

US Economic Weekly

The Fed opened the door to a faster pace, the data must push them through

Key takeaways

- In a surprise to us, the Fed sent a strong signal about its willingness to return to a faster pace of rate hikes.
- A return to larger rate hikes is still data dependent. Data may now have to underperform expectations to get a smaller hike.
- While it may be tempting to conclude incoming data says the US is impervious to higher rates, we caution against this view.

The Fed chose to pre-position markets

We must admit we were taken by surprise this week by the willingness of the Fed to open the door to a return to a faster pace of rate hikes at Chair Powell's testimony during the semiannual Monetary Policy Report to Congress. In our view, Fed communication had already taken on board the signal from revisions to prior employment and inflation data, which pointed to more resilience and less disinflation, respectively, than the as-reported data implied. Financial markets listened, too, given how much the expected path for the federal funds rate rose between the conclusion of the February FOMC meeting and March 6 (Exhibit 1). Markets had already begun to price in a meaningful probability of a larger 50bp rate hike in March. With JOLTS, February payrolls, CPI, PPI and retail sales all arriving before the Fed meets on March 21-22, we expected a firm message from the Fed, but not much of a signal about whether the Fed was prepared to lift its policy rate by 50bp only one meeting after slowing to 25bp.

In the event, Powell's prepared remarks moved from "how high" back in the direction of "how fast." At the February FOMC meeting, the message was about "determining the extent of future increases in the target range". This week, Powell's prepared remarks said, "if the totality of the data were to indicate that faster tightening is warranted, we would be prepared to increase the pace of rate hikes." Of course, the Fed cannot revert to a faster pace without also opening the door to an even higher terminal rate. In this regard, Powell emphasized that the latest round of data "suggests that the ultimate level of interest rates is likely to be much higher than previously anticipated." Following Powell's testimony, financial markets priced in an even greater likelihood of a 50bp hike in March – with about 80% probability – and a higher terminal rate (Exhibit 1).

While a faster pace of rate hikes is still conditional on the "totality of the data", we see the Fed's shift in tone as lowering the bar for how strong the incoming data need to be to justify a larger rate increase in March. Whereas we had previously suggested February employment needed to exceed expectations by a wide margin, we think something closer to our forecast – 230k, 3.4% U-3 unemployment rate, and 0.4% m/m increase in average hourly earnings – could be enough. We still expect a 25bp rate hike in March, but we acknowledge the burden has shifted in the direction of needing weaker economic data to justify moving more slowly.

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 12 to 13.

12528459

Timestamp: 10 March 2023 04:30AM EST

10 March 2023

Economics
United States

US Economics

BofAS

Michael Gapen

US Economist

BofAS

+1 646 855 3270

michael.gapen@bofa.com

Aditya Bhawe

US Economist

BofAS

+1 646 855 9929

aditya.bhawe@bofa.com

Stephen Juneau

US Economist

BofAS

+1 202 442 7429

stephen.juneau@bofa.com

Shruti Mishra

US and Global Economist

BofAS

+1 646 855 1040

smishra44@bofa.com

Jeseo Park

US Economist

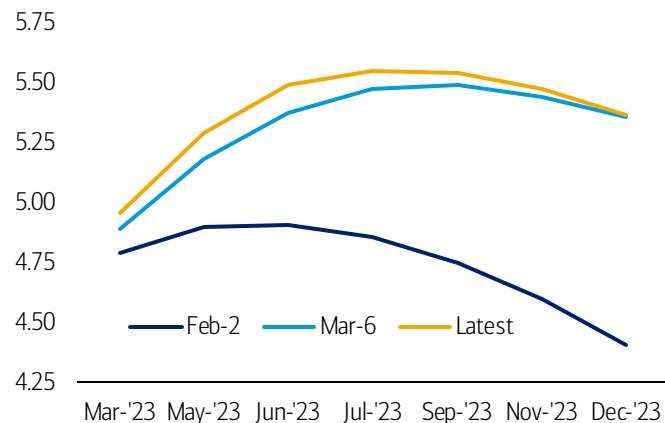
BofAS

+1 646 855 8688

jeseo.park@bofa.com[See Team Page for List of Analysts](#)

Exhibit 1: Expected federal funds path from federal funds futures prices (%)

The implied path for the federal funds rate rose substantially prior to Chair Powell's testimony for the Monetary Policy Report to the Congress

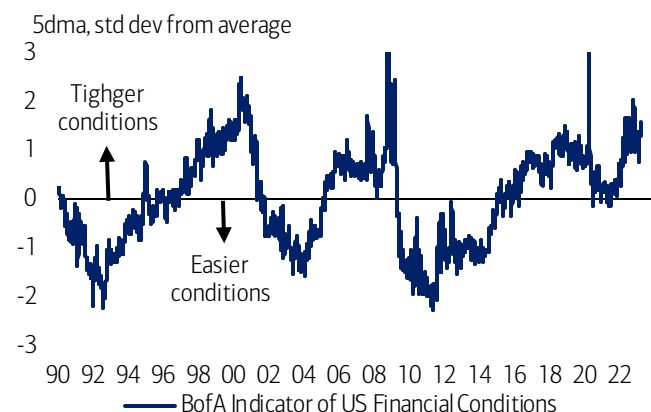


Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 2: BofA Indicator of US Financial Conditions (5dma, standard deviations above or below period average)

