Capital Markets Strategy
Essential inCights for the C-Suite

MUFG

Stochastic Markets

10 Themes for Navigating Today's Complex Political Economy

NOV 2022

Glass Half Full or Empty?

We believe that the global economy and markets still have a difficult period ahead ("glass half empty") into the 1H of 2023 prior to an expected recovery in the latter part of the year.

Glass Half Full View

- Inflation "past peak", steady improvement in 2023
- "Step down" in pace of Fed tightening
- US rates and US dollar past peak
- "Soft landing" for US economy more likely
- Strong consumer and corporate balance sheets
- European nat gas and energy prices moderating
- More rapid moderation in China's zero COVID policy

Glass Half Empty View

- Inflation "sticky", uneven improvement in 2023
- "Fastest" Fed tightening in 40 years
- "Higher for longer" US rates narrative
- US and global "recession" in 2023 more likely
- Consumer and corporate spending likely to decelerate
- Energy prices remain elevated on multi-year basis
- Slower moderation in China's zero COVID policy (& tepid consumer)

Global Corporate & Investment Banking Capital Markets Strategy Team

Tom Joyce

Managing Director
Capital Markets Strategist
New York, NY

Tom.Joyce@mufgsecurities.com
(212) 405-7472

Hailey Orr

Director
Capital Markets Strategist
New York, NY

Hailey.Orr@mufgsecurities.com
(212) 405-7429

Stephanie Kendal

Associate
Capital Markets Strategist
New York, NY

Stephanie.Kendal@mufgsecurities.com
(212) 405-7443

"Macro stability isn't everything, but without it, you have nothing."

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“If I say something that you understand fully, then I probably made a mistake”

Alan Greenspan, 13th Federal Reserve Chairman (1987 - 2006)


Introduction:
Stochastic Markets

Stochastic Markets

Taking their cue from government bond markets, nearly every major risk asset globally, except the US dollar and selected commodities, has traded lower in 2022. Cross-asset correlation and volatility remain extraordinarily high by historic standards.

2022 YTD market performance

Credit	
Loans	(-1.4%)
Japan Sovereign	(-3.6%)
Munis	(-11.4%)
High Yield	(-11.9%)
CMBS	(-12.5%)
Mortgages	(-12.7%)
US Government	(-13.1%)
Preferred	(-15.7%)
Euro Sovereign	(-16.4%)
High Grade	(-17.5%)
EM Sovereign	(-21.8%)
UK Sovereign	(-22.4%)

Equities	
Nifty 50 (India)	+5.7%
FTSE 100	(-0.9%)
Nikkei	(-1.8%)
Dow	(-7.1%)
Euro Stoxx 50	(-10.0%)
DAX (Germany)	(-10.5%)
Shanghai Composite	(-15.2%)
Russell 2000	(-16.1%)
S&P 500	(-16.2%)
Hang Seng	(-26.0%)
NASDAQ	(-27.6%)

Currencies	
USD index	+11.1%
Swiss Franc	(-3.1%)
Canadian Dollar	(-4.8%)
EMFX	(-6.2%)
Australian Dollar	(-7.7%)
Danish Krone	(-9.0%)
Euro	(-9.0%)
New Zealand Dollar	(-10.6%)
Norwegian Krone	(-11.2%)
British Pound	(-12.6%)
Swedish Krona	(-12.7%)
Japanese Yen	(-17.1%)

Commodities	
Euro nat gas (TTF)	+78.6%
Coal	+57.6%
US nat gas	+39.1%
Palladium	+23.4%
WTI	+18.3%
Agriculture Index	+12.3%
Gold	+6.6%
Brent	+5.5%
Platinum	(-3.2%)
Aluminum	(-12.3%)
Copper	(-12.7%)
Steel	(-53.9%)

Source: Bloomberg. Data as of November 11, 2022. Credit is total returns. Agriculture is Bloomberg index. All FX performance is vs. USD.

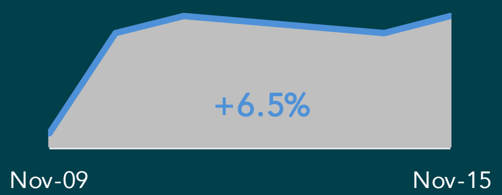
Is the Year-End "Goldilocks" Rally Sustainable?

Following the softer "past peak" consumer (CPI) and producer (PPI) October inflation prints released on November 10 and 15, risk assets moved quickly to price in a "Goldilocks-like" narrative of resilient low growth and an easing of inflation pressures. In our view, however, a difficult period still lies ahead in the 1H of 2023 across geopolitics, global recession risk and "sticky inflation."

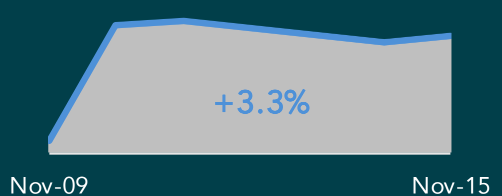
Market performance from Nov 9 (pre-CPI) through Nov 15 (post-PPI)

