Liquid Insight

High bar for near-term FX vol spikes

01 August 2023

Rates and Currencies Research
Global

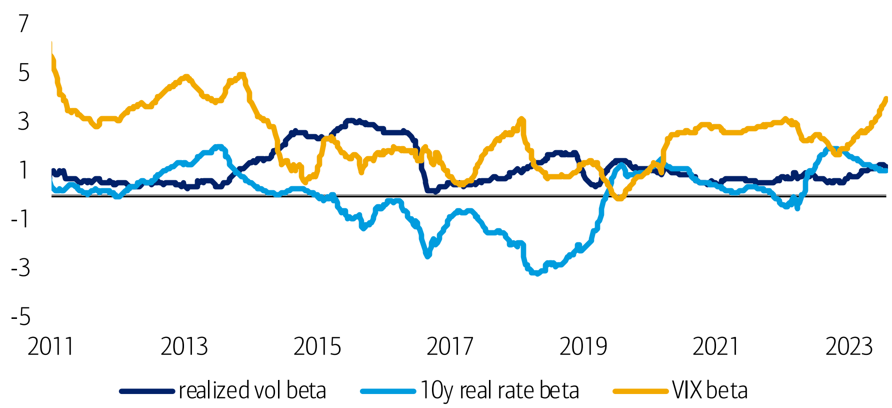
Key takeaways

- Decomposing FX implied vol index to its drivers suggest year-to-date decline is largely justified.
- Unless VIX suddenly spikes higher, we expect the low-vol regime to persist in the short-term for FX market.
- Compressed USD realized vol & bullish real rate view also bearish for FX implied vols; fade remaining premium for 1m USDJPY.

By Howard Du and Vadim Iaralov

Chart of the Day: FX vol's sensitivity to VIX index has been rising and to US real yield has been falling in 2023

FX implied vol sensitivity to realized FX vol, US real yield, and VIX index



Source: BofA Global Research, Bloomberg

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Subdued FX vol drivers = high bar for FX vol spike

Decomposing FX vol index to its main drivers of VIX, US real yield, and short-term realized vol suggests year-to-date FX vol rout has been in-line with fair value estimate and was largely due to the sharply falling VIX index. A spike in VIX would be needed for renewed surge in FX vol, in our view, but may not happen in the near-term. In addition, weak directional spot conviction from investors, data-dependent central banks, and range-bound US real yield further support the view that FX vol should be muted for the time being. Although it has unwound to an extent after last week's slew of central bank meetings, we find there is still close to 1 vol of excess premium for 1m USDJPY implied vol that investor could consider fading. Risk is a global systematic risk-off event leading to surge of FX volatility over the next month.

Global Rates & Currencies Research
MLI (UK)

Howard Du, CFA
G10 FX Strategist
BofAS
+1 646 855 6586
yuhao.du@bofa.com

Vadim Iaralov
FX Strategist
BofAS
+1 646 855 8732
vadim.iaralov@bofa.com

Adarsh Sinha
FX Strategist
Merrill Lynch (Hong Kong)
+852 3508 7155
adarsh.sinha@bofa.com

Janice Xue
Rates Strategist
Merrill Lynch (Hong Kong)
+852 3508 8587
janice.xue@bofa.com

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PCA: principal component analysis
YCC: yield-curve control

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Timestamp: 01 August 2023 12:30AM EDT

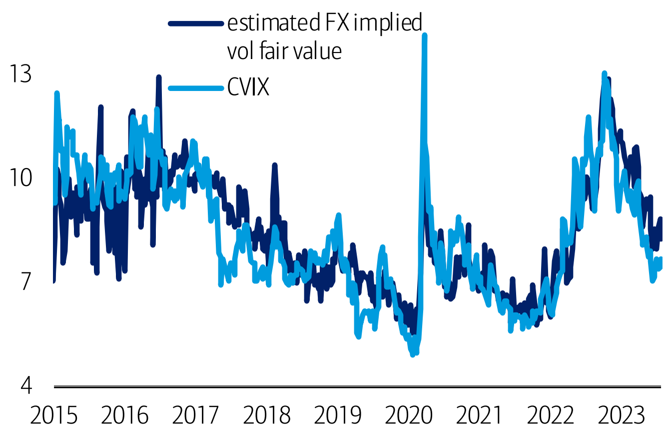
Decomposing FX implied vol to its drivers shows 2023 vol decline was justified

