



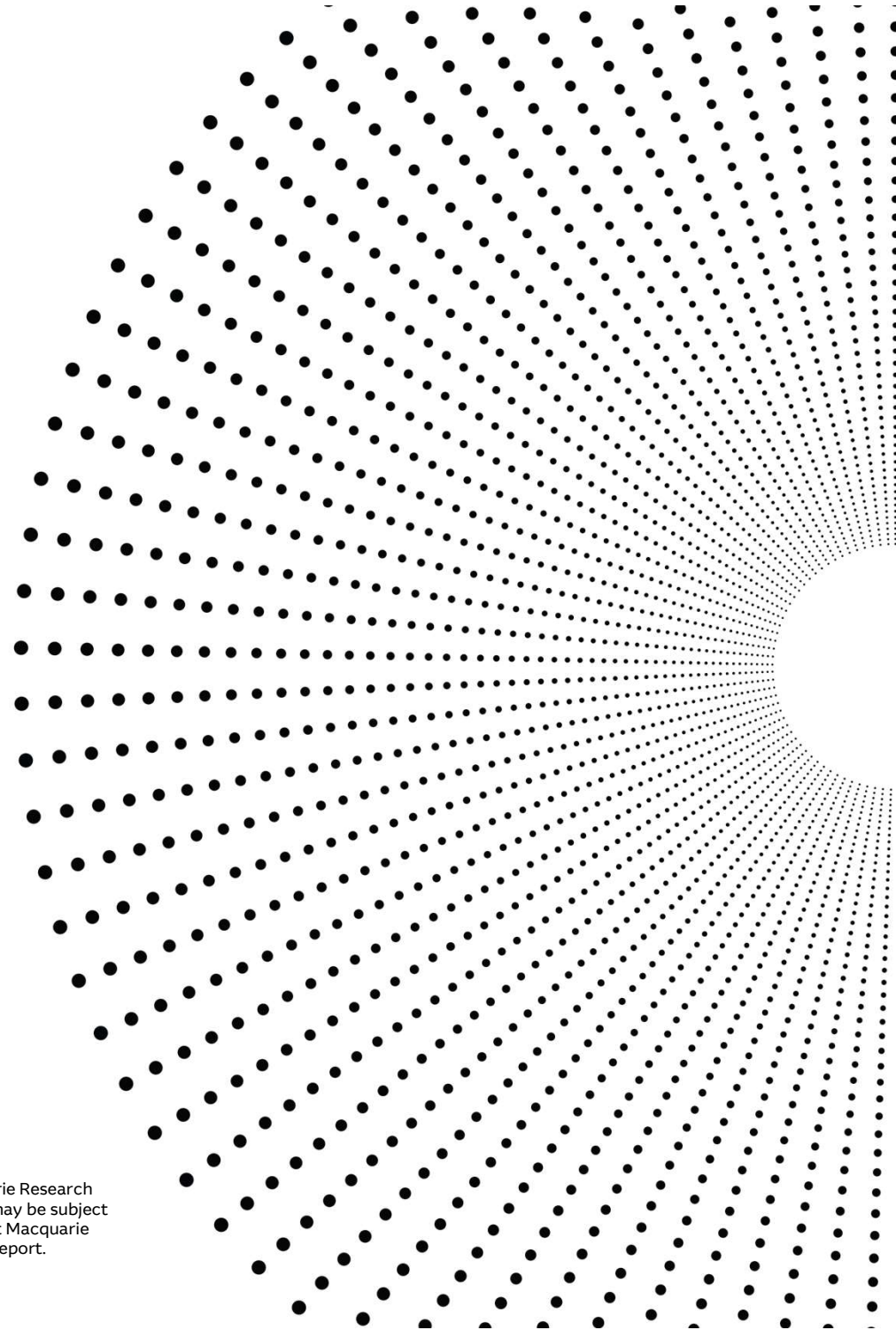
The macro outlook, energy markets, and a 2023 recession

David Doyle

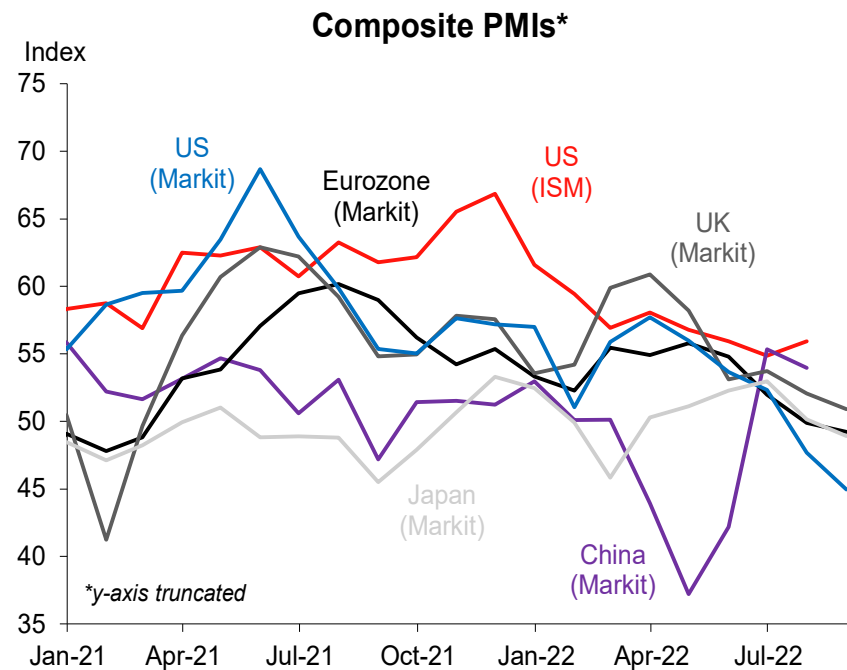
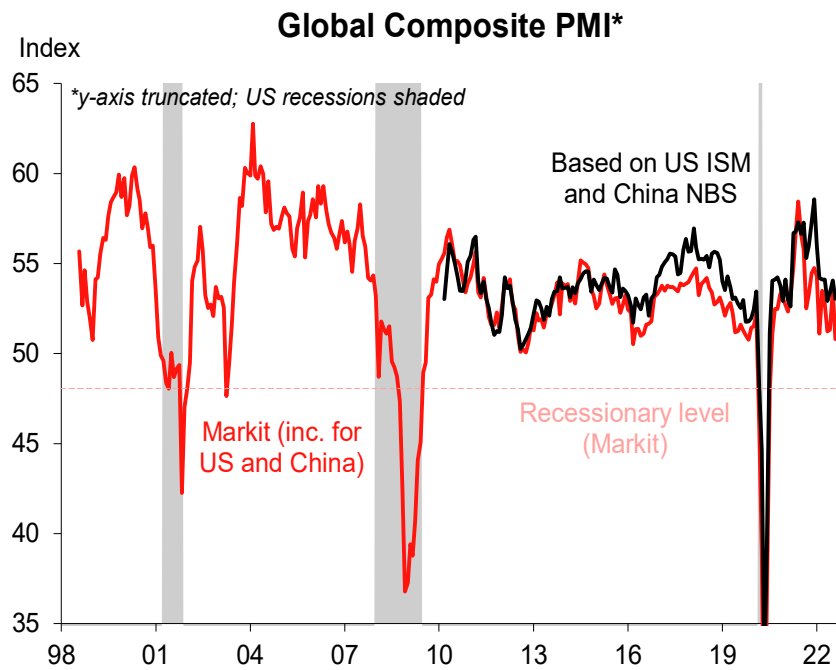
Macquarie Group

181 Bay Street Suite 3200, Toronto, Ontario
September 2022

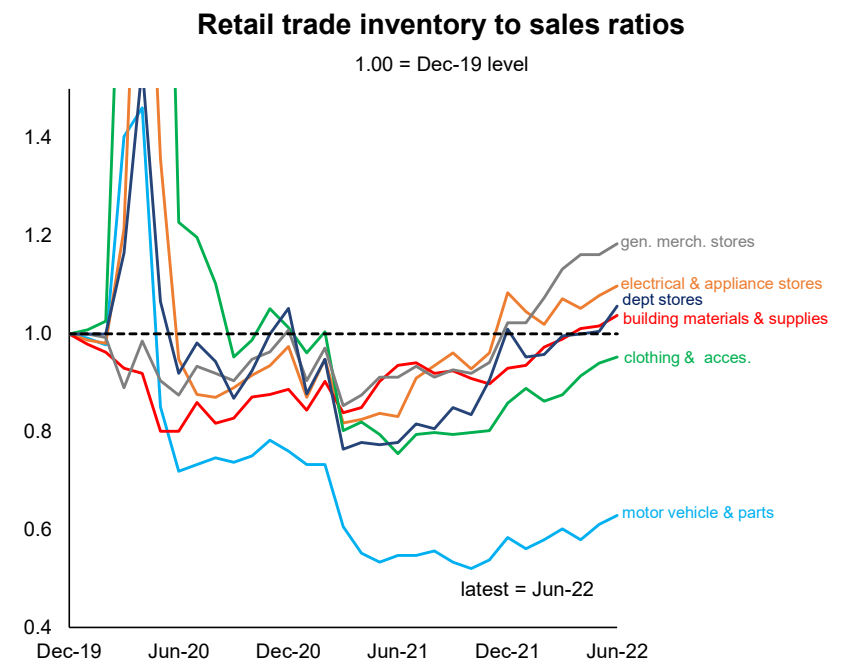
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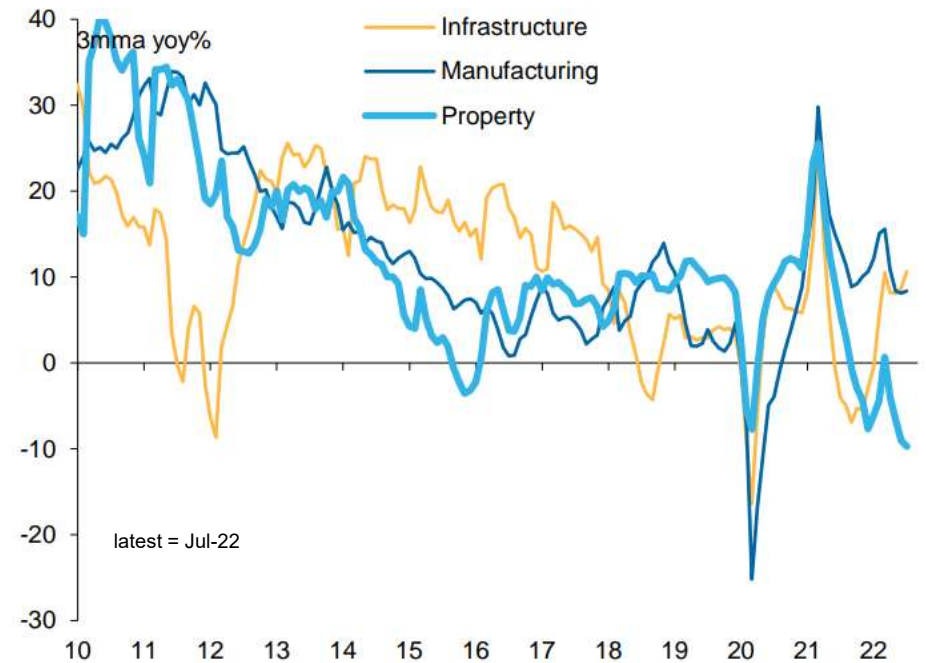
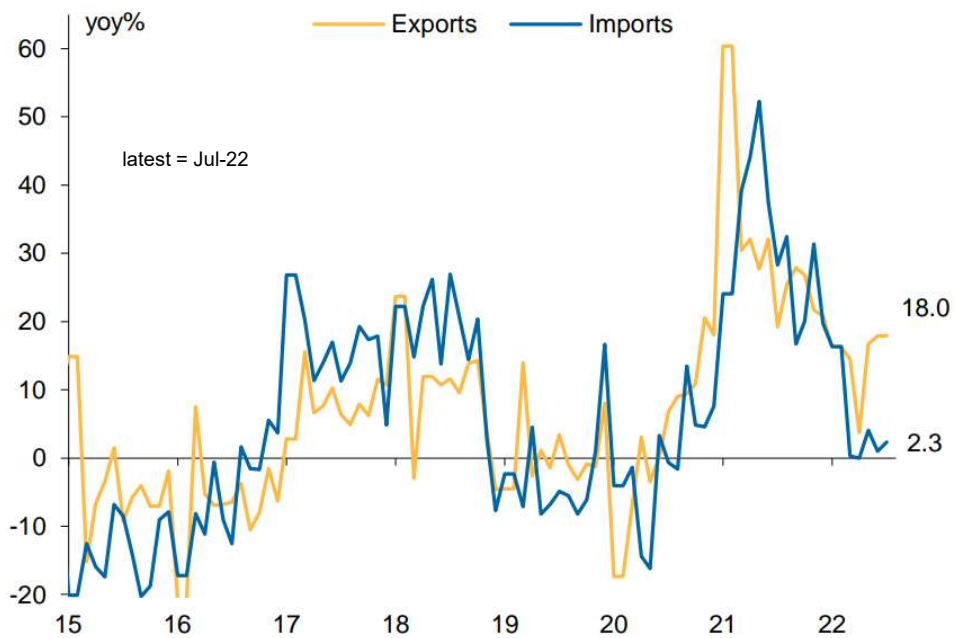
Global growth is slowing, with particular softness apparent recently in the Eurozone and UK



