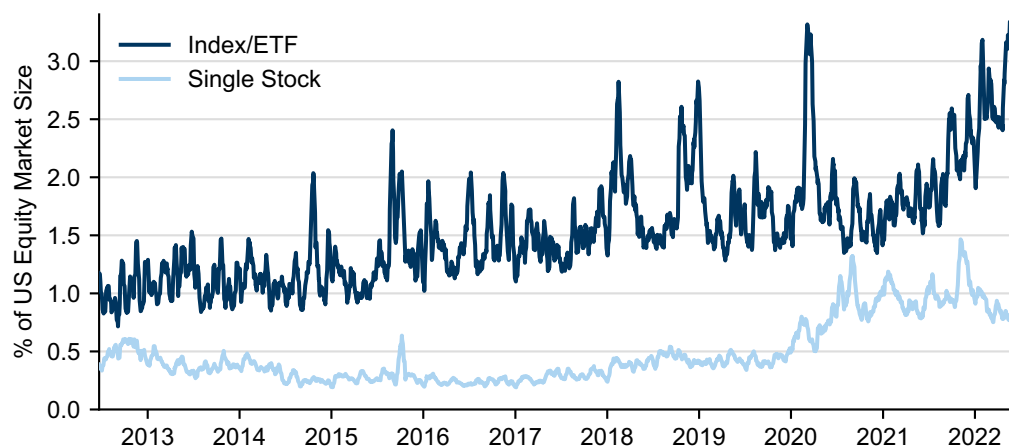
10-day rolling average daily volume (thousands of contracts) of SPX quarterly expiries, by time to maturity



Source: Goldman Sachs Global Investment Research, OptionMetrics

Exhibit 6: In a macro-led market, index option activity has soared; single stock option volumes have been fading

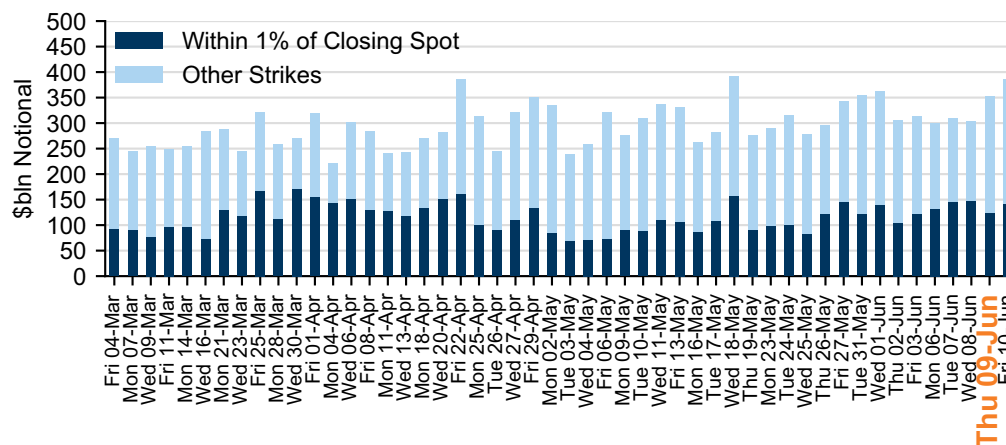
US-listed option volume (notional as percent of Russell 3000 market cap): 10-day rolling average



Source: Goldman Sachs Global Investment Research, OptionMetrics

Exhibit 7: The \$350bln notional of Thursday (9-Jun) expiration options - which would not have even existed one month earlier - that traded on their final day was among the largest single day, single expiry notional volumes on record

