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JPM FX - Derivatives Chartpack Notes

Middle East risk-premium RV: sell front-end Gold vol or ILS vol vs NOK vol | Introducing our LPPL Model to FX vols: sell an OTM 3M call in XAU and buy a 1Y OTM call

- Middle East risk-premium in Gold vol is significantly higher than in Oil sensitive FX vols such as NOK. This is in line with the findings by the Commodities Research team, who find that the geopolitical risk premium in delta-one gold is excessive and likely fleeting.
- Front-end Gold vol has a vol carry of around 3 vol pts despite the large moves in XAU recently. It is also flagging as a clear overbought in a Relative Strength Index indicator (RSI) framework.
- Similar arguments could be made of front-end ILS vols which have a wide vol carry and are also flagging as overbought on an RSI framework. Further, the EM strategy team is currently neutral on ILS.
- Front-end NOK vols on the other hand have a razor thin vol carry and are undervalued versus NOK back end vols.
- Given the high-sensitivity of NOK to Oil vol - which is likely to reprice higher in an escalation of the conflict - we propose an RV selling 3M XAU vol and buying 3M NOK vol, or alternatively 3M ILS vol vs NOK vol.
- We also apply our LPPL model to FX Vols and find that back-end XAU vols to be in anti-bubble territory so we propose an RV trade versus front-end vols which appear expensive as mentioned above.
- We also leverage on the forecast by the Commodities Research team in order to define the strikes of the trade. In those forecasts they see short term gold weakness combined with long term strength. Thus we propose to sell an OTM 3M call in XAU and buy a 1Y OTM call.

Global Quantitative and Derivatives Strategy

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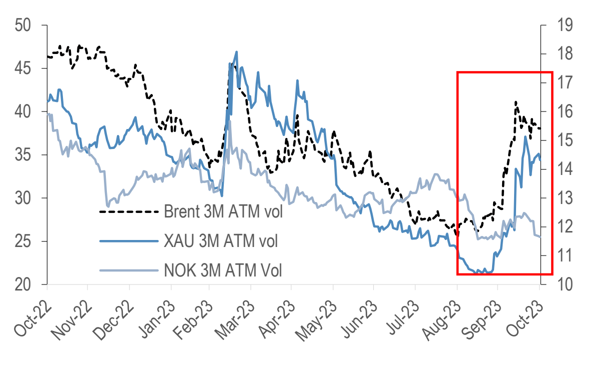
Figure 1: NOK vols have significantly underperformed XAU and Brent vols since Oct 7th



Source: J.P. Morgan.

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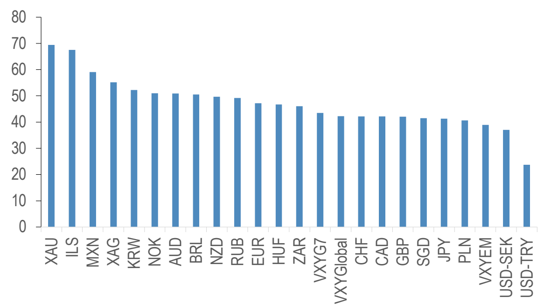
Middle East Risk Premium RV

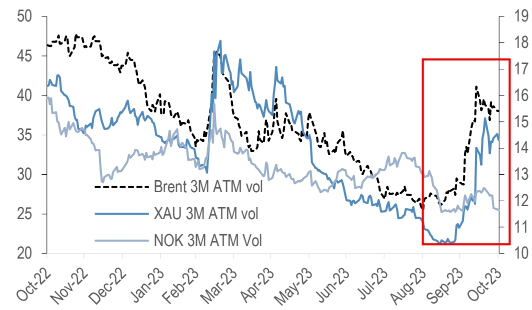
On October 12th, 5 days after the recent conflict in the Middle East erupted, we put out a note in which we argued for hedging via owning front end vols in NOK and AUD in case the conflict escalated and/or oil vol repriced higher even further. Since then, given that the conflict has not escalated enough to involve other major state actors, front-end Brent Oil vols have stayed sticky at around 36 vols, while front-end NOK and AUD vols have repriced lower. On the other side of the spectrum, front-end vols in XAU are almost +3 vols up during the same time period. Further taking a 1-month Relative Strength Index indicator we can see that XAU vol seems the most overbought vol at almost 70/100 (Figure 2 and Figure 3).

