



Market Internal Weekly

3 Key Technical Days + 2M Recovery Score could turn Bullish within days

Executive Summary

I have got quite a few questions on risk parity funds the past week, so I want to share my thoughts here first. As of 3/15, **UBS Risk Parity Index -3.4%** in 1 week, **-4.6%** in 2 weeks and **-9.4%** YTD. This is the worst drawdown since Mar 2020, yet current volatility is much more controlled. Part of the reasons are the already low systematic exposures across the board which will be discussed below. While **correlation** & **volatility** are typical RP rebalance model drivers, **sell-off magnitude** and **speed** are rebalance execution triggers. Back test suggests that 5% RP drawdown typically triggers 1st round of rebalance, and if drawdown lasts for over a month or extends to -10%, it could trigger a more intense 2nd rebalance. Since 2008, RP lost over -5% eleven times. The six times when RP lost between -5% and -10%, average return was **-7.2%** (**Chart 1**). Of the five times when RP lost over -10% (**Chart 2**), **sell-off was spread over 3 months** where **drawdown stopped @ -13%** and **-11%** in June 2015 and Feb 2018, but **violent sell-off within 1 month** caused **massive unwind** as drawdown accelerated quickly to **-32%, -21% and -30%** in 2008, 2013 and 2020. For the current sell-off, after RP **-5%** as of 2/4, there was footprint of **1st rebalance** with cross-asset selling **every other day** between 2/4 and 2/14 (4 sell days) (**Table 3**). After being down for a month, **2nd rebalance** seemed more intense **every day** between 3/7 and 3/14 (6 sell days) (**Table 4**). Given **current sell-off is relatively “slow,”** based on historical observation, **we should be at or close to the tail end of RP unwind.**

In terms of equities, SPX **-9.2%** YTD. Between 1/3 and 2/9, market sell-off was triggered by Fed Hike fear with SPX down as much as **-9.8%**, then rallied **+6.0%** at a total of **-4.4%** for the period. Since 2/10, market was dominated by Russia/Ukraine war headlines with SPX down as much as **-9.1%**, followed by **+4.5%** recovery over the last 2 days at a total of **-5.0%** for the period (**Chart 5**). Over the last 3 months, there were **3 key technical days: 1/24 Intraday Capitulation Signs** (Fed Hike triggered sell-off), **3/7 Excess Flow Capitulation Sign** (Russia/Ukraine war triggered sell-off) (**Chart 6**) and **3/14 CTA Death Cross**. Article References: [1/24 Market Internal Insight: The Five Capitulation Tests](#), [3/8 Market Internal Insight: Large Excess Sell Flow not led by Retail Investors – typically short-lived](#) & [3/14 Market Internal Insight: Emini S&P 500 Futures Death Cross were crossed after close](#).

While Fed Hike and Russia/Ukraine war are two evolving events, **their initial shock impact seems mostly over** after capitulation signs on 1/24 and 3/7 - unless there are major, unexpected changes. This is evidenced by the shortening duration of knee-jerk selling such as **FOMC yesterday where excess sell flow only last for 30 mins @ -\$44 bil**, followed by an even larger and longer buying @ **+\$107 bil** (likely from short squeeze) (**Chart 7**). Like many other macro events, as the **initial discretionary reaction slows down**, **market internal could drive market again**. For example, if investors are truly turning bearish longer term, they would buy-the-dip less often and start to profit take consistently on rallies – hence a collapse in intraday recovery score. Below analysis provides back best update as well as the **current key market internals which suggests neutral risk appetite (but could turn bullish within days), low fast money/systematic/model sell risk (except for Short Vol exposure) and moderate to high short squeeze risk/buying pressure.**

Back Test Update:

1. **Table 8:** Since **3/7 Excess Flow Capitulation Sign**, so far SPX max downside @ **-70 bps** on 3/8 and max upside @ **+3.7%** on 3/16. Historically, when RMM clients bought stocks the month prior to large excess sell day, SPX next 1M low/high were **-3%/+9%** on average
2. **Table 9:** Since **3/14 CTA Death Cross**, SPX **+4.4%** so far. Since 1998, there were 7 periods when CTA death cross was triggered and intraday recovery score was neutral. 7/2/10 was the most similar in terms of prior large SPX sell-off without recovery @ -16% (vs -13% as of 3/14/22). The other two similar periods with equally low CTA equity exposures were 8/16/04 and 8/28/15 @ -32% and -35% (vs -33% on 3/14/22). SPX next 1M low/hi post 8/16/04, 8/28/15 and 7/2/10 were 0.0%/+4.3%, -3.8%/+0.3% and 0.0%/+9.0%.

Risk Appetite – Neutral:

1. **Chart 10: 2M & 4M intraday recovery scores both @ 13%. 2M score needs 2 days of sell-off and recovery to turn bullish.**
2. **Chart 11: RMM Equity flow** – 5 sell days in last 7 days, mainly driven by stock selling. Exponentially time-weighted flow @ 0.2x std dev vs 3Y – down from +1.0x just 2 weeks ago. This implies retail investors are no longer chasing the market, instead they are back to normal – sell-the-rally vs buy-the-dip.
3. **Chart 12: Foreign listed US ETF flow** – only 2 sell days the last 10 days. Exponentially time-weighted flow @ 0.8x std dev vs 3Y – down from 1.8x 2 weeks ago. This implies foreigners are reducing their inflow but haven't lost confidence in the US (i.e. almost no selling the last 2 weeks)

4. **Chart 13: Corporate buyback** – Estimated @ \$20-35 bil per week for this and next week. Estimate to drop to ~\$0-15 bil per week through the first week of May

Fast money/Systematic/Model Sell Risk – Low except for Short Vol exposure:

1. **Risk Parity** estimated equity exposure @ 19% or **18%-tile vs 3Y**; bond exposure @ 90% or 6%-tile vs 3Y. Unwind footprint over the last 1.5 weeks, but it should be at or close to tail end
2. **UBS CTA** equity exposure @ -33% or **1%-tile vs 3Y**; bond exposure @ -101% or 14%-tile vs 3Y. First clustered buy triggers in ES1, between +2.5% and +5.1%
3. **S&P 500 10% Risk Control** exposure @ 47% or **18%-tile vs 3Y**. Even if SPX -2% in one day, model estimates only \$10 bil to sell. However, if SPX moves +/-50 bps a day for 1 month, expect to buy \$90-110 bil
4. **UBS PB** gross leverage @ 1.90x or **0%-tile vs 3Y**; net leverage @ 0.79x or **23%-tile vs 3Y**
5. **VIX vega exposure** low @ -\$24 mil or **5%-tile vs 3Y** => **High risk of vol short squeeze during sell-off**
6. **Pensions month-end rebalance** estimate has swung from a high of almost **\$70 bil of equity buying**/bond selling early this month to only a small **\$2 bil of equity selling**/bond buying. Estimate will change based on relative asset performance until month-end

Short Squeeze Risk / Buying Room – Moderate to High:

1. **S&P 500 stock SI** rose to **78%-tile vs 1Y** and 27%-tile vs 3Y. **Russell 2000 stock SI** rose to **96%-tile vs 1Y** and 35%-tile vs 3Y. SPY, QQQ and **IWM SI** @ 76%-tile, 75%-tile and **90%-tile** respectively
2. SPY & R2000 Top 50 stock **P/C Ratio** high @ **83%** and 79%-tile vs 3Y – relatively well-hedged, but QQQ and S&P 500 top 25 stock P/C Ratio low @ 22% and 24%-tile vs 3Y
3. **Cash buffer** remains high @ \$312 bil new money since early Feb 2021
4. **Margin %** of SPX market cap remains low @ 2.29% or 9 bps below 3Y average