At 1.6 standard deviations above normal, financial conditions have tightened, but remain below prior cycle peaks



Note: The BofA Indicator of US Financial Conditions is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. The BofA Indicator of US Financial Conditions was not created to act as a benchmark. Source: BofA Global Research

BofA GLOBAL RESEARCH

February CPI inflation forecast: Still firm core

In our [February CPI Inflation preview](#), we look for a modest decline in energy services to limit the increase in headline CPI inflation to 0.38% m/m, leading to a decline in the year-on-year rate to 6.1% from 6.4% previously. However, we look for core CPI inflation to rise by 0.42% m/m, similar to the 0.41% rise in January. If so, the year-on-year rate of increase in core CPI would fall by only one-tenth to 5.5%. We expect core goods to rise by 0.1% m/m due, in part, to less disinflation from durables categories like used cars (BofA: -0.5% m/m; January: -1.9%) and new cars (BofA: 0.2%; January: 0.2%). We look for core services to rise by 0.54% m/m on strength in shelter and non-shelter components. Altogether, our forecast would imply inflationary pressures are diminishing only slowly, potentially increasing the pressure on the Fed to move more forcefully.

The Fed is not impotent

While it may be tempting to conclude that resilience in the data means the US economy is impervious to higher policy rates from the Fed, we strongly caution against this view. Based on the evolution of our [BofA Indicator of US Financial Conditions](#), policy actions taken by the Fed have led to tighter financial conditions (Exhibit 2). As the Fed moved to tighten its policy stance in early 2022, our indicator of financial conditions rose to 1.8 standard deviations above normal in October around the time of the UK gilt market dislocation. At present, our indicator stands at 1.6 standard deviations above normal. This degree of tightening in financial conditions has been sufficient to moderate economic activity in interest rate sensitive sectors like housing, equipment, and structures spending, but it has yet to reverse labor market imbalances or alter consumer spending intentions, likely on account of excess saving and pent-up demand for labor. That said, at 1.6 standard deviations, our indicator is above what slowed the US economy in 2018, but somewhat below prior cycle peaks. In our view, if the Fed is committed to its goals and willing to tighten policy further, then financial conditions are likely to respond accordingly. Finding the appropriate policy rate may be difficult, but that is very different than thinking Fed actions are of little consequence.

US GDP Tracking

1Q US GDP tracking down to 0.7% q/q saar

Core capital goods orders and shipments were largely unchanged from the preliminary reading at 0.8% m/m and 1.1%, respectively. However, other data increased our tracking estimate for equipment spending for 1Q by one tenth. In addition, manufacturing inventories came in at 0.1% m/m in January along with a 0.1% m/m decrease in durable goods inventories. This modestly increased our inventory tracking estimate for 1Q. Wholesale inventories in January came in at -0.4% m/m, leading to a decline in our inventory tracking estimate in 1Q.

The trade deficit in January widened to \$68.3bn, the widest deficit in the last three months. Exports increased by 3.4% m/m while imports went up by 3.0%. This increased our tracking estimate for both exports and imports, while reducing our estimate for net exports in 1Q. On net, since the last weekly publication, this pushed down our 1Q US GDP tracking estimate from 0.9% q/q saar to 0.7% q/q saar.

Looking ahead to next week, CPI, Retail Sales, PPI, Industrial Production and Housing Starts & Permits in February and business inventories in January will affect 1Q tracking.

Exhibit 3: BofA US GDP tracking estimate

We are tracking 0.7% q/q saar for 1Q GDP largely due to the widening of the trade deficit

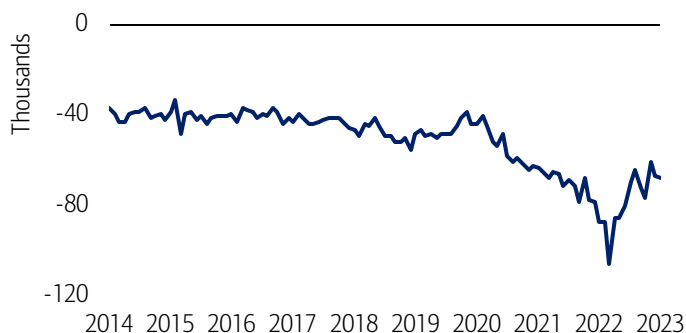
Date	Data release	GDP	Final Sales	PCE	Res. Inv.	Struct	Equip	IPP	Gov.	Exports	Imports	Net exports (level)	CIPI (level)
3/2/23	Vehicle Sales	0.9	1.3	1.9	-11.7	1.1	0.0	6.0	0.5	18.0	9.7	-1218.7	84.1
3/6/23	Durable Goods Orders	0.9	1.3	1.9	-11.7	1.1	0.1	6.0	0.5	18.0	9.7	-1218.7	84.8
3/7/23	Wholesale Inventories	0.8	1.3	1.9	-11.7	1.1	0.1	6.0	0.5	18.0	9.7	-1218.7	82.1
3/8/23	Trade Balance	0.7	1.3	1.9	-11.7	1.1	0.1	6.0	0.5	18.5	11.0	-1229.2	82.1
	GDP tracking	0.7	1.3	1.9	-11.7	1.1	0.1	6.0	0.5	18.5	11.0	-1229.2	82.1
	Contribution to GDP growth (pp)				1.3	-0.5	0.0	0.3	0.1			0.5	-1.2
	BofA official GDP forecast	1.0	1.0	1.5	-11.0	-3.5	-3.0	6.0	0.5	1.0	-4.0	-1193.0	108.5

