FX Viewpoint

FX Quant/Vol Year Ahead: Volatile 2024

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G10 FX Strategy
Global

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FX Quant: dynamic factor model for G10 and EM FX

We recently released a new dynamic factor model (DFM) for FX (FX Viewpoint: 07 November 2023) that uses a combination of endogenously estimated Global, G10, and EM factors to assess the richness and cheapness of global currencies relative to fair value over the 1m-3m horizon. The latest signals suggest after selling off at start of the month, the USD may see some short-term consolidation before a clear bearish trend forms on a turn in the Global factor and improvement in G10 factor in the coming months. Elsewhere in G10, the model shows European majors (EUR and GBP) are overvalued vs G10 commodity currencies (AUD, CAD, and NOK) in both nominal effective exchange rate (NEER) and bilateral specifications of the model. In EM, model currently flags BRL and IDR as cheap versus PLN and HUF as rich.

FX Vol: Enter 2024 with a bullish FX vol bias

We head into 2024 with a bullish vol bias on the combination of Year 4 Presidential cycle seasonality, FX vol dynamic at the start of Fed cutting cycles, and current low vol base. In a 4-year US Presidential cycle, realized FX vol historically would rise from Year 3 to Year 4 and vol would peak in Year 4. The start of the Fed cutting cycle on average has been a +4.4 vol shock with a bullish vol bias 88% of the time since 1990. Current low vol base favors owning FX vol hedges for next year.

We prefer 9m USDCAD puts and 4m EURGBP vol swaps

In addition to our higher EURUSD conviction in spot (G10 FX Year Ahead: The year of the landing, 20 November 2023), we believe investors could also consider owning 9m USDCAD puts to express medium-term bearish USD views. As shown by the DFM model, CAD is undervalued both in NEER terms and bilateral vs the USD. Existing bearish CAD catalysts have been priced in, in our view, and we expect CAD to gradually rally vs the USD from current level on eventual growth convergence. Given the current cheap vol for USDCAD, initial premium outlay for a 9m ATMF USDCAD put is less than half of the average magnitude of a 9m USDCAD move since 1999. The risk to this view is US-CA growth differential stays wide in the coming quarters, and CAD does not rally vs the USD as a result.

At shorter-dated tenors, we are more bullish 4m EURGBP vol, covering March ’24 UK Spring Budget Statement, as it has reached a historical bottom. A fall in EUR vs GBP correlation from the current historical peak should lead to higher EURGBP vol. Current level of EURGBP implied vol is also dislocated from the diverging EU vs UK fiscal and economic outlooks, in our view. The risk to this view would be a broadly low-vol environment for the first quarter of 2024.

For our open trade recommendations and trade recommendations closed over the past year, please see the latest **Global Macro Year Ahead** report.

Quant: Dynamic factor model for FX

Motivated by the DFM framework for global yields, earlier this month we constructed a similar DFM framework (FX Viewpoint: 07 November 2023) to assess the richness and cheapness of global currencies relative to fair value. In addition, the model outputs the dynamic of endogenous factors, along with a currency's sensitivity to each factor. This framework uses 6-year rolling sample period and is intended to help form views over the 1m-3m horizon, complementing our existing suite of models that focus on short-term weekly market dynamics and long-term equilibrium forecasts where convergence could take places in years.

We use 3 factors to explain the price actions for major currencies in the world: Global, G10, and EM. Under this specification, the Global factor would affect all currencies. Currencies in the G10 complex are affected by both the Global and G10 factors, while currencies outside of the G10 complex are affected by both the Global and EM factors.

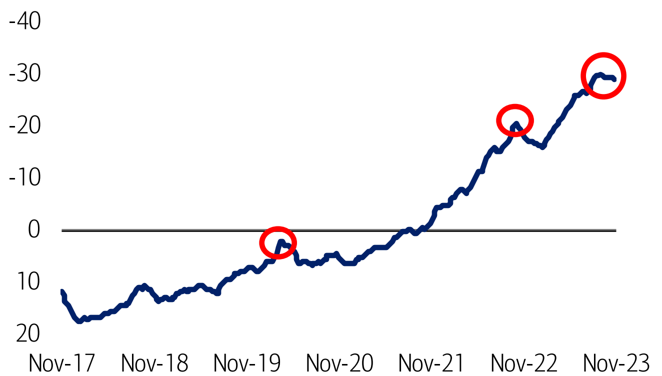
Anticipate formation of a new trend in FX

Spikes in Global factor have led to formation of new global trends

We previously found the Global factor can be viewed as proxy for global FX momentum. Using the SG CTA Index (a public index that tracks aggregate return across major commodity trading advisors; average return of 20 CTAs) as a proxy for momentum, the DFM Global factor would have had a correlation of -93% since 2017.