In contrast to the high-vol environment for the FX market in 2022, FX implied vols have been lackluster in 2023. Using the CVIX index as a proxy for FX implied vols, we decompose implied vols into 3 factors and discuss what it would take for the FX market to see another vol spike.

Specifically, we used the VIX index, 10y US real rate, and the average of 1-week EURUSD and USDJPY realized vols as explanatory variables to conduct a two-year rolling regression. We previously observed these factors were highly correlated with the top principal component vectors that explained variations for G10 FX implied vols (FX Viewpoint: 20 January 2022). To reduce the effect of heteroskedasticity, we used the logged values of the VIX index and realized vols in the regressions.

Exhibit 1 shows while actual FX implied vol index has declined sharply since October 2022, the regression estimated fair value has also been falling. Current level of FX implied vol is only 0.5 vols below the estimated fair value; this spread is smaller than the historical long-term average of 0.9 vols. This result suggests latest FX vol is not excessively cheap vs estimated fair value.

Exhibit 1: FX implied vol index is only slightly cheap vs fair value
CVIX index vs estimated FX implied vol fair value



Source: BofA Global Research, Bloomberg. We estimate FX vol fair value by running a 2y regression of CVIX index on logged VIX index, 10y US real rate, and logged average EURUSD and USDJPY 1-week realized vol. The rolling regressions have a long-term average R^2 of 58% over the past 10 years.

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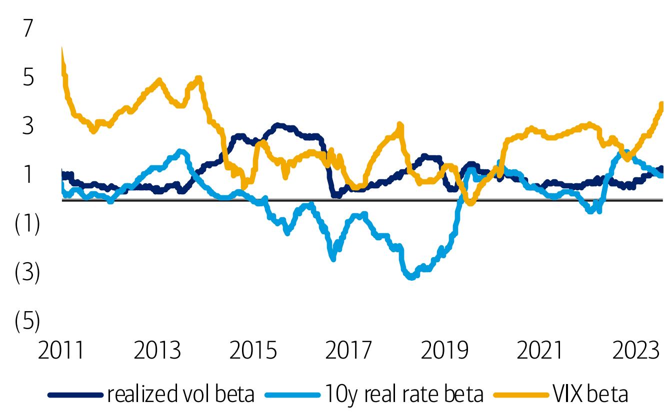
Exhibit 2: FX vol's sensitivity to VIX index has been rising and sensitivity to 10y US real rate has been falling
FX vol sensitivity to realized FX vol, 10y US real rate, and VIX index



Source: BofA Global Research, Bloomberg

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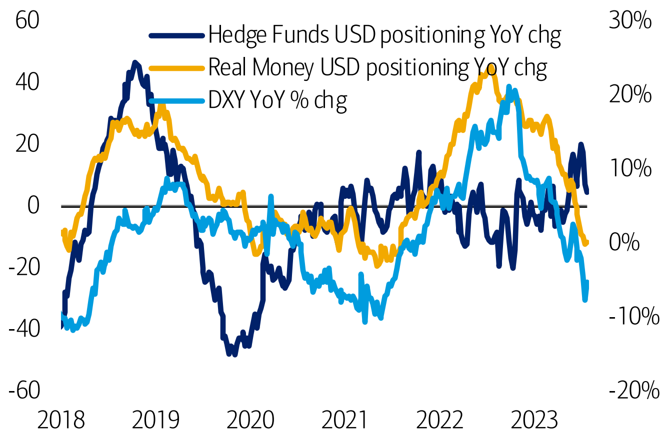
Spike in VIX needed for a material increase in FX vol