Source: BofA Global Research. Our GDP tracking estimate reflects the mechanical aggregation of incoming data that directly informs the BEA's GDP calculations. The process is distinct from our official published GDP forecast. Boldface cells indicate where data has implications for tracking estimates.

BofA GLOBAL RESEARCH

Exhibit 4: Trade balance of goods and services (SA, \$bn)

The trade deficit widened from a revised \$67.2bn in December to \$68.3bn in January

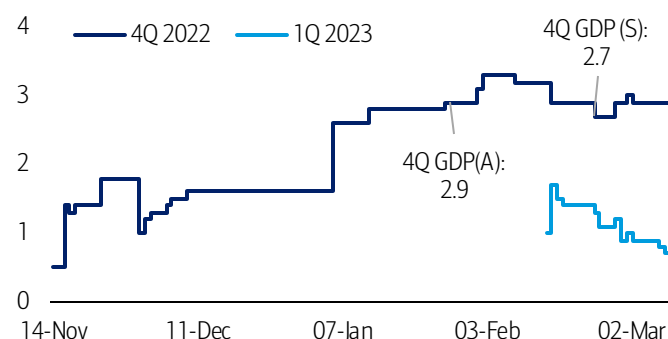


Source: Census Bureau, Haver Analytics

BofA GLOBAL RESEARCH

Exhibit 5: 1Q and 4Q GDP tracking evolution (% q/q, SAAR)

Our 1Q GDP tracking estimate is currently at 0.7% q/q saar



Source: BofA Global Research

BofA GLOBAL RESEARCH

Data in the past week

Data in the past week

Employment data, trade balance, monthly budget statement

Date	Time	Indicator	Period	Actual	Consensus	Previous
3/06/23	10:00	Durable Goods Orders	Jan F	-4.5%	-4.5%	-4.5%
3/06/23	10:00	Durables Ex Transportation	Jan F	0.8%	0.7%	0.7%
3/06/23	10:00	Core Capital Goods Orders	Jan F	0.8%	—	0.8%
3/06/23	10:00	Core Capital Goods Shipments	Jan F	1.1%	—	1.1%
3/06/23	10:00	Factory Orders	Jan	-1.6%	-1.8%	1.7%
3/07/23	10:00	Wholesale Inventories	Jan F	-0.4%	-0.4%	-0.4%
3/07/23	15:00	Consumer Credit	Jan	\$14.8bn	\$25.0b	\$10.7b
3/08/23	7:00	MBA Mortgage Applications	Mar 3	7.4%	—	-5.9%
3/08/23	8:15	ADP Employment	Feb	242k	200k	119k
3/08/23	8:30	Trade Balance	Jan	-\$68.3bn	-\$68.7bn	-\$67.2bn
3/08/23	10:00	JOLTS Job Openings	Jan	10824k	10546k	11234k
3/08/23	14:00	Fed's Beige Book	Feb	—	—	—
3/09/23	8:30	Initial Jobless Claims	Mar 4	211k	195k	190k
3/10/23	8:30	Change in Nonfarm Payrolls	Feb	NR	225k	517k
3/10/23	8:30	Private Payrolls	Feb	NR	215k	443k
3/10/23	8:30	Unemployment Rate	Feb	NR	3.4%	3.4%
3/10/23	8:30	Average Hourly Earnings mom	Feb	NR	0.3%	0.3%
3/10/23	8:30	Average Weekly Hours	Feb	NR	34.6	34.7
3/10/23	14:00	Monthly Budget Statement	Feb	NR	-\$256.0bn	-\$38.8bn

Source: Bloomberg, Note: NR = Not Released

BofA GLOBAL RESEARCH

Core views

Growth

- GDP growth slowed down to 0.9% in 2022 (4Q/4Q) and we expect it to further decline to -0.4% in 2023 (4Q/4Q) as the lagged effects of tighter monetary policy and financial conditions cool the economy before recovering by 4Q 2024.

Inflation

- A mild recession this year and ongoing goods deflation should lead to disinflation next year. Headline PCE grew at 5.7% in 2022 (4Q/4Q) and is expected to grow at 3.0% in 2023, while core grew at 4.8% and is expected to come in at 2.9% in 2023. Our forecast still puts inflation broadly in line with the Fed's 2% mandate by 2024 end.

