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Maybank

FX Insight

What Makes FX Skip a Heart Beat

A Quantitative Analysis of Key FX Drivers in a Changing Environment

2019 sees a shift in global monetary policy condition when Fed signaled a pause in its rate tightening path. The environment also changes geopolitically - a better US-China relationship seems to be priced over the past several weeks. With this shift in global monetary conditions and geopolitical dynamics, we want to re-establish key cyclical drivers of the currencies that we focus on. We estimate our model using daily data since 2009 via a panel data regressing using the Pooled Mean Group Estimation (fixed effects). We used daily data of bilateral USD exchange rate vs. selected Developed Market (DM) FX including EUR, GBP, JPY, AUD and NZD and selected Asian FX including CNH, KRW, SGD, MYR, IDR, THB, PHP over the period of Jan-2009 to Feb-2019, in order to find the impact of what makes these currencies pulse and what makes them skip a heartbeat.

Rate Differentials Matter for FX

Rate differential (RD) drives FX the most amongst the list of selected financial variables in our model. Our study shows a 100bps increase in 2Y rate differential in favor of US appreciates the USD by 1.8% vs. non-USD FX on average. In particular DM FX is more sensitive than Asian FX to changes in RD. A 100bps increase in RD appreciates USD by 4% vs DM FX as compared to 0.3% vs Asian FX. This could be attributed to monetary policy divergence in the DM space in favor of the US and USD becoming a higher yielder in the DM space. The same however cannot be entirely applied to Asian FX as selected Asian FX such as IDR, PHP and MYR still retain a carry advantage over USD. Elsewhere our study also shows that sovereign risk premium has a negative correlation with EUR while terms of trade tend to impact Asian FX such as KRW, THB, GBP and CNH.

Favor Long IDR, THB, SGD vs Short KRW; Short USDJPY

While RD could still rise in favor of US in the short term, we see limited room for further increase given that Fed has signaled a pause in tightening and is probably near the end of its cycle. And even if Fed tightens, we see relative resilience for IDR, THB and SGD given relative policy space for their central banks to maneuver. We favor long bias in the IDR, THB and SGD vs. short KRW. Global growth downgrades and corresponding dovish policy responses from central banks could work both ways. Sentiment could be dampened if growth does not see a pickup and this could be bearish for equity markets. We favor buying call option on USDKRW at a fraction of the cost to proxy this view and an outright short in USDJPY. While EUR risks are skewed to the downside, we remain constructive and expect strength to pick up in later part of the year. We express our idea of buy EUR-on-dips via an FX accumulator.

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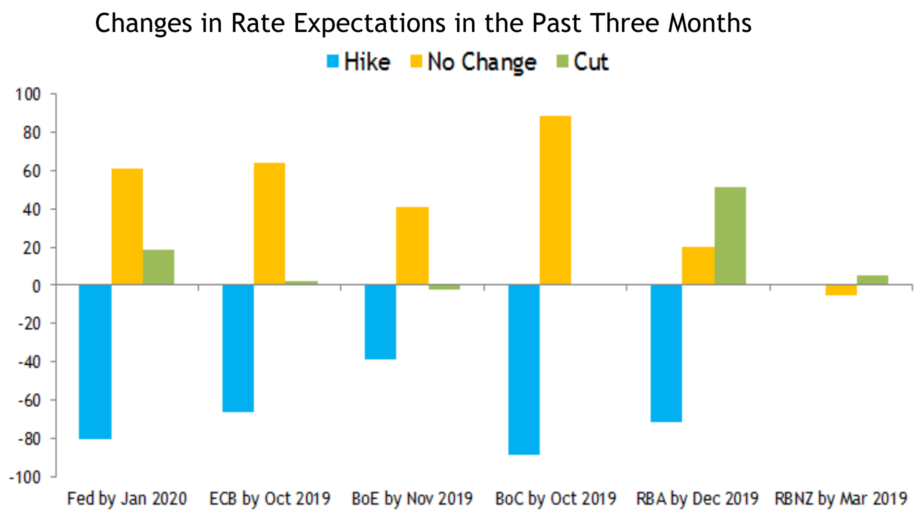
Shifting Market Environment

We had called for more strength for Asian currencies and looked for an environment that is more constructive for regional currencies in 2019 compared to 2018 here. We were not disappointed. Around the turn of the year, financial conditions started to ease as the US Federal Reserve started to deliver a message of patience with regards to rate tightening. Monetary policy environment also shifted from one which sees other central banks react to rate hikes by the Fed to one that sees selected economies already undertaking outright easing or at least signaling more room for monetary policy easing.