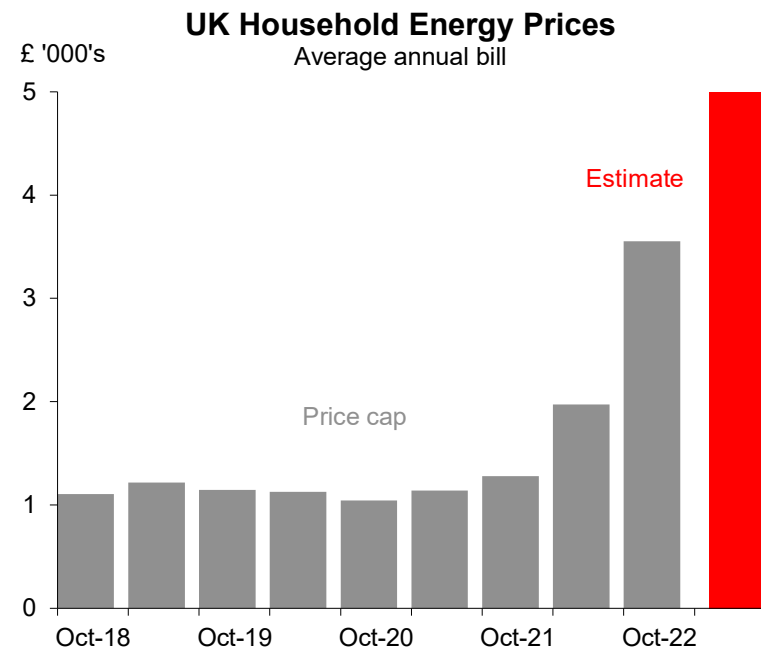
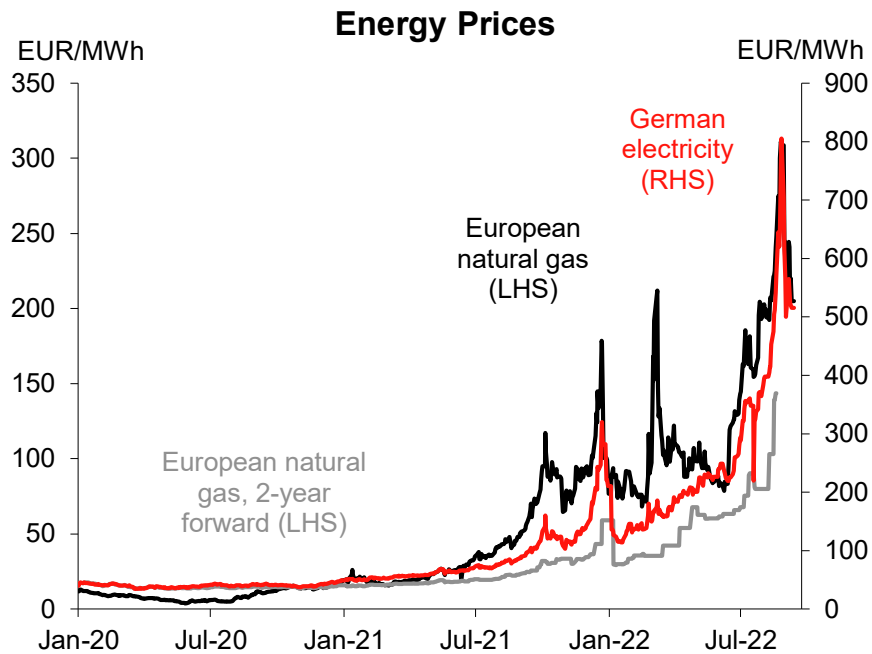
Global IP is stretched and after a significant restocking, US inventories have become elevated ... both foreshadow a recession ahead



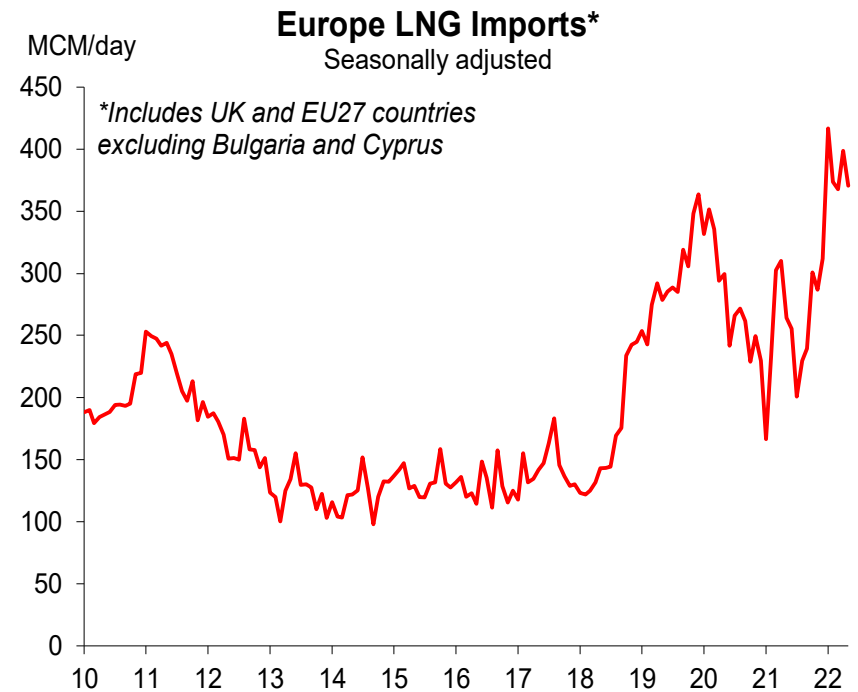
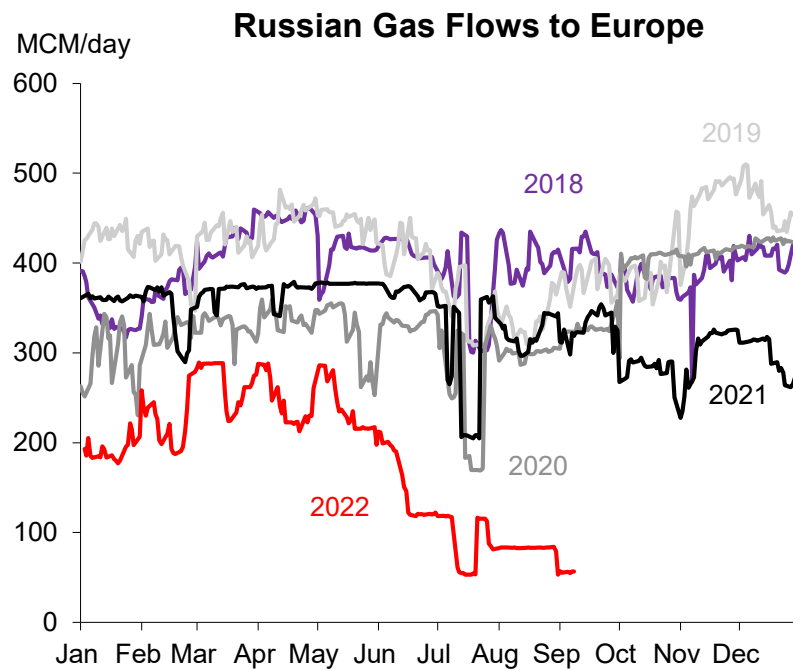
China's economy has been held up by net exports and manufacturing/infrastructure investment, but property has struggled



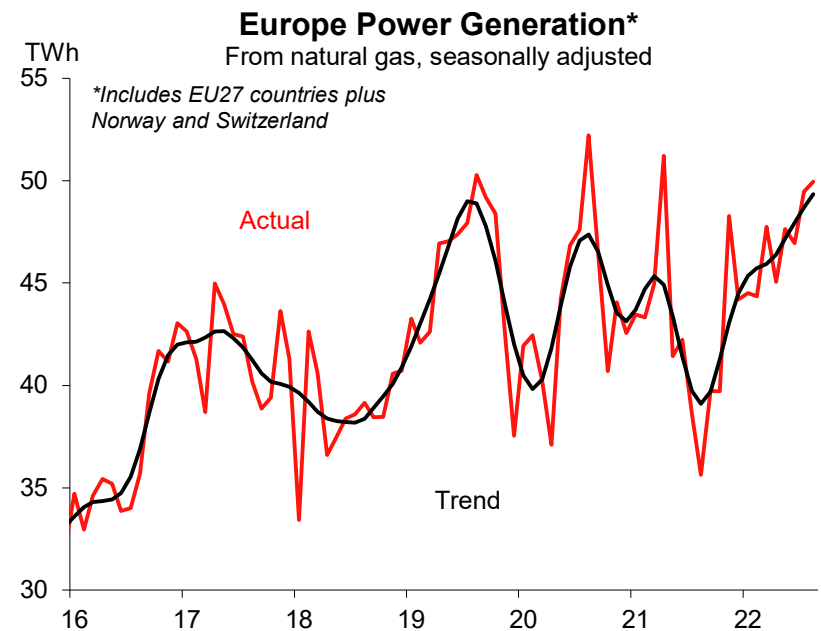
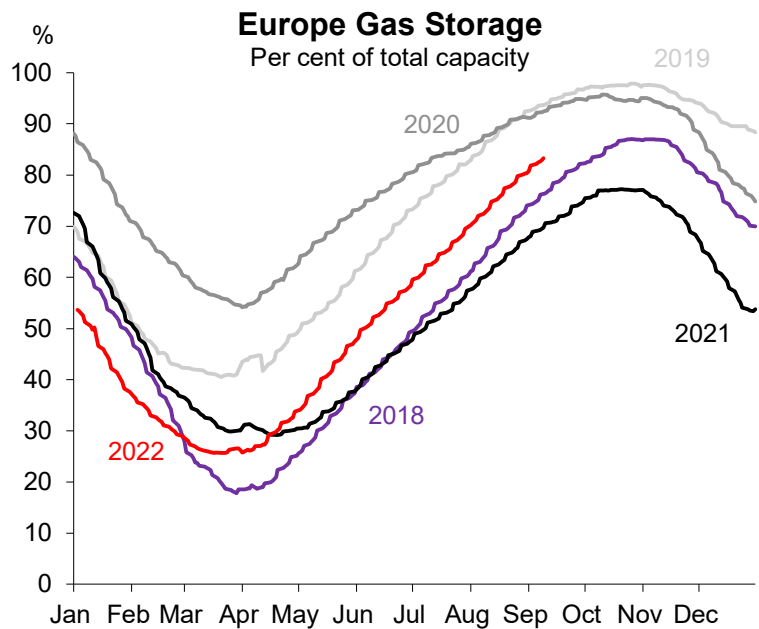
Europe's energy prices have soared...with significant forthcoming consequences for households and businesses