A turn in the Global factor appears to be forming after September 2023 (Exhibit 1). The previous two spikes in the Global factor, in April 2020 and October 2022, have led to reversals in global FX trends. Specifically, bullish momentum for the USD weakened and the broad USD uptrends reversed into downtrends. The Global factor would resume its one-sided move once a new trend formed. Exhibit 2 shows USD and CHF currently have the two most negatively correlated NEERs with the Global factor. A reversal in global trend would be the most bearish for USD and CHF, in-line with our fundamental house view for 2024.

Exhibit 1: Spikes in Global factor have led to reversal in global FX trends in the past
DFM Global factor (momentum factor)



Source: BofA Global Research, Bloomberg. The estimation sample period is from Nov 10, 2017 to Nov 3, 2023 (6y rolling).

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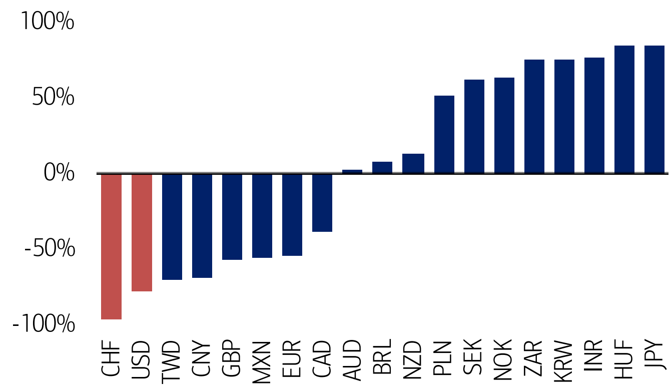
Exhibit 2: Formation of new momentum is most bearish for CHF and USD NEERs
FX NEERs correlation to Global factor



Source: BofA Global Research, Bloomberg. The estimation sample period is from Nov 10, 2017 to Nov 3, 2023 (6y rolling).

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G10 factor suggest risk sentiment has been suppressed

The G10 factor measures the risk-on/risk-off dynamic for G10 FX. Using the BofA Global Financial Stress Indicator (BofA GFSI™) as a proxy for risk-on/risk-off dynamic, the G10 factor would have had a correlation of -49% to it since 2017.

A rise in the G10 factor would suggest improved risk sentiment, and vice versa. Exhibit 3 shows latest value of the G10 factor is negative and below levels seen earlier this year in March 2023 during the US regional bank shock. Risk sentiment has been weakening since mid-July and likely has room to improve from current level, in our view. In G10, the USD currently has the most negative loading to the G10 factor (followed by JPY and CHF). A rise in the G10 factor amid normalizing risk sentiment would also be bearish for the USD.

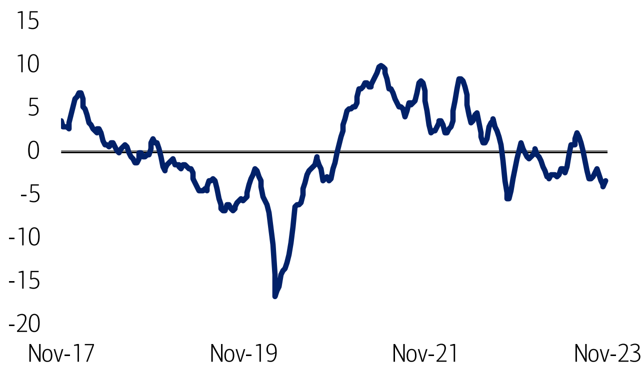
Resurgence in EM factor suggest carry trades are back in play for now

The EM factor can be viewed as a proxy for EM FX carry, as we find the EM factor would have had 54% correlation to the Bloomberg Cumulative EM FX Carry Trade Index since 2017. MXN and BRL have the highest sensitivities to the EM factor. To the contrary, low-yielding Asia currencies like CNY and TWD have the lowest sensitivity to EM factor.

The EM factor recently peaked in August 2023, coinciding with the start of the rate cutting cycle by EM central banks (Exhibit 4). However, the EM factor appears to be resurging higher since October 2023, which suggests long EM carry trades could continue for to run its course for now. By construction, the USD NEER does not have any direct sensitivity to the EM factor.

Exhibit 3: Risk sentiment has room to improve

DFM G10 factor (risk-on/risk-off factor)



Source: BofA Global Research, Bloomberg. The estimation sample period is from Nov 10, 2017 to Nov 3, 2023 (6y rolling). More negative G10 factor suggest deterioration in risk sentiment, and vice versa.