Looking at the rolling sensitivity of FX implied vol index to each of the three factors, Exhibit 2 shows the sensitivity to the VIX index has sharply risen in 2023. To the contrary, FX vol's sensitivity to US real rate has been falling since the USD had peaked in October 2022. This observation confirms our outlook that FX market is shifting away from a rates-driven regime in 2023 (FX Viewpoint: 11 April 2023).

But more importantly, the sharp decline in the VIX index is what led to lower FX vol this year, in our view. At the start of the year, the VIX index was still above 20. Over the past two month, the VIX index was largely trading around a 13-14-handle. A spike in the VIX index is likely needed in order for FX vol to rise. However, historical analysis shows when the VIX index had experienced a sharp decline like it did in the first half of 2023, the index had a bias to continue drifting lower for the next 3 months (average decline of 0.2, median decline of 0.6, hit ratio 58%, using weekly data since 1993).

While our equity derivatives strategists believe the VIX index is cheap to own at current level, they also expect the current favorable risk asset backdrop to stay in place for the near term and favor owning equity hedges at longer-dated tenors into 2024 (see Global Equity Volatility Insights: 11 July 2023 and Global Equity Volatility Insights: 25 July 2023).

Exhibit 3: Not all investors have chased the USD sell-off this year
DXY YoY % chg vs BofA Liquid Cross Border Flows positioning YoY chg



Source: BofA Global Research, BofA Securities.

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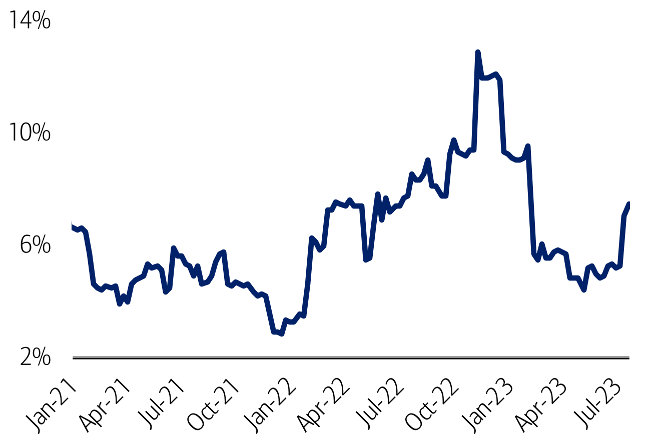
Exhibit 4: USD realized vol has been subdued for most of 2023 on lack of spot directional conviction from investors
3m realized vol for the DXY index



Source: BofA Global Research, Bloomberg

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Lack of supports for FX implied vols from realized vols

In addition to lack of signs for near-term VIX spikes, we also find lack of supports for implied vols from FX realized vols and US real rate. The USD sell-off in 2023 has been choppy due to the on-going tug-of-war between USD bears and bulls. Positioning data from our Liquid Cross Border Flows (Liquid Cross Border Flows: 24 July 2023) show Real Money investors have chased the USD sell-off in 2023, but Hedge Funds investors' current net long USD position is in fact higher than at start of the year (Exhibit 3). The lack of directional spot trend from the market led to a compression of realized vols for the USD this year (Exhibit 4). Latest FOMC and ECB meetings show just like most market participants, central bank officials are also in data-dependent mode. As a result, until a meaningful economic data surprise occurs, realized vol for FX would likely stay subdued, in our view.

