

Global Economic Viewpoint

What is different between the US and the Euro area?

Different shocks, different fundamentals

Some seem puzzled by the relative weakness of the Euro area compared to the US and, at the same time, the relative stickiness of inflation there. But the types of shock both regions have faced since the beginning of the pandemic and the varying policy responses to them go a long way in explaining the differences today. The US is all about too much demand. Meanwhile, demand was never strong in the Euro area. Inflation is, hence, a different animal in each region. But disinflation is already happening everywhere and the Euro area is catching up fast with the US. Given the policy responses, we expect Euro area inflation to return to target in late 2024 and undershoot by 2025. In the US, we think inflation will remain above target through end-2025.

Back to the future: three key themes

First, policy is in very restrictive territory in the Euro area, but this is less clear in the US, given its recent outperformance. Hence, if we were to see higher neutral rates than before, this would be more likely in the US. Second, there is still a chronic insufficiency of aggregate demand in the Euro area. With monetary policy too tight in the foreseeable future and risks that fiscal policy also moves this way, we could eventually end up returning to the low inflation equilibrium. This is much less likely in the US. Third, we have the same path for rate cuts in both regions in 2024 and 2025, with one cut per quarter, starting in June 2024. But, given our expectations of an inflation target undershoot in the Euro area in 2025, we could end up seeing much faster cuts there than in the US.

Rates: trade ideas for “back to the future” themes

We recommend three trades in particular to position for the themes above: (1) **2y3y €str OIS vs paying 2y3y SOFR OIS**: positioning for a repricing lower of the neutral rate in EUR vs the US. This is also supported by the relative net International Investment Position of the two regions. (2) **Paying 1y1y EUR real rates**: a return to the low inflation era in the Eurozone supports this expression. And (3) Further out the curve, the high EUR breakevens vs US may persist and we prefer a 10s30s nominal flattener in EUR vs US. When it comes to the pace of cuts, we believe the market is already pricing in a very slow pace for the US in '24 vs EUR.

FX: US-EZ decoupling supports the USD for now

The better growth-inflation US trade-off compared with that of the Eurozone, as well as the rest of the world, explains to a large extent the weaker EURUSD since July. Historically, such US decoupling does not last for long, but we would expect it to continue supporting the USD in the meantime. Some negative shocks that affect the Eurozone could prove to be persistent or even permanent, which in turn could lead to a lower long-term EURUSD equilibrium. Fiscal policy considerations also matter for both the growth paths and the FX implications looking forward.

Trading ideas and investment strategies discussed herein may give rise to significant risk and are not suitable for all investors. Investors should have experience in relevant markets and the financial resources to absorb any losses arising from applying these ideas or strategies.

BofA Securities does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 16 to 18. Analyst Certification on page 15. 12607727

Timestamp: 04 October 2023 02:23AM EDT

04 October 2023

Economics
Global

Ruben Segura-Cayuela
Europe Economist
BofA Europe (Madrid)
+34 91 514 3053
ruben.segura-cayuela@bofa.com

Aditya Bhawe
US Economist
BofAS
+1 646 855 9929
aditya.bhave@bofa.com

Alessandro Infelise Zhou
Europe Economist
BofASE (France)
alessandro.infelise_zhou@bofa.com

Shruti Mishra
US and Global Economist
BofAS
smishra44@bofa.com

Sphia Salim
Rates Strategist
MLI (UK)
+44 20 7996 2227
sphia.salim@bofa.com

Meghan Swiber, CFA
Rates Strategist
BofAS
+1 646 855 9877
meghan.swiber@bofa.com

Mark Cabana, CFA
Rates Strategist
BofAS
mark.cabana@bofa.com

Mark Capleton
Rates Strategist
MLI (UK)
mark.capleton@bofa.com

Athanasios Vamvakidis
FX Strategist
MLI (UK)
+44 20 7995 0279
athanasios.vamvakidis@bofa.com

See Team Page for List of Analysts

Please see [Global Emerging Markets Weekly](#) for a list of our open trades and a list of our closed trades.

Economics: it's all about the shocks

Ruben Segura-Cayuela
BofA Europe (Madrid)
ruben.segura-cayuela@bofa.com

Aditya Bhave
BofAS
aditya.bhave@bofa.com

Alessandro Infelise Zhou
BofASE (France)
alessandro.infelise_zhou@bofa.com

Shruti Mishra
BofAS
smishra44@bofa.com

Different shocks, different policies, different fundamentals

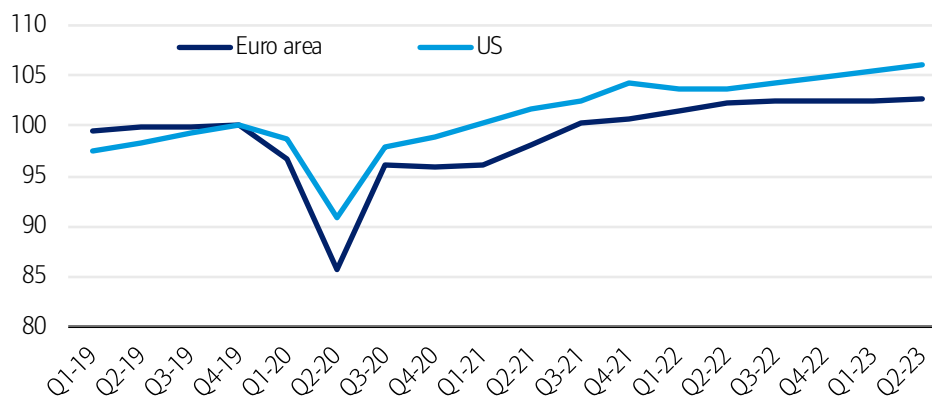
It's been three-and-a-half years since the start of the pandemic-driven lockdowns. Since then, many have been tempted to treat the economic performance of the Euro area as a lagged version of what we have seen in the US. Right now, some seem puzzled by the relative weakness of the region compared with the US and, at the same time, the relatively stickiness of inflation in the region. We argue that, in the same way that the Euro area was never a lagged version of the US, its recent performance is less of a puzzle too. The types of shock both regions have faced since the beginning of the pandemic and the varying policy responses go a long way in explaining the different fundamentals today.

The US economy is the outperformer

Exhibit 1 shows GDP levels in the US and Euro area since right before the pandemic. Despite a technical recession in 1H 22, cumulative US economic growth since 4Q 2019 has been close to trend (1.7-1.8%). Meanwhile, the Euro area never converged to pre-Covid trends and only reached the pre-pandemic level of GDP in 2H21. The gap between the two regions was exacerbated by the asymmetric shock created by the war in Ukraine. Starting in 3Q 2022, Euro area GDP has been essentially flat for four consecutive quarters, while the US economy has grown 2.4%.

Exhibit 1: Real GDP level (4Q-19 = 100)

Much stronger recovery in the US



Source: BofA Global Research, Eurostat, BEA

BofA GLOBAL RESEARCH

A quick comparison of our latest forecasts to our year-ahead forecasts for 2023 shows significant upgrades to the US outlook but essentially a pull-forward of growth in the Euro area. So, while the US has clearly outperformed expectations, Euro area growth has surprised only slightly to the upside.

Our Euro area forecasts continue to reflect our long-standing view that the war in Ukraine is a permanent income shock that would depress activity persistently as economic agents try to smooth it. Meanwhile, consensus initially understood the shock as V-shaped, and was therefore too pessimistic at the start of the war and too

optimistic on the medium-term outlook. Meanwhile in the US, the resilience of the economy has led us to shift our base case from a mild recession to a soft landing: a sustained period of below-trend but positive growth. The relatively lower exposure to China also helps the US. Going forward, indeed, oil and the outlook in China are clearly bigger risks for the Euro area than they are for the US. Putting everything together, both regions are expected to grow below trend next year, although the gap between them will likely widen. Then for 2025 we are forecasting 1.3% growth in both regions, which would be soft for the US and slightly above trend in the Euro area (Exhibit 2).

Post-Covid recovery: income divergence, consumption divergence

The divergent economic performance between the US and the Euro area has had a lot to do with the way each region responded to the pandemic. Indeed, their approaches were very different in terms of fiscal policy, leading to very different outcomes.