The few central banks that eased this year so far include China's PBoC, India's RBI and more recently, Malaysia's BNM sounded "more dovish than expected" in its Mar policy statement. Central banks in the developed world are also perceived to be less hawkish. In chart 1, we see that the expectations for a rate hike by the Fed, ECB, BoE, BoC and RBA within the year (as estimated by the OIS) have fallen significantly and rate cut expectations of the Fed, RBA and RBNZ within 2019 rose in varying degrees. The bar charts below compare the change in market expectations from 31 Oct 2018 and 12 Feb 2019.

Chart 1: DM Central Banks Are Not As Hawkish As Before



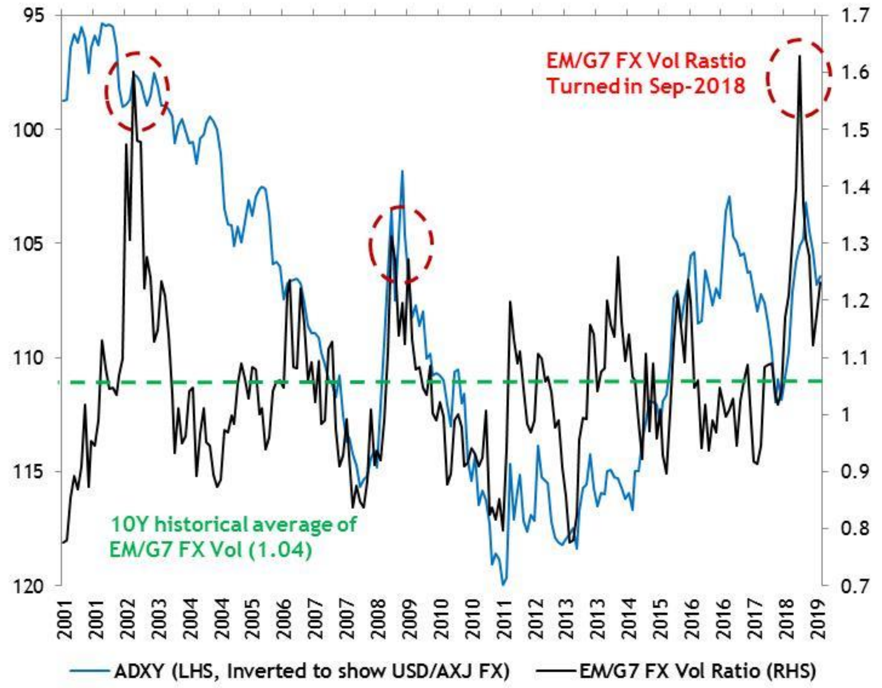
Source: Bloomberg, Maybank FX Research & Strategy

Note: The above probabilities are sourced from Bloomberg (World Interest Rate Probability) that are OIS implied. The bars show the change in the probabilities of a rate hike, no change, rate cut at a future dated policy meeting based from 31 Oct 2018 to 12 Feb 2019 (with the exception of BoE as the earliest data available is on 16 Nov 2018). For example: implied probability of a rate hike by the Fed by Jan 2020 meeting has fallen by 80% between 31 Oct 2018 and 12 Feb 2019.

Other key drivers of FX last year were geopolitical tensions and concerns on protectionism policies. Those had an impact on commodity prices and risk sentiment. The US-China trade war was a key event that set off ripples in the FX space. As a result, the USD, in particular, strengthened broadly against most FX (except for JPY) in 2018 given its divergent growth from the rest of the world that triggered flight to quality towards the greenback. 2019 saw more optimism in a basic/partial trade deal or (at least a better relationship) between the US and China without the pressure of the US mid-term election (that was held last Nov). Issues on technology, intellectual property protection as well as fair market access could continue in the back drop but better US-China relation is somewhat being priced in the past several weeks.

