Fourth-Quarter U.S. Economic Update

February 2023

Summary of Recent Economic and Market Developments

Real GDP grew at a solid pace in the fourth quarter of 2022, but the composition of growth was again weak, with net exports and inventories contributing most of the quarter's 2.9% growth. Hiring and wage growth slowed modestly but remained resilient in the face of tighter monetary policy. Real personal consumption expenditures rose 2.1%, down slightly from Q3, and consumers continued to shift spending toward services. Home sales continued to fall, and real residential investment plunged by more than 26% for the second consecutive quarter. Manufacturing surveys declined further and industrial output fell, signaling that a recession in manufacturing should begin soon. Real business investment growth slowed to just 0.7%. Other sectors—trade (+0.6%), inventories (+1.5%), and government consumption (+0.6%)—together contributed 2.7% to real GDP. That left core real GDP growth, private domestic final sales, up only 0.2%. As consumer spending slows in the second half of 2023, we expect the U.S. economy to slip into a mild recession.

Inflation slowed in the fourth quarter as energy prices fell significantly and goods prices fell modestly. However, services inflation remained high. Year-over-year CPI rose 7.1% in Q4, and the PCE deflator rose 5.5% YoY in Q4—about 1% lower than in Q3. Core inflation (excluding volatile food and energy prices) showed more limited improvement. Core CPI rose 6.0% YoY in Q4 (down 0.3% from Q3), while the core PCE deflator rose 4.7% YoY (down0.2% from Q3). As supply chains normalize, goods inflation should continue to slow. Services inflation, however, has remained stubbornly high. Slower wage growth and stronger productivity eventually should push down services inflation too, although tighter monetary policy may be needed to deliver it. Slower money supply growth should reinforce disinflationary trends.

The Federal Reserve continued to hike the fed funds rate rapidly in the fourth quarter, with hikes of 75 bp in November and 50 bp in December. The Fed downshifted to a 25 bp hike in February, putting the fed funds target range at 4.50-4.75% currently—up 450 bp from a year ago. Market forward rates show the fed funds rate peaking at about 5.2% by mid-2023, with a 25 bp cut in late 2023 and more cuts in 2024. Yields on intermediate-term Treasuries rose modestly in Q4 and remain near those levels as of the date of this Update, but they have traded in a wide range. Credit spreads narrowed as markets eyed the end of monetary policy tightening, despite recession risk later this year.

Although we anticipate a mild recession in the second half of 2023, fundamental credit quality remains healthy. We think financial companies, which are the largest issuers in the preferred market, should benefit from higher interest rates and have the capital, earnings, and reserves to manage strains that a recession could bring. We believe today's higher yields on preferred and contingent capital securities offer a foundation for potentially better returns ahead.

Economic Outlook

Figure 1: U.S. Gross Domestic Product

	*Real GDP (QoQ%, AR; *Q4/Q4)*				*Nominal GDP (QoQ%, AR; *Q4/Q4)*				*Implicit Deflator (AR; *Q4/Q4)*			
Sector	**2022:4**	**2022:3**	**2022***	**2021***	**2022:4**	**2022:3**	**2022***	**2021***	**2022:4**	**2022:3**	**2022***	**2021***
Gross Domestic Product (GDP)	2.9%	3.2%	1.0%	5.7%	6.5%	7.7%	7.3%	12.2%	3.5%	4.4%	6.3%	6.1%
Personal Consumption Expenditures	2.1%	2.3%	1.9%	7.2%	5.3%	6.7%	7.6%	13.2%	3.2%	4.3%	5.5%	5.7%
PCE: Goods	1.1%	-0.4%	-0.5%	7.1%	-0.4%	2.4%	5.5%	15.6%	-1.5%	2.7%	6.0%	7.9%
PCE: Services	2.6%	3.7%	3.2%	7.2%	8.3%	9.0%	8.7%	12.0%	5.6%	5.2%	5.3%	4.5%
Fixed Investment	-6.7%	-3.5%	-2.7%	3.7%	-2.5%	4.0%	5.2%	9.8%	4.5%	7.7%	8.1%	5.9%
Business Investment	0.7%	6.2%	3.7%	5.0%	4.2%	14.2%	10.5%	8.5%	3.5%	7.6%	6.6%	3.3%
Structures	0.4%	-3.6%	-5.2%	-5.2%	7.1%	15.8%	9.2%	4.7%	6.7%	20.1%	15.1%	10.4%
Equipment	-3.7%	10.6%	3.8%	4.7%	2.3%	17.1%	11.3%	7.2%	6.2%	5.9%	7.2%	2.4%
Intellectual Property	5.3%	6.8%	7.9%	10.8%	4.7%	10.8%	10.3%	11.6%	-0.5%	3.7%	2.2%	0.7%
Residential Investment	-26.7%	-27.1%	-19.3%	-0.3%	-21.1%	-21.2%	-9.2%	13.6%	7.7%	8.1%	12.4%	13.9%
Government Consumption	3.7%	3.7%	0.9%	0.5%	6.8%	7.5%	7.6%	7.3%	3.0%	3.6%	6.7%	6.7%
Federal	6.2%	3.7%	0.2%	0.4%	9.2%	8.7%	5.0%	4.6%	2.9%	4.8%	4.8%	4.3%
State & Local	2.3%	3.7%	1.3%	0.6%	5.5%	6.7%	9.1%	9.0%	3.1%	2.9%	7.8%	8.3%
Domestic Final Sales	0.8%	1.5%	1.0%	5.4%	4.2%	6.3%	7.2%	11.6%	3.4%	4.8%	6.2%	5.9%
Private Domestic Final Sales	0.2%	1.1%	1.0%	6.4%	3.7%	6.1%	7.1%	12.5%	3.4%	5.0%	6.1%	5.7%

Legend for all Figures: AR = Annual Rate; SA = Seasonally Adjusted; MA = Moving Average; C.O.P. = Change over Period
Data source for all tables is Macrobond, unless noted otherwise. Green (red) shading denotes improving (worsening) values.

U.S. economic growth was stronger than expected in the fourth quarter, although the composition of growth was weak. Gross domestic product after inflation (real GDP) rose by 2.9% in the quarter and 1.0% in 2022 (Figure 1). A narrower trade deficit and faster inventory accumulation—neither of which are likely to last—together added 2.0% to 4Q GDP. Although not quite as bad as in Q3, real residential investment once again was extremely weak, leaving it down more than 19% in 2022. More worryingly, growth in business investment slowed to just 0.7% in Q4 after averaging 4.7% over the first three quarters of 2022. Real personal consumption expenditure grew modestly as spending on goods rebounded slightly while services slowed a bit. Real government consumption rose moderately on a 6.2% jump in federal government spending. Modest consumer spending, plunging residential investment, and slower business investment added up to sluggish domestic final sales, which rose just 0.2% in Q4—although it was up 1.0% in 2022, matching overall GDP growth. While inflation remained too high at 6.1% for 2022, the implicit deflator slowed in almost all major sectors of the economy in the fourth quarter, with the notable exception of PCE services inflation.

Looking ahead, economists expect a slowdown around the middle of 2023 but not a recession. The most recent *Survey of Professional Forecasters* shows a median forecast for U.S. real GDP growth of 0.6% in Q1 and 1.0% in Q2, slight contraction in Q3 (-0.1%), and a return to modest growth in Q4 (1.2%), which implies no net change (Q4/Q4) in 2023.[1] They forecast annual growth of 1.4% in 2024, as inflation approaches the Federal Reserve's 2% target and monetary policy gradually loosens. The core PCE deflator is forecast to slow from 3.9% in the fourth quarter to 3.6% in 1Q2023, 2.5% in 4Q2023, and 2.3% in 2024.