Chart 1

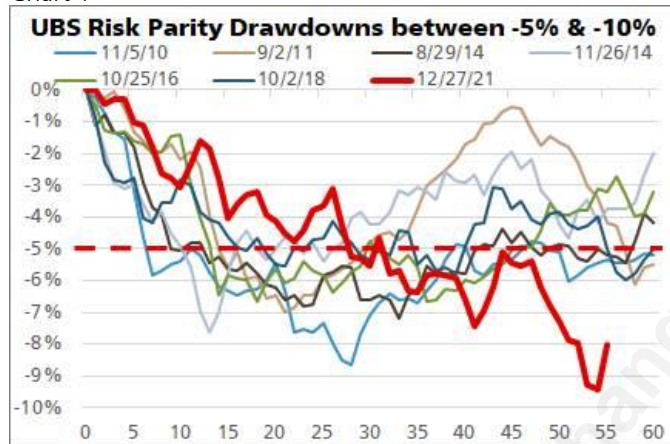


Chart 2

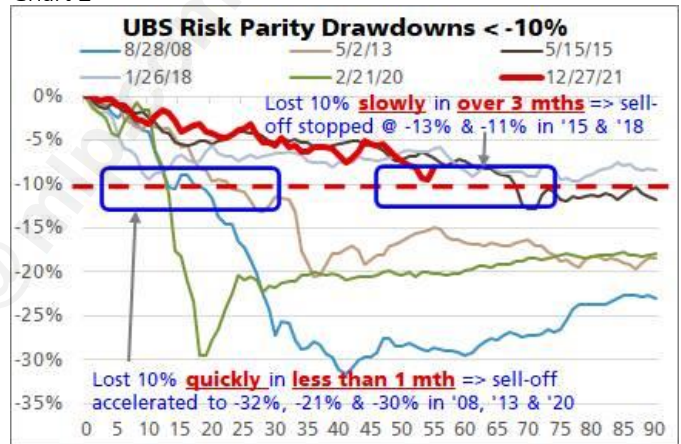


Table 3

			UBS Risk Parity Assets															
			Equities			Gov't Bonds				Commodities / Inflation-Linked				Credit / Carry				
End Date	Assets	Median Ret	S&P 500	MSCI EAFE	MSCI EM	US Treasury	Euro Bund	Japan JGB	EM Sov	US Inflat'n	BBG Agri	BBG Energy	BBG Metals	EM FX	Inv Gr Bonds	HYG	EM Corp Bonds	
2/1/22	6	0.09%	0.69%	1.26%	0.48%	-0.13%	-0.21%	-0.08%	0.10%	-0.56%	1.63%	-0.60%	0.93%	0.13%	0.09%	0.04%	-0.24%	
2/2/22	4	0.21%	0.94%	1.17%	-0.06%	0.22%	-0.06%	0.05%	0.45%	0.09%	-0.36%	4.95%	0.29%	-0.20%	0.21%	0.15%	0.24%	
2/3/22	13	-0.38%	-2.44%	-0.66%	-0.24%	-0.38%	-1.05%	-0.01%	-0.30%	-0.65%	0.00%	-2.33%	-0.18%	0.12%	-0.70%	-0.90%	-0.32%	
2/4/22	11	-0.39%	0.52%	-0.62%	0.89%	-0.79%	-0.52%	-0.22%	-0.64%	-0.55%	0.62%	-0.40%	0.41%	-0.38%	-1.00%	-0.39%	-0.30%	
2/7/22	8	-0.04%	-0.37%	0.55%	-0.14%	0.04%	-0.25%	0.01%	-0.34%	-0.04%	0.89%	-2.50%	1.00%	0.19%	0.09%	-0.07%	-0.10%	
2/8/22	10	-0.12%	0.84%	-0.05%	0.04%	-0.34%	-0.26%	-0.12%	-0.31%	-0.16%	0.10%	-1.58%	0.02%	0.16%	-0.25%	-0.11%	-0.14%	
2/9/22	1	0.41%	1.45%	1.60%	1.64%	0.13%	0.41%	0.01%	0.41%	0.17%	1.60%	-0.86%	1.49%	0.43%	0.20%	0.53%	0.09%	
2/10/22	12	-0.55%	-1.81%	0.16%	0.91%	-0.94%	-0.55%	-0.12%	-0.34%	-0.80%	-0.99%	-0.17%	0.54%	-0.18%	-1.15%	-1.32%	-0.72%	
2/11/22	8	-0.16%	-1.90%	-0.84%	-0.85%	1.03%	0.00%	0.00%	-0.49%	0.89%	0.69%	1.83%	-1.39%	-0.41%	0.63%	-0.35%	-0.16%	
2/14/22	9	-0.18%	-0.38%	-2.14%	-1.62%	-0.65%	0.17%	0.07%	-0.54%	-0.18%	-0.37%	2.74%	1.06%	0.23%	-0.80%	-0.17%	0.00%	
2/15/22	8	-0.02%	1.58%	0.94%	0.71%	-0.32%	-0.42%	-0.02%	0.23%	-0.44%	-0.96%	-1.93%	-0.37%	0.57%	-0.42%	0.17%	0.02%	
2/16/22	2	0.24%	0.09%	0.66%	1.23%	0.21%	0.42%	-0.07%	0.24%	0.19%	1.09%	3.18%	0.73%	0.12%	-0.18%	0.56%	0.08%	
2/17/22	8	-0.02%	-2.12%	-0.43%	-0.10%	0.53%	0.37%	-0.02%	-0.23%	0.27%	0.51%	-2.10%	1.01%	0.07%	0.16%	-0.42%	-0.08%	
2/18/22	6	0.04%	-0.72%	-0.91%	-0.90%	0.31%	0.30%	0.06%	-0.04%	0.24%	0.19%	0.04%	0.01%	-0.34%	0.19%	0.14%	-0.06%	
2/22/22	8	-0.14%	-1.01%	-1.41%	-2.04%	0.02%	-0.38%	0.22%	-0.64%	0.31%	2.30%	2.13%	0.75%	0.22%	-0.14%	-0.23%	-0.65%	
2/23/22	9	-0.18%	-1.84%	-0.18%	0.02%	-0.51%	0.17%	0.00%	-1.19%	0.04%	1.21%	0.97%	-0.13%	-1.15%	-0.68%	-0.18%	-0.66%	
2/24/22	6	0.10%	1.50%	-4.20%	-4.31%	0.23%	0.57%	0.06%	-2.88%	0.45%	0.10%	1.40%	1.05%	-0.84%	-0.04%	0.71%	-1.71%	
2/25/22	7	0.36%	2.24%	3.30%	1.48%	-0.04%	-0.47%	-0.14%	1.94%	-0.15%	-3.59%	-2.36%	-1.37%	0.64%	0.36%	0.57%	1.41%	
2/28/22	5	0.19%	-0.24%	0.06%	-0.06%	1.11%	0.53%	0.19%	-2.01%	1.76%	2.92%	2.35%	0.45%	-2.25%	1.20%	0.07%	-2.74%	

Table 4

			UBS Risk Parity Assets														
			Equities			Gov't Bonds				Commodities / Inflation-Linked				Credit / Carry			
End Date	Total # Assets	Median Ret	S&P 500	MSCI EAFE	MSCI EM	US Treasury	Euro Bund	Japan JGB	EM Sov	US Inflat'n	BBG Agri	BBG Energy	BBG Metals	EM FX	Inv Gr Bonds	HYG	EM Corp Bonds
3/1/22	6	0.44%	-1.55%	-1.82%	0.44%	1.02%	1.95%	0.08%	-0.06%	0.83%	3.36%	6.23%	3.00%	-0.90%	0.62%	-0.65%	-0.47%
3/2/22	8	-0.13%	1.86%	-0.55%	-0.68%	-1.52%	-0.54%	0.40%	-0.62%	-0.70%	0.37%	6.45%	0.64%	0.79%	-1.52%	0.24%	-0.13%
3/3/22	9	-0.11%	-0.53%	-0.93%	0.36%	0.46%	-0.11%	-0.24%	0.22%	-0.10%	1.43%	-1.09%	1.83%	-0.71%	0.42%	-0.30%	-1.35%
3/4/22	7	0.07%	-0.79%	-3.43%	-2.36%	0.99%	1.03%	0.07%	-1.62%	0.68%	0.66%	6.58%	2.98%	-1.57%	0.37%	-0.65%	-0.24%
3/7/22	10	-0.61%	-2.95%	-1.92%	-3.28%	-0.39%	-0.61%	0.13%	-1.10%	0.65%	1.14%	2.17%	6.16%	-1.25%	-0.98%	-0.87%	-0.11%
3/8/22	10	-0.35%	-0.72%	-0.94%	-1.02%	-0.67%	-1.14%	-0.12%	-0.40%	0.37%	1.05%	2.36%	0.59%	0.24%	-1.06%	-0.35%	-0.24%
3/9/22	10	-0.22%	2.57%	4.04%	-0.49%	-0.62%	-0.87%	-0.08%	0.97%	-0.92%	-2.42%	-9.97%	-2.88%	0.43%	-0.20%	0.83%	-0.22%
3/10/22	12	-0.22%	-0.43%	-0.18%	1.11%	-0.45%	-0.49%	-0.20%	0.14%	-0.22%	-0.59%	-2.06%	0.84%	-0.14%	-0.89%	-0.84%	-0.09%
3/11/22	10	-0.18%	-1.30%	-0.48%	-1.55%	-0.05%	-0.21%	0.00%	0.11%	0.68%	0.71%	2.83%	-0.32%	-0.18%	-0.14%	-0.72%	-0.88%
3/14/22	13	-0.76%	-0.74%	0.69%	-2.82%	-1.25%	-0.76%	-0.10%	-0.31%	-1.02%	-0.50%	-3.97%	-1.80%	0.76%	-1.32%	-1.19%	-0.42%
3/15/22	7	0.02%	2.14%	-0.26%	-2.68%	-0.03%	0.47%	-0.14%	0.02%	-0.74%	0.62%	-4.63%	-0.85%	0.97%	0.21%	0.75%	0.39%
3/16/22 *	5	0.91%	2.24%	2.70%	5.28%	-0.16%	-0.56%	0.04%	1.26%	-0.55%	-1.97%	0.29%	-1.17%	1.79%	0.91%	1.40%	1.45%