Our Call for Asian FX to Shine Since Sep-2018

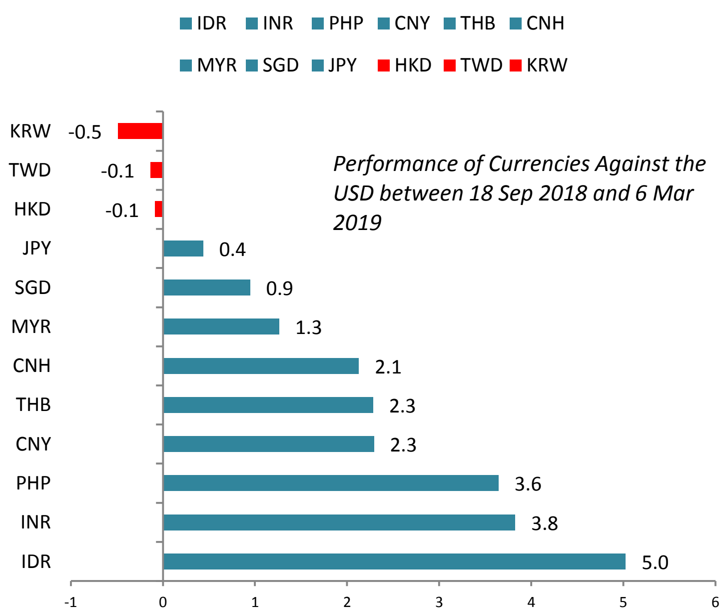
Chart 2: Recovery in AXJ since Sep 2018 following the snapback in EM/G7 FX Vol Ratio



Source: Bloomberg, Maybank FX Research & Strategy

We had first called for a reversal in Asian FX weakness last Sep 2018 in our FX Insight – Differentiated FX Play in Choppy Times. We highlighted that credible policy responses from various EM policymakers and central banks had helped to stabilize sentiment, ease FX volatility and ease depreciation pressure off AXJs. We had looked for EM/G7 FX vol ratio to fall and AXJ FX to recover as inflexion points at extreme levels above historical average for EM/G7 FX ratio tend to see a sharp snapback in USD/AXJ. Since then (18 Sep 2018- date of our report), most Asian currencies have strengthened considerably.

Chart 3: Most Asian FX Has Been Strengthening Since Sep-2018



Source: Bloomberg, Maybank FX Research & Strategy

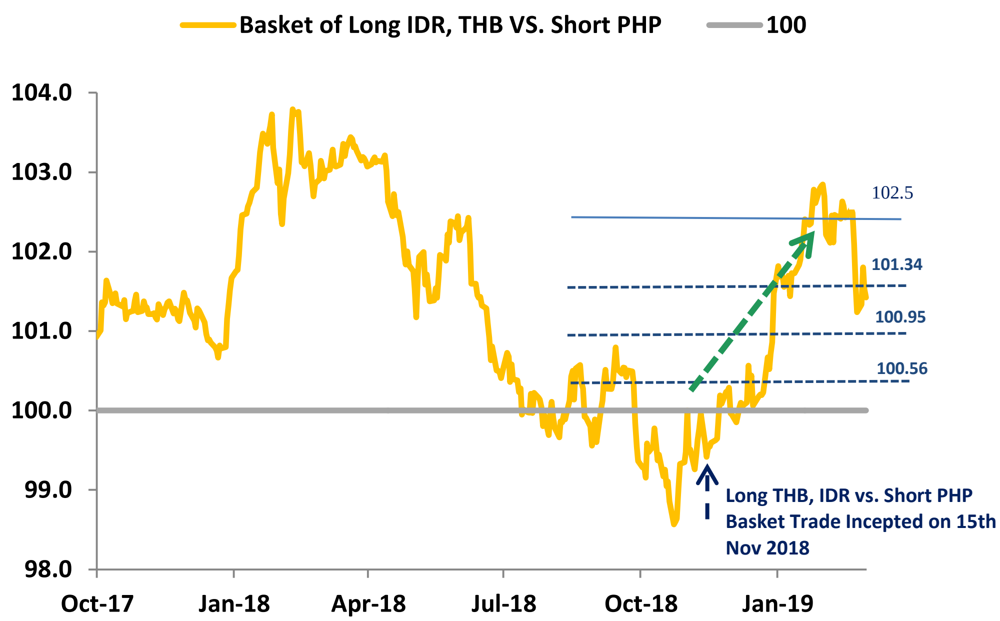
Taking Stock of our Long THB, IDR vs. Short PHP Trade

In a separate report ASEAN Neutral rates: Ammunition Unraveled (sent 16 Nov 2018), we shared our differentiated bias for long IDR and THB vs. short PHP expressed as a basket trade on the back of differential in the ability of central backs to tighten monetary policy.