Our economic outlook has not changed significantly since our last Update.[2] We continue to think *nominal* GDP growth will slow over 2023 as consumers deplete savings from the

[1] Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters*, February 10, 2023.
[2] Flaherty & Crumrine *Third-Quarter U.S. Economic Update*, November 20, 2022.

pandemic and reduce spending, but resilient employment and falling inflation should allow real GDP to expand modestly in the first half of the year. Eventually, however, we think tight monetary policy will push up unemployment, and consumer spending will stall. Residential investment, which has been hit hard by higher interest rates, is likely to continue to contract, albeit at a slowing pace throughout the year, and it should be poised to rebound as monetary policy eases in 2024. Business investment looks soft to start the year, but we expect only a mild pullback as businesses seek higher labor productivity and additional capacity to prepare for renewed economic growth in 2024. By the second half of 2023, we think the economy will be in a mild recession.

As we expected, services inflation (excluding energy) remains sticky while goods inflation has slowed rapidly. As the economy slows and unemployment rises, wage growth should moderate and drive down services inflation. That process may take time, however. Although the Fed is likely within 50 bp of its "terminal" rate for this cycle, it may leave rates at that peak longer than markets currently expect to bring inflation down. With the path of inflation highly uncertain, expect interest rate volatility to remain elevated. Nonetheless, we think risks around growth and inflation will diminish in the second half, and with yields up sharply from a year ago, fixed income investors do not need a rally in rates to earn good returns.

Because our views have not changed much from last quarter, we will keep most of our comments brief in the review of the major sectors of the economy and preferred market conditions that follows.

Employment, Income and Spending

Figure 2: Employment Overview

Employment	**MoMΔ (Level for Rates)**			**QoQ Change**			**YoY% Change**		**Chg vs.**
(Thousands except percents)	**Jan-23**	**Dec-22**	**Nov-22**	**2022:4**	**2022:3**	**2022:2**	**Jan-23**	**Dec-22**	**Feb-20**
Nonfarm Payrolls	517	260	290	874	1,270	988	3.3%	3.2%	2,702
Private	443	269	228	796	1,143	951	3.6%	3.6%	3,184
Household Employment	894	717	(66)	394	793	(271)	2.0%	2.0%	1,389
Labor Participation Rate %	62.4%	62.3%	62.2%	0.0%	0.1%	-0.2%	0.2%	0.3%	-0.9%
Unemployment Rate	3.4%	3.5%	3.6%	0.0%	-0.1%	0.0%	-0.6%	-0.4%	-0.1%
	MoM% Change			**QoQ% Change, AR**			**YoY% Change**		
Average Hourly Earnings	**Jan-23**	**Dec-22**	**Nov-22**	**2022:4**	**2022:3**	**2022:2**	**Jan-23**	**Dec-22**	**Feb-20**
Average Hourly Earnings, All	0.30%	0.40%	0.43%	5.0%	4.4%	4.5%	4.3%	4.9%	3.7%
	QoQ% Chg (not annualized)				**YoY% Change**				
Employment Cost Index	**2022:4**	**2022:3**	**2022:2**	**2022:1**	**2022:4**	**2022:3**	**2022:2**	**2022:1**	**2019:4**
Employment Cost, Total, Civilian	1.0%	1.2%	1.3%	1.4%	5.1%	5.0%	5.1%	4.5%	2.7%

Job growth slowed a bit in the fourth quarter but soared in January, and revisions to prior data show even stronger job gains in 2022 than previously reported. The unemployment rate hit a 54-year low in January and the labor participation rate rose, highlighting the resilience of the U.S. **labor market** (Figure 2). However, wage growth and employment cost inflation slowed despite that resilience (Figure 3). Job openings data sent mixed signals. The ratio of job openings to unemployed persons remained very high in 2022, implying high labor demand and upward pressure on wages. In contrast, the percentage of employees who quit jobs each month fell, suggesting less opportunity to boost wages by changing employers, which is consistent with slowing wage growth (Figure 4). Normally, these move together, and it is unclear which is correctly signaling wage trends. For now, the Fed is more worried about high job openings than encouraged by fewer quits, but time will tell.

Figure 3: Wages Slowing, but Labor Tight

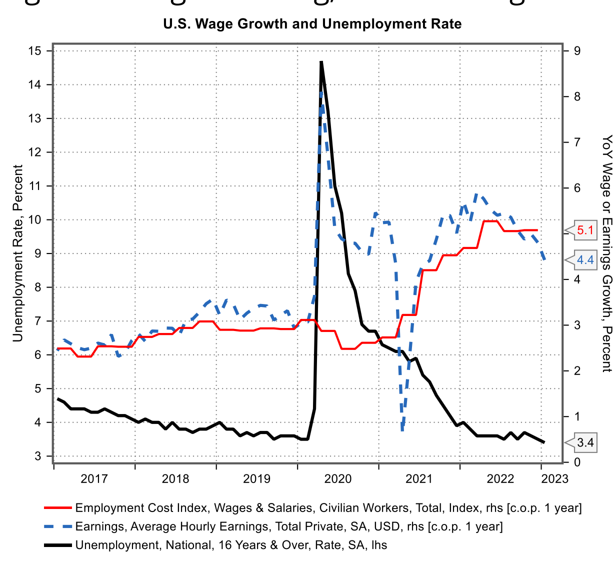


Figure 4: Job Openings & Quit Rate Diverge

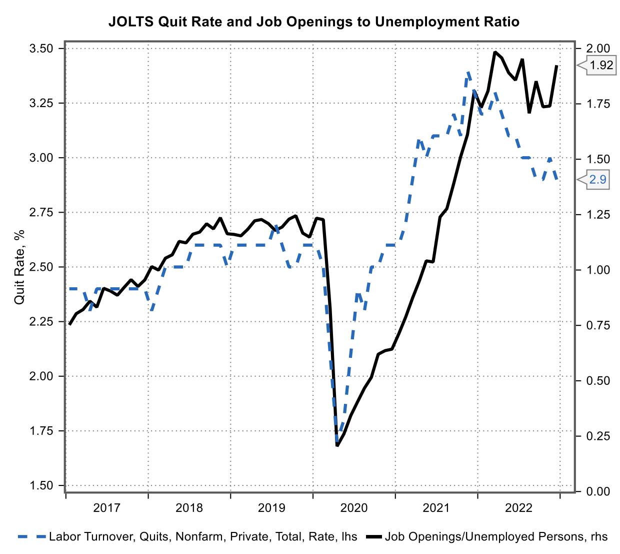


Figure 5: Personal Income and Spending

Personal Income and Consumption	MoM Change			QoQ Change (AR)			YoY Change		
	Dec-22	Nov-22	Oct-22	2022:4	2022:3	2022:2	2022:4	2022:3	2021:4
Personal Income	0.22%	0.26%	0.80%	5.8%	5.4%	4.9%	4.8%	4.1%	6.9%
Wages & Salaries	0.25%	0.32%	0.41%	5.0%	7.0%	4.9%	5.9%	7.9%	9.9%
Real Disposable Pers. Inc.	0.21%	0.22%	0.54%	3.3%	1.0%	-2.3%	-2.3%	-4.3%	-0.4%
ex Transfer Payments	0.21%	0.17%	0.13%	1.8%	1.9%	-1.5%	0.0%	0.2%	1.8%
Nominal PCE	-0.23%	-0.11%	0.80%	5.3%	6.7%	9.5%	7.6%	8.6%	13.2%
excl. Food & Energy	-0.09%	-0.05%	0.72%	6.0%	8.0%	8.2%	7.5%	8.2%	12.5%
Goods	-1.59%	-1.32%	1.22%	-0.4%	2.4%	7.8%	5.5%	8.5%	15.6%
Services	0.45%	0.52%	0.58%	8.3%	9.0%	10.4%	8.7%	8.7%	12.0%
Real PCE	-0.29%	-0.20%	0.42%	2.1%	2.3%	2.0%	1.9%	2.2%	7.2%

Both nominal and real disposable **personal income** accelerated in Q4 but slowed as the quarter progressed (Figure 5). Solid hiring and good wage gains were partially offset by lower hours worked, which dampened wage and salary income in Q4. Income growth slowed modestly during 2022 (Figure 6), although this data does not yet reflect the upward revisions to employment that we noted earlier. While income growth has moderated a bit, real income is looking better as inflation slows, which is why we think decent personal spending growth should continue in the first half.