Covid-related policy support was much more generous and timelier in the US than in the Euro area, leading to a faster and stronger economic recovery there (Exhibit 1), especially on the consumer side. It was not only the sheer size of the stimulus (around \$6tn) but also the way in which it was delivered: the US stimulus checks provided an immediate boost to household spending capacity, particularly among lower-income workers who were most impacted by Covid job losses. Meanwhile, Europe's encompassed short-term-work schemes contained the fall in disposable income effectively, without providing much impulse beyond that. This is clearly seen in the relative evolution of disposable income in both regions. In addition to stimulus checks, US household balance sheets have been supported by stock market gains (on net, since the start of the pandemic) and large gains in home prices.

Exhibit 2: BofA forecasts, 2023 Year Ahead vs current

Euro area barely surprised, while the US is consistently outperforming

2023 BofA Year ahead	2022	2023	2024
Euro area	3.3	0	0.9
US	1.9	-0.3	0.9

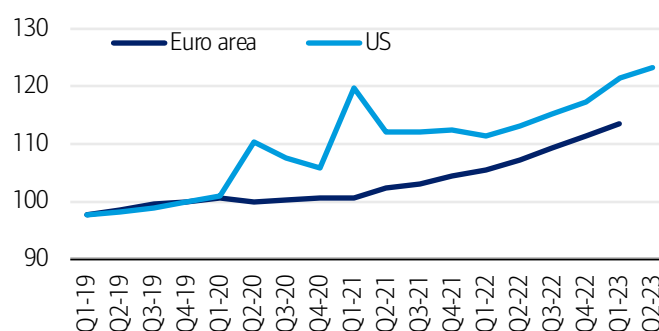
Current forecast	2022	2023	2024	2025
Euro area	3.4	0.5	0.5	1.3
US	1.9	2.1	1.1	1.3

Source: BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 3: Gross disposable income (4Q-19 = 100)

Much stronger US disposable income dynamics, thanks to fiscal stimulus



Source: BofA Global Research, INSEE, BEA

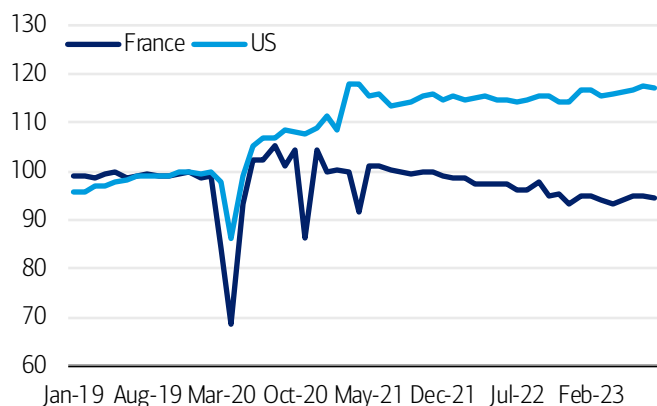
BofA GLOBAL RESEARCH

Then, in the post-pandemic recovery, US households found a stronger labour market with much higher wage growth. This was not the case in the Euro area, where more subdued demand dynamics and less tight labour markets kept wage gains contained for much longer. This is quite evident in gross disposable income data (Exhibit 3, in nominal terms) – US income figures remained steadily above the pre-Covid trend from 2020 onwards and, despite some recent catching up in European nominal salaries, the gap remains substantial. Finally, US households have benefited from a favourable fiscal impulse this year. Several factors have driven a material widening in the budget deficit, including inflation indexation of social security benefits (paid out to a large cohort of retirees) and tax brackets.

The cross-Atlantic divergence in income profiles translates into similarly diverging consumption dynamics. Goods consumption spending is clearly well above pre-Covid levels and pre-Covid trends in the US. But this “excess goods consumption”, which was one of the determinants of supply chain tensions and strong core goods inflation across countries, is mainly a US story.

Exhibit 4: Goods consumption in real terms (Dec-19 =100)

Excess goods consumption was mainly a US story

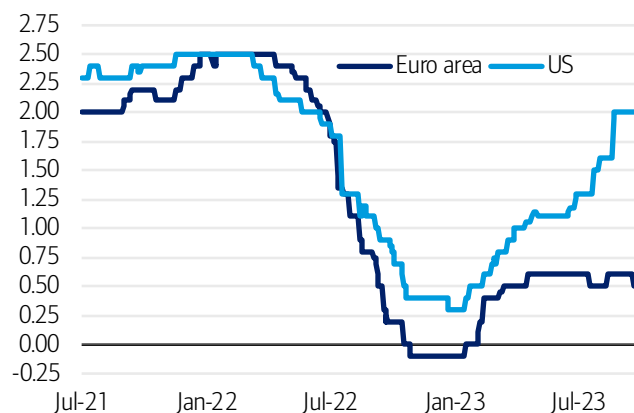


Source: BofA Global Research, INSEE, BEA

BofA GLOBAL RESEARCH

Exhibit 5: Consensus GDP growth forecasts for 2023

Even this year, the bigger upside surprise to growth has been in the US

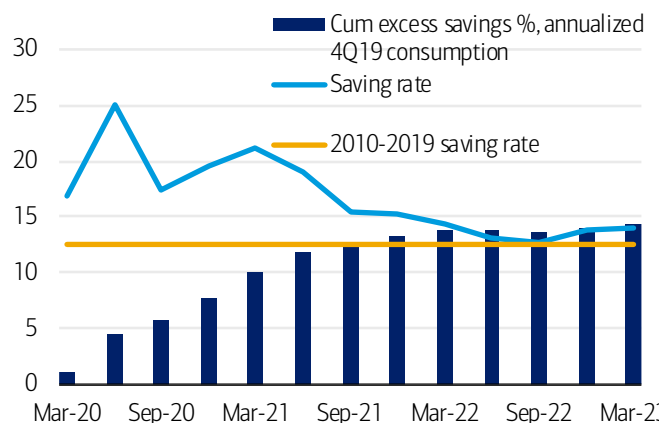


Source: Bloomberg

BofA GLOBAL RESEARCH

Exhibit 6: Euro area excess savings, % of annualized consumption

Excess savings are likely at around 15% of annualized consumption

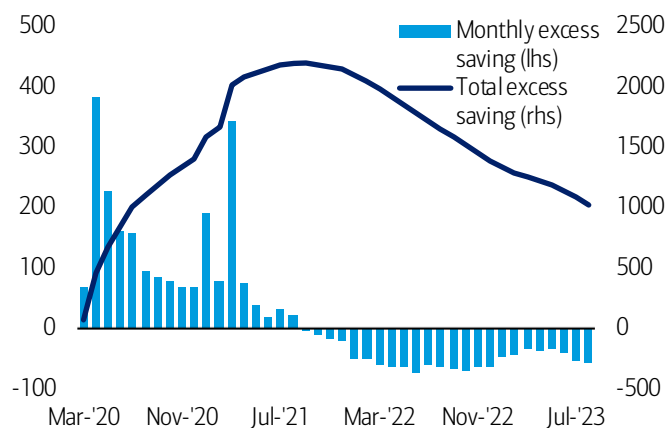


Source: Eurostat, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 7: Excess saving (\$bn)

After the benchmark revisions, we estimate that excess savings were around \$1.0tn in August



Source: BEA, Haver Analytics, BofA Global Research. Excess savings calculated by comparing actual savings to what savings would have been if the saving rate held at the average rate in 2019.