Federal Reserve

- We still expect 25bp hikes in March, May and June, for a terminal of 5.25-5.5%. But we acknowledge the burden has shifted in the direction of needing weaker economic data to justify moving more slowly. We maintain the first rate cut in March 2024.

Data in the week ahead

Data in the week ahead (Mar 13th – Mar 17th)

CPI, Retail Sales, PPI, Industrial Production and Housing Starts & Permits

Date	Time	Indicator	Period	BofA	Consensus	Previous
				Estimate		
3/14/23	6:00	NFIB Small Business Optimism	Feb	—	—	90.3
3/14/23	8:30	Consumer Price Index (yoy)	Feb	6.1%	6.0%	6.4%
3/14/23	8:30	CPI Ex Food & Energy (yoy)	Feb	5.5%	5.5%	5.6%
3/14/23	8:30	Consumer Price Index (mom)	Feb	0.4%	0.4%	0.5%
3/14/23	8:30	CPI Ex Food & Energy (mom)	Feb	0.4%	0.4%	0.4%
3/15/23	7:00	MBA Mortgage Applications	Mar 10	—	—	7.4%
3/15/23	8:30	Producer Price Index (mom)	Feb	0.3%	0.3%	0.7%
3/15/23	8:30	PPI Ex Food & Energy (mom)	Feb	0.4%	0.4%	0.5%
3/15/23	8:30	PPI Ex Food, Energy, Trade (mom)	Feb	0.3%	0.3%	0.6%
3/15/23	8:30	Empire Manufacturing	Mar	-10	-7.7	-5.8
3/15/23	8:30	Advance Retail Sales	Feb	-0.4%	0.2%	3.0%
3/15/23	8:30	Retail Sales Less Autos	Feb	-0.1%	0.1%	2.3%
3/15/23	8:30	Retail Sales Less Autos and Gas	Feb	-0.3%	—	2.6%
3/15/23	8:30	Core Control	Feb	-0.5%	-0.3%	1.7%
3/15/23	10:00	Business Inventories	Jan	—	0.0%	0.3%
3/15/23	10:00	NAHB Housing Market Index	Mar	40	41	42
3/15/23	16:00	Net Long-term TIC Flows	Jan	—	—	\$152.8bn
3/16/23	8:30	Initial Jobless Claims	Mar 11	216k	—	211k
3/16/23	8:30	Housing Starts	Feb	1300k	1310k	1309k
3/16/23	8:30	Building Permits	Feb	1350k	1350k	1339k
3/16/23	8:30	Import Price Index (mom)	Feb	0.2%	-0.2%	-0.2%
3/16/23	8:30	Import Price Index ex Petroleum (mom)	Feb	0.3%	—	0.2%
3/16/23	8:30	Philadelphia Fed Business Outlook	Mar	-15.0	-14.8	-24.3
3/17/23	9:15	Industrial Production	Feb	0.4%	0.5%	0.0%
3/17/23	9:15	Manufacturing Production	Feb	0.1%	—	1.0%
3/17/23	9:15	Capacity Utilization	Feb	78.5%	78.5%	78.3%
3/17/23	10:00	U. of Michigan Sentiment	Mar P	66.5	67.0	67.0
3/17/23	10:00	Leading Indicators	Feb	—	-0.2%	-0.3%

Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Monday, Mar 13

No important data releases today

Tuesday, Mar 14

Data in the week ahead

CPI

Date	Time	Indicator	Period	BofA	Consensus	Previous
				Estimate		
3/14/23	6:00	NFIB Small Business Optimism	Feb	—	—	90.3
3/14/23	8:30	Consumer Price Index (yoy)	Feb	6.1%	6.0%	6.4%
3/14/23	8:30	CPI Ex Food & Energy (yoy)	Feb	5.5%	5.5%	5.6%
3/14/23	8:30	Consumer Price Index (mom)	Feb	0.4%	0.4%	0.5%
3/14/23	8:30	CPI Ex Food & Energy (mom)	Feb	0.4%	0.4%	0.4%

Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

CPI

For the February Consumer price index (CPI) report, we forecast headline to increase by 0.4% m/m (0.38% m/m unrounded), which should result in the y/y rate falling from 6.4% to 6.1%. Additionally, it would lead the headline not seasonally adjusted (NSA) index to rise from 299.170 to 300.893. Meanwhile, core CPI likely rose by 0.4% (0.42% unrounded), little changed from the January print. If our forecast proves correct, core CPI should tick down from 5.6% y/y to 5.5%. We believe risks around our core CPI forecast are biased to the upside given the recent gains in the Manheim used vehicle index.

