

Asia FI & FX Strategy Viewpoint

From West to East: Quantitative study on impact of US rates on Asia macro

Sharp steepening in US curve impacts North Asia

The five weeks following 1 Sep'23 saw one of the sharpest sell-offs in US real and nominal rates, along with the steepening of the US curve, since 2008. The sharp movement in US rates, both on an outright and a curve basis, has a material impact on fixed income and risk environment in North Asia.

Quantifying historical impact of US curve on Asia

In this study, we looked at the cross-asset impact the movement in US rates has on various macro indices in North Asia. We categorized the historical movement in US rates to different regimes in the US curve. The purpose of this analysis is to dissent whether it is outright movements or curvature in US rates that impacts North Asia's fixed-income environment. The summary of our findings can be found in **Exhibit 1**.

Exhibit 1: Summary of regression findings

Summary of the impact of US curve on North Asia macro

Asset class	Relationship with US 2-year	Relationship with US 2s10s
Broad USD Index	Relationship of US 2y-year to BBDXY varies by regime and is not consistent throughout the cycles.	Consistent relationship with USD strength in both bear-steepening and bear-flattening scenarios.
Asia rates	Strong statistical relationship between US 2-year and Korea 2-year in almost all US curve regimes but is the strongest during periods of US bear-steepening. For Taiwan rates, only bear-flattening in the US curve seem to matter	Korea curve shows the strongest relationship with the US curve during periods of US bear-steepening. However, bear-flattening appears to impact Taiwan more than Korea.
Asia FX	USDKRW, USDTWD and USDCNY are all positively impacted by the rise in US rates during the bear-flattening scenario.	USDKRW and USDTWD are sensitive to bear movements in the US curve while USDCNY is not.
Asian equities	In a bear-steepening environment, Korea and Taiwan equities benefit from the rise in US rates led by higher inflation breakeven but suffer from a rise in US real rates.	No significant relationship seen for Korea and Taiwan equity after controlling for the bear-steepening environment.

Source: BofA Global Research

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KRW – Korean Won

TWD – Taiwanese Dollar

CNY – Chinese Renminbi

CBC – The Central Bank of China
(Taiwan)

NDIRS – non-deliverable interest rate swap

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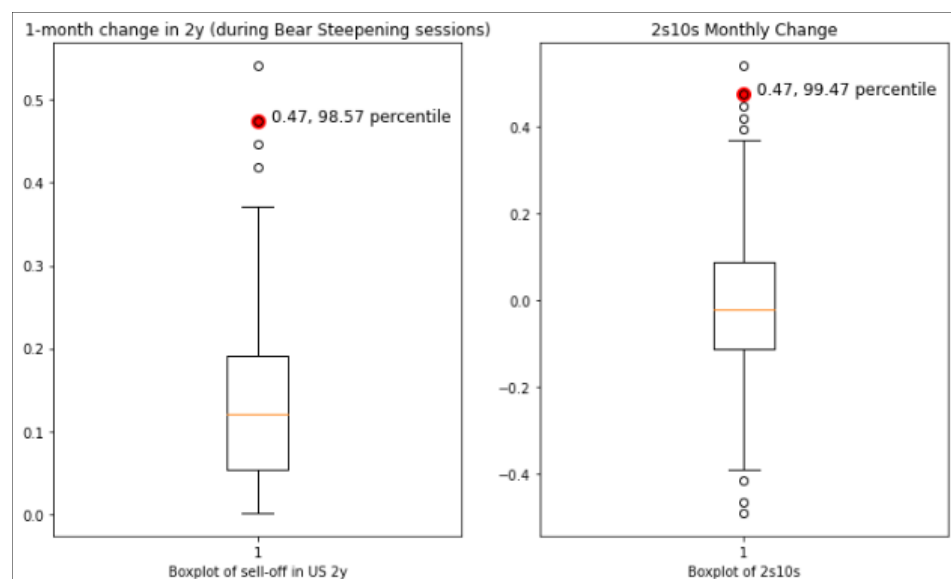
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From West to East: Quantitative study on impact of US rates on Asia macro

Studying impact of US rates and US curve on Asia macro. The persistence of US 'higher for longer' and positioning in the US rates market have resulted in an aggressive sell-off in global rates, broad USD strength, and impact on macro assets across North Asia. **Exhibit 2** contextualizes the sell-off in US rates (both from outright 2y and 2s10s perspectives) vs a historical sample of monthly returns since Jan'08. As **Exhibit 2** shows, the recent sell-off is almost unprecedented and in the 99th percentile for outright move in the 2-year US Treasury and in the regard of the bear-steepening of the 2s10s curve.