BofA GLOBAL RESEARCH

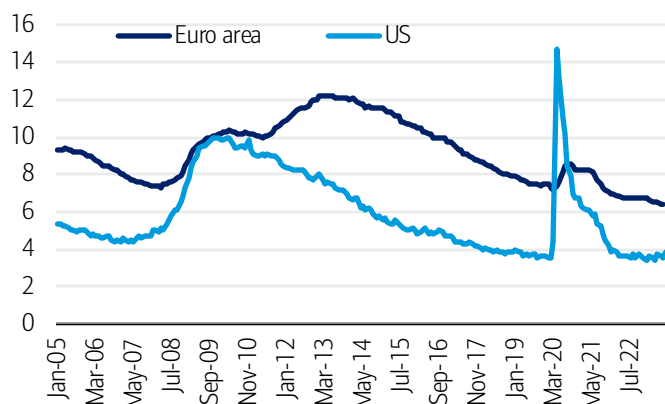
In the Euro area, there has been little evidence of any recoup of pent-up demand for goods after the lockdown-related dips. And the 2022-1H2023 energy price shock (which was more acute in Europe) exacerbated the relatively weaker position of European consumers. Real consumption of goods is now almost 20% higher than pre-Covid levels in the US, but almost 5% lower than pre-Covid levels in France (and France, among European peers, was one of the most effective at protecting households from both Covid and the energy shock).

Labour market: still different, behind the headlines

With longer-term inflation dynamics in the spotlight, labour market data remains the focus of data-watchers on both sides of the Atlantic. For once, Europe was more efficient at dealing with the initial pandemic shock, thanks to the furlough schemes (less search frictions kept wages at bay during reopening). Meanwhile, the US labour market recovered sharply but then eventually overheated. Our view on this has been quite consistent: while the unemployment rate has reduced in both economies (Exhibit 8) and employment levels have rebounded in a clear way (Exhibit 9), the broader data keep us convinced that the Euro area labour market is not (and never was) as tight as the US one.

Exhibit 8: Unemployment rate (%)

Headline labour market variables are strong on both sides of the Atlantic



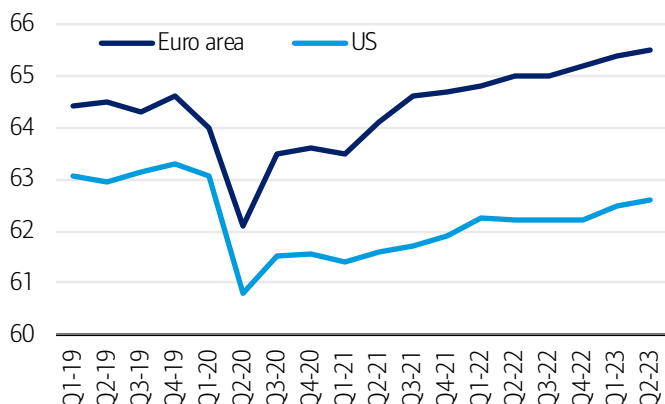
Source: Eurostat, BLS

BofA GLOBAL RESEARCH

The aggressive Covid fiscal stimulus via consumer checks in the US produced a much stronger recovery than the Euro area's partial income replacement via labour retention schemes. This – paired with larger labour supply drops vs Europe (due to early retirements and a slowdown in immigration flows, Exhibit 10) – tightened the US labour market and quickly created wage growth pressure. The recovery in the Euro area labour market has been decent overall, but the Euro area economy is (and will likely remain) too weak for the US-style demand-driven overheating.

Exhibit 10: Participation rate, %

Euro area labour supply has remained stronger

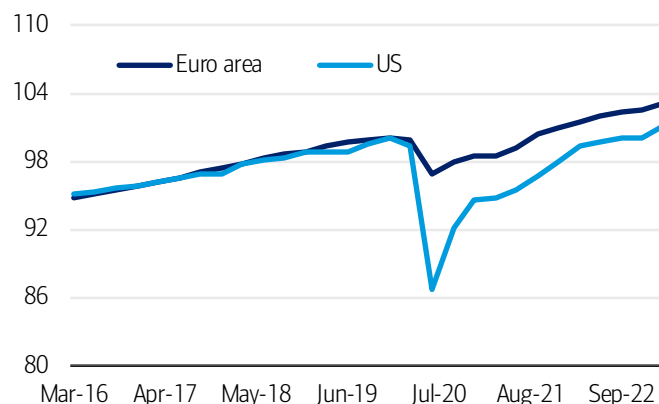


Source: Eurostat, BLS. Note: age 15-74 in the Euro area, civilian 16+ in the US

BofA GLOBAL RESEARCH

Exhibit 9: Employment levels (4Q-19 = 100)

Employment levels have rebounded in both economies

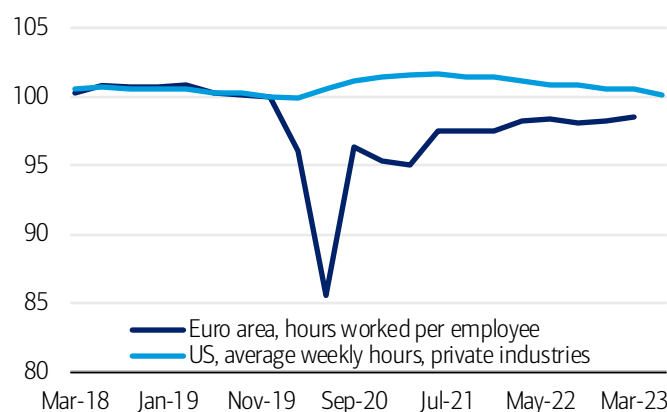


Source: BofA Global Research, Eurostat, ONS, BLS

BofA GLOBAL RESEARCH

Exhibit 11: Hours worked per employee, 4Q-19 = 100

In the Euro area, significant labour market slack is hidden in the hours worked data



Source: Eurostat, BLS

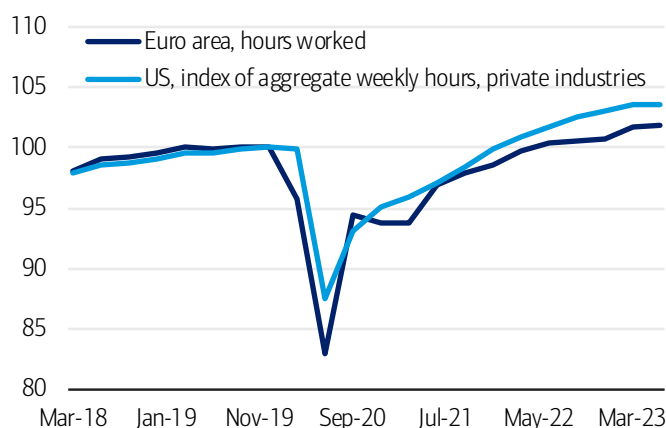
BofA GLOBAL RESEARCH

The differential behaviour of capex in both regions has also contributed to the divergent labour markets (Exhibit 13). Fixed investment in the Euro area is still below 2019 levels. Meanwhile in the US, fixed investment has held up better than expected during the Fed tightening cycle. A precise comparison of capex components between the regions is challenging because of differences in the way the data are reported. But the big gap between the regions seems to be in intellectual property investment.

In other components – residential investment, structures and equipment – the Euro area appears to have kept up with or outpaced the US since the start of the pandemic. But note that structures and equipment investment has recently surged in the US, rising by over 8% annualized in 1H 2023. Manufacturing structures have led the way, likely spurred by incentives in the CHIPS Act and the Inflation Reduction Act (IRA). So, the investment gap between the two regions is unlikely to close in the coming quarters.

