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Equity Markets Positioning Model

Positioning Eases but Vulnerabilities Remain

CITI'S TAKE

The recent technology-led selloff triggered a deterioration in positioning across most major equity markets, with long unwinds, new shorts and rising unrealised losses driving flows. The sharpest adjustment occurred in Nasdaq, where positioning reset lower but remains vulnerable given all longs are currently in loss. European investors continued to reduce risk through profit-taking and new shorts, pushing DAX into bearish territory and increasing squeeze potential should sentiment improve. In Asia, bearish flows were widespread, although KOSPI remains the market most exposed to further deleveraging. Here, positioning remains elevated despite the recent index decline. Looking ahead, upcoming earnings will be key in determining whether positioning stabilises or unwinds further.

US – Positioning reset underway, but the unwind may not be over — US positioning deteriorated sharply as the recent AI and technology selloff triggered widespread de-risking, with flows overwhelmingly bearish across large caps. S&P positioning eased primarily through long unwinds, while Nasdaq positioning saw a more aggressive combination of long liquidation and new short flows, leaving positioning at a one-month low. The key positioning risk remains concentrated in Nasdaq, predominantly, for longs which are now entirely in loss and positioning levels which are still elevated.

Europe – Bearish positioning is building faster than prices are falling — European positioning weakened despite relatively resilient headline index performance. EuroStoxx bullish levels declined, and DAX positioning turned outright bearish. The week's activity was characterized by profit-taking and fresh short selling, reflecting investor concerns around technology and semiconductor exposure. Although positioning momentum remains negative, the increasingly crowded short base creates asymmetric squeeze risks should sentiment stabilise or macro data surprise positively. In contrast, FTSE positioning improved on short covering and a rise in risk flows over the week.

Asia – KOSPI still key positioning risk despite unwinds — Asia positioning experienced the broadest regional deterioration as new short flows dominated activity across all indices tracked in the region. China A50, Hang Seng, Nikkei and KOSPI all saw bearish repositioning following the technology-led selloff, with positioning across China indices moving back toward neutral. The most significant risk remains in Korea, where positioning continues to rank higher despite recent losses. A combination of elevated positioning and substantial un-realised losses leaves KOSPI particularly vulnerable to forced deleveraging and further downside pressure.

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See Appendix A-1 for Analyst Certification, Important Disclosures and Research Analyst Affiliations.

Current Themes

Another challenging week for US equity markets as a pronounced selloff in technology and AI-related stocks alongside escalating geopolitical tensions between US and Iran led to a consensus selloff in equities, with the Growth sensitive Nasdaq witnessing the largest decline for the week.

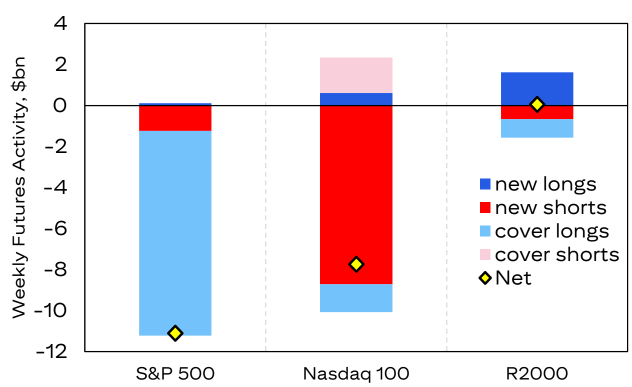
While corporate earnings (banks in particular) provided a strong backdrop for an improved earnings season, it did little to offset losses experienced across the broader AI exposed segment of the market.

Weekly flows have been almost exclusive one-sided bearish for US large caps, with S&P (+0.8) positioning changes largely driven by long unwinds, whereas new short positioning dominated flows for Nasdaq (+1.5), leaving bullish positioning at the lowest levels seen over the month (Figure 2). The decline across US positioning was most pronounced and severe for Nasdaq (+2.5 to +1.5) after the tech rout.

Elsewhere, Russell 2000 positioning remains unchanged, with recent offsetting activity effectively nullifying any significant changes for the week. Positioning levels on Russell 2000 has been at extremes in recent weeks and remains so, but P&L build-up has stayed contained from the large degree of return variability observed in recent weeks.

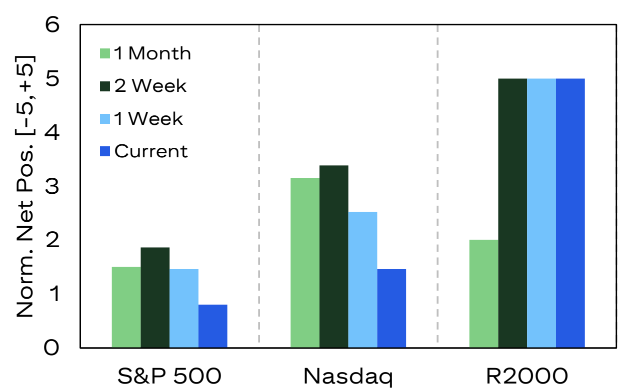
Elsewhere ETF positioning remains bullish and robust for the S&P 500 (+3.9) and Nasdaq (+2.1) suggesting that moderate/longer term holders aren't capitulating yet.

Figure 1. Large-cap positioning weakens on long unwinds and new shorts.



Source: Citi Research

Figure 2. Smal caps retain bullish extension, as Large Cap positioning resets.



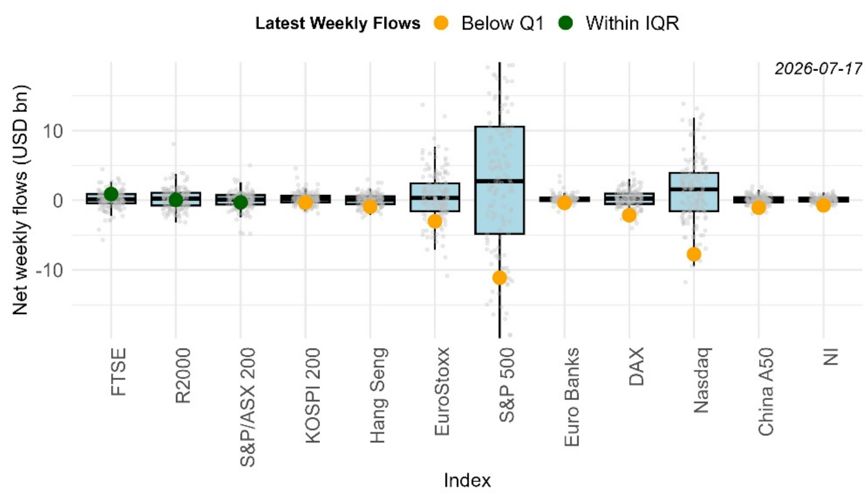
Source: Citi Research

S&P 500 P&L profile reveals mounting stress beneath the surface. While net P&L appears manageable, the long side remains more vulnerable to further unwinds, with 2/3rds of long positioning offside. Nasdaq presents an even greater risk, current P&L is extended (-2) with all longs currently in loss. The average long entry is near 30,000 while current levels are near 28,800 leaving a 4% average positioning loss.

With $26 billion in long notional completely offside and positioning still elevated at +1.5, downside risks for Nasdaq are elevated and could trigger a further upheaval should tech earnings disappoint. The critical test arrives July 22-23 with Alphabet and Tesla earnings. Any guidance cuts or margin pressure here could trigger the cascade.

The small-cap trade benefited from the "broadening participation" theme, but the extreme positioning (+5) seen for Russell 2000 means any economic disappointment could trigger rapid unwinding. Furthermore, the 69% offside ratio on longs suggests that many investors were late in chasing the rotation.

Figure 3. Weekly flows skewed towards lower levels.



Source: Citi Research

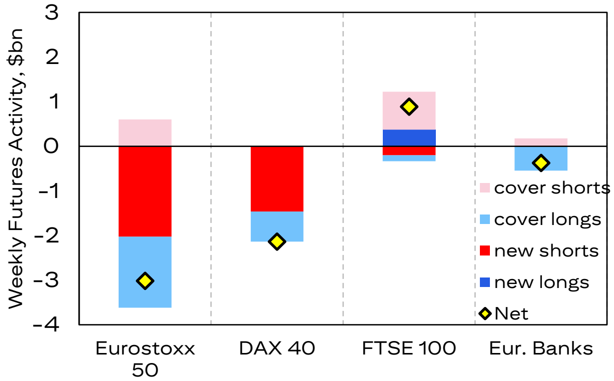
Europe

European equity markets navigated a complex week, caught between spillover weakness from US/Asian tech stocks and improving regional inflation dynamics. The STOXX Europe 600 managed a marginal +0.07% gain, masking significant internal divergence: the UK's FTSE 100 climbed +0.98% (benefiting from low tech exposure and energy sector strength), while Germany's DAX fell -0.94%.

Despite index levels holding steady, EuroStoxx positioning declined (+1.2 to +0.8) along with DAX (-0.4), which flipped to bearish levels. Weekly activity was driven by profit taking unwinds and new short positioning. In contrast FTSE 100 saw a positioning uplift from risk flows and short covering activity.

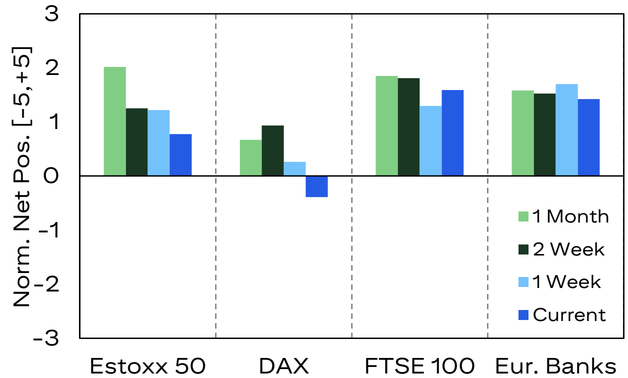
DAX remains the only develop market index tracked where shorts exceed long positioning, the bearish switch reflecting it's more significant tech exposure, that is leaving greater vulnerability to a further semi-conductor selloff. Notably, the short book for DAX has reached 3-year highs, creating a potential squeeze risk point if a positive rebound emerges.

Figure 4. EuroStoxx positioning fades despite resilient market performance



Source: Citi Research

Figure 5. DAX leads Europe's bearish shift



Source: Citi Research

FTSE shorts are currently all in loss, however, any potential rebound from covering could be limited given the smaller short book size.

European Banks saw modest profit taking despite strong Q2 earnings (European Banks - Banking On Markets – Summer 2026: Blow Out Equities Revenues) across the sector. Positioning is one-sided bullish (+1.4) but not extended, with long profits relatively small, leaving limited positioning risks.

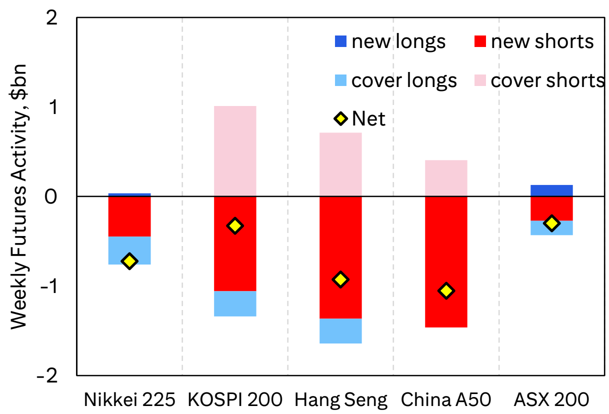
Asia/EM

Asian equity markets bore the brunt of the recent technology selloff, with tech-oriented indices leading declines. Our equity strategy team continue to be broadly supportive for the region, upgrading China and Taiwan, but turning neutral on Korea (EM Equity Strategy Compass - 2H26 Outlook: The Broadening Question) given the volatile trading conditions.

Positioning flows were firmly bearish across all indices in the region, with new shorts dominating weekly activity across indices (Figure 6). The largest decline came from China A50, where positioning activity was solely attributed to short reallocations. The deterioration for Hang Seng was less extensive, but levels on both indices are trending back towards neutral, despite beginning from opposite ends.

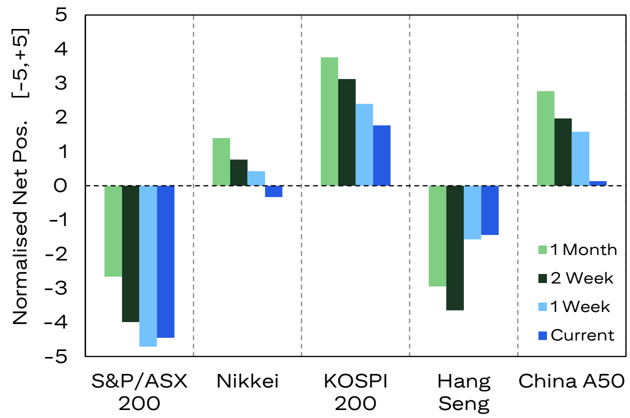
KOSPI positioning retained its bullish (+1.7) tilt despite the sharp decline, but momentum on positioning hasn't changed. Nikkei weekly flows followed a similar trend, with new shorts and long unwinds leading positioning lower.

