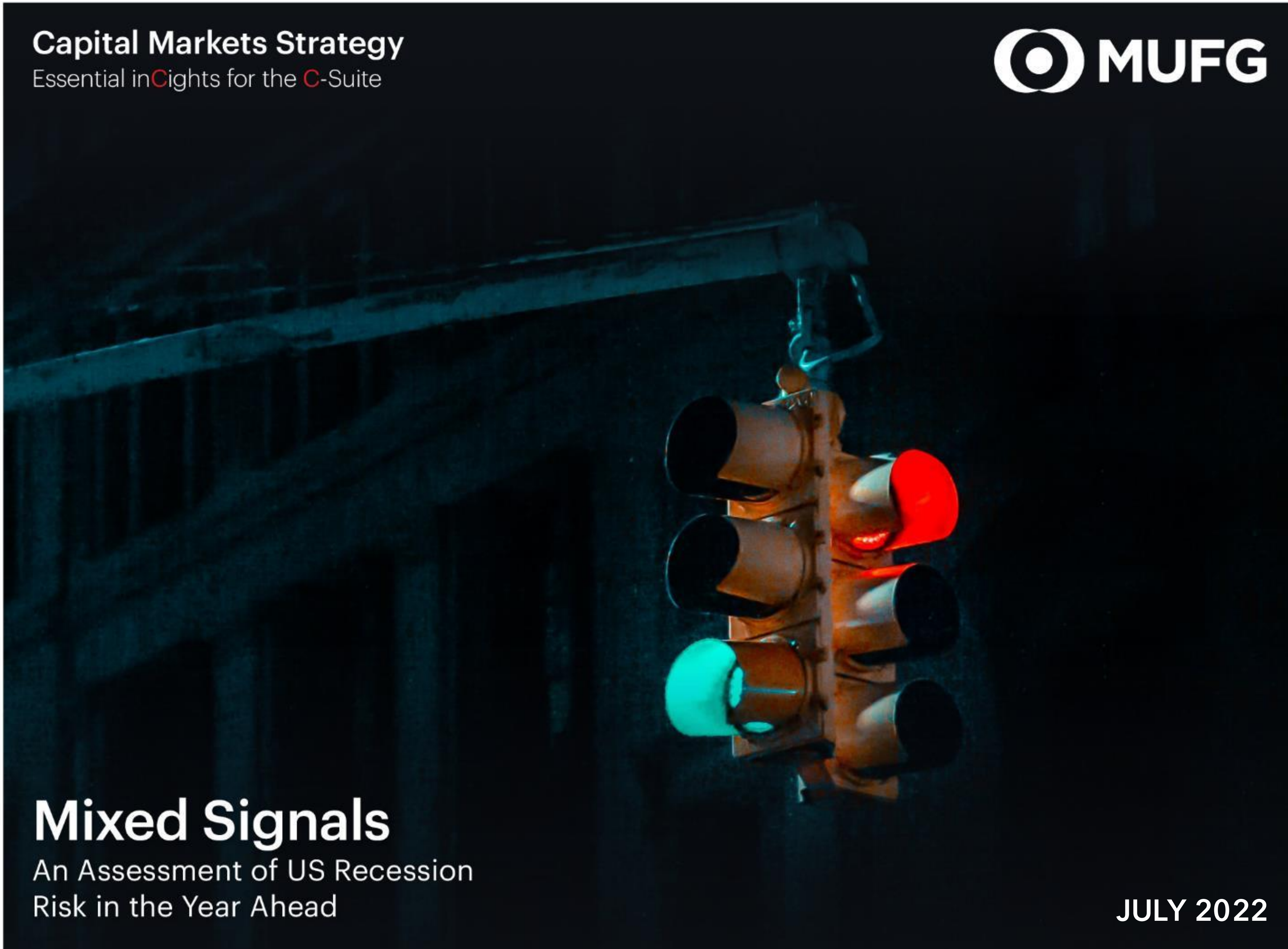
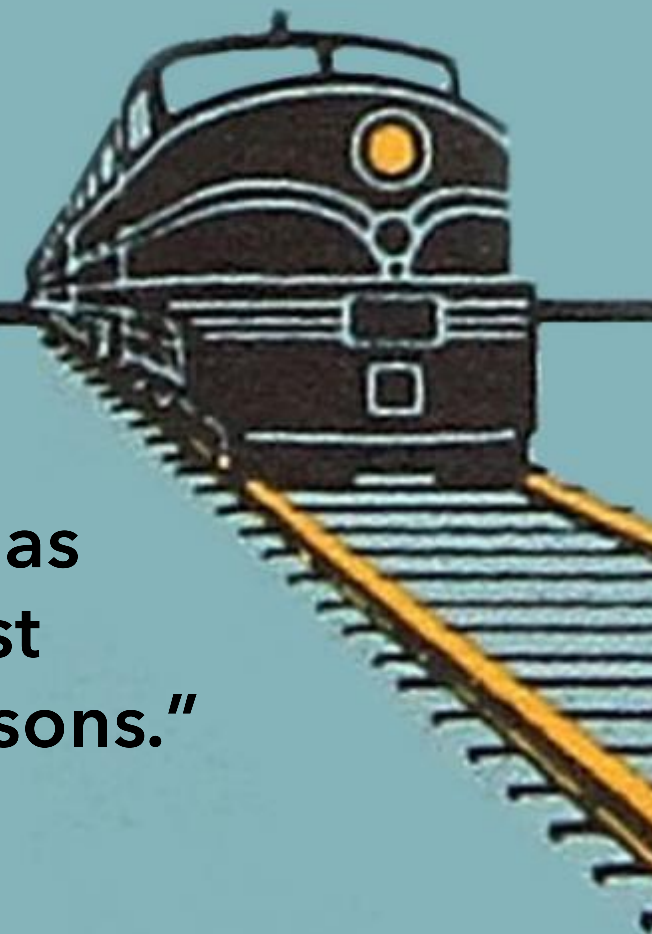
Capital Markets Strategy
Essential inCights for the C-Suite



Mixed Signals

An Assessment of US Recession Risk in the Year Ahead

JULY 2022



“As sure as time, history is repeating itself, and as sure as man is man, history is the last place he will look for his lessons.”

Harper Lee, in best selling novel and prequel to
“To Kill a Mockingbird”, ”Go Set a Watchman”

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US Recession Risk Assessment

“Our holiday from history is over”

George Will, American political commentator and author

Recessions are Reasonably Rare Events

Recessions are reasonably rare events, with only 11 US recessions (and 6 globally) since 1950. In fact, over the 286 quarters since 1950, the US economy has been in recession for 38 of them (7.6% of the time).

	Post WWII US Recessions	Global Recession?	Contributing factors								
			Fed policy	Inflation	Oil price shock	Banking crisis / stress	Credit cycle turn	Asset price bubble	USD / FX shock	Pandemic	Other
1	Jul 1953 – May 1954		✓	✓							
2	Aug 1957 – Apr 1958	✓	✓	✓					✓	✓	
3	Apr 1960 – Feb 1961		✓	✓							✓
4	Dec 1969 – Nov 1970		✓	✓							
5	Nov 1973 – Mar 1975	✓	✓	✓	✓				✓		
6	Jan 1980 – Jul 1980	✓	✓	✓	✓						
7	Jul 1981 – Nov 1982	✓	✓	✓	✓						
8	Jul 1990 – Mar 1991		✓		✓	✓	✓				✓
9	Mar 2001 – Nov 2001						✓	✓			✓
10	Dec 2007 – Jun 2009	✓	✓		✓	✓	✓	✓			
11	Feb 2020 – Apr 2020	✓					✓			✓	

*Source: (1) BEA. IMF. OECD. *While not considered a "global recession" by the IMF, the 1957 recession did include the large global economies US, Canada & Europe.*

Shorter Economic Cycle Seems Likely

If the US economy enters recession in 2022, the post COVID US economic recovery will have been the shortest US expansion since the 12 month recovery of 1981-82

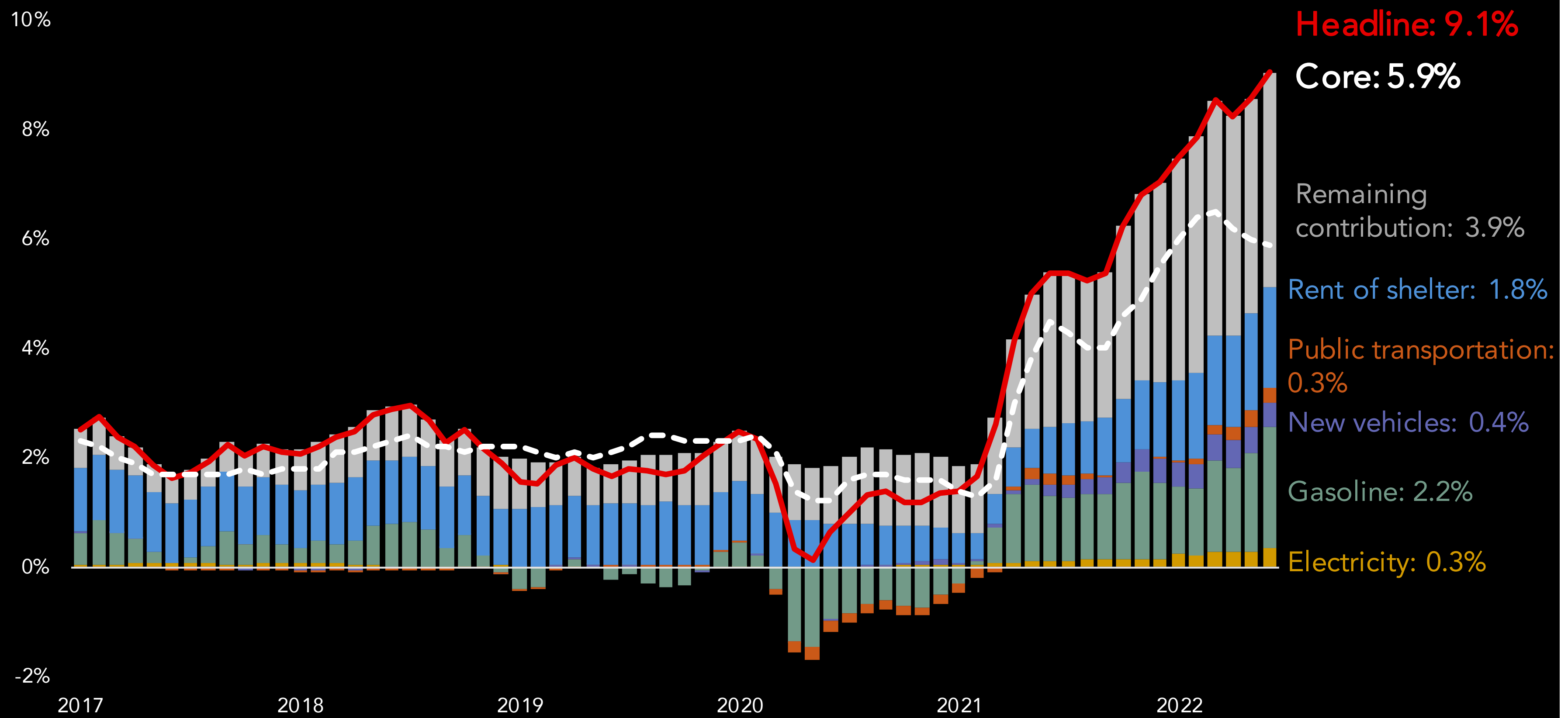
35 US recoveries since 1854

Source: (1) The National Bureau of Economic Research. Length of US recoveries as of July 2022.

Have We Reached Peak Inflation?

In June, the CPI index rose to 9.1%, its highest reading in 41 years (since 1981). Going back to 1950, the US has generally entered into a recession after year-on-year headline inflation growth rises above 5%. The magnitude of inflation's recent surge is likely to force the Fed to be "growth agnostic" and aggressively tighten the policy rate to curb inflation, even at the expense of a short US recession.

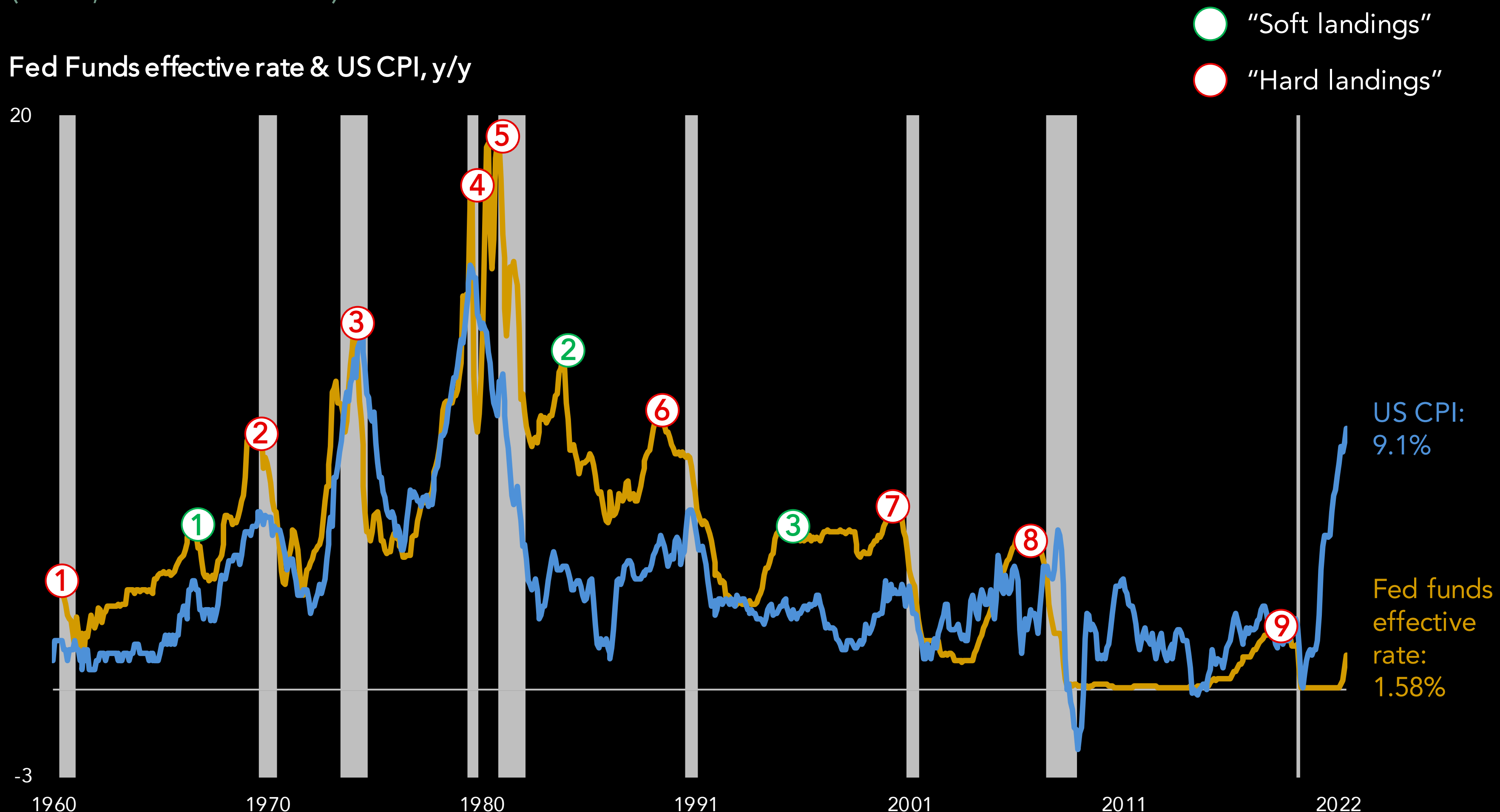
Top 5 sub-component contributors to US CPI, y/y



Source: (1) Bloomberg. Data as of July 14, 2022. BQNT using Bureau of Labor Statistics data.

Hard Landing Risk High

The path to a "soft landing" (economic slowdown without recession) - appears less and less likely. In the 12 Fed tightening cycles since WWII, the Fed only avoided a "hard landing" on three occasions (1966, 1984 and 1995).

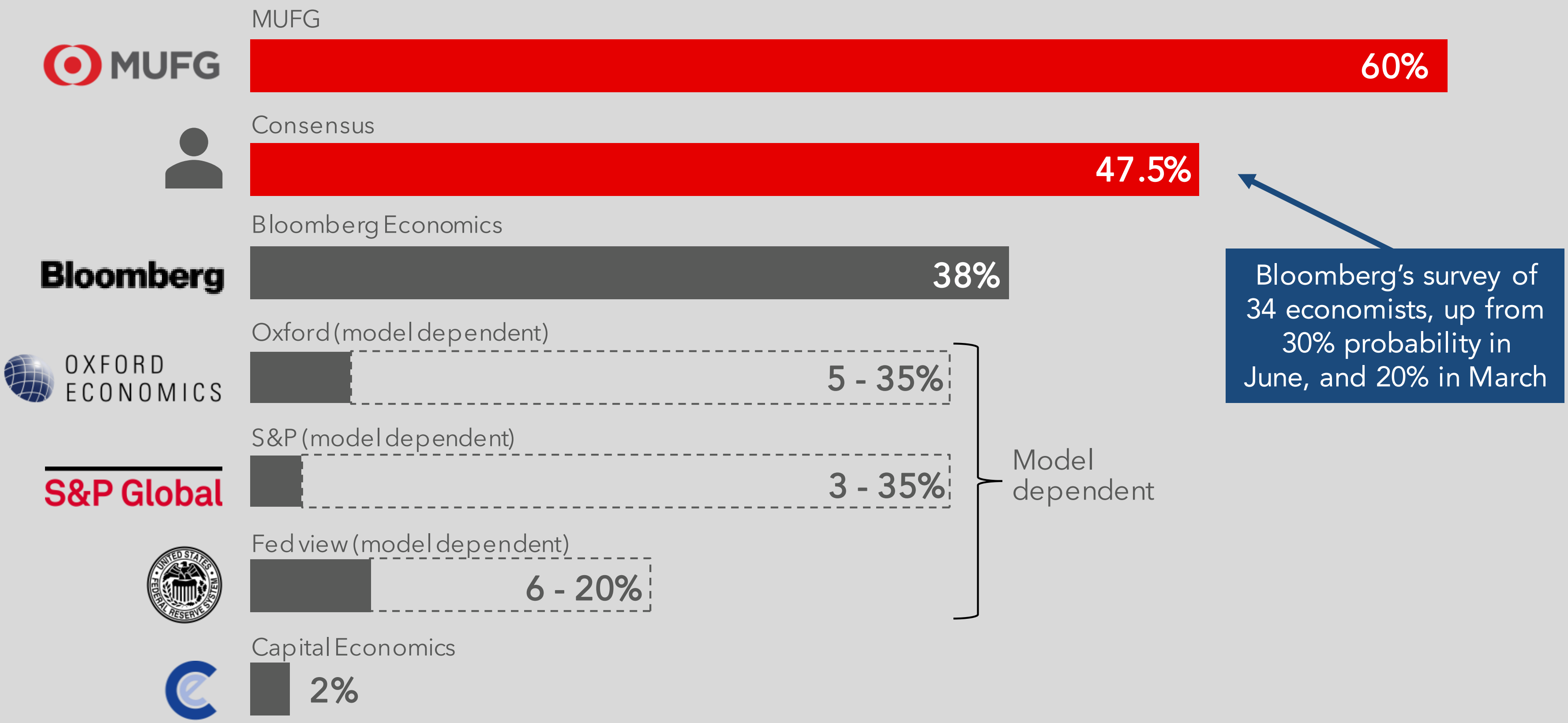


Source: (1) WSJ. FT, "A Soft Landing is Becoming a Distant Dream" (July 1, 2022). Data as of July 15, 2022.

US Recession Risk Rising

Rapidly rising inflation and massive Fed tightening (via frontloaded rate hikes and ongoing QT) have significantly increased the probability of "hard landing" and US recession over the next 12 months.

Probability of US recession in next 12 months



Source: (1) Bloomberg, S&P Global Ratings, Federal Reserve. Fed view based on US treasury curve model and excess bond premium. S&P Global based on quantitative and qualitative models. Oxford Economics based on different US treasury curves. MUFG forecast is provided by George Goncalves. Consensus is Bloomberg Official Economist Submissions.

Scenarios for US Economy Over Next 12 Months

Increasingly ***less*** likely

Increasingly ***more*** likely

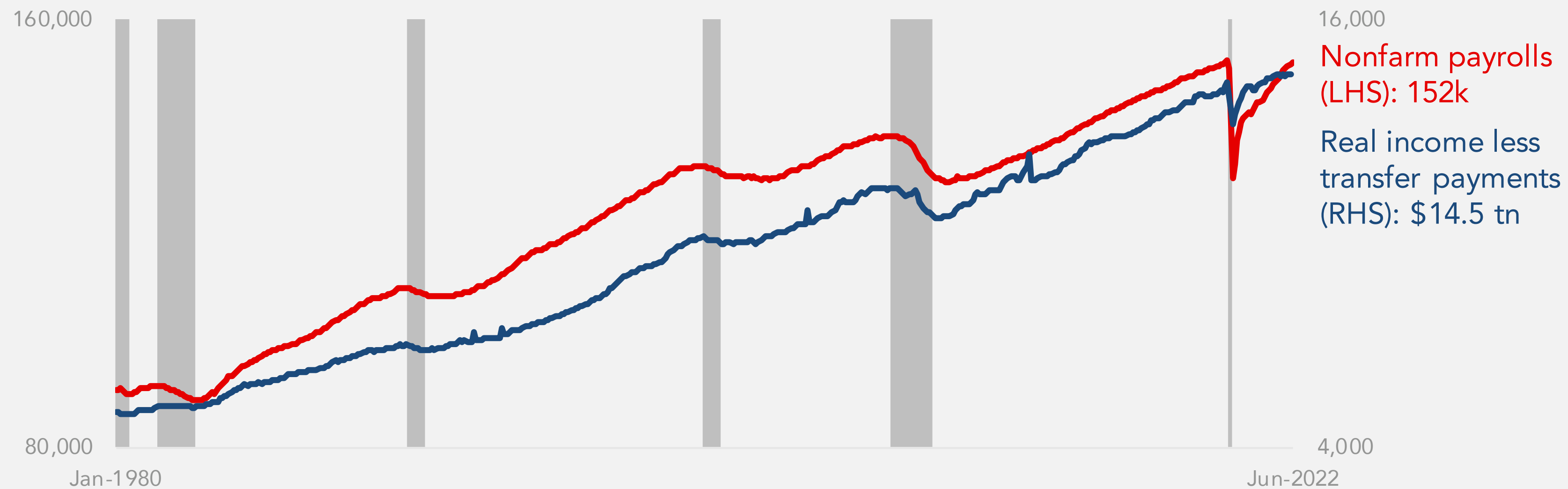
	Scenario	Fed Action	Probability	
			Previously	CURRENT
1	The Boom (High GDP / High CPI)	Major tightening	65%	***0%***
2	Goldilocks (Moderate GDP / CPI)	Mild tightening	15%	***5%***
3	Mid-cycle slowdown (Low GDP / Low CPI)	Balancing risks	10%	***15%***
4	***Stagflation*** (Low GDP / High CPI)	**No good options**	5%	***20%***
5	***Recession*** (Neg GDP / Neg CPI)	**More easing**	5%	***60%***

Source: MUFG (Goncalves). Probability refers to the likelihood of a given scenario the 12 month forecast window. Previous was prior forecast for 2020 - 2021, current = 2022 - 2023.

Who is the Arbiter of US Recessions?

The official arbiter of US recessions, the National Bureau of Economic Research's (NBER's) 8 member business cycle committee, could choose not to label a mild two quarter contraction a recession if unemployment stays low and wages rise. The US economy declined (-1.6%) in Q1, and the widely-followed Atlanta Fed's GDPNow model is forecasting a further (-1.2%) contraction in Q2.

Key NBER business cycle indicators



The NBER looks at 6 broad indicators of economic activity to determine when recessions start and end. According to Oxford Economics, the NBER has noted that over the last 20 years, they have put more weight on "real personal income" and "nonfarm payroll employment" than other metrics.

Source: (1-2) CreditSights, "U.S. Consumer Credit and Banks: Narrative Pushback" (July 7, 2022). Bloomberg. Data as of July 8, 2022.

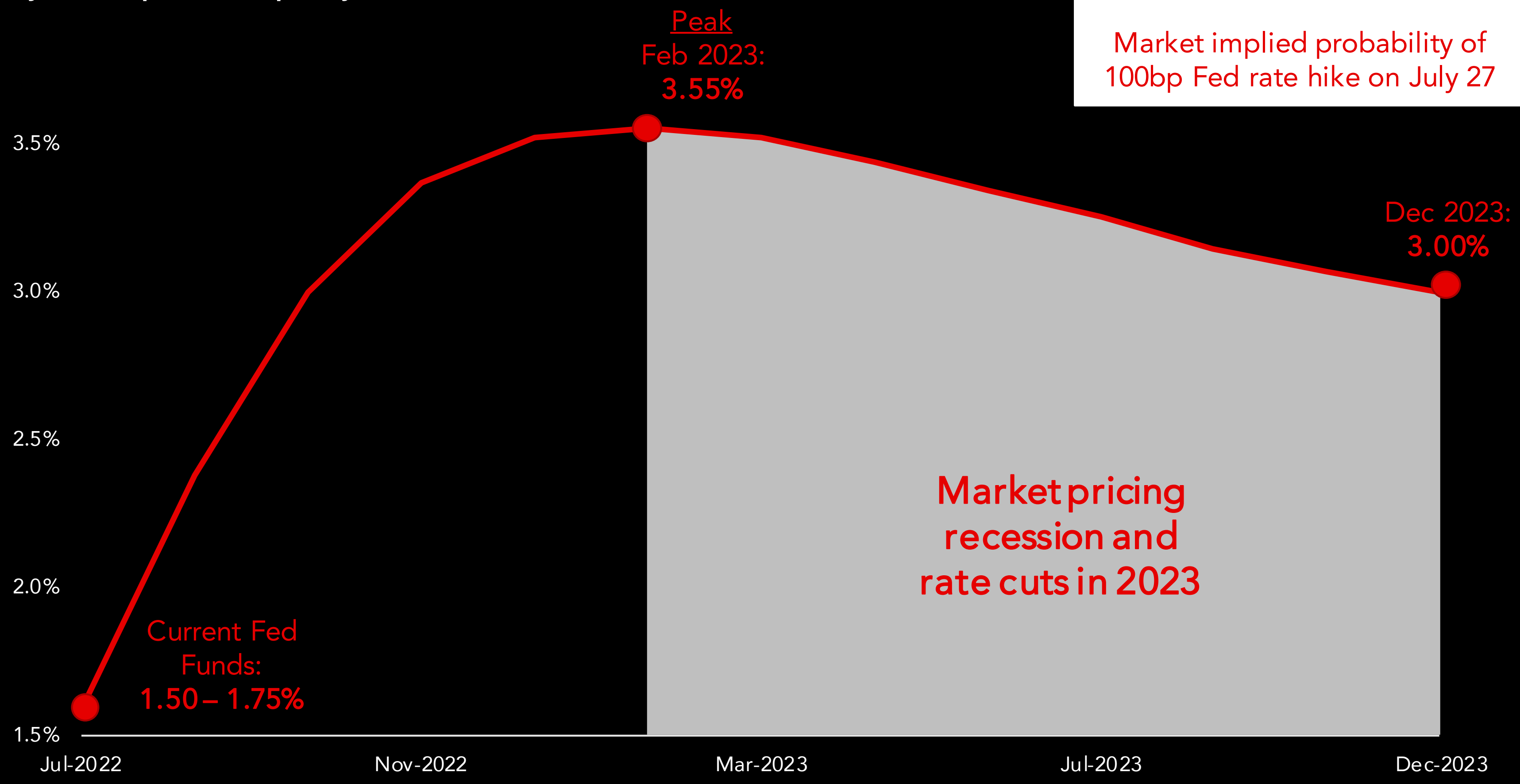
Markets Pricing in a 2023 Recession

After June's 9.1% inflation surprise, the market expects Fed Funds to peak in Q1 above 3.5%, nearly 200 bps higher than current levels. The market then expects US recession and rate cuts over the course of 2023.