At date of trade inception (15th Nov), the basket was trading at 99.5. We were targeting a rather conservative move towards 101.34 intermediate objective before 102.50 ultimate objective, with a stop-loss placed at 98.6 levels (1:2 risk reward ratio).

The basket trade has exceeded our objectives to trade at a high of 102.80 (4th Feb 2019), returning a maximum profit of +3.3%.

Chart 4: Basket Trade of Long THB, IDR vs. Short PHP Gained >3%



Source: Bloomberg, Maybank FX Research & Strategy

A Quantitative Analysis of Key FX Drivers in A Changing Environment

With this shift in global monetary conditions and geopolitical dynamics, we want to investigate, check and re-establish key cyclical drivers of the currencies that we focus on. While fair values of exchange rates are usually established and derived from quarterly fundamental data, we want to estimate a model using financial indicators that is more sensitive and reactive to real time information.

Constructing the Model to Find the Impact of Various Drivers

To get a general sense of the magnitude and the direction of the impact of various drivers, we run a panel regression using daily data of bilateral USD exchange rate vs. selected Developed Market (DM) FX including EUR, GBP, JPY, AUD and NZD and selected Asian FX including CNH, KRW, SGD, MYR, IDR, THB, PHP over the period of Jan-2009 to Feb-2019.

For each currency pair, we include rate differentials (both 2-year and 10-year), terms of trade ratios, VIX as a measure of risk appetite, brent as a broad measure of energy prices, individual equity index of the respective country as a measure of wealth effect and sovereign risk premium (using 5 year CDS spreads for most FX except UK and EU in which we used 5Y Gilts-to-Bund and GDP-weighted 5Y bond yield spread of French, Italy, Spain and Portugal to German Bund).

These financial indicators allow us to have a gauge of the broad cyclical conditions without compromising on the frequency of the data. We estimated this model using daily data since 2009 via a panel data regression using the Pooled Mean Group Estimation (using fixed effects). An added advantage of a two-dimensional data (such as the panel data) is that it allows us to have more degrees of freedom and less collinearity.

We shared the results in 2 parts. First, the average USD response vs. the 12 currencies as a whole as well as a cross-sectional look on USD response vs. the DM FX and the Asian FX. Second, we look at individual currency pairs to better understand what drives them and our bias.

Result #1: Average Impact on USD in %

	% Impact on USD vs.		
Top Drivers of FX	**Combined 12 FX of DM FX and Asian FX**	**DM FX**	**Asian FX**
Increase in 2Y rate differentials in favour of USD	1.79	3.99	0.25
Increase in 10Y rate differentials in favour of USD	0.12	0.81	-0.39
Increase in US terms of trade	0.35	0.03	0.60
Increase in *foreign* sovereign risk premium	0.14	0.32	0.014

Source: Maybank FX Research & Strategy Estimates

Our study shows that USD/FX, as a whole is highly driven by changes in rate differentials followed by terms of trade and sovereign risk premium.

In particular, a 100bps increase in the 2-year rate differential in favor of US, typically appreciates the USD by 1.8%. The impact of 2-year rate differentials is more felt in USD vs. the DM FX than Asian FX. A 100bps increase in 2-year rate differential in favor of US typically appreciates the USD by nearly 4% vs. the DM FX.

For changes in terms of trade, our study shows USD reacts more to Asian FX than to DM FX. A unit increase in terms of trade in favor of US, appreciates the USD by about 0.6% vs. Asian FX.

Elsewhere a 100bps increase in *foreign* sovereign risk premium appreciates the USD by 0.32% vs. DM FX. However the impact is more muted in the Asian FX space.