Exhibit 2: Boxplot of the recent sell-off in US rates

The recent 5-week sell-off in US rates is almost unprecedented since 2008



Source: Bloomberg

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What does rising US rates and steepening yield curves mean for Asia. Under the backdrop of this aggressive US rates sell-off, we did a quantitative exercise to measure the impact the movement in the front-end US and the changing shape of the US yield curve has on several key North Asia macro variables. We overlaid this analysis by dividing the regression betas into different buckets based on the shape of the US yield curve.

We divided our sample size based on four conditions in US yield curve. To begin, we first took the monthly data for US 2y and 10y, and along with 10 commonly followed indices in North Asia fixed income. Our sample size is from Jan'08 till Sep'23. Afterwards, based on the movement of 2s10s, we defined four distinct categories.

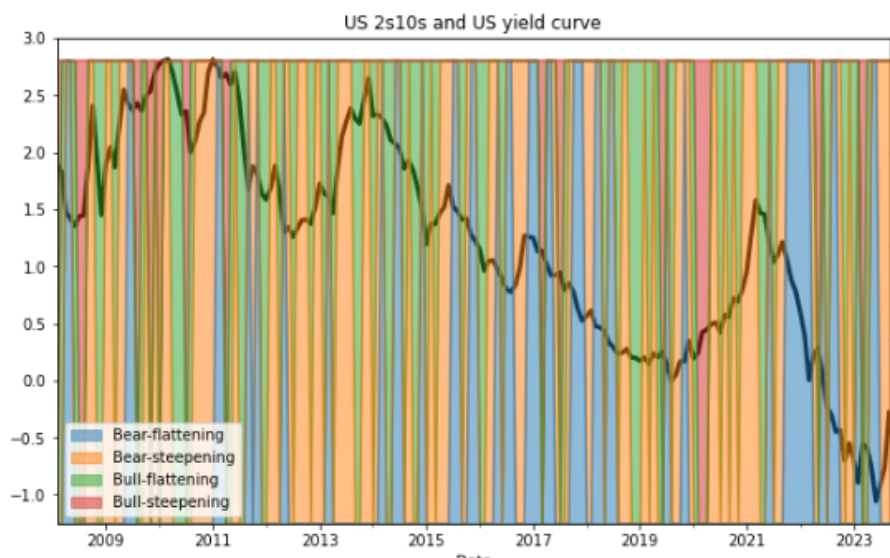
- 1) bear-flattening (2s10s fell, based on positive movement in the 2y);
- 2) bear-steepening (2s10s rose, based on positive moment in the 10y);
- 3) bull-flattening (2s10s fell, based on negative movement in the 10y);
- 4) bull-steepening (2s10s rose, based on negative movement in the 2y).

Bear-steepening most-common category in our sample. As **Exhibit 3** shows, since 2008, the US 2s10s has largely flattened, declining from a peak of 275bp to the latest value of -28bp. However, the flattening is split between both periods of bear-flattening and bull-flattening. Whereas, for steepening, given the limited number of months of expected Fed cuts, bull-steepening is relatively rare, resulting in the majority of the steepening in the sample to be bear-steepening. Based on these four classifications outlined above, we got 188 monthly observations, with 70 months of bear-steepening,

48 months of bear-flattening, 54 months of bull-flattening and 16 months of bull-steepening.

Exhibit 3: US yield curve and US yield curve

Despite US 2s10s mostly flattening since 2008, bear-steepening is the single category with the highest monthly frequency



Source: Bloomberg

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Regressing local Asia indices vs movement in US rates. With these classifications, we did an univariate regression of the monthly movement in the 2y US Treasury and US 2s10s vs 10 commonly followed indicators in North Asia macro across local rate, FX, and equity indices, sorted by their classification of the US curve. The results are shown in **Exhibit 4** and **Exhibit 5**. The results outlined in **red** indicate the regression coefficient is statistically significant at the 5% level.

Discussion of results. Consistently across our analysis of both outright 2y movements and 2s10s, the number of statistically significant coefficients is higher when US rates were selling off compared with when US rates were rallying.