July 15th implied Fed policy effective rate, %

19%

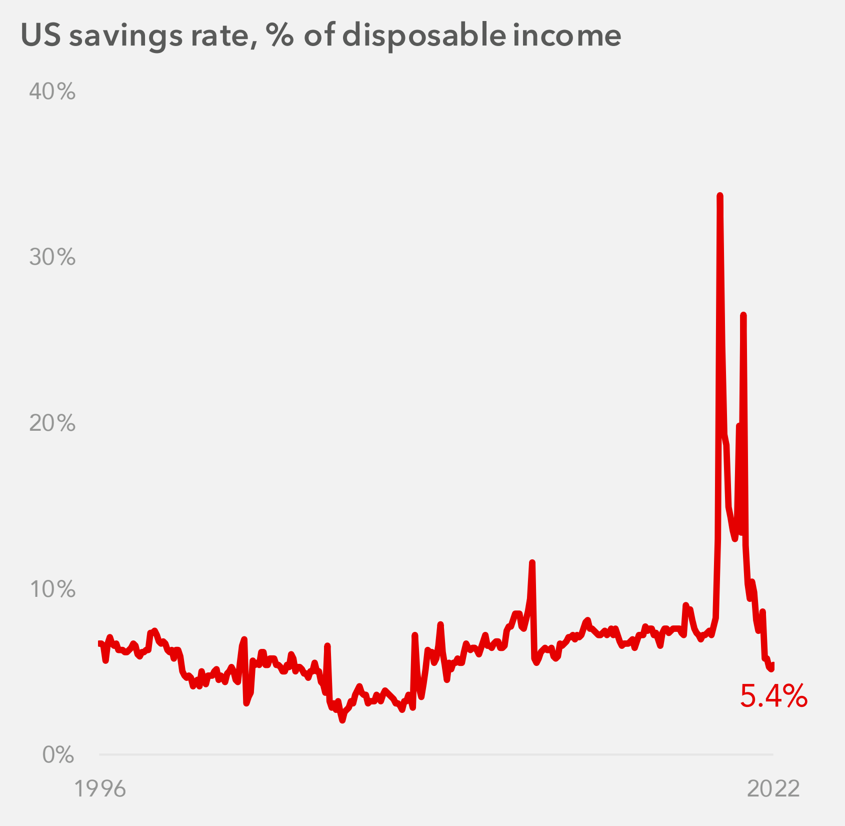
Market implied probability of 100bp Fed rate hike on July 27



Source: (1) Bloomberg. Data as of July 15, 2022. WIRP. Derived from fed funds futures prices. (John Authers)

Next Recession Likely Short & Shallow

In April, the US consumer savings rate plummeted to 5.2% (before recovering modestly in May), its lowest level since mid-2009, prompting market concern over the health of the US consumer. However, this focus on "flow" data does not adequately consider the excess savings accumulated during the COVID pandemic. Although the monthly savings rate has declined sharply, the "stock" of US consumer savings is still nearly $2 trillion higher than it was pre-COVID.



Source: (1-2) CreditSights, "U.S. Consumer Credit and Banks: Narrative Pushback" (July 7, 2022). Bloomberg. Data as of July 15, 2022.

<u>Shallow</u> US Recessions Over Last 100 Years

History shows that US recessions come in many forms - i.e., short and shallow (2001); long and deep (2009), short and deep (2020). While risks are rising for the US economy over the next 12-18 months, it is likely that the next US recession will be short and shallow relative to historic standards due to the strength of consumer, corporate and financial sector balance sheets.

Start date	End date	Length (months)	Real GDP contraction (peak to trough)	Inflation	Fed funds rate
Feb 1920	Jul 1921	17	(-2.8%)	13.5%	4.5%
Nov 1926	Jun 1928	19	(-2.5%)	(-1.7%)	3.3%
Dec 1948	Nov 1949	11	(-1.7%)	6.5%	1.1%
Aug 1953	Jun 1954	10	(-2.5%)	1.1%	2.2%
May 1960	Mar 1961	10	(-1.3%)	1.7%	4.0%
Jan 1970	Dec 1970	11	(-1.1%)	5.7%	9.0%
Feb 1980	Aug 1980	6	(-2.2%)	12.6%	13.2%
Aug 1981	Dec 1982	16	(-2.6%)	9.8%	18.5%
Aug 1990	Apr 1991	8	(-1.4%)	4.4%	8.2%
Apr 2001	Dec 2001	8	(-0.4%)	3.7%	6.0%
	Median	**10.5**	**(-1.6%)**	**5.1%**	**5.3%**

Source: (1) Bloomberg. NBER. Haver. UBS. CPI is headline CPI y/y and Fed policy rate 3 months ahead of the recession.

Deep US Recessions Over Last 100 Years

Deep US recessions tend to happen when the key balance sheets in the economy (consumer, corporate, banking) are highly levered, and/or when major structural imbalances exist in global markets - neither of which really appear to be the case in 2022.

Start date	End date	Length (months)	Real GDP contraction (peak to trough)	Inflation	Fed policy rate
Sep 1929	Apr 1933	43	(-32.6%)	0.0%	4.8%
Jun 1937	Jul 1938	13	(-13.2%)	3.6%	0.4%
Mar 1945	Nov 1945	8	(-17.0%)	2.3%	0.4%
Sep 1957	May 1958	8	(-3.6%)	3.3%	3.0%
Dec 1973	Apr 1975	16	(-3.1%)	7.4%	10.8%
Jan 2008	Jul 2009	18	(-4.0%)	3.5%	4.8%
Mar 2020	May 2020	2	(-10.1%)	2.3%	1.6%
	Median	**13**	**(-10.1%)**	**3.3%**	**3.0%**

Source: (1) Bloomberg. NBER. Haver. UBS. CPI is headline CPI y/y and Fed policy rate 3 months ahead of the recession.

Global GDP Forecasts (2022 – 2023)

GDP growth, y/y

Region / country	2022	2023
North America		
Canada	3.4%	1.1%
US	1.9%	1.1%
Mexico	1.8%	2.0%
Eurozone	2.7%	1.1%
Ireland	5.2%	2.0%
Spain	4.5%	3.6%
Italy	3.2%	1.9%
Netherlands	3.1%	1.7%
France	2.6%	2.2%
Finland	1.8%	1.6%
Germany	1.3%	0.9%
Other Europe		
Poland	5.8%	1.8%
Turkey	3.7%	1.4%
UK	3.6%	0.8%
Denmark	3.1%	1.3%
Switzerland	2.5%	1.4%
Czech Republic	2.2%	2.9%
Sweden	2.1%	2.1%
Norway	2.0%	2.5%
Russia	(-6.4%)	(-4.5%)

Region / country	2022	2023
APAC	4.0%	4.6%
Philippines	7.3%	5.3%
India	6.8%	5.5%
Vietnam	6.5%	8.3%
Indonesia	5.7%	5.5%
China	4.0%	5.1%
Australia	4.0%	2.9%
Singapore	3.2%	2.2%
South Korea	2.5%	2.4%
Japan	2.0%	2.4%
New Zealand	1.4%	3.6%
LatAm	2.7%	1.6%
Colombia	5.5%	(-0.9%)
Argentina	3.2%	0.6%
Brazil	2.2%	0.4%
Chile	1.9%	(-2.1%)
MENA	4.5%	3.9%
Saudi Arabia	7.1%	2.7%
UAE	6.8%	5.7%
Sub-Saharan Africa	3.4%	3.2%
South Africa	1.9%	1.3%

Source: (1) Oxford Economics. Data as of July 15, 2022.

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Economic Recession Signals

“Economic medicine that was
previously meted out by the cupful
has recently been dispensed by the barrel.
These once unthinkable dosages will almost certainly bring on
unwelcome after-effects. Their precise nature is anyone’s guess,
though one likely consequence is an onslaught of inflation.”

Warren Buffett, Chairman & CEO of Berkshire Hathaway

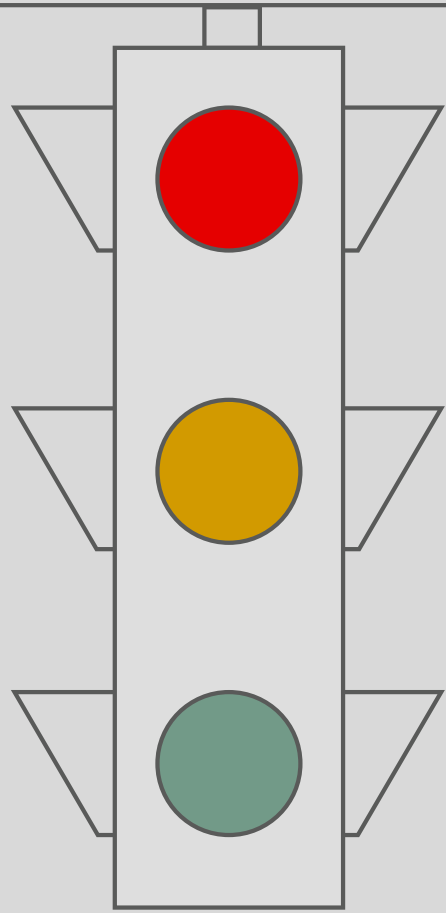
US Economic Recession Signals

Consumer

- Consumer inflation
- Consumer confidence
- Auto sales
- Mortgage rates

- Retail sales
- Housing prices & sales
- Leading economic indicators (LEI)
- Economic surprise index

- Labor markets
- Consumer balance sheets



Business

- PPI inflation
- Wage inflation
- Labor shortages
- Supply chain dislocations

- CEO confidence
- Small business confidence
- ISM new orders index
- Leading economic indicators (LEI)
- Economic surprise index

- Corporate balance sheets
- Large business confidence
- Business spending and capex
- ISM manufacturing PMI
- ISM services PMI
- Trade volumes

Historical Recession Risk Thresholds

Metric	Recent	Recession threshold	Already happened	Not yet
Economic surprise indices				
Bloomberg US economic surprise index	Down (-1.1pts) from 2020 high	Sharp decline	✓	
Citi US economic surprise index	Down (-276pts) from 2020 high	Sharp decline	✓	
Consumer sentiment				
Auto sales	(-30%) from Apr 2021 peak	Steady decline from peak	✓	
Consumer confidence (current vs. expected)	Sharp decline	Sharp decline in both	✓	
U of M consumer sentiment	51	Sharp decline below 70	✓	
Retail sales	+8.4% y/y	Flat to < 0% y/y		✓
Real Personal Consumption Expenditure (Real PCE)	+2.1% y/y	Sharp decline		✓
Johnson Redbook same store sales	+13.0% y/y	Flat to < 0% y/y		✓

Historical Recession Risk Thresholds

Metric	Recent	Recession threshold	Already happened	Not yet
Inflation				
Headline CPI	9.1%	> 5%	✓	
Headline PCE	6.3%	> 2%	✓	
Core PCE	4.7%	> 2%	✓	
U of M one-year ahead inflation expectations	5.2%	Sharp rise	✓	
NY Fed one-year ahead inflation expectations	6.8%	Sharp rise	✓	
Fed's Common Inflation Expectations index	2.2%	Sharp rise	✓	
Labor market				
Unemployment rate	3.6% (cycle low)	0.4% increase from cycle low		✓
Employment gap	84 bps below NROU	Inflection point below NROU		✓
Initial jobless claims (4 wk avg)	236k	> 400k claims for several weeks		✓
Y/Y increase in initial jobless claims (4 wk avg)	(-170k)	>50k increase for several weeks		✓

Historical Recession Risk Thresholds

Home building, a highly interest rate sensitive sector, has historically been an early leading indicator of post WWII recessions

Metric	Recent	Recession threshold	Already happened	Not yet
Labor market (cont'd)				
Continuing claims	1.3mm	Prolonged increases		✓
JOLTS	11.3mm	Significant decline in vacancies		✓
Change in jobless claims	(-42% y/y)	> 10% increase y/y		✓
Payrolls	+0.2% m/m	Decline in 3 month average		✓
Atlanta Fed wage growth	+6.7%	Significant decline in y/y growth		✓
Housing sector				
Existing home sales	6.0mm (4Q avg)	4Q avg < 3yr avg (5.8)		✓
Pending home sales	6 month downtrend	Prolonged period of decline	✓	
Real house prices	276 (4Q avg)	4Q avg < 3yr avg (240)		✓
Building permits (single unit)	1,051 k	Falls below 800k (monthly)		✓

Historical Recession Risk Thresholds

Metric	Recent	Recession threshold	Already happened	Not yet
PMI data				
ISM US manufacturing PMI	53.0	< 43		✓
ISM US services PMI	55.3	< 49		✓
ISM new orders index	49.2	< 50	✓	
ISM business employment index	47.3	< 50	✓	
ISM new orders to inventory ratio	0.88	Below 1	✓	
Chicago PMI	56.0	< 50		✓
Global PMI	53.5	< 50		✓
CEO expectations				
CEO outlook	(-23%) from Jan peak	Sharp decline	✓	
CEO capex expectations	(-25%) from Jan peak	Sharp decline	✓	
CEO employment expectations	(-26%) from Jan peak	Sharp decline	✓	
CEO sales expectations	(-20%) from Jan peak	Sharp decline	✓	

Historical Recession Risk Thresholds

Metric	Recent	Recession threshold	Already happened	Not yet
Business investment				
Nonresidential fixed investment	+4.0% q/q	Sharp decline		✓
Durable goods orders	+12.0% y/y	Sharp decline		✓
Heavy truck sales	475k (monthly)	Sharp decline		✓
Equipment capex	+10.4% y/y	y/y decline		✓
Structure capex	+10.7% y/y	y/y decline		✓
Wholesalers inventories to sales ratio	+1.3%	Sharp increase		✓
Wholesalers inventories m/m change	+1.8%	m/m decline		✓
Conf. Board Leading Economic Index	+3.0% y/y	Below 0		✓
Conf. Board Coincident Economic Index	109	Sharp decline		✓
Business sentiment				
NFIB small business optimism	89.5	Steady decline	✓	
OECD US business confidence index	100	< 98		✓

Historical Recession Risk Thresholds

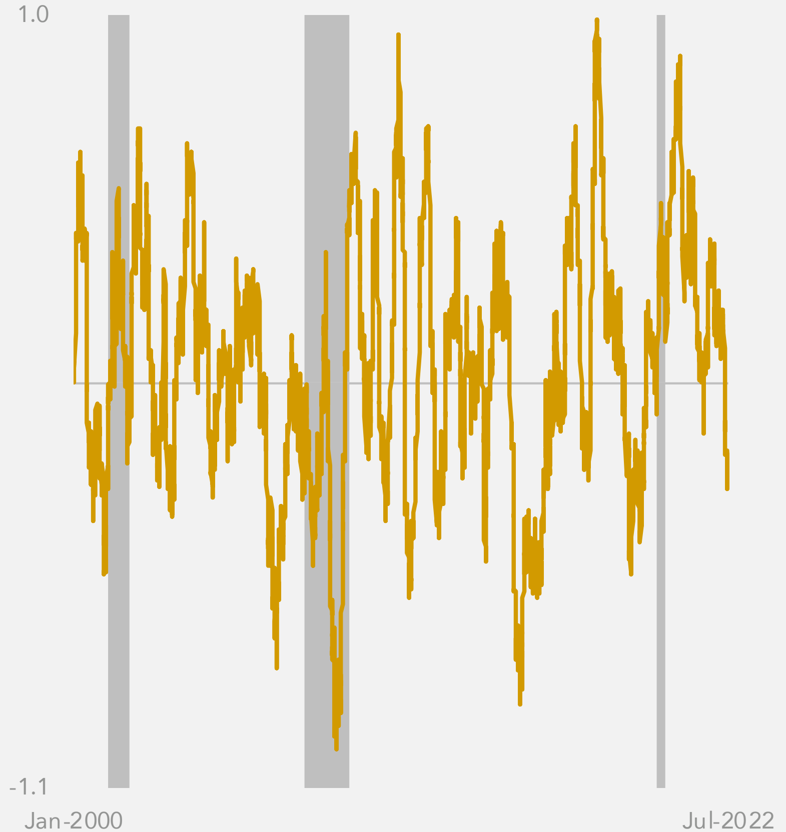
Metric	Recent	Recession threshold	Already happened	Not yet
Capex expectations – Fed manufacturing surveys				
Dallas Fed manufacturing capex expectations	9.7	< 0		✓
Richmond Fed manufacturing capex expectations	18.0	< 0		✓
Empire State manufacturing capex expectations	16.5	< 0		✓
Kansas City Fed manufacturing capex expectations	14.0	< 0		✓
Business activity outlook – Fed manufacturing surveys				
Dallas Fed general business activity outlook	(-18)	< 0	✓	
Richmond Fed sentiment	(-11)	< 0	✓	
Empire State 6 month ahead business conditions	(-6)	< 0	✓	
Kansas City Fed 6 month expectations	10	< 0		✓

Historical Recession Risk Thresholds

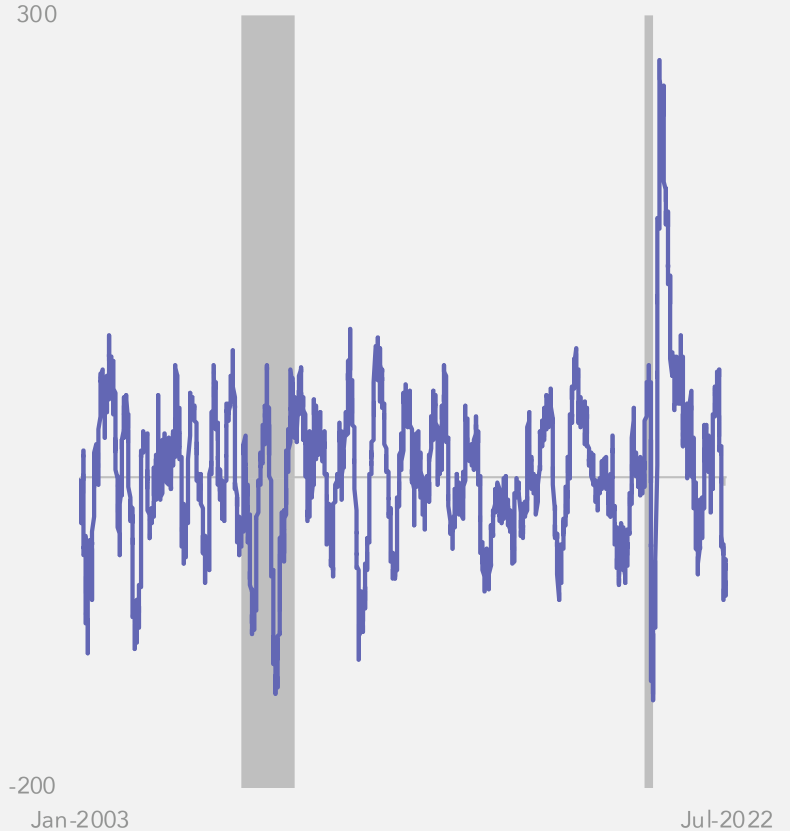
Metric	Recent	Recession threshold	Already happened	Not yet
Global trade				
Global trade volumes	+3.1% y/y	Negative growth		✓
Global export growth	+20.2% y/y	Sharp slowdown		✓
Global import growth	+16.4% y/y	Sharp slowdown		✓
Freight Transportation Index	+2.0% y/y	Sharp decline		✓
Sentix sentiment indicator	Sharp decline	Sharp decline	✓	

Economic Signals: Economic Surprise Indices

Bloomberg's US economic surprise index historically declines sharply before recessions



Citi's closely watched US economic surprise index historically declines sharply before recession



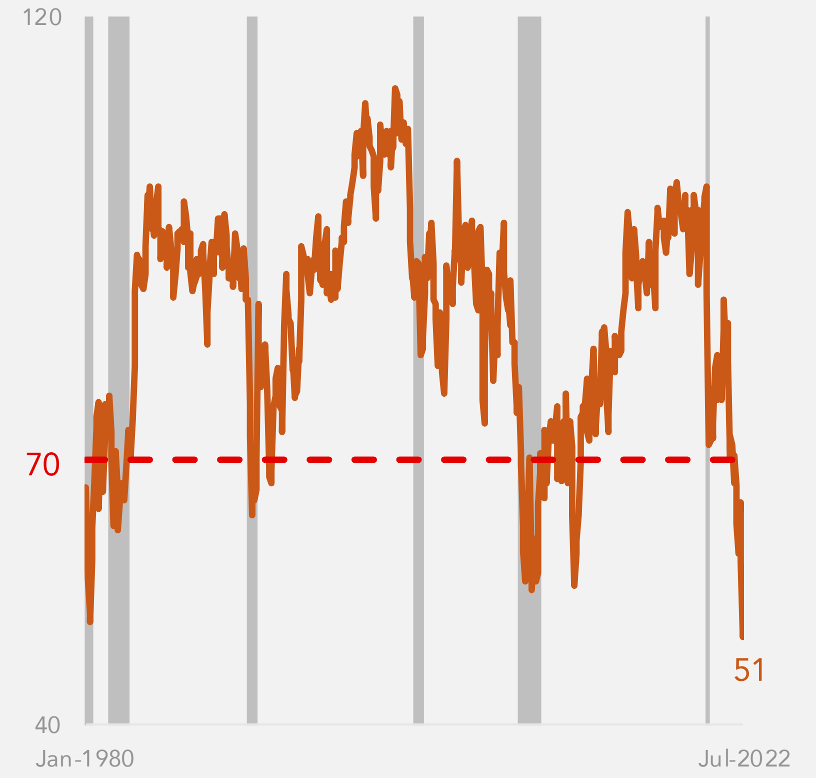
Source: (1-2) Bloomberg. Data as of July 15, 2022.

Recession Not yet Already happened

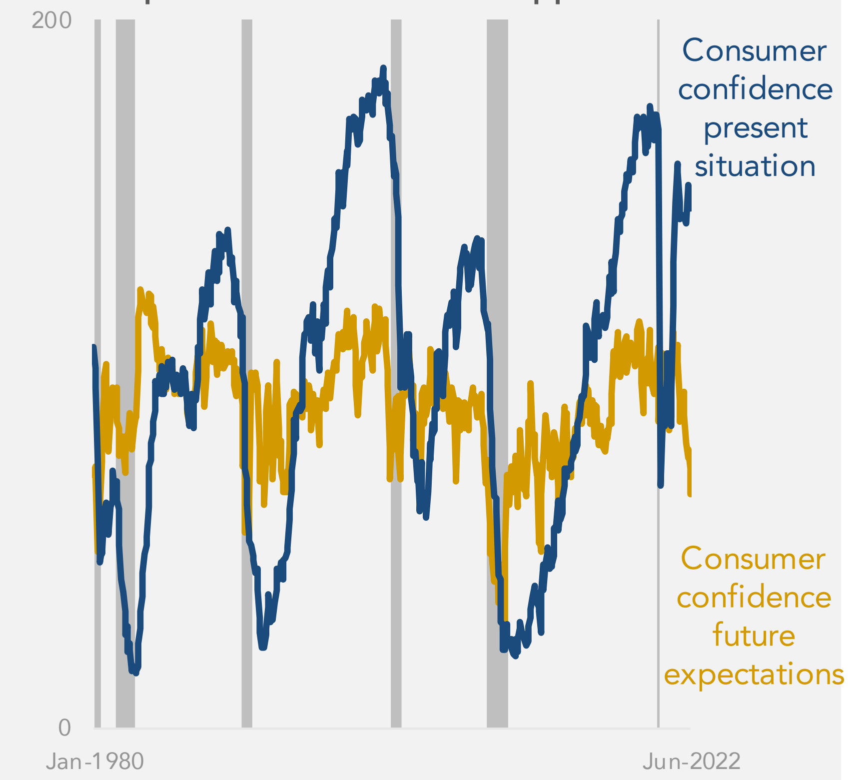
Economic Signals: Consumer Confidence

US consumer confidence metrics are near their lowest levels on record (based on records going back to 1978). By some estimates, 35% of households are having trouble paying bills.

University of Michigan consumer sentiment has typically dipped below 70 during recessions



The future expectations of consumer confidence index typically converges lower to near term expectations as recessions approach



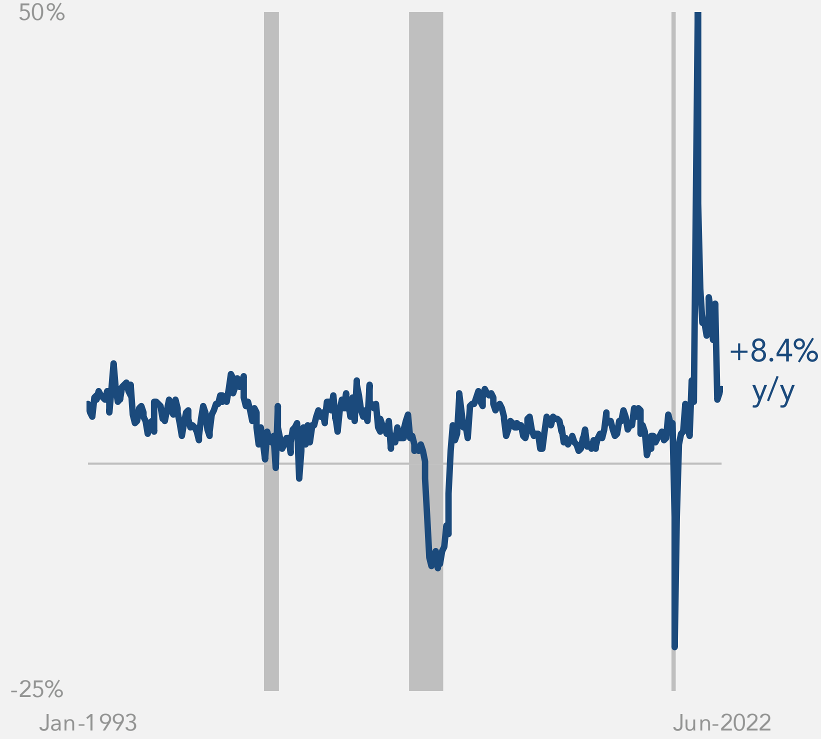
Recession ✓ Not yet ✓ Already happened

Source: (1-2) Bloomberg. Data as of July 15, 2022.

Economic Signals: Consumer Spending

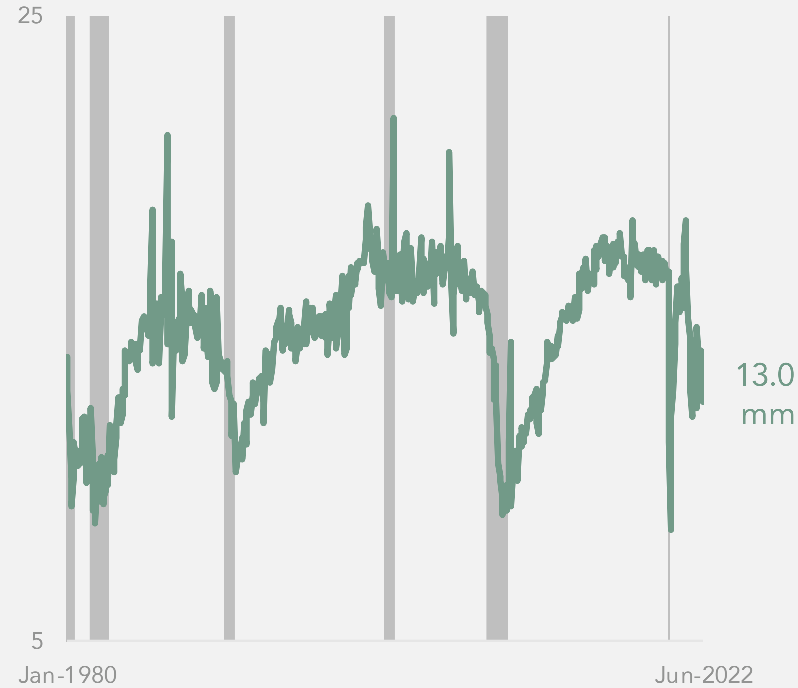
Retail sales were down sharply in May, though largely because of rapidly declining auto sales. While the US consumer has shifted spending from goods to services, many economists are concerned that the strength of US consumer services spend will not continue beyond the summer.