Figure 2: Relative Strength Index indicator for FX and commodities vols - 21 trading days



Source: J.P. Morgan.

Figure 3: NOK vols have significantly underperformed XAU and Brent vols since Oct 7th



Source: J.P. Morgan.

This divergence has been noted by the Commodities Strategy team, who mention that the gold price performance in the last month is outpacing FX and rates model-implied returns by more than $175/oz as the geopolitical risk premium in gold has continued to grow in the last week, in contrast to the erosion witnessed in oil prices. The Commodity analysts also note that "historically, the bulk of gold risk-premium gains in the run-up to Middle East escalation are rarely maintained and ultimately prove fleeting as more certainty around the situation eventually emerges". It is also possible that some of the excess vol premium embedded in XAU vol might be due to US rates vol risk, however given that the jump in XAU vols did not coincide with days with high realized US rates volatility, the excess is more likely the result of geopolitical risk.

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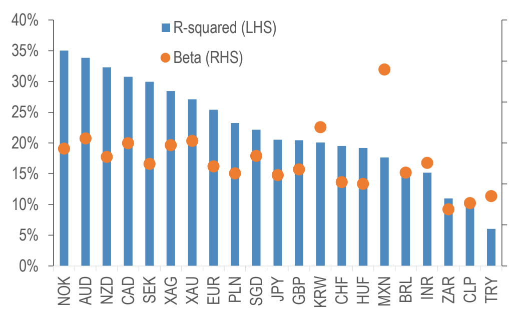
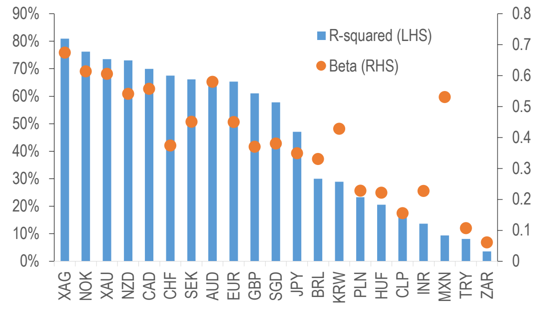
Figure 4: Sensitivity to Oil Vol (All time periods)



Source: J.P. Morgan.

Figure 5: Sensitivity to Oil Vol (Oil stress periods) - beta in the tails



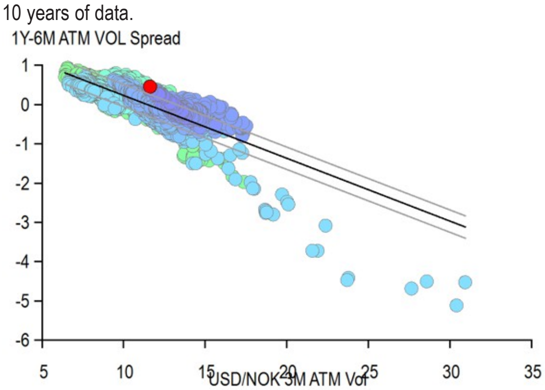
Source: J.P. Morgan.

The divergence between front-end Oil sensitive vols (such as NOK) and front-end Gold vol is even more remarkable given the extremely high sensitivity of Oil to conflicts in the region. Indeed, this was shown at the onset of the conflict, in which Oil vol repriced higher earlier than Gold vol did.

Looking to profit from the high risk premium divergence, we could pair in an RV format a highly-sensitive Oil Vol such as NOK with XAU. NOK vols are among (if not the most) sensitive vol to Oil vol in both stress periods and all time periods (Figure 4 and Figure 5). This was one of the main factors motivating its use as a hedge a few weeks back. The hedge was not "activated" as Oil Vol did not reprice materially higher over the period in question. However, in an RV format the front-end NOK vol could be used as a hedge in case the Oil Vol finally moves significantly up.