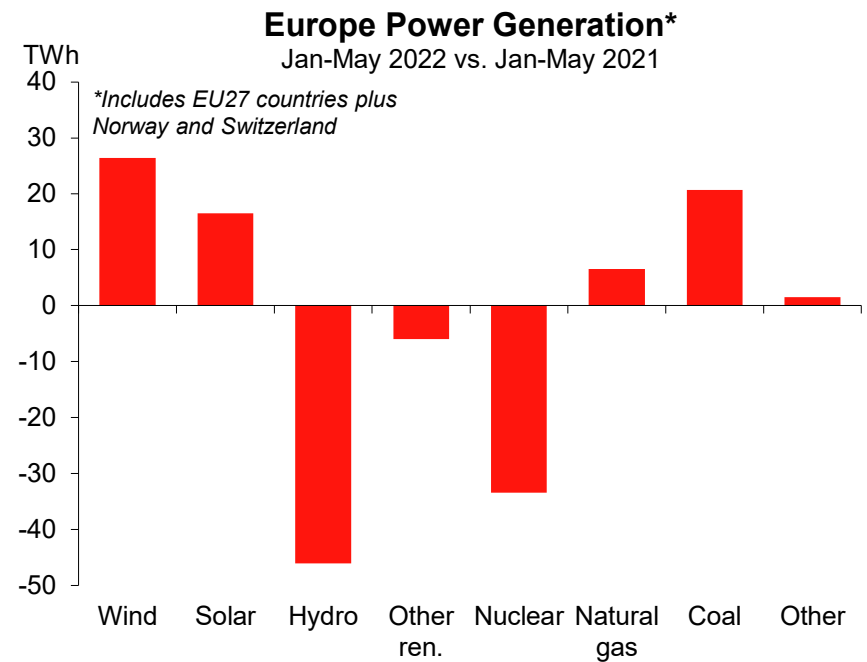
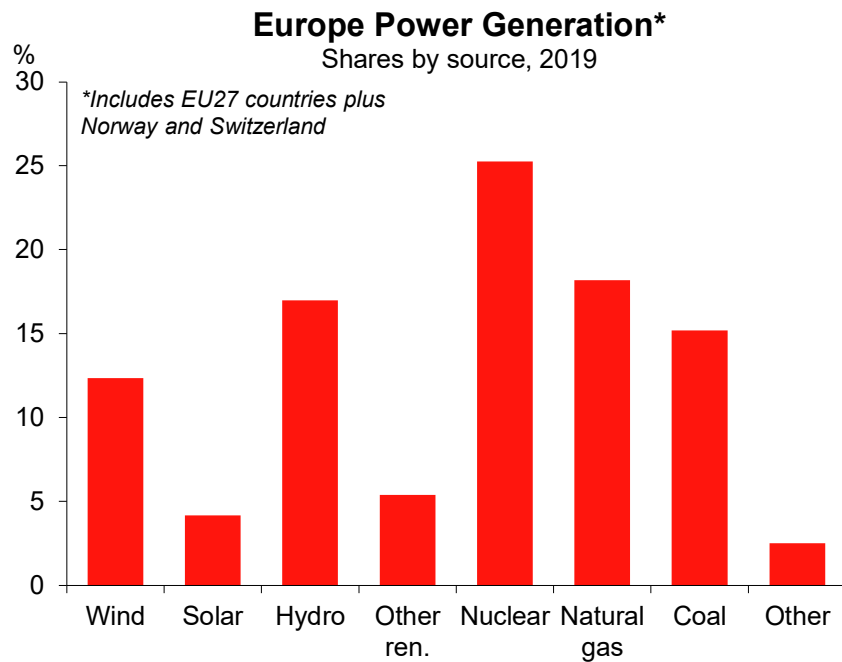
Russian gas flows to Europe have subsided ...but have been partially offset by a surge in LNG imports



The seasonal storage rebuild has continued in line with recent years, despite an increase in natural gas electricity production



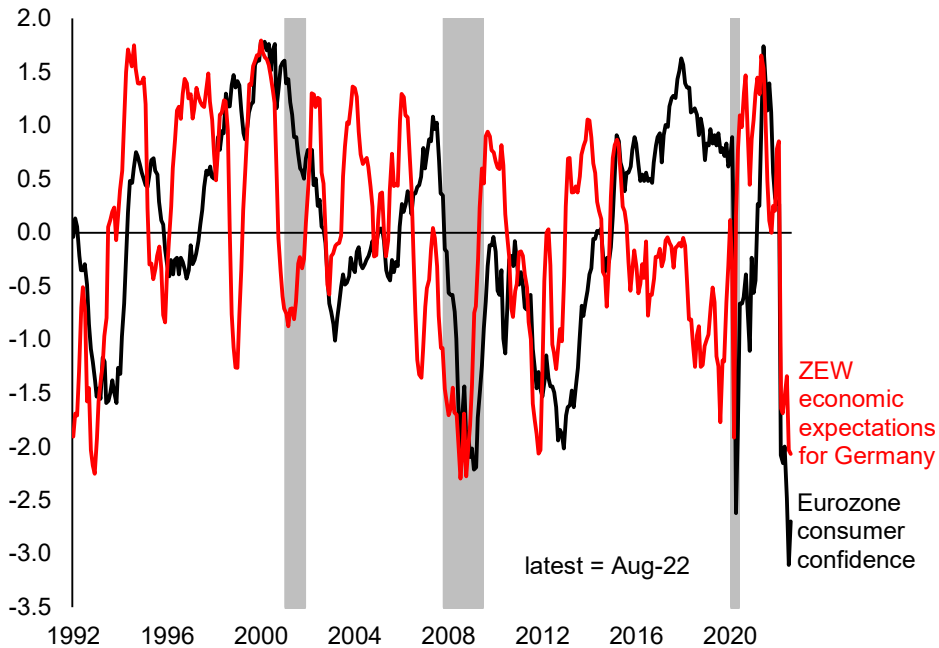
Through May, the headwinds for power generation had come from Hydro (drought) and Nuclear



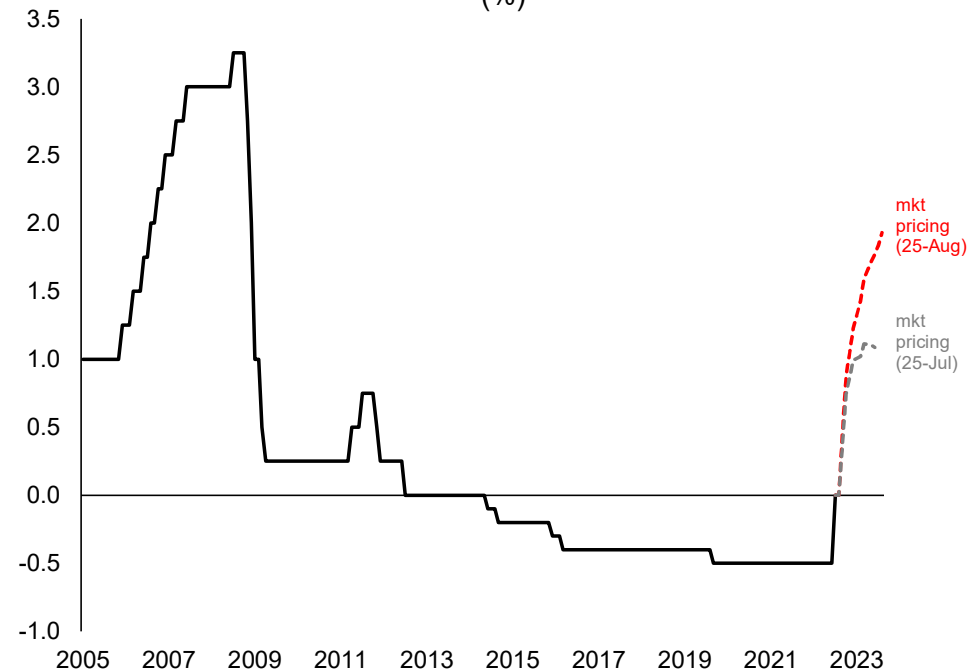
Eurozone confidence measures have fallen sharply Despite this, continued rate hikes are likely from the ECB

Eurozone confidence measures

std. dev. from average

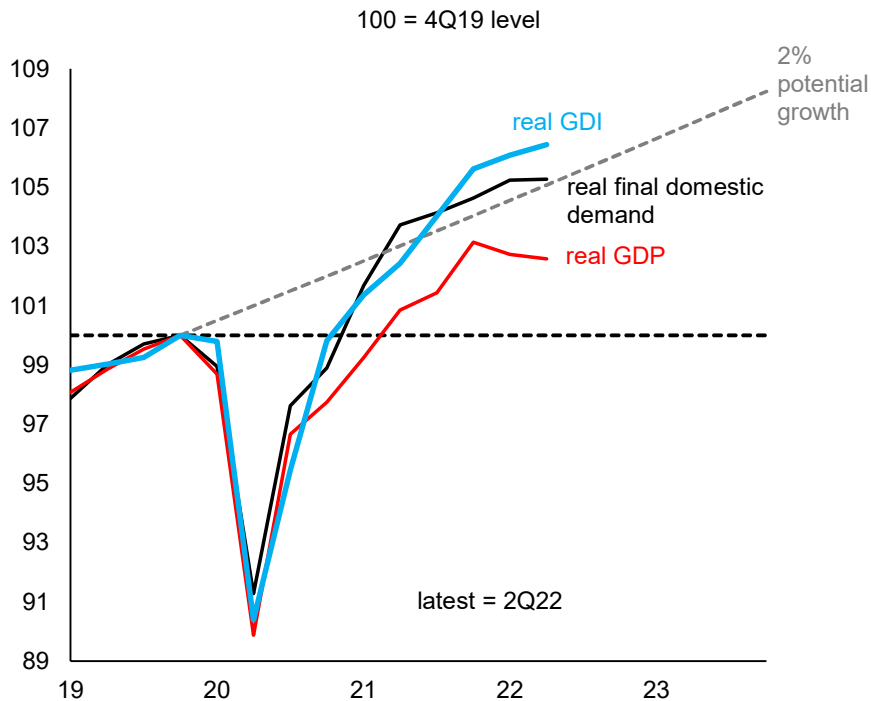


ECB - deposit facility rate (%)

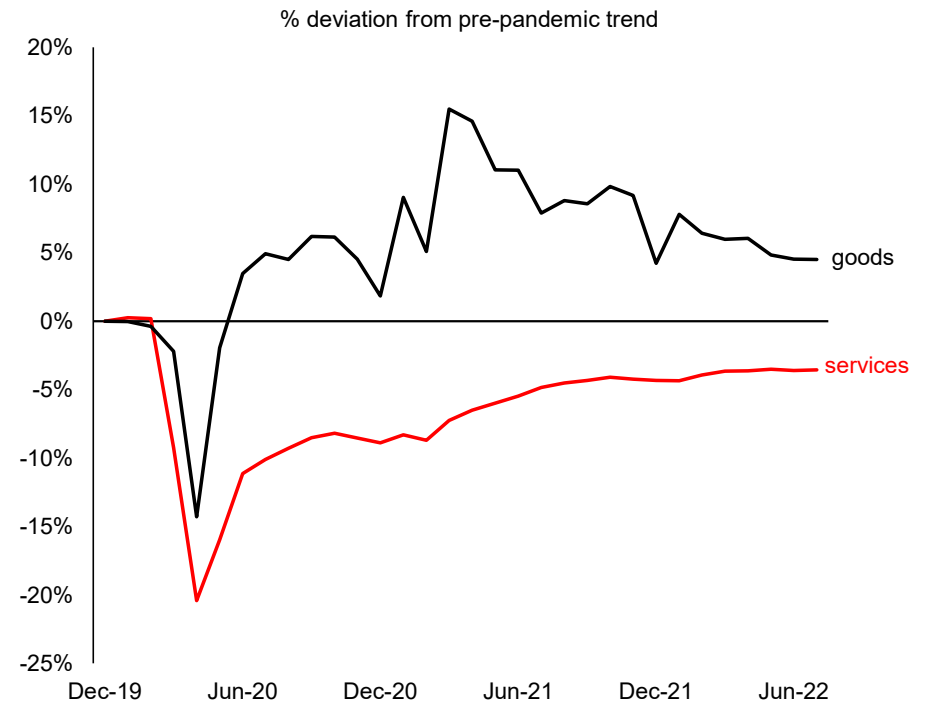


In the US, measures of broad activity have been mixed and decelerating, while consumption has been normalizing