Figure 6. Bearish flows dominate across Asia.



Source: Citi Research

Figure 7. KOSPI positioning remains elevated despite drawdown.



Source: Citi Research

The rapid decline across indices has led to a build-up of significant P&L risks, notably across markets where positioning is still elevated. Here KOSPI remains the stand-out, 100% of the long book (+5bn) is in loss, with significant loss levels, and existing positioning remains near the 91st percentile. Given that loss levels are already extensive, a continued decline across semi's leaves the market vulnerable to forced covering adding further downside.

Similar P&L risks are present in Nikkei and China A50, though not as extensive. Each retain long portfolios that are completely offside and could face similar challenges if the selloff continues.

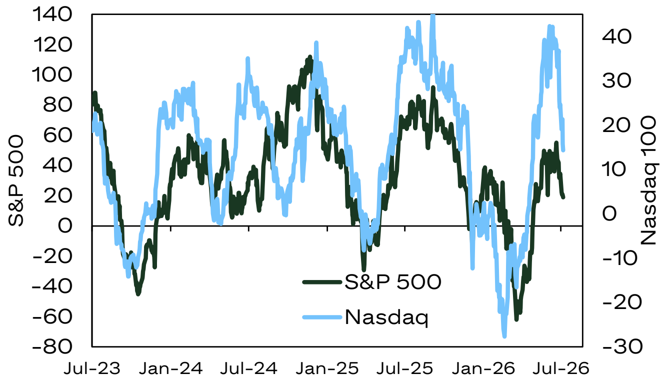
Figure 8. Positioning change across global equities.

	By 1w change		
	Change	Pos	PnL
FTSE	0.3	1.6	0.2
ASX 200	0.3	-4.4	-0.6
Hang Seng	0.1	-1.4	0.5
R2000	0.0	5.0	-0.7
DM xUS	-0.2	3.6	-1.0
Eur Banks	-0.3	1.4	0.1
MSCI EM	-0.3	3.3	-3.2
EuroStoxx	-0.4	0.8	-0.1
KOSPI 200	-0.6	1.8	-2.8
DAX	-0.6	-0.4	0.6
S&P Mini	-0.7	0.8	-0.2
Nikkei	-0.8	-0.3	0.4
Nasdaq	-1.1	1.5	-2.0
China A50	-1.4	0.1	-1.1

Source: Citi Research

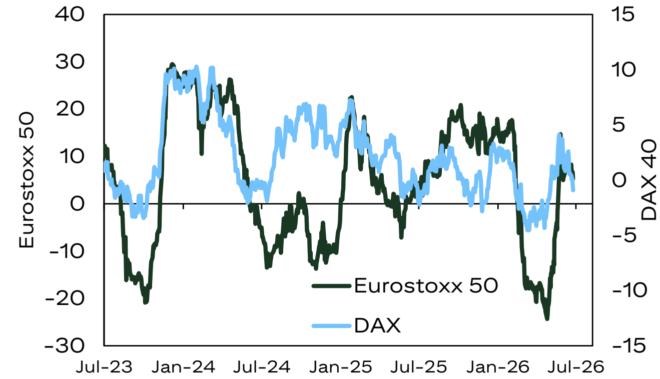
How has Positioning Changed?

Figure 9. S&P 500 (ES) and Nasdaq 100 (NQ) net positioning



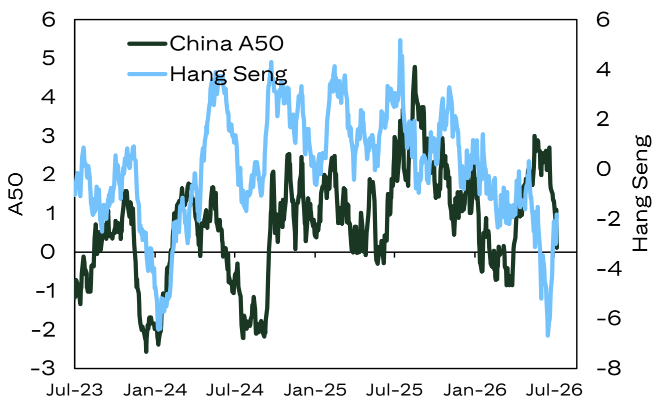
Source: Citi Research, Bloomberg

Figure 10. EuroStoxx 50 (VG) and DAX 40 (GX) net positioning



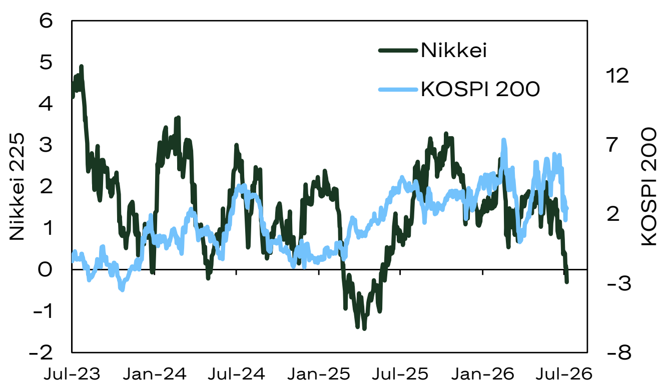
Source: Citi Research, Bloomberg

Figure 11. Hang Seng (HI) and China A50 (XU) net positioning



Source: Citi Research, Bloomberg

Figure 12. Nikkei 225 (NI) and KOSPI 200 (KM) net positioning



Source: Citi Research, Bloomberg

Figure 13. Ranking of Equity Market positioning

17/07/2026	By Position Pos	PnL
R2000	5.0	-0.7
DM xUS	3.6	-1.0
MSCI EM	3.3	-3.2
KOSPI 200	1.8	-2.8
FTSE	1.6	0.2
Nasdaq	1.5	-2.0
Eur Banks	1.4	0.1
S&P Mini	0.8	-0.2
EuroStoxx	0.8	-0.1
China A50	0.1	-1.1
Nikkei	-0.3	0.4
DAX	-0.4	0.6
Hang Seng	-1.4	0.5
ASX 200	-4.4	-0.6

	By 1w change Change	Pos	PnL
FTSE	0.3	1.6	0.2
ASX 200	0.3	-4.4	-0.6
Hang Seng	0.1	-1.4	0.5
R2000	0.0	5.0	-0.7
DM xUS	-0.2	3.6	-1.0
Eur Banks	-0.3	1.4	0.1
MSCI EM	-0.3	3.3	-3.2
EuroStoxx	-0.4	0.8	-0.1
KOSPI 200	-0.6	1.8	-2.8
DAX	-0.6	-0.4	0.6
S&P Mini	-0.7	0.8	-0.2
Nikkei	-0.8	-0.3	0.4
Nasdaq	-1.1	1.5	-2.0
China A50	-1.4	0.1	-1.1

By PnL	PnL	Pos
DAX	0.6	-0.4
Hang Seng	0.5	-1.4
Nikkei	0.4	-0.3
FTSE	0.2	1.6
Eur Banks	0.1	1.4
EuroStoxx	-0.1	0.8
S&P Mini	-0.2	0.8
ASX 200	-0.6	-4.4
R2000	-0.7	5.0
DM xUS	-1.0	3.6
China A50	-1.1	0.1
Nasdaq	-2.0	1.5
KOSPI 200	-2.8	1.8
MSCI EM	-3.2	3.3

By Position	Percentile
R2000	100%
DM xUS	94%
MSCI EM	90%
FTSE	81%
Eur Banks	69%
KOSPI 200	63%
EuroStoxx	50%
Nasdaq	46%
S&P Mini	34%
China A50	30%
DAX	21%
Hang Seng	16%
Nikkei	7%
ASX 200	1%

Source: Citi Research, Bloomberg

Figure 14. Summary

		S&P 500	Nasdaq	R2000	Estoxx 50	DAX	FTSE 100	Eur. Banks	S&P/ASX 200	Nikkei	MSCI EAFE	MSCI EM	KOSPI 200	Hang Seng	China A50
($bn)	*17/07/2026*	**ES**	**NQ**	**RTY**	**VG**	**GX**	**Z**	**CA**	**XP**	**NI**	**MFS**	**MES**	**KM**	**HI**	**XU**
Equity	**Net Notional**	**19.0**	**14.3**	**10.9**	**5.3**	**-0.9**	**4.7**	**1.9**	**-8.4**	**-0.3**	**5.8**	**7.7**	**2.4**	**-1.9**	**0.1**
	Percentile	*34%*	*46%*	*100%*	*50%*	*21%*	*81%*	*69%*	*1%*	*7%*	*94%*	*90%*	*63.2%*	*16%*	*30%*
Shorts	**Notional**	**-33.3**	**-11.7**	**-1.2**	**-1.4**	**-9.3**	**-1.0**	**-0.0**	**-9.3**	**-2.1**	**-0.7**	**-2.0**	**-2.6**	**-3.5**	**-1.5**
	Percentile	*70%*	*82%*	*17%*	*17%*	*100%*	*37%*	*11%*	*99%*	*94%*	*16%*	*43%*	*94%*	*89%*	*78%*
	Avg. Entry	7,551	29,536	2,985	6,279	25,099	10,483	--	8,742	68,408	3,138.0	1,735	1,194.8	24,377	14,946
	% offside	27%	0%	0%	0%	22%	100%	--	65%	15%	0%	0%	0%	100%	29%
Longs	**Notional**	**52.3**	**26.0**	**12.1**	**6.7**	**8.3**	**5.7**	**1.9**	**0.9**	**1.8**	**6.5**	**9.7**	**5.0**	**1.5**	**1.6**
	Percentile	*40%*	*65%*	*100%*	*19%*	*90%*	*82%*	*51%*	*20%*	*25%*	*91%*	*91%*	*91%*	*50%*	*57%*
	Avg. Entry	7,558	30,007	2,989	6,283	24,998	10,526	297.7	8,799	67,782	3,146	1,746	1,362.4	23,442.7	15,236
	% offside	66%	100%	69%	87%	55%	6%	37%	67%	100%	73%	100%	100%	0%	100%
	Ref Price	7,512	28,798	2,973	6,245	24,878	10,579	298.8	8,757	64,688	3,116	1,615	1,066.3	24,666.9	14,566
Activity	**1-day**	1.2	1.4	-0.9	1.4	0.6	0.4	-0.3	-0.2	-0.3	0.0	0.0	0.0	-0.7	-0.4
	Type	shorts	shorts		shorts	shorts	longs	longs		longs		longs			
	1-week	-11.1	-7.7	0.1	-3.0	-2.1	0.9	-0.4	-0.3	-0.7	-0.3	-0.4	-0.3	-0.9	-1.1
Normalised Scores (-5 / +5)															
Positioning	**Equity implied**	0.8	1.5	5.00	0.8	-0.4	1.6	1.4	-4.5	-0.3	3.6	3.3	1.8	-1.4	0.1
	ETF	3.9	2.1		-2.4	-0.9	0.1	0.0		-1.9		0.3			
	3m Net Pos	**2.4**	**1.8**	**5.0**	**-0.8**	**-0.6**	**0.8**	**0.7**	**-4.5**	**-1.1**	**3.6**	**1.8**	**1.8**	**-1.4**	**0.1**
	1w Change	*-0.2*	*-0.3*	*0.0*	*-0.1*	*-0.2*	*-0.4*	*-0.1*	*0.3*	*-0.7*	*-0.2*	*-0.1*	*-0.6*	*0.1*	*-1.4*
P&L	**Equity implied**	-0.2	-2.0	-0.7	-0.1	0.6	0.2	0.1	-0.6	0.4	-1.0	-3.2	-2.8	0.5	-1.1
	ETF	0.1	-1.1		-1.0	0.0	-0.2	-1.3		0.4		-0.1			
	3m Net PnL	**-0.0**	**-1.5**	**-0.7**	**-0.6**	**0.3**	**-0.0**	**-0.6**	**-0.6**	**0.4**	**-1.0**	**-1.6**	**-2.8**	**0.5**	**-1.1**
	1w Change	*-1.4*	*-1.2*	*-0.9*	*0.2*	*0.4*	*0.3*	*-0.2*	*0.0*	*0.1*	*-1.2*	*-1.2*	*-0.8*	*-0.0*	*-1.1*