Result #2: What Drives Individual Currency Pairs

% Impact on USD/FX

	2Y Rate Differential (US - Foreign Yield)	10Y Rate Differential (US - Foreign Yield)	Respective Equity Index (as wealth proxy)	BRENT	CDS (as proxy for sovereign risk premium)*	Terms of Trade	VIX (as risk proxy)
USD vs. CNH	0.114	0.083	-0.017	-0.001	0.001	0.858	0.002
USD vs. KRW	0.730	-1.092	-0.260	-0.001	0.039	2.765	-0.001
USD vs. SGD	0.850	0.041	-0.039	-0.033	0.000	0.001	0.063
USD vs. MY	-0.433	-0.272	-0.185	-0.021	0.028	0.088	0.008
USD vs. THB	0.505	-0.498	-0.081	-0.004	0.006	0.942	0.003
USD vs. IDR	-0.085	-0.914	-0.122	-0.002	0.006	0.000	-0.002
USD vs. PHP	0.027	-0.062	-0.041	-0.017	0.018	-0.467	0.005
USD vs. AUD	4.099	-1.019	-0.030	-0.090	0.001	0.000	0.164
USD vs. NZD	2.888	0.562	0.078	-0.067	0.032	0.000	0.179
USD vs. GBP	3.014	1.329	0.046	-0.049	0.093	0.940	0.081
USD vs. EUR	5.096	0.794	0.022	-0.051	1.482	-0.759	0.052
USD vs. JPY	4.711	2.476	0.131	-0.005	0.009	-0.201	-0.033

Note: * For sovereign risk premium, 5 year CDS spreads are used as proxy for most FX except UK and EU in which we used 5Y Gilts-to-Bund and GDP-weighted 5Y bond yield spread of French, Italy, Spain and Portugal to German Bund) and for SG which we used Switzerland 5Y CDS as proxy.
Source: Maybank FX Research & Strategy Estimates

Key Findings and Selected FX Bias

1. Our study shows that **currencies in general are more driven by changes in short-term rate differentials (2Y) than long-term rate differentials (10Y).** In particular EUR, JPY and AUD stand out. A 100bps increase in 2Y rate differentials in favour of the US appreciates the USD by 5%, 4.7% and 4.1% vs. EUR, JPY and AUD, respectively.

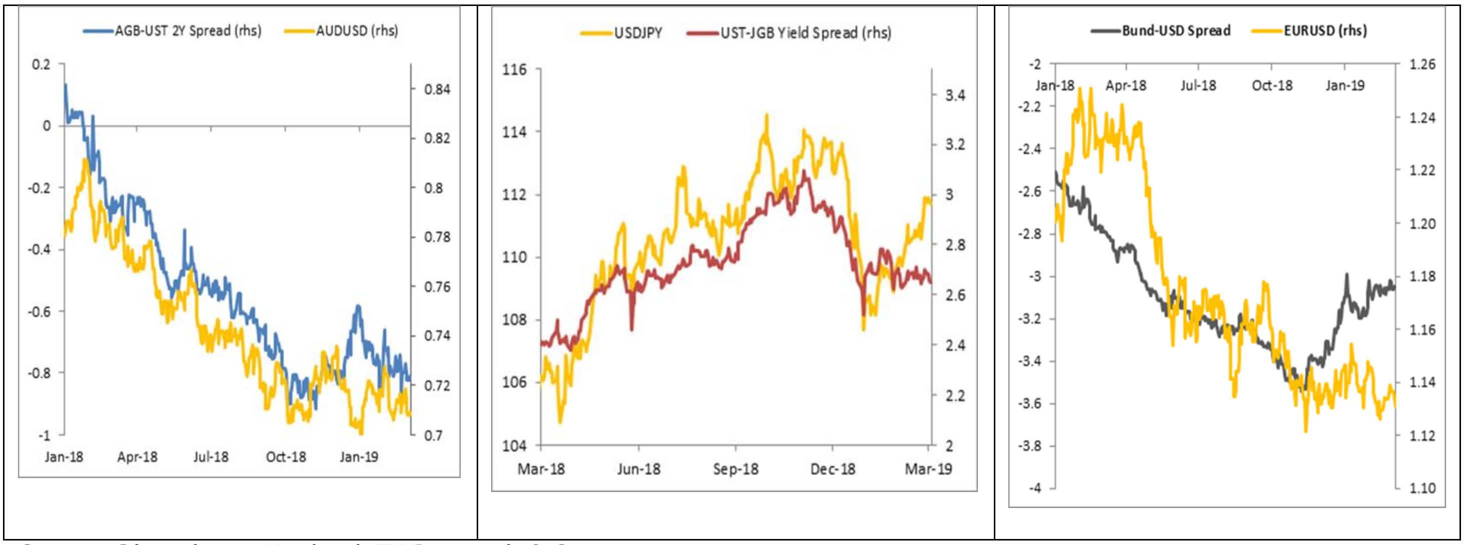
   – EURUSD continues to be weighed by negative EU-UST 2Y yield differentials amid ECB-Fed monetary policy divergence. But we see limited downside risks towards 1.10 as ECB-Fed policy divergence is likely to slow with ECB possibly playing catch up in 4Q 2019 while Fed is near the end of its rate hike cycle. A gradual narrowing of EU-UST yield differentials from -302bps (record low was -334bps in Jun-2018) is expected to support an eventual recovery in the EUR. **Bias to buy EUR on dips.**