Falling US real yield is bearish for FX vol

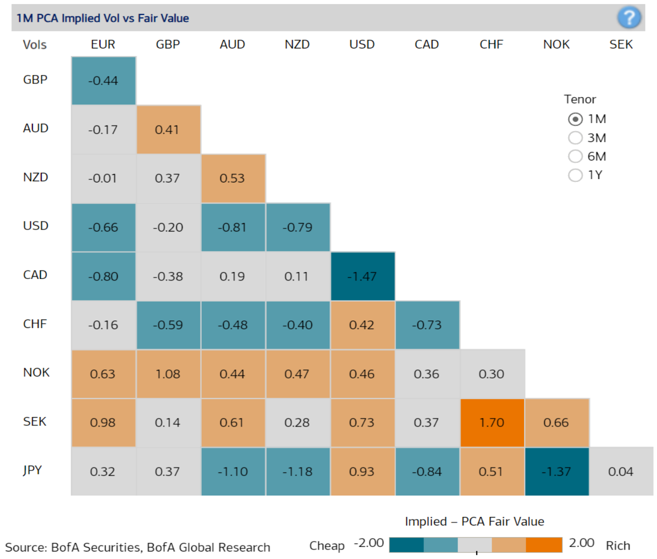
The 10y US real yield has a long-term correlation of 26% and a short-term correlation of 74% in the last two years with the CVIX index. Typically, an increase in US real yield would cause a tightening of global financial conditions, leading to more volatile markets, and vice versa. For rest of 2023, our rates strategists see 10y US real rate falling to 110 bps by end of the year (US Rates Viewpoint: 15 June 2023). Our moderately bullish view for US real rate would be another reason for FX vol to stay around current levels.

Fade the excess premium in short-dated USDJPY implied vols

After a slew of central bank meetings last week, our FX Vol Dashboard shows there is still excess premium priced into front-end USDJPY implied vols that investors should consider fading. Compared to the estimated fair value using a PCA framework, 1m USDJPY implied is still close to 1 vol rich while other 1m G10/JPY implied vols have fallen below their respective fair values after last week's BoJ meeting (Exhibit 5). Year-to-date in 2023, 1m ex-post USDJPY realized vol covering the same period as implied vol has also underperformed 88% of the time (Exhibit 6). We believe the YCC tweak announcement last week was not a game changer (Japan Rates and FX Watch: 31 July 2023), and USDJPY implied vol should further weaken given the favorable short-term low-vol macro backdrop for earning passive carry. The risk to our view is a global systematic risk-off event which could lead to higher demand for owning JPY volatility.

Exhibit 5: 1m USDJPY implied vol is still expensive vs PCA fair value while implied vols for cross-JPY pairs are cheap

G10 FX Vol PCA dashboard



1M PCA Implied Vol vs Fair Value

Vols	EUR	GBP	AUD	NZD	USD	CAD	CHF	NOK	SEK
GBP	-0.44								
AUD	-0.17	0.41							
NZD	-0.01	0.37	0.53						
USD	-0.66	-0.20	-0.81	-0.79					
CAD	-0.80	-0.38	0.19	0.11	-1.47				
CHF	-0.16	-0.59	-0.48	-0.40	0.42	-0.73			
NOK	0.63	1.08	0.44	0.47	0.46	0.36	0.30		
SEK	0.98	0.14	0.61	0.28	0.73	0.37	1.70	0.66	
JPY	0.32	0.37	-1.10	-1.18	0.93	-0.84	0.51	-1.37	0.04

Source: BofA Global Research. FX implied vols are expensive for pairs that are colored in darker orange; FX implied vols are cheap for pairs that are colored in darker teal. See [BofA FX Vol Dashboard] for more details.