Source: Citi Research, Bloomberg

Figure 15. Average Entry Price Levels and Profit Breakeven Levels

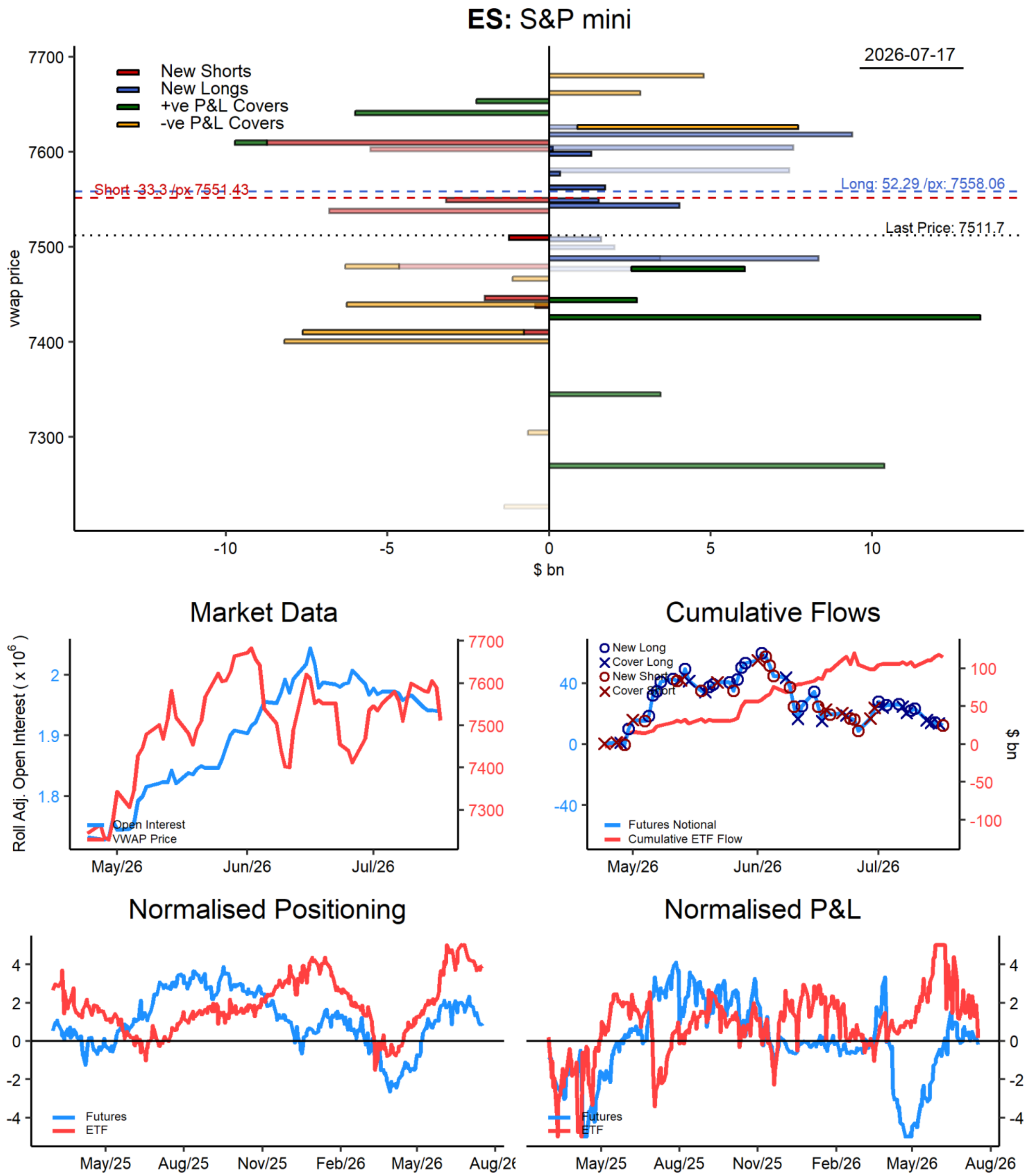
		S&P 500	Nasdaq	R2000	Estoxx 50	DAX	FTSE 100	Eur. Banks	S&P/ASX 200	Nikkei	MSCI EAFE	MSCI EM	KOSPI 200	Hang Seng	China A50
	17/07/2026	**ES**	**NQ**	**RTY**	**VG**	**GX**	**Z**	**CA**	**XP**	**NI**	**MFS**	**MES**	**KM**	**HI**	**XU**
Notional	$bn	19.0	14.3	10.9	5.3	-0.9	4.7	1.9	-8.4	-0.3	5.8	7.7	2.4	-1.9	0.1
	(-5/+5)	0.8	1.5	5.0	0.8	-0.4	1.6	1.4	-4.5	-0.3	3.6	3.3	1.8	-1.4	0.1
PnL	$bn	-0.1	-0.8	-0.1	-0.0	0.0	0.0	0.0	-0.0	0.0	-0.1	-0.6	-0.8	0.0	-0.0
	(-5/+5)	-0.2	-2.0	-0.7	-0.1	0.6	0.2	0.1	-0.6	0.4	-1.0	-3.2	-2.8	0.5	-1.1
Ref Price		7,512	28,798	2,973	6,245	24,878	10,579	298.8	8,757	64,688	3,116	1,615	1,066	24,667	14,566
Shorts	Size ($bn)	-33.3	-11.7	-1.2	-1.4	-9.3	-1.0	-0.0	-9.3	-2.1	-0.7	-2.0	-2.6	-3.5	-1.5
	Avg Price	7,551	29,536	2,985	6,279	25,099	10,483	--	8,742	68,408	3,138	1,735	1,194.8	24,377	14,946
	Avg P&L	0.5%	2.6%	0.4%	0.5%	0.9%	-0.9%	--	-0.2%	5.7%	0.7%	7.4%	12.1%	-1.2%	2.6%
	Offside (%)	27%	0%	0%	0%	22%	100%	--	65%	15%	0%	0%	0%	100%	29%
- Offside price															
	100%	7,612	29,802	3,009	--	25,758	10,551	--	8,866	71,693	3,144	1,792	1,236.2	24,667	15,397
	75%	7,605	29,574	2,986	--	25,149	10,492	--	8,785	69,534	3,140	1,745	1,214.3	24,484	15,055
	50%	7,542	29,500	2,975	--	25,066	10,459	--	8,721	68,210	3,137	1,704	1,197.1	24,243	14,939
	25%	7,492	29,375	2,975	--	24,925	10,459	--	8,673	67,239	3,129	1,670	1,185.2	24,192	14,566
	0%	7,412	29,375	2,975	6,279	24,846	10,459	--	8,649	64,688	3,129	1,666	1,088.1	23,862	14,566
Longs	Size ($bn)	52.3	26.0	12.1	6.7	8.3	5.7	1.9	0.9	1.8	6.5	9.7	5.0	1.5	1.6
	Avg Price	7,558	30,007	2,989	6,283	24,998	10,526	297.7	8,799	67,782	3,146	1,746	1,362.4	23,443	15,236
	Avg P&L	-0.6%	-4.0%	-0.5%	-0.6%	-0.5%	0.5%	0.4%	-0.5%	-4.6%	-1.0%	-7.5%	-21.7%	5.2%	-4.4%
	Offside (%)	66%	100%	69%	87%	55%	6%	37%	67%	100%	73%	100%	100%	0%	100%
- Offside price															
	100%	7,479	29,424	2,908	6,210	24,476	10,490	292.4	8,756	64,933	3,101	1,672	1,208.1	23,111	14,932
	75%	7,490	29,641	2,945	6,247	24,607	10,514	292.4	8,756	64,934	3,107	1,727	1,292.9	23,157	15,098
	50%	7,579	29,818	2,992	6,292	25,113	10,517	296.8	8,795	66,566	3,163	1,744	1,341.7	23,399	15,271
	25%	7,606	30,337	3,011	6,294	25,225	10,533	300.9	8,811	70,067	3,164	1,750	1,401.9	23,518	15,334
	0%	7,628	30,675	3,038	6,296	25,879	10,579	307.0	8,884	70,916	3,170	1,803	1,454.0	23,563	15,353

Source: Citi Research, Bloomberg

Equity Markets Positioning Charts

S&P 500

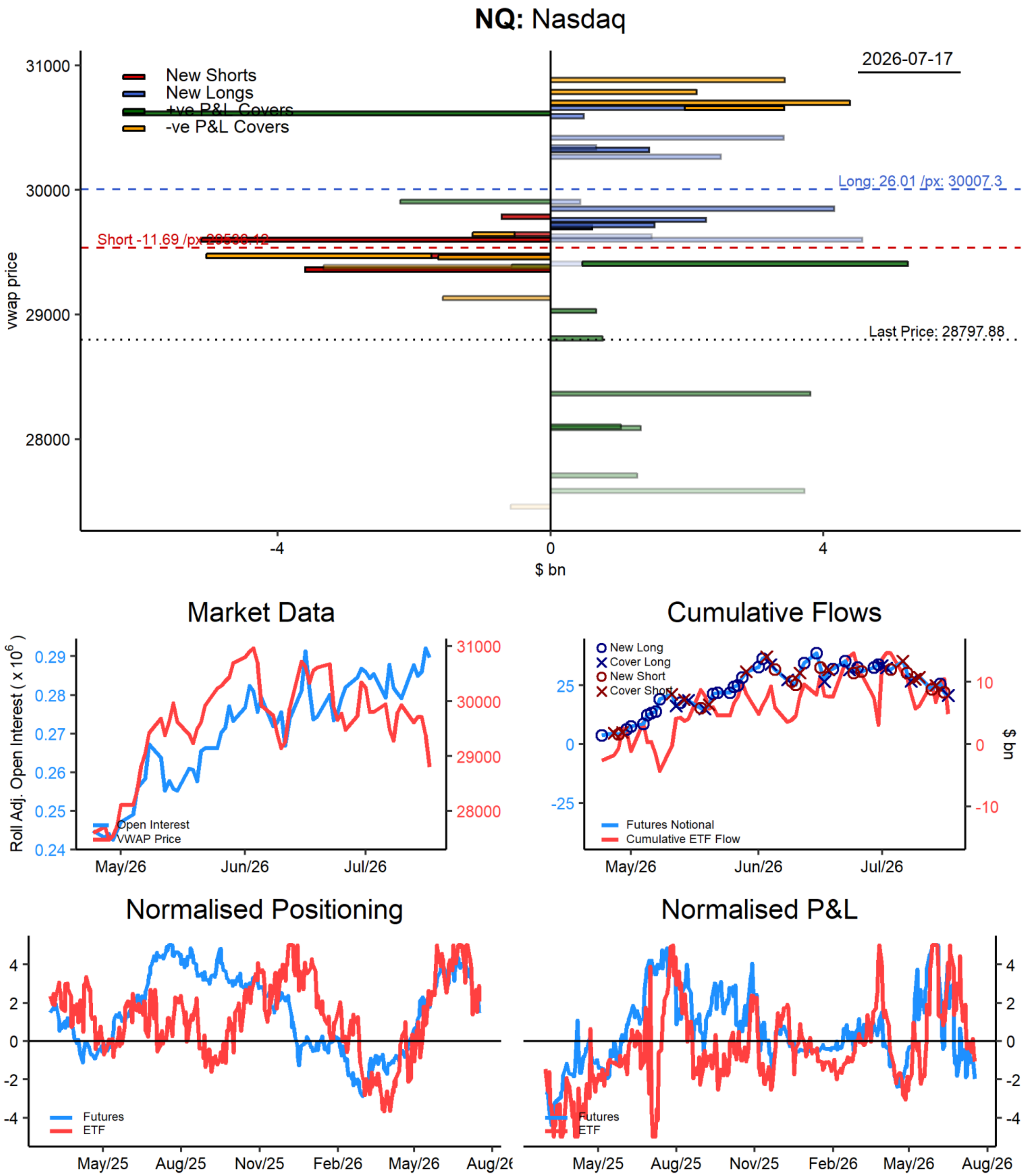
Figure 16. S&P 500 mini contract (ES) – position snapshot and time-series