- For AUD, 2Y UST-AU yield differentials are already at 20-year high of +83bps. Futures implied are already pointing to 1 rate cut as early as Oct 2019 this year while some private sector analysts look for 2 cuts. Softening domestic conditions have raised expectation of a rate cut this year especially if the persistent fall in home prices eventually hurts household spending. As such, expectations of a rate cut are likely to keep the 2Y Australian bond yield low and that could risk widening the UST-AU yield further and drive the AUD lower vs. the USD. On the other side of the equation, the Fed matters. While our house view looks for 1 - 2 more rate hikes by the Federal Reserve, we are near the end of the tightening cycle and we see a limit to how much UST yields can head higher. In a nutshell, dovish RBA and increasing expectations of a rate cut could keep the pressure on the AUDUSD. However, we **see decreasing headroom for the 2Y UST-AU yield differentials and that should also translate to limited downside for the AUDUSD, and backs our proposition to long this pair on dips**.

- Though 2Y yield differentials between UST and JGB remain wide at +265bps, there are signs that the differentials have already started to narrow after hitting a high of +299bps in Oct 2018. Going forward, **a case of Fed possibly nearing the end of its rate hike cycle and BoJ likely to keep its monetary policy status quo is supportive of our <u>bias to fade USDJPY strength</u>.**

- In AXJ space, widening rate differentials have varied responses on USD/AXJs, according to our findings. SGD, KRW and THB typically depreciate vs. the USD when rate differentials widen in favour of the USD but the same cannot be said for IDR, MYR and PHP where the impact appear more muted. We reiterate our argument that BOT, BI and MAS do have the capacity to tighten their policies if need arises while BoK on the other hand, may not have as much luxury given the mix of slowing pace of inflation in Korea, and downside risks to global/domestic growth amid a semiconductor down-cycle. We see **<u>relative value plays to be long in IDR, THB and SGD vs. Short in KRW and neutral on MYR as recent policy statement suggests a dovish tilt in BNM policy bias.</u>**

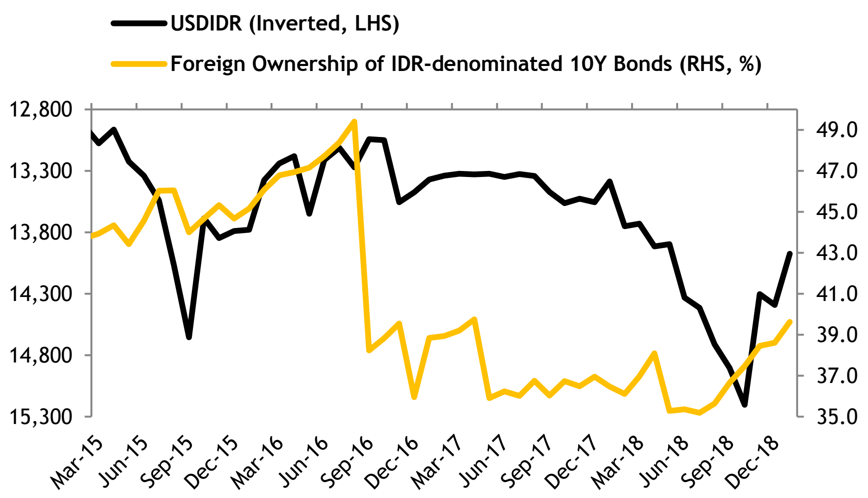
Chart 5: Slowing US Rate Differentials Suggest Limited Room for USD Upside



Source: Bloomberg, Maybank FX Research & Strategy

2. Generally it is true to say that a rise in rate differentials in favour of the currency typically leads to foreign fund inflows and appreciation in the currency, however our study points to some exceptions where a negative relationship exists between USD vs. selected Asian FX (IDR, MYR, THB, AUD) and long-term rate differentials (i.e. rise in US rate differentials saw Asian FX appreciate instead of the USD). We believe this is due to the nature of those Asian currencies whose bonds are typically viewed as an attractive carry play in the hunt for yield. Demand for these Asian higher-yielding bonds will weigh on their respective yields (hence the rise in rate differentials in favor of USD) and at the same time, these foreign inflows strengthen Asian FX. We continue to **favor long bias in IDR**.

