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JPM FX - Derivatives Chartpack Notes

Total-return version of tactical filter allowing long Gamma trades

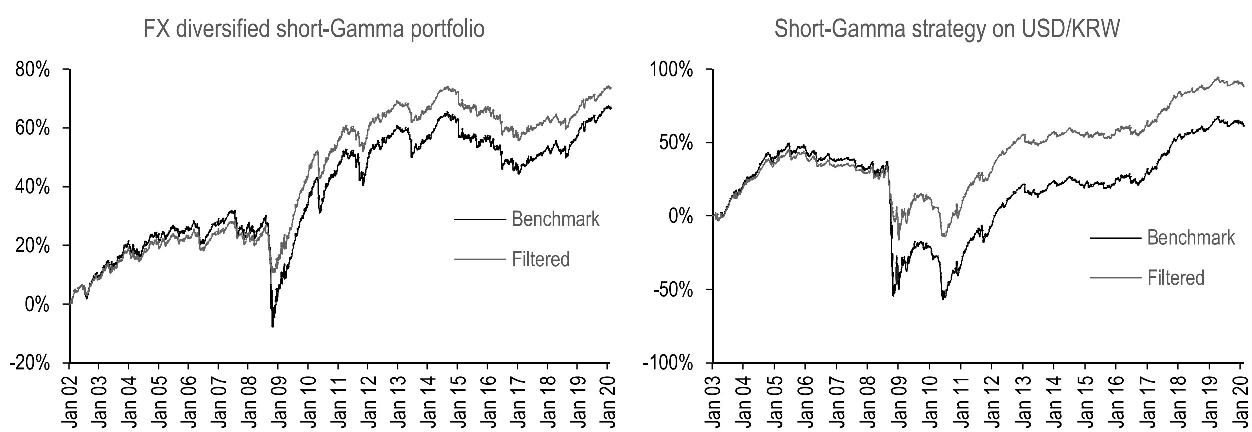
- We present a new version of a tactical Gamma-trading filter already introduced in a research piece last year. The new filter permits, for each currency pair, to shift from the short-Gamma, long risk-premium benchmark to long-Gamma positions when certain conditions are met. The latest version of the filter improves long-term performance measures when tested on a broad spectrum of G10 and EM USD-pairs.

- The impact on the FX market of the latest Covid-19 induced spike of risk-aversion that has rattled global markets has been modest so far. Even the latest version of the filter points to caution but does not recommend outright Gamma ownership when averaging over liquid USD pairs.

As we have witnessed numerous times over the past couple of years, this week FX reaction continues to be fairly muted relative to the reaction in equity markets. The impact from the latest spike in Covid-19 induced risk-aversion that has scared Equity markets early this week has been modest so far in the FX markets. JPM VXY G7 and EM indices repriced by around 0.7-0.8 vols only. With the exception of a few G10 high-beta and EM currencies, FX spot moves have been contained.

Short volatility strategies in FX have delivered a solid performance over the past three years (Exhibit 1), on the back of major central banks keeping a dovish stance and limiting a repricing of rates differential volatilities (see for instance *Assessing the impact of rates correlations on FX vols*, Ravagli, Jankovic, June 2019). In a paper published last year (*Timing FX short-vol strategies – a systematic approach*, Ravagli, Duran-Vara, March 2019), we have introduced a tactical filter which sets the allocation to short-Gamma trades, based on the interplay between a set of global and local (i.e., set by each vol surface) indicators. Having in mind a benchmark for long-term positive performance (short-Gamma is naturally associated with a volatility risk premium), the model could scale down short-Gamma sensitivity (up to 100% of the risk), without allowing to buying Gamma even during the most adverse market conditions. In other words, in its original setup, performance of the filtering model could be assessed in an excess-return comparison vs. the benchmark strategy. Last year, with the FX-diversified short-Gamma strategy delivering around +11.9% of performance (under the given risk-management assumptions, or around 12 vols in Vega-terms), the filtered strategy tracked closely the benchmark (+10.2%), while simultaneously cutting PnL drawdown episodes throughout the year (Exhibit 1, for diversified portfolio and USD/KRW).