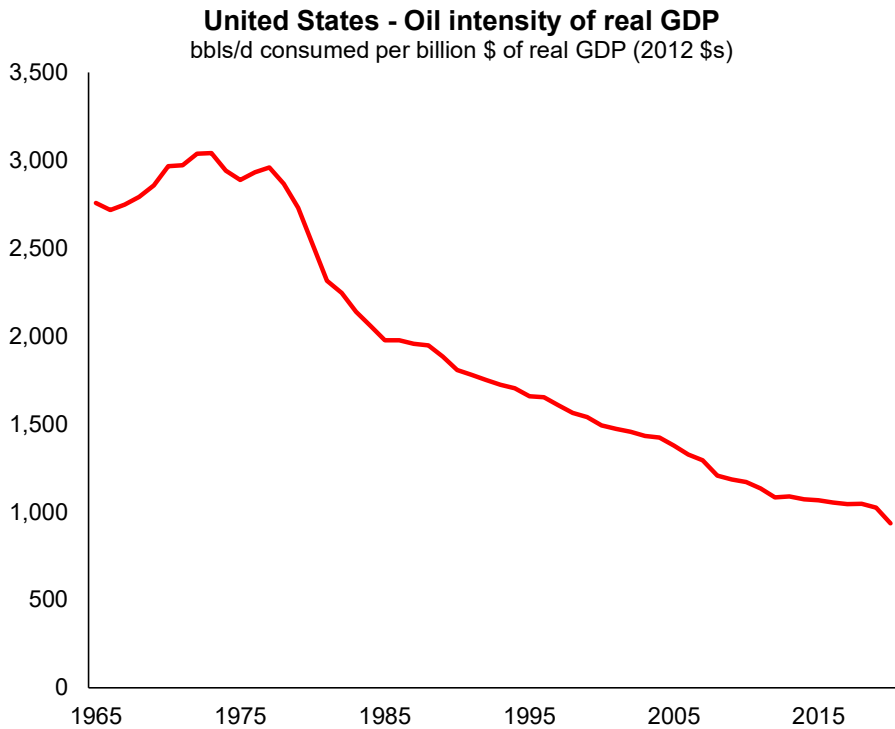
US measures of aggregate economic output



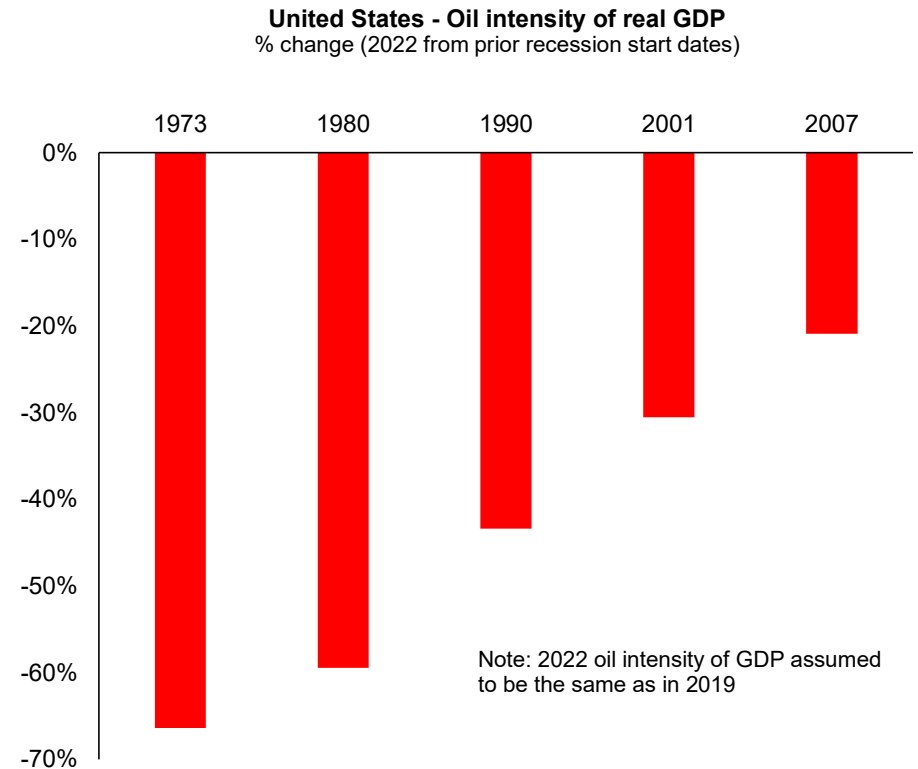
US real personal consumption expenditures



Resilience in the US has, in part, been driven by the decline in the economy's oil intensiveness



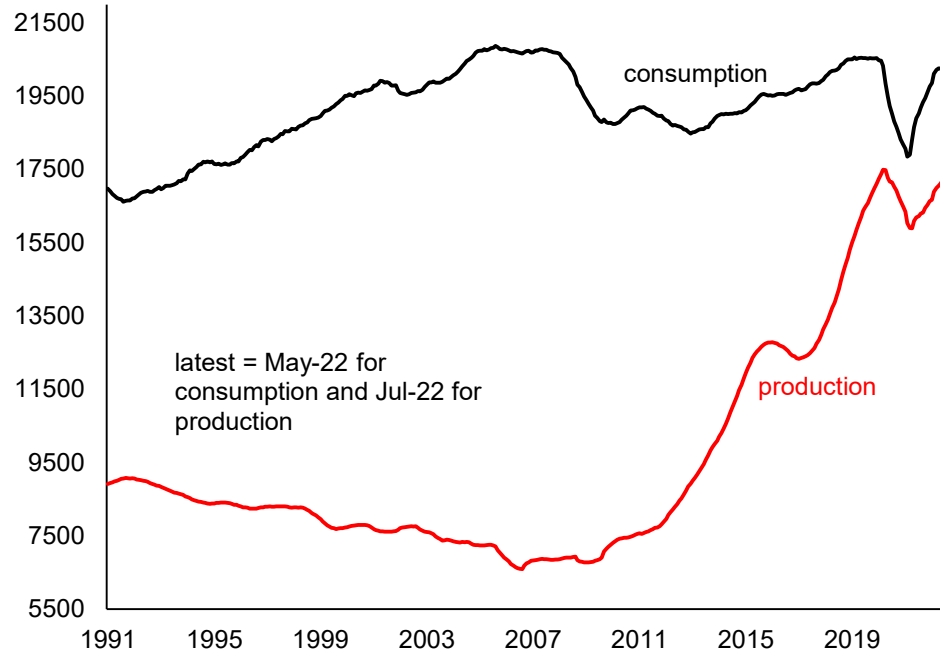
Source: BP Statistical Review, Macrobond, Macquarie Macro Strategy



And also...the increased leverage on the production side to rising oil prices

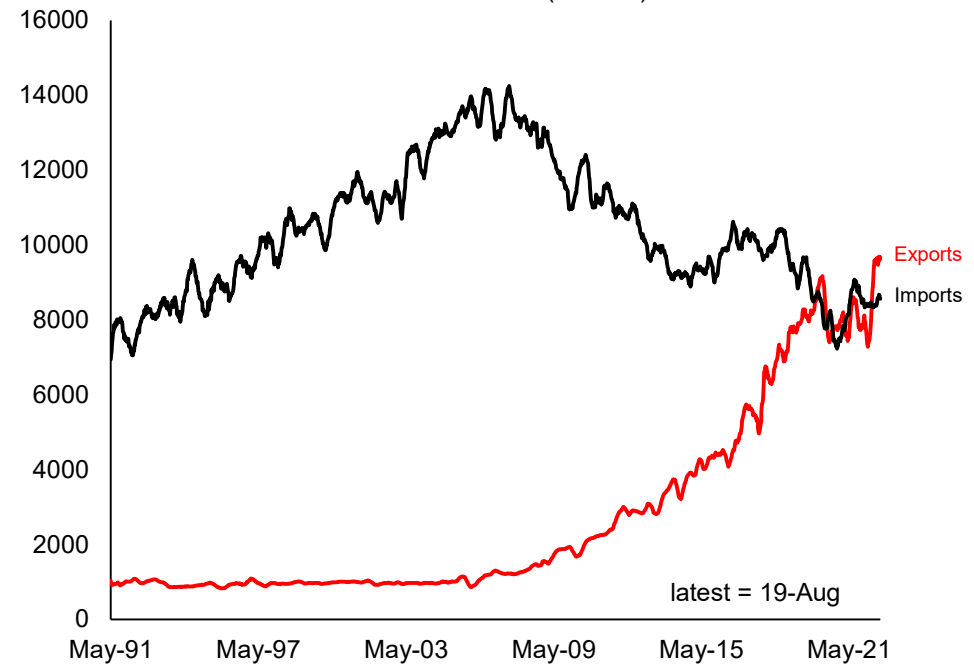
US crude oil and petroleum products

thousands of bbls/d (12mma)



US crude oil and petroleum imports and exports

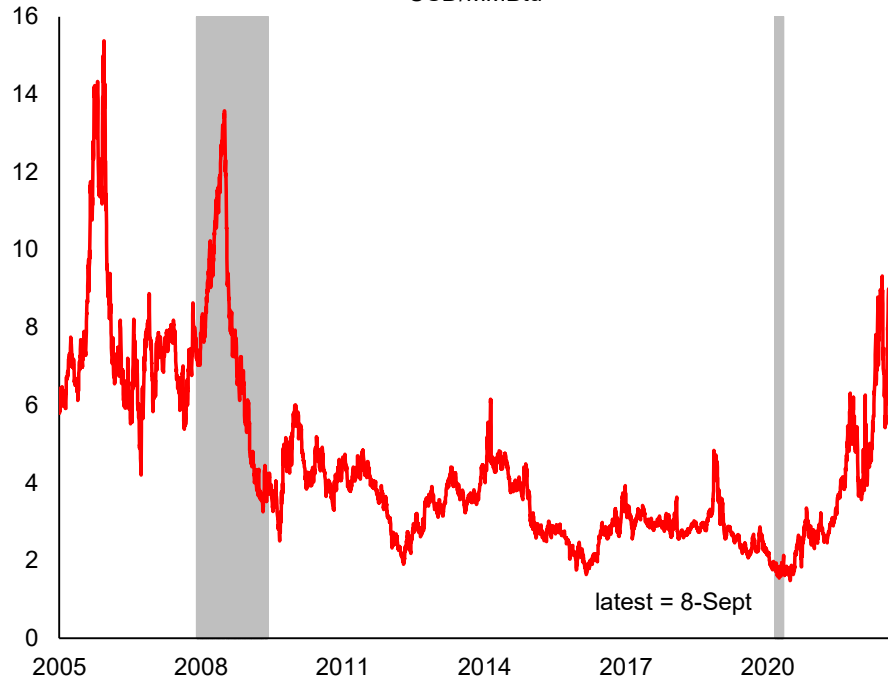
thousands of bbls/d (12mma)



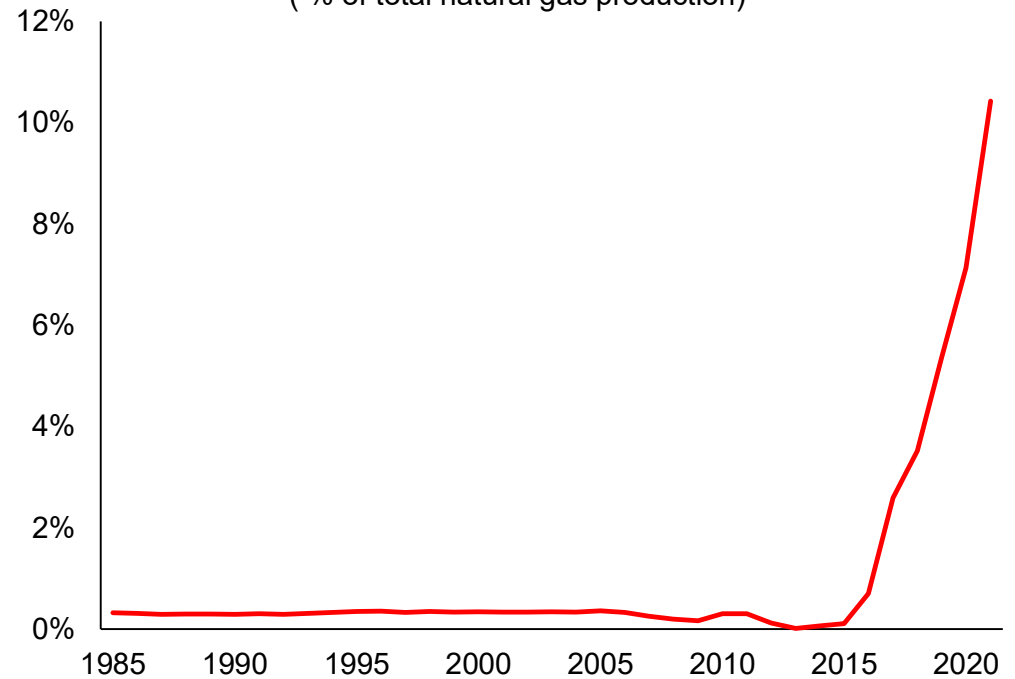
Nat gas prices have risen, influenced by global developments, as LNG exports have soared relative to production