Retail sales typically decline toward or below 0% growth as a recession approaches



US auto sales, a good indicator of consumer sentiment, typically declines sharply ahead of recessions

Million of vehicles



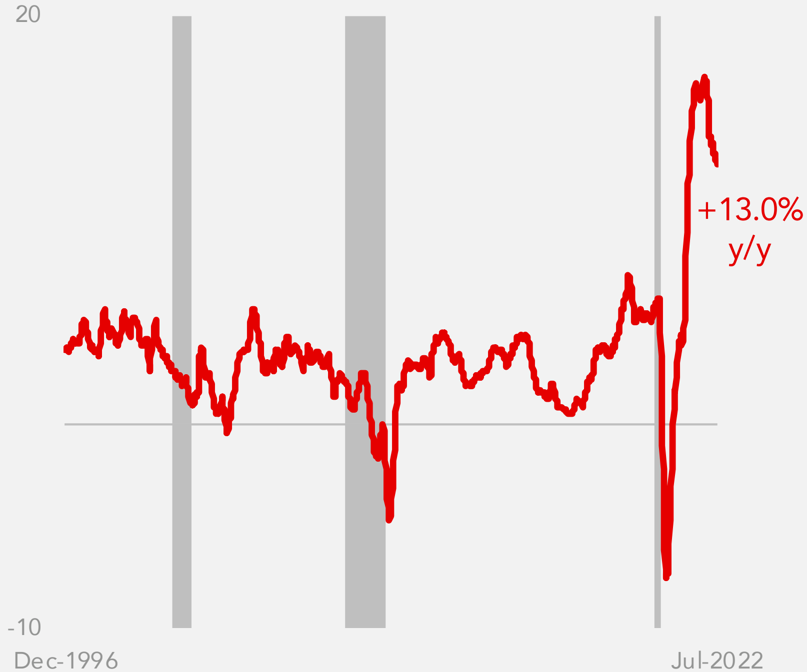
Recession Not yet Already happened

Source: (1-2) Bloomberg. Data as of July 15, 2022.

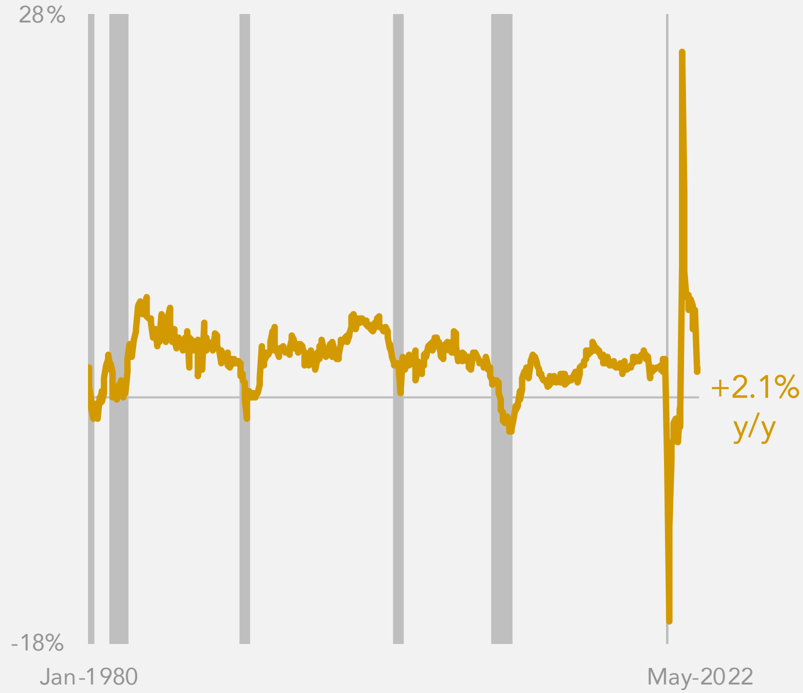
Economic Signals: Consumer Spending

The annual US deficit is expected to decline by approximately $2 trillion, from (-$2.8 trillion) last year to about $800 bn this year . The effect of a sharp reduction in government fiscal transfers impacts the economy with a lag. Consumer spending growth appears poised to decline from a record 8% in 2021, to less than 2% this year.

Johnson Redbook same store sales have significantly declined toward or below 0% growth as recession approaches



Real personal consumption expenditures historically contract ahead of recessions

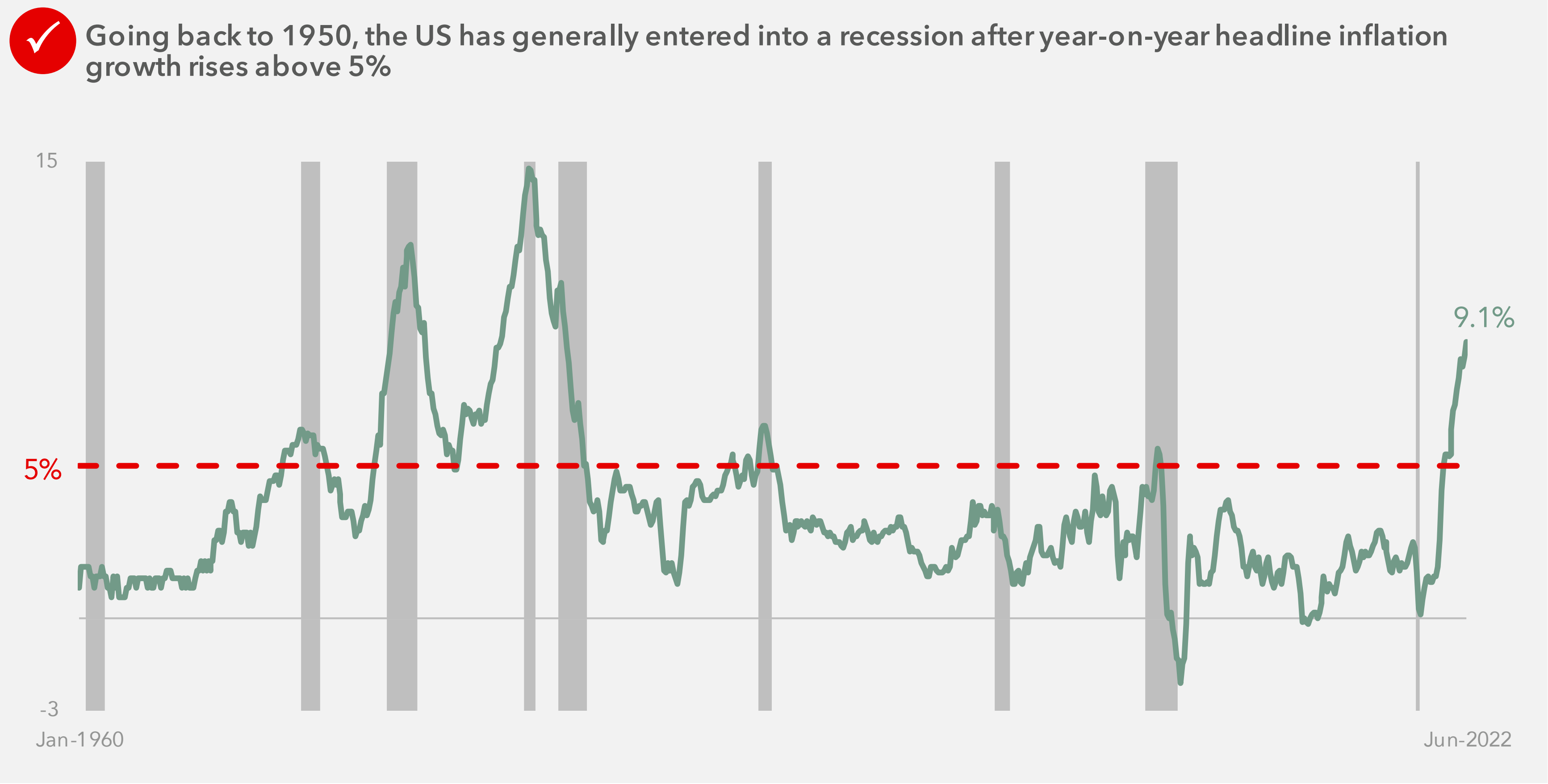


Source: (1-2) Bloomberg. Data as of July 15, 2022. Johnson Redbook same store sales is 3 month moving average.

Recession ✓ Not yet ✓ Already happened

Economic Signals: Inflation

In June, the CPI index rose to 9.1%, its highest reading in 41 years (1981). A broad-based surge in inflation poses systemic risks for both the US and global economy and markedly increases the likelihood of recession.

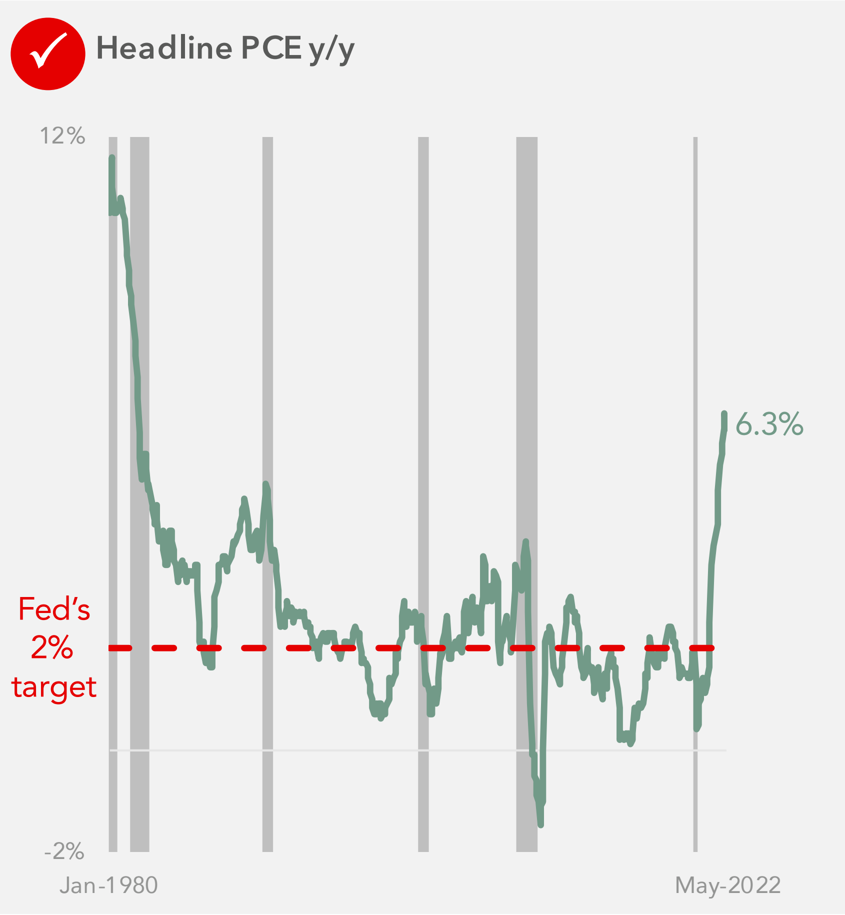


Source: (1) Bloomberg. Data as of July 15, 2022.

Recession Not yet Already happened

Economic Signals: PCE Deflator

Headline and core PCE, two inflation indices that the Fed watches most closely, have historically risen above the Fed's 2% target during recessionary periods



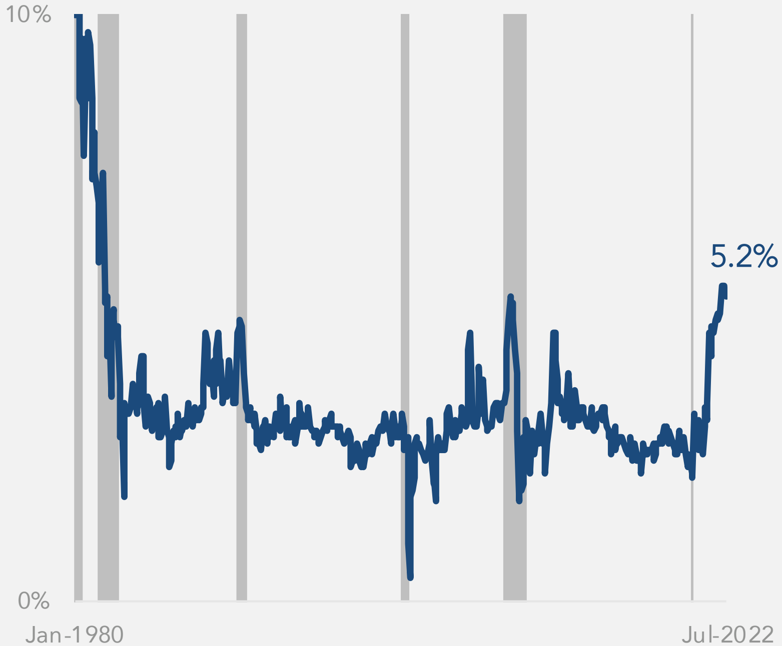
Recession Not yet Already happened

Source: (1-2) Bloomberg. Data as of July 15, 2022.

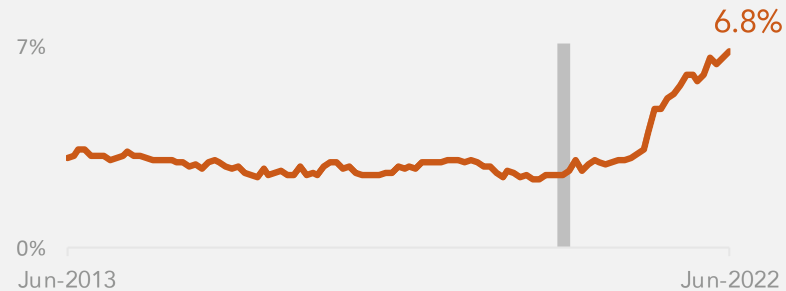
Economic Signals: Inflation "Expectations"

The University of Michigan's inflation "expectations" index for the year ahead reached its highest level since 1981 in March and April (5.4%). Though it has since fallen, respondents continue to cite inflation as a leading cause for lower overall sentiment. Additionally, the Fed's own Common Inflation Expectations (CIE) measure, which is comprised of 21 key inflation expectations measures including the UofM reading, rose to 2.15%, the highest reading in over a decade.

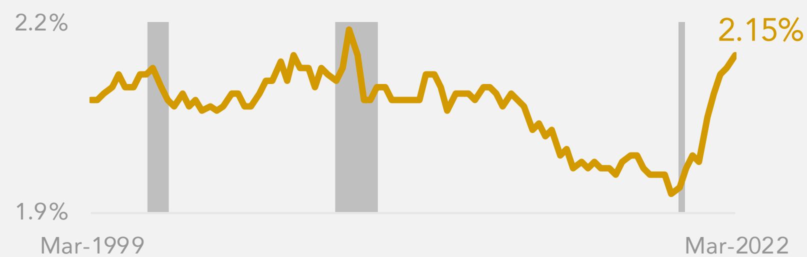
University of Michigan 1-year ahead inflation expectations typically rise sharply prior to recessions



The NY Fed's survey of consumers' one-year ahead inflation expectations is at a series high



The Fed's Common Inflation Expectations index is at the highest reading in over a decade



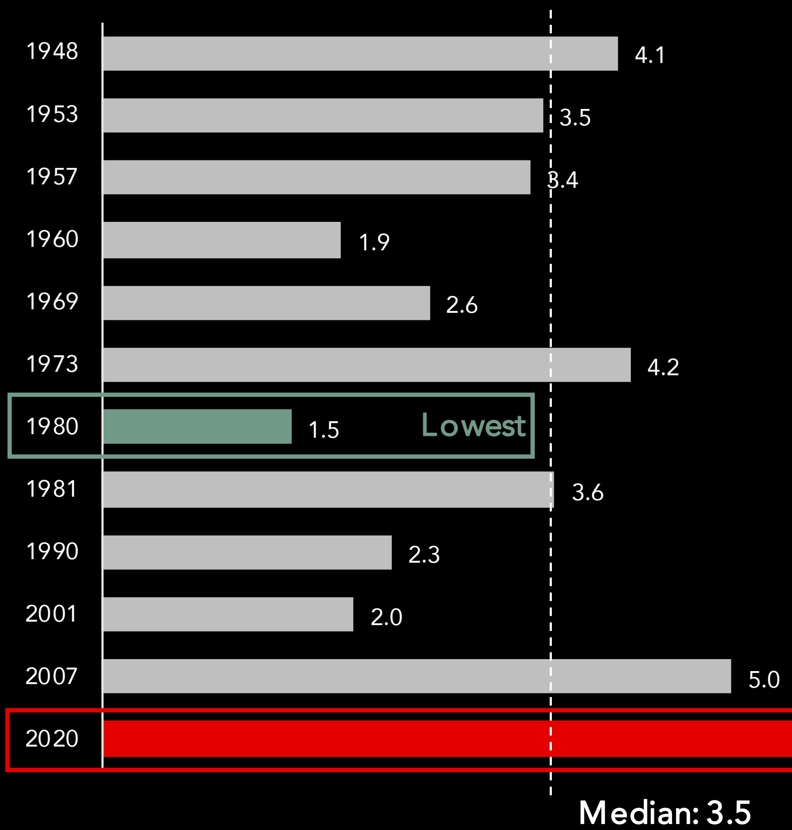
Recession Not yet Already happened

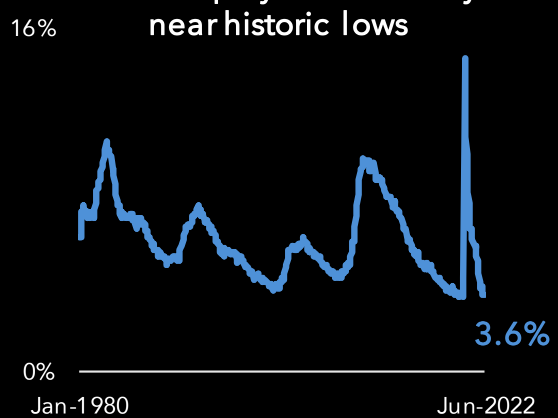
Source: (1-3) Bloomberg. Data as of July 15, 2022. Oxford Economics.

Labor Markets Provide Buffer for Recession Timing

The unemployment rate has risen in EVERY ONE of the 12 US recessions since WWII. Historically, unemployment has increased by approximately 0.4% from its trough to the "start of the recession," and an average of 3.5% from trough "to peak" during and after the recession. Additionally, in every post-WWII US recession the unemployment rate has risen to at least 6.1% at its peak.

Change in unemployment rate, from trough to peak, during and after recession



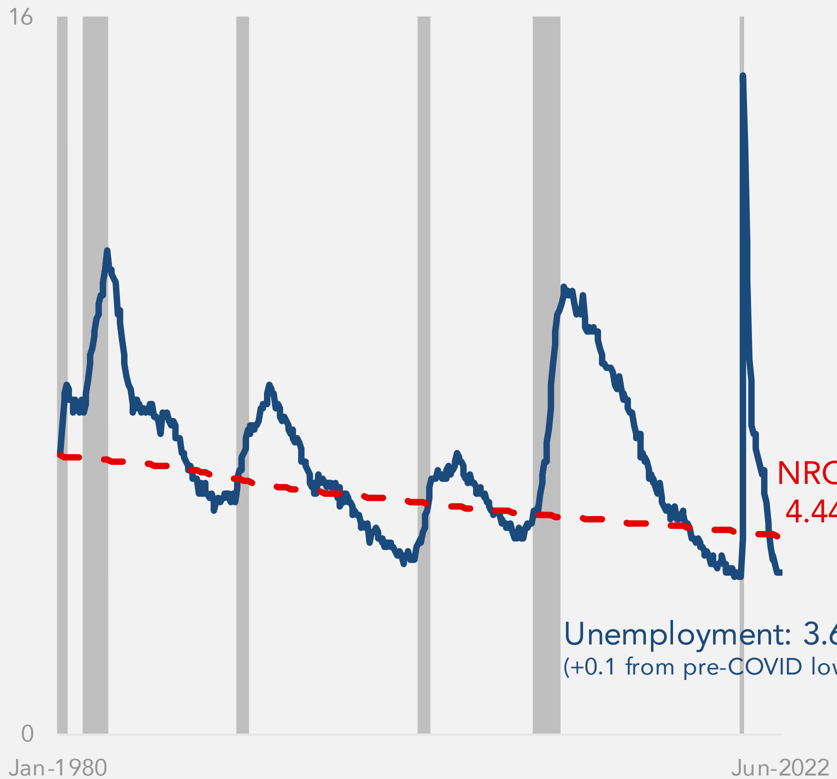


Source: WSJ "If the US is in a Recession, It's a Very Strange One," (Jon Hilsenrath - July 4, 2022). Bureau of Labor Statistics. Bloomberg. Data as of July 8, 2022.

Economic Signals: Unemployment Rate

Historically, the unemployment rate has typically risen about 0.4% from its low point to time of recession start

Historically, when the unemployment rate rises above the non-cyclical rate of employment (NROU, previously NAIRU), the economy is in a recessionary period



Start of recession	Increase in unemployment rate from trough to recession start	Number of months before recession start
Jul 1953	+0.1	1
Aug 1957	+0.4	5
Apr 1960	+0.4	2
Dec 1969	+0.1	7
Nov 1973	+0.2	1
Jan 1980	+0.7	8
Jul 1981	+0.0	3
Jul 1990	+0.5	16
Mar 2001	+0.5	11
Dec 2007	+0.6	7
Feb 2020	+0.0	1
Median	**+0.4**	**5**

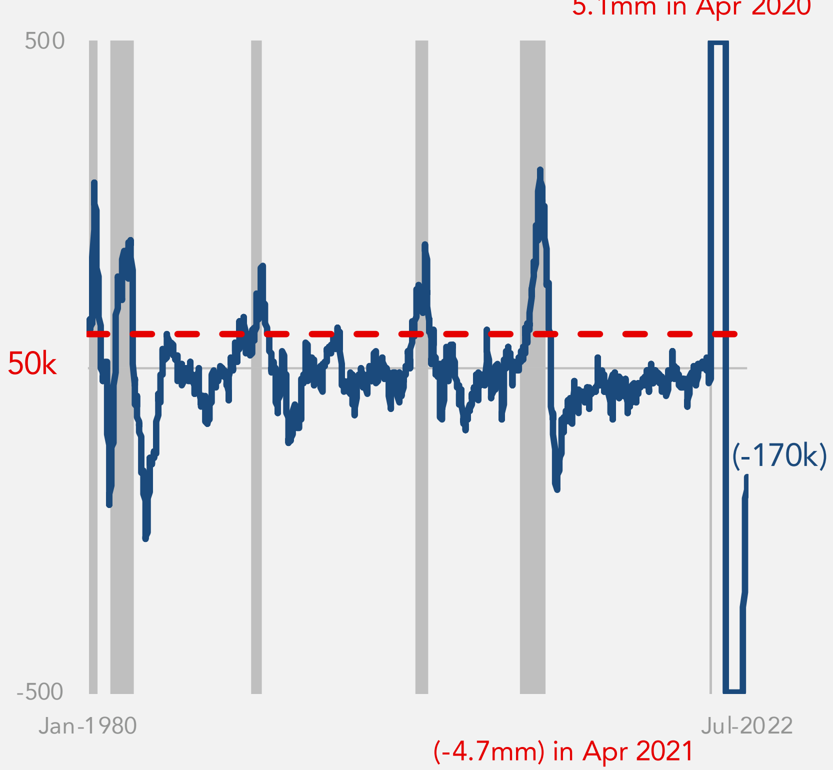
Source: (1-2) Bloomberg. Data as of July 13, 2022. In July 2021, NAIRU was renamed to NROU, the noncyclical rate of unemployment. Oxford Economics.

Recession ✓ Not yet ✓ Already happened

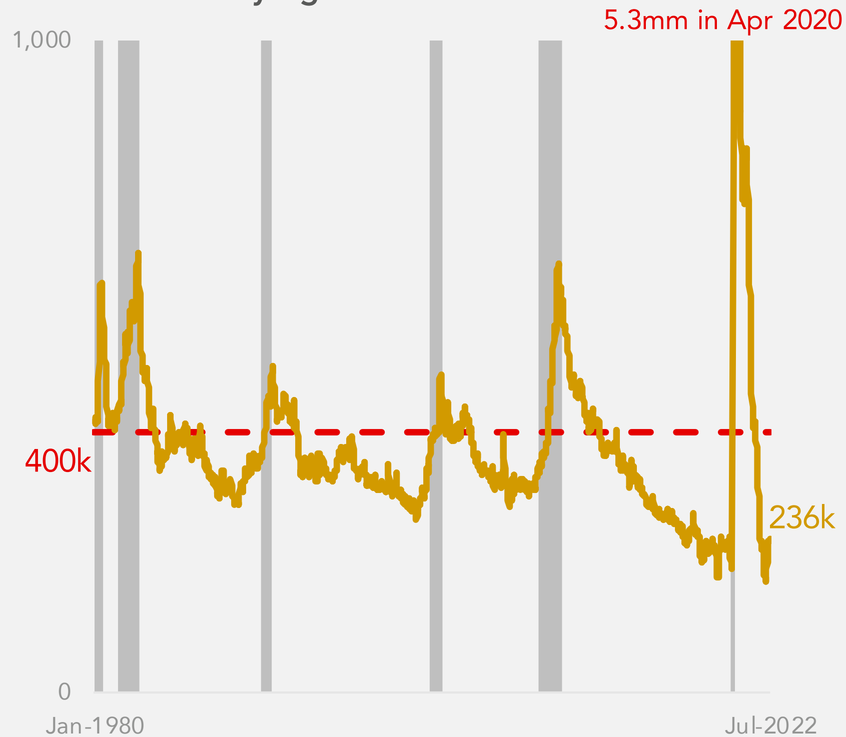
Economic Signals: Labor Markets

In the 12 US recessions since WWII, output has contracted and unemployment has risen on each occasion. So if the US is in a mild recession already, it would be unlike any other US recession over the past 75 years. Recent volatility in this data is largely COVID-related.

The year-on-year increase in four-week average initial jobless claims has only breached 50k once without a recession



The four-week average of weekly initial jobless claims above 400,000 for several weeks has historically signaled US recessions



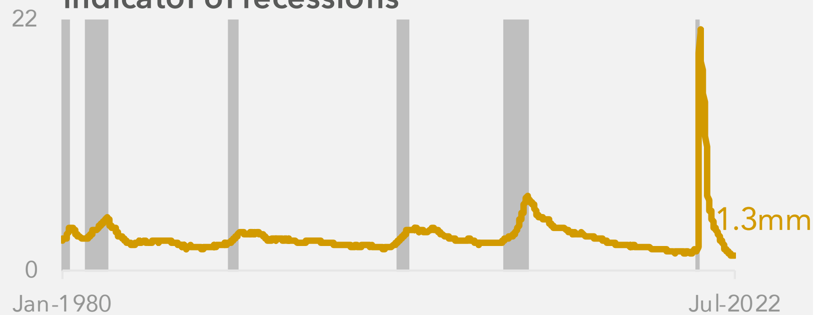
Recession ✓ Not yet ✓ Already happened

Source: (1) Bloomberg. Data as of July 15, 2022.

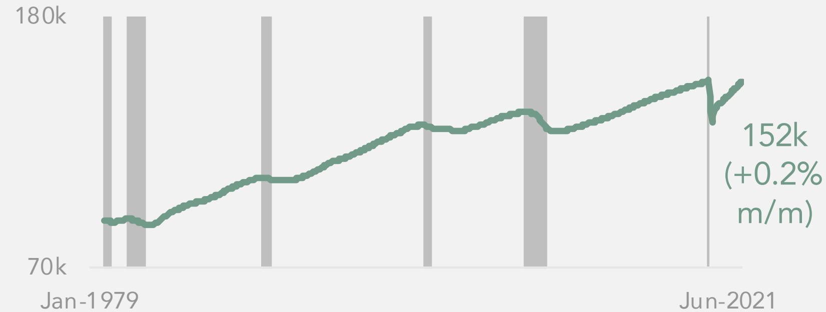
Economic Signals: Labor Markets

The number of job openings has surged from 7 million prior to the pandemic to a record high of over 11 million (60% above its pre-COVID level) with the ratio of job openings per unemployed worker close to an all time record of 2, nearly double the pre-COVID level.