Figure 6: Spending Steady, Income Slowing

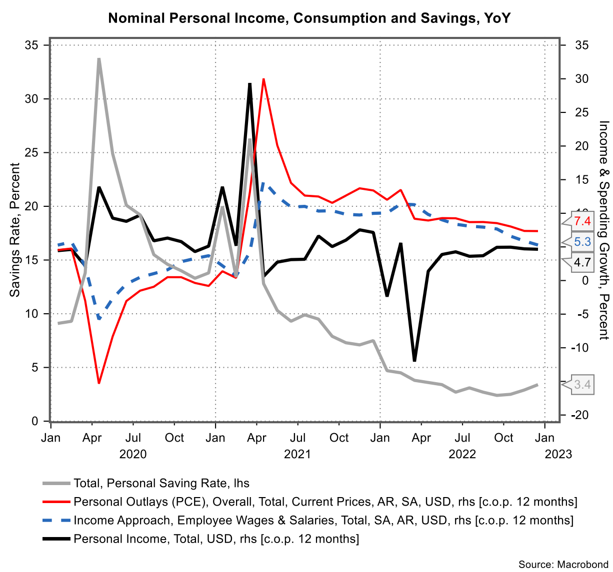
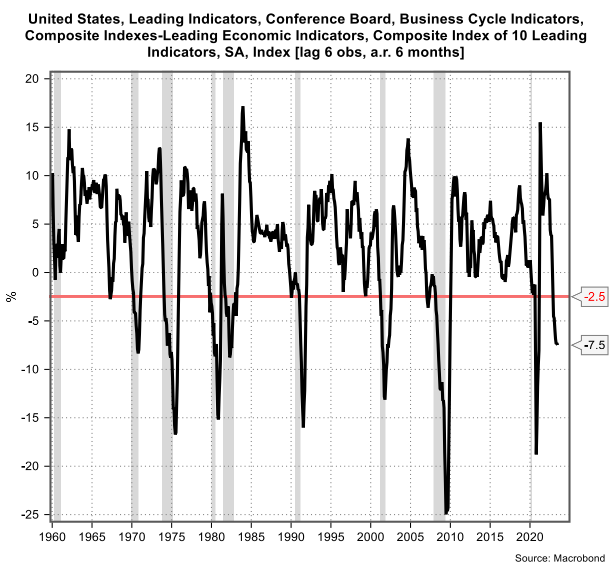


Figure 7: Leading Indicators Flash Recession



Nominal **personal consumption expenditure** (PCE) slowed again in the fourth quarter (Figure 5). Goods spending fell. Services spending growth slowed slightly but remained high, leaving real PCE up 2.1%, near Q3's pace. Income modestly outpaced spending, which boosted the **personal saving rate** from its recent record low. We expect real PCE growth to remain near its current level in Q1 before stalling in the second half as unemployment rises.

Last quarter, we observed that the index of leading economic indicators (LEI) slipped below the level that has historically signaled a recession in about six months (Figure 7). It crossed that threshold in June, and it has fallen further since then without a recession—at least not yet. This is another way in which the post-pandemic recovery has departed from historical patterns. We believe this signal will be correct, but we think it will take longer than the historical norm for recession to arrive. Massive fiscal and monetary support for the economy during and after the pandemic fortified household savings. As those are depleted, consumers will cut spending, employers will cut workers, recession will ensue, and inflation will retreat more convincingly. We estimate recession will arrive in the second half of this year, but we acknowledge a great deal uncertainty around its timing.

With employment looking very resilient, it is possible that the Fed will achieve 2% inflation without a recession. However, doing so would be a goldilocks scenario, requiring several factors, some at odds, to align. The unemployment rate would need to move meaningfully higher, but only enough to ease wage inflation. Despite job cuts, consumer spending would need to be strong enough to offset lost job income, which would require consumers to reach deeper into already-low savings. Alternatively, businesses would need to raise investment spending in the face of rising unemployment, slowing wage growth, and no upward pressure on capacity utilization. Furthermore, energy prices would have to remain in check amid sustained economic growth. It could happen, but we think it's unlikely.

The Housing Market

Figure 8: Residential Investment, Home Sales, and Home Prices

	QoQ Change (AR)				YoY Change				
Residential Investment	**2022:4**	**2022:3**	**2022:2**	**2022:1**	**2022:4**	**2022:3**	**2022:2**	**2022:1**	**2019:4**
Nominal Residential Inv, AR	-21.1%	-21.2%	-5.3%	15.2%	-9.2%	-1.2%	7.0%	11.1%	4.5%
Real Residential Inv, AR	-26.7%	-27.1%	-17.8%	-3.1%	-19.3%	-13.0%	-7.2%	-3.7%	2.0%
Implicit Deflator, AR	7.7%	8.1%	15.2%	18.9%	12.4%	13.5%	15.3%	15.4%	2.4%

	Sales Level (AR)			QoQ Change (AR)			YoY Change		
Home Sales & Prices	**Dec-22**	**Nov-22**	**Oct-22**	**2022:4**	**2022:3**	**2022:2**	**2022:4**	**2022:3**	**2022:2**
New + Existing Home Sales (000)	4,636	4,682	5,028	-36.2%	-36.0%	-41.2%	-31.3%	-21.1%	-10.8%
Homes available for sale (000)	1,017	1,163	1,265	-42.1%	46.1%	156.3%	1.7%	-1.9%	-5.2%
S&P/Case-Shiller 20-city HPI Chg*	n/a	-0.5%	-0.5%	-8.0%	-4.6%	20.9%	7.1%	13.1%	20.1%

* First three columns are MoM% changes. QoQ and YoY change calculated using average index values of October and November for 2022:4

The **housing market** took another nosedive in the fourth quarter as both sales and prices slumped. Real residential investment fell 26.7% (Figure 8). Home sales fell again and are down by nearly one third compared to a year ago (Figure 9). The S&P/Case-Shiller 20-city home price index peaked in June and has fallen 5.4% (not annualized) since then, though it remains up 6.8% over 12 months ending in November. Higher mortgage rates drove affordability down sharply, although it has recovered slightly with mortgage rates off their peak (Figure 10). The housing market is an important channel for monetary policy, and it showed in 2022. Ongoing tightening by the Fed and risk of recession later in the year should keep residential investment weak in 2023. However, new and existing home sales already are approaching their 4 million unit low during the financial crisis, and residential investment's share of GDP, currently 2.8%, is also not far from its financial crisis low of 2.3%. With inventory of unsold homes low and employment high, residential investment could turn upward quickly when interest rates fall.