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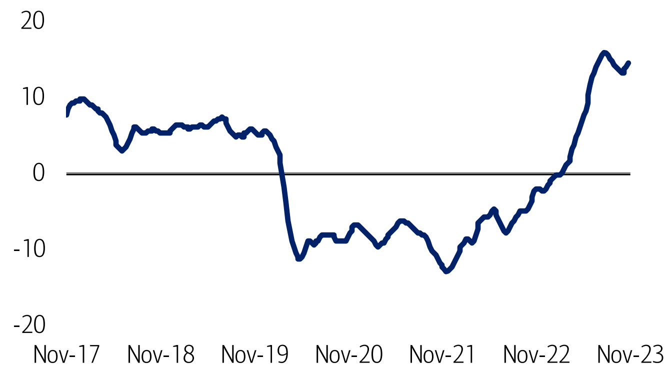
Exhibit 4: Since Oct 2023 EM factor appears to be resurging higher

DFM EM factor (carry factor)



Source: BofA Global Research, Bloomberg. The estimation sample period is from Nov 10, 2017 to Nov 3, 2023 (6y rolling).

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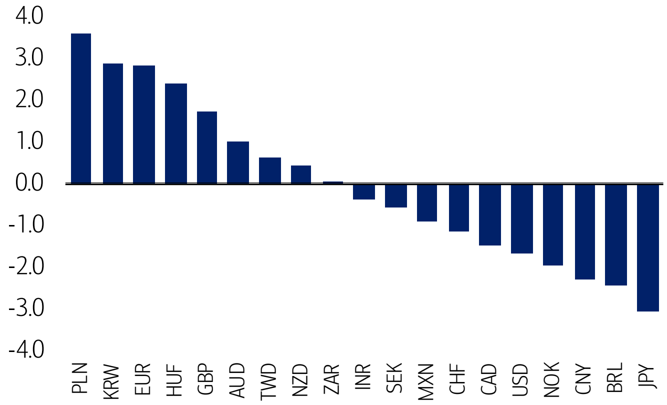
Latest DFM signals for G10 and EM FX

USD is likely to consolidate first before more bearish trends form

The USD DFM fair value appears to be plateauing in October (Exhibit 6). Should the Global and G10 factors move in the way we discussed in the previous section, more material USD downtrend should form in the coming months, given USD's negative sensitivity to both factors. However, it is notable that because the USD has sharply weakened at start of this month before the DFM fair value has turned, the model currently flags it as undervalued. As a result, we believe the USD may see some short-term consolidation before it materially weakens again. The risk would be a continuation of the broad USD uptrend, or that the broad risk-on/risk-off sentiment as proxied by the G10 factor remains suppressed.

Exhibit 5: European majors are rich vs G10 commodity currencies
FX NEERs deviation from DFM fair value



Source: BofA Global Research, Bloomberg. The estimation sample period is from Nov 10, 2017 to Nov 3, 2023 (6y rolling). More positive value means currencies NEER is rich; more negative value means currencies NEER is cheap.

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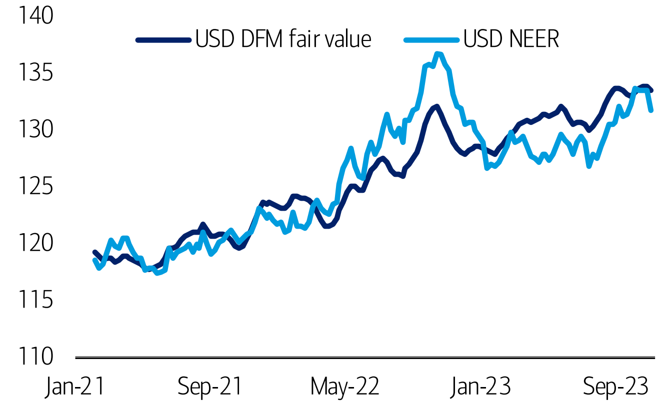
Exhibit 6: USD NEER has declined more aggressively than the plateaued fair value
Actual vs DFM fair value for USD NEER



Source: BofA Global Research, Bloomberg. The estimation sample period is from Nov 10, 2017 to Nov 3, 2023 (6y rolling).

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Fade overvalued European majors vs cheap G10 commodity FX

Aside from the USD, both the NEER and bilateral specifications of the DFM framework would suggest European majors (EUR and GBP) are overvalued vs the commodity currencies in G10 (AUD, NZD, CAD and NOK. see Exhibit 5 and Exhibit 7). As we previously discussed in G10 FX RV to end the year (07 September 2023), high expectations of European Central Bank (ECB) and Bank of England (BoE) rate hikes supported the European majors for most of this year. But with global central banks including the ECB and BoE broadly at the end of the rate hiking cycle, we would expect EUR and GBP to converge more towards fair value vs commodity currencies in G10. As part of our 2024 Macro Year Ahead outlook, we are short GBP/AUD via a put spread (3m GBP/AUD 1.90-1.86 put spread for 0.6806% GBP, spot ref 1.9192, expiry Feb 19 2024; for more details see G10 FX Year Ahead: 20 November 2023). The risk to the trade would be a global growth hard landing which would be more bearish for commodity currencies.