Source: Citi Research, Bloomberg

NASDAQ 100

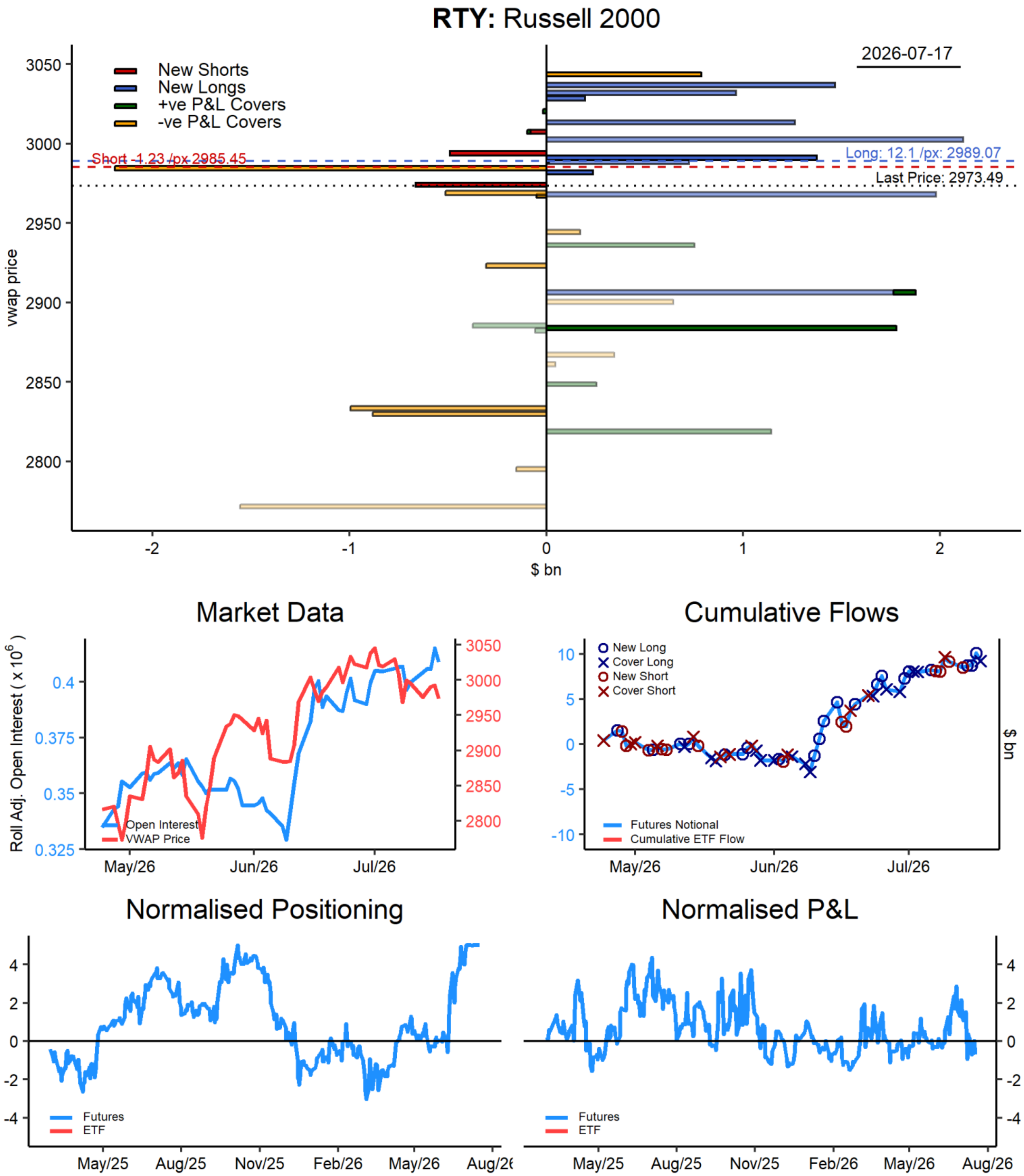
Figure 17. Nasdaq 100 contracts (NQ) - position snapshot and time-series



Source: Citi Research, Bloomberg

Russell 2000

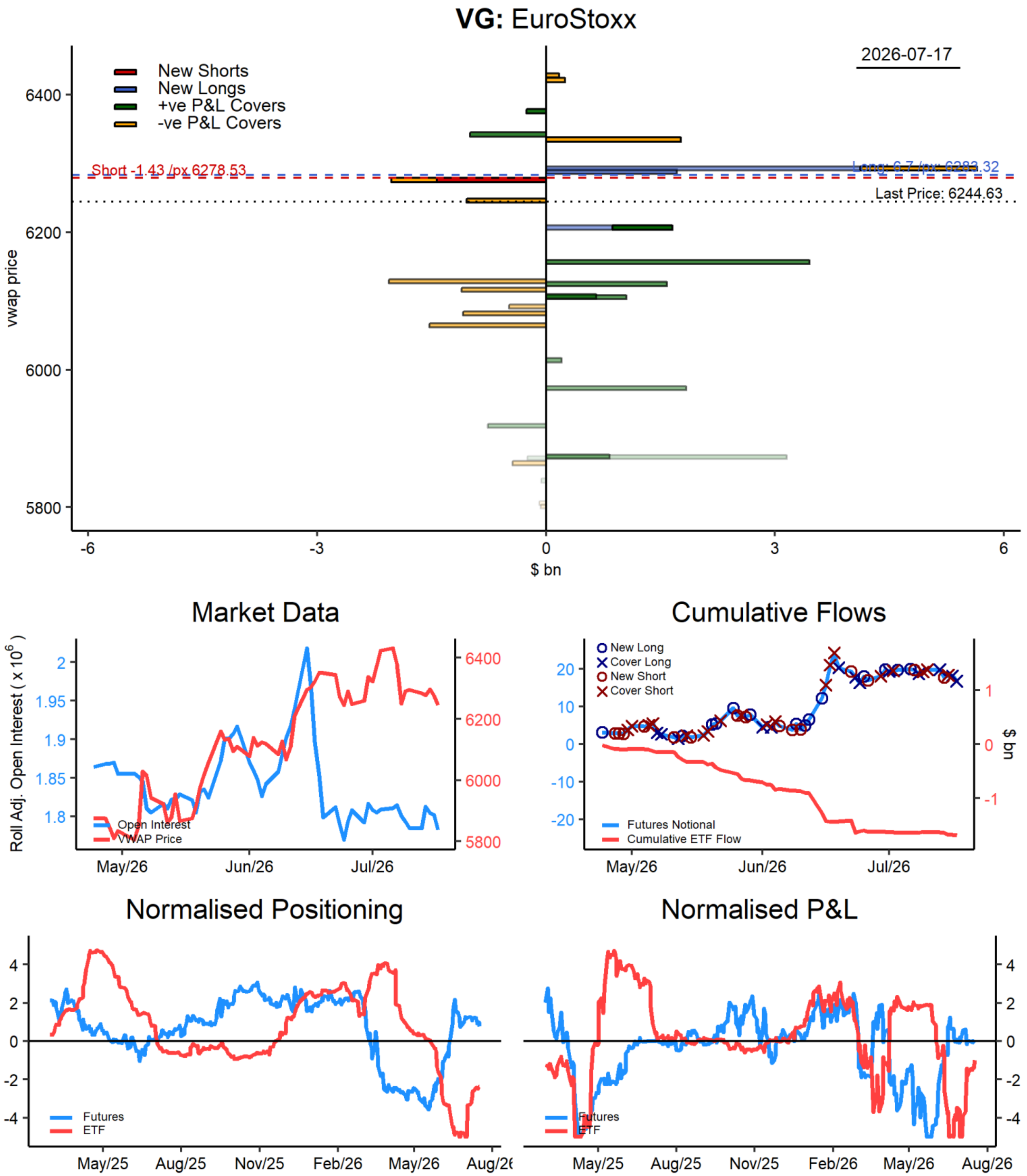
Figure 18. Russell 2000 contracts (RTY) - position snapshot and time-series



Source: Citi Research, Bloomberg

EuroStoxx 50

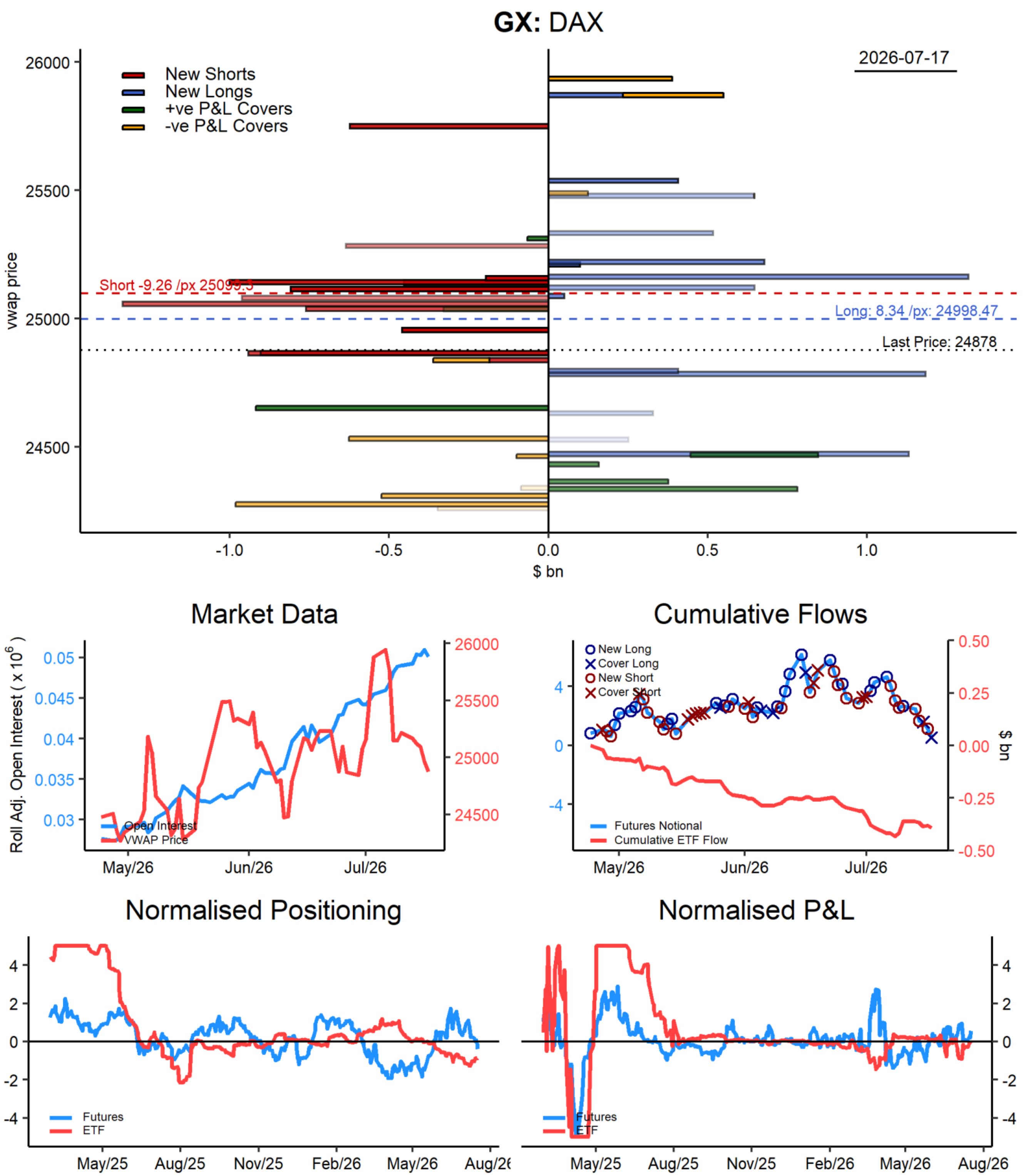
Figure 19. Eurostoxx 50 contracts (VG) - position snapshot and time-series



Source: Citi Research, Bloomberg

DAX

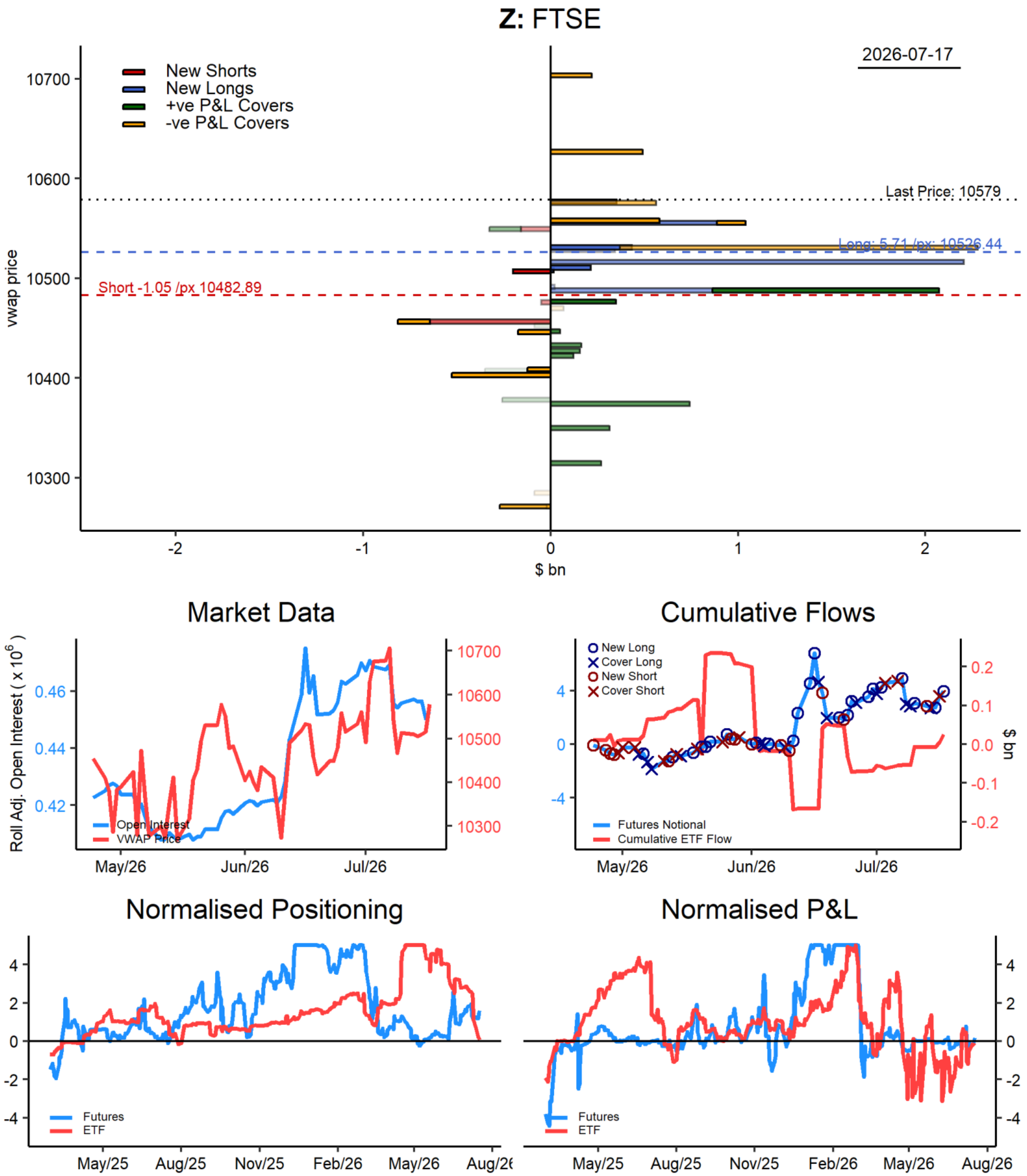
Figure 20. DAX contracts (GX) - position snapshot and time-series