Equities

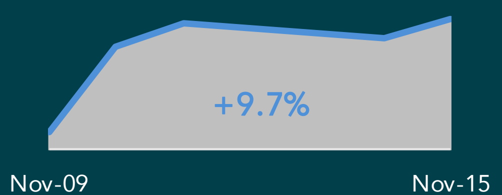
S&P 500



Dow



NASDAQ



US Rates

2 year UST

5 year UST

10 year UST

Currencies

USD index

Euro vs. USD

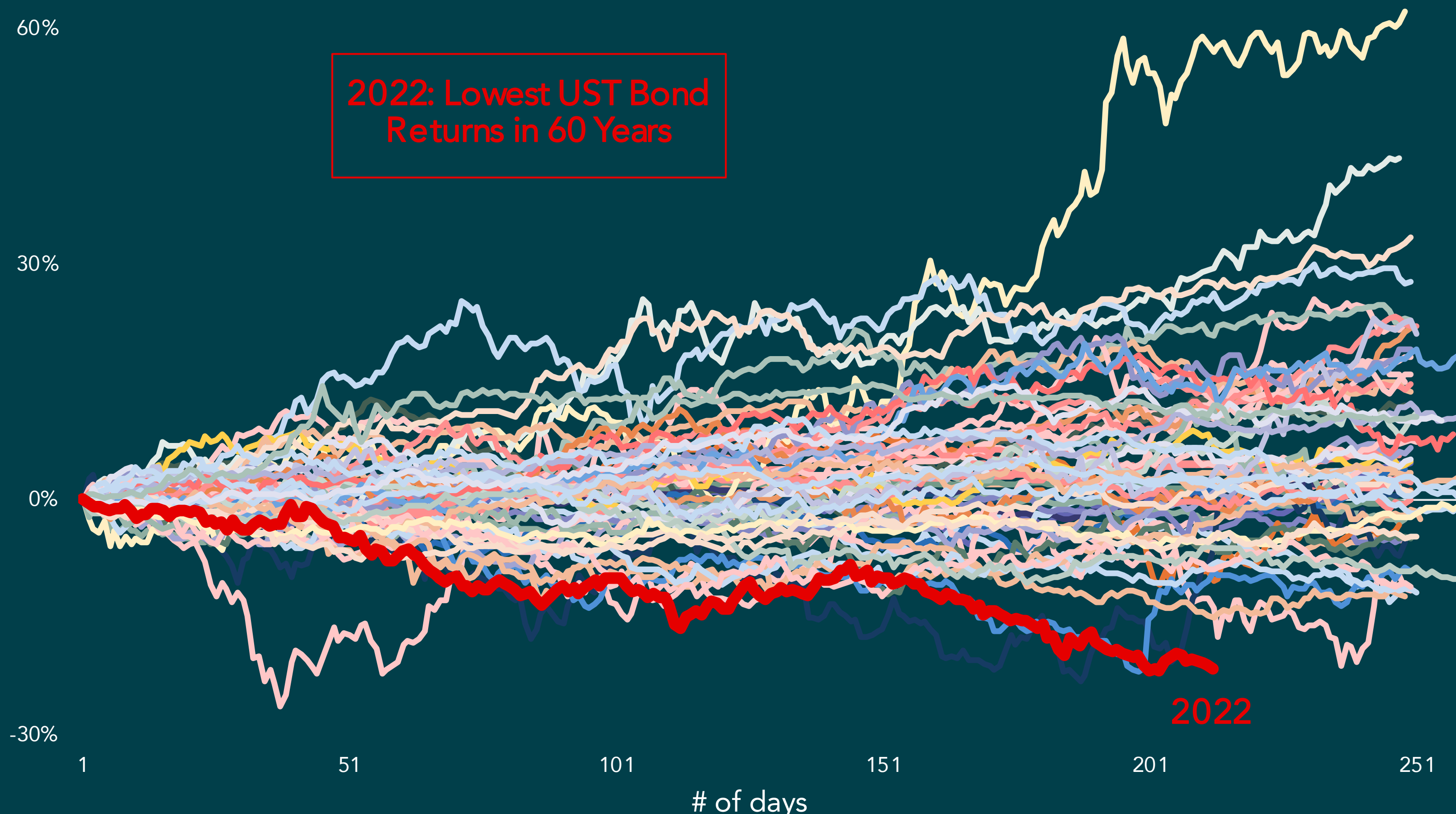
Yen vs. USD

Source: (1-9) Bloomberg. Data as of November 15, 2022. Currencies are vs. USD. Yen inverted to show depreciation.

Are US Inflation & Rates "Past Peak"?

The sharpest rise in global bond yields since the second World War has driven UST bond returns to their lowest levels in 60 years. US recession risk and the "stickiness" of declining inflation will determine UST and bond market returns from here.

Total YTD returns from 10 year US Treasury bond

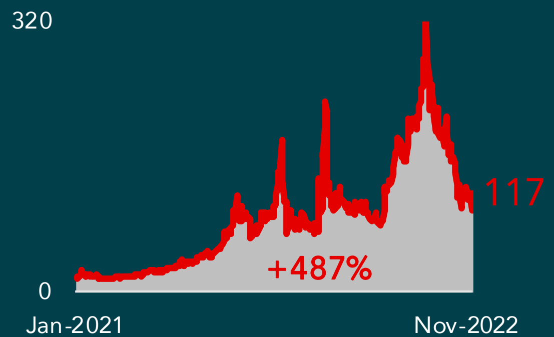


Source: (1) Oxford Economics, "Japan's YCC to face its toughest challenge yet" (November 7, 2022).

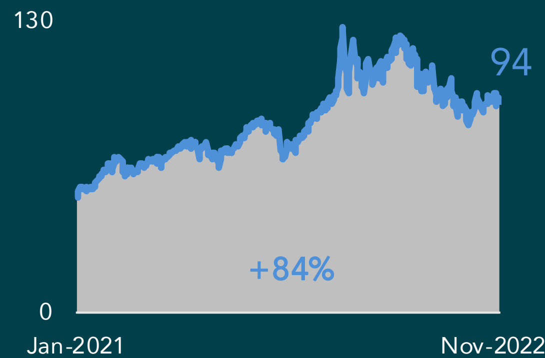
Will Energy Prices Continue to Moderate in 2023?

The post invasion spike in energy prices earlier this year has moderated as Europe has built natural gas storage levels above 95% and as global recession risk comes closer into view. However, MUFG expects energy prices to rise in 2023 as sanctions on Russian energy tighten further against the backdrop of extremely tight supply in global energy markets.

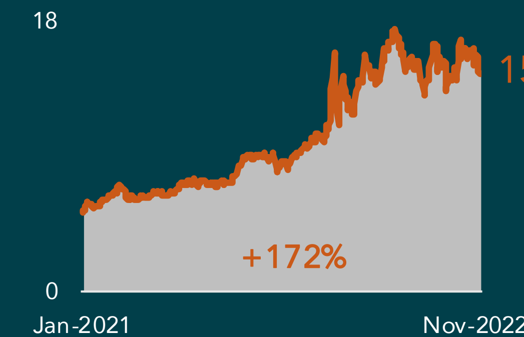
European nat gas (TTF)



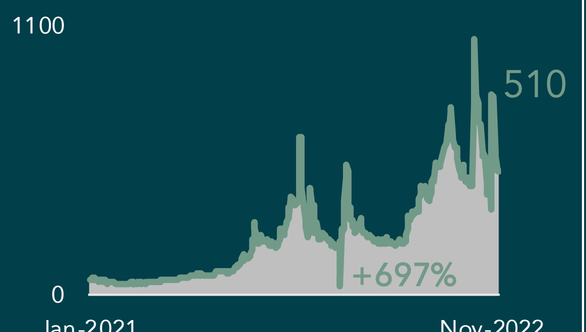
Brent



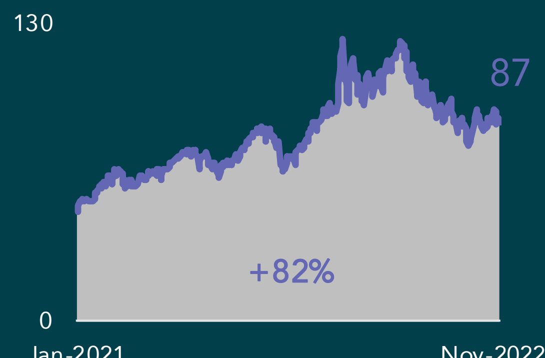
Diesel



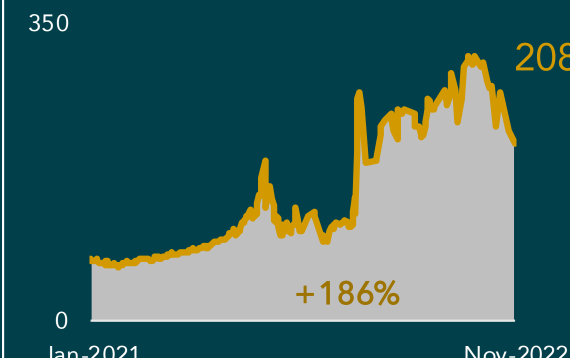
France electricity prices, 1m forward (EUR / MWh)



WTI



Euro coal prices, 1 yr forward ($/tonne)