Therefore, we do not think a 0.5% print is out of the question. (See: [CPI Inflation Watch: February CPI Inflation preview: A sticky problem](#))



Wednesday Mar 15

Data in the week ahead

PPI, Empire Manufacturing, Retail Sales, NAHB Housing Market Index

Date	Time	Indicator	Period	BofA Estimate	Consensus	Previous
3/15/23	7:00	MBA Mortgage Applications	Mar 10	—	—	7.4%
3/15/23	8:30	Producer Price Index (mom)	Feb	0.3%	0.3%	0.7%
3/15/23	8:30	PPI Ex Food & Energy (mom)	Feb	0.4%	0.4%	0.5%
3/15/23	8:30	PPI Ex Food, Energy, Trade (mom)	Feb	0.3%	0.3%	0.6%
3/15/23	8:30	Empire Manufacturing	Mar	-10	-7.7	-5.8
3/15/23	8:30	Advance Retail Sales	Feb	-0.4%	0.2%	3.0%
3/15/23	8:30	Retail Sales Less Autos	Feb	-0.1%	0.1%	2.3%
3/15/23	8:30	Retail Sales Less Autos and Gas	Feb	-0.3%	—	2.6%
3/15/23	8:30	Core Control	Feb	-0.5%	-0.3%	1.7%
3/15/23	10:00	Business Inventories	Jan	—	0.0%	0.3%
3/15/23	10:00	NAHB Housing Market Index	Mar	40	41	42
3/15/23	16:00	Net Long-term TIC Flows	Jan	—	—	\$152.8bn

Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

PPI

We forecast headline PPI increased by 0.3% m/m in February, which would be a deceleration from 0.7% m/m in January owing in part to our expectation for energy prices to decline. Excluding food and energy, we look for PPI to rise by 0.4% m/m, roughly in line with the average over the last three months but above the 6-month average as input cost pressure remains an issue for businesses. In particular, we expect goods related costs to ease but services related costs to remain sticky. Last, we expect PPI excluding food, energy and trade services rose by 0.3% m/m after January's 0.6% m/m increase.

Empire Manufacturing

The Empire State manufacturing index will likely print at -10.0 in the March reading, which would be a decline from the -5.8 reading in February. We continue to expect the index to show weak manufacturing activity in the region as demand for goods rotates backs towards services and higher interest rates deter goods purchases.

Retail Sales

Based on the aggregated BAC card data, we forecast a 0.4% drop in headline retail sales in February. The large decline in new auto sales in February, after the surge in January, should weigh on the headline figure. We think the ex-auto component will be down 0.1%. The card data point to weakness in clothing and furniture spending growth, which appears to be payback for large increases in January. Meanwhile, gas spending was among the stronger components. Therefore we expect larger declines in the ex-autos & gas (-0.3%) and core control (-0.5%) components. Note that the card data show that services spending significantly outperformed goods spending in February, suggesting that the continued consumer rotation back to services was another headwind to retail spending.

NAHB Housing Market Index

We expect the March NAHB homebuilder index to tick lower to 40 from 42 previously. Last month, the index increased by 7 pts, the biggest amount in a decade. Builders had become more optimistic as affordability seemed to gradually improve. However, we are cautious of some headwinds this month as weekly mortgage rates have been slowly picking back up since early February. Additionally, mortgage applications fell 7.9% m/m in February. The heated housing market has been showing some signs of rebalancing as of lately, but there is significant room for improvement as any number below 50 is still considered negative homebuilder sentiment.

Thursday Mar 16

Data in the week ahead

Initial jobless claims, Housing Starts & Permits, Import Price Index

Date	Time	Indicator	Period	BofA Estimate	Consensus	Previous
3/16/23	8:30	Initial Jobless Claims	Mar 11	216k	—	211k
3/16/23	8:30	Housing Starts	Feb	1300k	1310k	1309k
3/16/23	8:30	Building Permits	Feb	1350k	1350k	1339k
3/16/23	8:30	Import Price Index (mom)	Feb	0.2%	-0.2%	-0.2%
3/16/23	8:30	Import Price Index ex Petroleum (mom)	Feb	0.3%	—	0.2%
3/16/23	8:30	Philadelphia Fed Business Outlook	Mar	-15.0	-14.8	-24.3

Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Initial jobless claims

We forecast initial jobless claims increased to 216k in the week ending March 11 after the surprisingly big increase to 211k in the previous week. While some factors like bad weather in California, state teachers claims in New York and a shorter week due to President's Day suggest the increase in the previous week was a one-off, the trend has been increasing. Continuing claims posted a big increase to 1718k from a revised down 1649k, with the 4 week moving average increasing to 1679k from 1670k. This might be indicative of the layoffs in the technology sector (including people coming off severance) but would still leave claims at historically low levels, and continue to underscore the tightness of the labor market and how much work the Fed still has to do to cool labor demand.

Housing Starts and Permits

Housing starts likely fell to 1.30mn saar in February from 1.31mn saar previously. Housing starts continued to decline for five consecutive months as of January as the housing market has started to show some signs of tightening with ongoing high construction costs and mortgage rates having challenged affordability. As mortgage rates cool further, we expect some recovery of the housing sector ahead. Meanwhile, we forecast February building permits to come in at 1.35mn saar.

Import Price Index

We forecast headline import prices rose by 0.2% m/m in February, its first increase in eight months. The increase should reflect a 0.3% m/m increase in nonpetroleum import prices and a smaller decline in import prices than previous months.