Exhibit 12: Aggregate hours worked, 4Q-19 = 100

Despite weaker participation, the US has seen a larger increase in total hours worked than the Euro area since the start of the pandemic

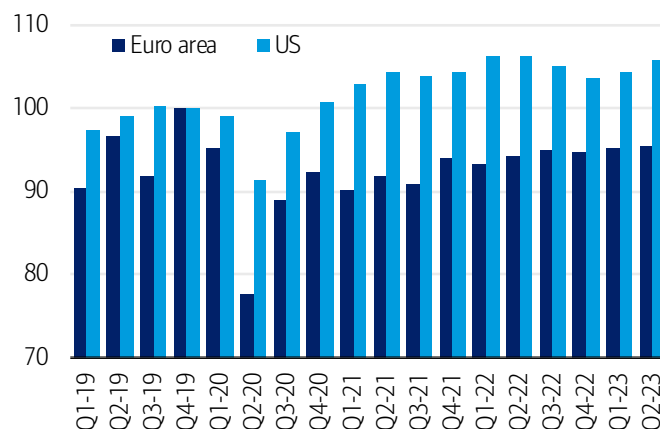


Source: Eurostat, BLS

BofA GLOBAL RESEARCH

Exhibit 13: Fixed investment, 4Q-19 = 100

Much weaker investment dynamics in the Euro area



Source: Eurostat, BEA

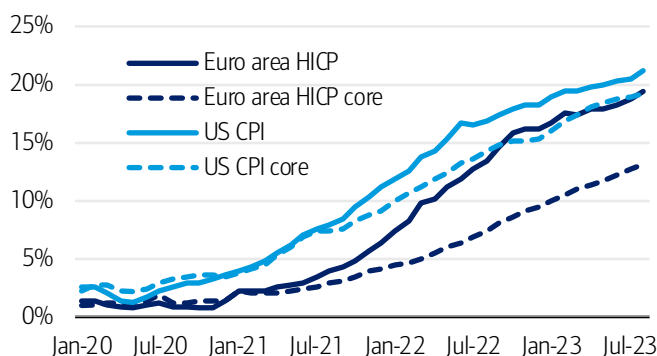
BofA GLOBAL RESEARCH

Fundamentals still matter for inflation

Why is inflation taking longer to moderate in the Euro area? Some perspective helps. First, cumulative inflation has been significantly higher in the US than in the Euro area since the beginning of the pandemic (Exhibit 14) and the US transmitted this inflation to the rest of the world. Second, the energy price shock hit disproportionately more in the Euro area and given its magnitude, it takes time to filter through the whole economy (Exhibit 15). There are large pandemic-related distortions that have exacerbated inflation moves on the way up and on the way down. But overall, the US is a story of significant overheating, while Europe is one of a very sizeable terms-of-trade shock.

Exhibit 14: Cumulative inflation, since Jan-19 (yoy%)

Cumulatively, inflation is higher in the US

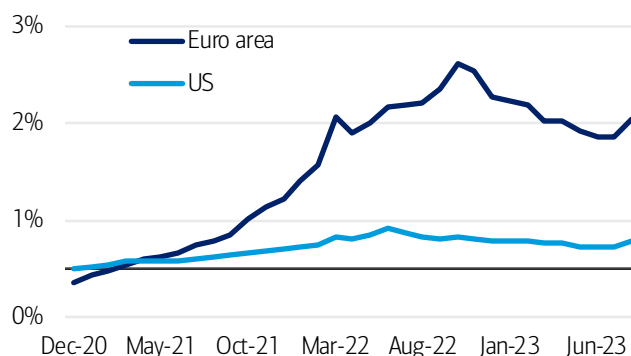


Source: Eurostat, BLS, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 15: Cumulative contribution of energy inflation, since Jan-19

Energy price shock hit disproportionately more in the Euro area



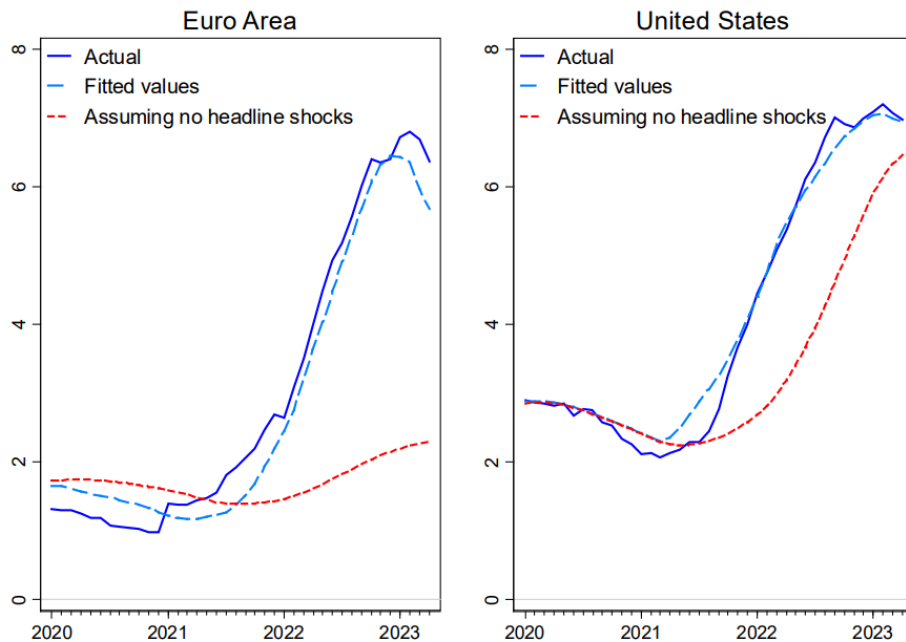
Source: Eurostat, BLS, BofA Global Research

BofA GLOBAL RESEARCH

This is put nicely by the IMF's Chief Economist Pierre-Olivier Gourinchas in a recent paper, where he shows empirically that much of the increase in core inflation in the Euro area reflects the pass-through of headline inflation shocks, while in the US, the rise in core inflation also reflects significant overheating of the economy (Exhibit 16).

Exhibit 16: Gourinchas (2023), predictions for core inflation during 2020-23 (12m, %)

Core inflation increase in the Euro area reflects the pass-through of headline-inflation shocks. In the US, rise in core inflation also reflects significant overheating of the economy.



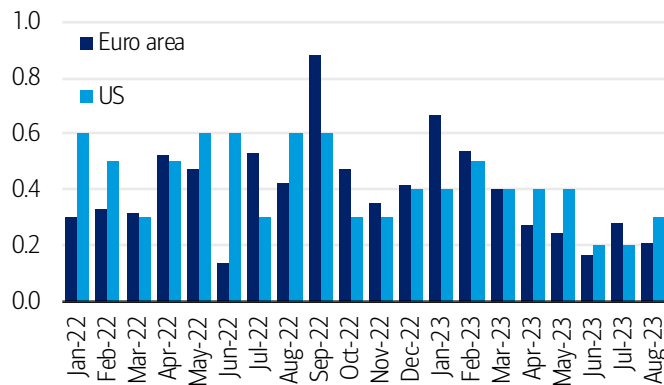
Source: Gourinchas (2023), ECB

BofA GLOBAL RESEARCH

The US created externalities for the rest of the world given its “excess demand” for goods, exporting inflation elsewhere. Then, when goods disinflation started there, the Euro area got hit by a massive energy price shock, which made the US-driven shock a lot more persistent. This shock needs to filter through the whole economy – from wholesale energy prices to retail prices for energy, then to input prices, then to core goods and finally services. But, as we have been arguing, as long as inflation expectations remained anchored and wages do not show strong second round effects, this shock would fade eventually, and we do not need a hard landing to get inflation down.

Exhibit 17: Core inflation, month-on-month SA (%)

Euro area catching up with US core disinflation

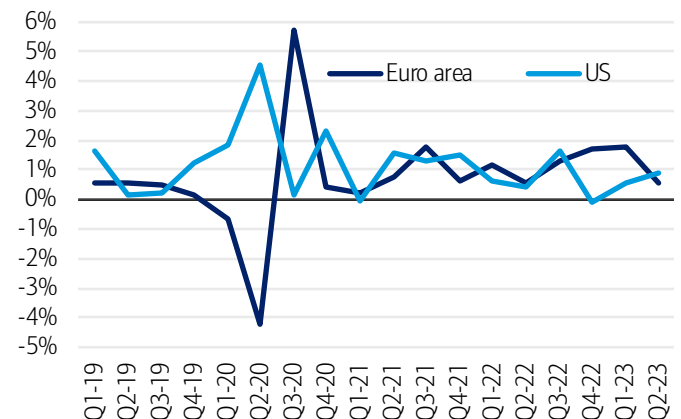


Source: BofA Global Research, Eurostat. Note: Euro area SA with bottom-up approach

BofA GLOBAL RESEARCH

Exhibit 18: Compensation of employees, % quarter-on-quarter

Euro area sequential wage growth seems to be slowing



Source: ECB, BLS

BofA GLOBAL RESEARCH

In fact, disinflation is starting to be much more visible in the data. In Exhibit 17, we show mom SA core inflation for the two regions. The Euro area is catching up fast with the disinflation in core we already saw in the US. Exhibit 18 shows the same for wages.