NYMEX Henry Hub natural gas closing spot price

USD/MMBtu

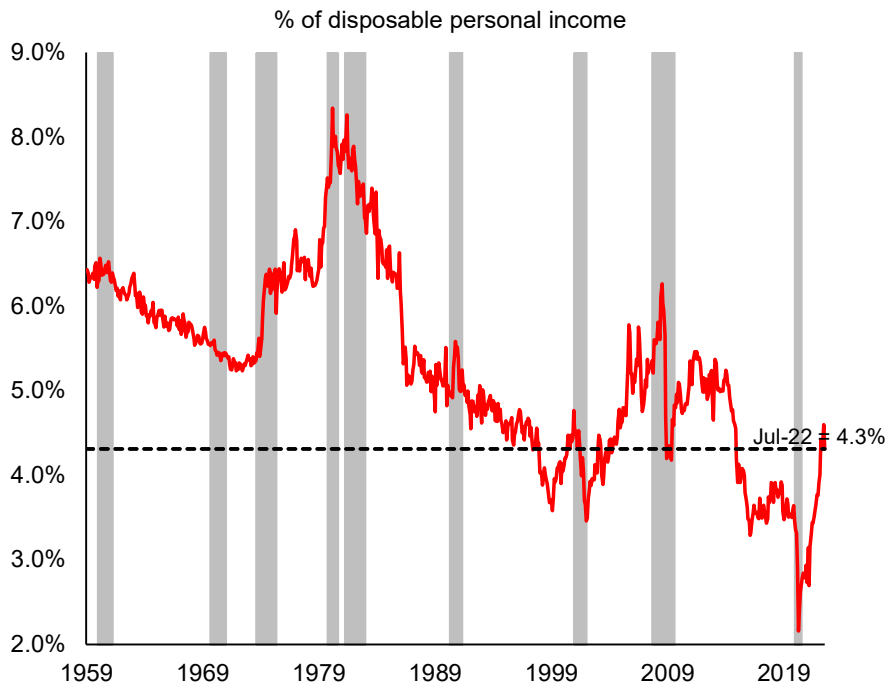


US LNG Exports
(% of total natural gas production)

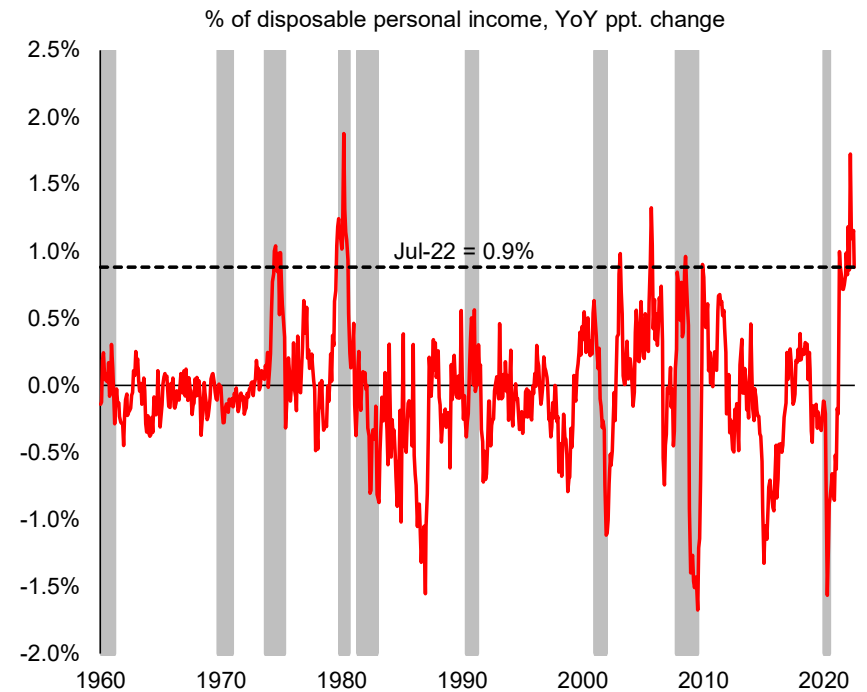


While consumer spending is less energy intensive than in the past, price shocks of this magnitude have often led to recessions

Energy goods and services expenditures

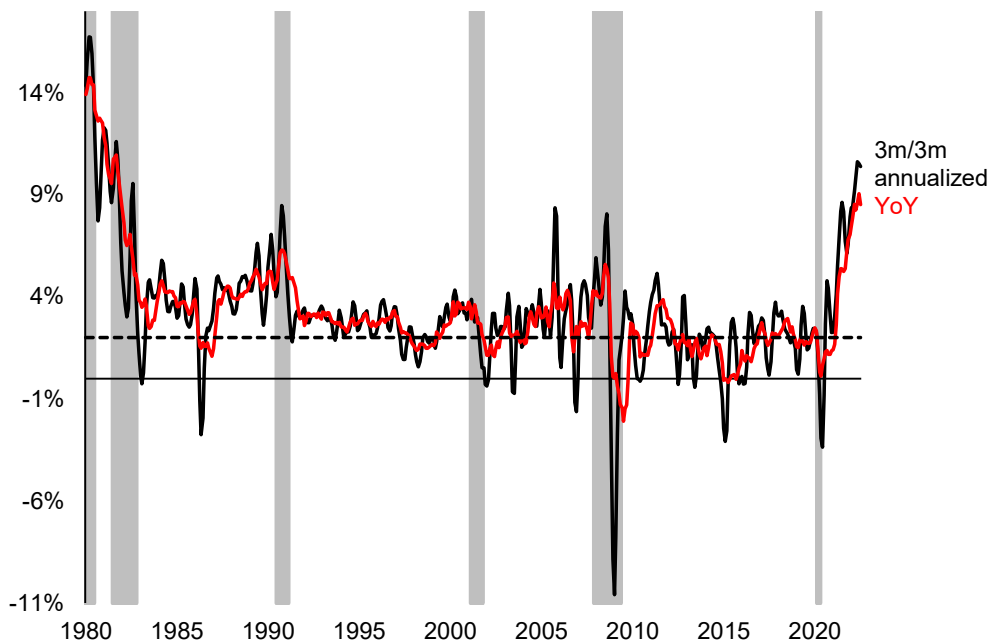


Energy goods and services expenditures

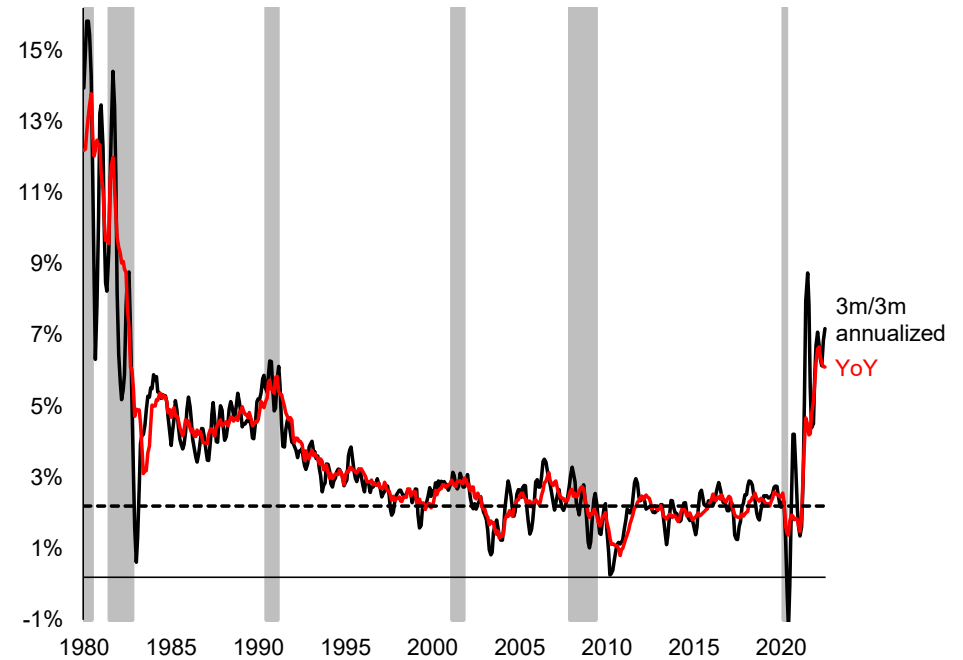


The problem resulting from higher energy prices is inflation

US headline CPI



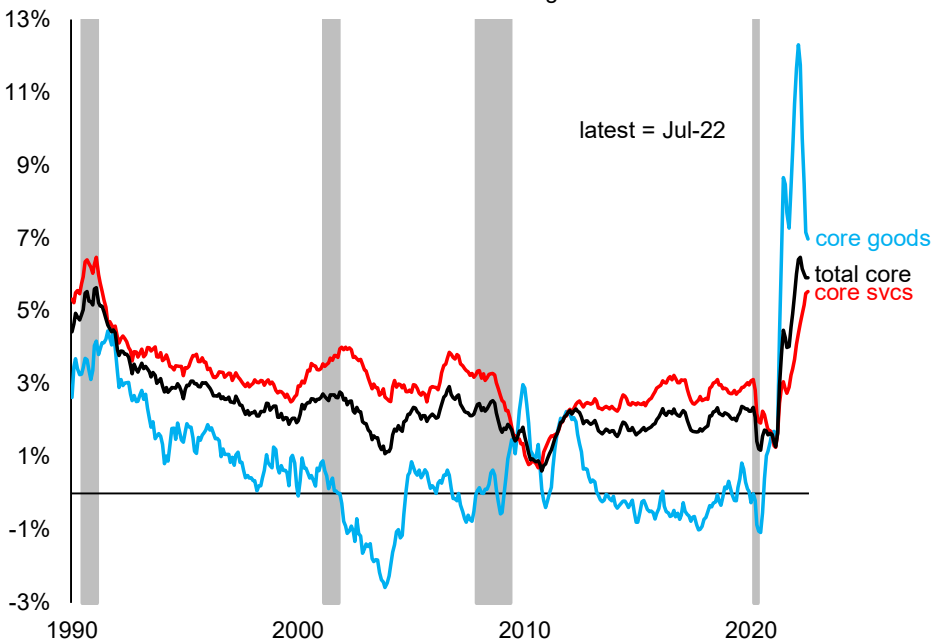
US core CPI



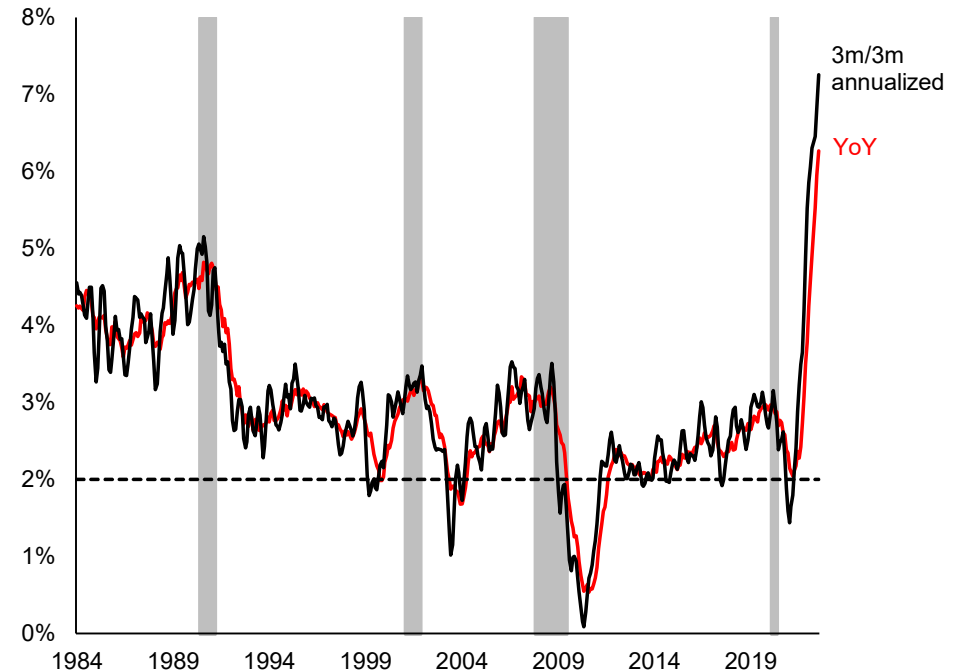
And while there are signs of relief from goods, inflation has unfortunately broadened into services