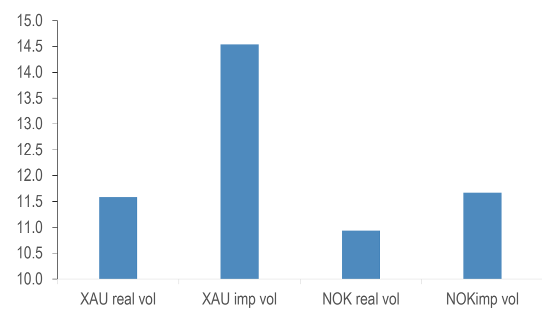
Figure 6: USD/NOK curve inverted further versus the level of the vol in our curve mean reversion model

Regression of the 1Y-6M ATM spread in USD/NOK on the 3m ATM Vol level. 10 years of data.



Source: J.P. Morgan.

Figure 7: Vol carry in XAU vol is significant at 3 vol points, while thin in USD/NOK ~ 0.7 vol pts



Source: J.P. Morgan.

Indeed using front-end NOK vols in the pairing also makes sense for another two reasons: 1) because in our mean reversion model the USD/NOK vol curve looks too steep (Figure 6) at around 0.6 vol points or 1.7 z-score for the standardized residual (the model trades when this value is above 1.5); and 2) because the vol carry is significantly higher in XAU (around 3 vols - despite the large moves in Gold recently) vs in NOK where the vol carry is razor thin at around 0.7 vols (Figure 7). This means that in the case that the situation does not escalate, the erosion of vol premium will likely be higher

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in XAU than in NOK. Finally, the RV could be done via ATM Straddles in the 3M Space. *Thus consider:*

- Buy NOK 3M ATM Straddle for 11.75 vol pts, Sell in XAU for 13.5 vol pts, Keep delta hedged.

Given that the front-end ILS vols are also in overbought territory (Figure 2), and that our EM strategists continue to recommend a neutral view on ILS and see limit upside potential for USDILS given the BoI's sizeable FX programme, we could also consider a similar structure but on ILS instead of XAU. Further the Vol carry in ILS is also a sizeable 2.7 vols. *Thus, consider:*

- Buy NOK 3M ATM Straddle for 11.75 vol pts, Sell in ILS for 11.2 vol pts, Keep delta hedged.

Introducing the LPPL Model to FX vols

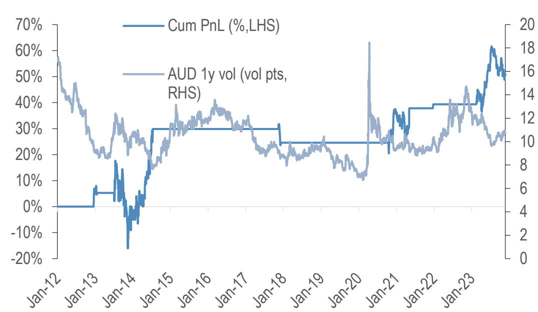
Last May we introduced a Cross Asset framework for trading Financial Bubbles and Anti-Bubbles. The framework used a Log Periodic Power Law Singularity (LPPLS) model with a momentum overlay for assessing whether or not an asset was in a bubble or anti-bubble and trading it accordingly. In this short section we apply the framework to FX vols and FX vols indices, taking the 1y ATM vols.

Figure 8: Current signals and Sharpe ratios for the LPPL model applied to 1y FX vols. 13 years of data

	Anti-Bubble (Max std 3m % signal)	Bubble (Max std 3m % signal)	Momentum (-1 sell, 1 buy)	Sharpe
AUD-USD	0%	0%	-1	1.0
EUR-USD	0%	28%	-1	0.5
GBP-USD	0%	0%	-1	0.0
NZD-USD	0%	0%	-1	1.0
USD-BRL	37%	0%	-1	0.9
USD-CAD	14%	0%	-1	0.0
USD-CHF	0%	0%	-1	-0.8
USD-HUF	0%	0%	-1	0.3
USD-ILS	0%	0%	1	0.5
USD-JPY	55%	0%	-1	-0.1
USD-KRW	0%	0%	-1	-0.5
USD-MXN	0%	20%	1	0.4
USD-NOK	0%	0%	-1	0.7
USD-PLN	0%	15%	-1	0.1
USD-SEK	0%	0%	-1	0.4
USD-SGD	36%	0%	-1	-0.9
USD-TRY	0%	0%	-1	0.3
USD-XAU	95%	0%	-1	-0.2
USD-ZAR	29%	0%	-1	-0.7
VXYEM	23%	0%	-1	0.8
VXYG7	20%	0%	-1	0.3
VXYGlobal	45%	0%	-1	0.3

Source: J.P. Morgan.