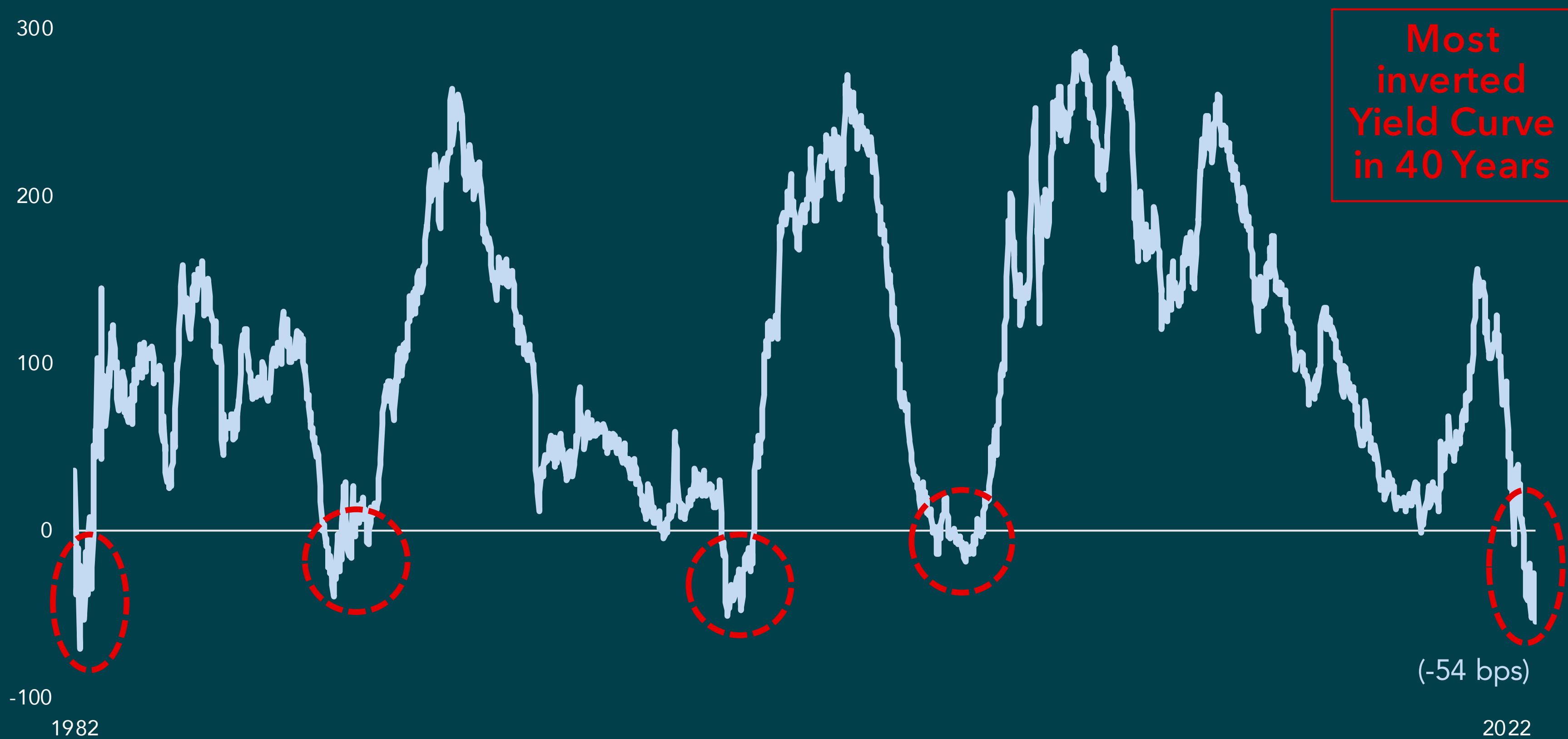


Source: (1-6) Bloomberg. Data as of November 14, 2022. European coal is 1 month forward. Electricity is base load electricity prices. Diesel is EU gasoil futures.

Is the Yield Curve Accurately Signaling Recession?

US yield curve inversion has historically been the most reliable metric for signaling US recessions (with the fewest false positives), typically with a 9-12 month lag to recession start, depending on the part of the curve. Today, the 2s-10s curve is at its most deeply inverted level in 40 years (1982).

2s10s UST curve

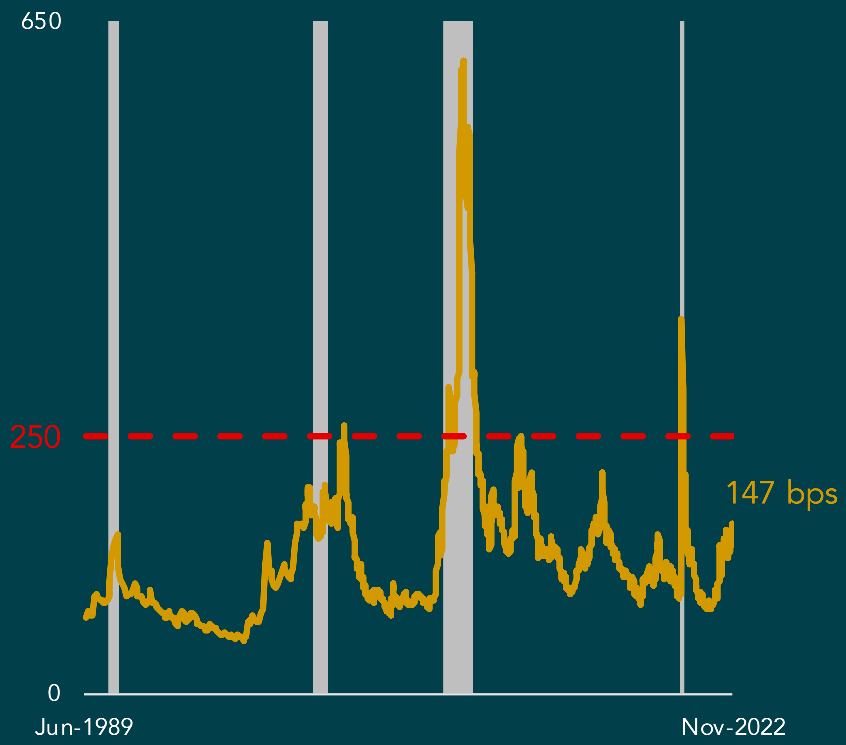


Source: (1) Bloomberg. Data as of November 14, 2022.

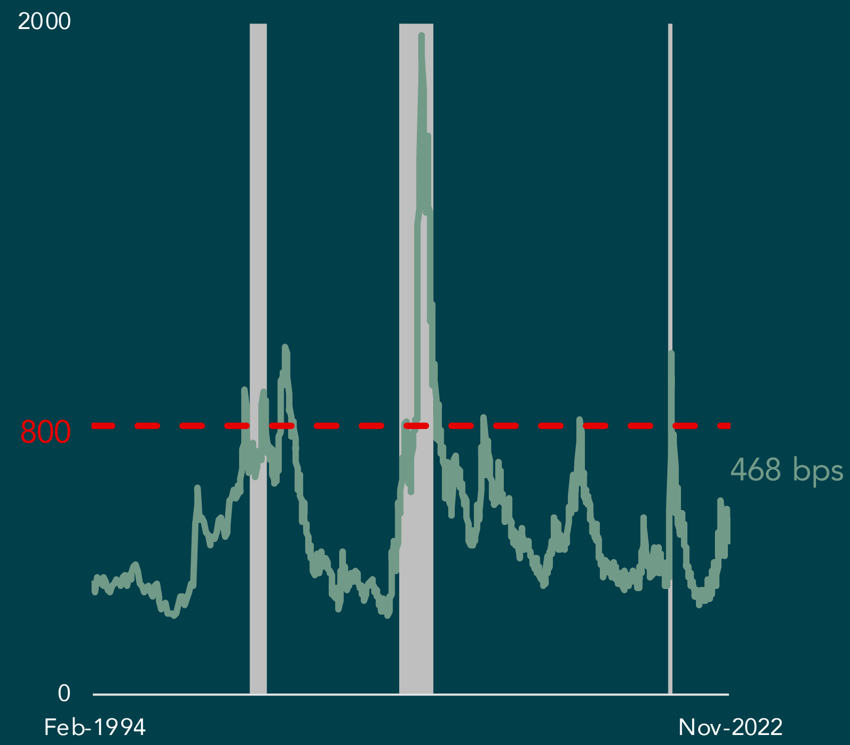
Will Credit Markets Sidestep a Default Cycle?

IG and HY spreads are still below historic thresholds for US recession risk. However, since September, the relative resilience of USD credit markets began to break down, as credit spreads began to widen more in line with the strong under-performance of other risk assets globally (equities, FX, non-energy commodities).