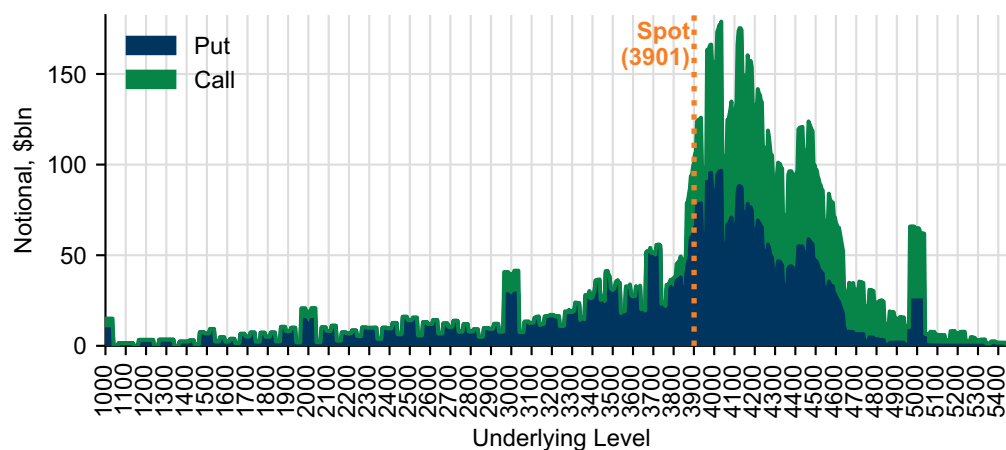
Notional SPX option volume traded on the day of expiration, excluding Third Friday and end-of-month expirations



Source: Goldman Sachs Global Investment Research, OptionMetrics

Exhibit 8: Most of the 17-Jun SPX option open interest is above the current spot level, and today's pre-market sell-off leaves it even more distant

Notional 17-Jun-2022 SPX open interest, \$bln notional within 1% of each point



Source: Goldman Sachs Global Investment Research, OptionMetrics

Exhibit 9: 1/3 of SPX open interest expires this week

Notional open interest statistics

		Total/Call/Put	Last 3Y	Top 4 Expiries		Tenor Distribution			
SPX	SPX	Total	\$6.6tn		17-Jun	\$1.9tn	13-Jun to 17-Jun	\$2.1tn	
		Call	\$2.4tn		15-Jul	\$630bln	21-Jun to 16-Sep	\$2.4tn	
		Put	\$4.2tn		16-Sep	\$590bln	30-Sep to Mar-2023	\$1.6tn	
				16-Dec	\$860bln	Mar-2023 to Dec-2026	\$580bln		
	SPY	Total	\$685bln		17-Jun	\$190bln	13-Jun to 17-Jun	\$225bln	
		Call	\$260bln		15-Jul	\$81bln	21-Jun to 16-Sep	\$300bln	
Put		\$425bln		19-Aug	\$54bln	30-Sep to Mar-2023	\$120bln		
			16-Sep	\$64bln	Mar-2023 to Dec-2024	\$41bln			
Russell	IWM	Total	\$145bln		17-Jun	\$44bln	13-Jun to 17-Jun	\$47bln	
		Call	\$45bln		15-Jul	\$21bln	21-Jun to 16-Sep	\$51bln	
		Put	\$100bln		16-Sep	\$14bln	30-Sep to Mar-2023	\$34bln	
				16-Dec	\$19bln	Mar-2023 to Jan-2024	\$13bln		
	RTY	Total	\$92bln		17-Jun	\$35bln	13-Jun to 17-Jun	\$36bln	
		Call	\$37bln		15-Jul	\$6.7bln	21-Jun to 16-Sep	\$30bln	
Put		\$55bln		16-Sep	\$9.9bln	30-Sep to Mar-2023	\$16bln		
			16-Dec	\$12bln	Mar-2023 to Dec-2024	\$10bln			
NASDAQ	QQQ	Total	\$335bln		17-Jun	\$105bln	13-Jun to 17-Jun	\$115bln	
		Call	\$130bln		15-Jul	\$37bln	21-Jun to 16-Sep	\$125bln	
		Put	\$200bln		16-Sep	\$48bln	30-Sep to Mar-2023	\$74bln	
				16-Dec	\$39bln	Mar-2023 to Jan-2024	\$22bln		
	NDX	Total	\$205bln		17-Jun	\$68bln	13-Jun to 17-Jun	\$77bln	
		Call	\$100bln		15-Jul	\$25bln	21-Jun to 16-Sep	\$86bln	
Put		\$105bln		16-Sep	\$25bln	21-Oct to Mar-2023	\$32bln		
			16-Dec	\$15bln	Jun-2023 to Dec-2024	\$10bln			

Source: Goldman Sachs Global Investment Research, OptionMetrics

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