Back to the future

What does it all mean? We highlight three important points:

1. There is clear evidence that policy is in very restrictive territory in the Euro area, as we have argued before ([Global Economic Viewpoint: Is refinancing the kryptonite of monetary policy? Aug 23](#)). This is less clear in the case of the US, given the recent outperformance. This suggests to us that if we were to see higher neutral rates than before the pandemic, this would be more likely in the US than in the Euro area.

Indeed, both market pricing and the Fed's recent forecasts point to risks of a higher neutral rate. Although the FOMC's (Federal Open Market Committee) median "longer run" policy rate projection remained at 2.5% in the September Summary of Economic Projections, there was upward movement in the forecasts above the median. And Chair Powell alluded to the possibility that the neutral rate was not the same as the longer run rate. We took this to mean that the neutral rate in this cycle might be above 2.5%. This is heavily implied in the FOMC's forecasts for 2026, which show an economy in equilibrium, with a (median) policy rate of 2.75-3.0%.

We think the neutral rate has probably increased since the start of the pandemic, although it is unclear whether the increase has been modest (50bp or less) or meaningful (closer to 100bp). Moreover, there is uncertainty as to whether this is because of a higher neutral real rate (r^*) or higher neutral inflation. Recall that inflation trended around 1.7-1.8% pre-Covid. In our view, it could stabilize above 2% in this cycle. In this case, policy would have to remain chronically restrictive in real terms for the Fed to achieve its 2% target. This isn't yet reflected in our forecasts because it is too early to draw strong conclusions. But it is a risk worth watching.

2. There is still a chronic insufficiency of aggregate demand in the Euro area. With monetary policy expected to remain too tight in the foreseeable future and the risks that fiscal policy also moves this way ([Europe Economic Weekly: See you for the last hike 11 August 2023](#)), we could end up back in the low inflation equilibrium the region faced in the previous decade. This is much less likely in the US where demand has been and still is solid, fiscal policy is not restrictive, and monetary policy might not be as restrictive as needed.
3. We have the same path for cuts throughout 2024, with the first cut in June followed by once per quarter. For 2025, this is also the same. But we would flag that, given our expectations of an inflation target undershoot in the Euro area in 2025, we could end up seeing much faster cuts than expected and certainly faster than in the US. For now, given that growth by then will be slightly above trend in the Euro area and the undershoot in terms of core will be small, we assume the ECB (European Central Bank) will be reluctant to accelerate. But it could easily end up seeing a faster cutting cycle.

Rates: trading “back to the future” themes

Sphia Salim
MLI (UK)

Mark Capleton
MLI (UK)

Mark Cabana, CFA
BofAS

Meghan Swiber, CFA
BofAS

Theme 1: Neutral rate divergence -> position for it via 2y3y US-EUR trade

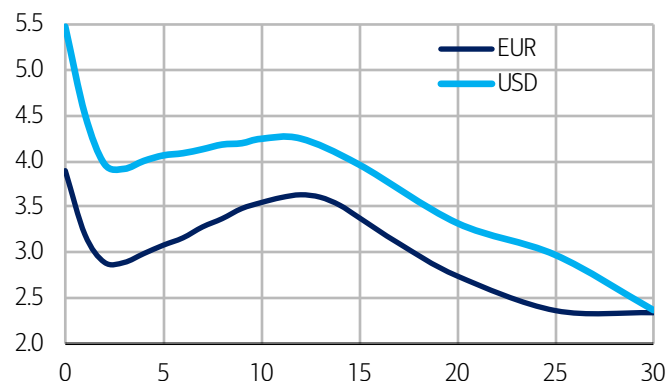
We like paying 2y3y SOFR OIS vs receiving 2y3y €str OIS to express the diverging prospects for the pricing of neutral rates in EUR vs USD. We **enter the trade at 104bp, targeting 180bp & stop at 60bp**. The risk to the trade is a sharp deterioration in the US outlook / shock that prompts the pricing of rapid US cuts or a lower neutral rate.

While neutral rate is certainly hard to determine from an economic perspective, we have been proxying the market's implied pricing of neutral by looking at the term structure of the 1y overnight index swap (OIS) curve and specifically the level at which the 1y rate is implied to through (around 2-4y forward). The idea being that the market would price in a return to neutral, from a currently restrictive policy. The presence of term premia on the curve would justify some increase in the implied 1y rate after this near term trough.

In the US, the through currently stands at around 3.9%, versus 2.9% in EUR (Exhibit 19). It rose by 80bp since end of June in the US, and by 45bp in EUR (Exhibit 20). And while our economists see potential for the nominal US neutral to indeed be above the 2.50-3% range the Fed has been guiding towards, they believe that the 2% level flagged by some ECB members since 2022 is overly optimistic, with previous ECB models instead pointing to a 1% level at best.

Exhibit 19: Market implied term structure of 1y OIS rate

The market implies cuts towards with a trough in 2 years' time

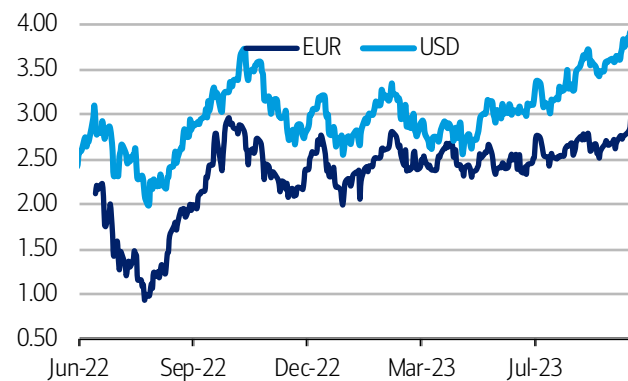


Source: BofA Global Rates Research. As of Oct 2nd

BofA GLOBAL RESEARCH

Exhibit 20: Evolution of the pricing for trough in 1y OIS rate

Market repriced trough higher in both EUR and USD in Sep-23



Source: BofA Global Rates Research

BofA GLOBAL RESEARCH

We acknowledge that 2y1y to 4y1y OIS rates represent a proxy for the market pricing of neutral mostly in the context where the market baseline is a soft landing. Expectations of a hard landing could indeed push the market to price in central bank cuts below neutral, while a situation where inflation pressures appear more persistent over time would drive the market to price in central banks remaining in restrictive territory for longer (see [“US Vol – Data resilience and volatility”](#)). We also acknowledge that the 5y part of the curve incorporates some “term premia” that is hard to isolate.

Beyond the macro aspect on neutral rates, we believe the 2y3y cross market trade can benefit from specific technicalities:

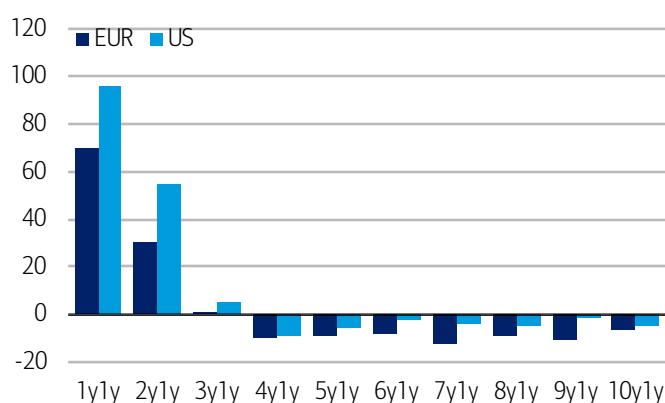
1. The trade has positive roll (10bp/annum), thanks to the large roll-down differential between US and EUR for 2y1y in particular – Exhibit 21. An environment of lower rates volatility can drive more investors towards such positive carry structures.

2. More systematic rate hedging activity in the US banking system can maintain upward pressure on US swap rates, especially in the 3-5y area. On the other hand, European banks may turn net receivers in swaps at the approach of ECB rate cuts.
3. We expect a steepening in the 2y-5y real rate curve in the US. As discussed in [Goldilocks steepener trade](#), inversion is concentrated in real rates, TIPS provide more favorable carry, and supply/ demand factors support a cheapening in 5y TIPS vs 2y TIPS.