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

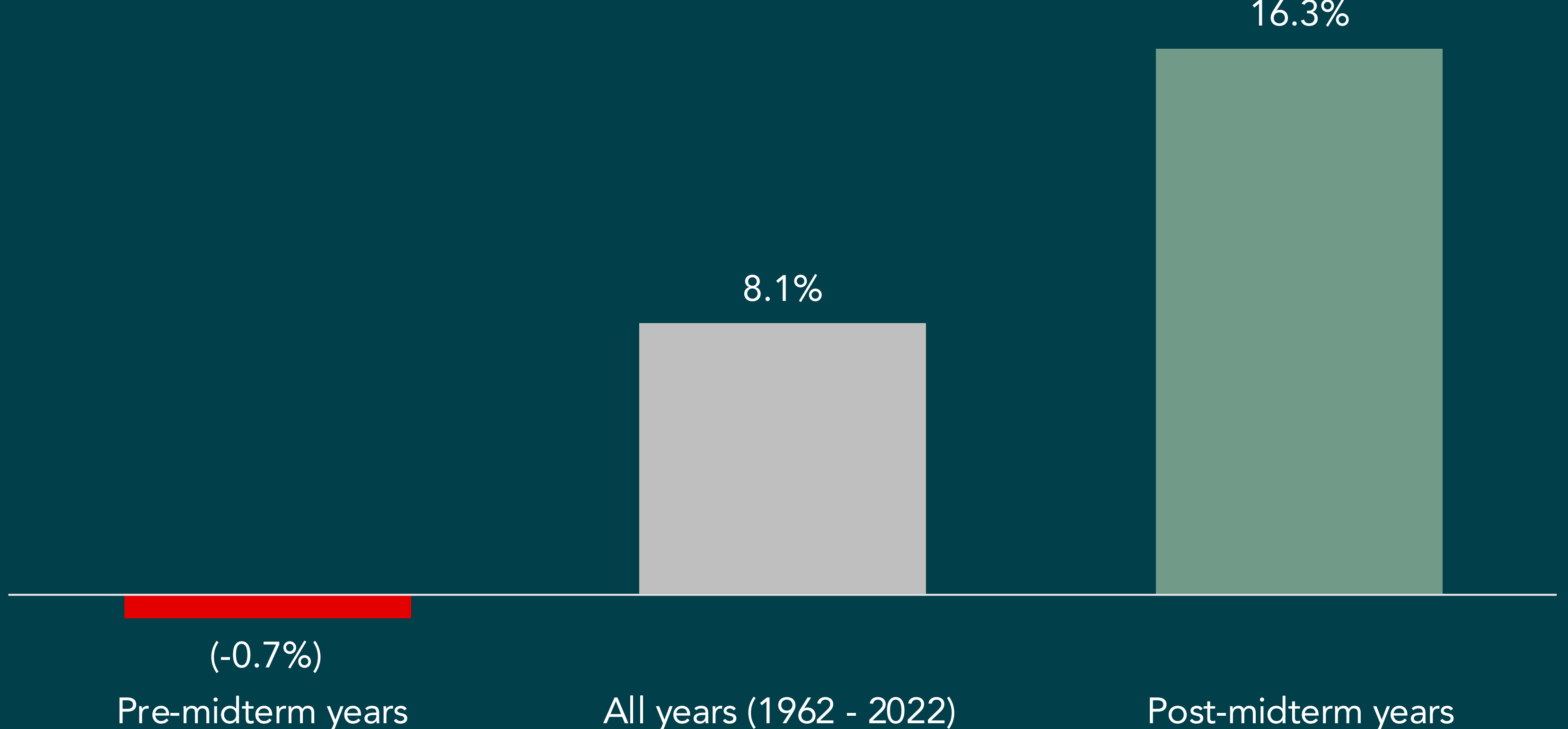


Source: (1-2) Bloomberg. Data as of November 14, 2022.

Will Equities Rally Like Prior Post Midterm Periods?

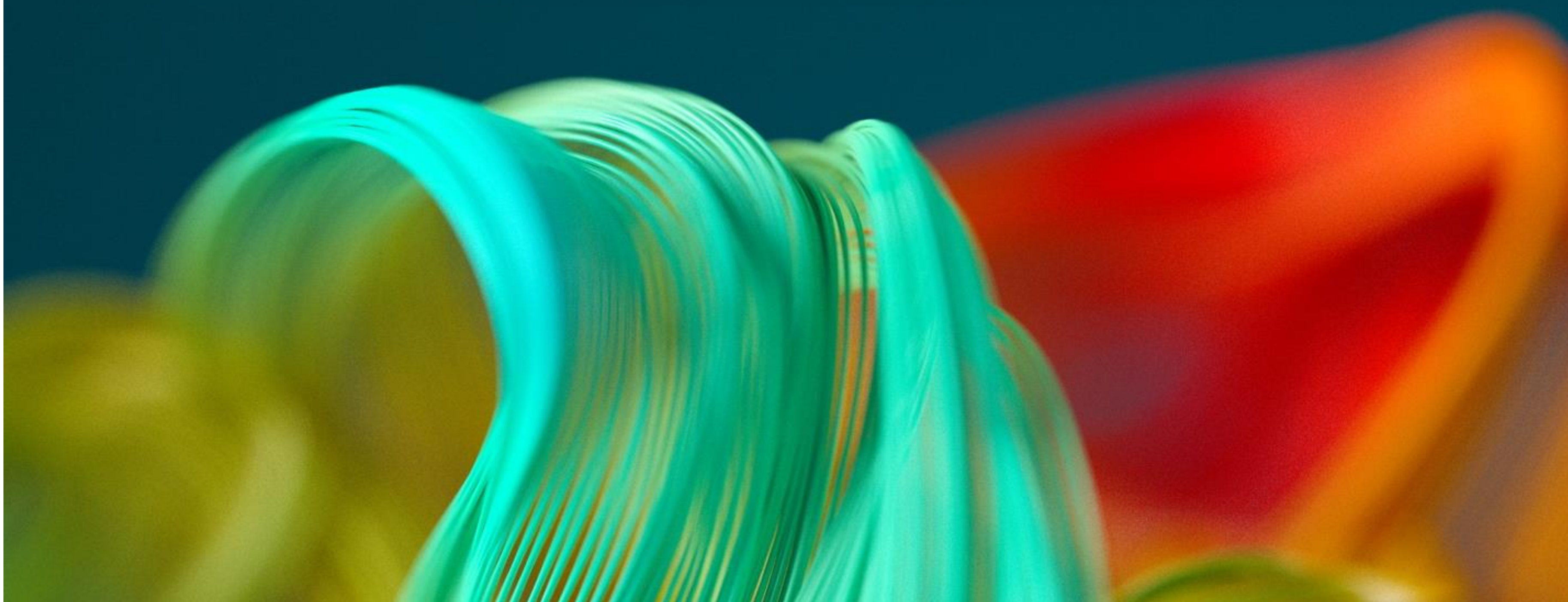
US stocks tend to underperform in the 12 months before a midterm election and outperform in the 12 months after. In data back to 1962, the S&P 500 averaged a (-0.7%) return in the 12 months before a midterm election vs. +16.3% after. The average annual performance for the S&P 500 between 1962 and 2022 is 8.1%. While the historic patterns are distinctly favorable, inflation and recession risk will ultimately matter more for markets in 2023. Equities may rise over the next 12 months, though in such case more likely due to reasons independent of Washington.

Average price return of S&P 500 in the 12 months ending Oct. 31 since 1962



Source: (1) FactSet, "Ex-Energy, S&P 500 Reporting a Decline in Earnings for the 2nd Straight Quarter" (November 1, 2022).

1. Global Geo-Economic War



The Russia-Ukraine Crisis

The Russia-Ukraine crisis is a largely contained military conflict between two large countries that has evolved into a global geo-economic war between Russia and the West. With Russia losing on the ground, and capitulation not an option, we expect continued escalation and higher risk tolerance from Putin in the year ahead. The global economy and markets will therefore need to navigate a 2023 recovery during a highly unpredictable geopolitical environment.