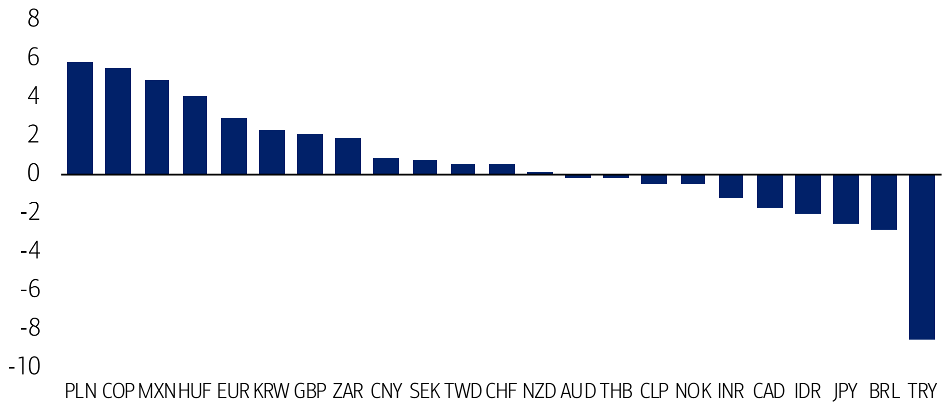
EM: BRL and IDR are cheap while PLN is rich

In EM FX, Exhibit 7 shows BRL and IDR are cheap vs the USD while PLN and HUF are rich. As for BRL, PLN and HUF, the result is also consistent with the NEER DFM valuation (Exhibit 7). While it is likely overvalued, we believe PLN could have more room to rally on the back of hawkish central bank and government; we prefer to own PLN vs a regional peer like CZK (EM Alpha: 07 November 2023). HUF on the other hand should converge more toward fair value on BoP weakness and our expectation of a decline in carry (EM Alpha: 12 October 2023).

Our EM strategists also see BRL as undervalued and like to express bullish BRL view vs. a LatAm peer like MXN (Global Macro Year Ahead: Hope for the best, prepare for the worst, 19-Nov-2023). For EM Asia, our fundamental strategists expect IDR to be an early mover should the USD broadly weakens on easier Fed policy in 2024.

Exhibit 7: In the bilateral specification, European majors also appear rich vs G10 commodity currencies

FX bilateral vs USD spot exchange rate deviation (%) from DFM fair value



Source: BofA Global Research, Bloomberg. The estimation sample period is from Nov 10, 2017 to Nov 3, 2023 (6y rolling). More positive value means currencies is richer vs the USD; more negative value means currencies is cheaper vs the USD.

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Bullish cheap FX vols for 2024

Major election years like 2024 is bullish for FX vol

US Presidential cycle (Year 4) Seasonals are bullish FX vol into next year.

US Presidential elections are considered an important market catalyst for global investors as they present policy uncertainty. In our view, rising policy uncertainty tends to peak in Year 4 of the US Presidential cycle, which corresponds to 2024 this time around. In our analysis we find that there is a seasonal pickup in FX realized volatility in election years with Year 4 seeing the highest FX vol seasonality for USD pairs in G10. In that vein, the mid-term Year 2 has the second-highest average level of FX volatility since 2000.

We looked at realized FX vol by US Presidential years in USD/G10 (annualizing from monthly data). Year 4 on average across G10 pairs has the highest volatility in the overall data (Exhibit 8) as well as in the more recent data since 2000 (Exhibit 9). Since 1973 Year 4 has had higher volatility than Year 3 for all individual pairs, while since 2000 Year 4 has higher volatility than Year 3 for 8 out of 10 pairs.

Besides the US election, there are several major developed and developing countries going to the polls next year, adding to global policy uncertainty. As noted in The Longest Pictures (06 November 2023), voters in countries that represent 80% of global equity market cap, 60%of global GDP, 40% of world population head to polls next year.