US CPI by subcategory

YoY % change



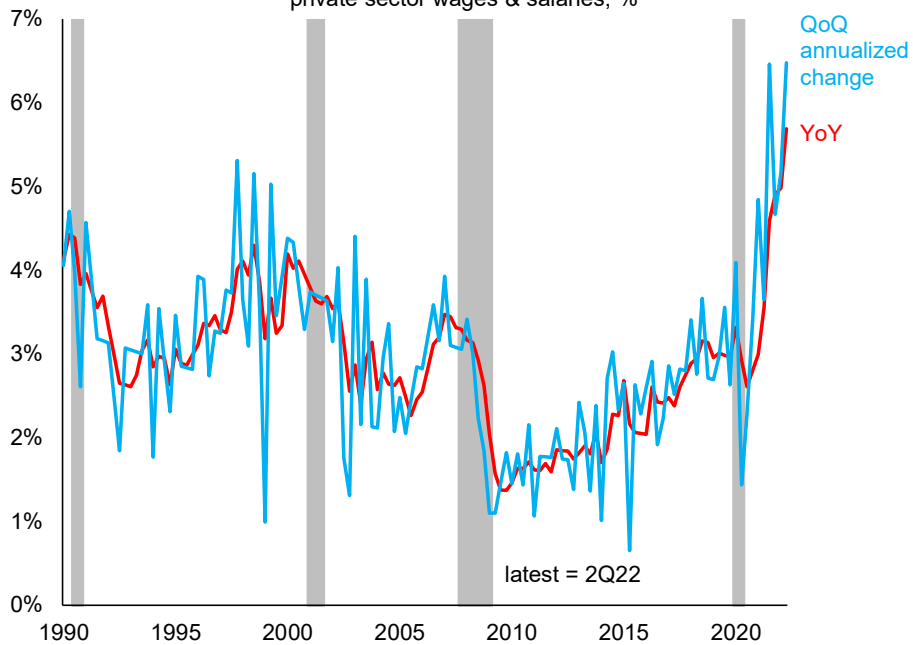
US median CPI



Wage growth measures have also been firm...consistent with problematic inflation

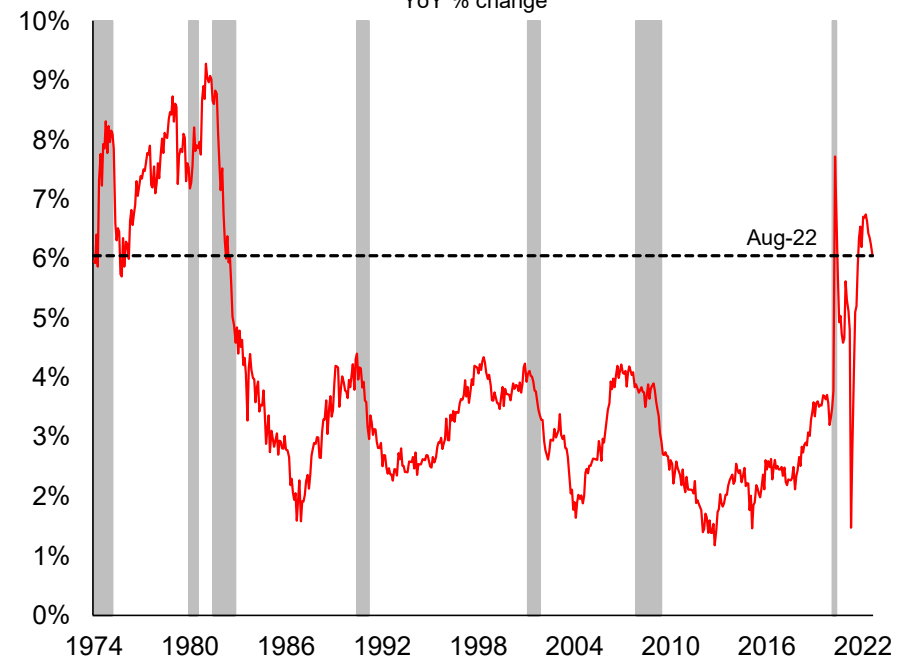
Employment cost index

private sector wages & salaries, %



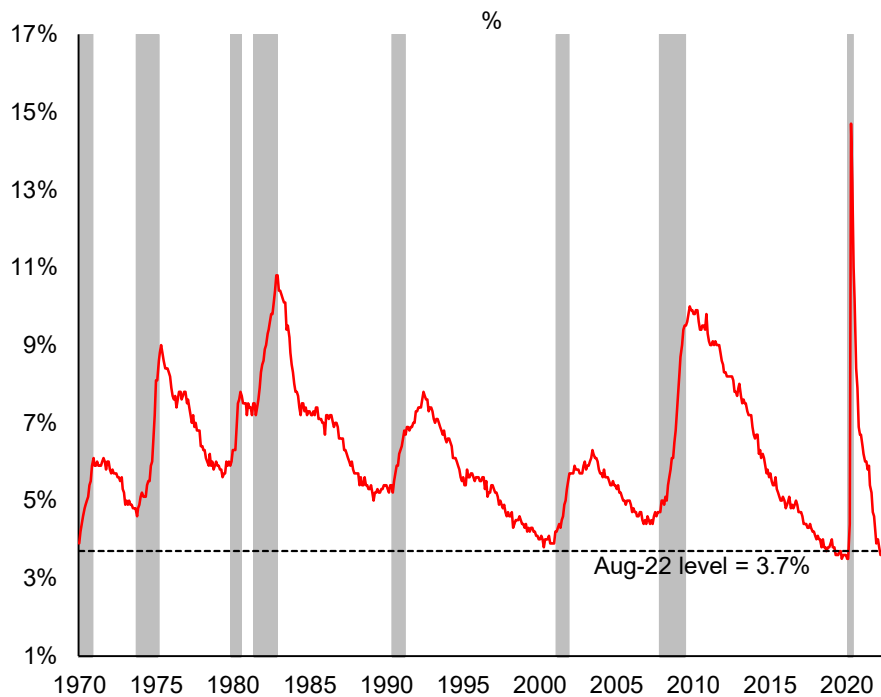
Average hourly earnings - prod. & non-sup.

YoY % change

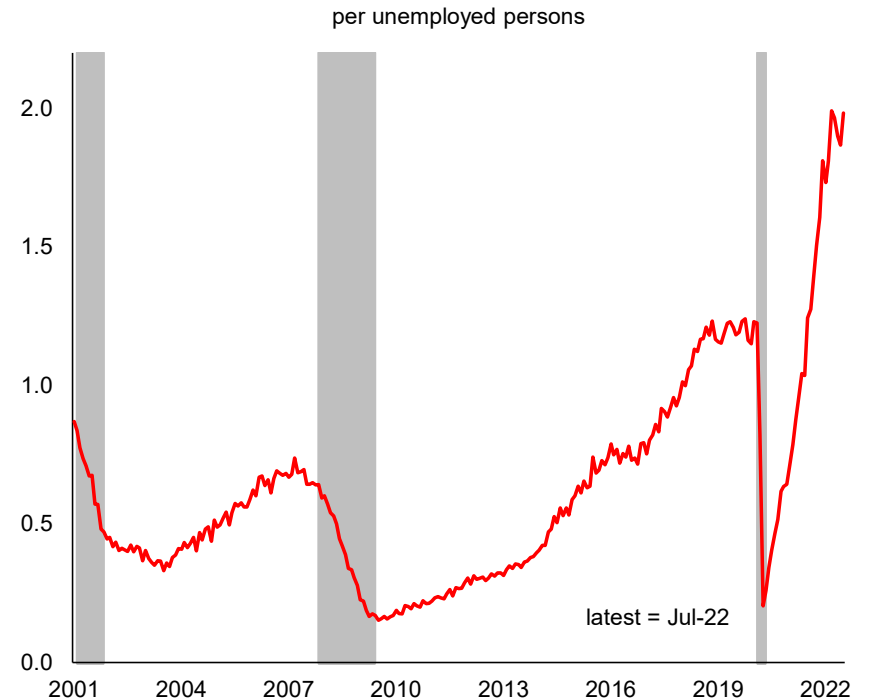


And the message from strong wages is reinforced by the tightness in the labor market

U-3 unemployment rate

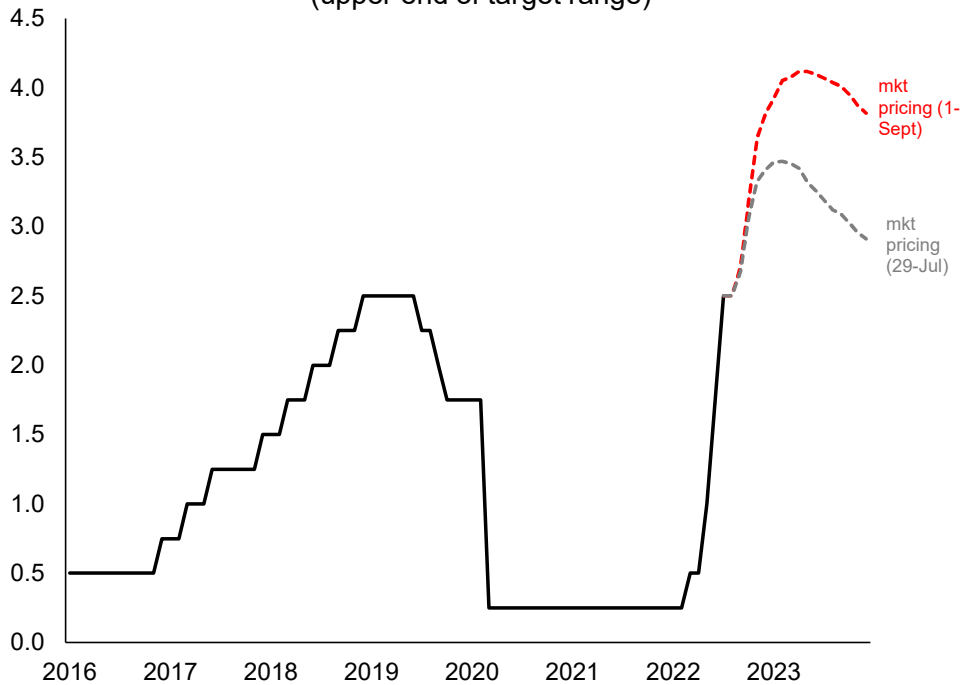


US number of job openings

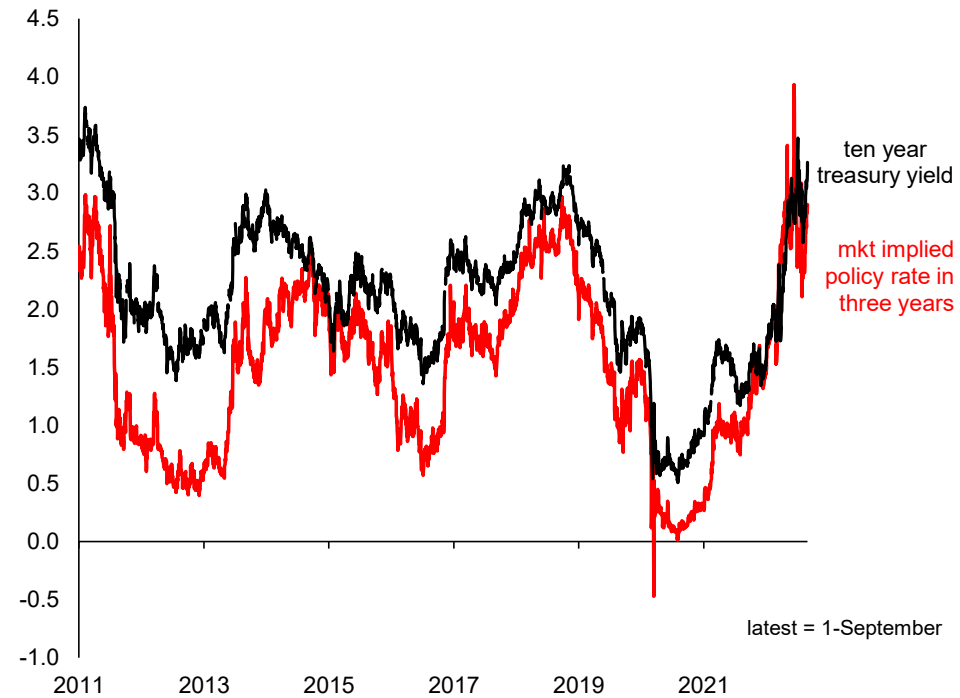


Market pricing indicates that the sharp rate hike cycle could trigger a recession (and Fed cuts) in 2023