Chart 5

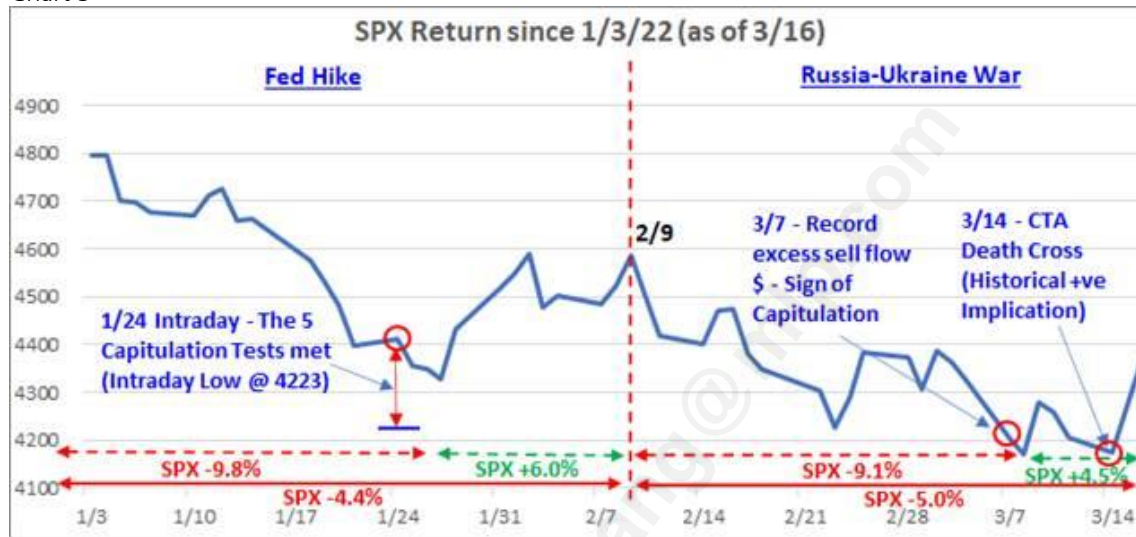


Chart 6

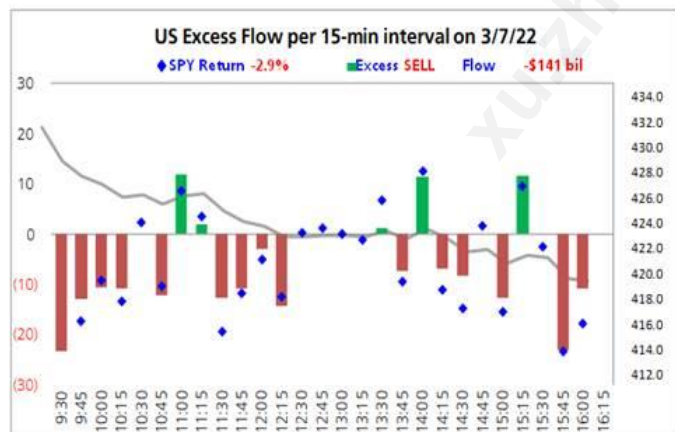


Chart 7

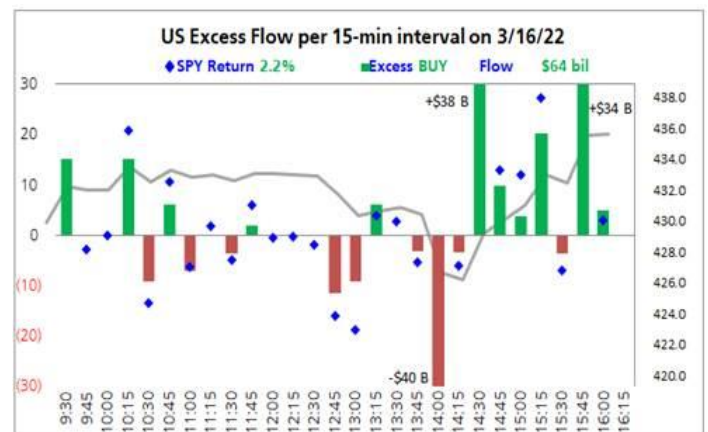


Table 8

Large Excess Sell Flow normalized by SPX Index (Ratio > 30)

SPY	Excess Flow	RMM Prior	SPX Next 1M	SPX Next Ret
Date	Ret	\$bil /SPX	Stk Flow*	Lo Hi 1D 1W 2W
3/7/22	(2.9)	(141) (34)	\$ 715	-1% 4% -1% -1% 4%

When RMM clients bought stocks the prior month

As of 3/16

3/12/20	(9.6)	(126) (51)	\$ 1,182	-10% 12% 9% -3% 6%
6/11/20	(5.8)	(112) (37)	\$ 1,251	0% 6% 1% 4% 3%
9/23/20	(2.3)	(101) (31)	\$ 2,035	0% 9% 0% 4% 6%
Average				-3% 9% 4% 2% 5%

When RMM clients sold stocks the prior month

2/5/18	(4.2)	(141) (53)	\$ (2,304)	-3% 5% 2% 0% 3%
10/10/18	(3.2)	(100) (36)	\$ (1,431)	-5% 1% -2% 1% -5%
2/27/20	(4.5)	(95) (32)	\$ (2,652)	-25% 5% -1% 2% -17%
9/3/20	(3.4)	(104) (30)	\$ (508)	-6% 0% -1% -3% -3%
Average				-10% 3% 0% 0% -5%

*RMM Consecutive Flow from up to 1M prior to next day

Chart 10

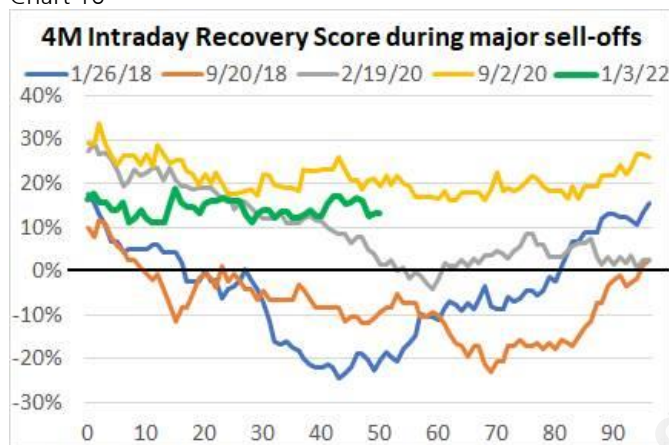


Chart 12

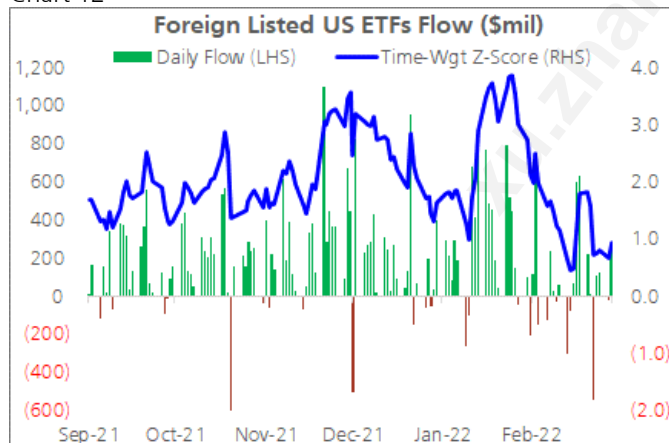


Chart 14

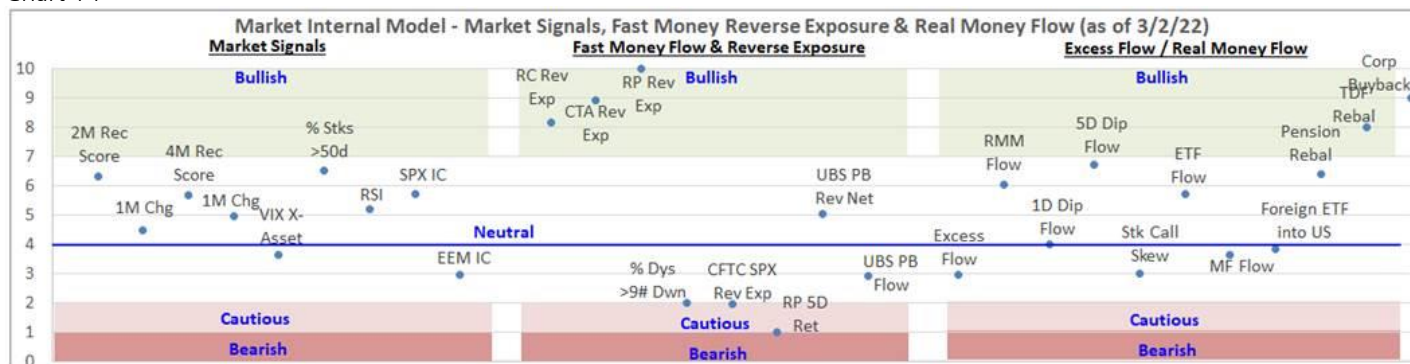


Table 9

ES1 Futures Death Cross (50D < 200D) since 1998 - Crossed Post Close

	SPX	CTA	3Y	Rec	Prior 3M Max	% Re-	SPX Next Return			Next 1M		
Date	Ret	Exp	Rank	Score	DrwDwn	Recovery	cover	1W	2W	1M	Low	Hi
3/14/22	-0.7%	-33%	0%	13%	-13%	0%	1%	4%			0%	4%

Neutral Recovery Score - Sorted by Prior 3M Drawdown

As of 3/16

3/30/20	3.4%	-17%	13%	12%	-34%	17%	51%	1%	5%	10%	-6%	10%
9/25/98	0.2%	-10%		13%	-19%	9%	47%	-4%	-6%	2%	-8%	3%
8/12/11	0.5%	-25%	8%	13%	-17%	5%	31%	-5%	0%	-2%	-5%	3%
7/2/10	-0.5%	-15%	31%	10%	-16%	0%	0%	5%	4%	8%	0%	9%
8/28/15	0.1%	-35%	0%	6%	-12%	6%	53%	-3%	-1%	-3%	-4%	0%
12/24/07	0.8%	12%	21%	21%	-10%	6%	63%	-2%	-5%	-11%	-11%	0%
8/16/04	1.4%	-32%	12%	1%	-7%	1%	21%	2%	2%	4%	0%	4%
Average	0.8%				-17%	7%	38%	-1%	0%	1%	-5%	4%

Bearish Recovery Score - Sorted by Prior 3M Drawdown

10/31/00	2.2%	-20%		-13%	-13%	7%	60%	0%	-3%	-7%	-7%	0%
12/6/18	-0.2%	-30%	7%	-7%	-10%	2%	24%	-2%	-8%	-9%	-13%	0%
7/19/06	1.9%	-19%	5%	-8%	-8%	3%	38%	1%	1%	3%	-2%	3%
Average	1.3%				-10%	4%	41%	0%	-3%	-4%	-7%	1%