Exhibit 8: Year 4 saw higher vol than Year3 for all USD-G10 pairs since 1973

Realized vol by year of US presidential cycle since 1973

	Year1	Year2	Year3	Year4
DXY	8.3%	8.1%	7.7%	8.2%
GBPUSD	9.6%	7.9%	8.9%	10.5%
USDJPY	10.1%	12.0%	8.9%	9.6%
AUDUSD	10.2%	10.3%	9.0%	11.7%
USDCAD	5.9%	5.5%	6.1%	6.5%
NZDUSD	11.3%	10.5%	11.0%	11.5%
EURUSD	8.9%	9.4%	9.1%	9.9%
USDCHF	11.4%	10.6%	10.6%	10.7%
USDSEK	10.7%	10.4%	9.3%	10.5%
USDNOK	9.8%	10.8%	10.0%	10.7%
Average	9.6%	9.6%	9.1%	10.0%

Source: BofA Global Research, Bloomberg

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Exhibit 9: Year 4 was the most volatile year in the cycle on average

Realized vol by year of US presidential cycle since 2000

	Year1	Year2	Year3	Year4
DXY	6.8%	7.7%	7.4%	8.1%
GBPUSD	7.5%	8.1%	8.4%	9.4%
USDJPY	8.6%	9.1%	7.4%	10.6%
AUDUSD	11.1%	11.0%	11.1%	13.6%
USDCAD	8.3%	7.1%	8.8%	8.4%
NZDUSD	12.9%	12.3%	12.2%	13.0%
EURUSD	8.2%	9.0%	8.8%	10.0%
USDCHF	8.3%	9.4%	10.2%	10.2%
USDSEK	10.1%	10.7%	10.4%	11.0%
USDNOK	8.7%	12.2%	11.6%	12.8%
Average	9.1%	9.7%	9.6%	10.7%

Source: BofA Global Research, Bloomberg

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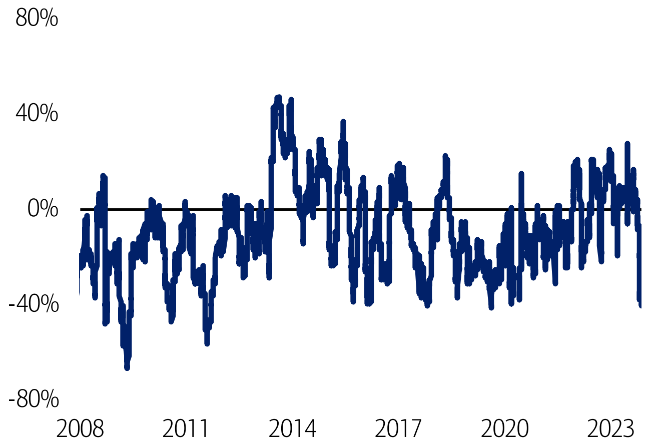
Start of Fed cutting cycle has been often accompanied by vol shocks

In addition to the election seasonality, the start of the Fed cutting cycle in 2024, as our economists currently project, should also lead to higher FX volatility. In the past, a catalyst such as risk-off shock or growth deterioration would be required to prompt the Fed to switch from a restrictive to stimulative monetary stance. The most recent Fed cutting cycles have been triggered by 2008 Global Financial Crisis, 2018 US equity selloff, and 2020 Covid shock. Even the 2019 case of moderate Fed cuts was still a +2.5 vol shock for FX market. Using VIX as a proxy for broad volatility since 1990, volatility historically has risen 88% of the time and for an average increase of +4.4 vols in the first three months of the Fed rate cutting cycle.

As it currently stands, the correlation between FX volatility and 2y Treasury yield has reached the most negative level since 2011 (Exhibit 10). If 2y rates were to rally on increased Fed cut pricing in 2024, the flight-to-quality demand for front-end Treasury could lead to a sharp increase in FX volatility, should the current negative relationship persist. Option market currently prices in very little tail risk premium, as the 6m USD butterfly sits around the lowest level over the past decade (Exhibit 11). We head into 2024 with a bullish vol bias on the combination of Year 4 Presidential cycle seasonality, FX vol performance around the start of Fed cutting cycles, and current low vol base.

Exhibit 10: Correlation between FX vol and front-end Treasury yield is at the most negative level since 2011

3m rolling correlation between chg in CVIX index and 2y Treasury yield



Source: BofA Global Research, Bloomberg

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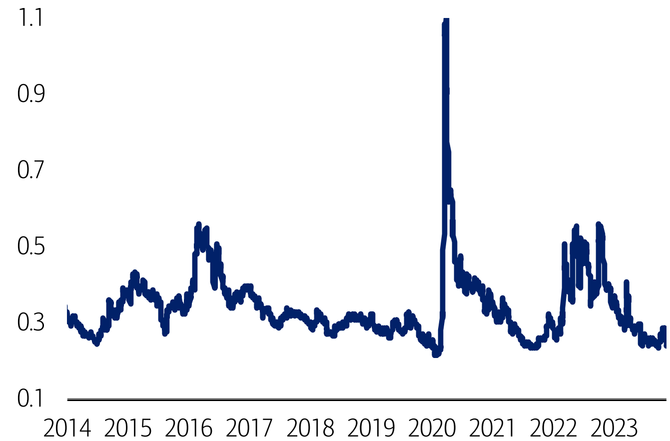
Exhibit 11: 6m FX butterfly are close to the lowest level in a decade

Average of major USD/G10 6m butterfly



Source: BofA Global Research, Bloomberg. Chart shows the average of 6m butterfly for EURUSD, GBPUSD, USDJPY, USDCAD, and AUDUSD.