In our rate forecasts, the view on the diverging neutral rate paths is most reflected in the larger outperformance we envisage for EUR vs US rates initially in the 5y sector, and thereafter in the 2y (Exhibit 22). We acknowledge that our rate forecasts are currently well below the market in the US. We have flagged upside risks to these forecasts and anticipate any forecast revision would likely widen the US-EU rate divergence.

Exhibit 21: 1y roll on paid positions in different forward points (bp)

Paying 2y1y US rates vs the EUR provides for around 25bp/annum in roll

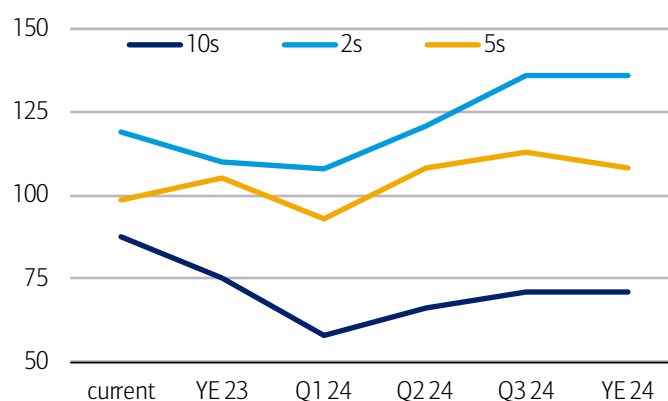


Source: Bloomberg, BofA Global Research. As of Oct 2nd

BofA GLOBAL RESEARCH

Exhibit 22: BofA forecasts: implied US-EUR spread (bp) by tenor

We look for EUR outperformance vs US in 5s and then more so in 2s.



Source: BofA Global Research. Current as of Oct 2nd

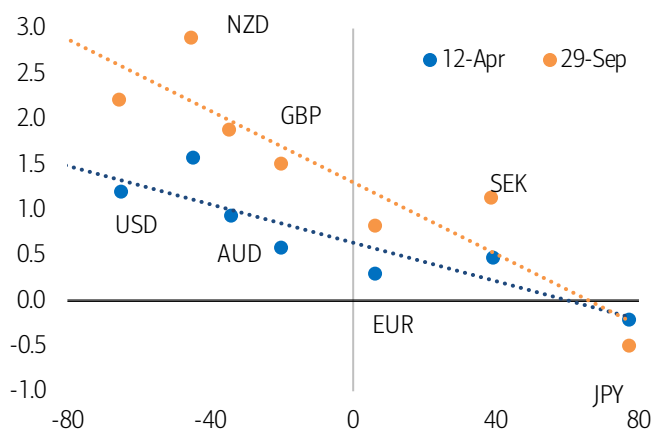
BofA GLOBAL RESEARCH

IIP pressure for a wider US-Eurozone real (and nominal) rate difference

Over and above judgments about the respective “neutral” real rates for the US and Eurozone, and the potential paths to those neutral rates, are factors that we believe are important drivers of differences between countries’ real yields. One that we think worth highlighting here is the relative net International Investment Position (IIP) of economies.

Exhibit 23: 10y linker real yields vs. Net IIP/GDP ratios, %

Increased inversion suggests heightened importance of this driver.

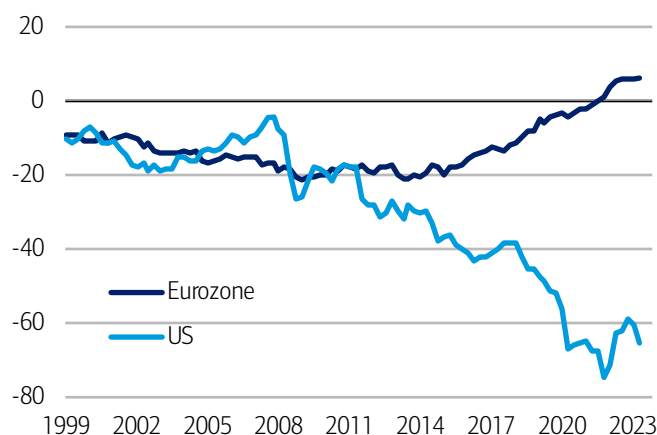


Source: BofA Global Research, Bloomberg, Refinitiv

BofA GLOBAL RESEARCH

Exhibit 24: US and Eurozone IIP/GDP ratios diverge, %

Relative trend underpins widening US-Euro yield spread.



Source: BofA Global Research, Refinitiv

BofA GLOBAL RESEARCH

This might be thought of as a “home bias” issue; the argument being that countries that run persistent current account deficits (accumulating large net external liabilities in the process) need to offer higher prospective real returns on financial assets in order to attract and retain foreign capital.

There are many potential local and global real yield drivers, but the loose inverse relationship between 10y real yields and net IIP/GDP ratios shown in Exhibit 23 does seem to support this home bias premise. This relationship has become more pronounced since we looked at it back in April, suggesting net indebted countries are being penalised more severely now (needing to offer a greater yield pick-up for a given net IIP shortfall).

Exhibit 24 shows how the US IIP/GDP ratio has declined materially relative to the Eurozone over time, underpinning a widening trend in the real (and thereby nominal) yield difference. We can assume with some confidence that this divergence will continue, at least in the near term, thanks to both recent dollar strength (reducing the dollar value of the US’s foreign assets) and the US’s persistent large current account deficits, arguing for wider US-Euro spreads.

Theme 2: return to low inflation equilibrium more likely in Euro

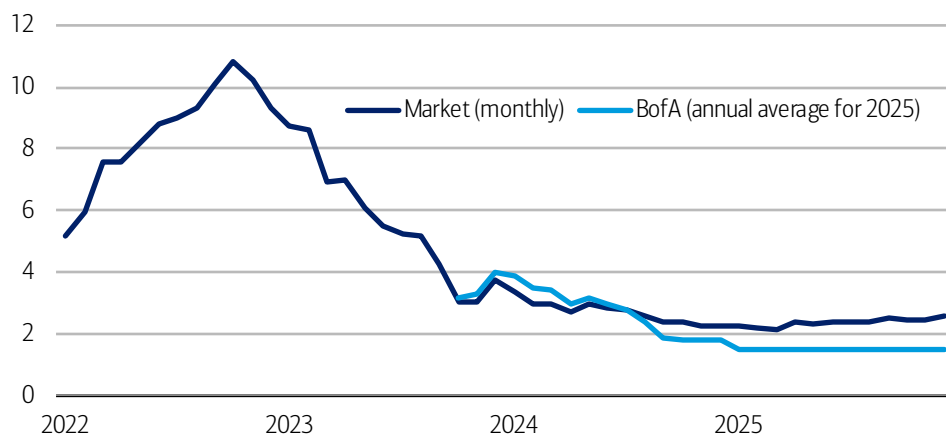
1. Despite the appealing terms, we caution investors against expressing bearish views on Eurozone vs US inflation at the long-end of the curve. Instead, we prefer to focus on an expected return to a low inflation regime in Europe by paying 1y1y real rates.

Expect higher 1y1y EUR real rates, likely via softer 1y1y inflation

2. Supported by our Economists’ analysis, we see Eurozone inflation dropping well below market expectations into 2024 and beyond. We would highlight the fact that annualised monthly core inflation, using a US-style bottom-up approach to seasonal-adjustments, shows core inflation now around target, noting that this has not required the threat of a recession (Exhibit 17, earlier in this note).
3. Our bias would therefore be to be short 1y1y EUR inflation. However, we see the combination of a market pricing rate cuts while it also prices stubborn inflation as a macro inconsistency. This can be resolved either by 1y1y inflation softening (our most likely outcome), or by 1y1y €str firming if inflation remains stickier than we expect. Either of these scenarios should mean higher 1y1y real rates. We thus see the bearish 1y1y real rate trade having better risk/reward characteristics than short 1y1y inflation.

Exhibit 25: BofA forecasts for Euro inflation versus the inflation swap market, %

Beyond one year, the underlying improvement in core inflation that we are now seeing softens headline inflation to the ECB target (and comfortably below where the inflation market is pricing).