Source: Citi Research, Bloomberg

FTSE 100

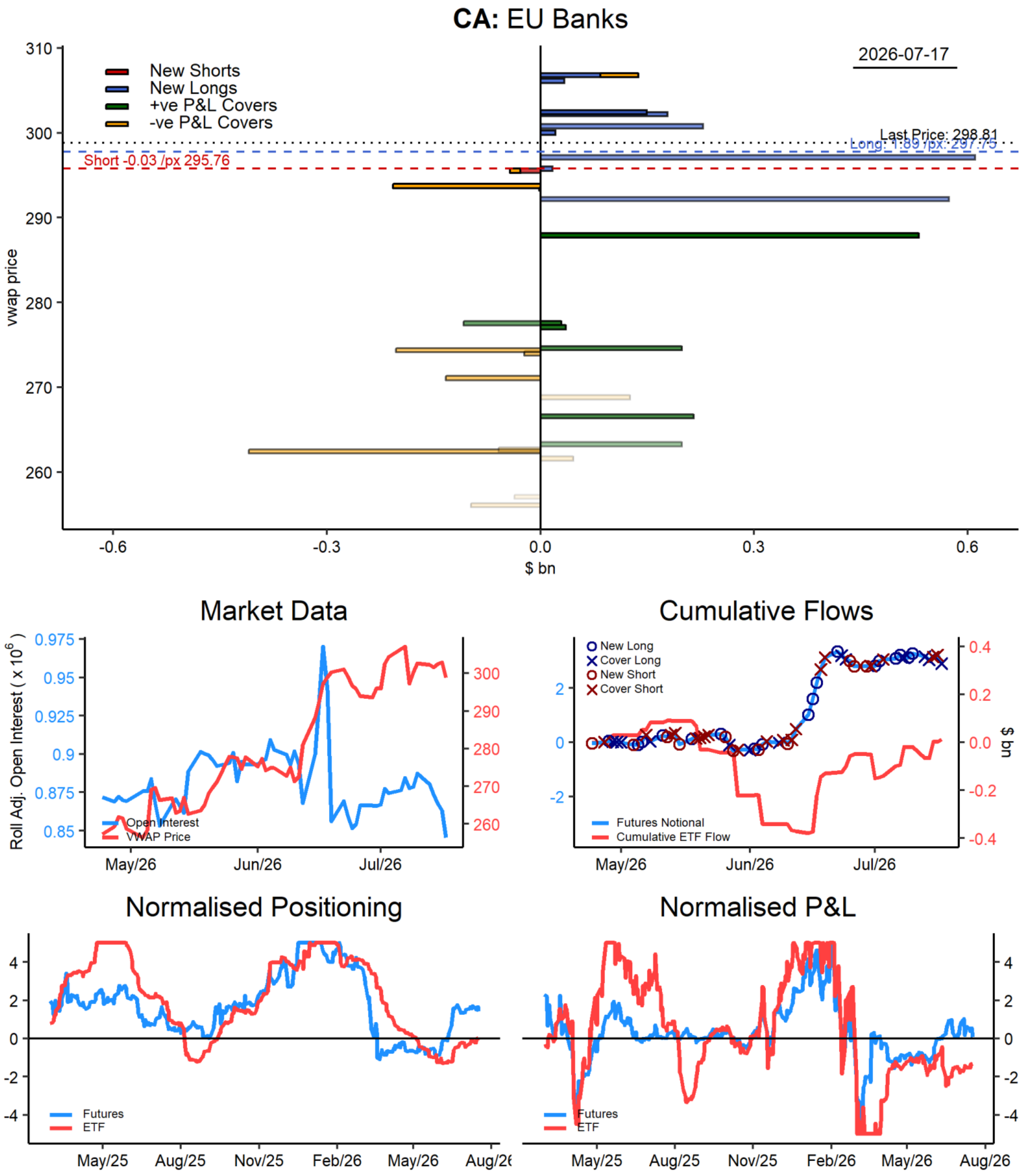
Figure 21. FTSE 100 contracts (Z) – position snapshot and time-series



Source: Citi Research, Bloomberg

European Banks (SX7E)

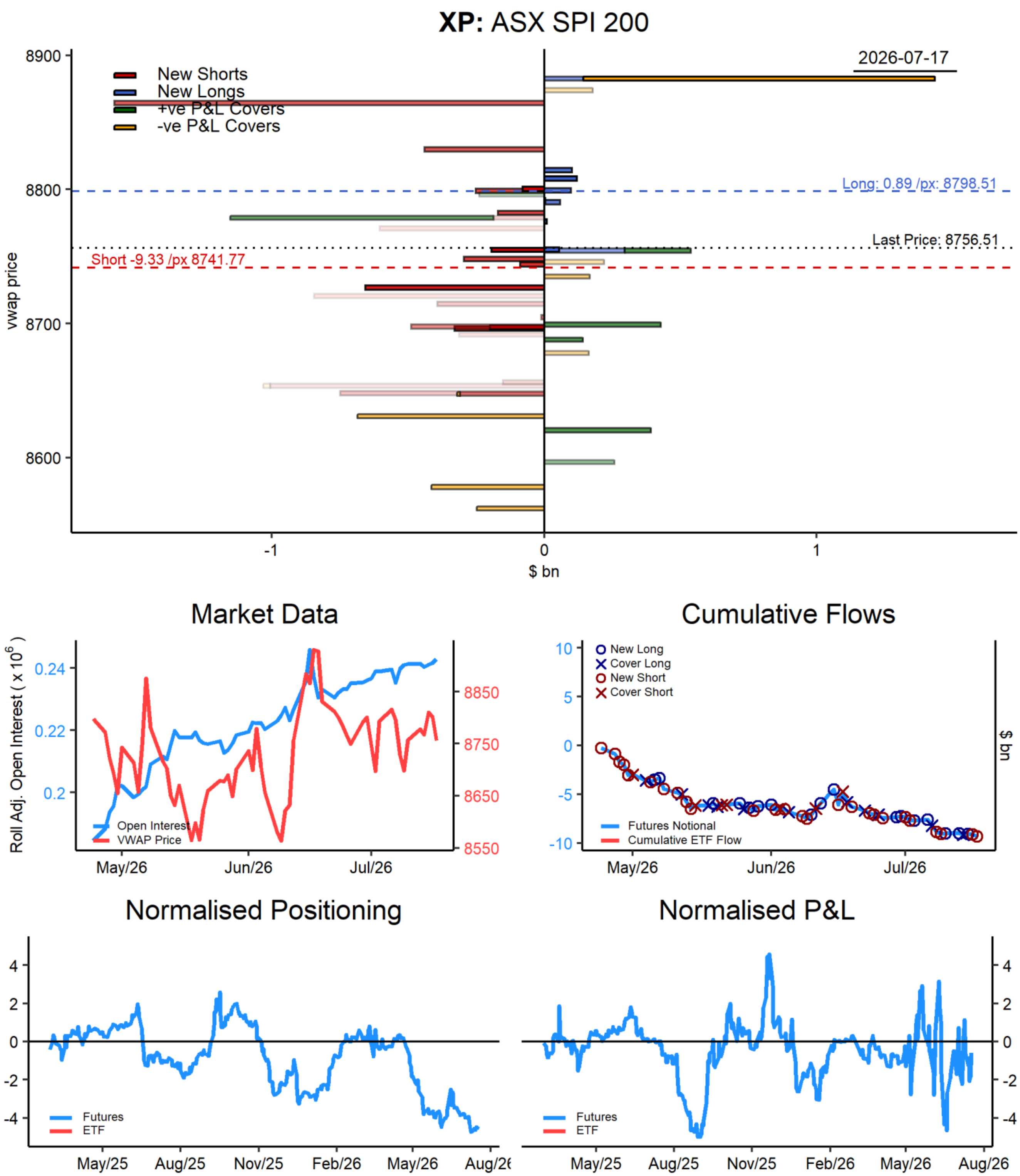
Figure 22. Eurostoxx Banks (SX7E) Equity contracts (CA) - position snapshot and time-series



Source: Citi Research, Bloomberg

S&P ASX 200

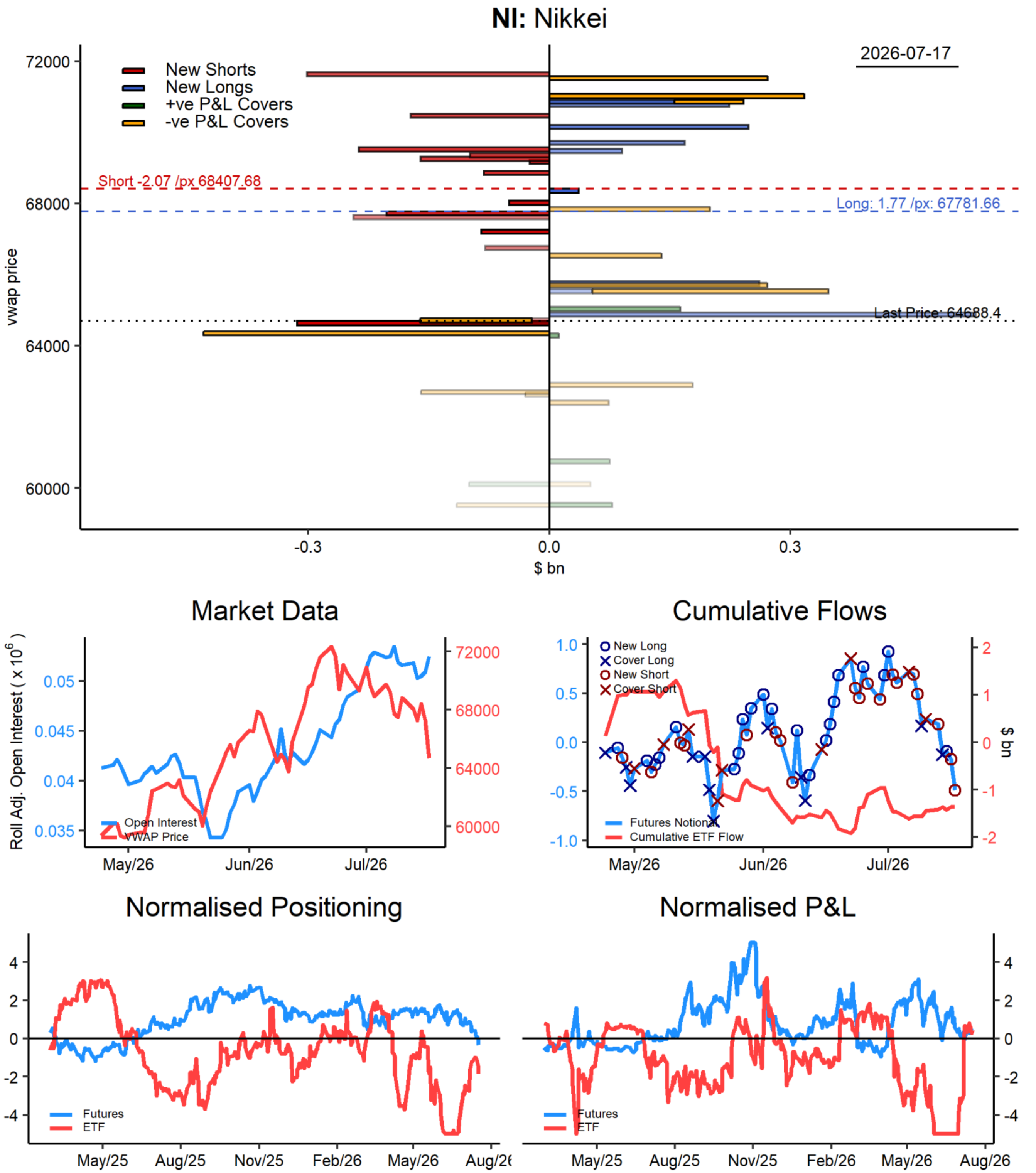
Figure 23. S&P ASX 200 Equity contracts (XP) - position snapshot and time-series