Chart 11

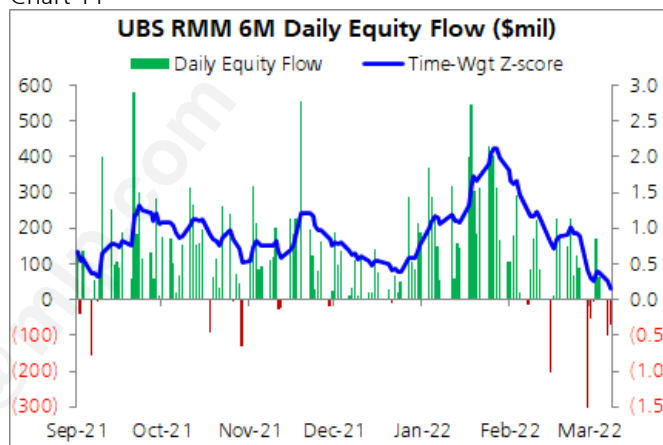


Chart 13

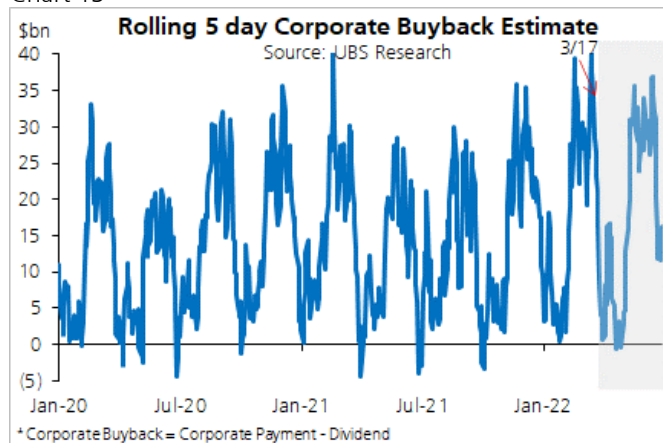
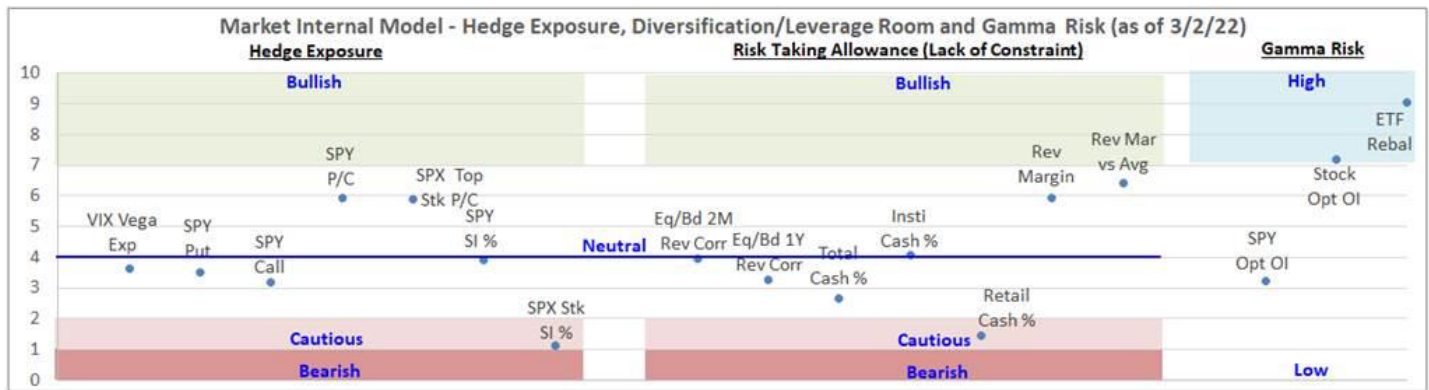


Chart 15



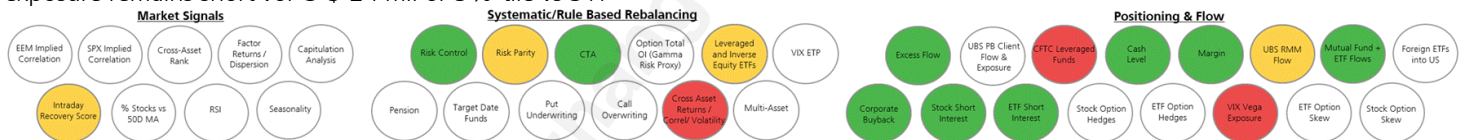
Model Overview

In general, real money support has weakened across pensions, retail investors, corporates and foreigners, while fast-money/systematic exposures have got even lower and now have large room to buy. 2M intraday recovery score could turn bullish as quick as in 2 days.

Within **market signals**, 2M & 4M intraday recovery scores both @ 13% - remain neutral. 2M score needs 2 days of selloff and recovery or 7 days of rally without collapse to turn bullish.

Within **systematic/rule-based rebalance**, risk control, UBS CTA and estimated risk parity equity exposures are all low @ 18%-tile, 1%-tile and 18%-tile vs 3Y respectively. SPX 10% RC daily breakeven @ 1.35%. Even if SPX -2% and -1.5% in one day, expect to only sell \$10 bil or even add \$5 bil respectively. On the other hand, if SPX moves 25 bps & 50 bps daily, they could buy \$105-125 bil and \$90-110 bil respectively. In terms of CTA triggers, ES1 has one close buy trigger @ +1.9% and then 6 clustered buy triggers between +2.5% and +5.1%. In terms of risk parity funds, expect they are at or close to tail end of their recent unwind. Lastly, pensions month-end rebalance estimate has been swung from **\$68 bil of global equity to buy**/bonds to sell two weeks ago to the current **\$2 bil of global equity to sell**/bond to buy.

Within **flow/positioning**, real money support has weakened in general with RMM and foreign listed US ETFs flow down to 0.2x and 0.8x std dev vs 3Y respectively, vs +1.0x and +1.8x just 2 weeks ago. Corporate buyback remains high this and next week, but is expected to drop to ~\$0-15 bil per week afterwards. UBS PB gross and net exposures low @ 0%-tile and 23%-tile vs 3Y. VIX vega exposure remains short vol @ -\$24 mil or 5%-tile vs 3Y.



Model Details

Market Signals

- Intraday Recovery Score** (Figure 1) – 2M Intraday Recovery Score is higher @ 13% and 4M score lower @ 13% - both remain neutral. **2M score needs 2 days of selloff & recovery to turn bullish**. 4M score needs 8 days of selloff & recovery to turn bullish and 10 days of rally & collapse to turn bearish.
- VIX/V2X Cross-Asset Rank** (Figure 2) – With VIX @ 26.7, VIX cross-asset rank neutral @ 32%. With V2X dropping to 36.0, V2X cross-asset rank @ 89%.

Systematic/Rule-based Rebalancing

- Risk Control** (Figure 3) – S&P 500 10% Risk Control exposure @ 47% or 18%-tile vs 3Y. Daily breakeven @ 1.35%. Scenario rebalancing:
 - 1-day move:** If SPX moves +/-3%, **2%, 1.5%**, 1% and 50 bps, expect to cut \$25-30 bil, **\$10 bil, flat** add \$5 bil and add \$10 bil respectively
 - 2-day moves:** If SPX moves +/-3%, **2%, 1.5%**, 1% and 50 bps for two days, expect to cut \$45-55 bil, **\$15-20 bil, \$5 bil**, add \$5-10 bil and add \$15-20 bil respectively
 - 1-month move:** If SPX moves **25 bps** daily for 1M, expect to **buy \$105-125 bil in total or \$5-6 bil a day**. If SPX moves **50 bps** daily, expect to **buy \$90-110 bil in total or \$4-5 bil a day**. End exposure would be ~66% and 63% respectively, or **39%-tile and 36%-tile** vs 3Y respectively. Model max was 183% in Nov 2017. Historically, 120% was the level where their selling could become impactful for over a week.
- Risk Parity** (Figure 4) – Estimated equity exposure lower @ 19% or 18%-tile vs 3Y. Estimated bond exposure also lower @ 90% or 6%-tile vs 3Y. UBS model current 1M & 2M RV above volatility target (7.5%) @ ~10.5-11.5%. Sample RP fund 1M RV @ 9-13%.