Chart 6: IDR Strengthens amid Rise in Foreign Ownership of longer-tenor IDR-denominated bonds



Source: CEIC, Bloomberg, Maybank FX Research & Strategy

3. When it comes to terms of trade, KRW was the most driven by its ability to pay for its imports relative to exports. Its coefficient stands out at 2.77%. This suggests that a one unit increase in the terms of trade in favour of the US vs. South Korea could depreciate the KRW by around 2.77% vs. the USD. This could be due to its significant reliance on the manufacturing export sector. The total trade to GDP stands at around 75%. The coefficient was also relatively stronger for Thailand (0.94%), United Kingdom (0.94%) as well as China's (0.86%) compared to other economies. In fact, terms of trade is a bigger driver of KRW compared to 2y or 10y rate differentials with the USD. Thailand too has a considerably strong coefficient for TOT, almost on par with the United Kingdom. Total trade of GDP for Thailand came in at 110% of GDP. Intuitively, the more significant external demand is to an economy, the greater its sensitivity to the terms of trade. The exception seems to be Singapore whose total trade to GDP stands at 260% but its sensitivity to ToT is almost zero. This could mean that the exchange rate policy might have limited the SGD's sensitivity to shifts in the external demand and its ToT.

4. Our study shows **100bps rise in EUR sovereign risk premium negatively impact the EUR** (i.e. USD appreciates by 1.5% vs. EUR). This reinforced our earlier caution that a build-up in political risk premium poses temporary headwinds to EUR and Italy is shaping up to be the weakest link. The economy entered into technical recession for the second time in 4 years while tensions between coalition partners appear to be on the rise. An early election in Italy later this year should be no surprise and political uncertainty could add to EUR weakness. But we stand by our view in buying EUR on fear as markets tend to overshoot. A **<u>recovery in EUR sovereign risk premium as conditions stabilize and eventual ECB policy normalisation may even see an asymmetric recovery in the EURUSD</u>**, given that EUR has fallen nearly 9% from its high in 2018.

5. The VIX index is not a strong driver for most DM and Asian FX as compared to rate differentials. However, we note that **AUD and NZD have the highest coefficients with the VIX index**, firmly re-establishing their status as risk barometers in global markets. Our study shows that **ten units rise in the VIX index would result in a 1.6% and 1.8% appreciation in the USD against the AUD and NZD respectively**. In other words, deterioration in risk sentiment (which would normally manifest in the rise of the VIX) could see a sharp depreciation of the AUD and the NZD of the abovementioned magnitude against the USD.

6. In terms of **currency response to movement in its respective equity indices, our study finds that KRW and MYR are the most sensitive amongst AXJ FX**. Typically a 10% move higher in KOSPI and KLCI sees KRW and MYR appreciate by about 2.6% and 1.85% vs the USD. The behavior exhibits KRW and MYR's risk-on, higher beta characteristics. And in the case of Nikkei and USDJPY, the relationship is positive – a 10% move higher in Nikkei 225 sees USD appreciate by 1.3% vs. JPY. This relationship underscores the

status of JPY as a “safe haven” and a funding currency, where in times of risk-on play, the safe-haven JPY is sold and in times of risk-off play, demand for funding sees a rise in JPY.

FX Implications and Opportunistic Trading Play

The study further reinforced our FX house views and provided some opportunistic trading ideas.

In the AXJ space, we see relative resilience in IDR, THB and SGD over KRW as BI, BoT and MAS have the monetary policy space to maneuver even in the event of Fed raising rates while the BoK on the other hand, has lesser flexibility due to slowing pace of inflation in Korea (slowest pace in 2 years), rising unemployment (jobless rate rose to 9-year high) and downside risks to domestic growth amid semiconductor down-cycle and signs of global growth slowdown. In addition, KRW’s sensitivity to equity movement is highest amongst the group of 12 currencies in our study. An environment of global growth downgrade, most recently coming from OECD lowering global growth for 2019 to 3.3% from 3.5% could have a bearing on equity market sentiment. KRW stands to suffer in the event of equity sell-off.