Source: Citi Research, Bloomberg

Nikkei 225

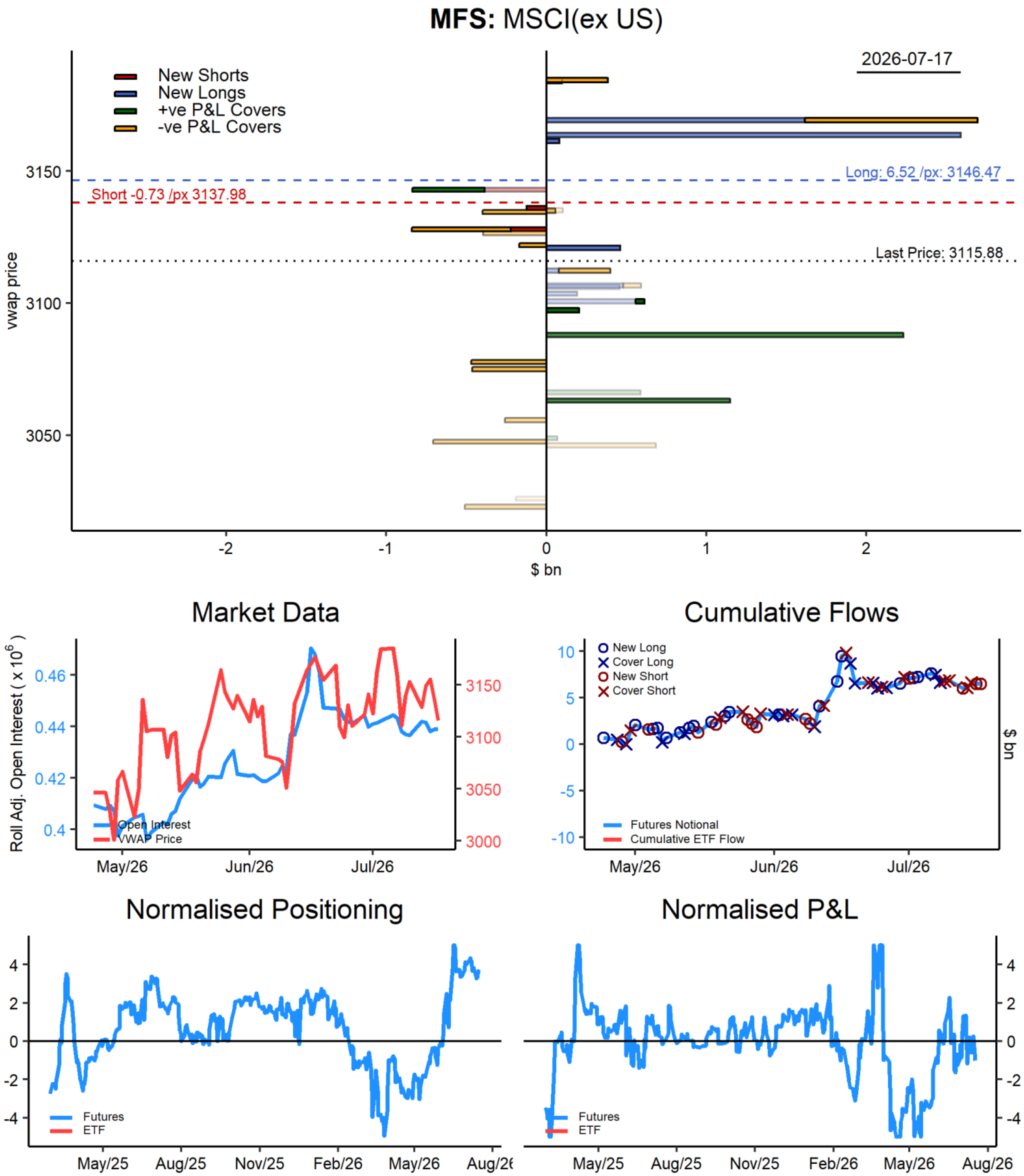
Figure 24. Nikkei contracts (NI) – position snapshot and time-series



Source: Citi Research, Bloomberg

MSCI EAFE

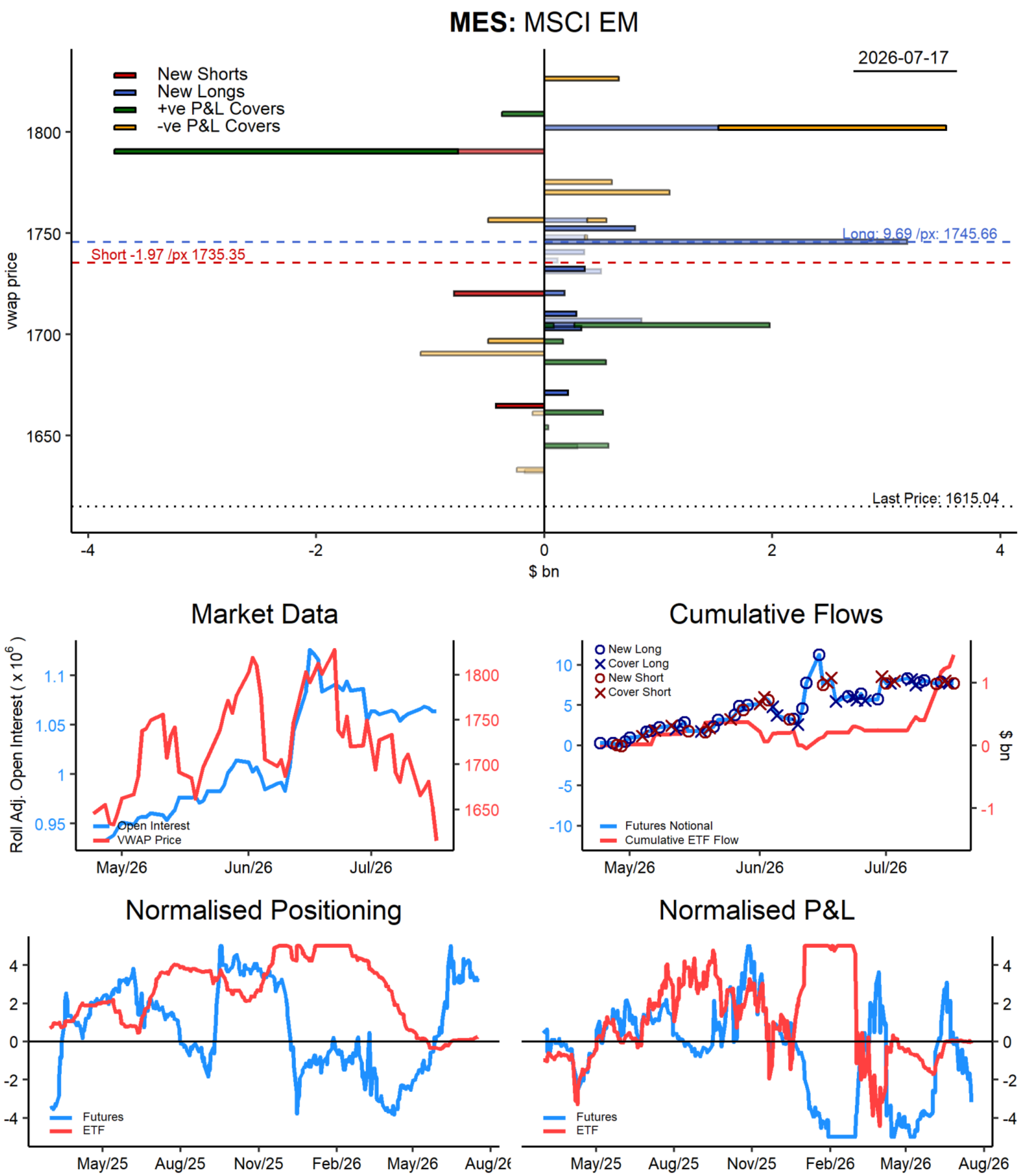
Figure 25. MSCI EAFE (DM ex-US) (MFS) - position snapshot and time-series



Source: Citi Research, Bloomberg

MSCI EM

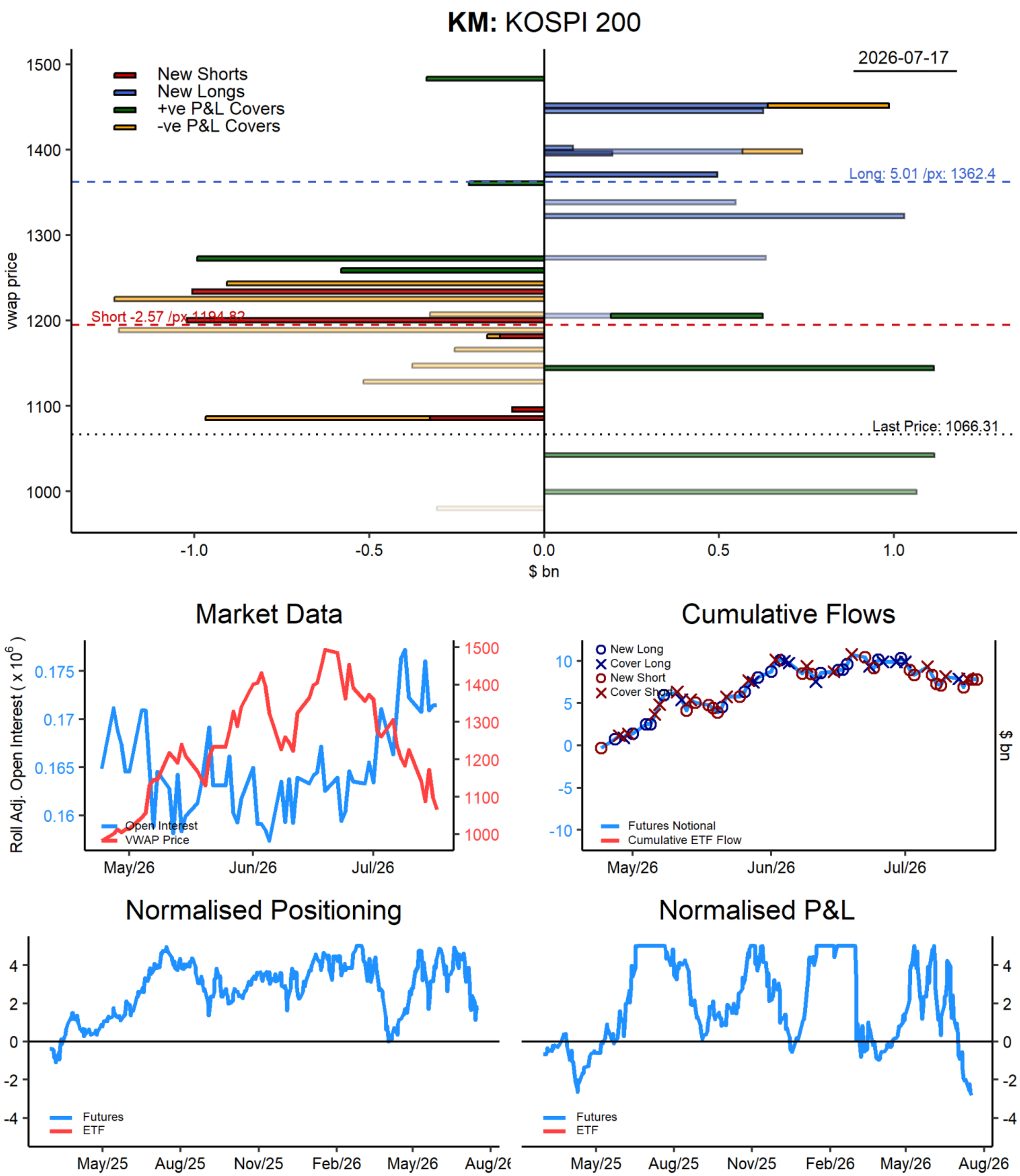
Figure 26. MSCI EM Equity contracts (MES) - position snapshot and time-series