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Express bearish USD view with cheap 9m USDCAD puts

We hold bearish USD/CAD view on expectation of US-CA growth convergence

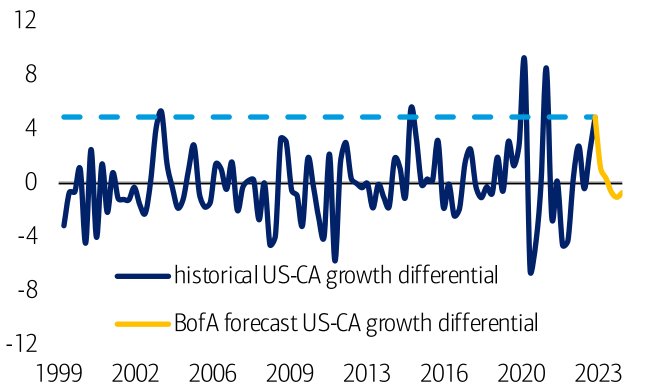
Q3 2023 growth differential between US and Canada widened close to a historical peak (excluding volatile 2020-2021 pandemic years). The growth differential, in conjunction with a more dovish Canadian economic outlook from the October Bank of Canada (BoC) meeting, pushed USD/CAD spot to a 2023 high.

However, we believe all the existing bearish CAD catalysts are largely priced-in. We had always expected Canada growth to decelerate ahead of the US, and previously advocated owning CAD vol as hedge (FX Viewpoint: 29 August 2023). Historically outside of the pandemic years, US-Canada growth differential only reached current level twice since 1999 and were able to quickly converge in the subsequent quarters, given the close economic tie between the two countries. Looking ahead, our economists also expect the growth differential to converge (Exhibit 12), as the one-off negative wildfire shock on Canadian economy wanes, and fiscal impulse that has been supporting the US economy also slows.

Our fundamental estimate of USD/CAD fair value (using a combination of equity return, interest rate differential and oil price) rose in October but is still around 4 big-figures below current spot. This would suggest USD/CAD spot is overvalued, in-line with the DFM model results (Exhibit 5, Exhibit 7) and our estimate of broad USD premium in a recent publication (Liquid Insight: Tangible USD risk premium 02 November 2023).

Exhibit 12: Q3 '23 growth differential between US and Canada was at a historically wide level

US – Canada growth differential (QoQ saar)



Source: BofA Global Research, Bloomberg

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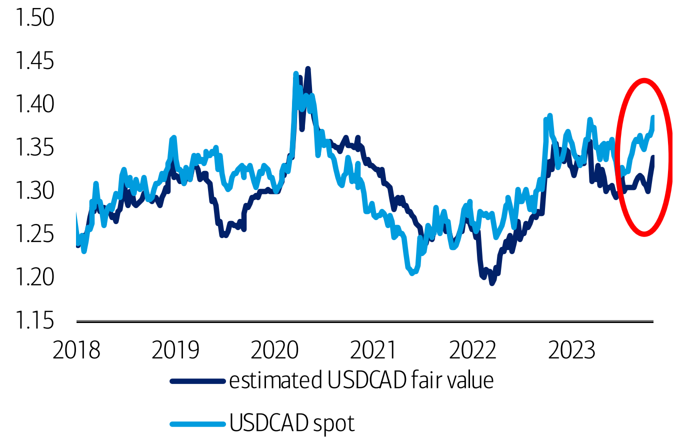
Exhibit 13: USDCAD spot is too rich vs fair value

USDCAD spot vs estimated fair value using cross-asset factors



Source: BofA Global Research, Bloomberg. We estimate USDCAD fair value by running 2y rolling regression between logged FX spot on US equity return, 2y rate differential, and oil price at weekly frequency.

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9m USDCAD vol is cheap vs peers and against historical return distribution

In addition to long EURUSD spot (G10 FX Year Ahead: 20 November 2023), the above analysis would suggest CAD as another G10 candidate to express our bearish USD view in 2024. We would prefer to short the USD vs CAD more so via options, given the current low level of implied vol for the pair. The PCA heatmap table in our FX Vol Dashboard shows between 6m to 1y tenors, USDCAD implied vol is relative cheap vs other G10 implied vols (Exhibit 14).