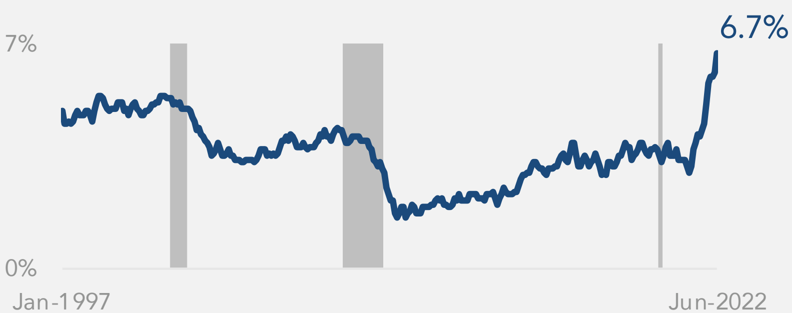
Prolonged increases in continuing jobless claims has historically been an accurate real-time indicator of recessions



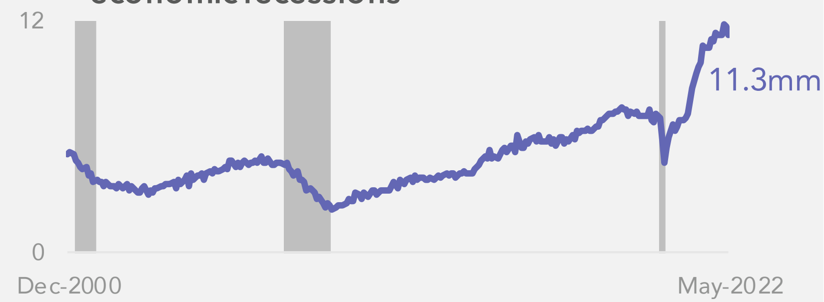
The three month moving average for payrolls has historically declined through recessions



US wage growth has historically experienced prolonged declines during recessions



Historically, the JOLTS data has shown a significant decline in job vacancies leading into economic recessions



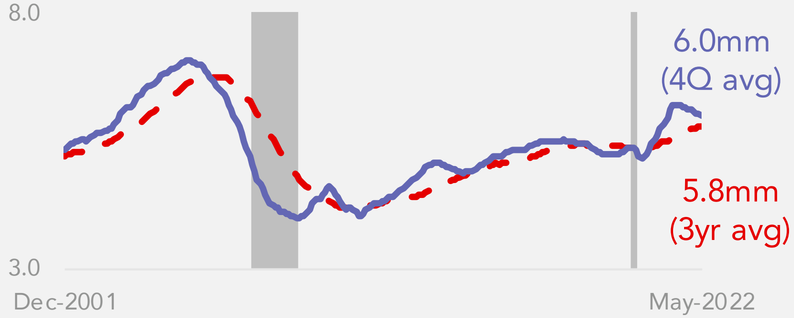
Recession ✓ Not yet ✓ Already happened

Source: (1-4) Bloomberg. Data as of July 15, 2022. FRED. Wage growth is Atlanta Fed. Continuing jobless claims is 4-week moving average.

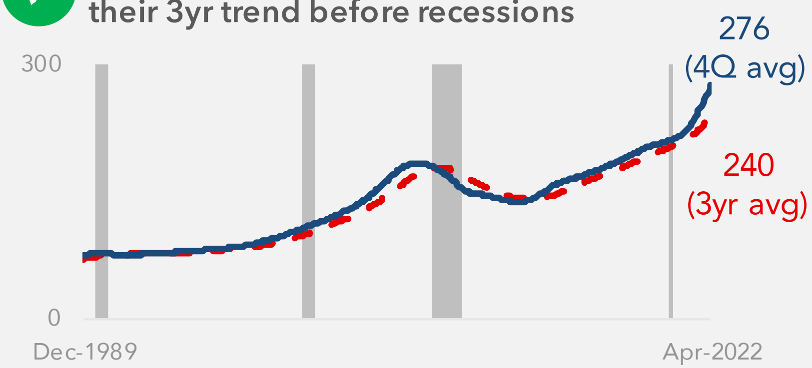
Economic Signals: US Housing Sector

Home sales in the US have declined 40% since their recent peak (50% in the UK). A 10% decline in house sales growth tends to correlate with a 2% decline in housing price growth (with a six month lag). Most post-WWII recessions have been accompanied by sharp declines in residential construction.

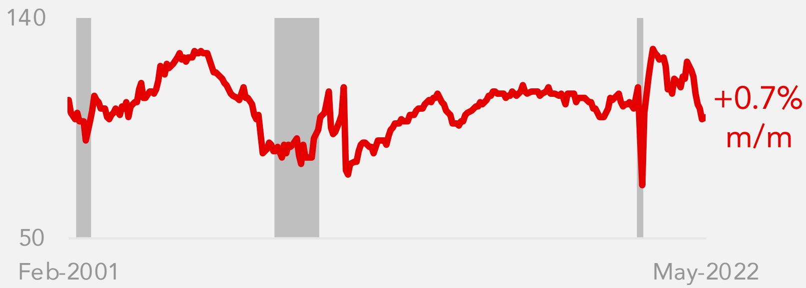
Existing home sales 4Q avg typically moves below the 3yr avg before recessions



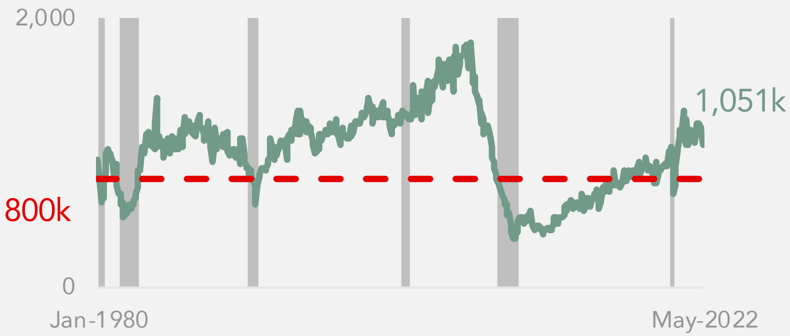
4Q avg real house prices usually decline below their 3yr trend before recessions



Pending home sales, a leading indicator for existing home sales, historically have prolonged declines ahead of recessions



Single unit monthly building permit approvals have historically fallen below 800k in recessions

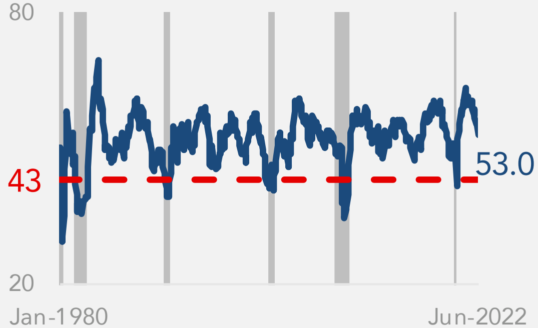


Source: (1-4) Bloomberg. Data as of July 15, 2022. FRED. Real House prices based on the Case-Shiller US National Home Price Index. Jan 2000 = 100.

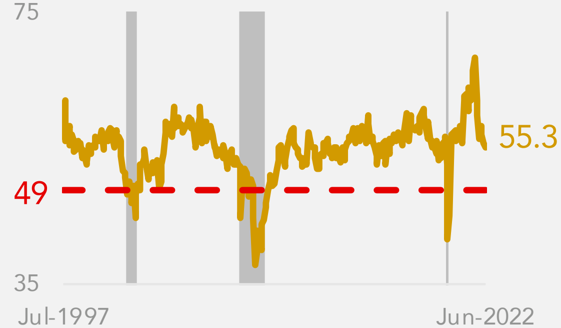
Recession ✓ Not yet ✓ Already happened

Economic Signals: Manufacturing & Services

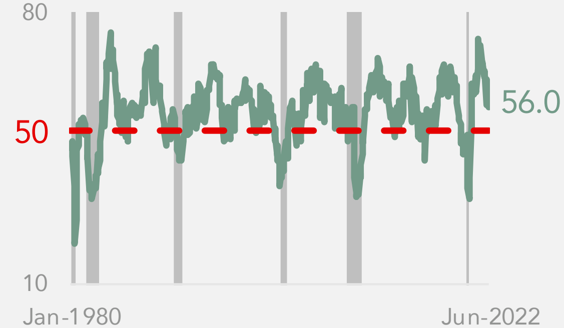
ISM US manufacturing PMI below 43 is a strong indicator of the economic cycle slowing



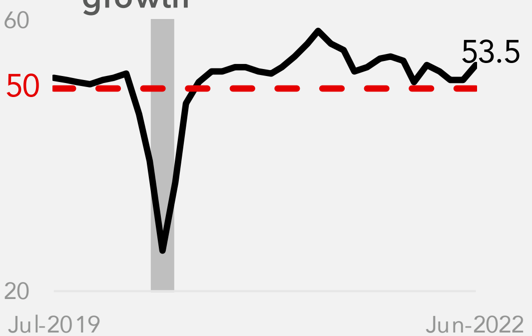
ISM US services PMI below 49 has historically signaled US recession



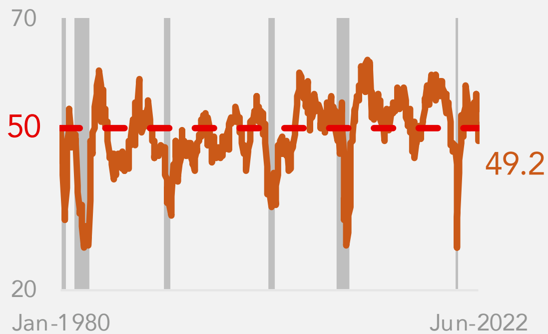
Chicago PMI below 50 has historically been a signal of US recession risk



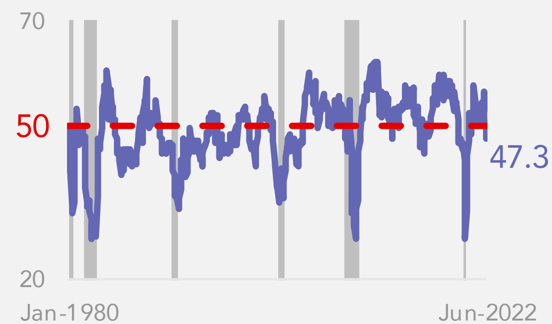
Global composite PMI below 50 has historically been a signal of slowing economic growth



ISM new orders index below 50 has historically signaled US recession risk



ISM business employment index below 50 has historically signaled US recession risk

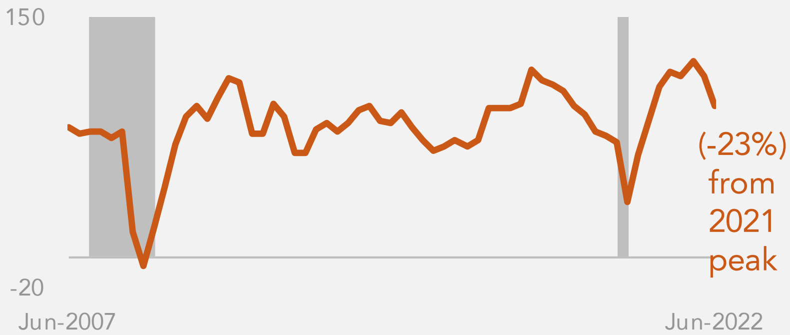


Recession ✓ Not yet ✓ Already happened

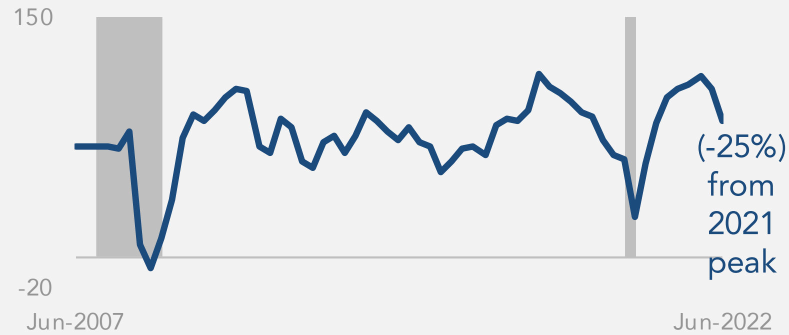
Source: (1-6) Bloomberg. Data as of July 15, 2022.

Economic Signals: CEO Expectations

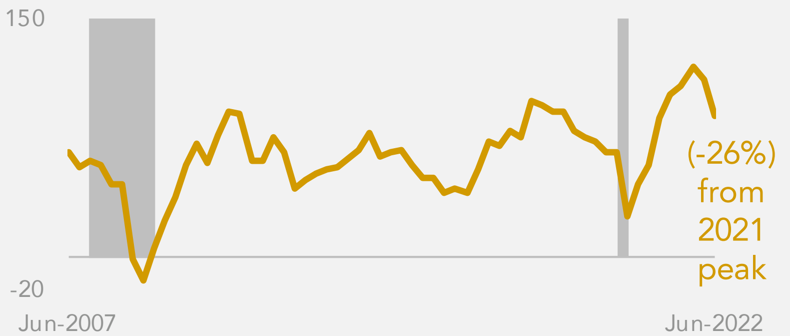
Business roundtable's CEO outlook declines sharply during recessions



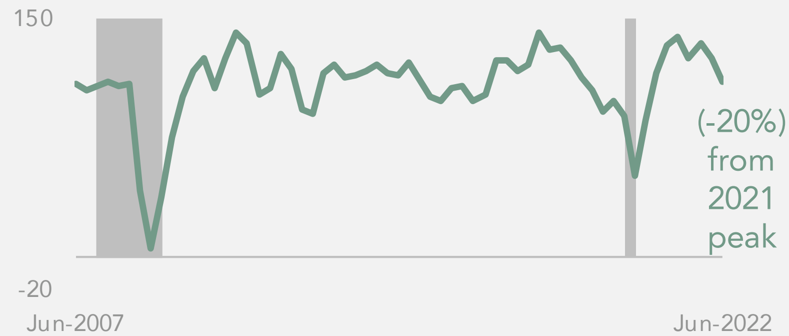
Business roundtable's CEO capex expectations decline sharply during recessions



Business roundtable's CEO employment expectations decline sharply during recessions



Business roundtable's CEO sales expectations decline sharply during recessions

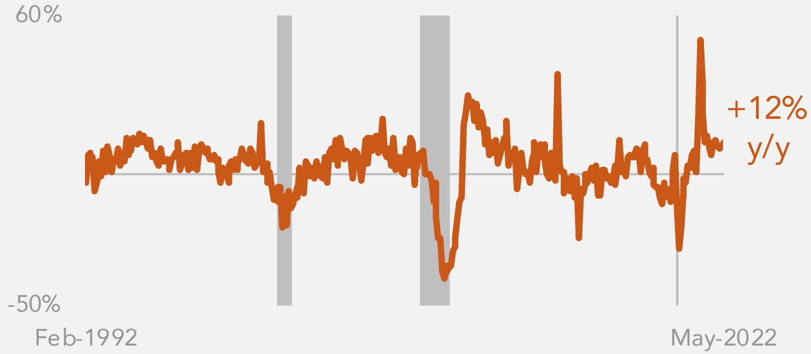


Recession Not yet Already happened

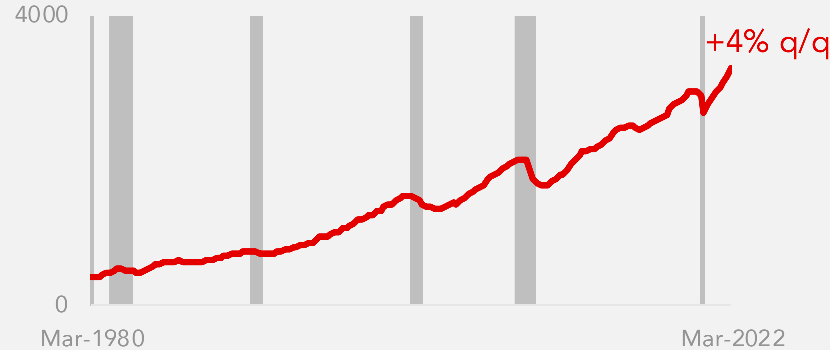
Source: (1-4) Business Roundtable CEO Economic Outlook Index.

Economic Signals: Business Investment

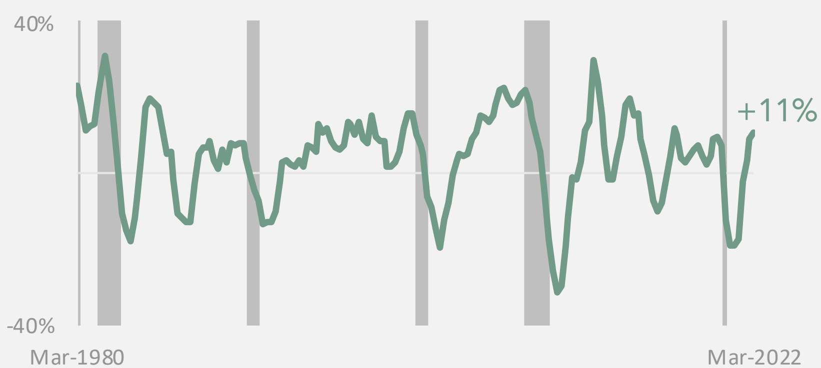
Durable goods growth usually peaks and rapidly declines before recessions



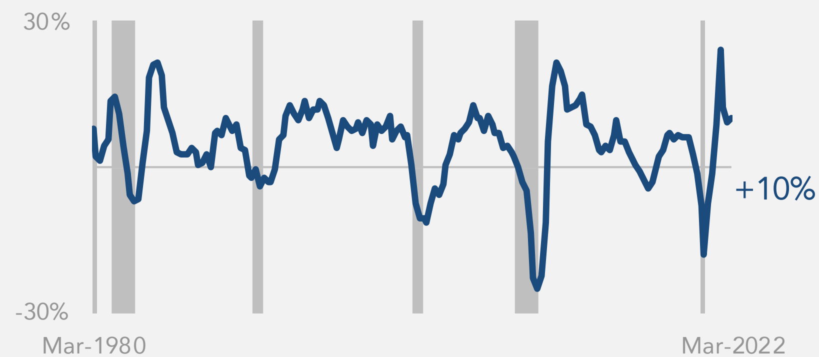
Fixed nonresidential investment growth typically peaks and rapidly declines before recessions



Structures capex has historically shown negative y/y growth during recessions



Equipment capex has historically shown negative y/y growth during recessions



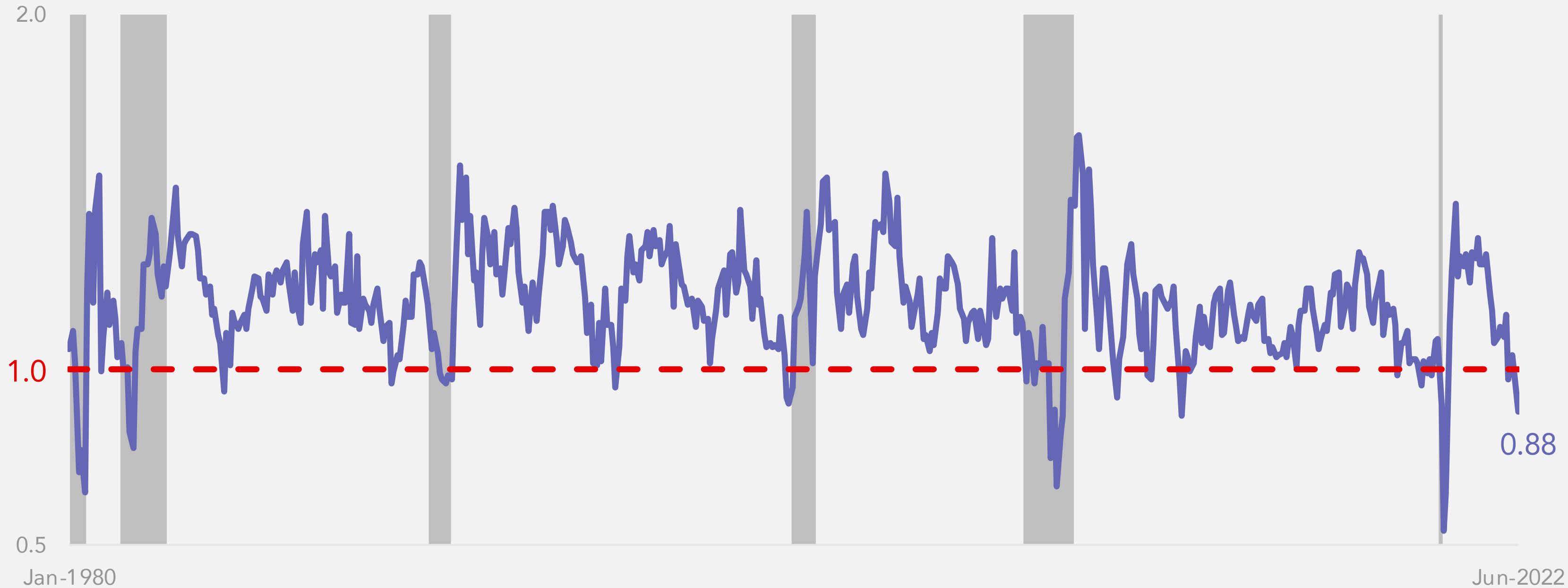
Source: (1-4) Bloomberg. Data as of July 15, 2022. Equipment capex is fixed nonresidential investment growth-equipment. Durable goods growth is new orders.

Recession Not yet Already happened

Economic Signals: New Orders

When the ISM new orders index exceeds the inventories index, growth is expected as manufacturing product expands to meet demand. On the other hand, when new orders are below inventories, a contraction is likely to follow. Further, when new orders are below inventories and fall below 50 (indicating contraction), the US economy almost always enters recession shortly thereafter. Going back to 1980, the new orders index has only contracted in the absence of recession on two occasions: 1995 and 2012. With inventories elevated, the risk is that new orders will continue to recede.

The ratio of new manufacturing orders to inventory historically falls below 1 preceding recessions



Source: (1) Bloomberg. Data as of July 15, 2022. MUFG (Goncalves).

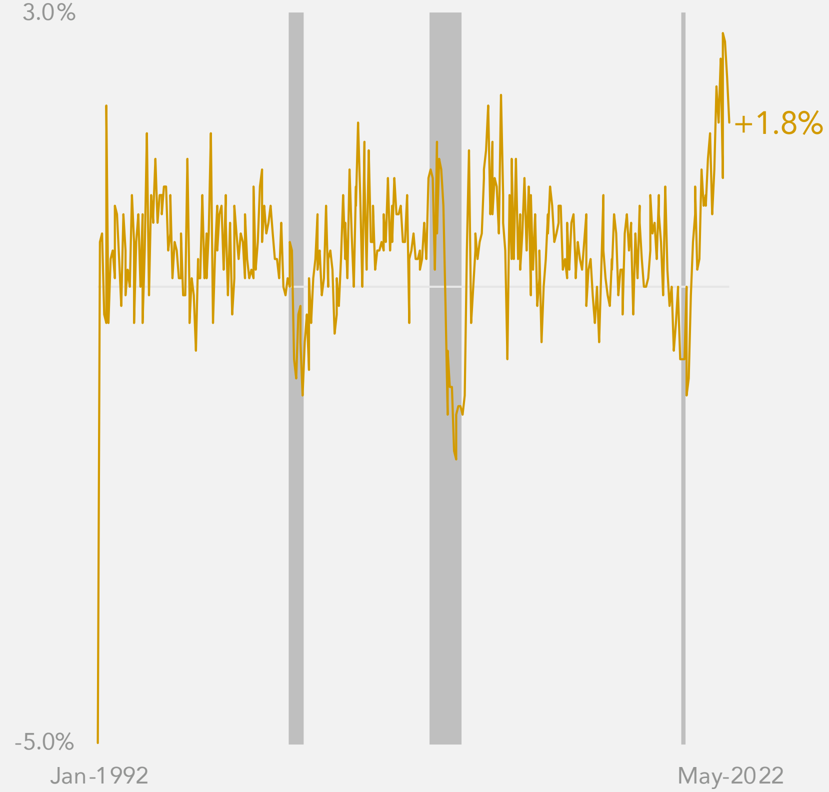
Recession Not yet Already happened

Economic Signals: Inventories

Cycles of inventory building and then de-stocking have been reliable early indicators in prior US recessions, with production declines typically followed by layoffs and lower consumer spending

Total merchant wholesalers inventories to sales ratio rises sharply from trough into recessions

Total merchant wholesalers inventories m/m change falls below 0 before recessions



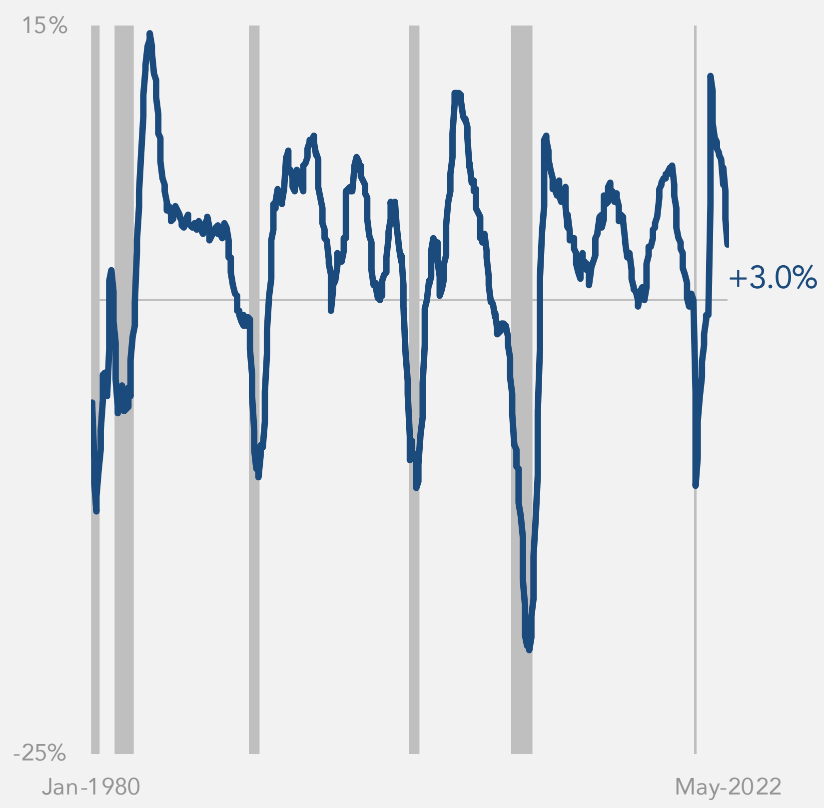
Recession Not yet Already happened

Source: (1-2) Bloomberg. Data as of July 15, 2022.