Source: Citi Research, Bloomberg

KOSPI 200

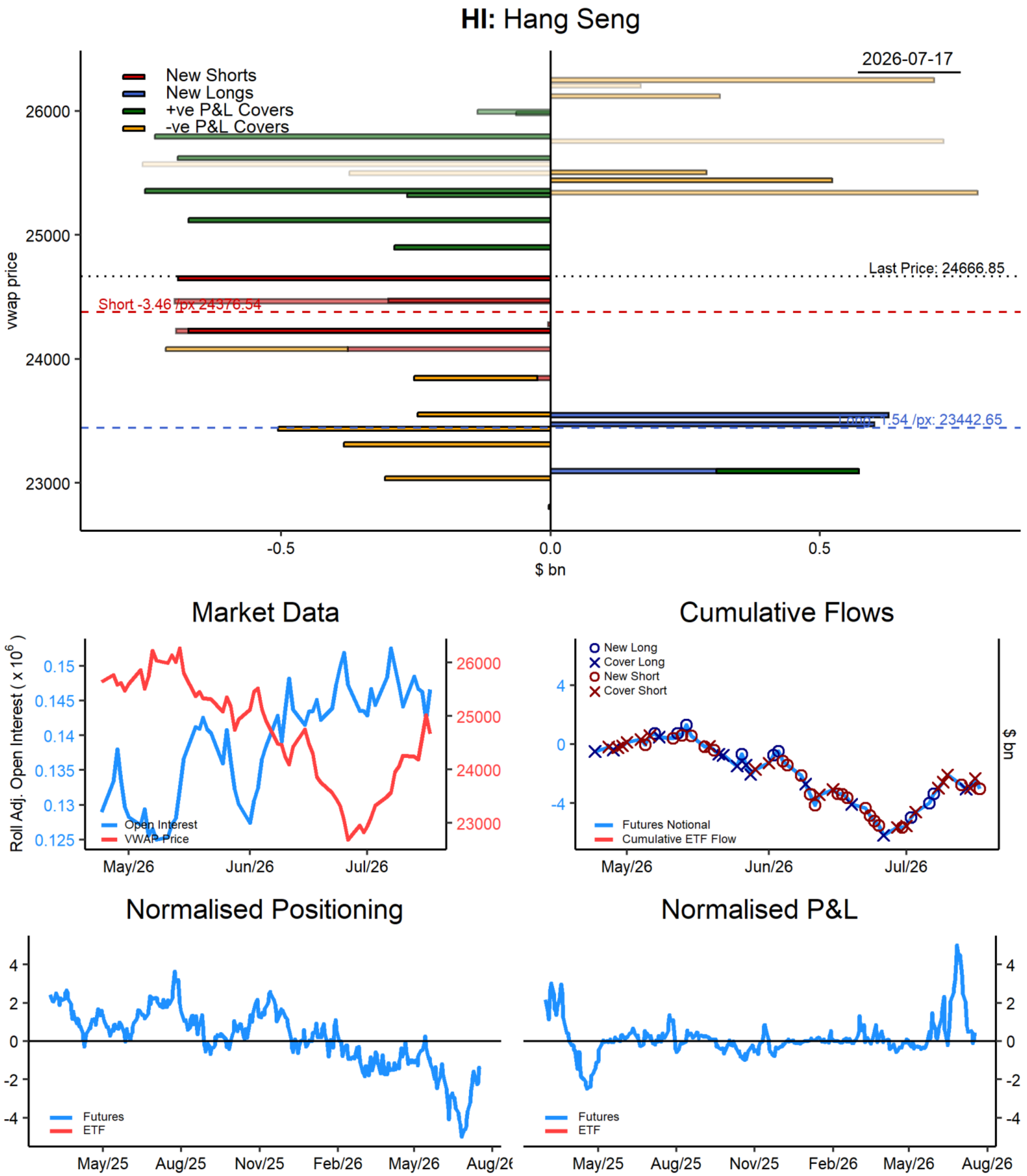
Figure 27. KOSPI 200 contracts (KM) - position snapshot and time-series



Source: Citi Research, Bloomberg

Hang Seng

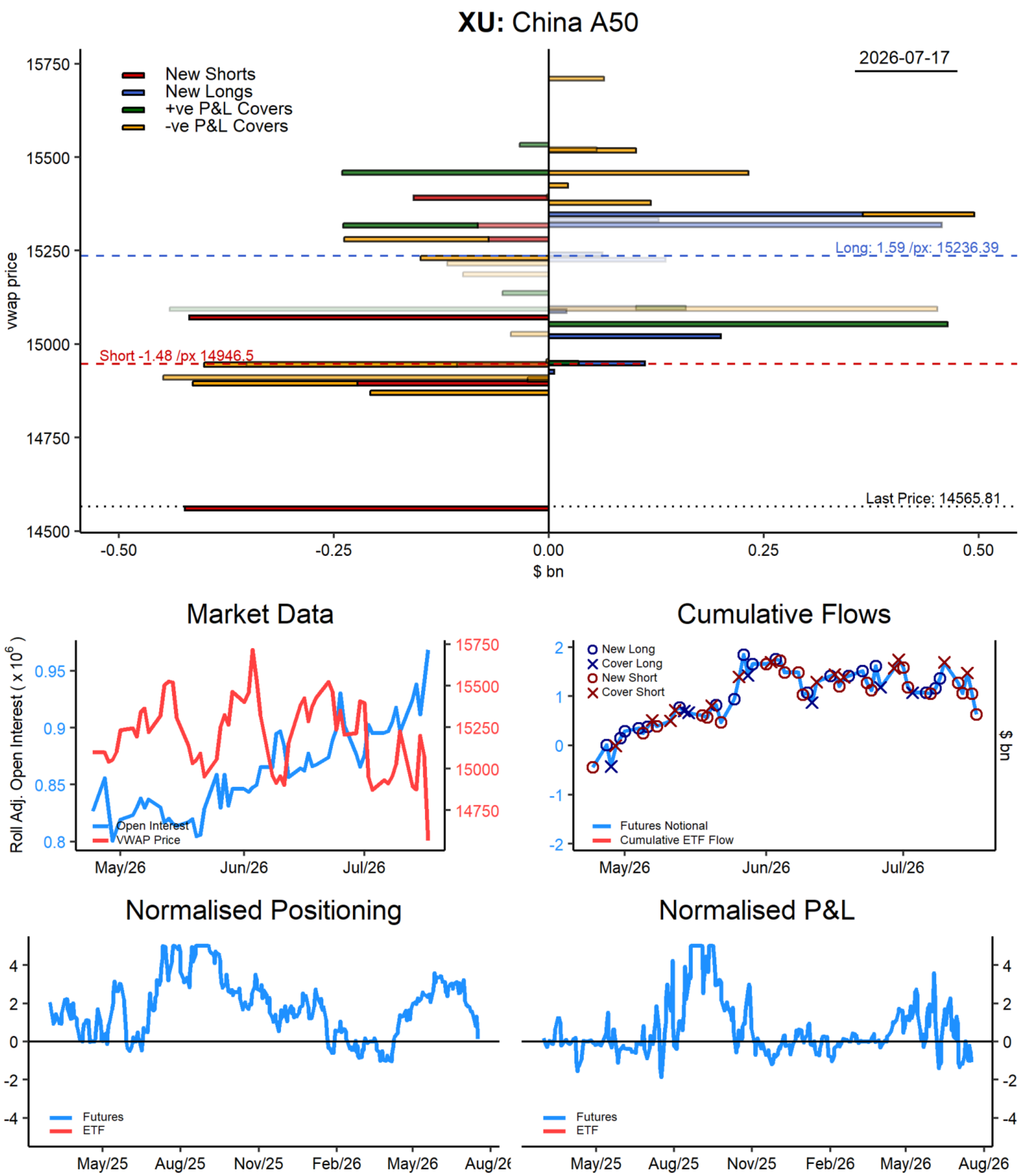
Figure 28. Hang Seng contracts (HI) - position snapshot and time-series



Source: Citi Research, Bloomberg

China A50

Figure 29. A50 contracts (XU) - position snapshot and time-series



Source: Citi Research, Bloomberg

The Equity Markets Positioning Model – Methodology

The aim of the Equity Markets Positioning Model (EMP) is to provide information on current equity market positioning and how this might influence subsequent price action. It allows readers to 'visualize' the investor exposures in equity futures across multiple markets in order to:

- Quantify the current market positioning and profitability;
- Identify extreme market positions;
- Categorize periods in which price action will be dominated by positioning;

The model calculates a 'headline' positioning score between -5 to 5 and provides a visualization of the current and past market.

How does the model work?

At a micro scale, price action is dominated by the size, level and speed at which investors choose to execute trades with other financial intermediaries. Buy/sell orders can clearly drive prices higher or lower and the EMP attempts to quantify these flows in order to understand the market direction and motivation.

This is a grand ambition, since there is no one market participant who holds a complete view of all market flows and we are only analyzing and aggregating futures trading to extrapolate the positioning across the whole market (i.e. including all cash trading). Based on this information we estimate:

- Market positioning: What is the outstanding market positioning (i.e. has there been net buying or selling recent history)? At what price and size were these trades executed?
- Market P&L: What is the unrealized profit or loss within the market (given the current outstanding market positioning)? When is this a motivation for investors to risk manage their positions?

We recognize that there are limits to this analysis – incomplete trade visibility, opaque instruments and unknown investor trading strategies create uncertainty in the 'true' picture of high-level equity market positioning.

The EMP model calculates the historical equity market positioning (over the last 3mths) and the associated unrealized P&L for the main markets around the world. A breakdown of the assets and contracts used in the EMP are presented in Figure 30 and calculation methodologies are outlined below.

Figure 30. Equity Markets covered by EMP Model

Country/Region	Index	Futures Ticker	ETF Flows
US	S&P 500	ES	Yes
US Tech	Nasdaq 100	NQ	Yes
US SMID	Russell 2000	RTY	No
Europe	Eurostoxx 50	VG	Yes
Germany	DAX 40	GX	Yes
U.K.	FTSE 100	Z	Yes
European Banks	SX7E	CA	Yes
Australia	S&P ASX 200	XP	No
Japan	Nikkei 225	NI	Yes
EAFE	MSCI ex-US	MFS	No
Emerging Markets	MSCI EM	MES	Yes
Korea	KOSPI 200	KM	No
Hong Kong	Hang Seng	HI	No
China	A50	XU	No

Source: Citi Research

Positioning Calculations

The model identifies an objective subset of positions entered into (or closed) on a given day and classify these as being the relevant marginal long or short positions that determined (being the 'aggressor') the price move that day. In the report and in our analysis we will simply refer to these positions as longs, shorts and net position but they will always be a reference to this concept of a marginal positioning. This presumption then is that this subset of marginal positions are the most price sensitive, i.e. more likely to generate new flows (e.g. profit taking or squeezes) in response to future price moves.

In practice the model uses public trade activity data on the exchange traded futures contracts which is available daily. Naturally, net positioning is always zero for s, since the exchange matches buyers and sellers and creates and cancels contracts as necessary. However, by tracking the daily changes in overall open interest (the number of contracts after the exchange create or cancels contracts) and combining that measure with the change in price we can make a classification for the marginal positioning change on that day as set out in Figure 31.

The change in open interest is taken to be the relevant marginal subset of positions that day and together with the change in price we determine whether to consider it a change in long or short positions.

Figure 31. Positioning Matrix for Futures Markets

		Open Interest			
		Increasing		Decreasing	
Daily Prices	Increasing	New Longs	Rising prices and increasing open interest implies the 'aggressor' is the buyer pushing the market higher	Cover Shorts	Rising prices and decreasing open interest implies the 'aggressor' is covering shorts (i.e. buying into the rally)
	Decreasing	New Shorts	Falling prices and increasing open interest implies the 'aggressor' is the seller pushing the market lower	Cover Longs	Falling prices and decreasing open interest implies the 'aggressor' is covering longs (i.e. selling into the sell-off)

Source: Citi Research

Performing this analysis on a day-by-day basis creates a 'trade activity' history over a three-month period which can be converted into a snapshot of cumulative positioning and unrealized P&L. To illustrate the methodology, it is useful to look at a worked example. In Figure 32, we present these calculations for S&P 500 futures in early March 2020.

In this period, open interest increased and prices fell, suggesting an increase in the short investor base. The model shoes numerous days where new short positions have been opened and relatively few where longs positions have been established, in addition to covering for some long and short positions. At the end of the period the cumulative uncovered positions and P&L is a simple the sum of the outstanding positions / P&L (see "total" in Figure 32 – cumulative positions equate to -459,041 contracts and 868mln of unrealized P&L).