We prefer USDCAD ATMF put at the 9m tenor, as it would cover the start of the Fed rate cutting cycle based on our economists' current forecast (Global Economic Weekly: 10 November 2023), but avoid the November US election event risk. Once the Fed loosens monetary policy stance in 2024, the USD could broadly selloff, in our view. Due to the low level of implied vol, a 9m ATMF USDCAD put currently costs around 2% USD initial premium, less than half of the average magnitude of USDCAD historical returns over a 9 months period since 1999 (Exhibit 15). The risk is US-CA growth differential stays wide in the coming quarters, and CAD does not rally vs the USD as a result.

Exhibit 14: At 6m to 1y tenors, USDCAD implied vol is one of the cheapest vs fair value
Implied G10 FX vols vs PCA-implied fair value

6M PCA Implied Vol vs Fair Value

Vols	EUR	GBP	AUD	NZD	USD	CAD	CHF	NOK	SEK
GBP	-0.55								
AUD	-0.12	0.29							
NZD	-0.22	0.17	-0.47						
USD	-0.08	-0.08	0.07	-0.13					
CAD	-0.25	0.16	0.26	0.21	-0.64				
CHF	-0.07	-0.17	-0.10	-0.10	-0.14	-0.15			
NOK	0.30	0.42	0.25	0.08	0.02	0.40	-0.19		
SEK	0.40	-0.29	0.04	0.20	0.20	0.03	0.56	0.00	
JPY	0.14	0.22	-0.16	-0.22	0.33	0.02	0.29	-0.73	-0.26

Tenor: 1M, 3M, 6M, 1Y

Implied – PCA Fair Value: Cheap -2.00 … 2.00 Rich

Source: BofA Securities, BofA Global Research

Source: BofA Securities, BofA Global Research

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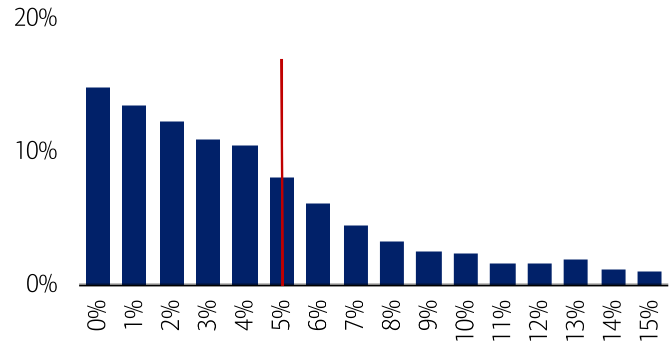
Exhibit 15: Over a 9-months horizon, USDCAD on average would fluctuate by 5%, more than twice the current premium of 9m options
Distribution of magnitude of historical 9m USDCAD return since 1999



Source: BofA Global Research, Bloomberg

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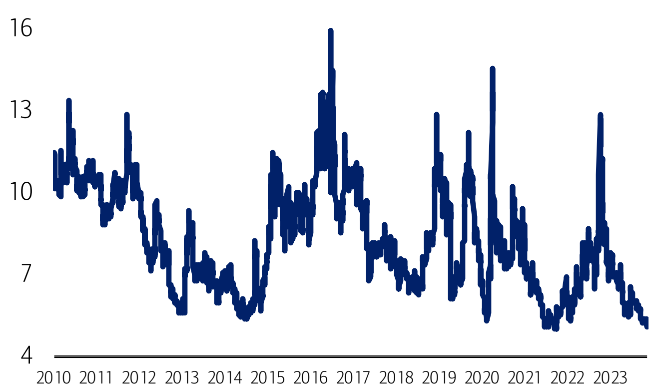
G10 crosses: own cheap 4m EURGBP vol

EURGBP implied vol has fallen to a historically cheap level

We believe owning historically cheap EURGBP implied vol could serve to diversify against our core bearish USD view for 2024. The correlation between EUR and GBP reached a historical high in 2023; as a result EURGBP volatility was compressed to the lowest level in the past decade (Exhibit 16). But EUR vs GBP correlation historically has not been able to sustain at this extremely high level and has already started to weaken after August 2023 (Exhibit 17). A falling EUR vs GBP correlation should lead to higher EURGBP vol, in our view. In addition, the PCA heatmap table in our FX Vol Dashboard shows between 1m to 6m tenors, EURGBP implied vol is below fair value (Exhibit 14).