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

In the [Global Rates Weekly, Sep 8th](#), we recommended combining 1y1y inflation and 1y1y €STR positions to pay this 1y1y real €STR rate at a then prevailing 54bp (now 84bp), setting a target of 95bp and a stop-loss at 35bp. The risk to the trade is a dovish ECB.

Why not express a US-Euro spread view at the long-end of the inflation market?

At the long end, the 10y20y implied inflation differential is very large, with the Euro forward rate trading 25bp above the US equivalent. Bearing in mind that the Fed targets PCE (personal consumption expenditure) inflation and allowing for a US (consumer price index) CPI-PCE “wedge” of say 30bp (the historic average) would suggest that the Euro forward rate is at least 50bp too expensive versus the US if it were assumed that both central banks achieve their targets over the period.

We would go further and say that with an ECB that is determined to deliver on its sole mandate and a Fed that can be more cognisant of the growth aspect of its dual mandate, the US-Euro inflation spread should be larger still.

However, we are wary of opposing this apparent mispricing. Relative scarcity of Euro inflation-linked bonds and inflation paying is an important consideration. With a market value of €543bn, the Euro inflation-linked government bond market is barely more than a third of the size of the TIPS market (by contrast, the nominal Euro market is almost two thirds of the size of the US’s). This difference is felt most acutely at the long end, with 30y Euro linker issuance particularly light and with speculative players less willing to trade against perceived expensiveness. Perhaps the situation is felt more severely now because the Fed is unwinding its balance sheet at full speed while the ECB’s QT is only partial, and because this year sees negative net issuance of linkers in the Eurozone.

1. As a result, for the near term, we prefer expressing this theme in nominal space via a 10s30s US-EUR box and enter a 10s30s Euribor flattener vs 10s30s SOFR OIS steepener at 0bp, targeting 40bp, stop at -20bp. This would also incorporate:
2. our views on the steepening potential in the US curve due to an acute supply / demand imbalance & potential for higher term premium at the back end of the US rates curve (see [Little Dipper](#)).
3. The flattening potential in the EUR long end due to a pick-up in long-end receiving into year-end: from Dutch Pension Funds, due to indexation effects (even if the corresponding flows are likely to be smaller than last year’s) and dynamic hedging in a selloff. And from insurers in a scenario where the rally momentum unfolds, providing a green light to accelerated de-risking.

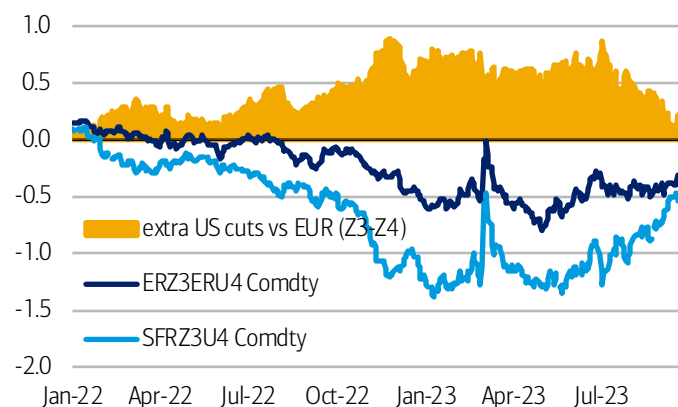
The risk to the trade would be the absence of long-end receiving in EUR from the LDI community vs continued de-risking in the US.

Theme 3: potential for faster cuts in the Eurozone, when the cutting cycle starts

On the pace of cuts, we would argue that it is not the right time to position for more rapid cuts by the ECB in 2025. In fact, we find that the weaker EZ data this summer has already prompted investors to position this way relative to the US, allowing the EUR money market curve (whites-reds) to stay flat while the US money market curve priced out c.50bp of cuts in ’24.

Exhibit 26: Pricing of cuts in US vs EUR, using Dec23-Sep24 futures

As the market priced out cuts in the US but not in EUR, we are pricing in the least amount of extra US cuts vs EUR since Jul-22



Source: Bloomberg, BofA Global Research

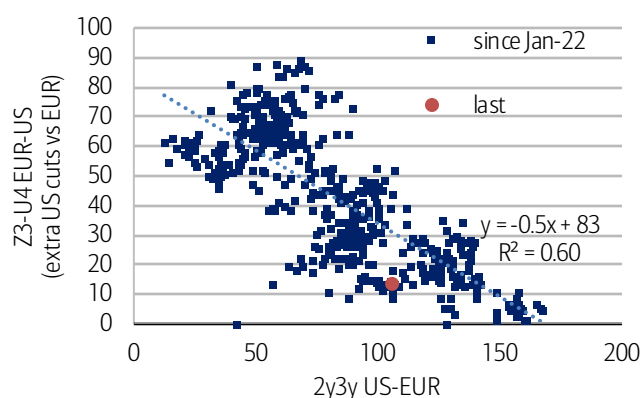
BofA GLOBAL RESEARCH

We are now pricing the least amount of Fed cuts relative to ECB cuts in 2024 since the start of the ECB hiking cycle (Exhibit 25). Despite our view on the relative pricing of neutral rates in US vs EUR outlined above, we believe that this outperformance in 2024 Euribor contracts can be faded near term, given its extent. Indeed, the Z3-U4 EUR-USD box appears around 20bp too low (pricing too few Fed cuts vs ECB cuts) even after accounting for the current level of 2y3y US-EUR spread (Exhibit 26).

In [Liquid insight, Sep 25th](#), we entered a cross market box: steepener in Euribor Z3-U4 vs flattener in SOFR Z3-U4, at 16.5bp. It is currently at 13.5bp. We target 50bp with a stop at 0bp. The risks to the trade include strong forward guidance from the Fed on high for long and/or significant downside surprises in Euro area inflation.

Exhibit 27: The Z3-U4 box vs 3y2y spread in US vs EUR

The 2y3y US-EUR spread would have to widen by c.50bp to justify the current limited number of US cuts priced for 2024 vs EUR



Source: Bloomberg, BofA Global Research. Last of Oct 2nd

BofA GLOBAL RESEARCH

FX: US-EZ decoupling supports the USD for now

Athanasios Vamvakidis

MLI (UK)

athanasios.vamvakidis@bofa.com

This has been another good year for the USD. The USD is weaker from its peak a year ago, when a perfect storm of shocks including sharp rise in inflation, high energy prices and terms of trade shocks, the war in Ukraine, China's zero Covid tolerance, and Fed policy catch up vs. ECB late policy normalization led to the USD to 20-year highs in nominal terms and 40-year highs in real terms. However, the USD is broadly flat for the year, while the strong consensus was for a much weaker level. Our forecast for EURUSD has been 1.05, only slightly above current spot, while the consensus has moved from 1.15 to currently 1.09.

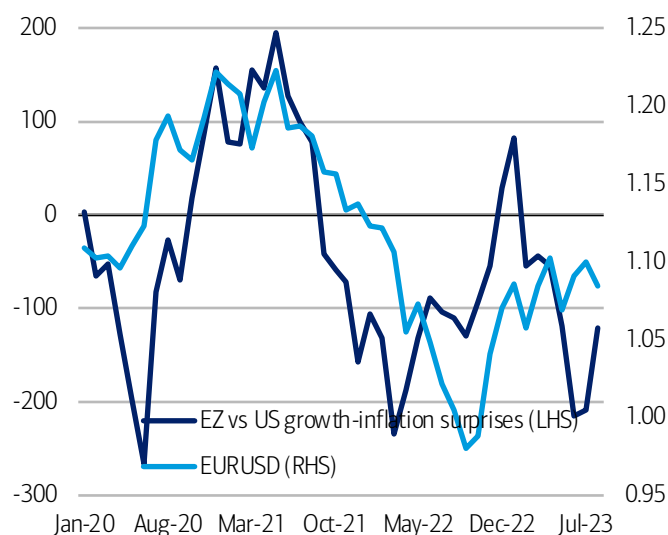
To a large extent, the resilient USD has to do with the decoupling of the US economy from the rest of the world. So far this year, US growth has surprised positively, particularly compared with that of the Eurozone and of China (see [Miracle on Main Street 11 August 2023](#)). In addition, US core inflation, although still high, has declined more consistently and is lower than core inflation in the Eurozone. The US has been facing a much better growth-inflation trade-off than the Eurozone. In relative terms, the US is closer to a soft-landing scenario, while the Eurozone is closer to a stagflation/slowflation scenario. Both the US decoupling and the negative shocks that to a large extent explain why the Eurozone has fallen behind are weighing on EURUSD.