Russian-occupied Ukrainian territory before February 24

Russian-occupied Ukrainian territory

Ukrainian counteroffensives

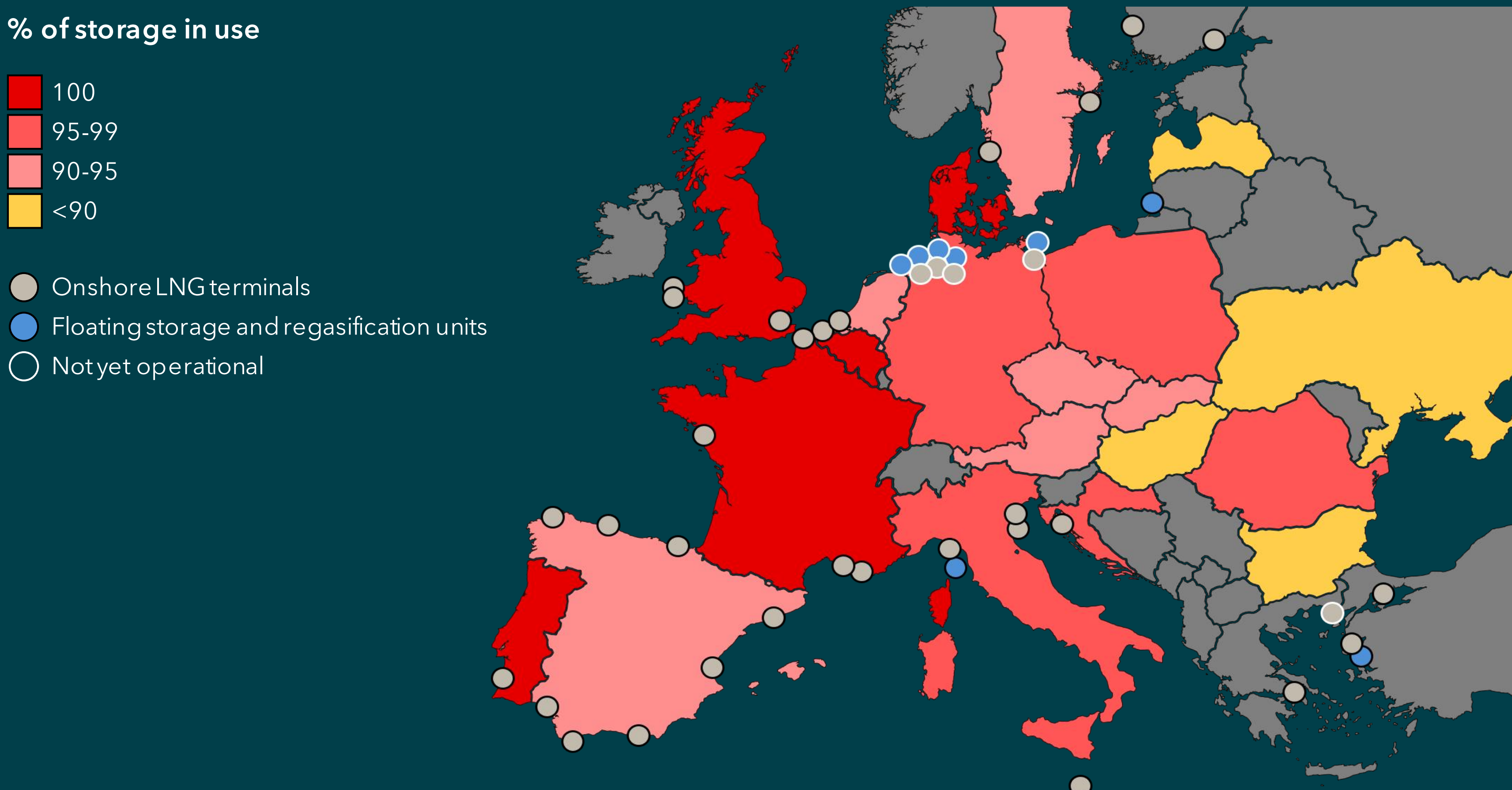
Source: Bloomberg. Institute for the Study of War and the American Enterprise Institute's Critical Threats Project. Map shows control areas as of November 12, 2022.

Global Geo-Economic War

1. Greatest intelligence failure in 20 years
2. Contained military conflict between 2 large countries
3. Broader geo-economic war between Russia and the West
4. Natural gas a “bad” commodity for a crisis (supply inflexible)
5. Transformation of Europe’s political economy
6. Russia too weak to win, too strong to lose
7. Capitulation not an option for Putin
8. Asymmetric escalation, less predictable, more risk tolerant
9. Domestic political pressure on Putin has risen considerably
10. US policy of “deliberate strategic ambiguity” regarding “nuclear red line”

EU Exceeding Gas Storage Targets

The transformation of Europe's political economy since Russia-Ukraine has been both rapid and impressive. Over the last 8 months, Europe has reduced its Russian gas dependency from 40% to less than 9%. In addition, due to both swift policy action and the warmest October in a decade, Europe's gas storage in aggregate now exceeds 95%, well above the 80% targets set for November 1.



Source: The Economist, "Mild autumn weather has sent European gas prices plummeting" (November 3, 2022). Data as of October 29, 2022.
Excludes the Rough gas storage facility.

Progressive Energy Sector Sanctions

Europe and the UK have announced a series of Russian energy sanctions packages over the course of 2022, with rolling effective dates based on types of energy, that have well exceeded expectations on both magnitude and timing. The upcoming Dec 5th effective date on Europe's Russian oil import ban is likely to have a notable impact on global oil market supply (and pricing) which is already tight.

Progressive Implementation of European Bans on Russian Energy

	Effective Dates on UK Restrictions	Effective Dates on EU Restrictions
Coal imports	Aug 10, 2022	Aug 2022
Nat gas imports	Jan 1, 2023	2022 phase out
Oil imports	Dec 31, 2022	Dec 5, 2022
Petroleum imports	Dec 31, 2022	Feb 5, 2022
Price caps on shipments to 3rd party countries	Oil: Dec 5, 2022 Petroleum: Feb 5, 2023	Oil: Dec 5, 2022 Petroleum: Feb 5, 2023

Source: European Council. White and Case ("EU's 8th sanctions package imposes oil price cap; expands bans on imports, export, and professional services; Asset freeze designations and sanctions on non-government controlled areas of Zaporizhzhia and Kherson"). Gov.UK (:UK imposes sweeping new sanctions to starve Putin's war machine").

2. Synchronized Slowdown, De-Synchronized Recovery

Synchronized Global Inflation

Nearly every major global economy is experiencing inflation well above target levels. Notably, inflation in Europe and the UK is not yet "past peak" and will likely take longer to "normalize" than the US.

Global CPI forecasts, y/y

Region / country	2021	2022	
North America			
US	4.7%	8.1%	↑
Mexico	5.7%	8.0%	↑
Canada	3.4%	7.0%	↑
Eurozone	**2.6%**	**8.4%**	↑
Netherlands	2.7%	11.0%	↑
Spain	3.1%	8.6%	↑
Germany	3.1%	8.1%	↑
Italy	1.9%	8.0%	↑
Ireland	2.4%	7.7%	↑
Finland	2.2%	7.1%	↑
France	1.6%	5.3%	↑
Other Europe			
Turkey	19.6%	72.8%	↑
Czech Republic	3.8%	15.8%	↑
Poland	5.1%	14.8%	↑
Russia	6.7%	13.7%	↑
UK	2.6%	9.0%	↑
Sweden	2.2%	8.2%	↑
Denmark	1.9%	7.8%	↑
Norway	3.5%	6.0%	↑
Switzerland	0.6%	2.8%	↑