Figure 9: Home Sales, Prices Down Again

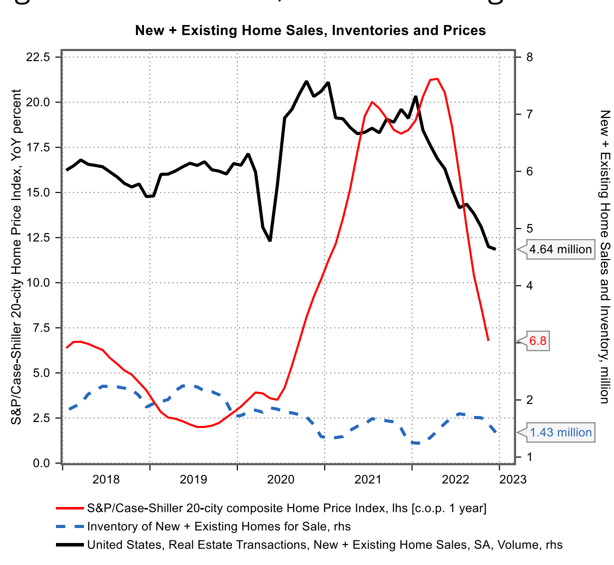
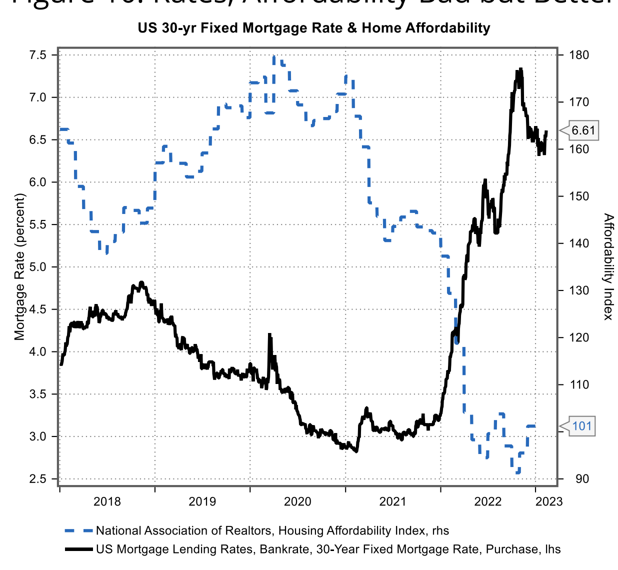


Figure 10: Rates, Affordability Bad but Better



Business Investment and Industrial Output

Figure 11: Industrial Production, Orders, and Business Investment

	MoM Change			QoQ Change (AR)			YoY Change		
Industrial Output	**Dec-22**	**Nov-22**	**Oct-22**	**2022:4**	**2022:3**	**2022:2**	**2022:4**	**2022:3**	**2021:4**
Industrial Production	-0.72%	-0.58%	-0.03%	-1.7%	1.8%	5.0%	2.5%	3.9%	4.4%
Manufacturing	-1.30%	-1.10%	0.32%	-2.6%	-0.2%	3.3%	1.1%	3.2%	4.3%
	MoM Change			**QoQ Change (AR)**			**YoY Change**		
Mfg Orders & Shipments	**Dec-22**	**Nov-22**	**Oct-22**	**2022:4**	**2022:3**	**2022:2**	**2022:4**	**2022:3**	**2021:4**
Manufacturing Orders, total	1.85%	-1.93%	0.41%	-0.2%	3.8%	16.0%	8.4%	12.0%	12.1%
NDCG ex aircraft*	-0.19%	-0.04%	0.32%	0.1%	7.7%	6.9%	4.9%	8.4%	12.4%
Real core orders**	-0.56%	-0.37%	0.01%	-3.7%	1.0%	-3.9%	-10.6%	-1.0%	27.7%
Mfg Shipments, NDCG ex air	-0.42%	-0.15%	1.46%	5.1%	6.9%	9.2%	8.5%	10.5%	11.2%
Real core shipments**	-0.79%	-0.48%	1.15%	1.1%	0.3%	-1.9%	2.3%	6.9%	22.5%

* NDCG = Nondefense Capital Goods   ** NDCG ex aircraft, deflated using PPI Final Demand: Capital Equipment

Business Fixed	QoQ Change (AR)				YoY Change				
Investment	**2022:4**	**2022:3**	**2022:2**	**2022:1**	**2022:4**	**2022:3**	**2022:2**	**2022:1**	**2019:4**
Nominal Busi. Investment	4.2%	14.2%	8.6%	15.4%	10.5%	11.7%	9.5%	9.9%	3.5%
Real Business Investment	0.7%	6.2%	0.1%	7.9%	3.7%	3.8%	2.4%	5.0%	2.6%
Implicit Deflator	3.5%	7.6%	8.5%	6.9%	6.6%	7.7%	6.9%	4.6%	1.0%

Industrial production fell in the fourth quarter after many months of weakening survey data. Output fell by 1.7% and lost momentum each month (Figure 11). Orders slipped despite a surge in civilian aircraft orders in December, backlogs of core durable goods slowed, and the ISM manufacturing survey dropped well below 50, indicating contraction (Figure 12). Together, they signal a recession in manufacturing starting soon.

Figure 12: Manufacturing Recession Ahead

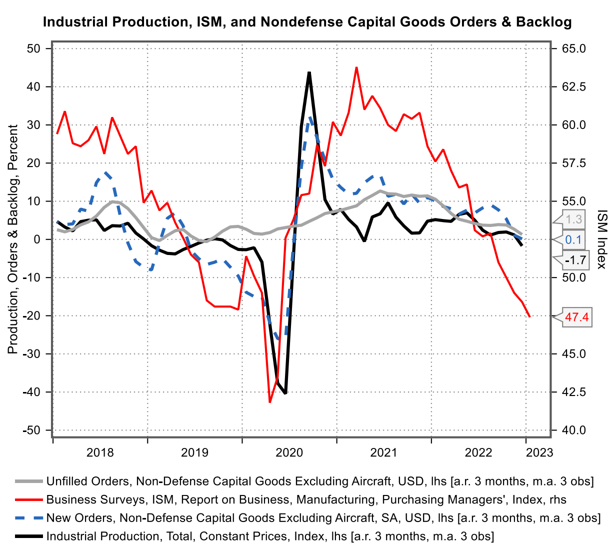
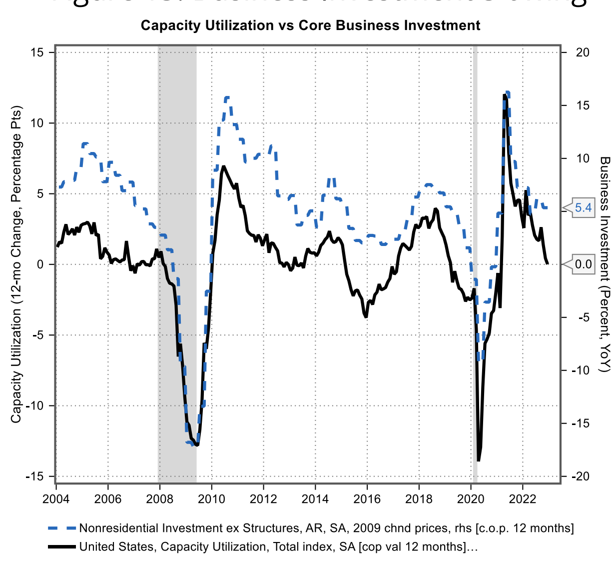


Figure 13: Business Investment Slowing



Weaker business sentiment and lower capacity utilization growth contributed to a sizable slowdown in business investment (Figure 11). With capacity utilization unchanged from a year ago, business investment is likely to remain muted for now.

International Trade, Inventories, and Government Consumption

Figure 14: Contribution to Change in GDP from Net Exports, Inventories & Government

	Contribution to QoQ GDP (%, AR)				Contribution to Annual GDP (%)			
Contributions to Change in GDP, %	**2022:4**	**2022:3**	**2022:2**	**2022:1**	**2022**	**2021**	**2020**	**2019**
Real GDP	2.90	3.20	-0.60	-1.60	2.10	5.90	-2.80	2.30
Net Exports	0.56	2.86	1.16	-3.13	-0.40	-1.25	-0.26	-0.11
Private Inventories	1.46	-1.19	-1.91	0.15	0.74	0.24	-0.55	0.05
Government Expenditure & Investment	0.64	0.65	-0.29	-0.40	-0.10	0.11	0.45	0.58
Federal	0.39	0.24	-0.22	-0.36	-0.17	0.17	0.41	0.25
State & Local	0.25	0.41	-0.06	-0.04	0.07	-0.06	0.04	0.32

Foreign trade, inventories and government spending and investment made positive contributions to fourth-quarter growth. Together, inventory accumulation and net exports contributed 2.0% of Q4's 2.9% real GDP growth (Figure 14). Higher federal government spending almost exactly offset slower state and local spending growth. These sectors added almost 2.7% to real GDP, while real private domestic final sales rose just 0.2%.