Fed funds rate (%)
(upper end of target range)

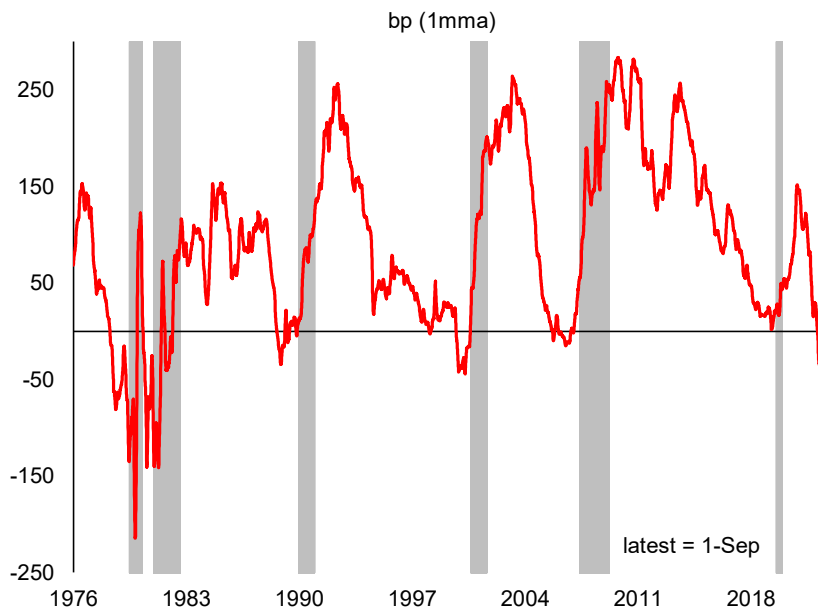


US ten year treasury yield vs. policy rate expectations

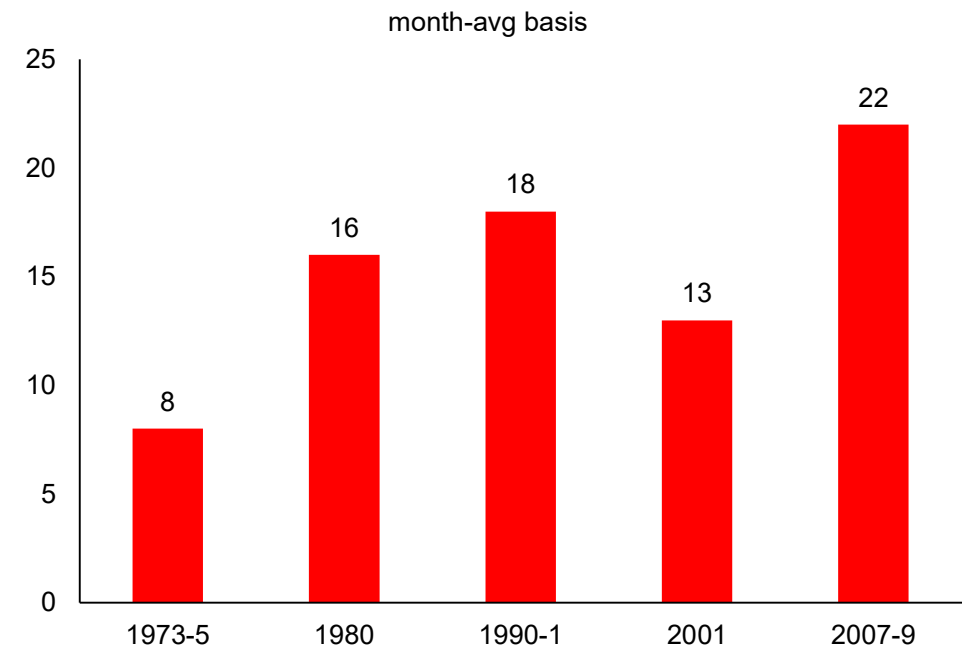


The 10 yr – 2 yr yield curve spread persistently inverted in July – putting the economic expansion on watch

10 yr - 2yr yield curve spread



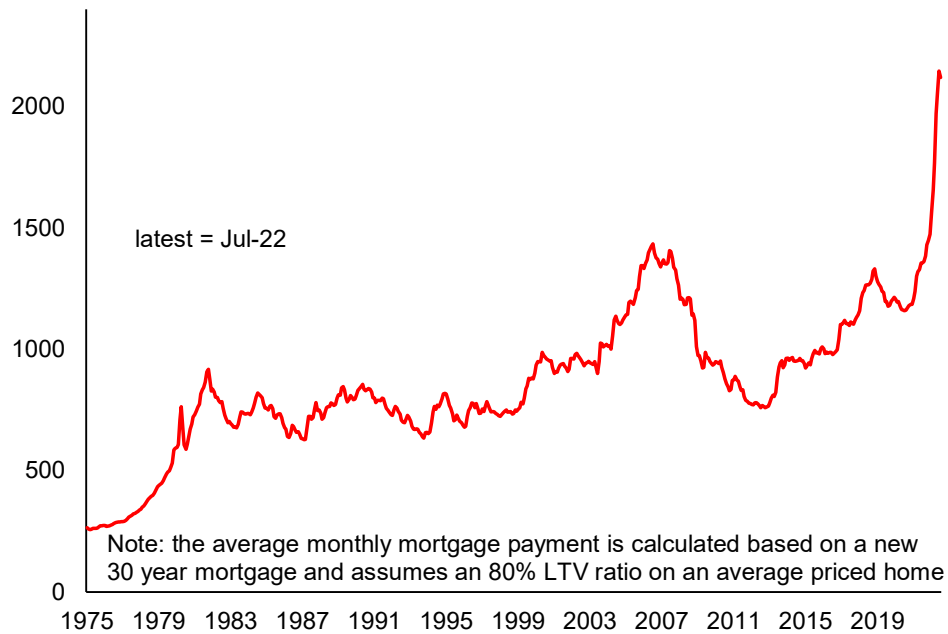
Months from 10-2 yield curve inversion to recession



US housing is rolling over on the heels of an unprecedented affordability shock

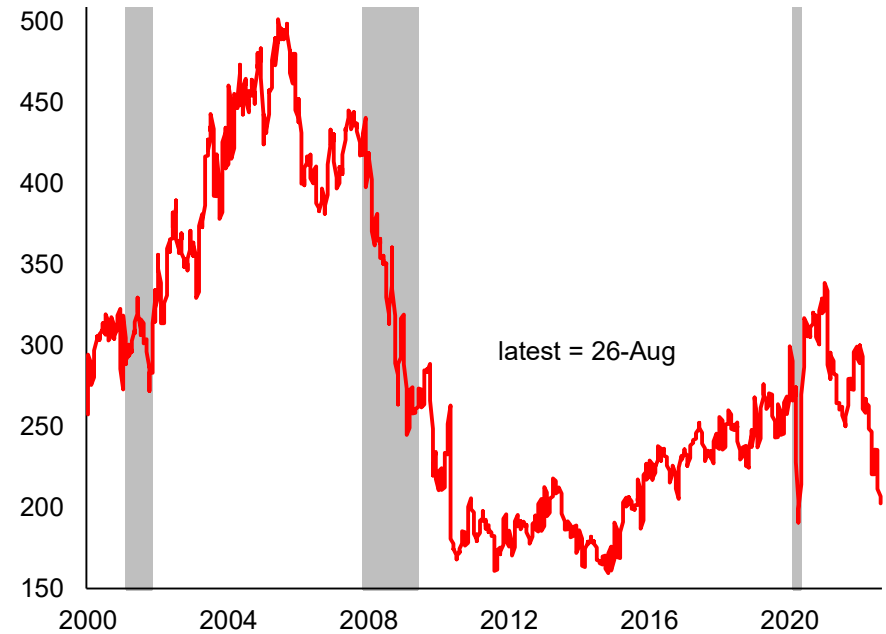
US monthly mortgage payment on average priced home

newly purchased, principal and interest combined (\$)



Mortgage purchase application index

4 wk ma



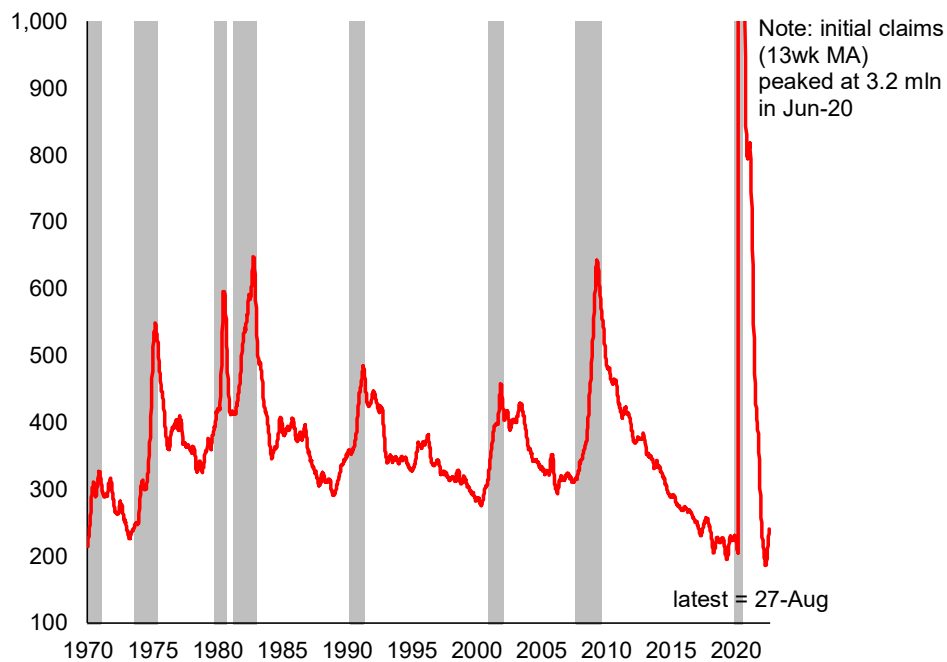
Leading indicators are consistent with recession commencing within the next 12 months