3. **Cross-Asset Returns/Correl/Volatility** (Figures 5, 7) – 1M Eq/bond correlation higher this week @ -23%. However, 2M and 1Y correl unchanged @ -18% and -16% respectively. There were 6 consecutive days with correlated cross-asset sell-offs (> 9+ assets down together in the 15 asset UBS Risk Parity model) between 3/7 and 3/14, which puts pressure on risk parity and multi-asset funds – UBS RP model -4.2% during those 6 days.
4. **CTA** (Figures 6, 8 - 11) – UBS CTA Equity Proxy lower @ -33% or lowest since Jan 2019 – exposures were only lower last 10 years on 8/21-10/7/15, 1/7-3/10/16, 10/24/19-1/29/19 & 8/28/19. UBS CTA Bond Proxy also lower @ -101% or 14%-tile vs 3Y. Looking ahead:
 - **ES1** has one close buy trigger: ST @ 4438.6 (+1.9%). There are 6 more clustered buy triggers between +2.5% and +5.1%.
 - **NQ1** has no close triggers. Clustered buying is much further out, between +8% and +9.8%.
 - **RTY1** has two close buy triggers: ST @ 2043.4 (+0.5%) and ST @ 2074.5 (+2.1%).
5. **Call Overwriters/Put Underwriters** – With SPX -2% to -7% vs February roll period, expect negative delta impact from their roll activities over the last week, which should be mostly done by now.
6. **Pensions & Target Date Fund Rebalancing** (Figure 12) – March quarter-end rebalancing estimate has now switched to \$2 bil of global equity selling/ bond buying for US pensions. These estimates will continue to change depending on asset returns through the end of the month
7. **Option Gamma Risk Proxy using OI %** (Figures 13 - 18) – ETF option gamma risks as proxy by SPY and QQQ OI are lower this week @ 25% and 99%-tile vs 3Y respectively. Option gamma risk as proxy by IWM OI is higher @84%-tile vs 3Y. Top stock option OI % relatively unchanged, with S&P 500, Nasdaq 100 and Russell 2000 @ 45%, 46% and 77%-tile vs 3Y respectively.
8. **Leveraged & Inverse ETP Rebalance Sensitivity** (Figures 19 & 20) – ETP rebalance sensitivity remains high @ \$3.4 bil per 1% asset move, or 0.0090% of S&P 500 Market Cap. This sensitivity ratio @ 95%-tile vs 3Y, mainly coming from Nasdaq with Nasdaq rebal sensitivity @ 97%-tile vs 3Y while Large cap ex Nasdaq rebal sensitivity is low @ 41%-tile. Small Cap rebal sensitivity @ 63%-tile vs 3Y.

Positioning & Flow

1. **Excess Flow** (Figures 21 & 22) – US Equity Excess Flow has remained elevated this week, with notable flow days on 3/11 and 3/16 @ -\$66 bil and +\$64 bil respectively. Net excess buy flow for the week @ +\$2 bil. Volumes remained low Treasury this week, total of +\$12 bil of excess buy flow for the week.
2. **Cash Level** (Figures 23 & 24) – As of 3/9, institutional investors reduced cash last week @ \$32 bil. Their large cash buffer is now @ \$312 bil since early Feb 2021. Current cash level is below June 2021 peak by \$85 bil. Retail investors added cash again last week @ \$1 bil.
3. **Margin** (Figures 25 & 26) – Based on the newly reported data as of February 2022, margin \$ rose by 1%, which triggered margin % of SPX market cap to rise from 2.20% to 2.29%, now 9 bps below 3Y average. Margin % of cash also rose, to 18.34% from 17.86%, now 1.42% above 3Y Avg
4. **UBS PB L/S Exposures & Flow** (Figures 27 & 28) – As of 3/15, UBS PB L/S client gross leverage dropped further, now at the lowest level since Jan 2013. Net leverage continued to drop, from 84% two weeks ago to current, 23%-tile vs 3Y. Implied net trading is +3% on the week, -60% since end of June 2021 and -42% since Jan 2021. PB exponentially time-weighted flow @ -0.6x std dev vs 2Y.
5. **Stock & ETF Short Interest** (Figures 29 - 31) – As of 3/10, S&P 500 stock SI is higher this week @ 78%-tile vs 1Y and 27%-tile vs 3Y. Russell 2000 stock SI % unchanged @ 96%-tile vs 1Y and 35%-tile vs 3Y. As of 2/28, ETF short interest % increased in SPY @ 76%-tile vs 3Y. ETF SI % decreased in QQQ and IWM @ 75%-tile and 90%-tile vs 3Y respectively.
6. **CFTC Leveraged Fund Exposures** (Figures 32 - 34) – As of 3/8, CFTC leveraged fund exposure is higher across the board, with S&P 500, Nasdaq and Russell 2000 futures @ 94%, 99%-tile and 42%-tile vs 3Y respectively.
7. **SPX Top 50 Call Skew** (Figure 35) – S&P 500 Top 50 stocks call skew remained negative @ -7.5% on average for 1M 110C with only 8% of the stock skew being positive.
8. **VIX Exposure + Option Put/Call Ratio** (Figures 36 - 42) – VIX net vega exposure lower this week @ -\$24 mil or 5%-tile vs 3Y. SPY P/C ratio rose to 83%-tile vs 3Y. QQQ P/C ratio dropped to 22%-tile vs 3Y. And IWM P/C ratio stayed the same @ 43%-tile vs 3Y. Top stock P/C ratios dropped in S&P 500 and Nasdaq @ 24% and 21%-tile vs 3Y respectively. Russell 2000 Top Stock P/C ratio is unchanged @ 79%-tile vs 3Y.
9. **US MF + ETF Flows** (Figures 43 & 44) – So far for Mar (as of 3/9): MF outflows @ \$9 bil and ETF inflows @ \$22 bil.
10. **UBS RMM Flow** (Figures 45 - 48) – RMM flow continues shows fading retail support with exponentially time-weighted global equity inflows dropping further @ 0.2x std dev above 3Y avg, lowest since Nov 2020. For RMM Intraday Model, RMM clients bought-the-dip on both drawdown days last week (3/10 and 3/11) @ +\$168 mil and +\$26 mil. They bought-the-rally on both one of three rally days (3/9) @ +\$10 mil and sold the rally on 3/14 and 3/15 @ -\$14 mil and -\$62 mil.
11. **Foreign listed ETFs into US Flow** (Figure 49) – Foreign listed US ETFs flow has switched back to outflows last week, with exponentially time-weighted flow down to +0.9x std dev above 3Y average, from 1.5x last week.
12. **Corporate Buyback** (Figure 50) – Corporate Buyback estimated @ \$20-35 bil per week for this & next week. Estimate then drops to ~\$0-15 bil per week through the first week of May.

Figure 1: S&P 500 Intraday Recovery Scores

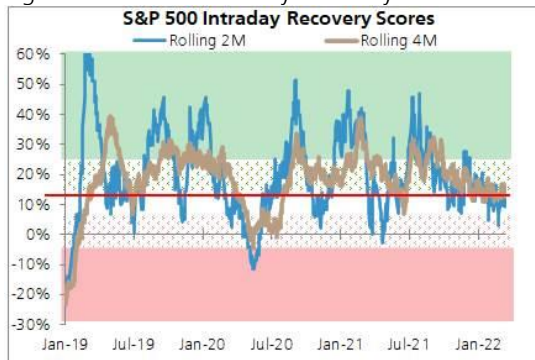


Figure 2: VIX Cross-Asset Rank

Date	SPX	SX5E	10Y	EUR	Oil	Gold	CDX	HY	Cross-Asset Rank							Max-Min
	VIX	V2X	10Y IV	EUR IV	OVX	GVZ	HY		VIX	V2X	10Y	EUR	Oil	Gold	HY	
3/16/2022	26.7	36.0	7.0	9.0	59.4	22.5	374	32%	89%	60%	73%	54%	35%	9%	80%	
3/15/2022	29.8	41.2	7.0	10.3	63.6	23.8	397	42%	93%	40%	83%	53%	33%	7%	85%	
3/14/2022	31.8	40.6	6.9	10.7	65.4	24.1	409	50%	89%	32%	85%	54%	32%	8%	82%	
3/11/2022	30.8	41.4	6.2	10.8	68.0	24.7	396	46%	90%	16%	85%	62%	41%	10%	79%	
3/10/2022	30.2	43.4	6.6	10.4	67.3	26.1	392	41%	94%	22%	79%	60%	47%	6%	88%	