The **trade deficit** narrowed modestly as both import and export growth slowed significantly (Figure 15). Lower trade volumes could reflect normal quarterly variation, but it also could signal fading global growth. We continue to expect a wider trade deficit over coming quarters, which would be a headwind to U.S. GDP growth.

Figure 15: Trade Volumes Lower

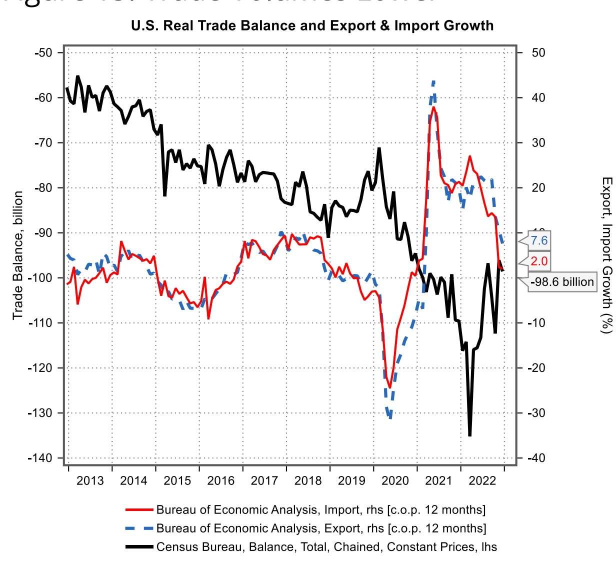
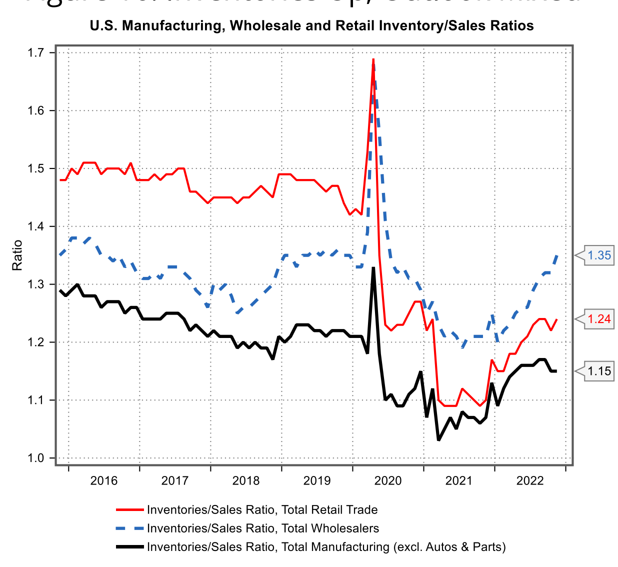


Figure 16: Inventories Up, Outlook Mixed



Businesses accelerated additions to **inventory** in Q4, which added almost 1.5% to real GDP (Figure 14). Inventory-to-sales ratios remain below pre-pandemic levels at manufacturers and retailers but are back to the pre-pandemic level at wholesalers (Figure 16). Although supply disruptions are much improved, most businesses (perhaps excluding wholesalers) probably want to have additional stock on hand. We expect modest growth in inventories over the next several quarters. They should turn negative if a recession unfolds in the second half.

Inflation

Figure 17: Inflation Rates

Key Inflation Rates	MoM Change			QoQ Change (AR)			YoY Change			
	Dec-22	Nov-22	Oct-22	2022:4	2022:3	2022:2	2022:4	2022:3	2021:4	2019:4
Consumer Price Index	0.13%	0.21%	0.49%	4.2%	5.5%	9.7%	7.1%	8.3%	6.7%	2.0%
ex food & energy	0.40%	0.31%	0.33%	5.1%	6.2%	6.0%	6.0%	6.3%	5.0%	2.3%
Services ex Shelter	0.61%	0.11%	0.05%	4.8%	7.6%	10.3%	7.4%	7.5%	3.7%	2.3%
Owners' Equiv. Rent	0.79%	0.65%	0.62%	8.6%	8.3%	6.4%	7.2%	6.3%	3.5%	3.3%
	Dec-22	Nov-22	Oct-22	2022:4	2022:3	2022:2	2022:4	2022:3	2021:4	2019:4
PPI Final Demand	-0.50%	0.17%	0.38%	2.0%	2.2%	12.0%	7.3%	9.0%	9.6%	1.1%
ex food & energy	0.13%	0.22%	0.18%	2.6%	4.1%	7.7%	6.2%	7.3%	7.9%	1.4%
	Dec-22	Nov-22	Oct-22	2022:4	2022:3	2022:2	2022:4	2022:3	2021:4	2019:4
PCE Deflator, total	0.05%	0.10%	0.38%	3.2%	4.3%	7.3%	5.5%	6.3%	5.7%	1.5%
ex food & energy	0.30%	0.16%	0.26%	3.9%	4.7%	4.7%	4.7%	4.9%	4.7%	1.6%
Goods	-0.74%	-0.38%	0.31%	-1.5%	2.7%	10.6%	6.0%	8.7%	7.9%	-0.2%
Services	0.45%	0.34%	0.41%	5.6%	5.2%	5.6%	5.3%	5.1%	4.6%	2.2%
ex energy, housing	0.52%	0.46%	0.50%	6.6%	5.7%	5.4%	5.6%	5.1%	4.1%	2.5%

Inflation was mixed in the fourth quarter as goods inflation declined but services inflation was mostly unchanged or higher (Figure 17). Energy prices fell sharply, with PCE and CPI energy indices down at annual rates of 14.2% and 10.6%, respectively, in Q4. PCE goods prices fell outright. These contributed to slowing headline inflation (Figure 18). However, services inflation remained sticky, with PCE services and services excluding energy and housing accelerating slightly during the quarter—and they showed no consistent improvement in 2022. Because services are two-thirds of consumer spending, this is a key concern for monetary policy.

Figure 18: Inflation Down, Services Sticky

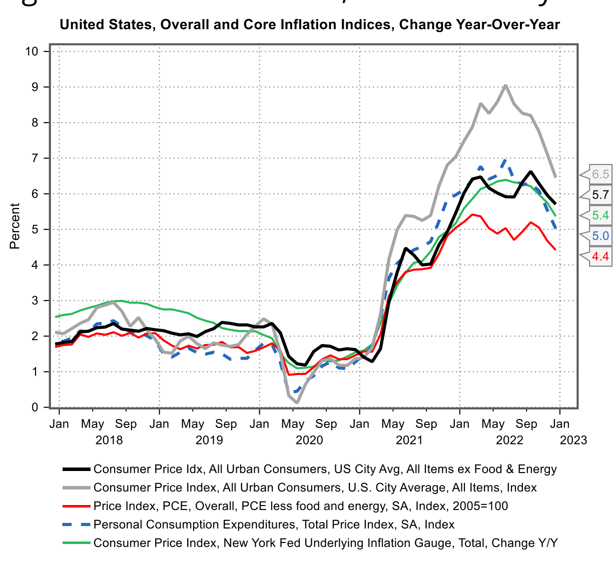
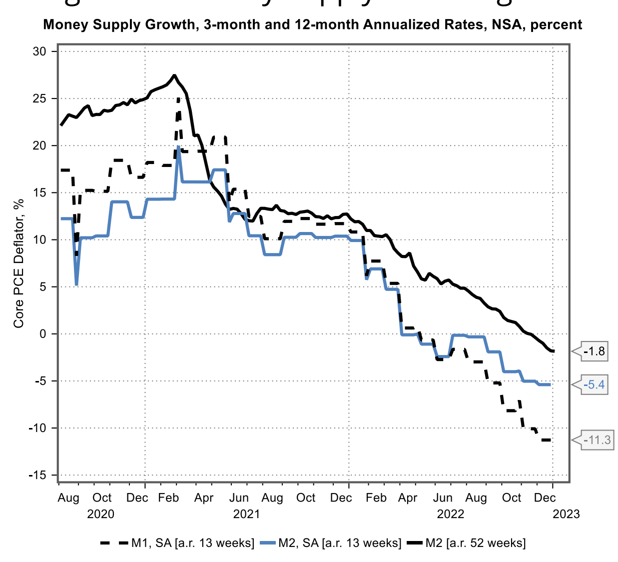