Philly Fed Business Outlook

We forecast the Philadelphia Fed manufacturing index improved from February but remained in negative territory at -15. This would mark the seventh consecutive reading below zero, which has only occurred a total of nine times in the series history back to May 1968. Of those nine times, six instances have occurred during a recession. We continue to see signs that manufacturing activity is slowing as demand rebalances towards services and the effects of higher interest rates take hold.

Friday Mar 17

Data in the week ahead

Industrial Production, U. Of Michigan Sentiment

Date	Time	Indicator	Period	BofA Estimate	Consensus	Previous
3/17/23	9:15	Industrial Production	Feb	0.4%	0.5%	0.0%
3/17/23	9:15	Manufacturing Production	Feb	0.1%	—	1.0%
3/17/23	9:15	Capacity Utilization	Feb	78.5%	78.5%	78.3%
3/17/23	10:00	U. of Michigan Sentiment	Mar P	66.5	67.0	67.0
3/17/23	10:00	Leading Indicators	Feb	—	-0.2%	-0.3%

Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH



Industrial Production

For the February industrial production report, we forecast a 0.4% m/m increase in headline industrial production, which should result in the capacity utilization rate increasing to 78.5% from 78.4%. At the industry level, we expect the headline increase to be driven by solid growth in both mining and utilities production. Mining production should post another strong increase after a 2% m/m gain in January, given strong crude oil production growth. Meanwhile, we look for strong growth in utilities production due to mean-reversion after production fell by 9.9% m/m in January. Last, we expect manufacturing production increased by 0.1% m/m in February, decelerating from the 0.9% m/m increase in January.

U. Of Michigan Sentiment

We expect the University of Michigan consumer sentiment to mildly cool to 66.5 in March's preliminary reading from 67.0 previously. Consumer sentiment has recently been recovering on the base of more optimistic economic outlook, but we see potential downside risks ahead with concerns that the Fed may hike interest rates more than previously expected, triggering more fears of a recession.

Upcoming policy speakers

Upcoming policy speakers
Key speaking engagements and news events*
Monday, Mar 13
Fed Blackout Period
Tuesday, Mar 14
Fed Blackout Period
Wednesday, Mar 15
Fed Blackout Period
Thursday, Mar 16
Fed Blackout Period
Friday, Mar 17
Fed Blackout Period

Source: Bloomberg.
Note: All listed times are Eastern times. Dates and times are subject to change.