Figure 3: SPX 10% Risk Control Leverage & Scenario



Figure 4: Estimated Risk Parity Bond & Equity Exposures

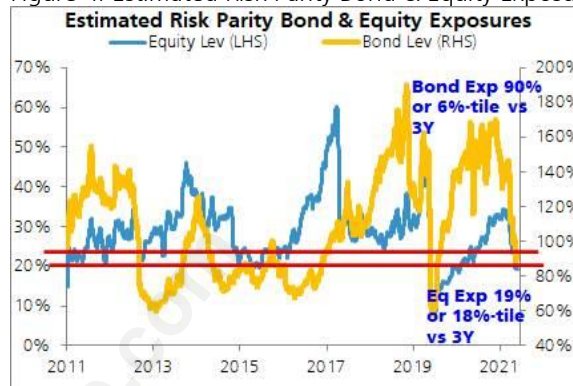


Figure 5: Equity Bond Correlations



Figure 6: UBS CTA Model Equity Daily Proxy

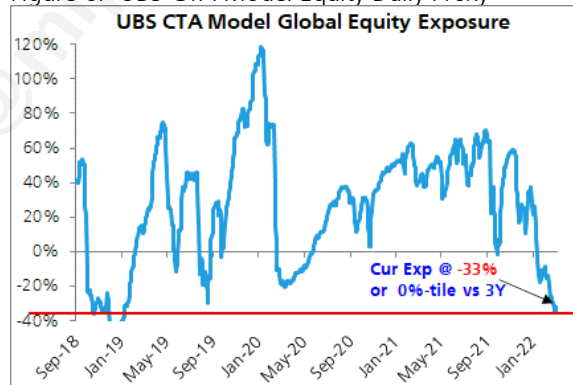


Figure 7: Cross Asset Drawdown

		UBS Risk Parity Assets															
End Date	Total # Assets	Median Ret	Equities			Gov't Bonds				Commodities / Inflation-Linked				Credit / Carry			
			S&P 500	MSCI EAFE	MSCI EM	US Treasury	Euro Bund	Japan JGB	EM Sov	US Inflat'n	BBG Agri	BBG Energy	BBG Metals	EM FX	Inv Gr Bonds	HYG	EM Corp Bonds
3/3/22	9	-0.11%	-0.53%	-0.93%	0.36%	0.46%	-0.11%	-0.24%	0.22%	-0.10%	1.43%	-1.09%	1.83%	-0.71%	0.42%	-0.30%	-1.35%
3/4/22	7	0.07%	-0.79%	-3.43%	-2.36%	0.99%	1.03%	0.07%	-1.62%	0.68%	0.66%	6.58%	2.98%	-1.57%	0.37%	-0.65%	-0.24%
3/7/22	10	-0.61%	-2.95%	-1.92%	-3.28%	-0.39%	-0.61%	0.13%	-1.10%	0.65%	1.14%	2.17%	6.16%	-1.25%	-0.98%	-0.87%	-0.11%
3/8/22	10	-0.35%	-0.72%	-0.94%	-1.02%	-0.67%	-1.14%	-0.12%	-0.40%	0.37%	1.05%	2.36%	0.59%	0.24%	-1.06%	-0.35%	-0.24%
3/9/22	10	-0.22%	2.57%	4.04%	-0.49%	-0.62%	-0.87%	-0.08%	0.97%	-0.92%	-2.42%	-9.97%	-2.88%	0.43%	-0.20%	0.83%	-0.22%
3/10/22	12	-0.22%	-0.43%	-0.18%	1.11%	-0.45%	-0.49%	-0.20%	0.14%	-0.22%	-0.59%	-2.06%	0.84%	-0.14%	-0.89%	-0.84%	-0.09%
3/11/22	10	-0.18%	-1.30%	-0.48%	-1.55%	-0.05%	-0.21%	0.00%	0.11%	0.68%	0.71%	2.83%	-0.32%	-0.18%	-0.14%	-0.72%	-0.88%
3/14/22	13	-0.76%	-0.74%	0.69%	-2.82%	-1.25%	-0.76%	-0.10%	-0.31%	-1.02%	-0.50%	-3.97%	-1.80%	0.76%	-1.32%	-1.19%	-0.42%
3/15/22	7	0.02%	2.14%	-0.26%	-2.68%	-0.03%	0.47%	-0.14%	0.02%	-0.74%	0.62%	-4.63%	-0.85%	0.97%	0.21%	0.75%	0.39%
3/16/22 *	5	0.85%	2.24%	2.70%	5.28%	-0.14%	-0.52%	0.04%	2.04%	-0.58%	-1.97%	0.29%	-1.17%	1.68%	0.85%	1.40%	1.45%

UBS CTA Tracker - % of Common Models being Triggered / Watched

Footnote: * If MA condition is met, then watch spot within 4%, else watch spot within 2%; If Spot condition is met & MA cross-over within 5 days, then show # of days, else N/A
+ Proxy Exposure = 1% vol target Exposure

ES1	4355.50	UBS CTA Tracker	As of	3/16/22
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Figure 11: RTY1 CTA Triggers

NQ1	13947.3	UBS CTA Tracker	As of	3/16/22
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Figure 12: US Pension rebalancing estimate

US Public Pensions							US Corporate Pensions						
Estimated AUM	\$ 6,004						\$ 4,034						
	US		US		US		US		US		US		
	Large	Small	DM	EM	Bonds	Oth	Large	Small	DM	EM	Bonds	Oth	
Target Weight	26.9%	3.4%	11.7%	6.4%	21.5%	30.0%	26.9%	3.4%	11.7%	6.4%	21.5%	30.0%	
Proxy Index	SPX	RTY	EFA	EEM	TLT/AGG		SPX	RTY	EFA	EEM	AGG		
MTD Total Ret	-0.3%	-0.8%	-1.1%	-3.8%	-3.6%		-0.3%	-0.8%	-1.1%	-3.8%	-2.3%		
QTD Total Ret	-8.3%	-9.4%	-7.9%	-8.0%	-7.7%		-8.3%	-9.4%	-7.9%	-8.0%	-5.3%		
Pre-rebal Mth Wgt	27.3%	3.4%	11.8%	6.3%	21.1%		27.2%	3.4%	11.8%	6.3%	21.3%		
Pre-rebal Qtr Wgt	26.9%	3.3%	11.8%	6.4%	21.6%		26.7%	3.3%	11.7%	6.4%	22.0%		
Rebal Mth \$	(6.1)	(0.5)	(1.3)	2.0	5.9		(3.0)	(0.2)	(0.4)	1.6	2.0		
Rebal Qtr \$	0.8	0.7	(0.3)	(0.1)	(1.1)		2.6	0.7	0.7	0.4	(4.4)		
Rebalancing Sbil	(5.2)	0.1	(1.6)	1.9	4.8		(0.4)	0.5	0.3	2.0	(2.5)		

(4.8) ←

Triggered Rebalancing

(2.3)

TOTAL

→ 2.5

GL Eq: 0.0

>> ME:

0.0 Wkly:

0.0

Figure 13: SPY Option Total OI



Figure 15: QQQ Option Total OI



Figure 17: IWM Option Total OI



Figure 19: US Equity ETF Rebalancing per 1% ETF move

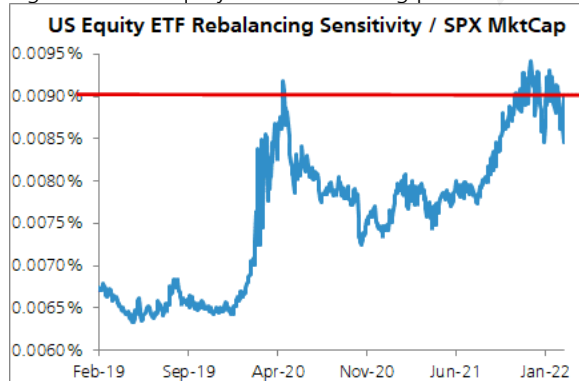


Figure 14: S&P 500 Top 10 Stock Option OI / Market Cap



Figure 16: Nasdaq 100 Top 10 Stock Option OI / Market Cap



Figure 18: Russell 2000 Top 30 Stock Option OI / Market Cap

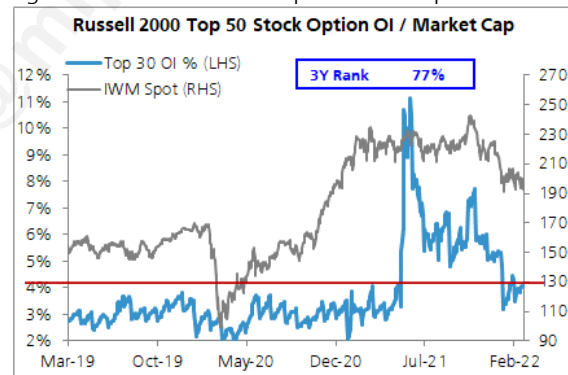


Figure 20: US Equity ETF Rebalancing Sensitivity / SPX Index

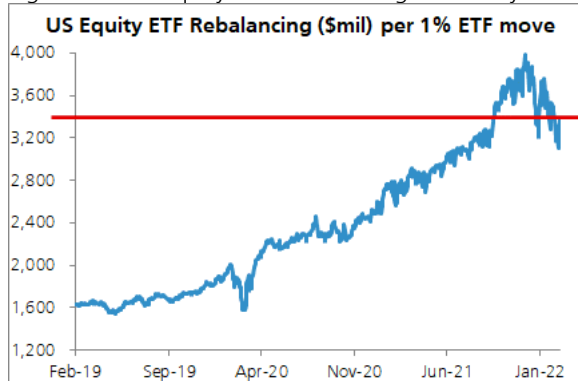


Figure 21: US Equity Excess Flow

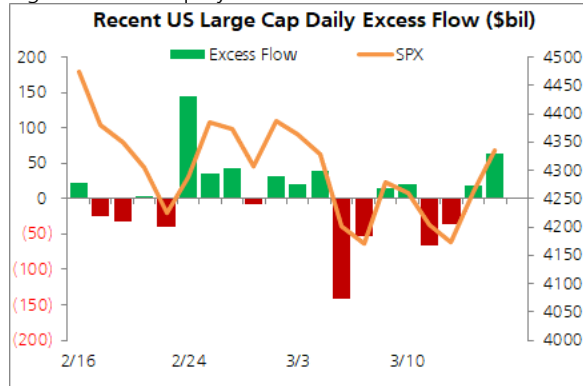


Figure 22: US Treasury Excess Flow

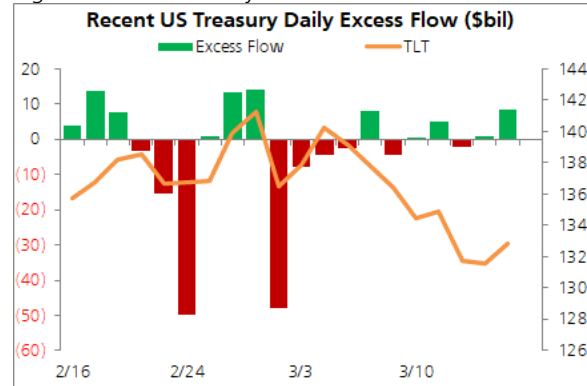


Figure 23: Money Market Funds AUM / SPX Market Cap

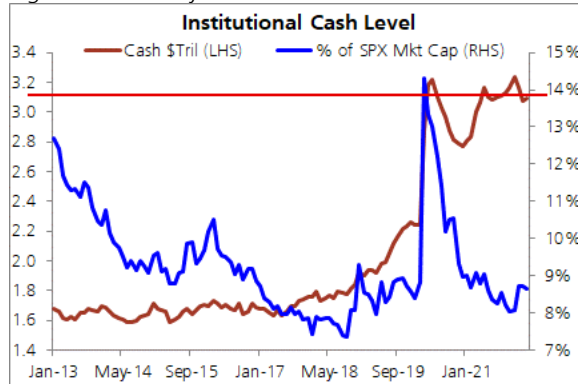


Figure 24: Retail Cash \$ trillion & % of SPX Mkt Cap

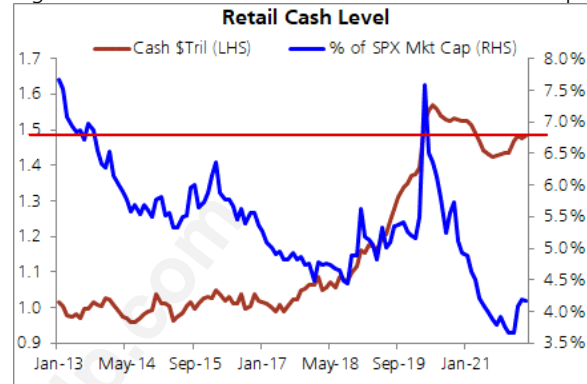


Figure 25: Margin % of S&P 500 Market Cap



Figure 26: Margin % of Cash vs SPX



Figure 27: UBS PB L/S Clients Gross vs Net Leverages

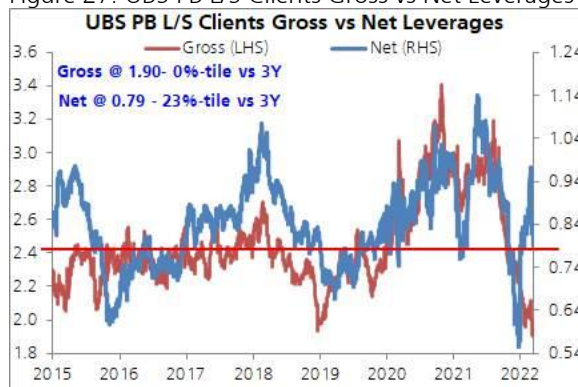


Figure 28: UBS PB L/S Clients Net Global Eq Exp Chg since Jan '20



Figure 29: S&P 500 Total Short Interest

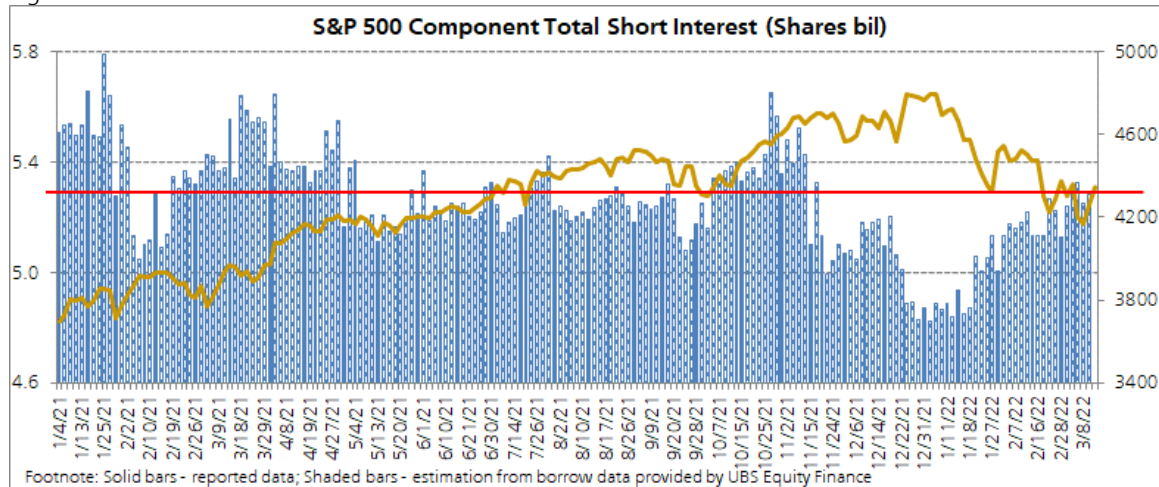


Figure 30: Russell 2000 Short Interest % of Market Cap

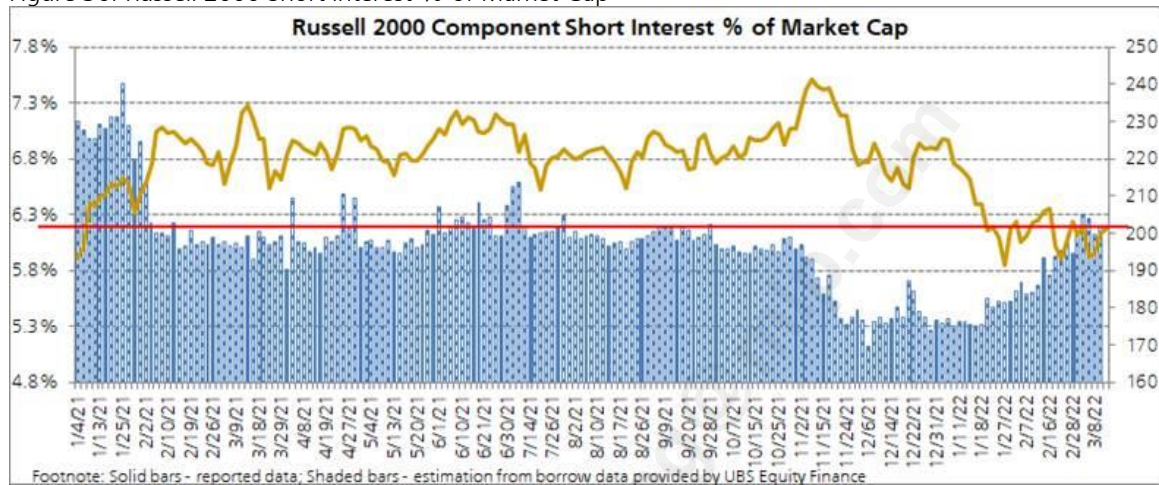


Figure 31: ETF Short Interest % of Shares



Figure 32: CFTC Leveraged Fund Exp in SPX Futures

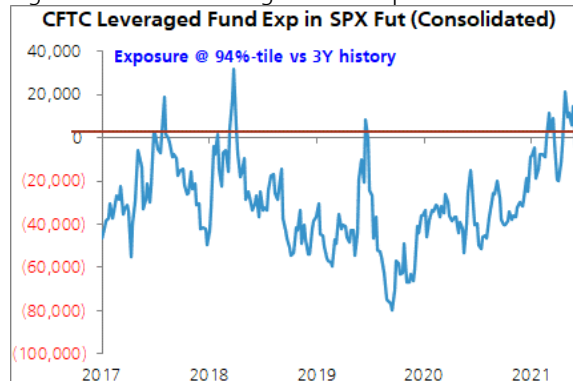


Figure 33: CFTC Leveraged Fund Exp in Nasdaq Futures

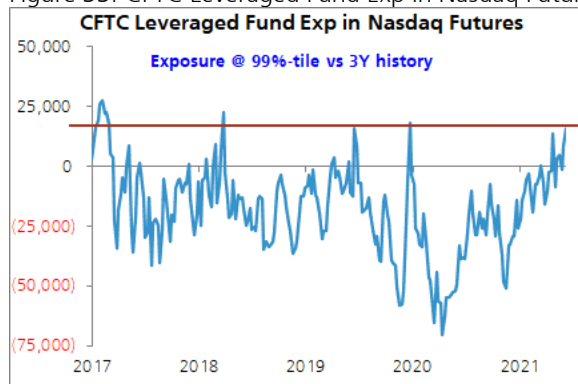


Figure 34: CFTC Leveraged Fund Exp in Russell 2000 Futures

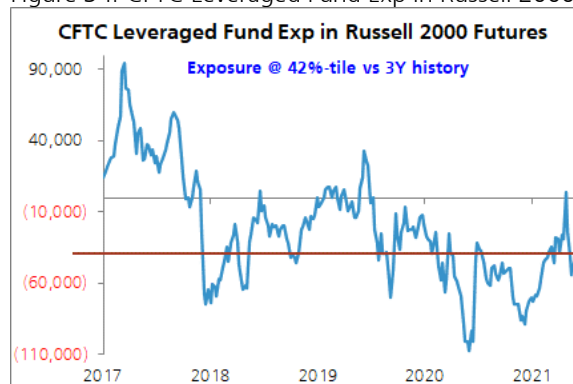


Figure 35: Top 50 Stocks 1M 110C Skew %

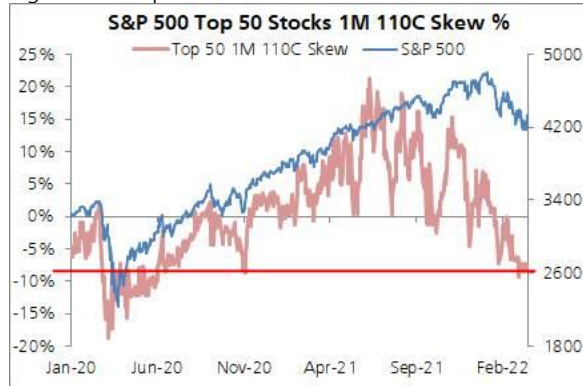
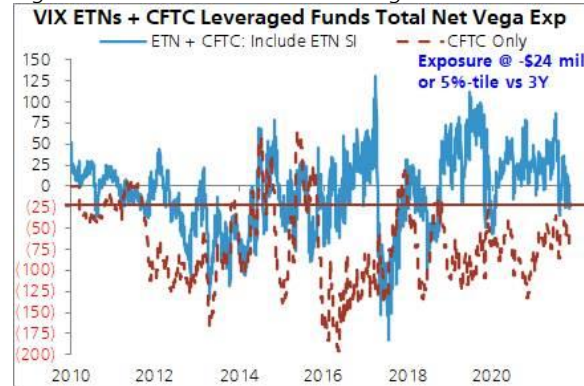