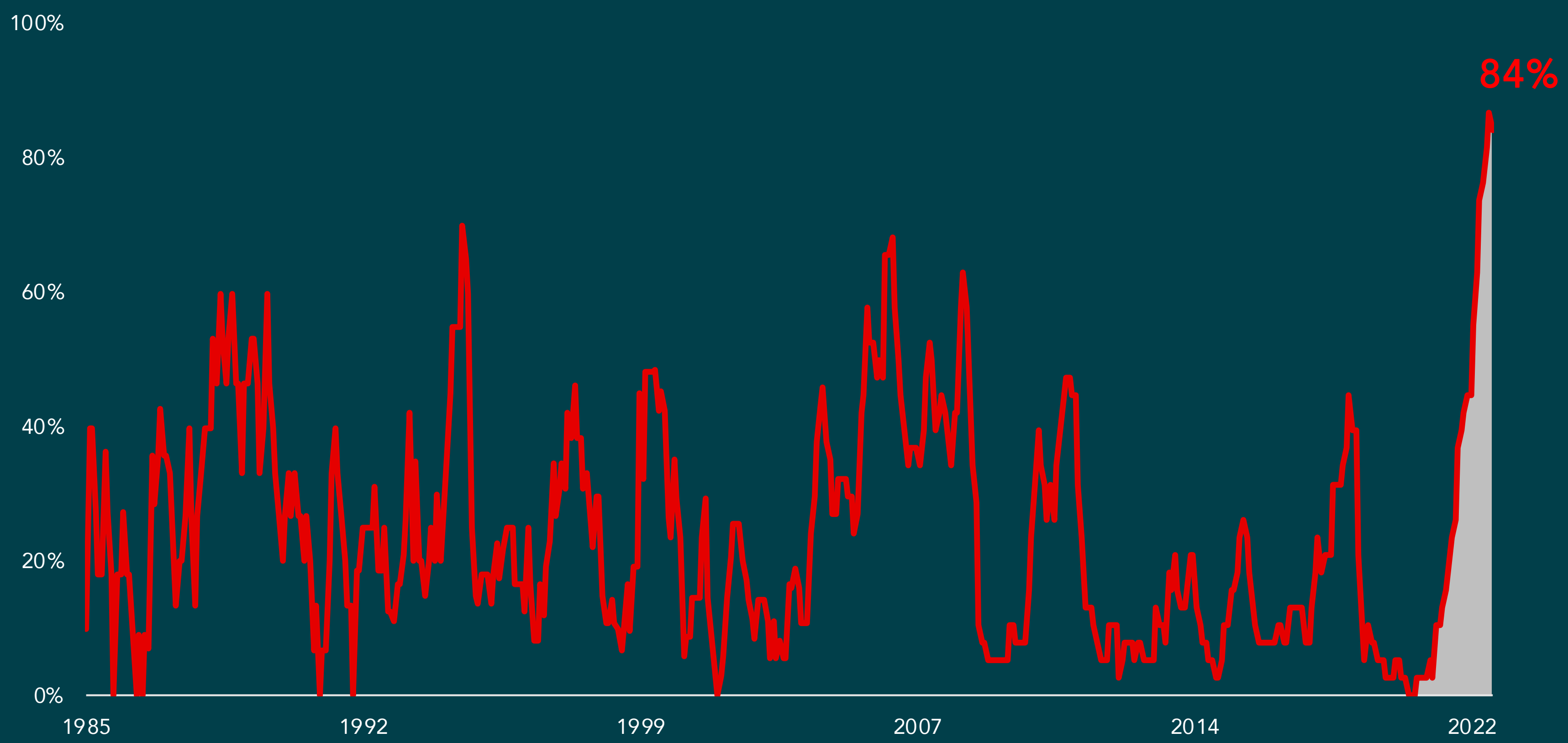
Region / country	2021	2022	
APAC			
New Zealand	3.9%	7.1%	↑
India	5.1%	6.9%	↑
Australia	2.8%	6.6%	↑
Singapore	2.3%	6.0%	↑
Philippines	3.9%	5.8%	↑
South Korea	2.5%	5.3%	↑
Indonesia	1.6%	4.3%	↑
Vietnam	1.8%	3.3%	↑
Japan	(-0.2%)	2.3%	↑
China	0.9%	2.2%	↑
LatAm			
Argentina	48.4%	72.4%	↑
Chile	4.5%	11.7%	↑
Colombia	3.5%	10.0%	↑
Brazil	8.3%	9.3%	↑
MENA			
Sub-Saharan Africa	15.4%	17.5%	↑
South Africa	4.6%	6.8%	↑
UAE	0.2%	5.6%	↑
Saudi Arabia	3.1%	2.5%	↓

Source: (1) Oxford Economics. Data as of November 14, 2022.

Synchronized Global Policy Tightening

In a shifting of the tectonic plates that have underpinned global economic policy over the last decade, nearly 85% of the world's central banks have embarked on the fastest global monetary tightening campaign in the modern era.

% of world's central banks hiking rates



Source: (1) TS Lombard (Dario Perkins). BIS. Global central banks are 38 central banks tracked by BIS. Data as of November 10, 2022.

Synchronized Global Deceleration

Nearly every major global economy is decelerating going into 2023, most without an obvious "catalyst" for a very strong recovery in the latter part of the year.

GDP growth forecasts y/y

Region / country	2022	2023	
North America			
Mexico	2.6%	0.6%	↓
US	1.8%	(-0.4%)	↓
Canada	2.9%	(-1.3%)	↓
Eurozone	**3.1%**	**(-0.1%)**	↓
Ireland	7.8%	1.7%	↓
Netherlands	4.7%	0.9%	↓
Spain	4.5%	0.8%	↓
France	2.5%	0.2%	↓
Finland	2.3%	(-0.1%)	↓
Italy	3.7%	(-0.1%)	↓
Germany	1.5%	(-1.1%)	↓
Other Europe			
Norway	2.5%	0.9%	↓
Turkey	4.8%	0.8%	↓
Denmark	2.7%	0.3%	↓
Switzerland	2.1%	0.2%	↓
Poland	4.4%	0.0%	↓
Sweden	3.1%	(-0.3%)	↓
Czech Republic	2.5%	(-0.5%)	↓
UK	4.3%	(-0.7%)	↓
Russia	(-3.3%)	(-1.9%)	↑

Region / country	2022	2023	
APAC	**3.4%**	**3.3%**	↓
Vietnam	7.7%	6.3%	↓
India	7.0%	4.4%	↓
China	3.1%	4.2%	↑
Indonesia	5.5%	3.6%	↓
Philippines	6.1%	3.3%	↓
New Zealand	2.1%	1.8%	↓
Australia	3.8%	1.7%	↓
South Korea	2.7%	1.0%	↓
Singapore	3.6%	0.7%	↓
Japan	1.6%	0.9%	↓
LatAm	**3.5%**	**0.4%**	↓
Brazil	3.0%	0.2%	↓
Argentina	4.7%	(-0.5%)	↓
Colombia	7.4%	(-1.5%)	↓
Chile	2.4%	(-2.5%)	↓
MENA	**4.9%**	**2.8%**	↓
Sub-Saharan Africa	3.2%	2.9%	↓
Saudi Arabia	7.9%	2.2%	↓
UAE	7.1%	2.1%	↓
South Africa	1.6%	1.0%	↓

Source: (1) Oxford Economics. Data as of November 14, 2022.

De-Synchronized Global Recovery

Nearly every major economy in 2022 is experiencing synchronized inflation, policy tightening and growth deceleration at the same time. In 2023, look for a more de-synchronized recovery as those economies less exposed to the energy crisis and Fed policy tightening recover more quickly than others.