The correlation between inflation and FX was positive during the stage in which central banks were catching up last year and early this year, but has now shifted. With central banks now at the terminal rate or almost there, the market is focusing on the landing scenario instead (see [Growth-inflation trade-off and FX 16 August 2023](#)). Countries with a better growth-inflation trade-off have a better chance of a soft landing and are likely to end up with a higher neutral rate (r^*), which also means a stronger currency. Persistent inflation increases the risk of a hard landing, as central banks may need to push rates higher and keep them high for longer than otherwise. In some cases, a hard landing may be the only way to bring down persistent inflation (see [The curious case of \$r^*\$ 23 June 2023](#)).

We believe that the better growth-inflation US trade-off compared with that of the Eurozone explains to a large extent the weaker EURUSD since July. Subtracting the latest inflation surprises from the overall data surprises compared with consensus forecasts for the US and the Eurozone gives a negative number, which historically is consistent with a weaker EURUSD (Exhibit 28). Stronger growth and lower inflation in the US compared with market expectations than that of the Eurozone has pushed EURUSD down.

Exhibit 28: US vs. Eurozone, overall data – inflation surprises

The latest US growth-inflation mix vs. the Eurozone compared with consensus points to EURUSD downside

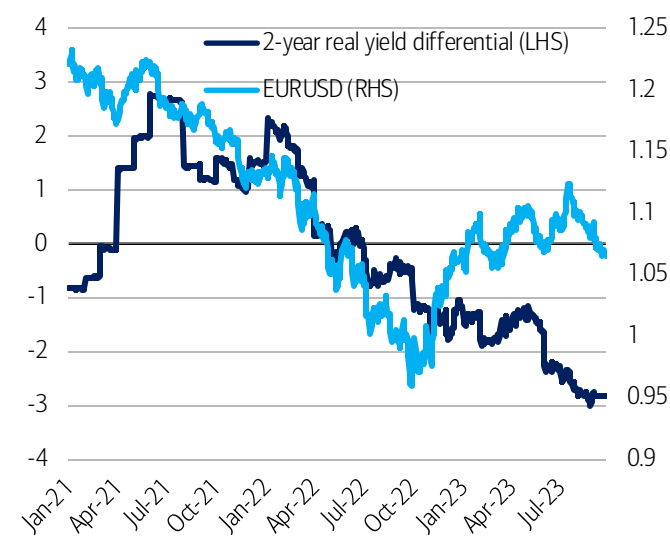


Source: Bloomberg, BofA Global Research.

BofA GLOBAL RESEARCH

Exhibit 29: EURUSD and real rate differentials

EZ-US real rate differentials point to weaker EURUSD



Source: Bloomberg, BofA Global Research. Note: nominal rates deflated by latest core inflation.

BofA GLOBAL RESEARCH

Real rate differentials also point to weaker EURUSD (Exhibit 29). A better US economic performance points to a higher r^* (neutral rate). Lower inflation leads to higher real rates. Both explain recent EURUSD weakness and point to further downside risks.

Looking ahead, a key question is for how long the US decoupling from the rest of the world can continue. Historically, it is rare and tends to correct in subsequent quarters (see [Could the US growth exceptionalism last? 19 September 2023](#)). Indeed, the latest data already show a narrowing gap. However, new terms of trade shocks, such as the recent increase in energy prices, could lead to further divergence again. To the extent that some of these shocks are temporary, their FX impact should also not last for long. EURUSD remains historically weak and we expect it to appreciate towards its long-term equilibrium starting next year. However, some of these shocks can be persistent or even permanent, which in turn could lead to a lower long-term EURUSD equilibrium.

Fiscal policy considerations are also important when we think about economic divergence and its FX implications. As we discussed in detail above, much looser fiscal

policy in the US during and after the pandemic compared with that of the Eurozone is one of the reasons of faster US growth. Tighter fiscal policies ahead could lead to weaker growth—as well as lower inflation—weakening the currency. With US elections next year, we see no prospects for fiscal policy tightening. Moreover, none of the potential candidates has flagged any plans for fiscal consolidation. In the Eurozone, a lot depends on when the fiscal rules, which they have suspended since the pandemic, will come back and what form they will take after their likely reform. At this point, loose fiscal policy supports the USD, through stronger economic growth and tighter monetary policy than otherwise. In the longer term however the correlation may shift, as fiscal sustainability concerns could come to the fore.

Analyst Certification

We, Mark Cabana, CFA, Mark Capleton and Sphia Salim, hereby certify that the views each of us has expressed in this research report accurately reflect each of our respective personal views about the subject securities and issuers. We also certify that no part of our respective compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Disclosures

Important Disclosures

BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible. BofA Securities fixed income analysts regularly interact with sales and trading desk personnel in connection with their research, including to ascertain pricing and liquidity in the fixed income markets.

Other Important Disclosures

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

This report may refer to fixed income securities or other financial instruments that may not be offered or sold in one or more states or jurisdictions, or to certain categories of investors, including retail investors. Readers of this report are advised that any discussion, recommendation or other mention of such instruments is not a solicitation or offer to transact in such instruments. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor for information relating to such instruments. Rule 144A securities may be offered or sold only to persons in the U.S. who are Qualified Institutional Buyers within the meaning of Rule 144A under the Securities Act of 1933, as amended. SECURITIES OR OTHER FINANCIAL INSTRUMENTS DISCUSSED HEREIN MAY BE RATED BELOW INVESTMENT GRADE AND SHOULD THEREFORE ONLY BE CONSIDERED FOR INCLUSION IN ACCOUNTS QUALIFIED FOR SPECULATIVE INVESTMENT.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

The securities or other financial instruments discussed in this report may be traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these instruments are exempt from registration or have been qualified for sale.

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

This report, and the securities or other financial instruments discussed herein, may not be eligible for distribution or sale in all countries or to certain categories of investors, including retail investors.

Individuals identified as economists do not function as research analysts under U.S. law and reports prepared by them are not research reports under applicable U.S. rules and regulations.

Macroeconomic analysis is considered investment research for purposes of distribution in the U.K. under the rules of the Financial Conduct Authority.

Refer to [BofA Global Research policies relating to conflicts of interest](#).

"BofA Securities" includes BofA Securities, Inc. ("BofAS") and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Securities" is a global brand for BofA Global Research.

Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no. 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofam.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Investment Industry Regulatory Organization of Canada; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to "Wholesale" clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the [Electronic Communications Disclaimers](#) for further information.

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your

jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information. For clients that are not accredited investors, expert investors or institutional investors Merrill Lynch (Singapore) Pte Ltd accepts full responsibility for the contents of this information distributed to such clients in Singapore.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities. This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

This report may contain a trading idea or recommendation which highlights a specific identified near-term catalyst or event impacting a security, issuer, industry sector or the market generally that presents a transaction opportunity, but does not have any impact on the analyst's particular "Overweight" or "Underweight" rating (which is based on a three month trade horizon). Trading ideas and recommendations may differ directionally from the analyst's rating on a security or issuer because they reflect the impact of a near-term catalyst or event.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments effectively assume currency risk.

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.

In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright and General Information:

Copyright 2023 Bank of America Corporation. All rights reserved. iQDatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities.

Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Securities in connection with the legal proceedings or matters relevant to such proceedings.

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS or any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.



Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.

Research Analysts

GEMs FI Strategy & Economics

Global Economics Rates & FX

Global Economics Team

+1 646 855 9322

Trading ideas and investment strategies discussed herein may give rise to significant risk and are not suitable for all investors. Investors should have experience in relevant markets and the financial resources to absorb any losses arising from applying these ideas or strategies.