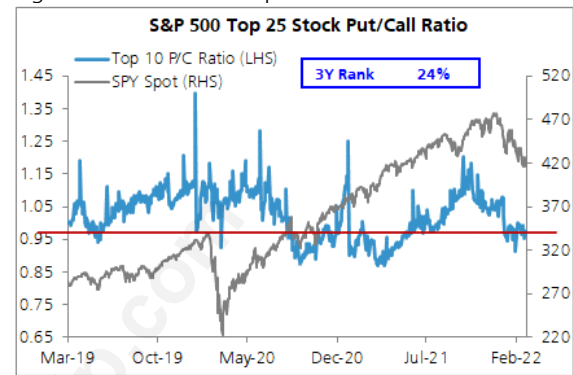
Figure 36: VIX ETNs + CFTC Leveraged Funds Total Net Vega Exp



Figures 37: SPY Put/Call Ratio



Figures 38: S&P 500 Top 10 Stock Put/Call Ratio



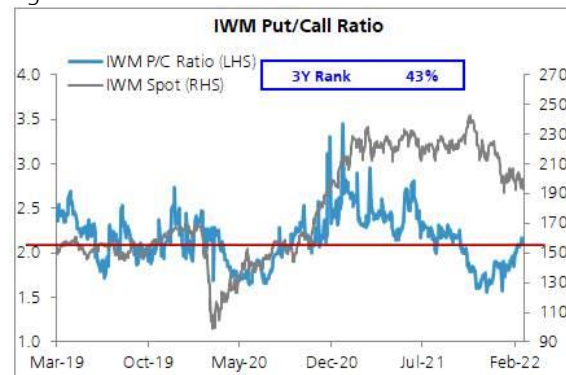
Figures 39: QQQ Put/Call Ratio



Figures 40: Nasdaq 100 Top 10 Stock Put/Call Ratio



Figures 41: IWM Put/Call Ratio



Figures 42: Russell 2000 Top 30 Stock Put/Call Ratio

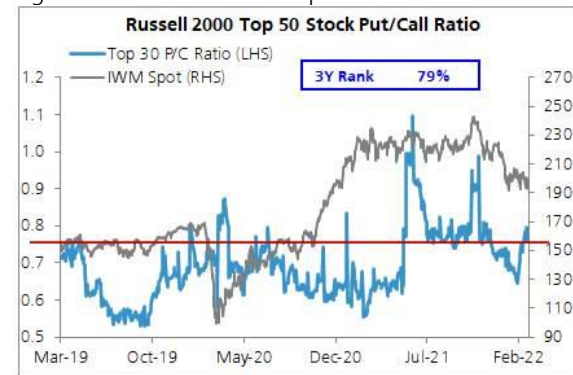


Figure 43: MF Flows in Global Equities

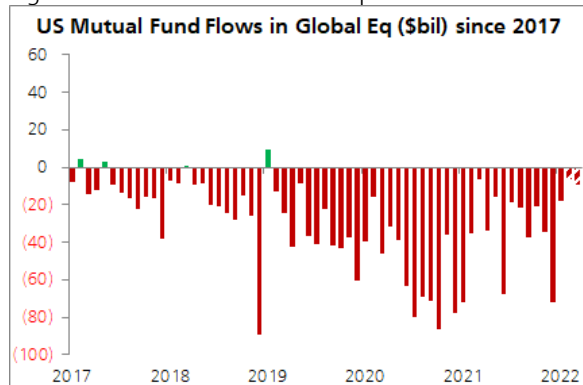


Figure 44: ETF Flows in Global Equities

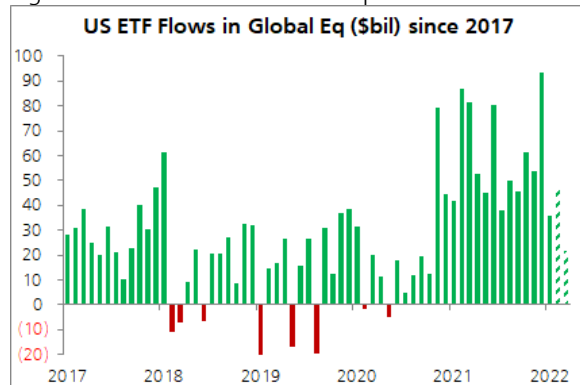


Figure 45: UBS RMM 3M Daily Equity Flow

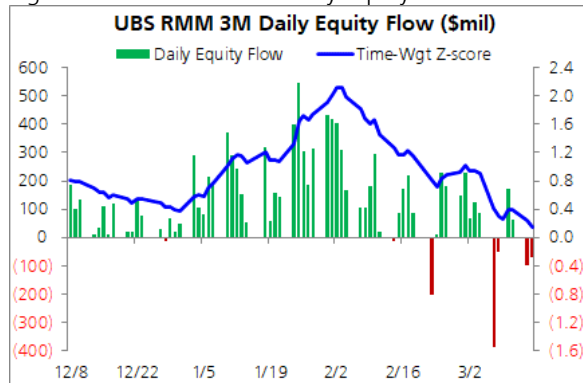


Figure 46: UBS RMM Exponentially Time-Wgt Equity Flow

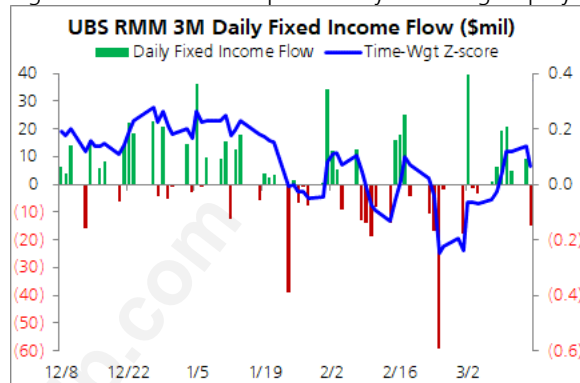


Figure 47: RMM 5D Cum Flow during intraday sell-offs

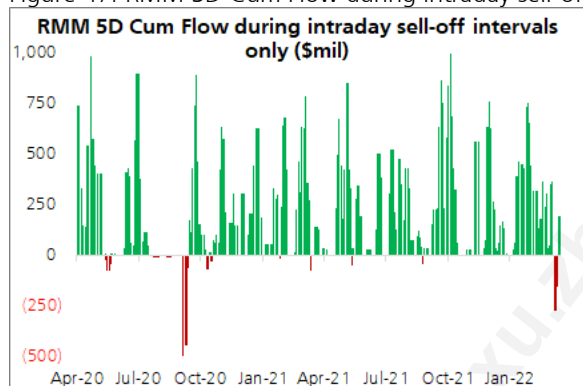


Figure 48: RMM 5D Cum Flow during intraday rally

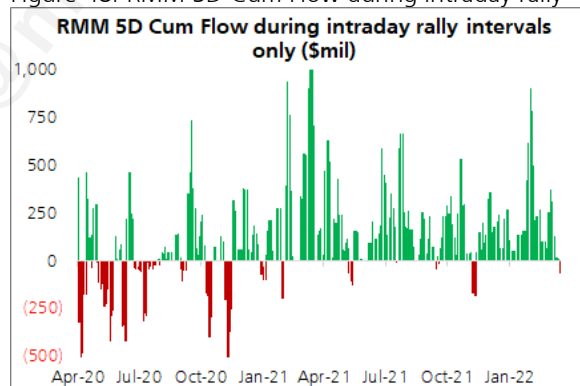


Figure 49: Foreign Listed US ETFs Flow

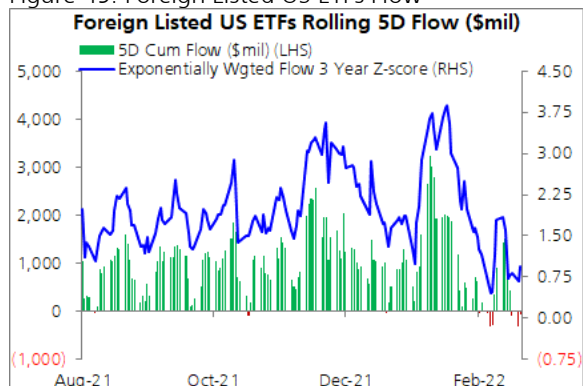
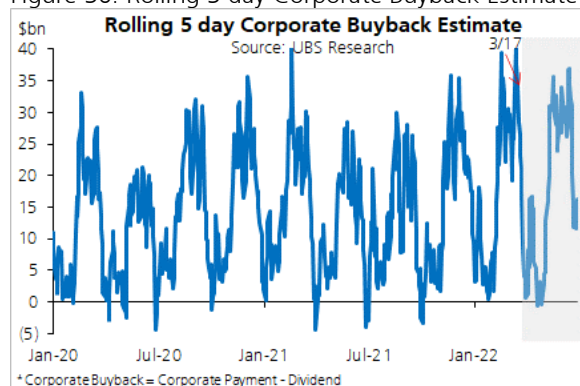


Figure 50: Rolling 5 day Corporate Buyback Estimate



Sources: UBS Equity Derivatives Strategy, UBS Research, UBS Global Financing Services, UBS RMM Services, ICI, CFTC, FINRA, SEC, Bloomberg

*Please contact Data Solutions at ol-global-data-solutions@ubs.com for the underlying data for US Retail Market Maker Flow and Global Financing Services.

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