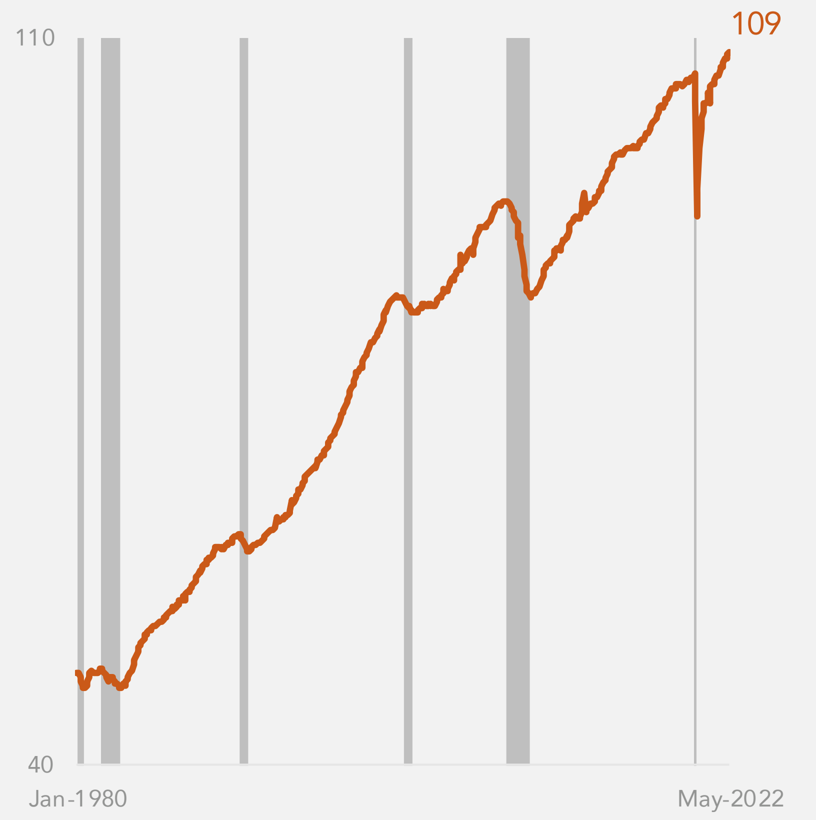
Economic Signals: Business Activity

Since the inception of the index in 1959, each time Conference Board's LEI contracted for three months in a row, the US economy was either in a recession or within six months of entering one

The Conference Board Leading Economic Index tends to move below 0 before recessions



The Conference Board Coincident Economic Index falls sharply during recessions

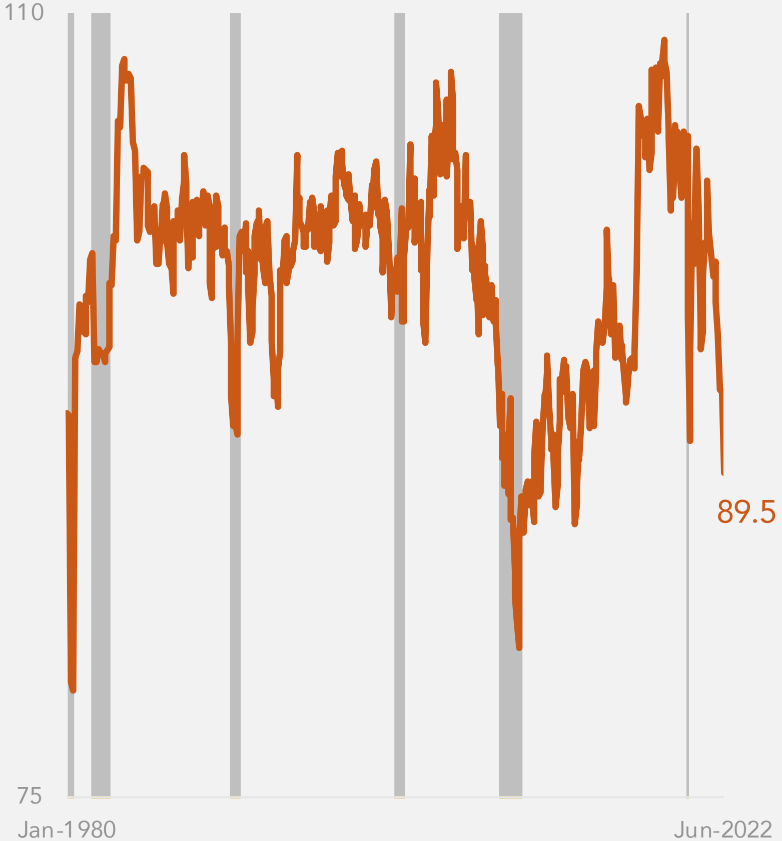


Recession Not yet Already happened

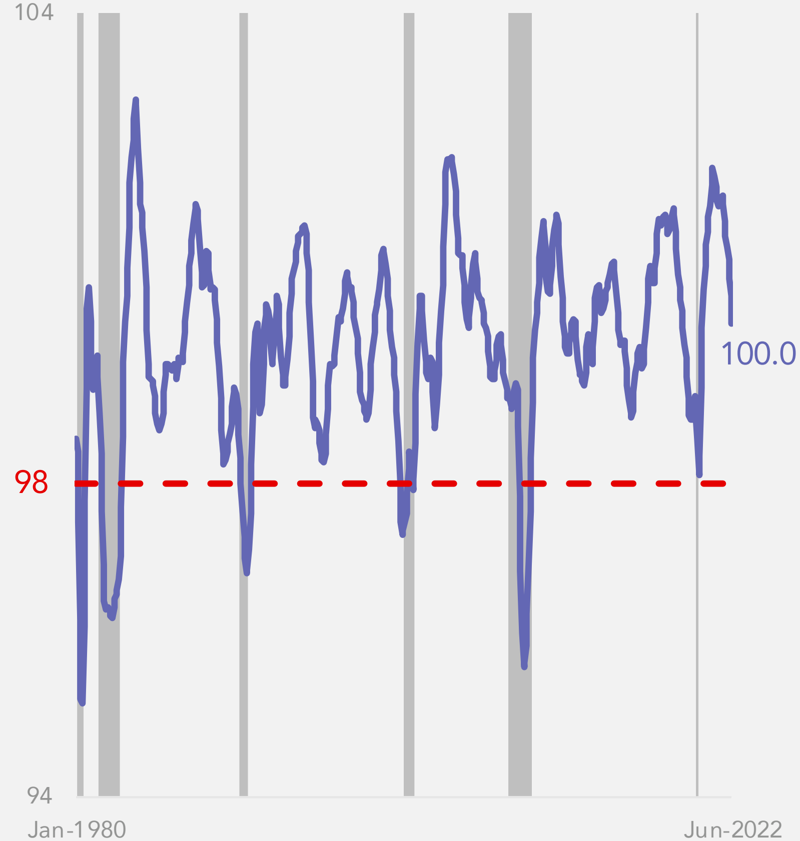
Source: (1-2) Bloomberg. Data as of July 15, 2022.

Economic Signals: Business Sentiment

NFIB small business optimism typically peaks and steadily declines before recessions



The OECD US business confidence index has historically declined sharply below 98 just before recessions

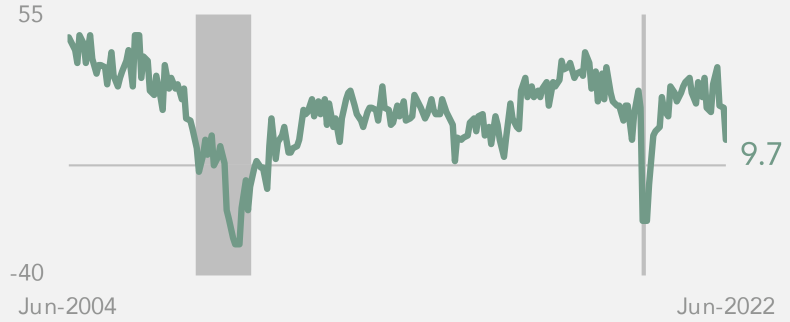


Source: (1) Bloomberg. Data as of July 15, 2022. (2) OECD.

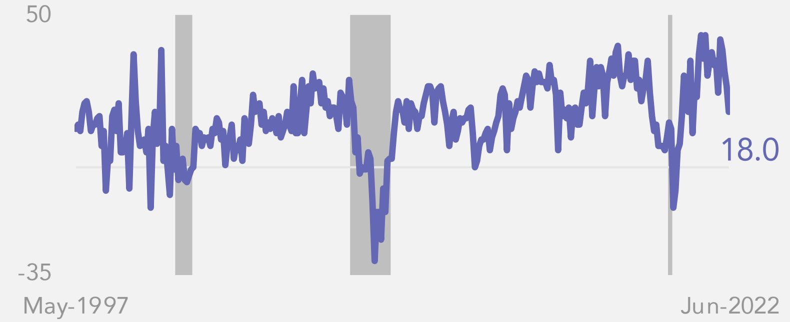
Recession ✓ Not yet ✓ Already happened

Economic Signals: Capex Expectations

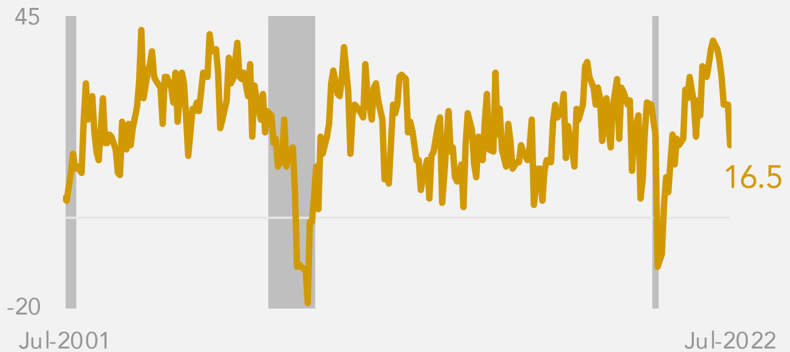
Dallas Fed manufacturing capex expectations have historically fallen below zero in recessions



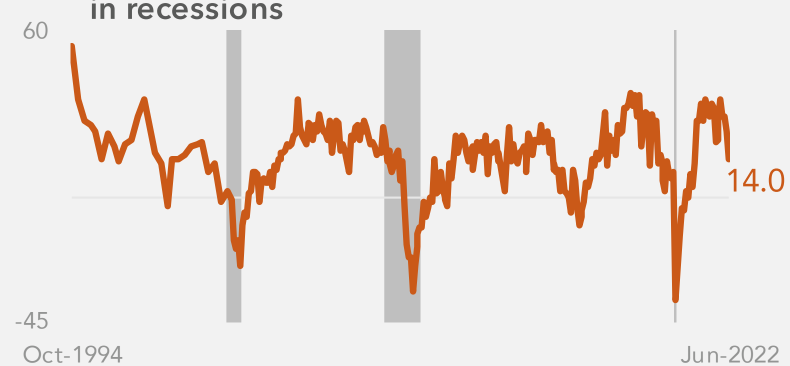
Richmond Fed manufacturing capex expectations have historically fallen below zero in recessions



Empire State manufacturing capex expectations have historically fallen below zero in recessions



Kansas City Fed manufacturing capex expectations have historically fallen below zero in recessions



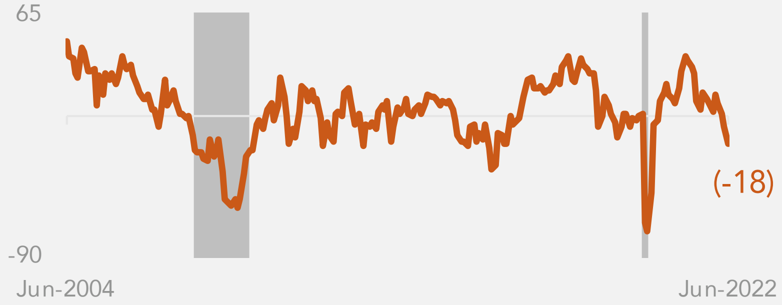
Recession Not yet Already happened

Source: (1-4) Bloomberg. Data as of July 15, 2022.

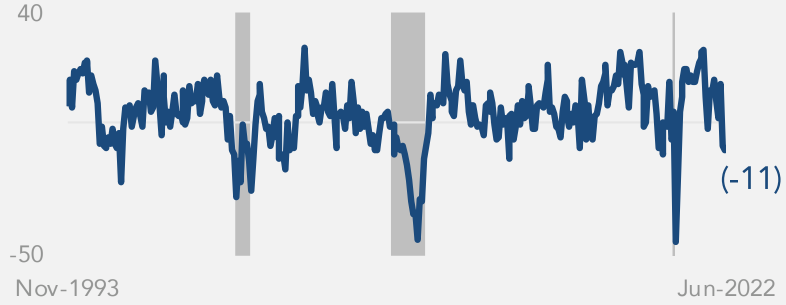
Economic Signals: Manufacturing Outlook

While business spending remains strong, numerous Fed regional surveys show manufacturing and business spend pulling back.

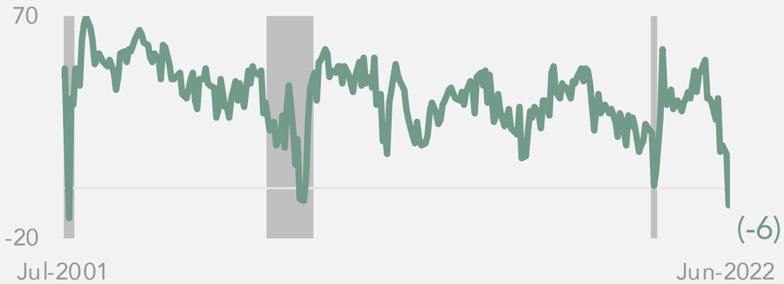
Dallas Fed manufacturing business activity outlook has historically fallen below zero during recessions



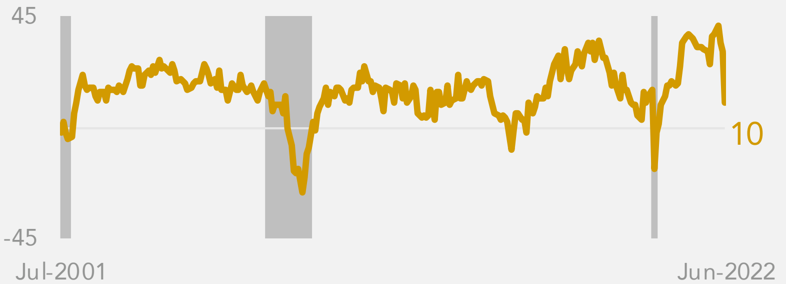
Richmond Fed manufacturing sentiment has historically fallen below zero during recessions



Empire State manufacturing business conditions 6 month outlook has historically fallen below zero during recessions



Kansas City Fed manufacturing expectations has historically fallen below zero during recessions

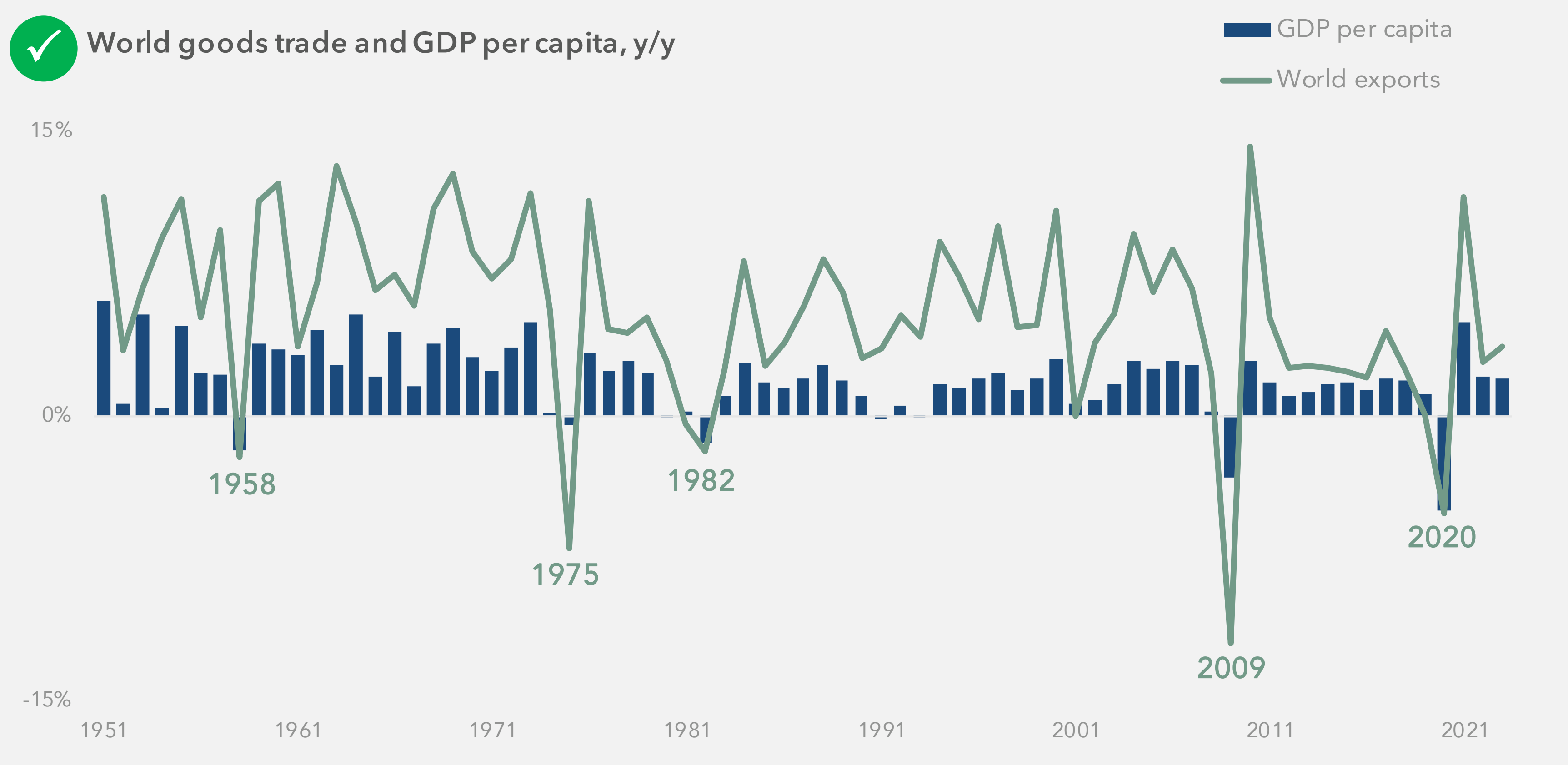


Recession Not yet Already happened

Source: (1-4) Bloomberg. Data as of July 15, 2022.

Economic Signals: Global Trade

Trade recessions have historically been associated with world recessions (1958, 1975, 1982, 2009, 2020) or periods of very low global growth (1981 and 2001). Although leading trade indicators are showing signs of a slowdown, trade is more volatile than GDP and will not necessarily result in a global recession (1H 2019).



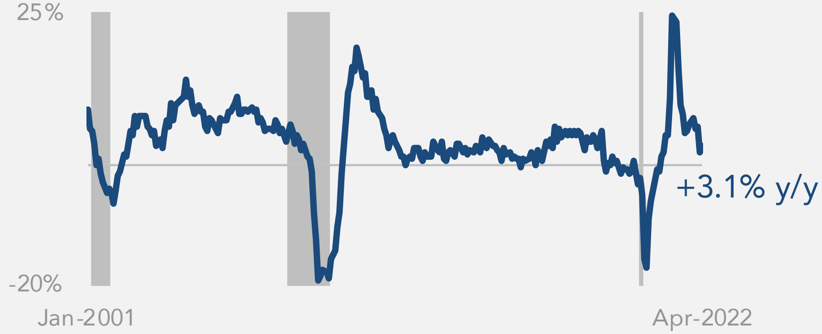
Source: (1) Oxford Economics, "Global: World trade growth is grinding to a halt" (June 29, 2022).

Recession ✓ Not yet ✓ Already happened

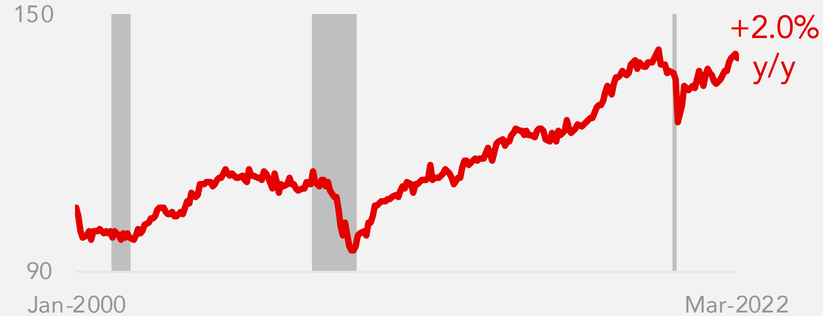
Economic Signals: Global Trade

According to Oxford Economics, 4 of the 5 largest commodity price surges since the 1950s have been followed by trade recessions. It should be noted, however, that global trade volumes are generally more volatile than GDP metrics.

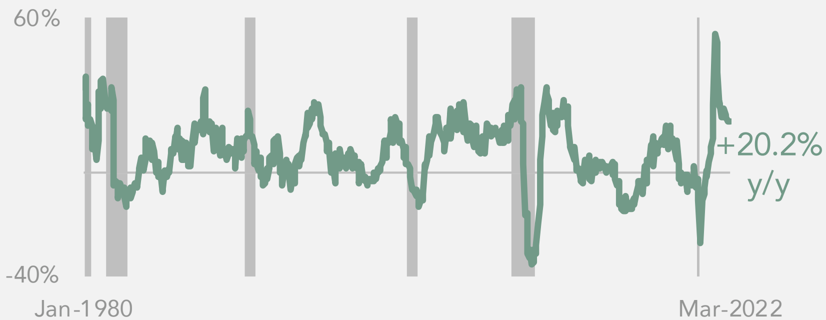
Global trade volumes tend to contract sharply during recessions



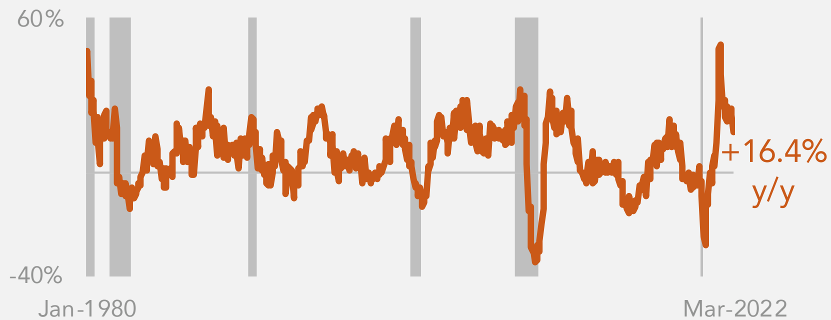
The Fed's freight transportation index declines sharply during recessions



Global exports tend to decline sharply during recessions



Global imports tend to decline sharply during recessions



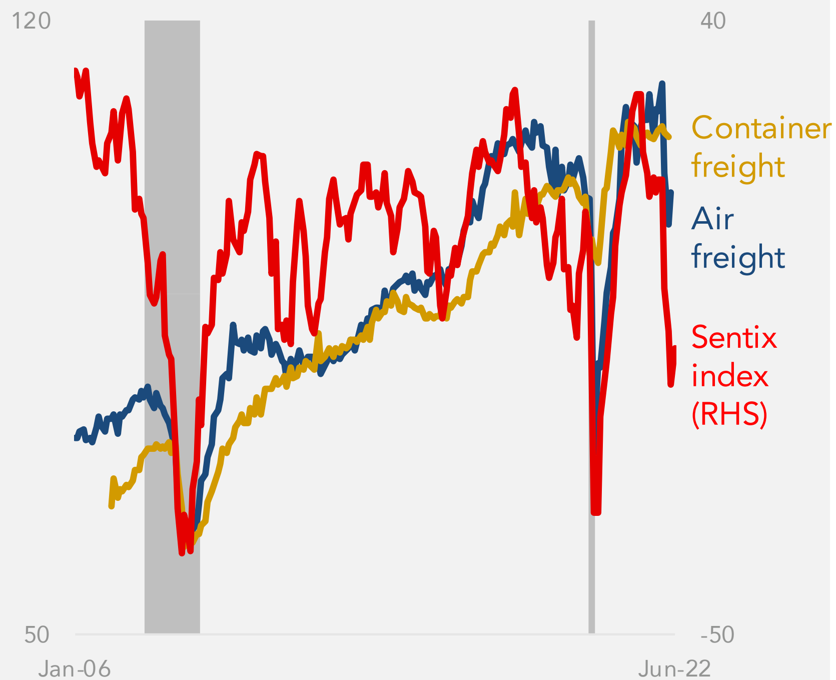
Recession Not yet Already happened

Source: (1-4) Bloomberg. Data as of July 15, 2022. CPB Netherlands Bureau for Economic Policy Analysis.

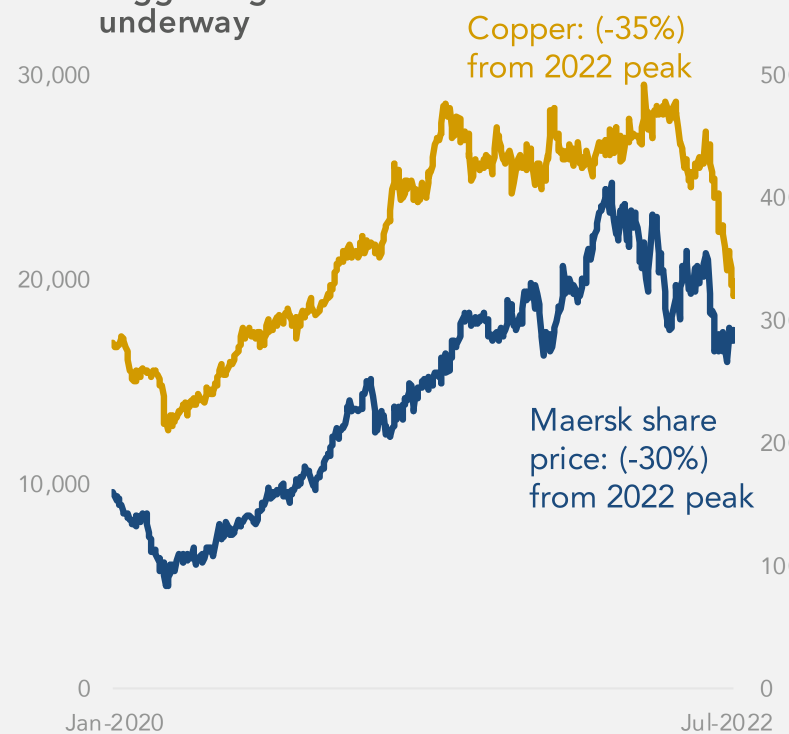
Economic Signals: Global Trade

A stronger dollar, and consumer demand shifts from goods to services, have brought global trade growth to a halt in 2022. The US dollar has strengthened by 13% YTD to new 20 year highs, with lagging implications for global trade which will impact the economy with a lag. Prices for air freight, container ships, copper and shipping company stocks are all signaling a global trade slowdown.

The Sentix sentiment indicator, which has a loose historical association with trade trends, has fallen to levels previously associated with sharp falls in world trade and economic recessions



High frequency trade signals are down significantly from their peak earlier this year, suggesting a trade and economic slowdown underway



Recession Not yet Already happened

Source: (1-2) Bloomberg. Data as of July 15, 2022. Oxford Economics, "World Trade growth is grinding to a halt" (June 29, 2022).

3

Market Recession Signals

"The stock market has forecast nine of the last five recessions."