Exhibit 16: EURGBP implied vol is at a historically cheap level
4m EURGBP implied vol



Source: BofA Global Research, Bloomberg

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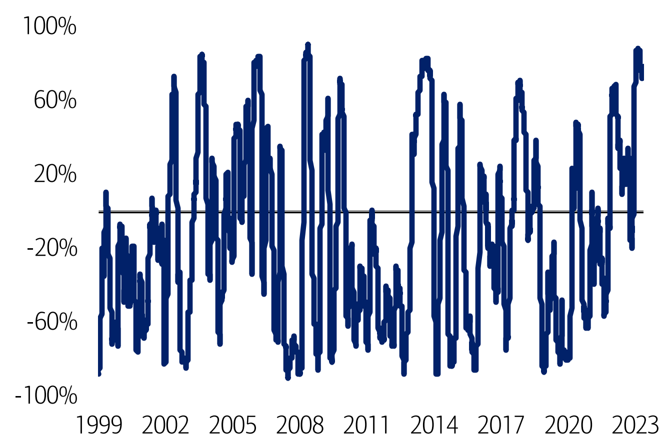
Exhibit 17: Falling EUR vs GBP NEER correlation from a historical peak should lead to higher EURGBP vol
6m rolling correlation between EUR and GBP NEER



Source: BofA Global Research, Bloomberg

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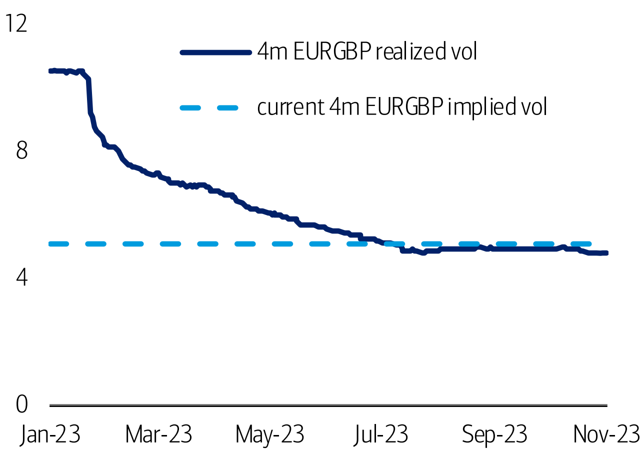
Expect vol to rise on widening divergence between EU and UK

The data mix between UK and EU has not evolved in the same direction in 2023. UK currently has below average growth and above average inflation, when compared with major global economies (Exhibit 19). In comparison, inflation and growth have been falling faster for the EU. Path of fiscal policy should lead to wider diverging between the EU and UK next year as well. Within the Euro Area, our economists expect fiscal policy to be mildly restrictive in 2024 except for Italy. But for now, Italy is in a "patient equilibrium" in which market is happy to give time for Italy to mitigate the fiscal risk. To the contrary, current market yield is above long-term growth prospect for the UK, and we still expect some fiscal easing to come in the next year's Spring Budget Statement in March, which may be challenged by the market.

More than 60% of the time in 2023, the 4m EURGBP realized vol has been above current level of 4m implied (Exhibit 18). Current level of 4m EURGBP vol offers a cheap hedge for widening economic and fiscal path between the EU and UK in 2024. The risk would be a broadly low-vol environment for the first quarter of 2024.

Exhibit 18: Realized vol has been above current level of implied vol 60% of the time in 2023

4m EURGBP implied vs realized vol



Source: BofA Global Research, Bloomberg

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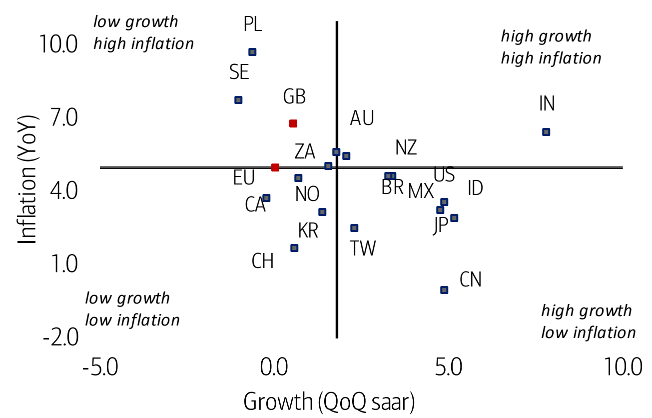
Exhibit 19: UK has above avg inflation + below average growth; EU has below avg inflation and growth

Growth vs inflation mix for major global economies



Source: BofA Global Research, Bloomberg

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Options Risk Statement

Potential risk at expiry and options limited duration risk

Unlike owning or shorting a stock, employing any listed options strategy is by definition governed by a finite duration. The most severe risks associated with general options trading are total loss of capital invested and delivery/assignment risk...all of which can occur in a short period.

Investor suitability

The use of standardized options and other related derivatives instruments are considered unsuitable for many investors. Investors considering such strategies are encouraged to become familiar with the "Characteristics and Risks of Standardized Options" (an OCC authored white paper on options risks). U.S. investors should consult with a FINRA Registered Options Principal. For detailed information regarding the risks involved with investing in listed options:
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