Figure 19: Money Supply Shrinking

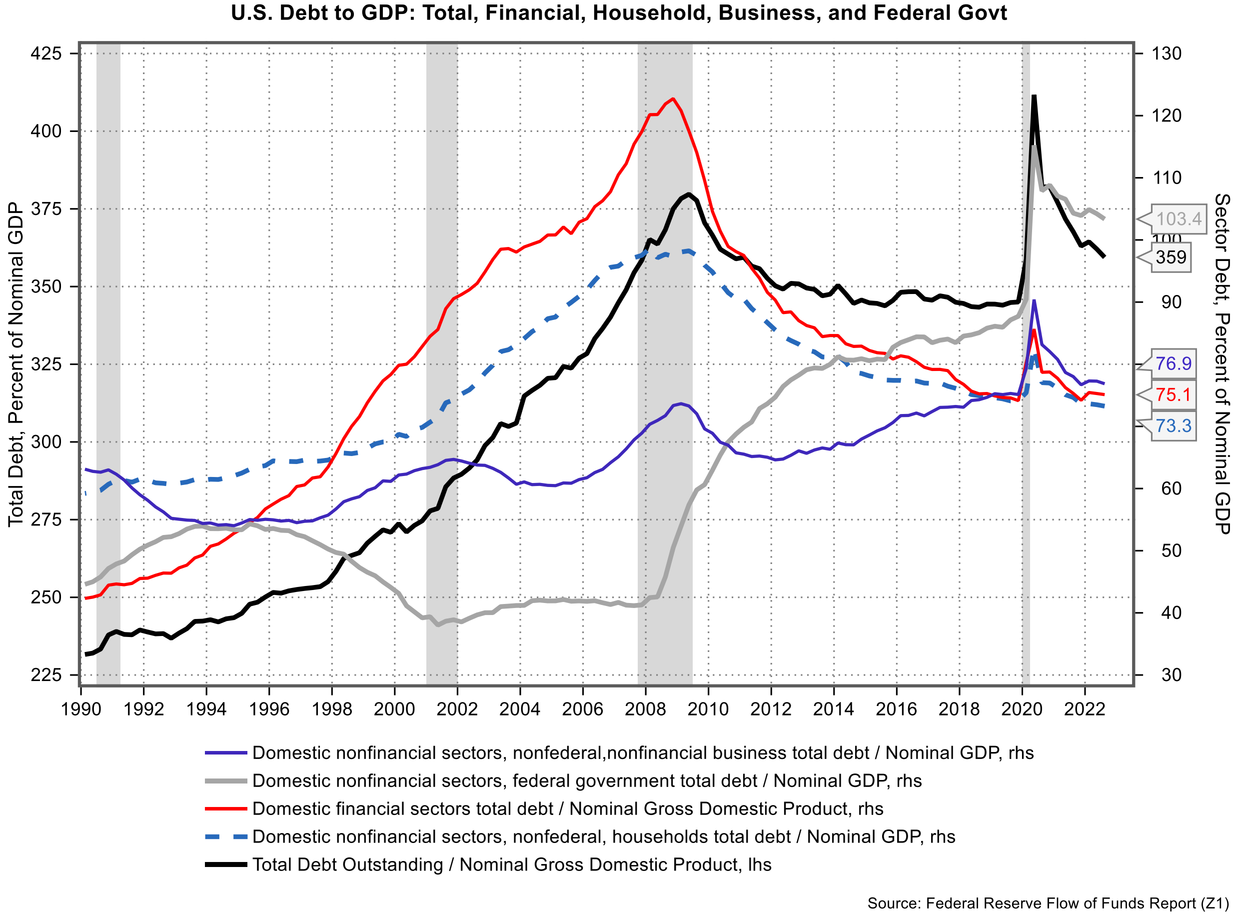


Money supply growth continued to decline in the fourth quarter (Figure 19). We are relieved to see the drop in M2 growth moderate in the second half of 2022 after shrinking quickly in the first half. Rapidly shrinking money supply—even in an "ample reserve" monetary regime—is a risky proposition. Inflation in 2021 and 2022 flowed, in part, from huge monetary expansion in 2020 and 2021, but it is in the past. As supply chains return to normal, prices of some goods are falling and will continue to fall from pandemic peaks. The Fed will welcome that. However, trying to wring out past price increases (i.e., targeting deflation) risks pushing the economy into a deep recession; neither is the Fed's goal. Low to slightly negative growth in broad money supply should reinforce the disinflationary impact of higher borrowing costs and slower economic growth as the year progresses, but we do not want to see money supply collapse. It is a lonely vigil, but we continue to watch money growth closely.

Looking ahead, we expect goods inflation to drop back quickly to about 1%, but with employment still strong and wage growth easing only gradually, we continue to think services inflation will come down slowly. If that is correct, inflation should be down enough to prompt a pause in rate hikes by the Federal Open Market Committee (FOMC) over the next few meetings but not enough to persuade it to cut rates this year.

Aggregate Debt Ratios

Figure 20: Debt-to-GDP Down in Q3; Private Sector Debt Remains Low



Broad **balance sheet trends** through the third quarter of 2022 (latest data available) show slightly lower debt-to-GDP ratios across borrowing sectors (Figure 20). Overall debt-to-GDP edged down to 359%. Federal government debt-to-GDP fell to 103.4% from 104.2% as debt rose by "only" $275 billion in Q3 while nominal GDP grew by $475 billion. There were only minor changes across other borrowing sectors, but all ratios declined (i.e., improved). We remain watchful for signs of strain in the nonfinancial business sector, where borrowing is a little above pre-pandemic levels. Higher interest rates are a risk for highly leveraged companies in that sector, especially if the economy slips into recession. However, for the overall U.S. economy, especially households and financial businesses, we do not believe debt levels pose a major risk to our economic or credit outlooks.

Interest Rate and Monetary Policy Outlook

Figure 21: Key Interest and Policy Rates

Interest Rates (%, end of period)	2/13/23	2022:4	2022:3	2022:2	2022:1	2021:4	2021:3	2021:2
Fed funds rate target (upper bound)	4.75	4.50	3.25	1.75	0.50	0.25	0.25	0.25
3-month LIBOR	4.86	4.77	3.75	2.29	0.96	0.21	0.13	0.15
2-Yr Treasury note yield	4.52	4.41	4.22	2.92	2.28	0.73	0.28	0.25
10-Yr Treasury note yield	3.72	3.88	3.83	2.98	2.32	1.52	1.52	1.45
30-Yr Treasury note yield	3.79	3.97	3.79	3.14	2.44	1.90	2.08	2.06

Long-term **Treasury rates** rose modestly in the fourth quarter but ended the year below their peaks. Ten- and 30-year Treasuries reached cycle-highs of 4.24% and 4.38%, respectively, on October 24. After a strong rally in January that drove those yields down to 3.37% and 3.53%, respectively, they are now a little less than mid-way between those highs and lows (Figure 21).

With inflation still above the fed funds rate in the fourth quarter, the Federal Reserve maintained a rapid path of tightening. The FOMC delivered four consecutive 75 bp rate hikes at its June, July, September, and November meetings and a smaller 50 bp hike at its December meeting. The FOMC slowed its pace of rate hikes again in February with a 25 bp move, bringing the current fed funds target range to 4.50-4.75%. Market forward rates price in slightly more than two additional 25 bp rate hikes to push the fed funds rate to a peak of about 5.25% by mid-2023 followed by a 25 bp rate cut in late 2023. Markets expect rate cuts totaling 150 bp in 2024 (Figure 22).