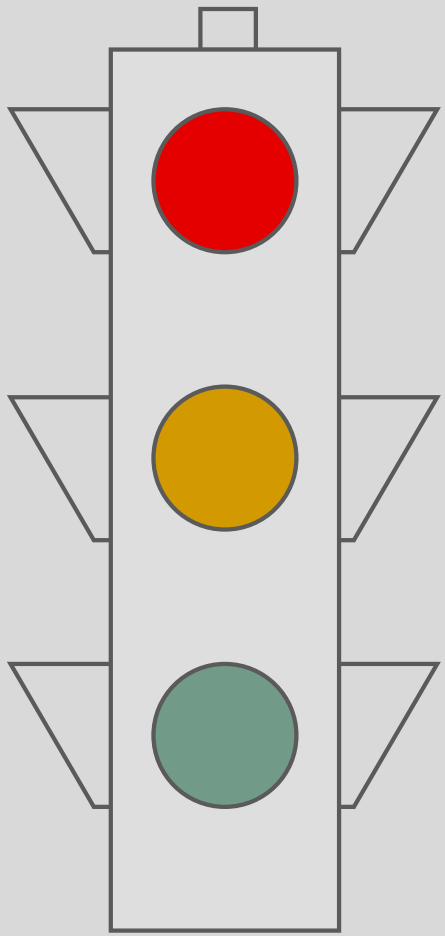
Paul A. Samuelson (Nobel Prize Winning American Economist, in 1966 Newsweek article)

US Market Recession Signals

- Flat / inverted yield curves
- Equity bear market
- Auto stocks

- Financial conditions
- IG & HY spreads & yields
- Corporate earnings & margins
- SME Loans

- HY leverage
- Bond market distress index
- Bond default rates



- CCC sector leverage
- Oil price surges
- Industrial metal price corrections

- Rate volatility
- VIX (equity) volatility
- Financial & bank stocks
- Cyclical stocks (US defensives)

- Fed funds
- Interbank lending markets
- Bank & financial sector spreads

Historical Recession Risk Thresholds

We may or may not be in a recession, but markets don't trade on the present; rather, they effectively discount the expected rate of change in the future

Metric	Recent	Recession threshold	Already happened	Not yet
Government rate markets				
3M spot – 3M yield 18M forward curve inversion	93 bps	< 0 bps		✓
3M – 10yr curve inversion	58 bps	< 0 bps		✓
1s – 2s curve inversion	Inverted Jul 2022	< 0 bps	✓	
1s – 7s curve inversion	Inverted Jul 2022	< 0 bps	✓	
2s – 5s curve inversion	Inverted Jul 2022	< 0 bps	✓	
2s – 10s curve inversion	Inverted Apr 2022	< 0 bps	✓	
Fed funds	65 bps < neutral	75 – 100 bps > neutral		✓
MOVE (rate volatility) index	138	Sustained above 150		✓

Historical Recession Risk Thresholds

Metric	Recent	Recession threshold	Already happened	Not yet
Corporate credit markets				
HY net leverage	3.2x	Sharp spike		✓
Corporate debt to equity	At historic lows (20.8%)	Sharply higher		✓
B & CCC high quartile net debt / EBITDA	CCC: 11.9x	Sharp spike	✓	
US IG yields & coupons	109 bps higher	Yields above coupons	✓	
US HY yields & coupons	297 bps higher	Yields above coupons	✓	
Corporate credit defaults	1.4%	> 6%		✓
IG spreads	153 bps	> 250 bps		✓
HY spreads	540 bps	> 800 bps		✓
Corporate liquidity	Remains strong	Sharp decline		✓

Historical Recession Risk Thresholds

Metric	Recent	Recession threshold	Already happened	Not yet
Corporate credit markets (cont'd)				
HY spreads – IG spreads	Above historical avg.	Sharply higher		✓
AA corporate credit spreads	84 bps	> 100 bps		✓
BBB – A spreads	Above historical avg.	Sharply higher		✓
CCC – B spreads	Above historical avg.	Sharply higher		✓
Overall Credit Bond Market Distress Index (CMDI)	Below historical avg.	Sharp spikes		✓
IG Credit Bond Market Distress Index (CMDI)	Below historical avg.	Sharp spikes		✓
HY Credit Bond Market Distress Index (CMDI)	Below historical avg.	Sharp spikes		✓

Historical Recession Risk Thresholds

Metric	Recent	Recession threshold	Already happened	Not yet
Financial conditions				
National Financial Conditions Index (NFCI)	(-0.09)	Sharply tighter than average		✓
Bloomberg financial conditions index	(-79)	Sharply tighter than average		✓
OFR financial stress index	0.80	Sharply tighter than average		✓
Financial Fragility Indicator (FFI)	(-1.2)	Sharp rise above LT avg (0)		✓
US 30-year mortgage rates	5.5%	Sharp rise	✓	
US 30-year mortgage rates	4.0% (4Q avg)	4Q avg > 3yr avg (3.5%)	✓	
Senior loan officer loans to large firms	(-1.5%)	> 20% tightening		✓
Senior loan officer loans to small firms	+0.0%	> 10% tightening		✓

Historical Recession Risk Thresholds

If you strip out the energy sector, the market is expecting corporate earnings growth to be fairly flat for the remainder of 2022 (though a sharp decline seems unlikely). Historically, corporate earnings decline about 20% during recessions (50% during the GFC), and the decline this time could be less. Economically sensitive stocks (autos, semis) are performing worst.

Metric	Recent	Recession threshold	Already happened	Not yet
Equity markets				
S&P 500	(-23%) on Jun 16	Bear market (-20%)	✓	
NASDAQ	(-33%) on Jun 16	Bear market (-20%)	✓	
Russell 2000	(-32%) on Jun 16	Bear market (-20%)	✓	
US auto stocks	(-47%) on Jun 16	Bear market (-20%)	✓	
Cash & bond returns vs. equities	Outperforming	Outperform in prior year	✓	
VIX	24	Sustained above 30		✓
S&P 500 earnings	Q2 est. EPS +4.3% y/y	Earnings recession		✓
S&P operating margins	15.8%	< 10%		✓
Cyclical vs. defensive equities	Cyclicals +69%	Cyclicals underperform defensive		✓

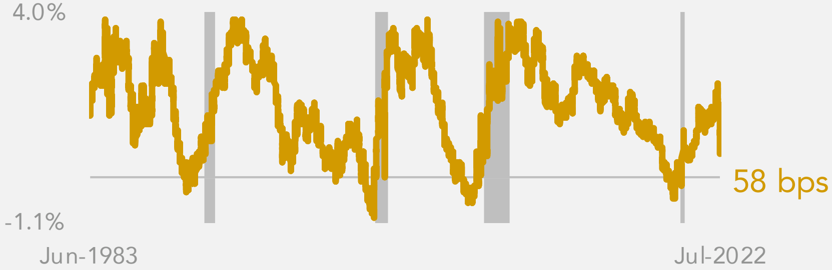
Historical Recession Risk Thresholds

Metric	Recent	Recession threshold	Already happened	Not yet
Commodities				
Oil prices (Brent)	$101	< $50 or >$100 a barrel	✓	
Oil prices (WTI)	$98	< $50 or >$100 a barrel	✓	
Bloomberg commodities index	(-21%) on Jul 8	Bear market (-20%)	✓	
Agricultural index	(-24%) on Jul 13	Bear market (-20%)	✓	
Industrial metals index	(-41%) on Jul 15	Bear market (-20%)	✓	
Copper	(-35%) on Jul 14	Bear market (-20%)	✓	
US banks & financials				
US bank stocks	(-33%) on Jun 17	Bear market (-20%)	✓	
Financial equities	4% below	15-20% below S&P 500		✓
Financial spreads	Financials +6 bps wider	Sharp divergence wider from corporates		✓

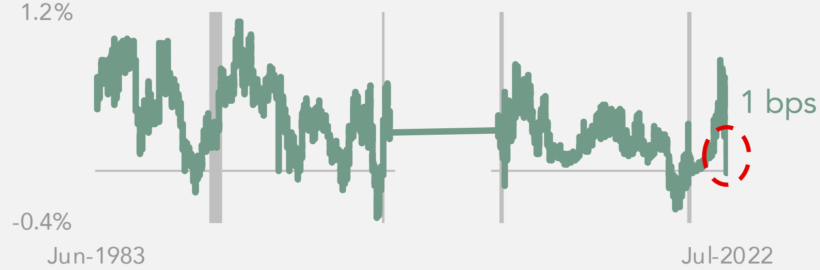
Market Signals: US Yield Curve Inversions

More so than in other countries, UST yield curve inversion has arguably (and in some cases coincidentally) been the most accurate market signal for forthcoming recessions. Among yield curves, the 3m-10 year inversion, which is flattening rapidly, has been the most accurate signal going back decades.

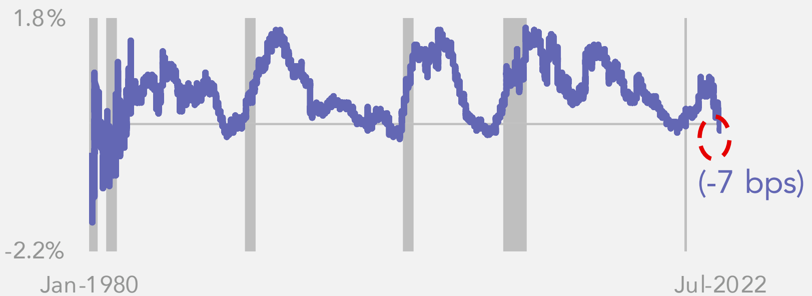
The Fed pays more attention to 3M – 10yr curve, which has been flattening rapidly



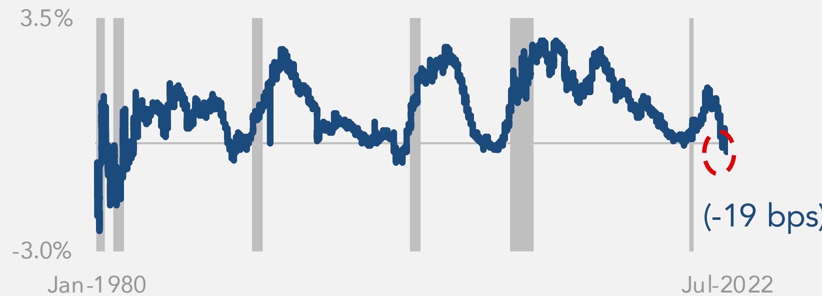
The shorter dated 1yr – 2yr curve typically inverts before recessions



The 2yr – 5yr curve has correctly signaled each US recession since 1976 with an average lead time of 15 months



Markets closely watch the 2yr – 10yr curve inversion which typically precedes recessions by 12-18 months

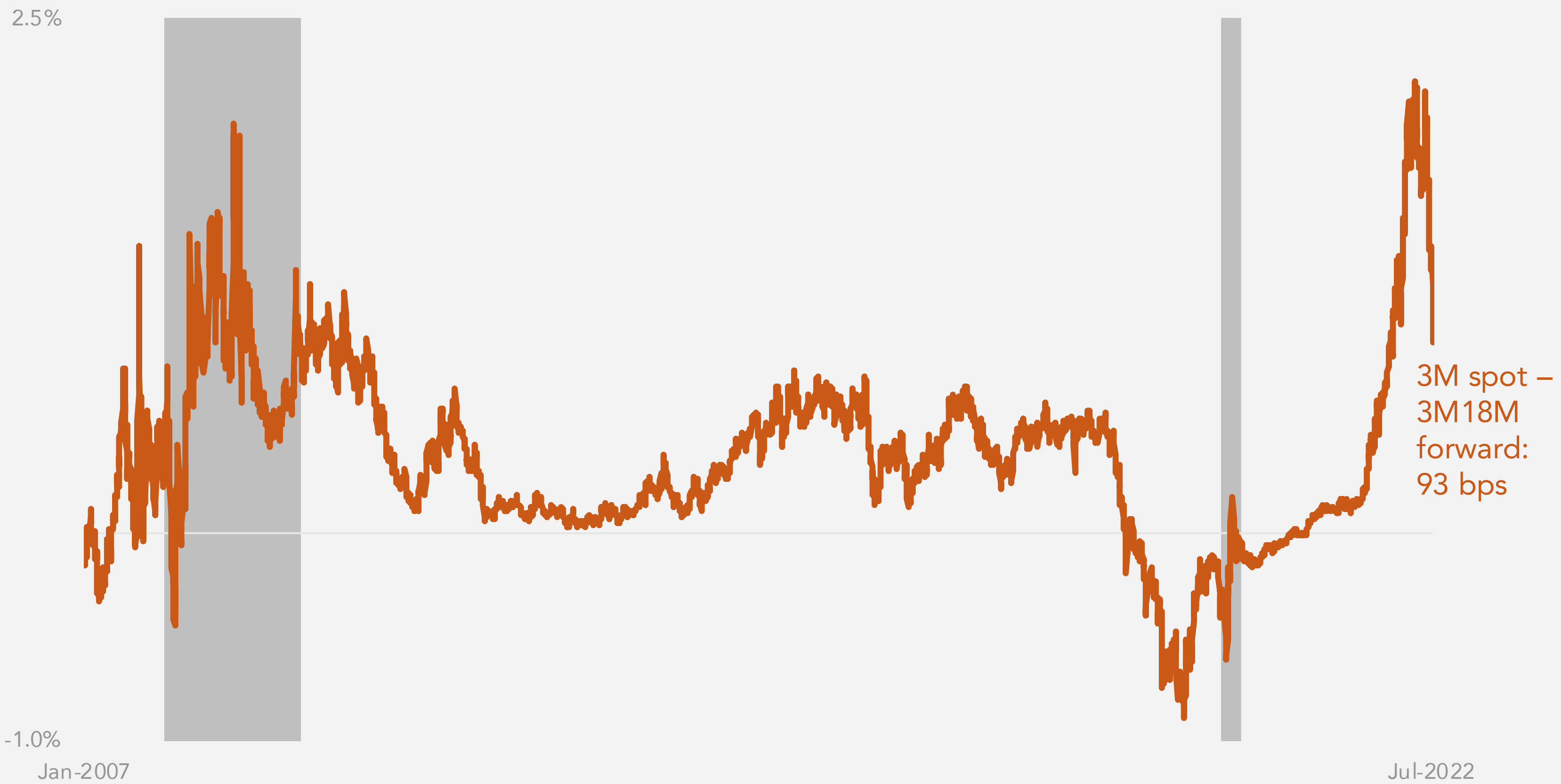


Recession Not yet Already happened

Source: (1-4) Bloomberg. Data as of July 15, 2022. 1 year UST did not trade from mid-2001 to mid-2008.

Market Signals: US Yield Curve Inversions

The Fed's preferred yield curve recession signal metric is the "near term forward spread", which is 3m Treasury less 3m Treasury in 18 months. Our macro strategy team believes this metric is less useful when rates are starting from near zero levels because that optically makes this spread wider before hikes start. That said, frontloading large hikes will likely collapse this quickly.



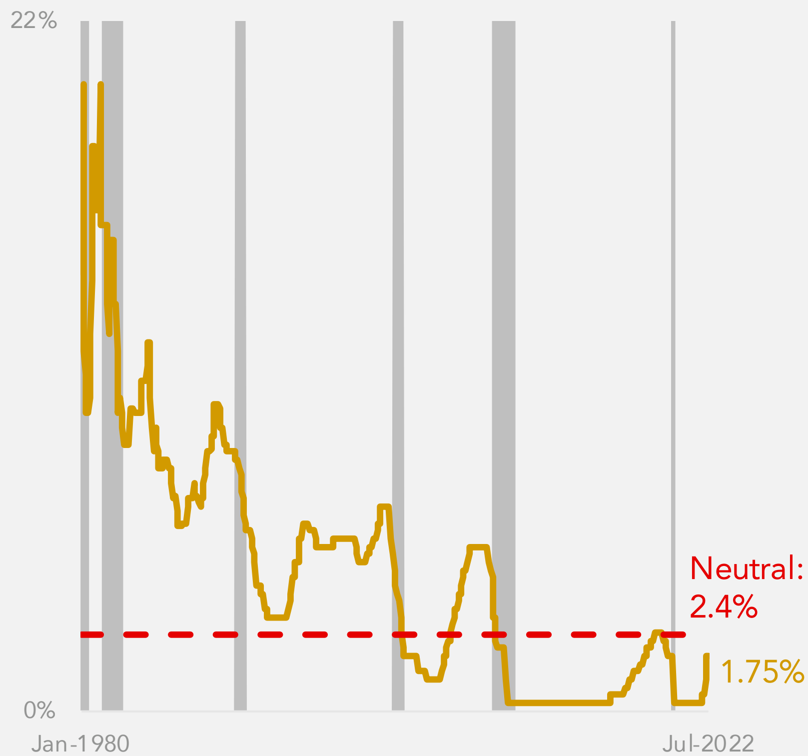
Source: (1) Bloomberg. Data as of July 15, 2022.

Recession Not yet Already happened

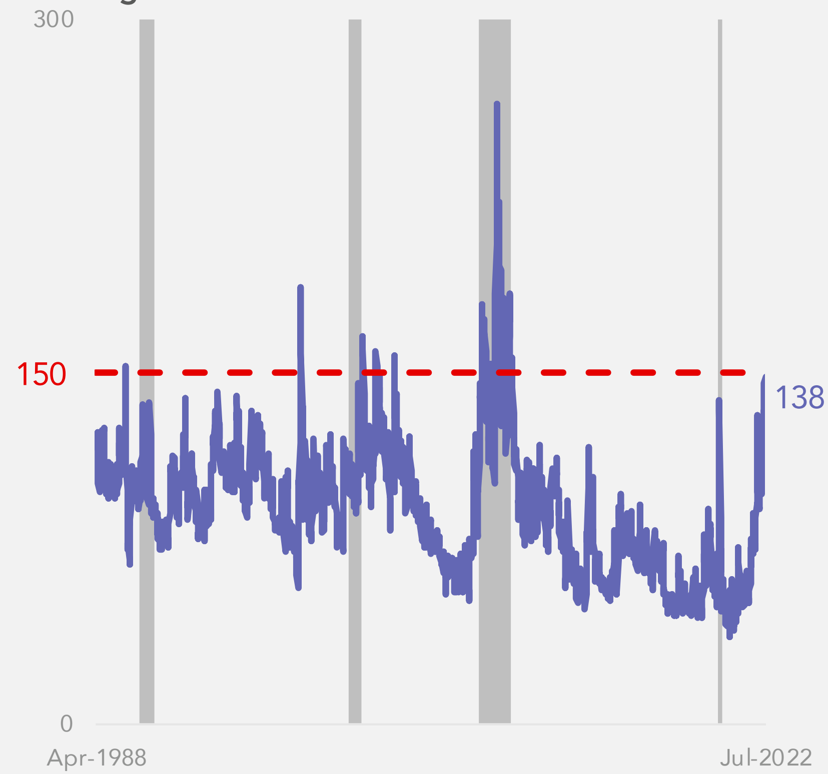
Market Signals: US Government Rates Markets

The start date of a recession is exceptionally difficult to forecast. Fed economic staff, going back to 1970, have never predicted the start of a recession (even when the downturn began the next month)

Fed funds 75 – 100 bps <u>above</u> neutral has historically slowed US growth and led to turns in the economic cycle



While not above recession thresholds, the MOVE index (rate volatility) has become uncomfortably high in recent months



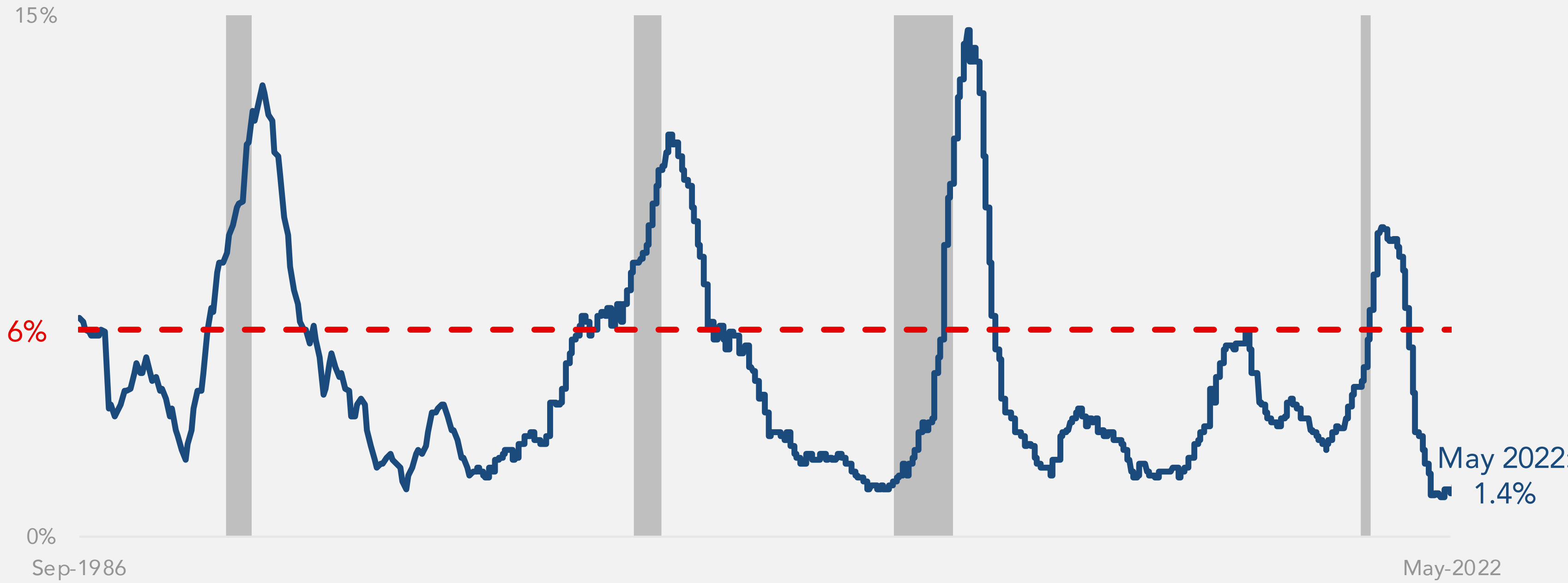
Recession ✓ Not yet ✓ Already happened

Source: (1-2) Bloomberg. Data as of July 15, 2022. Fed Funds rate is target rate

Market Signals: Corporate Credit Defaults

Currently, fundamentals in the USD credit market are much stronger than they have typically been in the months preceding a recession. Historically, default rates have been a lagging indicator during recessionary periods.

Corporate credit defaults, though a lagging indicator, rise quickly above 6% when the credit cycle (and then economy) turns



With HY spreads already trading at close to 600bps, the bond market is already pricing a turn in the cycle with default rates at 6%, and recovery rates at 35%

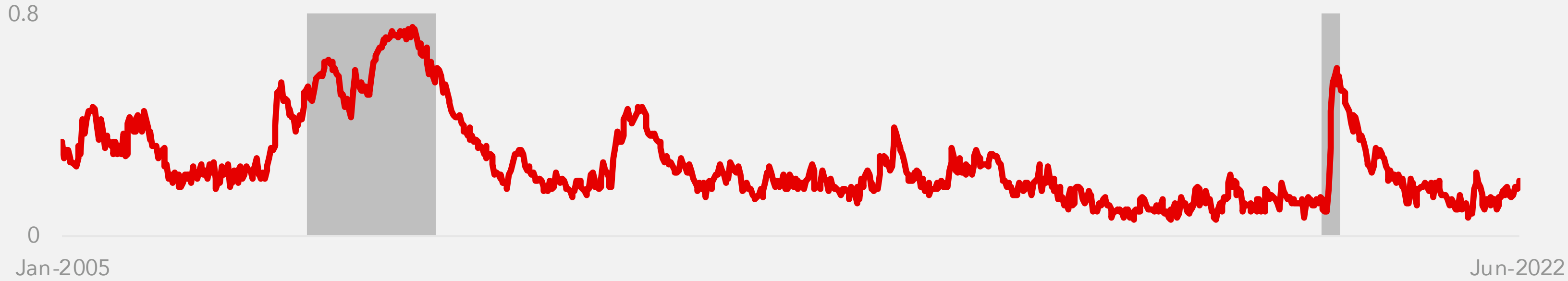
Recession Not yet Already happened

Source: (1) Moody's. Data as of July 15, 2022. Default rate is US speculative grade default rate.

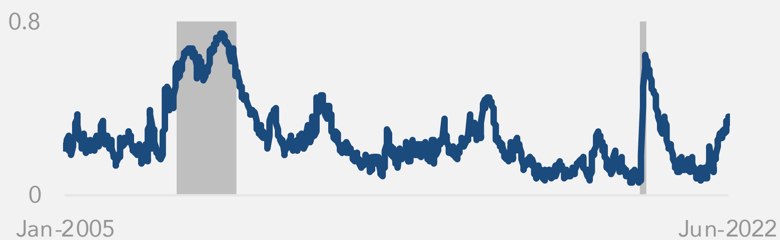
Market Signals: Corporate Credit Markets

The NY Fed's Corporate Bond Market Distress Index (CMDI) aggregates seven sub-indices to track the overall health of the US corporate bond market; secondary market volume, secondary market liquidity, secondary market duration-matched spreads, secondary market default-adjusted spreads, primary market issuance, the spread between quoted and traded prices, and the spread between primary and secondary market pricing.

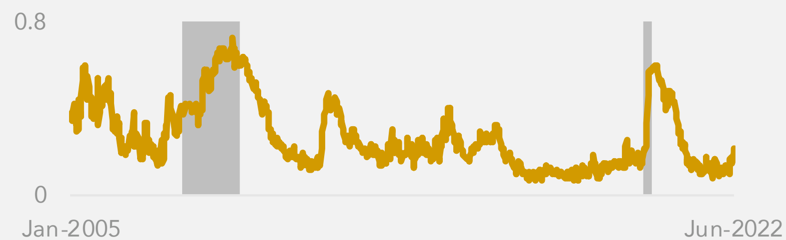
The overall Credit Bond Market Distress Index (CMDI) typically spikes during recessions



The IG CMDI typically spikes during recessions



The HY CMDI typically spikes during recessions

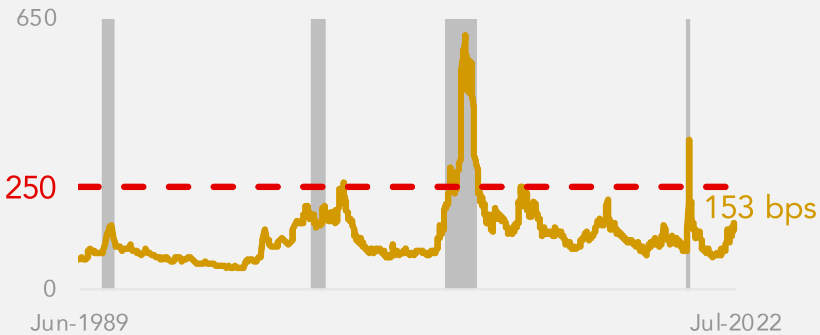


Source: (1) Bloomberg. Data as of July 15, 2022. NY Fed Corporate Bond Market Distress Index.

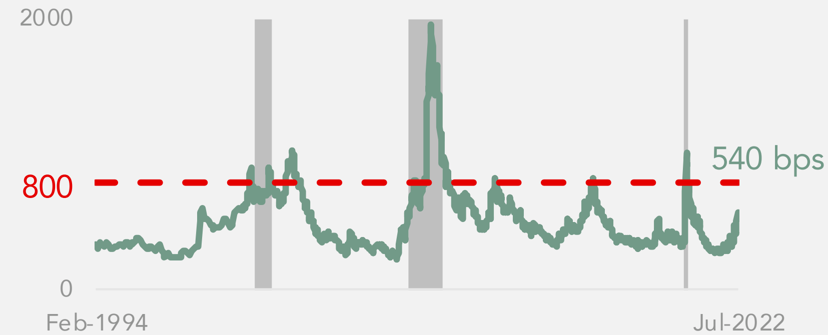
Recession Not yet Already happened

Market Signals: Corporate Credit Markets

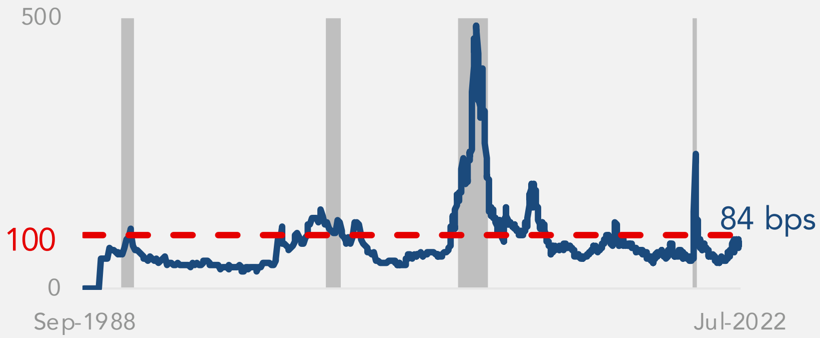
IG corporate credit spreads approaching 250 bps have accompanied turns in the US credit cycle (and economy) historically



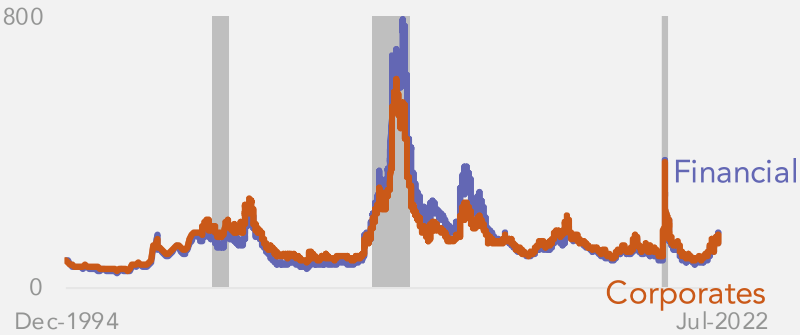
HY corporate credit spreads typically begin to widen one year ahead of recessions, crossing the 800 bps threshold at recession trough



AA spreads above 100bps have accompanied turns in the US credit cycle (and economy) historically



Financial sectors credit spreads tend to diverge from corporates during recessionary periods

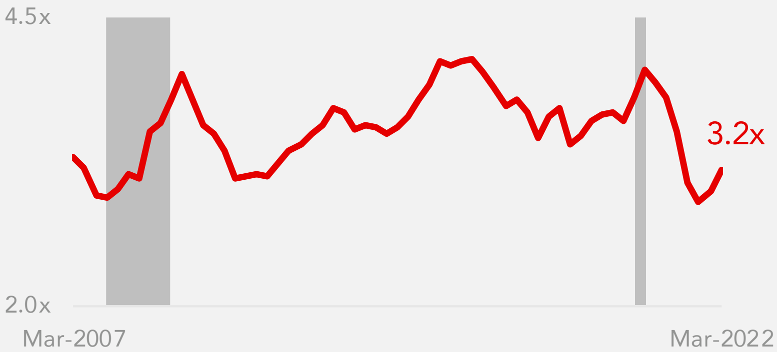


Source: (1-4) Bloomberg. Data as of July 15, 2022.