Exhibit 4: Regression beta of local factor to movement in the 2y US Treasury

Local Asia macro factors are more impacted when front-end US rates sell-off than vice-versa

	KRW 2y	TWD 2y	CNY 2y	USDKRW	USDTWD	USDCNY	BBDXY	KOSPI	TWSE	SHSZ300
Bear-flattening	0.70	0.39	0.17	0.03	0.02	0.02	0.01	-0.04	-0.03	-0.04
Bear-steepening	0.79	0.12	0.50	-0.03	0.00	0.02	0.02	0.12	0.12	0.09
Bull-flattening	0.45	-0.12	0.71	-0.08	-0.02	-0.04	-0.02	0.10	0.12	-0.01
Bull-steepening	0.49	0.07	-0.05	-0.01	0.00	0.00	-0.02	0.08	0.07	0.05

Source: Bloomberg; Note: Red features the regression betas which were statistically significant at the 5%

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Exhibit 5: Regression beta of local factor to movement in US 2s10s

Local Asia macro factors move when US rates increase across the curve

	KRW 2s10s	TWD 2s10s	CNY 2s10s	USDKRW	USDTWD	USDCNY	BBDXY	KOSPI	TWSE	SHSZ300
Bear-flattening	0.18	0.46	-0.05	-0.10	-0.06	-0.01	-0.08	0.11	0.05	0.04
Bear-steepening	0.43	0.10	-0.10	0.09	0.03	0.01	0.07	-0.09	-0.06	-0.12
Bull-flattening	-0.07	0.07	-0.19	0.00	0.00	0.00	0.00	0.05	0.08	-0.04
Bull-steepening	0.16	0.15	0.45	-0.02	-0.04	-0.02	-0.01	0.02	0.06	0.00

Source: Bloomberg; Note: Red features the regression betas which were statistically significant at the 5%

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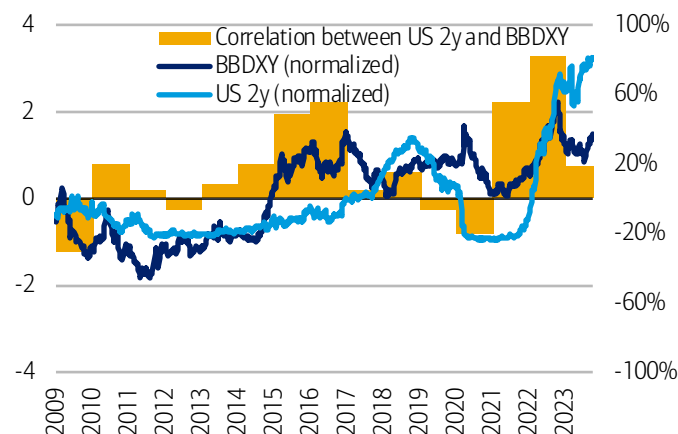
Broad USD index and US rate: movement in 2s10s matters

First off, **the relationship between the Broad USD and the US 2-year and the US 2s10s** is worth examining. Our regression results show throughout all the states of the US curve, outright movement in the US 2-year does not have much of an impact on the Broad USD. However, this statement stands in contrast with the 2022 experience of strong USD led by aggressive Fed hikes. When we decomposed the correlation between the weekly movement of US 2-year and the BBDXY by year, the findings in our table begins to make more sense (**Exhibit 6**). During periods of Fed hikes (i.e., 2016, 2022), the correlation between the BBDXY and the US 2-year is strong. However, during other years, the correlation coefficient averaged close to zero. Thus, varying relationship can help explain, over the cycle, the US 2-year did not have a statistically significant relationship with the BBDXY across all curve regimes.

However, we see the **BBDXY tends to be more impacted by the shape of the curve more than outright movements**. Across all our results, the relationship between the BBDXY and movement in the US 2s10s is the strongest (with p-values of 0%). In bear-flattening regimes, when the monthly change in US 2s10s is negative, this results in USD strength. 2022 is the more prominent example of this. Moreover, consistent with the strong US rates sell-off since Sep'23, bear-steepening also tends to be USD bullish. According to our estimates, across the cycles, bear-steepening and bear-flattening regimes tend to result in about 7-8% increase the Broad USD for every 100bp change in the US 2s10s.