Economic forecast summary

Table 1: US economic outlook

We forecast growth to fall by 0.4% 4q/4q in 2023 before recovering in 2024

	2Q 22	3Q 22	4Q 22	1Q 23	2Q 23	3Q 23	4Q 23	1Q 24	2Q 24	3Q 24	4Q 24	2021	2022	2023	2024
Real Economic Activity, % SAAR															
Real GDP	-0.6	3.2	2.7	1.0	0.5	-1.0	-2.0	-0.5	1.0	1.5	1.5	5.9	2.1	1.0	-0.1
% Change, Year Ago	1.8	1.9	0.9	1.6	1.8	0.8	-0.4	-0.7	-0.6	0.0	0.9				
Final Sales	1.4	4.5	1.2	1.5	1.0	-0.5	-1.5	0.0	1.0	1.5	1.5	5.7	1.3	1.3	0.2
Domestic Demand	0.2	1.5	0.7	1.0	0.5	-1.0	-1.5	0.0	1.5	2.0	2.0	6.7	1.7	0.4	0.2
Consumer Spending	2.0	2.3	1.4	1.5	1.0	-1.0	-1.5	-0.5	1.0	1.5	1.5	8.3	2.8	1.0	0.0
Residential Investment	-17.8	-27.1	-25.9	-11.0	-10.0	-5.0	-5.0	3.0	3.0	2.0	2.0	10.7	-10.7	-15.6	-0.6
Nonresidential Investment	0.1	6.2	3.3	0.5	0.0	-1.0	-2.0	0.0	3.0	4.0	4.0	6.4	3.8	1.2	0.7
Structures	-12.7	-3.6	8.5	-3.5	-3.5	-4.0	-4.0	-1.0	2.0	3.0	3.0	-6.4	-6.9	-2.1	-0.8
Equipment	-2.1	10.6	-3.2	-3.0	-3.0	-4.0	-4.5	-1.0	2.0	3.0	3.0	10.3	4.3	-1.6	-0.9
Intellectual Property	8.9	6.8	7.4	6.0	5.0	3.0	1.5	1.0	4.0	5.0	5.0	9.7	8.9	5.7	2.9
Government	-1.6	3.7	3.6	0.5	0.5	0.0	0.5	1.0	1.0	1.0	1.0	0.6	-0.6	1.3	0.8
Exports	13.8	14.6	-1.6	1.0	-1.0	-1.0	-2.5	2.0	4.0	4.0	4.0	6.1	7.2	2.0	1.3
Imports	2.3	-7.3	-4.2	-4.0	-4.5	-4.5	-3.0	2.0	6.0	7.0	7.0	14.1	8.2	-4.2	1.4
Net Exports (Bil 12\$)	-1431	-1269	-1238	-1193	-1156	-1120	-1108	-1114	-1142	-1181	-1220	-1233	-1357	-1144	-1164
Contribution to growth (ppts)	1.2	2.9	0.5	0.7	0.5	0.5	0.1	-0.1	-0.4	-0.5	-0.5	-1.3	-0.4	0.8	-0.1
Inventory Accumulation (Bil 12\$)	110.2	38.7	136.3	108.5	86.5	56.5	21.5	1.5	7.5	19.5	31.5	-19.4	124.9	68.1	14.8
Contribution to growth (ppts)	-1.9	-1.2	1.5	-0.5	-0.4	-0.6	-0.7	-0.4	0.1	0.2	0.2	0.2	0.7	-0.3	-0.3
Nominal GDP (Bil \$, SAAR)	25249	25724	26145	26484	26829	27008	27101	27312	27633	27993	28336	23315	25464	26856	27818
% SAAR	8.5	7.7	6.7	5.3	5.3	2.7	1.4	3.2	4.8	5.3	5.0	10.7	9.2	5.5	3.6
Key Indicators															
Industrial Production (% SAAR)	5.0	1.3	-2.4	-2.0	-2.0	-3.5	-1.5	2.0	2.0	1.5	1.5	4.9	3.8	-1.5	0.3
Capacity Utilization (%)	80.0	79.9	79.2	78.5	78.0	78.0	77.5	78.0	78.0	78.0	78.5	77.4	79.6	78.0	78.1
Nonfarm Payrolls (Avg mom ch, 000s)	329	423	291	305	110	-75	-175	-100	75	100	100	606	401	41	44
Civilian Unemployment Rate (%)	3.6	3.5	3.6	3.4	3.3	3.6	4.1	4.6	4.7	4.6	4.6	5.4	3.6	3.6	4.6
Civilian Participation Rate (%)	62.2	62.2	62.2	62.4	62.4	62.4	62.4	62.5	62.5	62.4	62.4	61.7	62.2	62.4	62.4
Productivity (% SAAR)	-3.8	1.0	1.5	-2.0	-1.0	-0.5	-1.0	0.0	1.0	1.5	1.5	2.2	-1.7	-1.1	1.0
Personal Savings Rate (%)	3.2	2.7	2.9	3.6	3.6	3.9	4.5	4.7	4.8	4.7	4.6	11.8	3.2	3.9	4.7
Light Vehicle Sales (Millions SAAR)	13.3	13.4	14.3	15.2	14.6	14.4	13.9	14.0	15.3	16.3	16.8	14.9	13.8	14.5	15.6
Housing Starts (Thous. SAAR)	1647	1450	1405	1320	1300	1290	1280	1290	1325	1355	1370	1605	1556	1298	1335
Current Account (% of GDP)												-3.6	-4.1	-3.5	-3.4
US Budget Balance (\$bn, Fiscal Year)												-2776	-1375	-1100	-1100
Inflation															
GDP Price Index (% SAAR)	9.0	4.4	3.9	4.3	4.8	3.7	3.3	3.7	3.6	3.8	3.4	4.5	7.0	4.5	3.7
% Change, Year Ago	7.6	7.1	6.4	5.4	4.3	4.2	4.0	3.9	3.6	3.6	3.6				
PCE Chain Prices (% SAAR)	7.3	4.3	3.7	3.9	3.5	2.6	1.8	2.1	2.1	2.3	1.8	4.0	6.2	3.6	2.2
% Change, Year Ago	6.6	6.3	5.7	4.7	3.7	3.3	3.0	2.5	2.1	2.1	2.1				
Core PCE Chain Prices (% SAAR)	4.7	4.7	4.3	4.1	3.5	2.5	1.7	2.0	2.1	2.2	1.9	3.5	5.0	3.7	2.1
% Change, Year Ago	5.0	4.9	4.8	4.3	4.0	3.5	2.9	2.4	2.0	2.0	2.0				
CPI, Consumer Prices (% SAAR)	9.7	5.5	4.2	4.0	4.0	2.8	2.3	2.3	2.4	2.6	1.9	4.7	8.0	4.3	2.5
% Change, Year Ago	8.6	8.3	7.1	5.8	4.4	3.7	3.3	2.9	2.5	2.4	2.3				
CPI ex Food & Energy (% SAAR)	6.0	6.2	5.1	4.8	3.9	2.7	2.1	2.3	2.4	2.5	2.2	3.6	6.1	4.5	2.4
% Change, Year Ago	6.0	6.3	6.0	5.5	5.0	4.1	3.3	2.7	2.4	2.3	2.3				

Source: BofA Global Research

BofA GLOBAL RESEARCH



Rates and dollar forecast

Table 2: Rates and dollar forecast

We expect the Fed to hike rates to a terminal rate of 5.25-5.50% by 2Q of this year and start cutting in 1Q 2024.