- We express our bias via **long IDRKRW outright** and **buy call option on USDKRW**. On the former, we look for IDRKRW to trade higher towards 0.0815, 0.0840 and 0.0860 final objective, with stop-loss below 0.0780. Current spot ref at 0.08. This represents a potential gain of 7.5% if targets are met. [Risk-Reward ratio of 1:3]. On the latter, USDKRW vols have fallen from above 8-handle to around 6-handle (near 5-year low) and looks attractive to buy as a hedge in the event of a equity sell-off amid growth downgrades. A 3m call on USDKRW with strike at 1140 (spot ref 1129), 6.2 vol (offer), costs about US$7,700 per notional size of US$1mio. A move above 1148.2 (option breakeven) will see the trade profitable.

On USDJPY, we expect the pace of the recent up-move is likely to moderate as macro factors start to weigh: (1) Pause in Fed rate hike and BoJ maintaining status quo on easy monetary policy could start to see UST-JGB yield narrow further while (2) a case of more global growth downward revision could dampen risk appetite. We **expect USDJPY to trade lower towards 108, 105 objectives**, with stop-loss placed above 114.50. (spot ref at 111.70) This represents a potential gain of 6% if targets are met. [Risk:Reward ratio of 1:2.5].

For EURUSD, the near term risk is skewed to the downside amid negative EU-UST yield differentials and the potential build-up in political risk premium owing to Spain election uncertainty, risk of snap elections in Italy, contagion fears of Italian banking situation, fears of imposition of US tariff on EU cars and softer than expected EU economic data.

Recent shift in ECB's policy bias, in particular the delay in forward guidance (rates to remain at present levels through end-2019, from end Summer-2019) and big cut to growth projection (from 1.7% to 1.1% for 2019) could weigh on EUR. But judging from price action, EUR's decline post-ECB decision has been rather orderly with the magnitude of decline at ~1.2%. This could be due to market's dovish expectation of ECB prior to the decision. What took us by surprise was the shift in forward guidance and the decisive act to use TLTRO. These are signs that deceleration in Euro-area economic growth could come faster than expected and that slower growth was not just due to one-off event. That said ECB's earlier policy response via cheap funding could well be timely to maintain favourable liquidity conditions.

We still **expect EUR to recover in later part of the year** when growth picks up pace, sovereign risk premium further subside and ECB-Fed policy divergence narrows (as ECB prepares to normalise while Fed pause). Our view to buy EUR on fear as markets tend to overshoot remains intact.

We prefer to express our idea of **buying EUR on dips via an FX accumulator in the EURUSD**, weekly over for 24 weeks with a strike at 1.1050; anytime Knock-Out (KO) at 1.15. (Current spot ref at 1.1185). On each weekly fixing date until the KO is triggered,

- Spot Fix> Strike, one gets to buy EUR 0.5 Mio @ 1.1050
- Spot Fix < Strike, one gets to buy EUR 1.0 Mio @ 1.1050

This strategy is a zero-cost structure.

Concluding Remarks…

To conclude, the findings of our study support our view that the USD strength may have limited upside for 2019. We especially monitor for further weakness in key data such as ISM mfg, payrolls, wage growth that could press short term US rates lower. Since DM FX is highly sensitive to changes in the short term interest rates (coeff. 3.99%), lower US rates could start to narrow the US-DM yield spread that has reached near historical highs (e.g. UST-AGB bond yield). That could also lift the DM FX against the USD. 98-level is penciled in as the resistance that guards the likely range-bound trades of the dollar index. We look for a range of 95 – 98 in the coming months.

Of course, we do see upside risk to our view on better than expected US data (resulting in growth divergence in favor of US) and receding concerns over the US-China trade deal which could also concomittantly pose upward pressure to oil prices and raise the bets on Fed rate hike. However, any disappointment on the US data front could leave the pair lower towards the 95.60-support.

As for USD's performance against the Asian FX, we found that 2Y and 10Y rate differentials are not major drivers in this space. However, terms of trade is the biggest driver for Asian currencies. One unit of improvement in the terms of trade in the favour of the US could strengthen the USD against our selected Asian FX by 0.6%. We still hold our bias for selected Asian FX to strengthen against the USD as China continues to inject stimulus to prop up the economy (especially infrastructure) and SMEs that could eventually strengthen the demand for Asian exports and improve their respective terms of trade.

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