Stronger, More Rapid Recovery

- United States
- Advanced economy commodity exporters (Canada, Australia)
- Middle East oil producers (Saudi Arabia)
- Energy & food surplus EM (Mexico, Indonesia)
- Large domestically strong EM (India)
- Advanced economies easing policy (China, Japan)

Slower, More Anemic Recovery

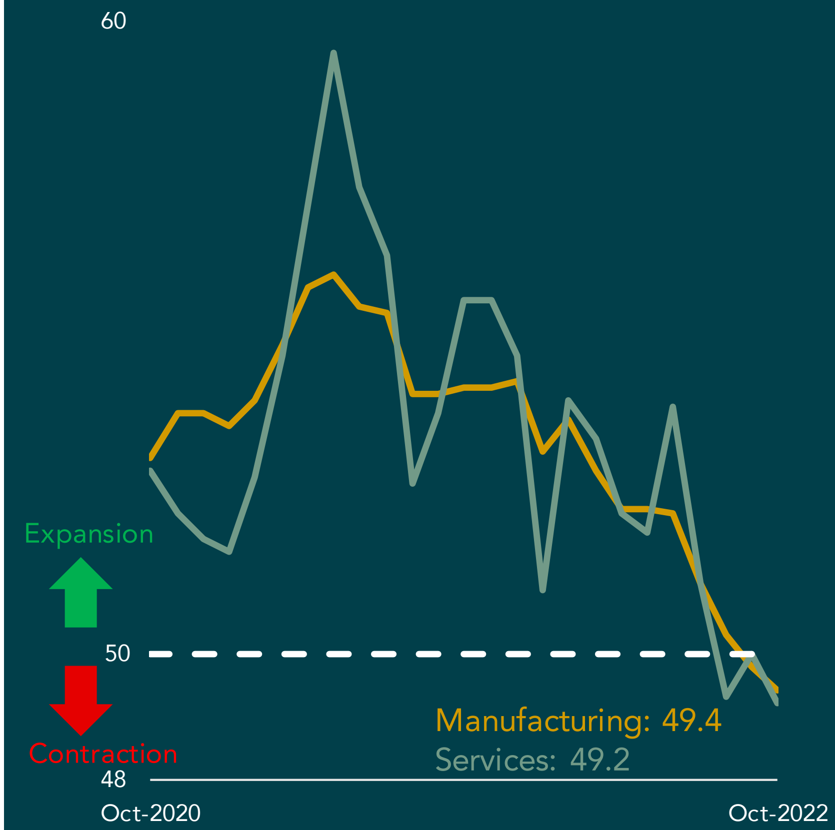
- Europe
- United Kingdom
- Energy & food deficit EM (Egypt)
- Smaller, frontier EM (Sri Lanka, Pakistan)
- Russia
- Ukraine

3. Rolling Recessions in 2023

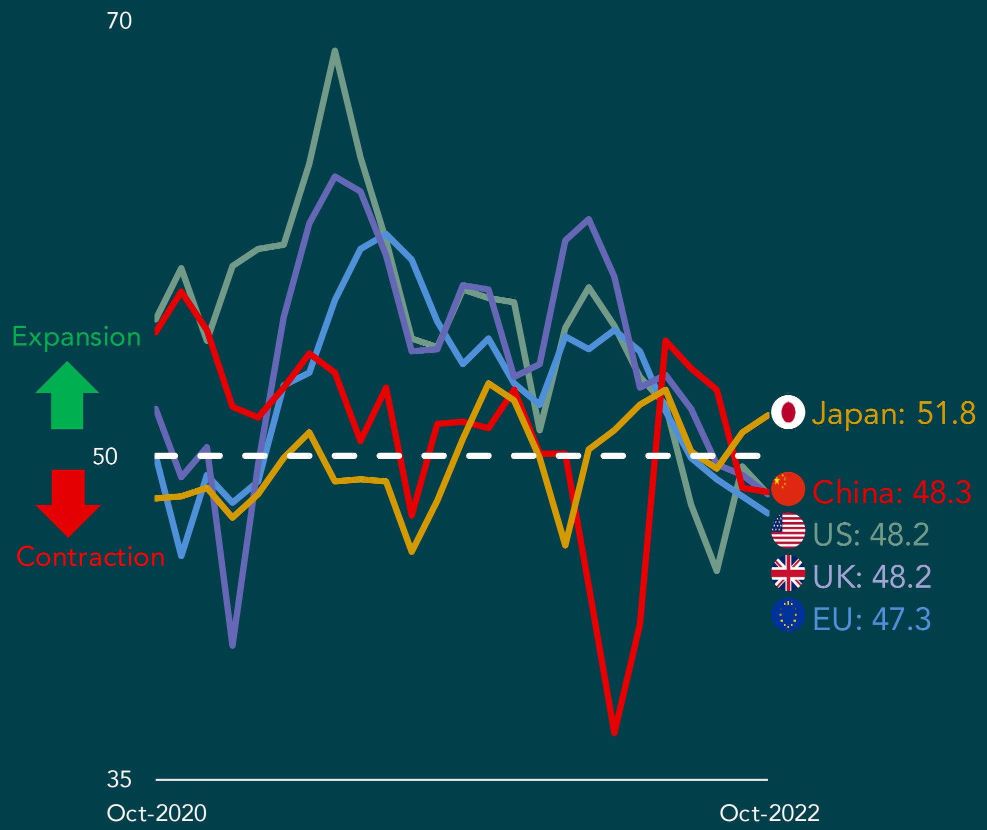
PMI Data Signaling Global Slowdown

Global manufacturing and services data, historically a reliable signal of growth 6 months ahead, has dipped into contraction territory at both a global level, and also across several of the world's largest economies.

Global PMI



Composite PMI

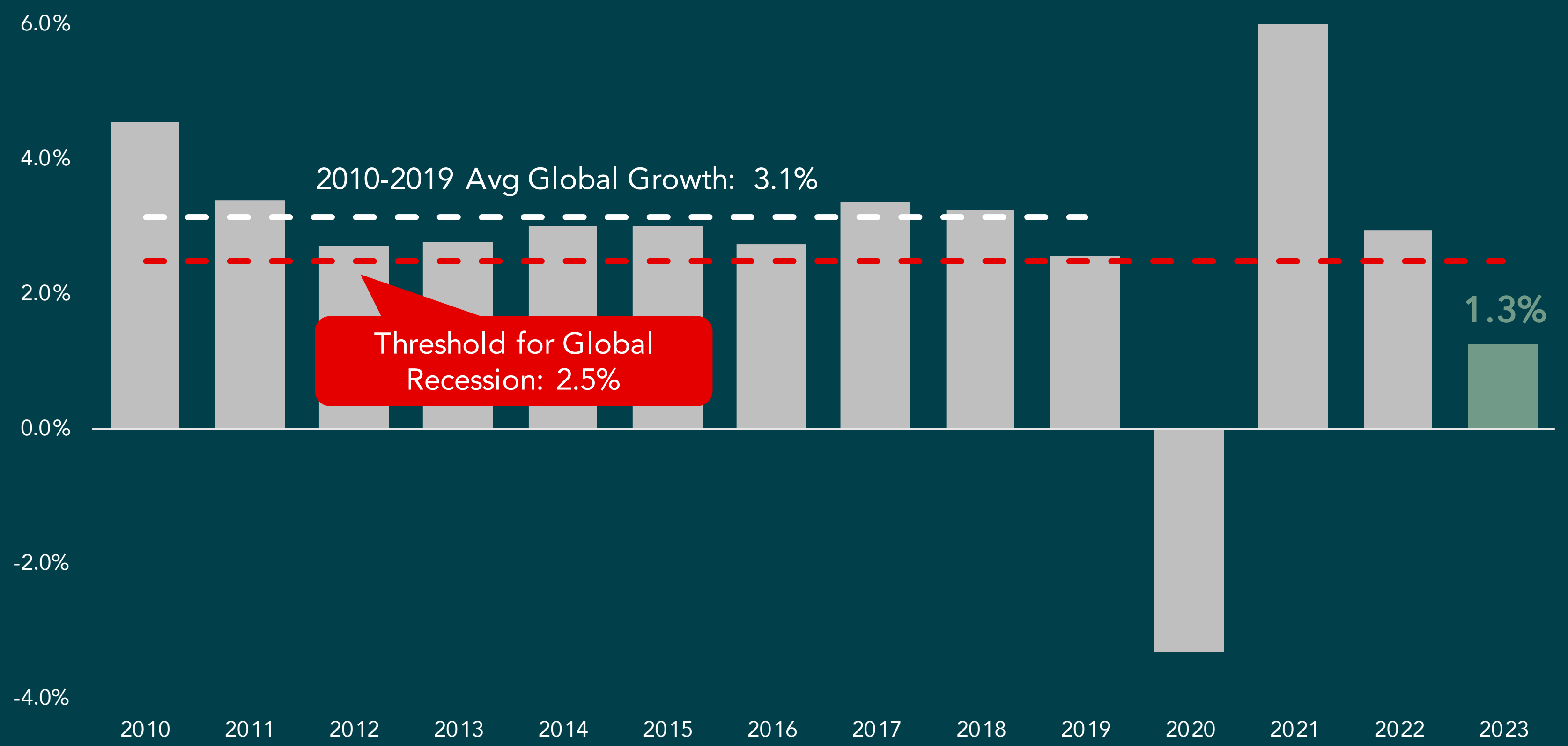


Source: (1-2) Bloomberg. Data as of November 14, 2022. PMI is S&P Global. China is Caixin.