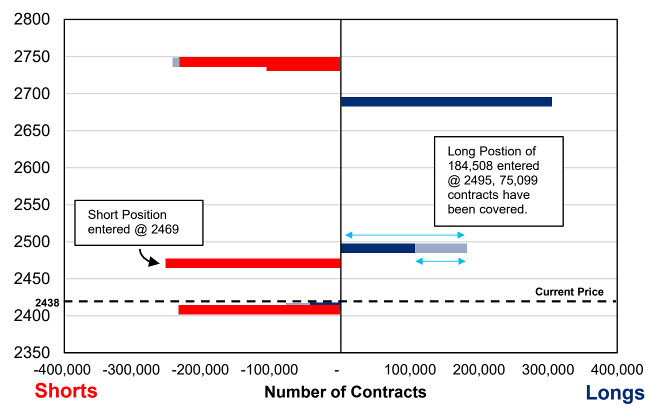
This positioning can be visualized as a horizontal bar graph ordered by price (see Figure 33). It can be clearly seen that the shorts were centered around 2740-2750 and the positions were significantly in the money. This contrasts with the big long position at 2696 which with a falling market was losing position. This snapshot of positioning can be summarized by the cumulative position unrealized P&L levels.

Figure 32. Example of positioning for S&P500 during March 2020

Date	Trade Price	Open Interest	Delta Price	Delta Interest	Trade Activity	Contract Buy/Sell	Cum. Pos.	P&L Snapshot ($, mil)
06-Mar	2964.0	3,213,000						
09-Mar	2747.8	3,442,251	-7.3%	229,251	New Short	-229,251	-229,251	3,551
10-Mar	2865.8	3,438,501	4.3%	-3,750	Cover Short	3,750	-225,501	-58
11-Mar	2740.3	3,549,717	-4.4%	111,216	New Short	-111,216	-336,717	1,681
12-Mar	2469.0	3,808,784	-9.9%	259,067	New Short	-259,067	-595,784	402
13-Mar	2696.0	4,124,586	9.2%	315,802	New Long	315,802	-279,982	-4,074
16-Mar	2416.3	4,369,586	-10.4%	245,000	New Short	-245,000	-524,982	-266
17-Mar	2495.5	4,554,094	3.3%	184,508	New Long	184,508	-340,474	-531
18-Mar	2414.0	4,628,421	-3.3%	74,327	New Short	-74,327	-414,801	-89
19-Mar	2403.3	4,553,322	-0.4%	-75,099	Cover Long	-75,099	-489,900	216
20-Mar	2438.0	4,522,463	1.4%	-30,859	Cover Short	30,859	-459,041	37
Total							**-459,041**	**868**

Source: Citi Research

Figure 33. Example visualization of positioning



Source: Citi Research

In EMP, the daily volume weighted average price (VWAP) is used in the calculations (rather than closing prices), since it creates more robust results. In addition, the EMP model chooses to cover trades that have the maximum economic impact (i.e. trades with the largest gains or losses are closed out first). However, in every other aspect, the methodology is identical to the one presented above.

Finally, the reported numbers in the EMP model are normalised into a range from -5 to +5 (representing large shorts / losses to large longs / profits) in order to compare across asset / instruments.

What output is generated by EMP?

The EMP model provides a snapshot of the current positioning (see Figure 34 to Figure 36). These tables summarize the outstanding exposure and unrealized P&L (for a 3mth period in both futures and ETFs).

Typical output is shown in Figure 34 for cross equity market positioning in futures. In this illustration, investors are currently neutral to net short Eurostoxx 50 contracts, which has decreased from a net long position of the past 3 months. This is in contrast to MSCI EM futures where investors are sitting on profitable positions.

Figure 34. Example of Equity Market Positioning and PnL

All metrics in table are normalised between +5 and -5

Investors currently net long S&P 500 Emini futures

Investors currently neutral to net short EuroStoxx 50

		S&P 500	DAX	FTSE 100	EStoxx50	Nasdaq	Nikkei	MSCI World x-US	MSCI EM
($bn)	*03/09/2020*	**ES**	**GX**	**Z**	**VG**	**NQ**	**NI**	**MFS**	**MES**
Normalised Scores (-5 / +5)									
Positioning	**Future**	1.7	-0.1	1.0	-0.0	4.8	1.1	-0.7	2.0
	ETF	3.0	1.4	-0.6	0.9	3.6	1.0		1.1
	3m Net Pos	**2.3**	**0.7**	**0.2**	**0.4**	**4.2**	**1.1**	**-0.7**	**1.6**
	1w Change	*0.4*	*0.2*	*0.3*	*0.3*	*-0.3*	*0.3*	*-0.4*	*-0.3*
P&L	**Future**	1.2	-0.1	-0.7	-0.0	4.8	0.5	0.1	1.8
	ETF	3.7	1.9	-0.5	1.1	3.9	1.3		1.4
	3m Net PnL	**2.5**	**0.9**	**-0.6**	**0.5**	**4.4**	**0.9**	**0.1**	**1.6**
	1w Change	*0.3*	*0.3*	*-0.0*	*0.3*	*-0.4*	*0.3*	*0.0*	*-1.1*

Investors are sitting on profitable positons in MSCI EM.

Source: Citi Research

In addition, we further breakdown market positioning by analyzing both long and short positions, the average entry price and the position relative to trading over the past three months (Figure 35).

Figure 35. Example of Breakdown of Market Positioning – Not Current

Net Notional = Longs minus Shorts (in $bln s)

Percentile refers to positioning relative to past 3 years

% Offside refers to what percentage of shorts are below Ref price – indicates risk of short squeeze if market rallies. Opposite for Longs

($bn)	03/09/2020	S&P 500 ES	DAX GX	FTSE 100 Z	EStoxx50 VG	Nasdaq NQ	Nikkei NI	MSCI World x-US MFS	MSCI EM MES
Futures	Net Notional	31.7	-0.1	2.4	-0.4	10.8	1.2	-1.1	6.4
	Percentile	*67%*	*36%*	*53%*	*33%*	*99%*	*64%*	*11%*	*75%*
Shorts	Notional	-7.5	-1.3	-3.9	-1.4	-1.6	-1.1	-2.7	-0.7
	Percentile	*24%*	*37%*	*81%*	*24%*	*28%*	*20%*	*80%*	*21%*
	Avg. Entry	3,246	12,994	6,116	3,316	10,993	22,959	1,890	1,089
	% offside	100%	100%	3%	100%	100%	100%	32%	89%
Longs	Notional	39.2	1.2	6.3	0.9	12.4	2.3	1.6	7.0
	Percentile	*57%*	*18%*	*72%*	*10%*	*99%*	*25%*	*18%*	*67%*
	Avg. Entry	3,337	13,068	6,096	3,311	11,166	22,889	1,893	1,051
	% offside	13%	0%	100%	0%	18%	0%	60%	38%
	Ref Price	3,463	13,304	5,909	3,366	11,803	23,490	1,878	1,094
Activity	1-day	-2.6	-0.2	0.0	-0.1	-0.9	0.3	0.0	0.0
	Type	longs	shorts	longs	shorts	longs	longs	shorts	shorts
	1-week	4.2	0.1	0.1	-0.5	-0.4	0.1	-0.7	0.5

Average entry price over past 3 months

1 day trading activity in $blns. Negative (positive) means risks is being cut (added)

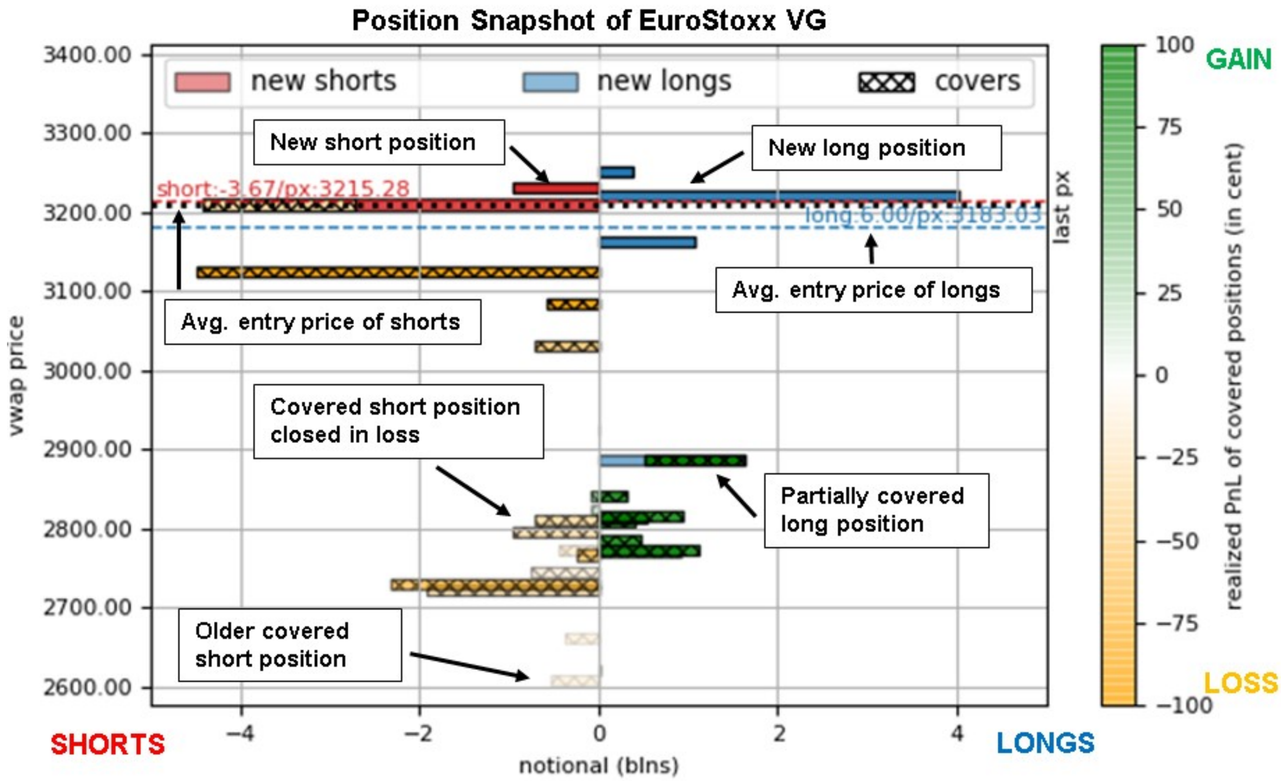
Defines what side the risk is being traded

1 week cumulative trading flow

Source: Citi Research

Lastly, a complete visualization of the positioning is presented in Figure 36. This shows the current positioning ordered by VWAP prices over a 3-month period. The bars in the chart illustrate the level at which trades were executed (red = short positions and blue = long positions). The lighter bars imply older trade activity. When a trade is covered the bar is hashed with XXX and the color of the shading represents if it was covered at a gain or loss (yellow=loss, green=gain). The horizontal red and blue dotted lines show the respective average entry price of contracts over the past three months.

Figure 36. Example Snapshot of Position in EuroStoxx Futures – Not Current



Source: Citi Research

What it means for Cash Equities

Although traditionally used as a hedge, futures are also used by investors for taking an outright view on markets. This becomes increasingly relevant when futures positioning is extended. We explore this content in greater detail in Regime Modelling using Futures Positioning: Futures vs. Cash – A Distant but Meaningful Relationship, which explores the interplay between futures positioning and behavior seen in underlying cash markets.

02-Jul-13	Factor	Searching For Alpha: Digging For Dividends: QUARI - QUality with A Reliable Income
24-Jun-13	Misc	Global Theme Machine: An Objective Way of Identifying Attractive Investment Themes
25-Mar-13	Factor	Searching for Alpha: Purifying Analyst Recommendations: Removing Beta to get to the Alpha
06-Nov-12	Factor	Searching for Alpha: Tangible Benefits of Intangibles: Brand, Respect & Intellectual Capital
09-Mar-12	Smart Beta	Low-Risk Portfolio Strategies: Sharpe Ratio Maximisation and Multi-Asset Applications
28-Feb-12	Rotation	Macro Risk and Style Rotation: A Guide Rather than a Prescription
14-Sep-11	Factor	Searching for Alpha: Accruals Volatility - A New Approach to Quality Investing
24-Aug-11	Allocation	Industry Alpha Insights: Four Approaches to Tactical Industry Selection
17-Mar-11	Misc	Industry Alpha Insights: Quantifying Industry-Specific Fundamentals
18-Nov-10	Smart Beta	Low-Risk Equity Portfolios: More than just Minimum Variance
15-Nov-10	Allocation	Under the Microscope: Measuring Systemic Risk - The Absorption Ratio
14-Jun-10	Factor	Under the Microscope: Optionality in Valuation
31-Mar-10	Event	Searching for Alpha: Earnings Surprise: Still Profiting from Surprises
29-Jan-10	Factor	Momentum in Japan: Looking at Price, Trading Values and Earnings
15-Oct-09	Rotation	Searching for Alpha: Style Rotation: Optimising Style Rotation Strategies

Source: Citi Research

Citi Quant Research Team

Figure 38. Citi Quantitative Research Teams (For Informational Purposes Only)

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Source: Citi Research