Figure 22: Market Expects Gradual Approach[3]

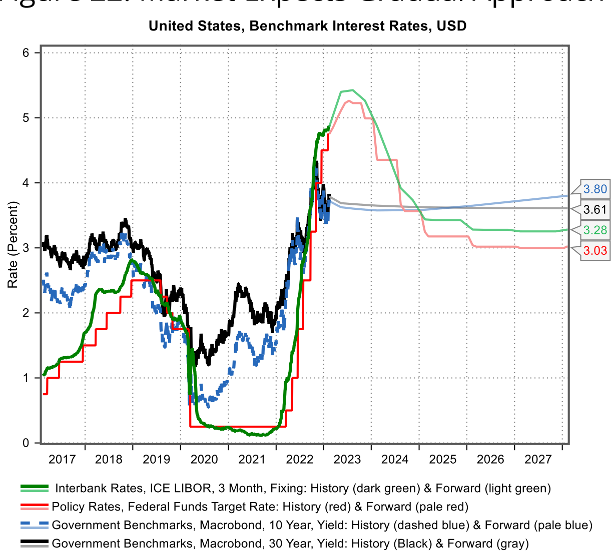
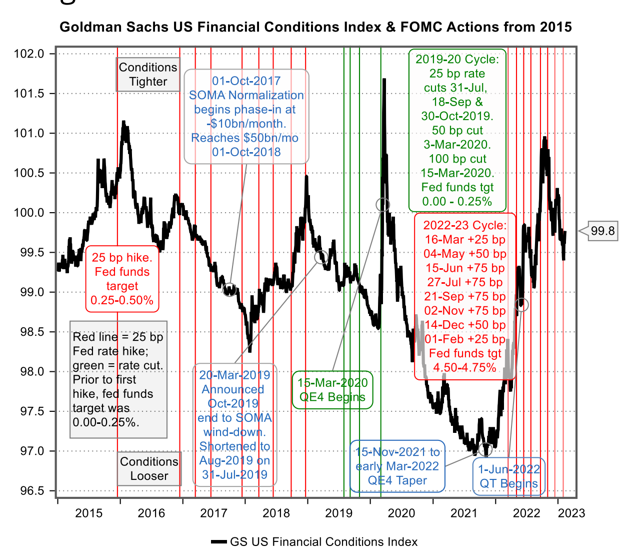


Figure 23: Financial Conditions Restrictive



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[3] The fed funds effective rate recently has traded about 17 bp below the top end of the FOMC target range. In Figure 25, we add 17 bp to forward rates implied by overnight index swaps (OIS) to align them with the upper band of historic target rates.

The FOMC left the pace of securities reductions in the Fed's System Open Market Account (SOMA) unchanged in Q4. The Fed will continue to trim Treasury holdings by up to $60 billion and agency mortgage-backed securities by up to $35 billion per month. SOMA reductions have contributed to slower money supply growth and upward pressure on interest rates.

Financial conditions tightened as rates rose rapidly through October, but they have since eased amid lower interest rates and higher stock prices (Figure 27). While the Fed probably would like to see financial conditions somewhat tighter—the FOMC believes inflation will fall more slowly than the market does—inflation has slowed since autumn and real short-term rates are now positive. In short, tighter monetary policy is visibly working, and markets reasonably expect the Fed is approaching the end of this tightening cycle. The questions for markets and the Fed are (i) how much higher does the fed funds rate need to go, and (ii) how long do they need to stay at that terminal rate?

We continue to think one or two more 25 bp rate hikes will be enough to push the economy into a mild recession in the second half of 2023 and bring core PCE inflation down to around 3% in early 2024. From there, the FOMC should cut rates somewhat faster than the pace of disinflation until inflation reaches the Fed's 2% target. Our forecast implies a little less easing in 2023 than today's market expects, but it is not far from the pace of easing priced into 2024. However, we acknowledge a great deal of uncertainty over how quickly inflation will come down. If we are right, we think intermediate- and long-term rates should move only modestly higher from current levels to reflect a slightly longer timeline to reach the Fed's inflation target.[4] Despite another one or two (or possibly three) 25 bp rate hikes by the Fed still ahead, we think most of the impact on fixed-income markets from tighter monetary policy is behind us.

[4] We also think aging demographics and geopolitical shifts will raise long-term real rates relative to the post-financial crisis period, but that is a discussion for another Update.

Credit Conditions and Outlook

Figure 24: Selected Credit Spreads and Quality Metrics

Credit Spreads (bp, end of period)	2/13/23	2022:4	2022:3	2022:2	2022:1	2021:4	2021:3	2021:2
ICE-BofAML Index, spread to worst								
US Corporate (C0A0)	126	141	168	163	121	95	84	82
US High Yield (H0A0)	434	491	550	592	371	330	331	318
US Preferred & Hybrid (P8JC)	262	351	319	332	240	178	170	137
10-Yr Interest Rate Swap Spread (bp)	(1.1)	(4.8)	6.1	8.3	5.8	6.3	2.3	(2.6)

	Delinquencies (% of loans)				Charge-Offs (% of loans)			
Bank Loan Quality (%) (FRB)	2022:3	2022:2	2022:1	2021:4	2022:3	2022:2	2022:1	2021:4
US Banks, Total Loans	1.20	1.23	1.23	1.27	0.26	0.22	0.21	0.20
Commercial & Industrial	1.11	1.04	1.05	1.11	0.16	0.14	0.13	0.12
Commercial Real Estate	0.64	0.72	0.74	0.79	-	0.01	0.02	0.02
Consumer	1.92	1.80	1.65	1.54	1.28	1.08	0.99	0.94

Bank Capital & Reserves*	2022:4	2022:3	2022:2	2022:1	2021:4	2021:3	2019:4
Common Equity Tier 1 Capital Ratio (%)	10.44	10.45	10.47	10.64	10.86	11.23	10.62
Loan-loss Reserve/Non-perf. Loans (%)	-	257	241	229	236	228	162

* Average of peer group of 31 large US banks (Source: S&P Capital IQ). Q4 Reserve/NPL ratio not yet avialable.

Credit spreads mostly narrowed in the fourth quarter and have tightened further since year end (Figure 24). Credit fundamentals remain good—with loan delinquencies and charge-offs near historic lows—but problem loans are up in consumer segments as higher interest rates and rising consumer borrowing strains households with high credit card balances. Business bankruptcy filings remain low, but factors unfavorable to bankruptcy filings as measured by the National Association of Credit Management rose again and are now above pre-pandemic levels (Figure 25). With interest rates up sharply and economic growth likely to slow later this year, we remain watchful of highly leveraged companies that may not be able to pass along higher operating and interest costs. Bankruptcy filings are likely to increase.

Figure 25: Bankruptcies Low but Risk Up

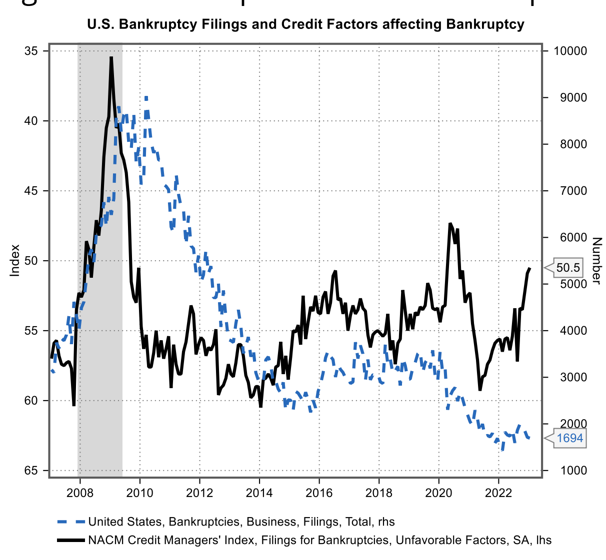
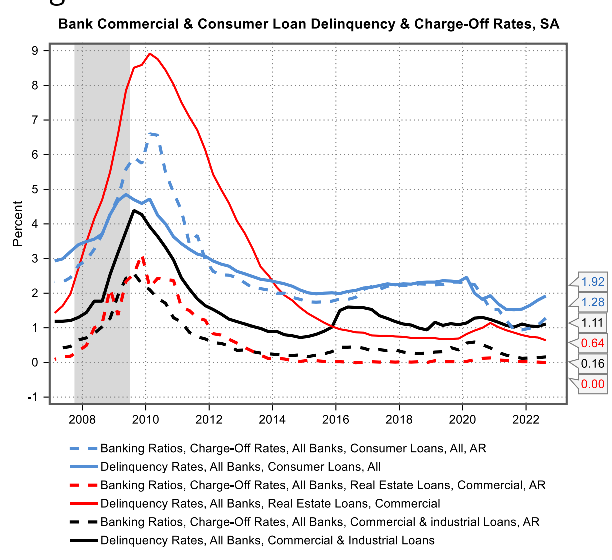