Macquarie US Business Cycle Assessment Framework								
Category	Variable	Recession Signal	Median lead time ahead of recession excl. 2020 (months)	Range of lead-times excl. 2020 (months)	Assessment	Outlook	Has criterion been reached	Signal
I - Yield curve	10 year less 3 month yield (1 mma)	falls below 100 bp	18	9 to 28	Has fallen below the 100 bp threshold on a 1 mma basis with the current level ~10 bps	This threshold was breached in July and is likely to continue to fall lower in the coming months	yes	red
	10 year less 2 year yield (1 mma)	falls below zero	16	8 to 22	Has fallen below zero with the current level at ~35 bps (1mma basis)	This threshold was breached in July and is likely to continue to fall lower in the coming months	yes	red
II - Consumer sentiment	Conference Board's consumer confidence index	peaks	14	5 to 21	current level is 103.2 (Aug-22)	This appears likely to have peaked in Jun-21 and has trended lower since	likely	red
	Conference Board's consumer confidence index MINUS UMich's consumer sentiment index	peaks	13	1 to 19	current level is 45 (Aug-22)	This appears likely to have peaked in Jun-22	likely	red
	Conference Board's consumer confidence index MINUS UMich's consumer sentiment index	exceeds 25	25	11 to 45	current level is 45 (Aug-22)	The spread breached 25 in March 2021, 17 months ago	yes	red
III - Cyclical momentum	Truck and bus equipment share of non-residential investment excluding mining and oil & gas	peaks	24	9 to 84	peaked in 1Q21 and currently stands at 4.7%	Has declined in four of the past five quarters (rising in 2Q22), but weakness could be due to supply chain issues and the uniqueness of COVID	potentially	yellow
	Total cyclical business investment share of non-residential investment excluding mining and oil & gas	peaks	20	6 to 87	peaked in 4Q20 and currently stands at 8.1%	Has declined in four of the past five quarters (rising in 2Q22), but weakness could be due to supply chain issues and the uniqueness of COVID	potentially	yellow
	Duracoin leading indicator	peaks	9	3 to 45	peaked in 2Q21	Continued to edge down in 2Q22 and remains below cycle peak. Faces headwinds ahead from durable goods consumption	yes	red
IV - Housing	Single-family nominal residential investment (% of nominal GDP)	peaks	21	9 to 36	current (2022) = peak at 1.9%	Reached a new cycle high in 2Q22, but this is likely to mark the peak in the cycle	likely	red
	Single family housing starts (3mma)	peaks	23	13 to 26	Reached a cycle high in Dec-20 and currently stands ~18% below the peak	Single family housing fallen for three consecutive months and are ~18% below the cycle high (3 mma basis)	yes	red
V - Labor market	Unemployment rate (3 mma)	troughs	9	1 to 15	current 3mma is 3.60% (Aug-22)	This measure rose slightly higher in August, suggesting that a potential trough was reached in July.	potentially	yellow
	Temp help services employment	peaks	15	11 to 19	current level is 3.2 mln (Aug-22)	Has trended higher over the past year and reached a new all-time high in the most recent month of data available	no	green
	Residential structures employment share	peaks	20	14 to 27	current level is 0.592% (Aug-22)	The current share has fallen from the cycle high reached in May. Softness in housing suggests further headwinds lie ahead	likely	yellow
	Initial unemployment insurance claims (13 wk ma)	troughs	12	6 to 20	current level is 240K (August 27, 2022)	This measure has risen higher over the past 17 weeks. It is likely that the cycle trough occurred in late April.	yes	red

Even the labor market is showing leading signs of deteriorating

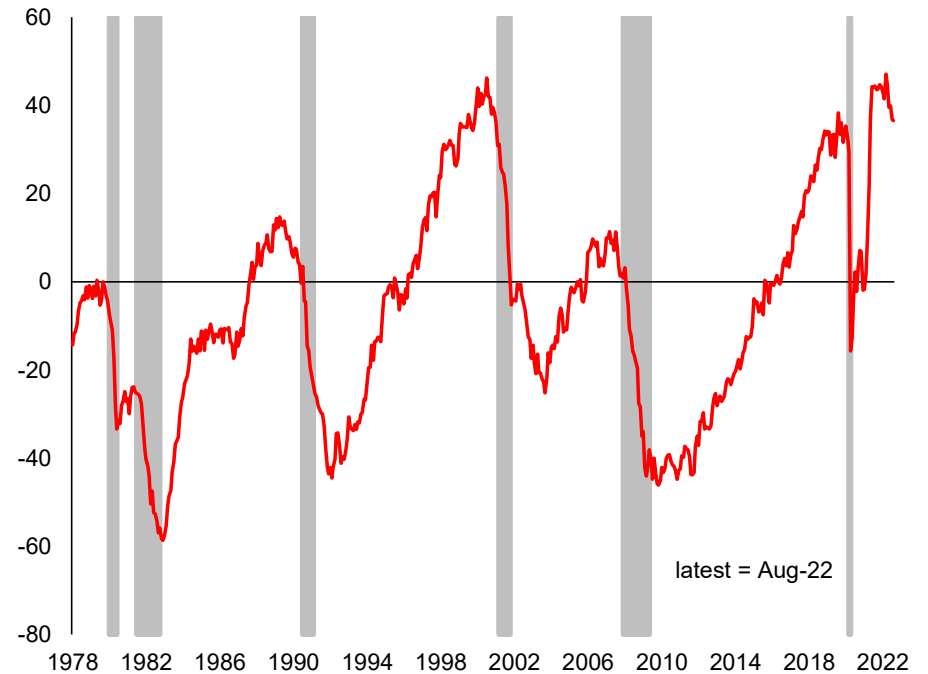
Initial unemployment insurance claims

000s, 13 wk MA



Conference Board's labor market differential

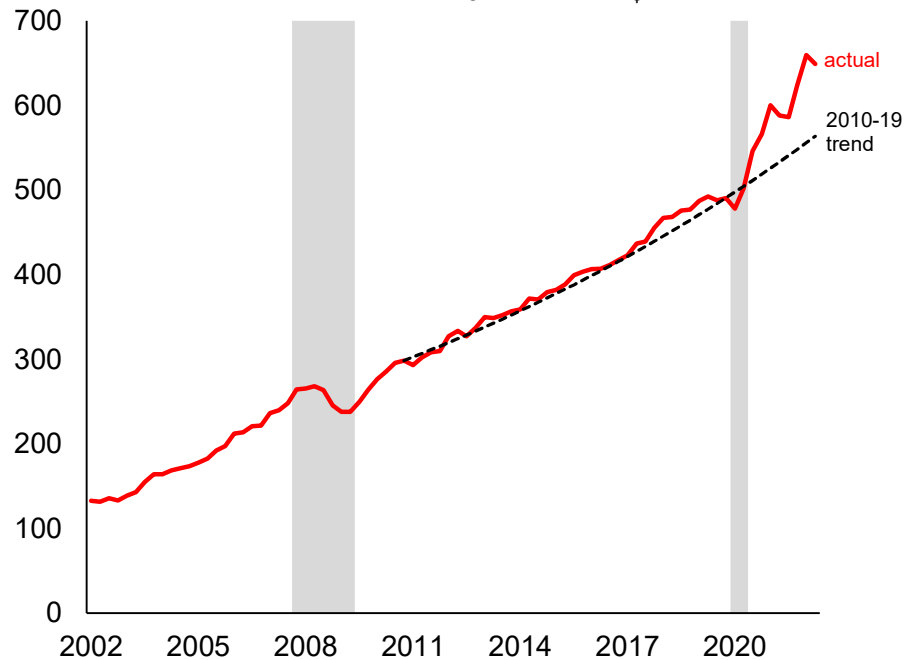
"jobs plentiful" LESS "jobs hard to get"



One area of potential contraction is in information processing equipment
semiconductor inventories are now surging

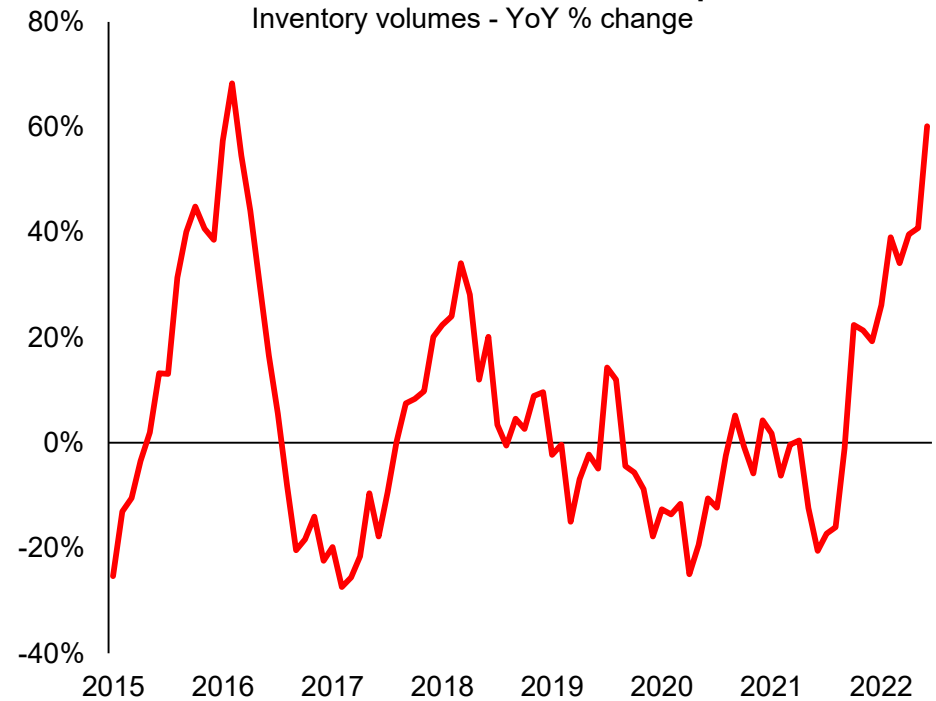
US - Information processing equipment investment

billions of 2012 chained \$



South Korea - Semiconductors and parts

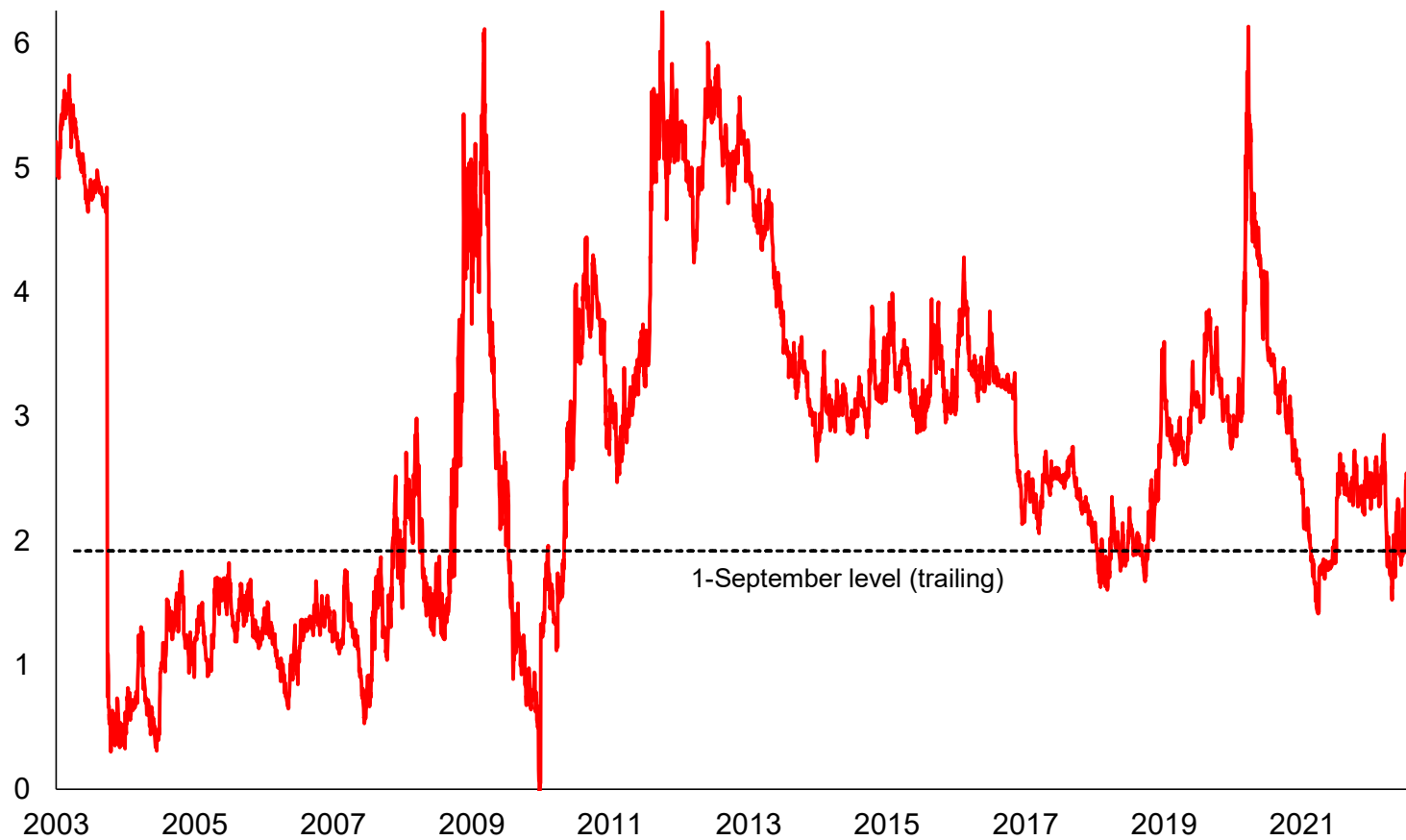
Inventory volumes - YoY % change



Equities are not yet discounting a recession

US equity risk premium

S&P 500 trailing earnings yield LESS US 10 year treasury yield



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