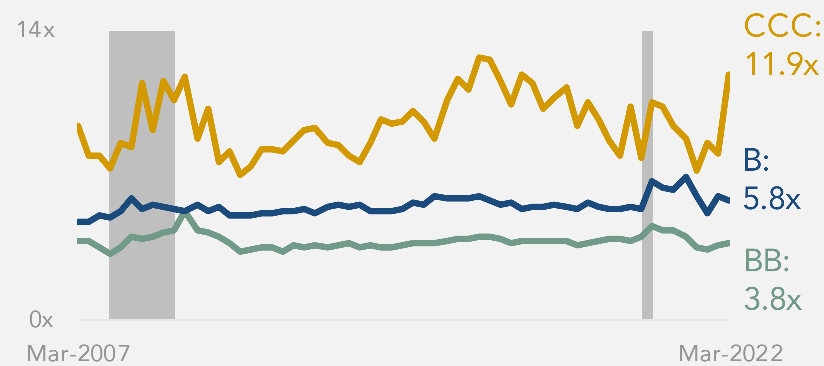
Recession Not yet Already happened

Market Signals: Corporate Credit Markets

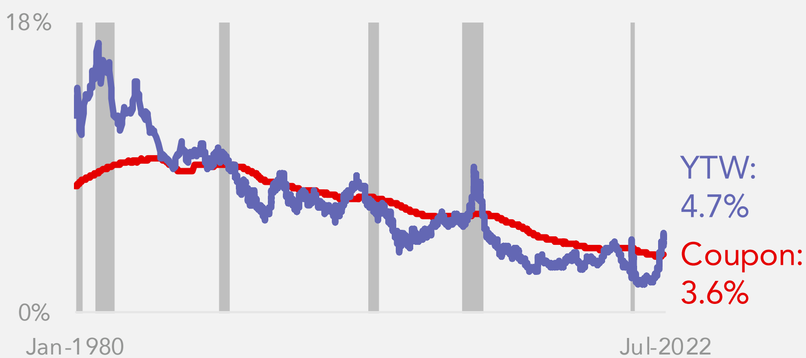
US HY net leverage historically has peaked during recessions



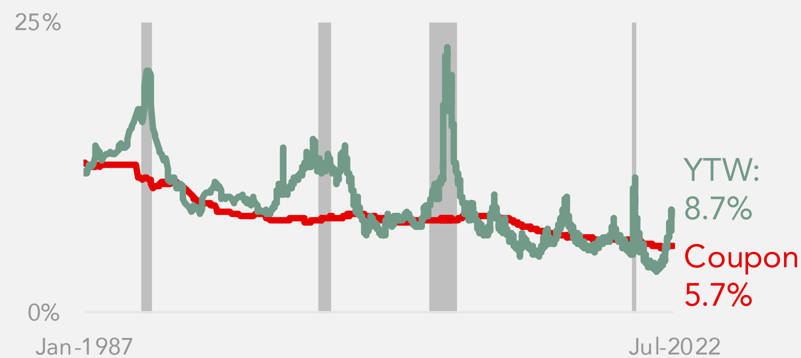
B & CCC high quartile leverage historically has peaked during recessions



US IG yields above coupons historically precede recessions



US HY yields above coupons historically precede recessions

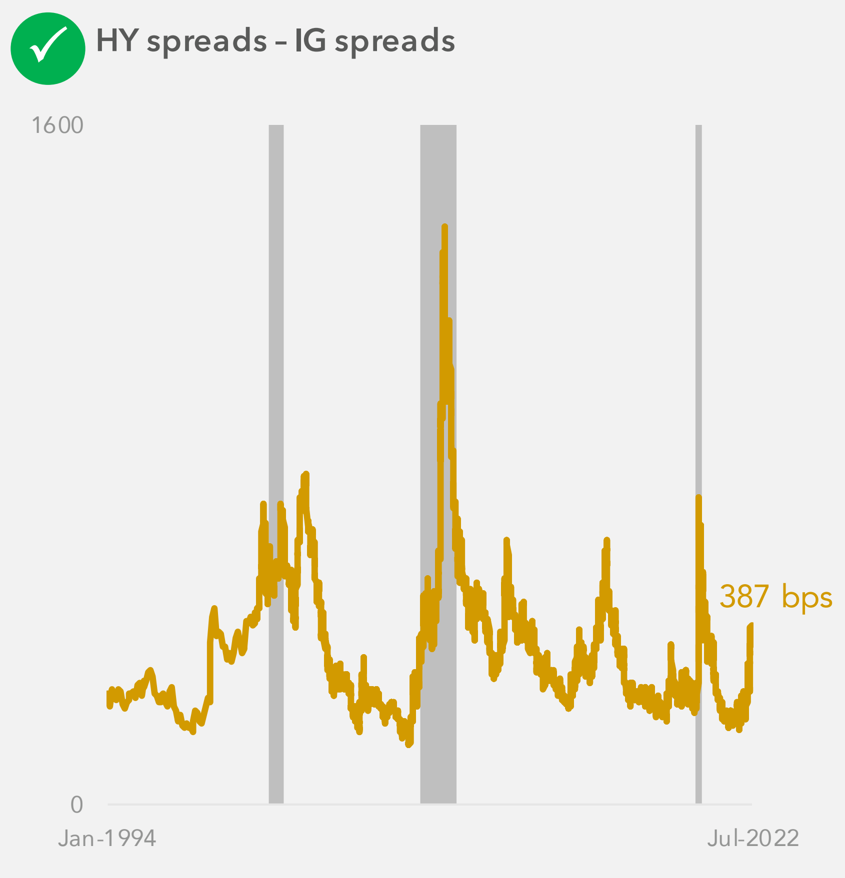


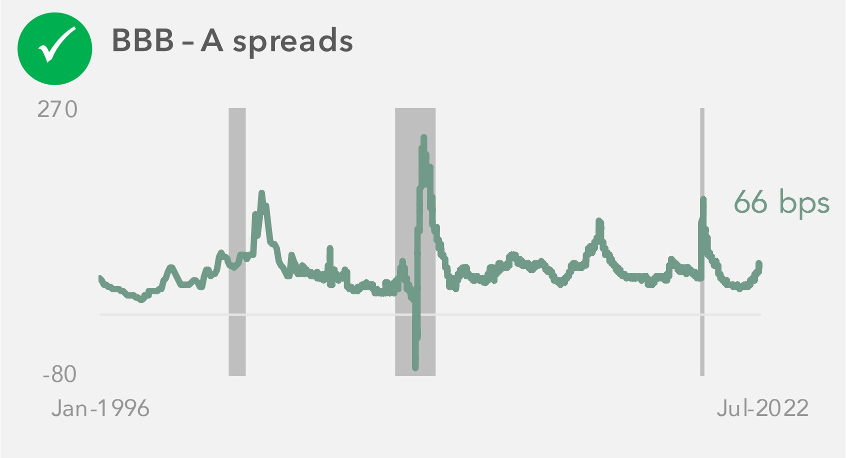
Recession ✓ Not yet ✓ Already happened

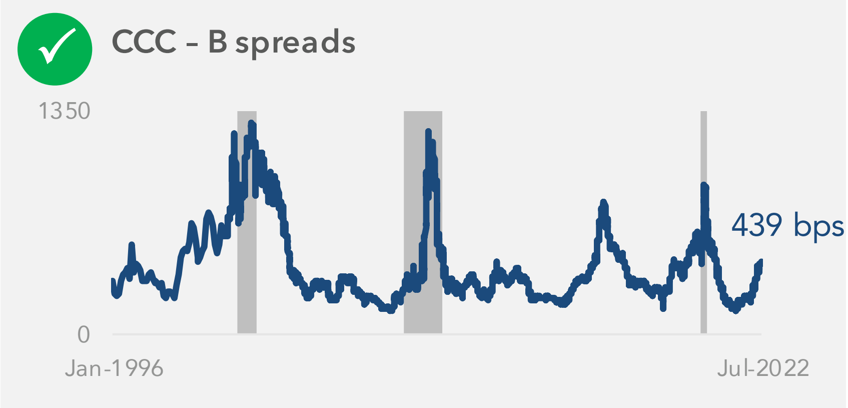
Source: (1-4) Bloomberg. Data as of July 15, 2022. CreditSights (Winnie Stieglitz).

Market Signals: HY Credit Spreads

Historically, lower rated spreads have risen sharply during recessionary periods. While investors are currently differentiating more on credit quality, as evidenced by spreads above historical averages, they are still below thresholds for US recessionary periods.





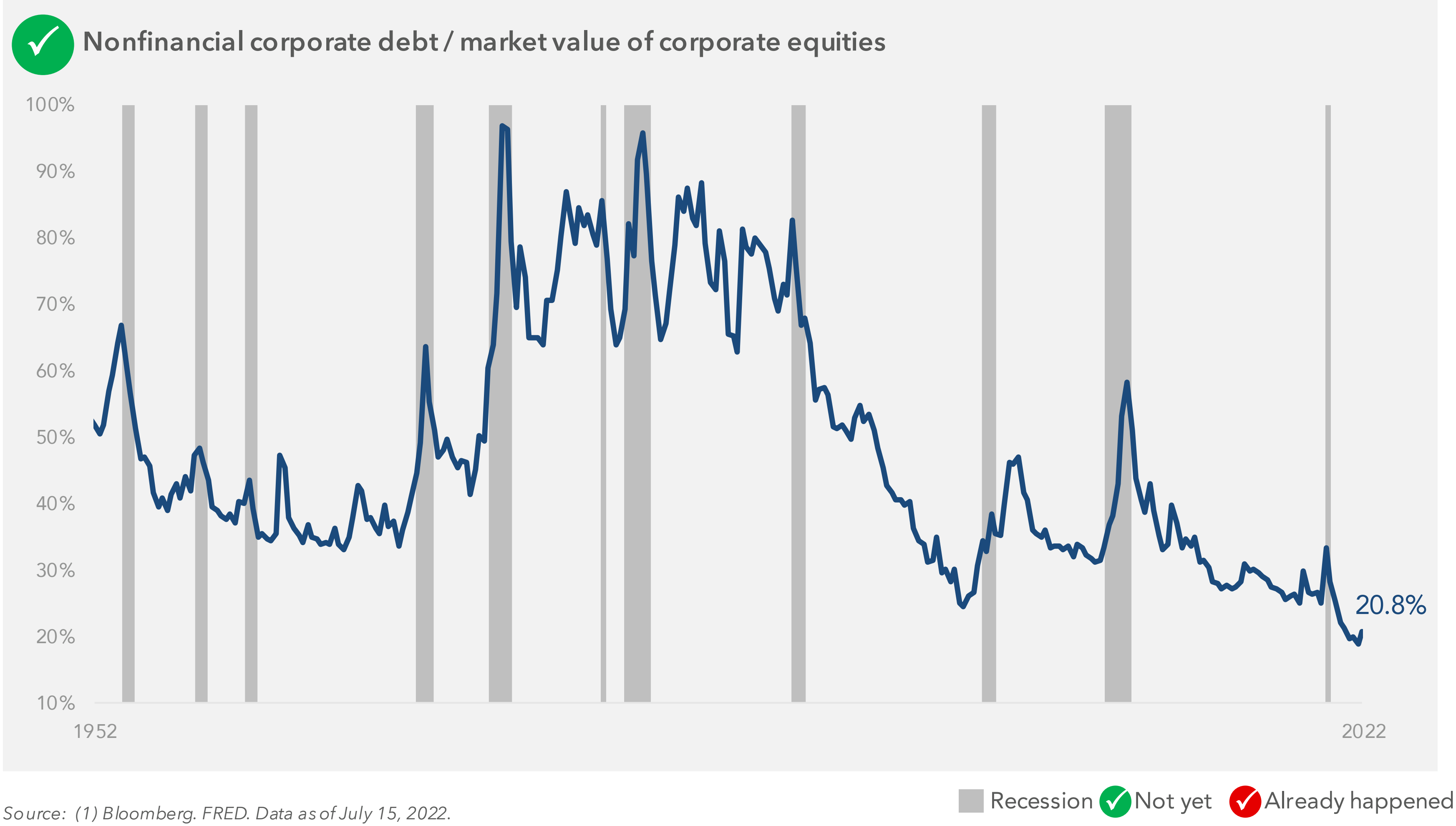


Recession Not yet Already happened

Source: (1-3) Bloomberg. Data as of July 15, 2022.

Market Signals: Corporate Leverage

Fundamentals in the USD credit markets remain strong, as evidenced by the record low levels of corporate debt to equity. Corporate leverage has historically risen during US recessionary periods. Debt to equity ratios are inherently volatile and typically a lagging indicator.

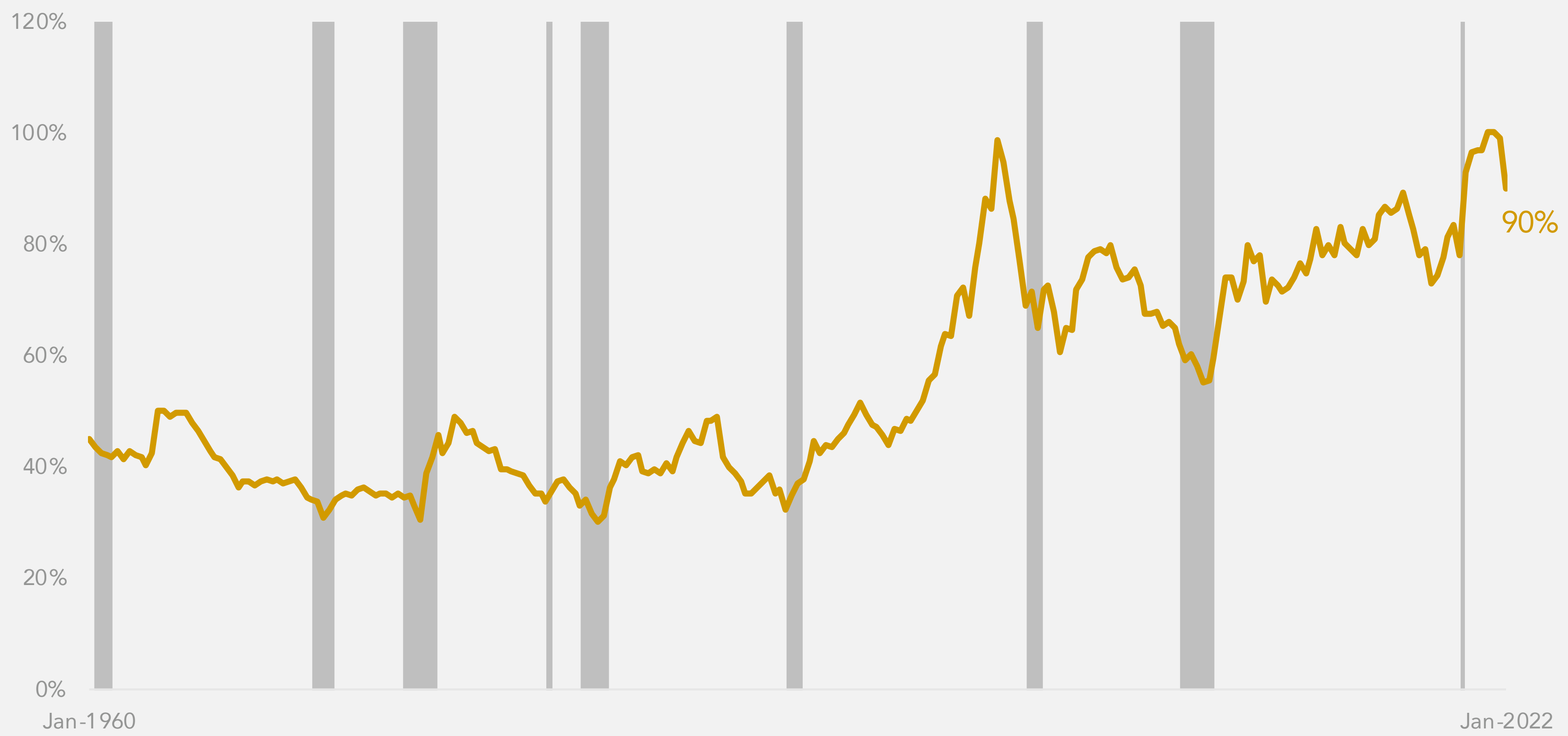


Source: (1) Bloomberg. FRED. Data as of July 15, 2022.

Market Signals: Corporate Liquidity

Corporate balance sheets enter the current economic slowdown with robust liquidity compared to prior recessions given the strength of recent profits, longer debt maturity profiles and pre-funding at historically low rates. Historically, liquid corporate assets drop sharply during recessionary periods.

Liquid assets / short-term debt of nonfinancial corporates

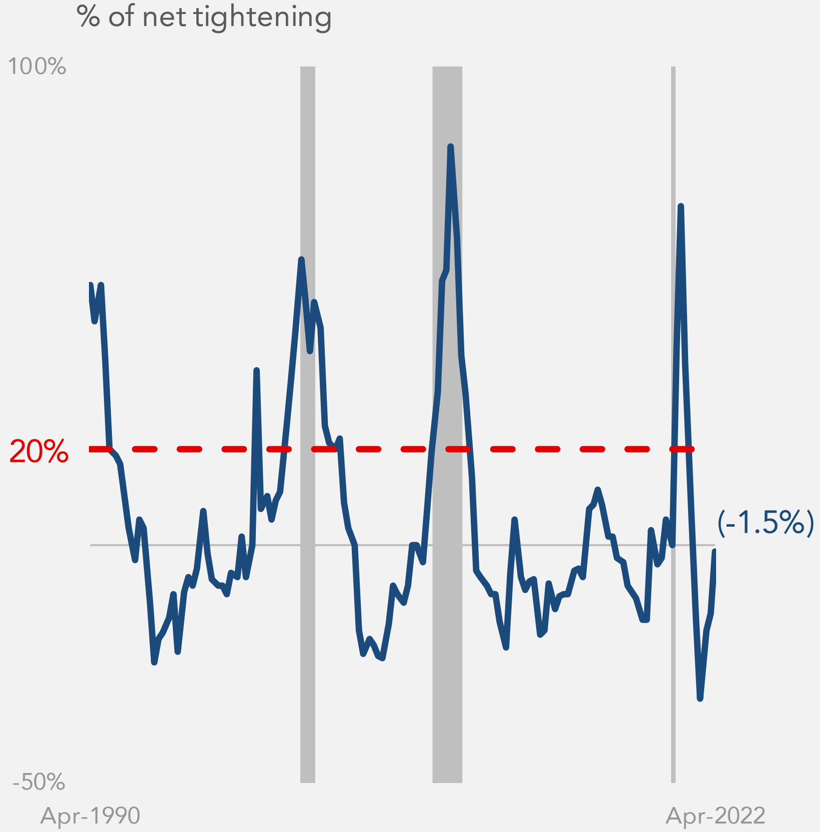


Source: (1) Bloomberg. FRED. Data as of July 17, 2022.

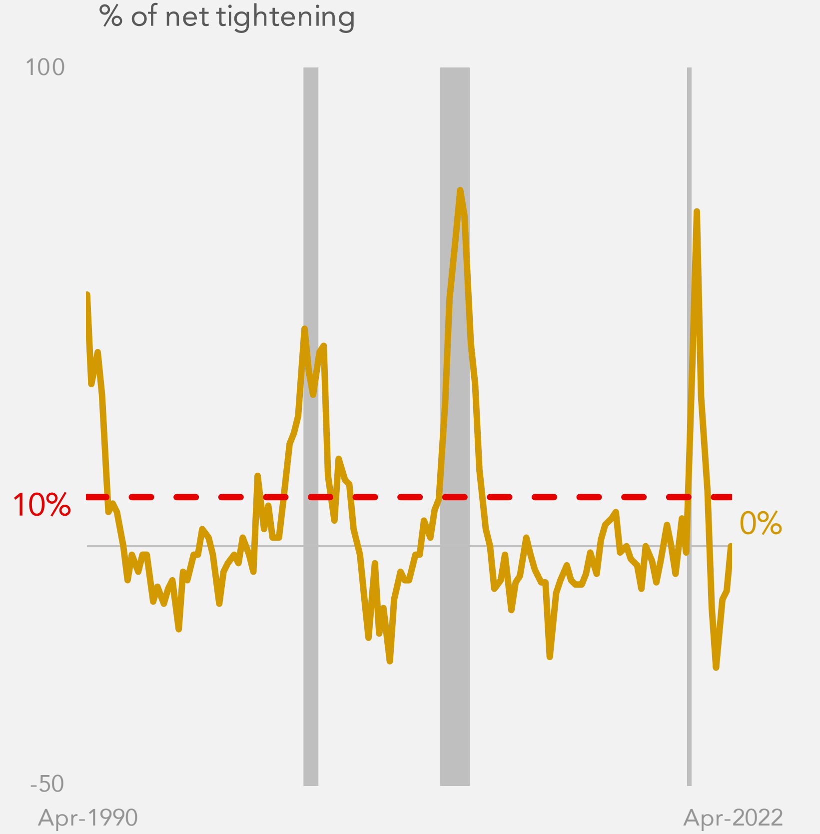
Recession Not yet Already happened

Market Signals: Bank Lending Standards

A net tightening in bank C&I lending to <u>large</u> firms in the Senior Loan Officer Survey above +20% has historically signaled US recession



A net tightening in bank C&I lending to <u>small</u> firms in the Senior Loan Officer Survey above +10% has historically signaled US recession



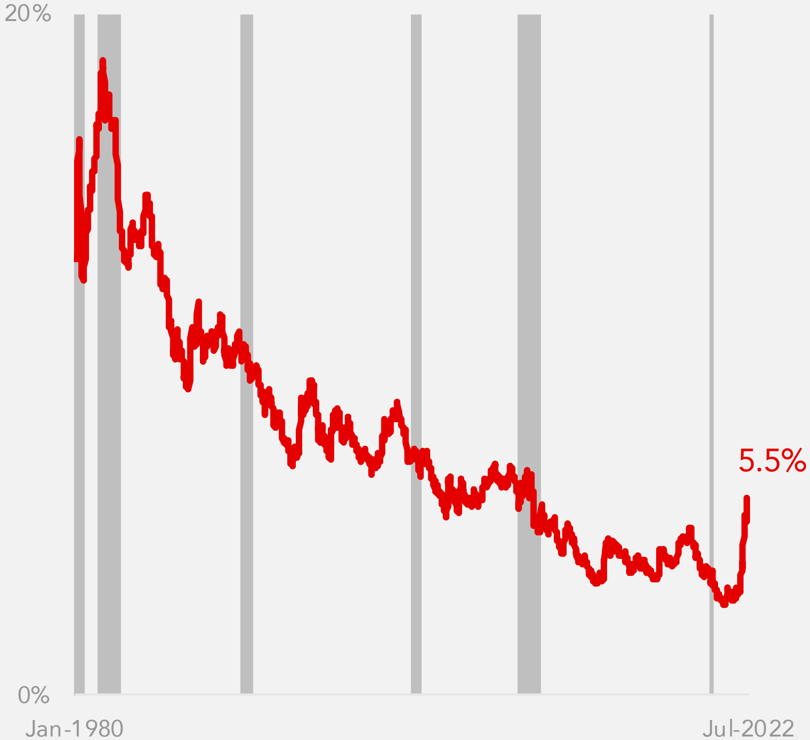
Source: (1-2) Bloomberg. Data as of July 15, 2022.

Recession ✓ Not yet ✓ Already happened

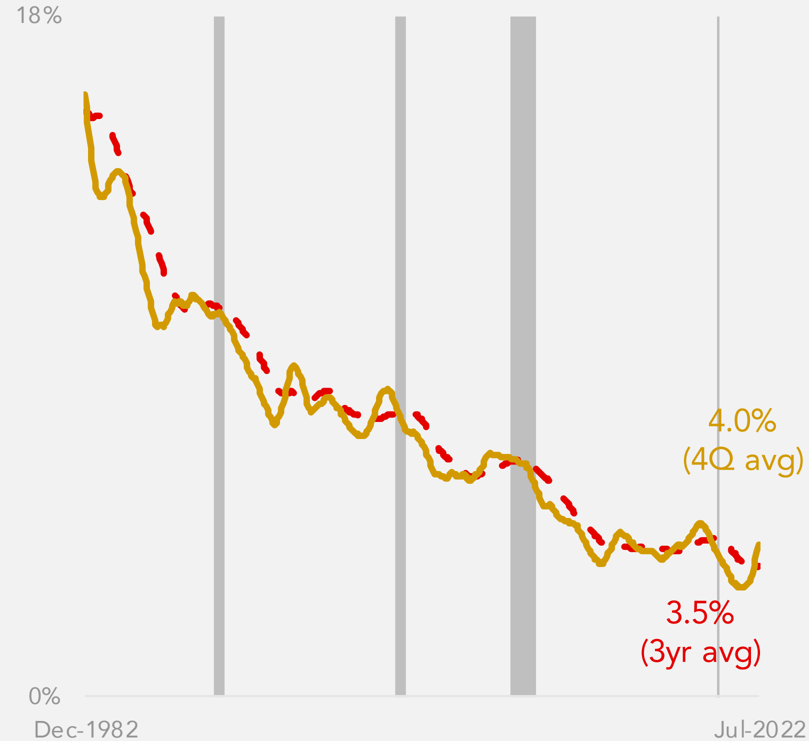
Market Signals: Mortgage Rates

US mortgage rates doubled this year to new 15 year highs, with the monthly mortgage payment on a median priced existing home up 58%. The effect of Fed tightening on rates, mortgage and housing markets, impact the economy with a lag.

US mortgage rates typically rise sharply and then fall during recessions



The 4Q avg of 30yr mortgage rates typically spike above their 3yr trend before recessions



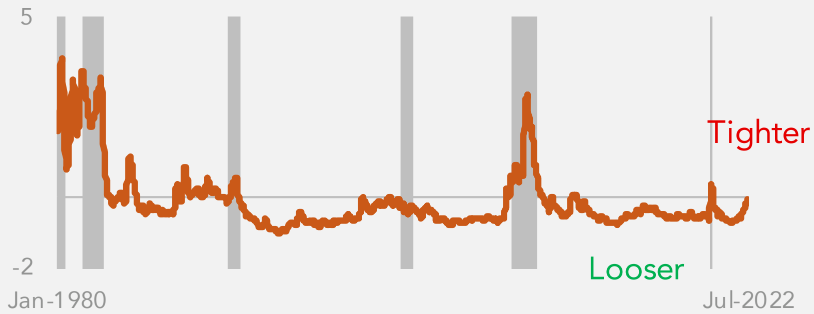
Source: (1-2) Bloomberg. Data as of July 15, 2022. US mortgage rate is Freddie Mac 30-year fixed rate mortgage.

Recession / Not yet / Already happened

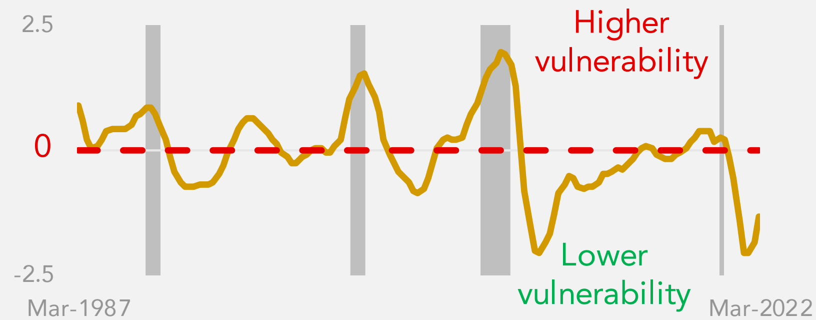
Market Signals: Financial Conditions

US financial conditions (rates, spreads, US dollar, equities, commodities) have tightened considerably with the Fed policy pivot and global volatility. Historically, financial conditions have tightened sharply in advance of US recessions.