Exhibit 1. FX short-Gamma portfolio did very well over the past three years. Case study on USD/KRW.
y-axes in the charts stand for cumulative returns having imposed suitable risk-controls for each trade at inception (see previous research piece)



Source: J.P.Morgan

The current ultra-depressed FX vol levels pose several headaches to outright vol buyers and sellers. For the former, time decay is a concern regardless of the vol levels, while for the latter, expected distribution of future PnL does not look particularly favorable (unless we believe that future plateau for FX realized vols could stabilize around 2~3%

levels or so). Also, average FX vol levels might be undervalued by up to 3 vol points when looking at different cyclical macro drivers (*Cheap won't get cheaper (probably)*, Sandilya et al, 26 November).

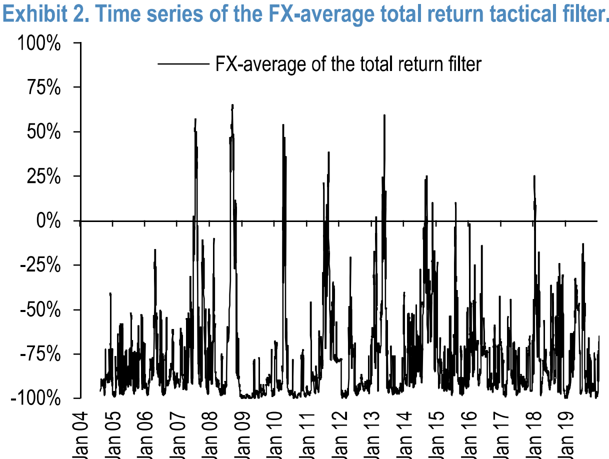
While the ongoing apparent calm in the FX space could favor keeping a short-Gamma bias as long as market conditions do not indicate a structural change of regime, considerations above and current pricing vs. historical average would naturally open the way for a more opportunistic trading approach which allows buying Gamma as certain conditions are triggered. Also, a model capable of taking the opposite position than the benchmark risk premium strategy would be naturally more appealing for total return players whose goal is that of minimizing directional exposure and to deliver returns under different market conditions.

The version of the tactical filters as presented in the earlier piece relied on an "asymmetric" assessment of risk, i.e. warning signals are thrown only when variables exceeds a given threshold move in the risk-off direction, but risk is not similarly added when variables move in the other direction. In other words, the current set up comes in handy for scaling down risk vs. a well-determined benchmark, but does not allow for going against the benchmark position. We now consider a slight modification of the rules above that permit overcoming the hurdle above. If one consider the rule:

$$Filter_{TR} = 1 - 2 * Filter_{ER}$$

where TR and ER stand for total and excess return, respectively, we can see that the rule allows for the total return to go outright long vol when the excess return filter introduced earlier drops below 50% of short-Gamma allocation (positive values of TR Filter indicate recommended long Gamma positions, and other way around). We now present an overview of the results that we obtain, on a set of G10 and EM USD-pairs, with this new version of the filter. The time series of the FX-average total return filter is displayed below (Exhibit 2, LHS): the bias in terms of favoring short-Gamma trades is evident, even when looking at the "new" version of the filter; however on a number of occasions, the model has recommended an overall FX long-Gamma signal.

Exhibit 2. Time series of the FX-average total return tactical filter. Performance measures at portfolio level support the total return version.



Strategy	Benchmark	Excess return	Total return
Mean Ret	2.70%	3.18%	3.39%
Mean Vol	7.15%	5.29%	4.77%
Risk Adj Ret	0.38	0.60	0.71
Skewness Ret	-4.19	-3.41	-2.34
Kurtosis Ret	43.97	28.66	31.32
Max DD	-37.88%	-18.43%	-16.21%
Max DD/Vol	-5.30	-3.48	-3.40

Source: J.P.Morgan

When applied at the portfolio level (i.e., across the 18 USD pairs considered), we can see that the more aggressive version of the filter (quicker to scale down and potentially to enter long Gamma trades) delivers better results in the long run. Average return / Sharpe ratios are higher, vol and max drawdown lower. Skewness associated with the strategy is reduced, too.

Exhibit 3. Sharpe ratios for different currencies based on different filtering schemes, G10 and EM USD-pairs.