Figure 9: LPPL model back-tested on AUD 1y vols



Source: J.P. Morgan.

In Figure 8 we note a number of things, first the model produces positive Sharpe ratios for 68% of currencies and indices considered, and also produces and average Sharpe ratio of about 0.25 before costs. See for example the cumulative PnL time series of the strartegy in AUD (Figure 9). This assumes that the 1y vols or the indices in question are

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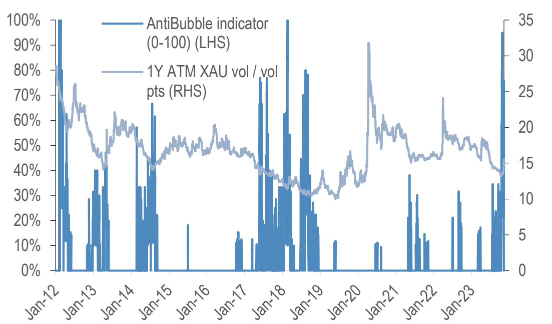
tradable quantities. Even though the results are not mind-blowing, the model seems to have some predictive ability, and will grant us another tool for assessing the value of FX vols.

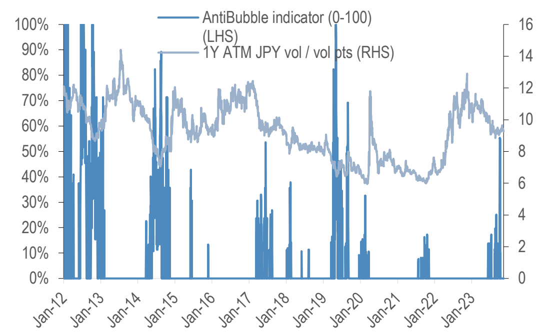
Secondly, over the last 3 months very few vols have flagged any sort of Bubble signal, with the highest signal at 28% - which is negligeable. Finally, there are more anti-bubble signals, which is in line with what we have been highlighting for the past few months i.e the orderly manner in which FX vols have behaved versus the vols in other asset classes, see here for instance. However, not all vols have anti-bubbles signals, with the only significant ones being XAU 1y vols (95%, Figure 10), JPY 1y vols (55%, Figure 11), and VXY-GL (45%). Out of those, the only one that is in tradable territory (above 80%) is XAU, and even in that case the momentum overlay is not in a "Buy" territory, hence the model would not currently buy the 1y XAU vol. See here for details of the methodology.

Figure 10: Gold back-end vols are signaling as a strong anti bubble



Source: J.P. Morgan.

Figure 11: JPY back-end vols are signaling as a mild anti bubble



Source: J.P. Morgan.

However, even though the trade is not fully activated in the model because the momentum overlay is not flagging as a "buy", we could still consider a trade in XAU 1y vols using the information above, particularly given that "inactivate" signals tend to get activated within a year's time according to our research. Tying this information with what we discussed in the previous section also makes sense , i.e. the high risk premium in front-end gold vol. Thus we could consider a calendar RV buying the front-end and selling the back end. We could also leverage on the forecast by the Commodities Research team in order to define the strikes of the trade. In those forecasts they see short-term bullion weakness combined with long term strength. *Thus consider:*

- Buy XAU/USD 1Y 2150 Call, Sell XAU/USD 2050 Call for 64 Pips. Keep live. Ref 1987.

- Buy XAU/USD 1Y 2150 AED Call, Sell XAU/USD 2050 AED Call for 1.5% USD. Ref 1987.

For context, while in the previous section we suggest a pure vol trade based on the wide geopolitical risk-premium embedded in front-end XAU vols, the trades in this section bet on the fact that back end XAU vols display an anti-bubble behavior and so proposes an RV format trade versus front-end vols with a directional bias.

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