Figure 26: Problem Loans Remain Low



Bank loan quality was mostly steady in commercial sectors in Q3 (latest data available), although consumer loan delinquencies and charge-offs ticked up (Figure 26). Despite that uptick, loan charge-offs are extremely low and bank loan quality remains excellent. While we anticipate a recession in 2023, we think banks are well prepared to manage through it. Higher interest rates reduced the value of banks' fixed-income securities holdings through the third quarter, which pressured Common Equity Tier 1 (CET1) capital ratios. Those improved in Q4 as rate increases moderated and solid earnings added to capital. We think banks remain very strong credits.

Large banks also continued to raise their ratios of loan-loss reserves to non-performing loans to an average of 257% in Q3 (Figure 24). Nearly all banks increased loan-loss provisions in the fourth quarter, and we expect another boost to loan-loss reserve cushions when statistics are reported later this month.

Figure 27: Spreads Narrowed as Hikes Slow

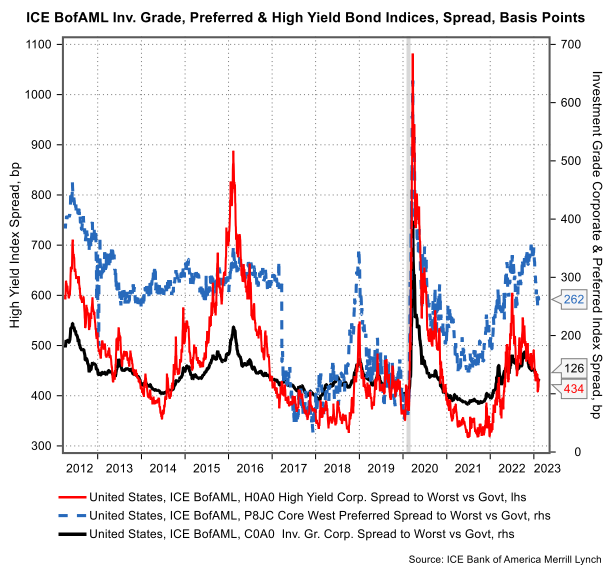
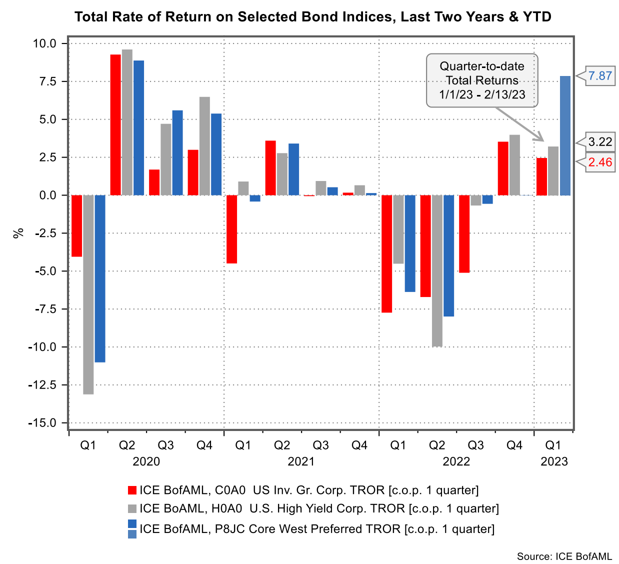


Figure 28: Risk Appetite Returning?



Tighter monetary policy and recession worries drove **credit spreads**[5] sharply wider through most of 2022, but spreads have narrowed significantly in the past several months. Investment-grade and high-yield corporate bond spreads widened 46 and 161 bp,

[5] The benchmarks from ICE Data Indices, LLC ("ICE Data") are used with permission. ICE Data, its affiliates and their respective third-party suppliers disclaim any and all warranties and representations, express and/or implied, including any warranties of merchantability or fitness for a particular purpose or use, including the indices, index data and any data included in, related to, or derived therefrom. Neither ICE Data, its affiliates nor their respective third-party providers shall be subject to any damages or liability with respect to the adequacy, accuracy, timeliness or completeness of the indices or the index data or any component thereof, and the indices and index data and all components thereof are provided on an "as is" basis and your use is at your own risk. ICE Data, its affiliates and their respective third-party suppliers do not sponsor, endorse, or recommend Flaherty & Crumrine Incorporated, or any of its products or services.

respectively, in 2022 (Figures 24 and 27).[6] Spreads on the preferred index widened 173 bp over the same period.[7]

While we illustrate preferred spreads using spread to worst, preferreds' complex call features distort this simple spread measure in certain market environments, especially when prices of most preferred securities are above par (where they started 2022, but most trade below par today). Therefore, we also like to examine total rate of return, as it captures the impact of issuer redemptions as well as changes in credit spreads and Treasury yields. Figure 28 shows total returns on selected ICE BofA indices in recent quarters. The first three quarters of 2022 were terrible for almost all asset classes, including investment-grade and high-yield corporate bonds and preferred securities. The fourth quarter was better for investment-grade and high-yield corporate bonds, return on the preferred index was essentially zero. However, the preferred index has outperformed so far in 2023. Putting those two periods together, total return from September 30, 2022 through February 13, 2023 on the preferred index (7.57%) significantly outperformed the investment-grade corporate bond index (5.89%) and modestly outpaced the high-yield index (7.23%). For the period from December 31, 2021 through February 13, 2023, returns were -7.86%, -13.52%, and -8.44% for the preferred, IG bond, and HY bond indices, respectively.[8]

We remain confident in the credit fundamentals of most preferred issuers. The investment grade and high-yield indices are dominated by nonfinancial companies, which are exposed to rising interest rates. While that is a smaller concern for investment grade companies, it is a significant risk for many high-yield companies. In contrast, financial companies, which are by far the largest issuers of preferred securities, tend to benefit from rising rates. Of course, credit risk increases with tighter monetary policy, and that risk could outweigh the benefit of higher rates. However, we think financial companies are well prepared for what lies ahead.

As inflation and interest rates fall and an economic recovery begins in 2024, credit fears should recede. Markets are likely to anticipate that sometime in 2023. Although many risks remain, we think most of the market's adjustments to higher rates and wider credit spreads are behind us. Yields on preferred securities are up significantly from a year ago and can offer attractive returns without the need for lower interest rates. We believe long-term investors can earn high income with moderate interest rate risk and good credit quality by investing in preferred and contingent capital securities today as they wait for better days ahead.

Flaherty & Crumrine Incorporated
February 13, 2023

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[6] Investment-grade corporate bond spread is represented by the ICE BofA U.S. Corporate Index[SM] (C0A0) "Yield to Worst versus Government" yield spread series. "Spread to Worst" is the lower of yield to call and yield to maturity minus yield on a comparable Treasury security. Index data through 2/13/2023.

[7] Preferred index is the ICE BofA 8% Constrained Core West Preferred & Junior Subordinated Securities Index[SM] (P8JC). Index inception date was 3/31/2012; data through 2/13/2023.

[8] Total return is not annualized and includes both price change and income. Past performance does not guarantee future performance.