Exhibit 6: BBDXY and movement in the US 2-year

The correlation between US front-end and the BBDXY is not constant

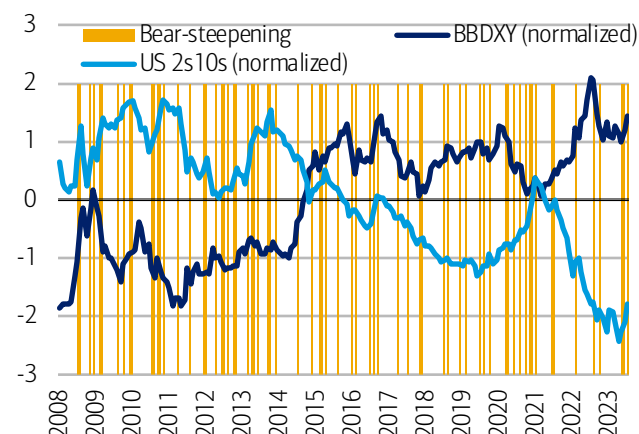


Source: Bloomberg

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Exhibit 7: BBDXY and USD curve

BBDXY tends to rally when either the curve bear-steepens or bear-flattens



Source: Bloomberg

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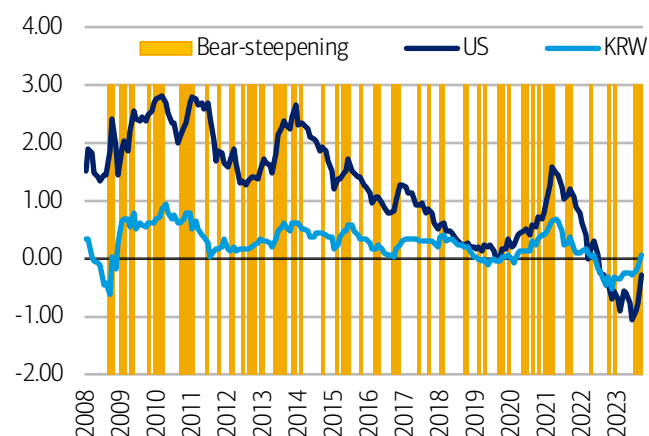
On relationship between Asia rates and US rates: Korea most influenced by US rates

On Korea rates. For outright movements, we see movement in the the Korea curve is highly correlated with movement in the US curve: this is especially true when US rates are selling off. This strong correlation between US and Korea 10-year was most evident during the latest period of bear-steepening, with the 2s10s KRW NDIRS turning positive from -30bp as recent as Jul'23.

For the **Taiwan NDIRS curve**, both the front-end (2y) and the local 2s10s appear to move along with US rates only during periods of bear-flattening (when the US is hiking). This is consistent with the general observation that Taiwan is a small-open economy and hikes in the US are likely the largest single factor prompting the CBC to also hike.

Exhibit 8: US and Korea 2s10s

The shape of the Korea curve is most correlated with the US curve using periods of US bear-steepening



Source: Blomberg

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For **China rates**, it appears the only in a scenario bull-flattening matters do US rates impact Chinese rates. This reinforces our recent observation that China runs an

independent monetary policy cycle as front-end rates in China and the US are not correlated.

On Asia FX and US rates: Both front-end and curve movement matter for KRW and TWD

On **North Asia FX**, we see the coefficients across USDKRW, USDTWD, and USDCNY are all positive during periods of US bear-flattening with beta for USDKRW higher than for USDTWD and USDCNY. This is consistent with the Fed hiking resulting in USD strength and local currency weakness. However, in terms of statistical significance, the p-value for USDKRW during periods of bear-flattening is 0.09, suggesting a weak relationship between the rise in US front-end rate and USDKRW.

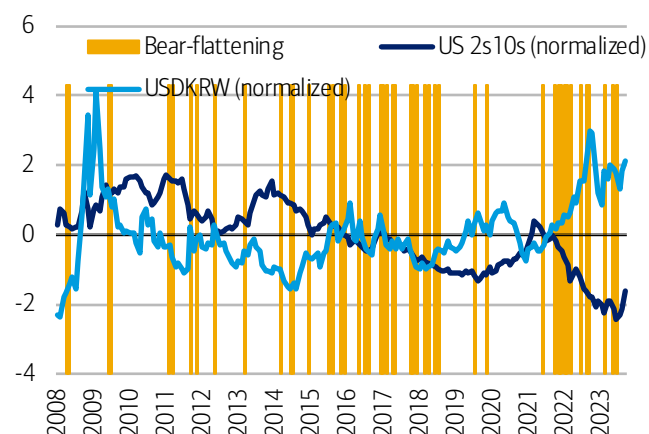
When we examine the **relationship between North Asia FX and the US 2s10s**, we find USDTWD and USDKRW move inversely to the US 2s10s during periods of bear-steepening. In other words, when the monthly change in the 2s10s is negative (caused by the front-end rising), it prompts USD strength, and USDKRW and USDTWD to increase. Equivalently, when the US 2s10s bear-steepens (monthly change in the 2s10s is positive, led by the movement in the 10-year), USDKRW and USDTWD also increase. In both the scenarios of US rates sell-off, the absolute coefficient of USDKRW is larger than that of USDTWD, consistent with the observation that the Korean Won is a more volatile currency than the Taiwanese Dollar.