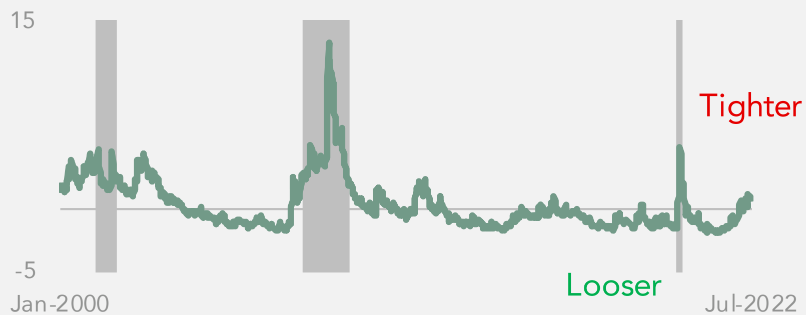
Chicago Fed National Financial Conditions Index (NFCI)



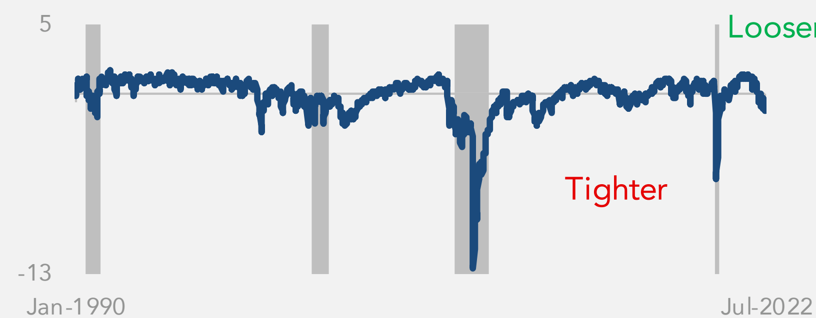
Financial fragility indicator (FFI)



Office of Financial Research (OFR) financial stress index



Bloomberg financial conditions index



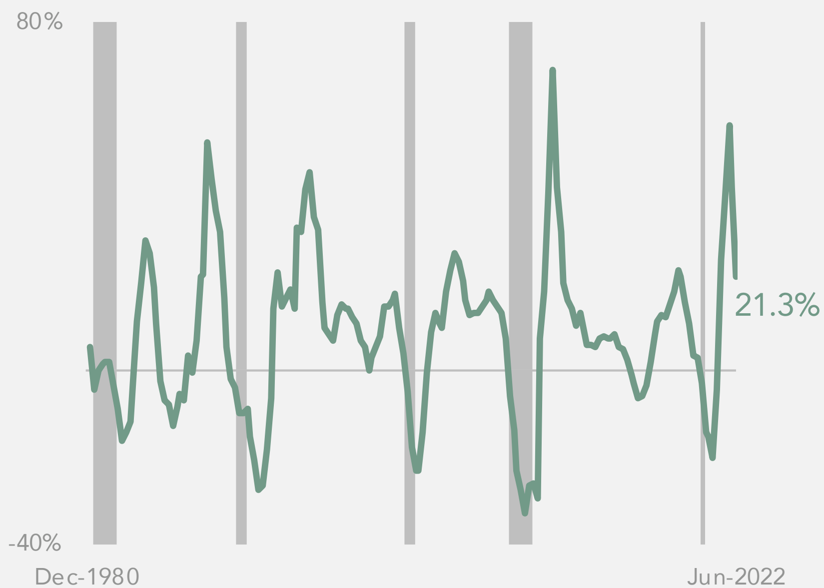
Source: (1-4) Bloomberg. Data as of July 15, 2022. FFI index is a weighted average of indicators that reflect the financial fragility of corporates and households from different perspectives.

Recession ✓ Not yet ✓ Already happened

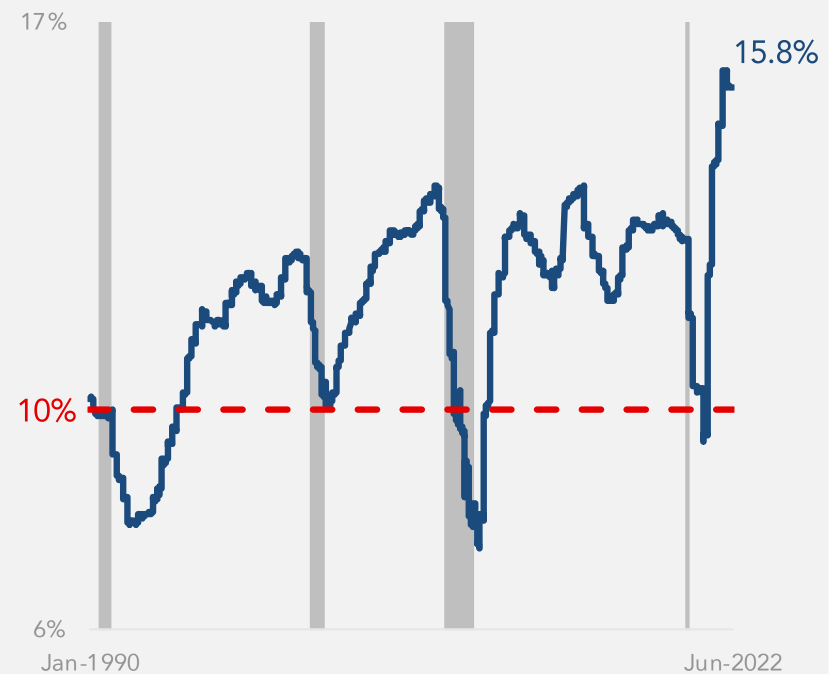
Market Signals: S&P Earnings & Profit Margins

Notably, earnings recessions in the absence of economic recessions are reasonably rare events and have typically happened either when oil prices are very low or the US dollar is very strong (has only happened 4x since 1970, most recently in 2015). Meanwhile, corporate operating margins, which are currently well above historical averages at nearly 16%, declined to 10% or lower in the last three recessions.

Historically, corporate earnings contract approximately (-15%) on average during recessions, with the change in 12-month trailing earnings (y/y) dropping below 0%



Corporate operating margins have typically declined to near or below the 10% threshold during economic recessions

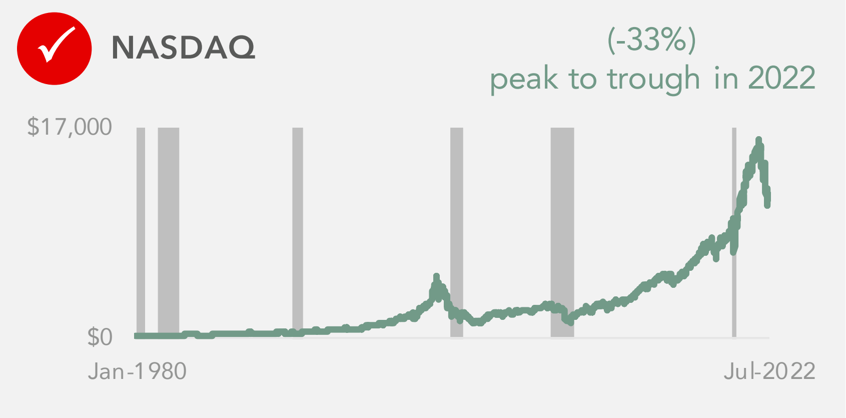


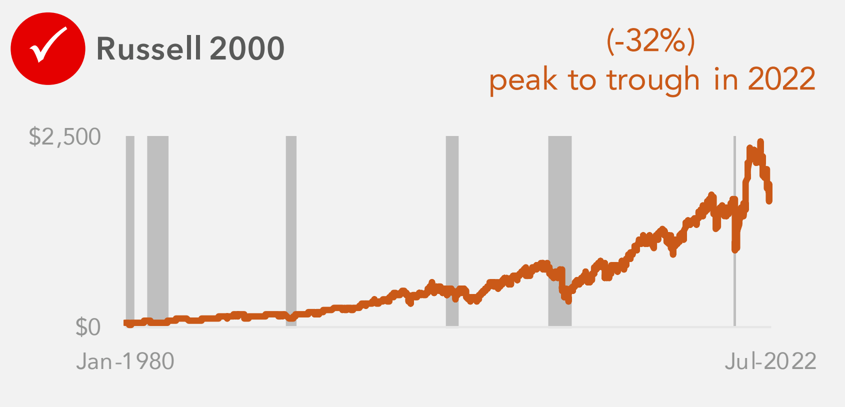
Recession Not yet Already happened

Source: (1-2) Bloomberg. Data as of July 7, 2022. Earnings growth is 12-month trailing y/y.

Market Signals: US Equity Bear Markets

Equity bear markets (i.e., >20% declines) and US recessions have historically coincided in terms of timing, though the interrelationship between the two is complex. In terms of causality, recessions have varied historically between: (i) bear markets "anticipating" recessions; (ii) bear markets "contributing" to the arrival of recessions; (iii) recessions creating a bear market reaction; and / or (iv) the two simply making one another worse.





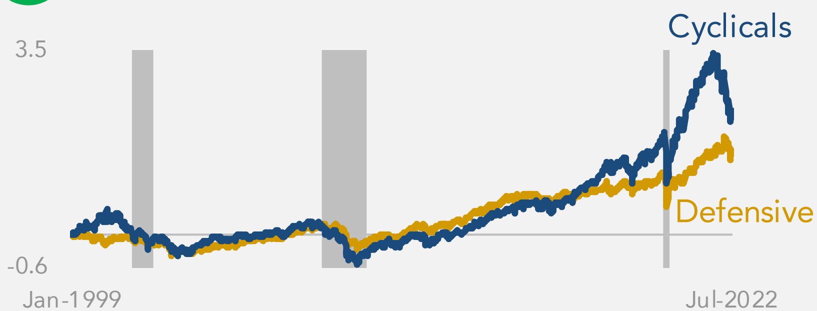
Recession Not yet Already happened

Source: (1-4) Bloomberg. Data as of July 15, 2022.

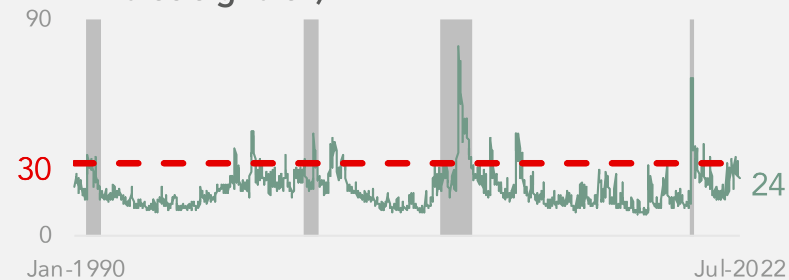
Market Signals: US Equity Markets

Equity market declines have also been an unreliable signal of recessions in prior decades, with numerous false positives. As Paul Samuelson famously said in the early 1960s, the stock market has predicted 9 of the past 5 recessions.

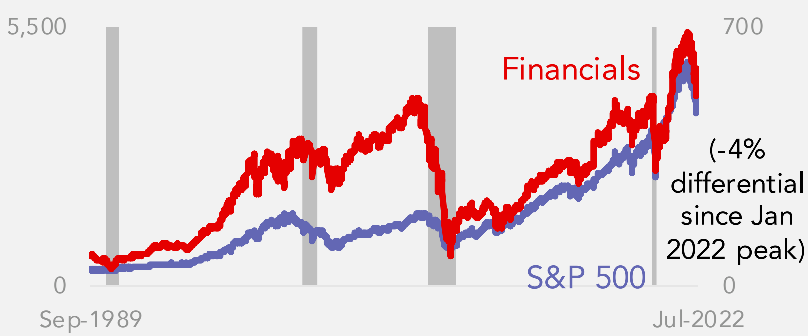
MSCI US cyclicals typical underperform MSCI US defensive stocks in advance of US recessions



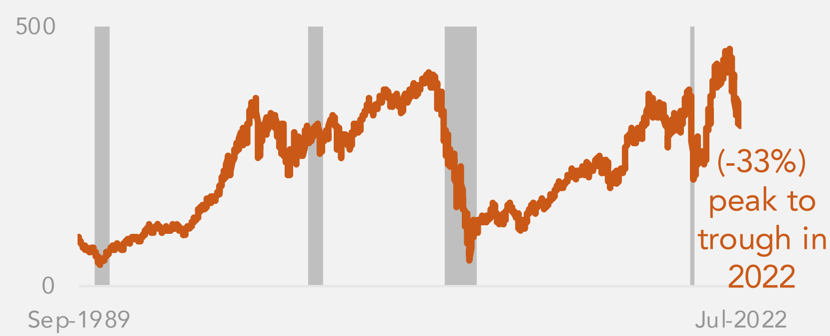
Sustained VIX spikes above 30 have historically signaled US recession (albeit with numerous "false signals")



Financial stocks have historically underperformed US equities by 15-20% ahead of turns in the credit cycle



US bank stocks typically come under pressure in advance of economic downturns



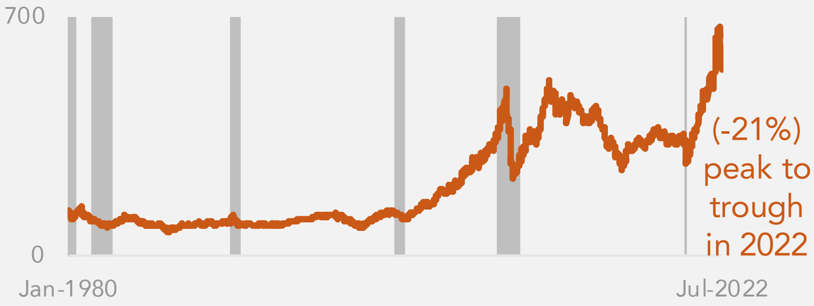
Source: (1-4) Bloomberg. Data as of July 15, 2022.

Recession | Not yet | Already happened

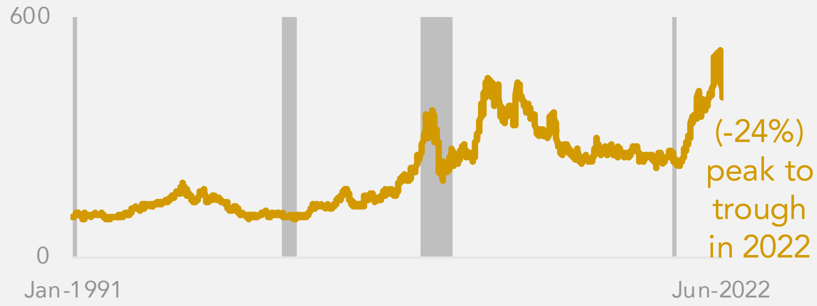
Market Signals: US Commodity Markets

Four of the five biggest commodity price surges since the 1950s have been followed by trade recessions, which are often, though not always, associated with economic recessions

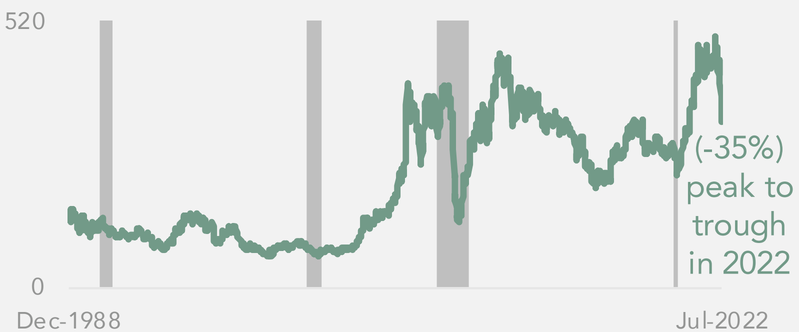
Global commodity prices have historically signaled global and US growth downturns



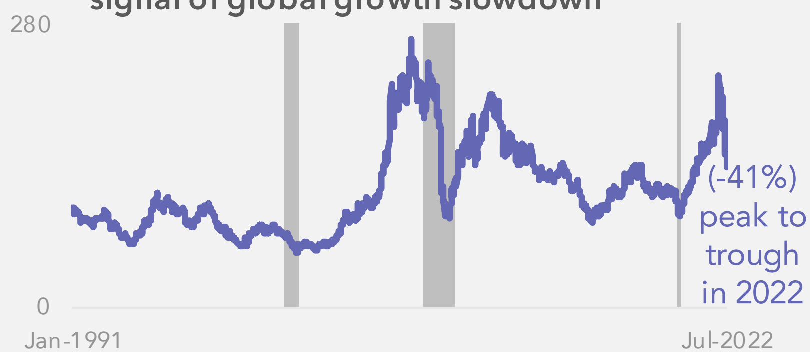
Bear market corrections (> 20% declines) in agricultural markets have historically preceded recessions



Bear market corrections in copper have been a strong leading indicator of global and US growth declines historically



Bear market corrections (> 20% declines) in industrial metals have been a particularly good signal of global growth slowdown



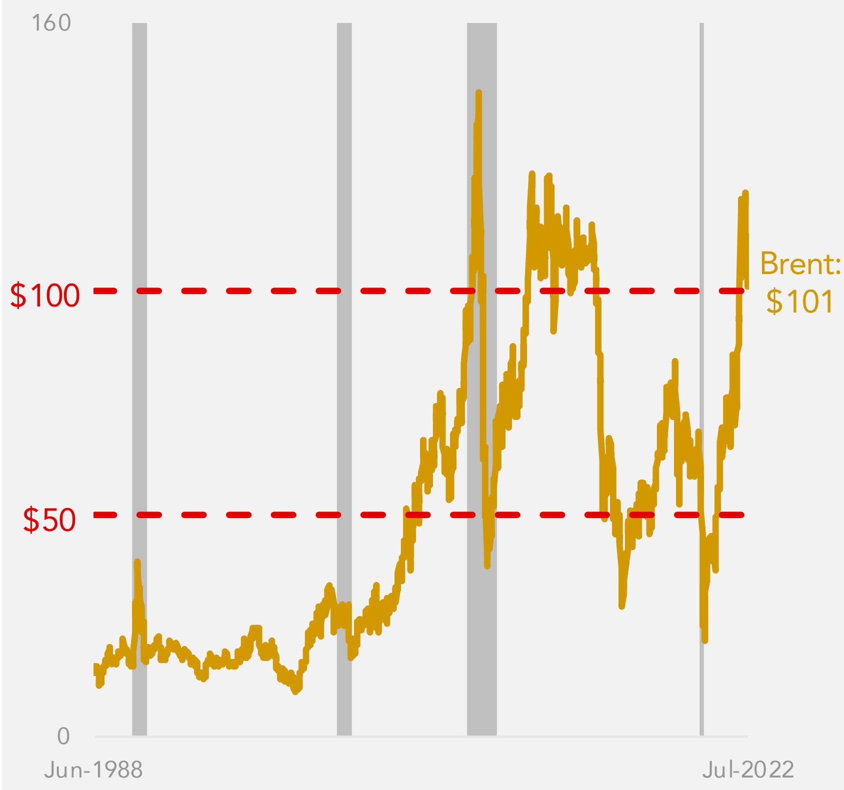
Source: (1-4) Bloomberg. Data as of July 15, 2022.

Recession Not yet Already happened

Market Signals: Oil Markets

Although many of the prior large increases (and then slumps) in oil prices have occurred right before US recessions, they are far from a perfect indicator, with plenty of false positives

Oil dropping below $50 or rising above $100 has historically signaled higher US recession risk



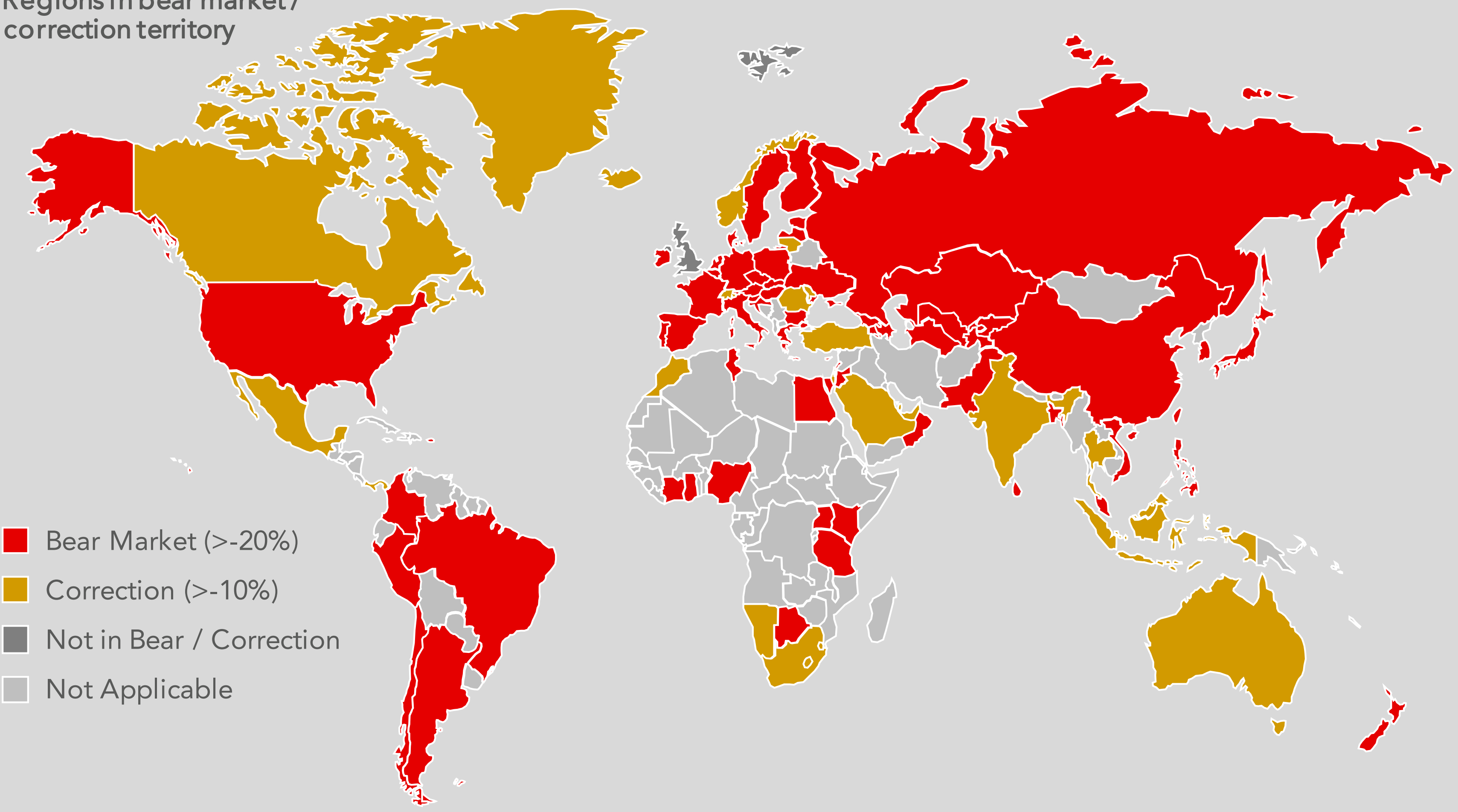
Source: (1-2) Bloomberg. Data as of July 15, 2022.

Recession Not yet Already happened

Global Equity Bear Markets

Equity market corrections are only a strong indicator of recession when paired with broad based tightening in financial conditions

Regions in bear market / correction territory



Source: (1) S&P Dow Jones Indices. Data as of July 14, 2022. Based on price return indices in local currency. Market declines based on major country indices.

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Role

Tom Joyce is a Managing Director and Capital Markets Strategist within MUFG's global capital markets and investment banking business. Based in New York, Tom heads a team that creates customized analytical content for multi-national S&P 500 companies. His team provides in depth analysis on the impact of economic, political, public policy and regulatory dynamics on the US credit, foreign exchange, rates and commodities markets.

Experience

Tom has over 25 years of Investment Banking experience in New York, London, Hong Kong, and San Francisco. Over the last 15 years, Tom created and built the Capital Markets Strategy role, advising corporate C-Suite executives (Boards, CEOs, CFOs, and Treasurers) on the pervasive macro forces driving markets. Tom also presents at dozens of corporate events each year including Board meetings, CEO ExCo sessions, CFO and Treasury off-sites, corporate leadership events and conferences.

Education

Tom's educational background includes a year of study at Oxford University from 1991 - 1992, a Bachelor of Arts in Political Science from Holy Cross College in 1993, and a MBA from Kellogg Business School, Northwestern University in 2000.

Personal

Tom resides in New Canaan, CT with his wife and four sons, where he coaches youth basketball and serves on the Board of Trustees of the New Canaan Library, the Board of the New Canaan Football (Soccer) Club and the Holy Cross College President's Council.

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Role

An industry veteran with more than 20 years on the sell-side and buy-side, George joined MUFG in April 2021 as head of U.S. Macro Strategy with a mandate to formulate U.S. Fixed Income views, drive market strategy thought leadership, and actionable trade ideas for clients. He focuses on rates, MBS, credit, the Fed/global central bank policy, U.S. dollar funding dynamics and all things macro-related.

Experience

George spent nearly a decade at Nomura Securities, first as the chief U.S. Rates Strategist and later as the Head of U.S. Fixed Income Strategy. Over his tenure at Nomura, he oversaw teams of analysts covering U.S. rates, U.S. credit and emerging market rates.

Prior to that, George was the Head of Fixed Income Strategy at Cantor Fitzgerald and a senior research analyst at both Morgan Stanley and Bank of America. He started his career in the Fixed Income markets on the buy side at the formerly known Merrill Lynch Asset Management division in institutional separate accounts, analyzing and co-managing portfolios of Treasuries, repo, short-term credit and MBS as an assistant portfolio management analyst.

Earlier in his career, George was voted one of the Top 20 Rising Stars in Fixed Income by Institutional Investor in 2007. Throughout his career he has been an active guest on Bloomberg TV and CNBC, as well as a quoted source in various financial media outlets.
Professionally, he has worked with many debt issuers and has an established wide network of institutional investors from FX reserve managers, Bank Treasurers, real money and macro hedge funds.

Education

George received his joint degree in Finance/Economics and Political Science from Rutgers University's School of Management.

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Role

Hailey Orr is a Director in MUFG's Capital Markets Strategy group within the global capital markets and investment banking business. The team provides market based content for corporate clients to assist in strategic decision making. Focus areas include the impact of economic, political, public policy and regulatory dynamics on the US credit, foreign exchange, rates and commodities markets.

Experience

Hailey has a decade of Wall Street experience, including three years as a Consumer Sector Specialist in Equity Sales and seven years as a Capital Markets Strategist. Hailey is also a member of MUFG's Inclusion & Diversity Council and has devoted years to participating in and developing Wall Street recruiting programs.

Education

Hailey graduated with honors from the University of Michigan's Ross School of Business with a BBA and a minor in International Studies.

Personal

In March 2020, Crain's New York Business Magazine named Hailey one of the "Rising Stars in Banking and Finance".

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Role

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Experience

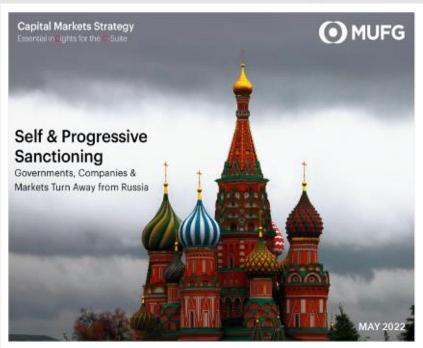
Stephanie has spent over five years as a Capital Markets Strategist. At her prior firm, Stephanie was a part of the Americas Women's Network Junior Council and was an active member of the University of Michigan recruiting team.

Education

Stephanie graduated with honors from the University of Michigan's Ross School of Business with a BBA .

MUFG’s Capital Markets Strategy Team

The MUFG Capital Markets Strategy team provides monthly publications and weekly policy notes, presenting to Boards and C-Suite executives, on a broad range of transformative themes driving the FX, rates and credit markets including: the COVID-19 recovery, ESG’s acceleration, tax code policy changes, US-China decoupling, corporate strategy, geopolitical risk and central bank monetary policy.



MUFG's Capital Markets Strategy Team

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