FX pair	Benchmark	Excess return	Total return
AUD-USD	-0.18	0.03	0.33
EUR-USD	0.80	0.82	0.74
GBP-USD	-0.06	0.00	0.09
NZD-USD	-0.25	-0.10	0.11
USD-CAD	0.03	0.15	0.28
USD-CHF	-0.14	-0.12	-0.08
USD-JPY	0.39	0.45	0.43
USD-NOK	-0.15	-0.09	-0.02
USD-SEK	-0.01	0.06	0.13

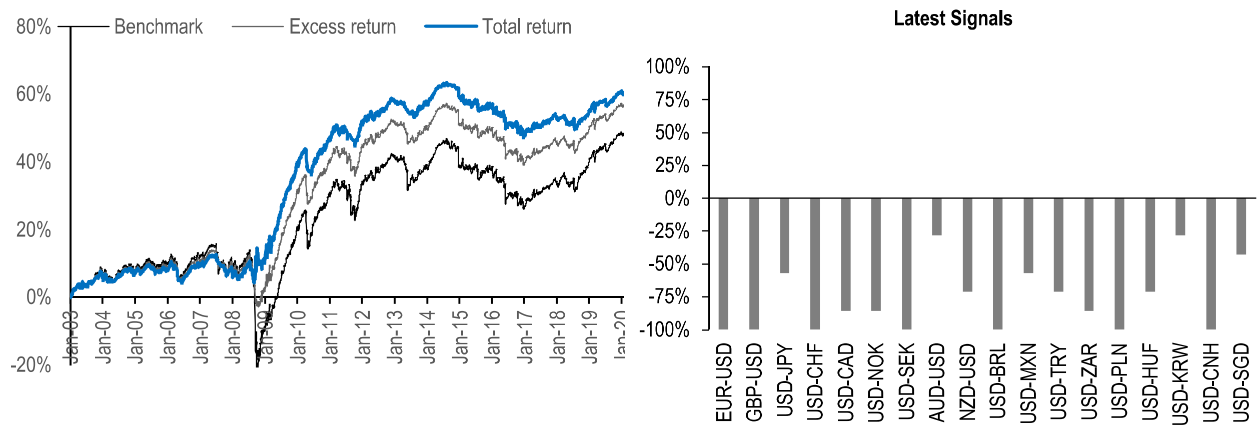
FX pair	Benchmark	Excess return	Total return
USD-BRL	0.85	1.02	0.99
USD-CNH	0.44	0.51	0.51
USD-HUF	-0.21	-0.14	-0.06
USD-KRW	0.24	0.55	0.55
USD-MXN	0.81	1.21	0.89
USD-PLN	0.13	0.27	0.40
USD-SGD	0.42	0.58	0.63
USD-TRY	0.79	0.89	0.91
USD-ZAR	0.27	0.33	0.35

Source: J.P.Morgan

At the single-currency level, for simplicity we just focus on Sharpe ratios (Exhibit 3). Added value of the total return version (vs. the excess return one) of the filter is evident in all currencies except EURUSD, USD/JPY, USD/BRL and USD/MXN.

The time series of the FX-average PnL generated by the strategy (Exhibit 4, LHS) shows that the new version of the filter outperforms the excess return strategy during vol spikes, e.g. of the type exhibited in September 08, and then again during the European crisis (2010-2013). It underperforms the short-Gamma-only version of the strategy during periods when the short always benchmark performs very well, i.e. such as over the past three years.

Exhibit 4. Total return implementation of the filter allowing long-Gamma trades offers value during rising vol environments.



Source: J.P.Morgan

Investors whose portfolios remain tilted towards the risk-on side might be looking for FX-based solutions for hedging their exposure. At the time of writing, the total return version of the filters does not currently point to the value of owning Gamma on the USD-pairs overviewed (Exhibit 4, RHS), as the recent broad-based spike in FX vols on the back of the Covid-19 developments remains relatively contained if measured in absolute terms (as commented, less than 1 vols on average). The three cases where the model scales down most aggressively allocations to short-Gamma are AUD/USD, USD/KRW and USD/SGD. While in a systematic implementation it makes sense to consider Vega weights that change over time based on the value of the filters, for highlighting discretionary trades to be included in a trade portfolio it is natural to loosen up the rules above and consider the three cases above as starting points for finding value in long Gamma ventures. Also, while in the systematic set-up, benchmark short-Gamma is via 1M 25delta strangles, when considering long Gamma trades, straddles typically offer better value given the well-known vol-of-vol risk premium impacting OTM options. Out of the two cases above, we see better value in SGD and KRW than AUD, on the back of compressed risk premia in the former (see for instance *FX Derivatives Analytics Chartpack*, Sandilya, 25 Feb), and on the reduced beta or risk-sensitivity of the latter.

Consider:

- *Long 1M USD/KRW delta-hedged straddle @8.1/8.5 indic*
- *Long 1M USD/SGD delta-hedged straddle @3.8/4.2 indic*

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