On Asia equities and US rates: Benefits from US bear-steepening led by inflation breakevens

On North Asian equity indices, our results show **the KOSPI and the TWSE are positively correlated with the rising US rates during periods of bear-steepening in the US curve**. This finding also contrasts with the most-recent narrative of the sell-off in US rates resulting in the narrowing of equity-risk premium and lower equity prices. However, as **Exhibit 10** shows, the result of this positive and significant relationship was formed during the post-GFC period in 2009 and the post-COVID period of 2020, when equity prices rose while the market priced in for an economic recovery. In other words, a bear-steepening led by higher inflation-breakeven is equity and risk positive, while a bear-steepening in real rates is not.

Exhibit 9: US 2s10s and USDKRW

Since 2022, USDKRW has sharply moved in the opposite direction to the US 2s10s, reflective of the general bear-flattening environment

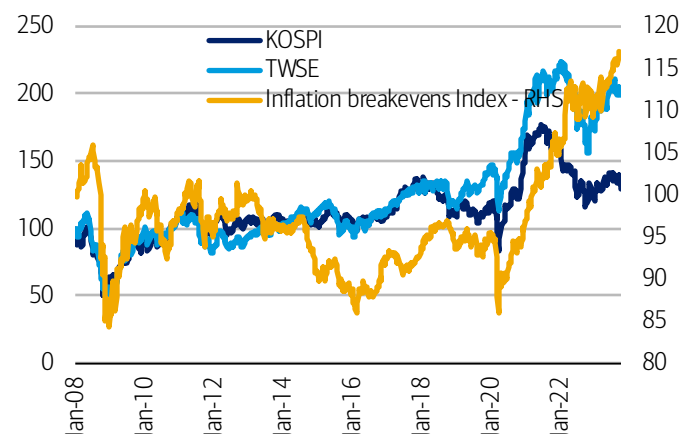


Source: Bloomberg

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Exhibit 10: Asian equities and US inflation breakeven

Historically, Korean and Taiwanese equities have done well during periods of sell-off in US rates led by a widening of inflation breakeven



Source: Bloomberg

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Our US team sees bull-steepening in US in 2024. Our study has shown that Asia macro factors are more impacted by US rates during periods of aggressive Fed hikes or strong sell-offs in the back-end of the US curve than periods of decline in US interest rates. Our US economics team has penciled in as a base case for the Fed to cut its target rate thrice in 2024 at 25bp increments. However, given the persistence of 'higher for longer', 'soft-landing' in the US and rising nominal Treasury issuances, we see only a moderate rally in the US 10-year by 50bp in 2024. If this forecast materializes, the US curve would see a relatively rare case of bull-steepening in 2024.

Local Asia factors to matter more in 2024. If the US curve does indeed bull-steepen in 2024, our regression results show that developments in the US rates would have a waning impact on the macro variables in Asia. Local rates would be more dependent on the monetary policy stance of regional central banks and FX pairs would be more driven by local economic developments resulting in regional USD pairs to see a decline in their beta vs the BBDXY and the DXY. Under this scenario, we believe regional currencies with strong domestic stories, such as Korean Won, can outperform. On rates, the Fed beginning to posture and position for potential rate cuts is also a strong signal to begin receiving front-end Korean rates as the risk from the US beta has come down.

Stagflation remains tail-risk scenario. Our US economists' current base case is for soft-landing, where inflationary pressure in the US cools down. However, the tail risk is that inflation does not cool and remains stubbornly high while growth slows, resulting in stagflation. In this scenario, inflation breakeven can push higher, resulting in additional bear-steepening of the US curve, and Asia macro will once again be driven by the US instead of local factors.

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