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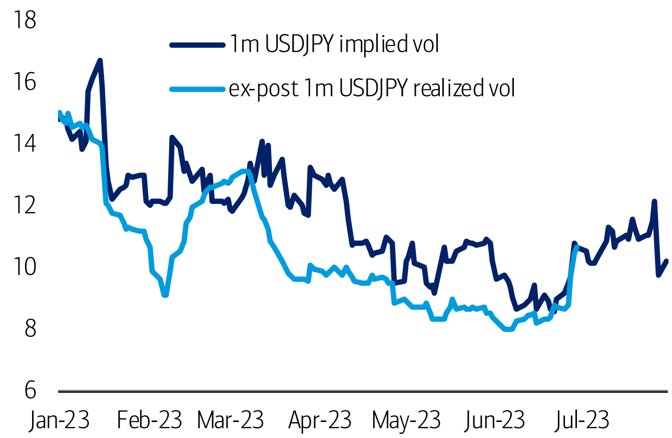
Exhibit 6: 1m USDJPY realized vol has largely been below implied vol covering the same time period 88% of the time in 2023

1m USDJPY implied vs ex-post realized vol



Source: BofA Global Research, Bloomberg

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Notable Rates and FX Research

- **Global Rates, FX & EM Year Ahead 2023 –** Year Ahead 2023: Pivot ≠ Peak, 20 Nov 2022

- Don't underestimate central bank commitment to 2% inflation **Global FX Weekly**, 28 July 2023

- Goldilocks and the 3 banks **Global Rates Weekly**, 28 July 2023

- Ahead of major central bank meetings, **Liquid Cross Border Flows**, 24 July 2023

Rates, FX & EM trades for 2023

For a complete list of our open trade recommendations, as well as our trade recommendations closed over the past 12 months, see the reports below:

Global FX Weekly: Don't underestimate central bank commitment to 2% inflation 28 July 2023

Global Rates Weekly: Goldilocks and the 3 banks 28 July 2023

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Research Analysts

US

Ralph Axel
Rates Strategist
BofAS
+1 646 855 6226
ralph.axel@bofa.com

Paul Ciana, CMT
Technical Strategist
BofAS
+1 646 855 6007
paul.ciana@bofa.com

John Shin
FX Strategist
BofAS
+1 646 855 9342
joong.s.shin@bofa.com

Vadim Iaralov
FX Strategist
BofAS
+1 646 855 8732
vadim.iaralov@bofa.com

Mark Cabana, CFA
Rates Strategist
BofAS
+1 646 855 9591
mark.cabana@bofa.com

Bruno Braizinha, CFA
Rates Strategist
BofAS
+1 646 855 8949
bruno.braizinha@bofa.com

Meghan Swiber, CFA
Rates Strategist
BofAS
+1 646 855 9877
meghan.swiber@bofa.com

Europe

Ralf Preusser, CFA
Rates Strategist
MLI (UK)
+44 20 7995 7331
ralf.preusser@bofa.com

Ruben Segura-Cayuela
Europe Economist
BofA Europe (Madrid)
+34 91 514 3053
ruben.segura-cayuela@bofa.com

Mark Capleton
Rates Strategist
MLI (UK)
+44 20 7995 6118
mark.capleton@bofa.com

Athanasios Vamvakidis
FX Strategist
MLI (UK)
+44 20 7995 0279
athanasios.vamvakidis@bofa.com

Sphia Salim
Rates Strategist
MLI (UK)
+44 20 7996 2227
sphia.salim@bofa.com

Kamal Sharma
FX Strategist
MLI (UK)
+44 20 7996 4855
ksharma32@bofa.com

Ronald Man
Rates Strategist
MLI (UK)
+44 20 7995 1143
ronald.man@bofa.com

Michalis Rousakis
FX Strategist
MLI (UK)
+44 20 7995 0336
michalis.rousakis@bofa.com

Pac Rim

Adarsh Sinha
FX Strategist
Merrill Lynch (Hong Kong)
+852 3508 7155
adarsh.sinha@bofa.com

Janice Xue
Rates Strategist
Merrill Lynch (Hong Kong)
+852 3508 8587
janice.xue@bofa.com

Shusuke Yamada, CFA
FX/Rates Strategist
BofAS Japan
+81 3 6225 8515
shusuke.yamada@bofa.com