	Spot	23-Mar	23-Jun	23-Sep	23-Dec	24-Mar	24-Jun	24-Sep	24-Dec
Interest rates									
Fed Funds	4.57	4.75-5.00	5.25-5.50	5.25-5.50	5.25-5.50	5.00-5.25	4.50-4.75	4.00-4.25	3.50-3.75
Fed Effective Rate	4.57	4.88	5.38	5.38	5.38	5.13	4.63	4.13	3.63
2-Year T-Note	4.94	4.85	4.50	4.15	3.75	-	-	-	3.00
5-Year T-Note	4.23	4.35	4.05	3.80	3.50	-	-	-	3.15
10-Year T-Note	3.92	4.00	3.75	3.50	3.25	-	-	-	3.25
30-Year T-Bond	3.86	4.10	3.85	3.65	3.40	-	-	-	3.50
Dollar									
EUR-USD	1.06	1.05	1.05	1.07	1.10	1.10	1.10	1.15	1.15
USD-JPY	136	133	138	142	140	136	132	125	125
USD-CAD	1.38	1.32	1.28	1.25	1.25	1.25	1.25	1.25	1.25
AUD-USD	0.66	0.69	0.70	0.72	0.74	0.76	0.76	0.76	0.76
NZD-USD	0.61	0.63	0.63	0.64	0.66	0.67	0.67	0.67	0.67
GBP-USD	1.19	1.18	1.18	1.19	1.21	1.21	1.21	1.26	1.26
USD-CHF	0.94	0.93	0.93	0.92	0.89	0.90	0.90	0.87	0.87
USD-SEK	10.72	10.76	10.86	10.47	9.85	9.73	9.64	9.13	8.96
USD-NOK	10.65	10.67	10.29	9.91	9.36	9.27	9.18	8.78	8.52
USD-CNY	6.97	6.70	6.60	6.80	6.90	6.80	6.70	6.50	6.40
USD-MXN	18.08	19.40	19.60	19.80	20.20	20.50	20.80	21.20	21.50

Source: BofA Global Research

BofA GLOBAL RESEARCH

Rolling calendar of business indicators

Key economic data over the next three weeks

Next week the focus will be on CPI, Retail Sales, PPI, Industrial Production and Housing Starts & Permits

Monday	Tuesday	Wednesday	Thursday	Friday
Mar 13	Mar 14	Mar 15	Mar 16	Mar 17
	6:00 am: NFIB Small Bus. Optimism - Feb 8:30 am: Consumer Price Index - Feb	7:00 am: MBA Mortgage Applications - week ending 03/10/2023 8:30 am: Advance Retail Sales - Feb 8:30 am: Producer Price Index - Feb 8:30 am: Empire Manufacturing - Mar 10:00 am: Business Inventories - Jan 10:00 am: NAHB Housing Index - Mar	8:30 am: Initial Jobless Claims - week ending 03/05/2023 8:30 am: Import Price Index - Feb 8:30 am: Housing Starts & Permits - Feb 8:30 am: Philly Fed - Mar	9:15 am: Industrial Production - Feb 10:00 am: U. of Mich Sentiment - Mar (P)
Mar 20	Mar 21	Mar 22	Mar 23	Mar 24
	10:00 am: Existing Home Sales - Feb	7:00 am: MBA Mortgage Applications - week ending 03/17/2023 2:00 pm: FOMC Rates Decision	8:30 am: Initial Jobless Claims - week ending 03/18/2023 10:00 am: New Home Sales - Feb	8:30 am: Durable Goods Orders - Feb (P) 9:45 am: S&P Global US Manufacturing and Services PMI - Mar (P)
Mar 27	Mar 28	Mar 29	Mar 30	Mar 31
10:30 am: Dallas Fed Manufacturing Activity - Mar	8:30 am: Advance Goods Trade Balance - Feb 9:00 am: S&P CoreLogic CS HPI - Jan 10:00 am: Conference Board Confidence - Mar	7:00 am: MBA Mortgage Applications - week ending 03/24/2023 10:00 am: Pending Home Sales - Feb	8:30 am: Initial Jobless Claims - week ending 03/25/2023 8:30 am: GDP - 4Q (T)	8:30 am: Personal Income & Outlays - Feb 9:45 am: Chicago PMI - Mar 10:00 am: U. of Mich Sentiment - Mar (F)

*Projections- subject to revision as additional data become available. P - preliminary reading, S - second reading, T - third reading, F - final reading

Source: Bloomberg

BofA GLOBAL RESEARCH



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.

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.

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.

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.

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.

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

US Economics

Michael Gapen

US Economist
BofAS
+1 646 855 3270
michael.gapen@bofa.com

Aditya Bhawe

US and Global Economist
BofAS
+1 646 855 9929
aditya.bhawe@bofa.com

Stephen Juneau

US Economist
BofAS
+1 646 855 7254
stephen.juneau@bofa.com

Shruti Mishra

US and Global Economist
BofAS
+1 646 855 1040
smishra44@bofa.com

Jeseo Park

US and Global Economist
BofAS
+1 646 855 8688
jeseo.park@bofa.com