Global Recession Likely in 2023

There have only been 6 global recessions since WWII, though two of them have been in the last 15 years (GFC in 2008 and COVID in 2020). Following the Russia-Ukraine induced global energy and inflation crisis, the global economy is expected to grow at just 1.3% in 2023, well below the 2.5% threshold for global recession.

World GDP growth, y/y



Source: (1) Oxford Economics. Data as of November 14, 2022.

Rolling Recessions in 2023

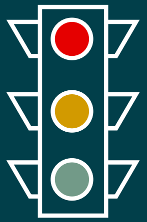
We expect the global economy to experience a series of rolling recessions over the course of 2023

European Recession	Global & EM Recession	North America Recession
Eurozone	Global	Canada
UK	Brazil	US
Russia	Argentina	Mexico
Ukraine	Chile	
	Colombia	

Longer and deeper recession → Shorter and more shallow recession

Short & Shallow US Recession

We expect the US to enter a reasonably "short and shallow" recession by mid 2023 as a result of elevated inflation and accelerated Fed tightening



- Consumer price inflation
- Producer price inflation
- Inflation expectations
- Fed Funds
- Rate volatility
- Financial conditions
- Consumer confidence
- Auto sales
- Mortgage rates
- Oil and energy prices
- Flat / inverted yield curves
- Equity market correction
- Industrial metal prices
- CCC sector leverage
- Leading economic indicators
- Manufacturing outlook
- C&I bank loans
- Economic surprise indices
- ISM subcomponents (orders to inventory ratio)
- Cash / bonds outperforming equities

- PMI manufacturing
- Retail sales
- Housing sector activity
- CEO & business confidence
- IG & HY spreads
- Corporate earnings & margins
- Financial & bank stocks
- Equity volatility
- Cyclical stocks (US defensives)
- Corporate cash balances
- Corporate liquidity
- IG fund flows
- Wage growth

- Unemployment rate
- Job openings
- Jobless claims
- PMI services
- Consumer balance sheets
- Corporate balance sheets
- Business spending and capex
- Trade volumes
- HY leverage and defaults
- Interest coverage ratios
- Interbank lending markets
- Bank & financial sector spreads
- Durable goods
- Fed bond market distress indices

Recessions Come in All Shapes & Sizes

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.

Shallow recessions

Date	Length (months)	Real GDP contraction (peak to trough)	Global Recession?
1920	17	(-2.8%)	
1926	19	(-2.5%)	
1948	11	(-1.7%)	
1953	10	(-2.5%)	
1960	10	(-1.3%)	
1970	11	(-1.1%)	
1980	6	(-2.2%)	✓
1981	16	(-2.6%)	✓
1990	8	(-1.4%)	
2001	8	(-0.4%)	
Median	**10.5**	**(-1.6%)**	

Deep recessions

Date	Length (months)	Real GDP contraction (peak to trough)	Global Recession?
1929	43	(-32.6%)	✓
1937	13	(-13.2%)	
1945	8	(-17.0%)	✓
1957	8	(-3.6%)	✓
1973	16	(-3.1%)	✓
2008	18	(-4.0%)	✓
2020	2	(-10.1%)	✓
Median	**13**	**(-10.1%)**	

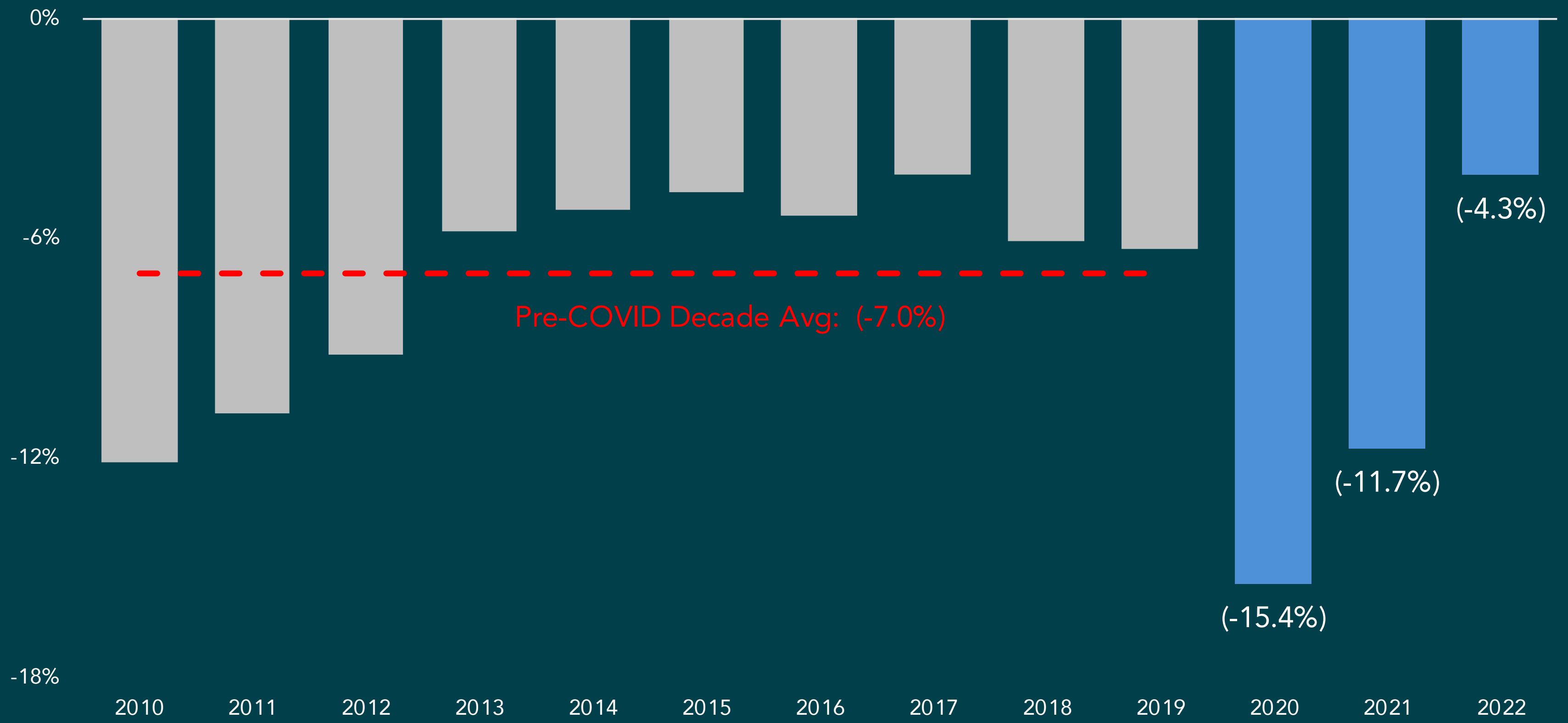
Source: (1) Bloomberg. NBER. Haver. UBS. Data on global recessions prior to WWII is fairly limited.

4. Resilient US Consumer

Fiscal Tailwinds for Inflation and US Consumer

Disposable income, the single most important driver of consumer spending, was boosted by the extraordinary fiscal stimulus in 2020-2021 and the low unemployment and wage gains in 2022. The sheer magnitude of COVID-era fiscal stimulus remains one of the more under-appreciated stories in global markets, in terms of its impact on both consumer spending and inflation going into 2022-23. Looking forward, the comparatively tight fiscal policy of 2022 will likely continue under "divided government" over the next 2 years.

US government balance, % of GDP

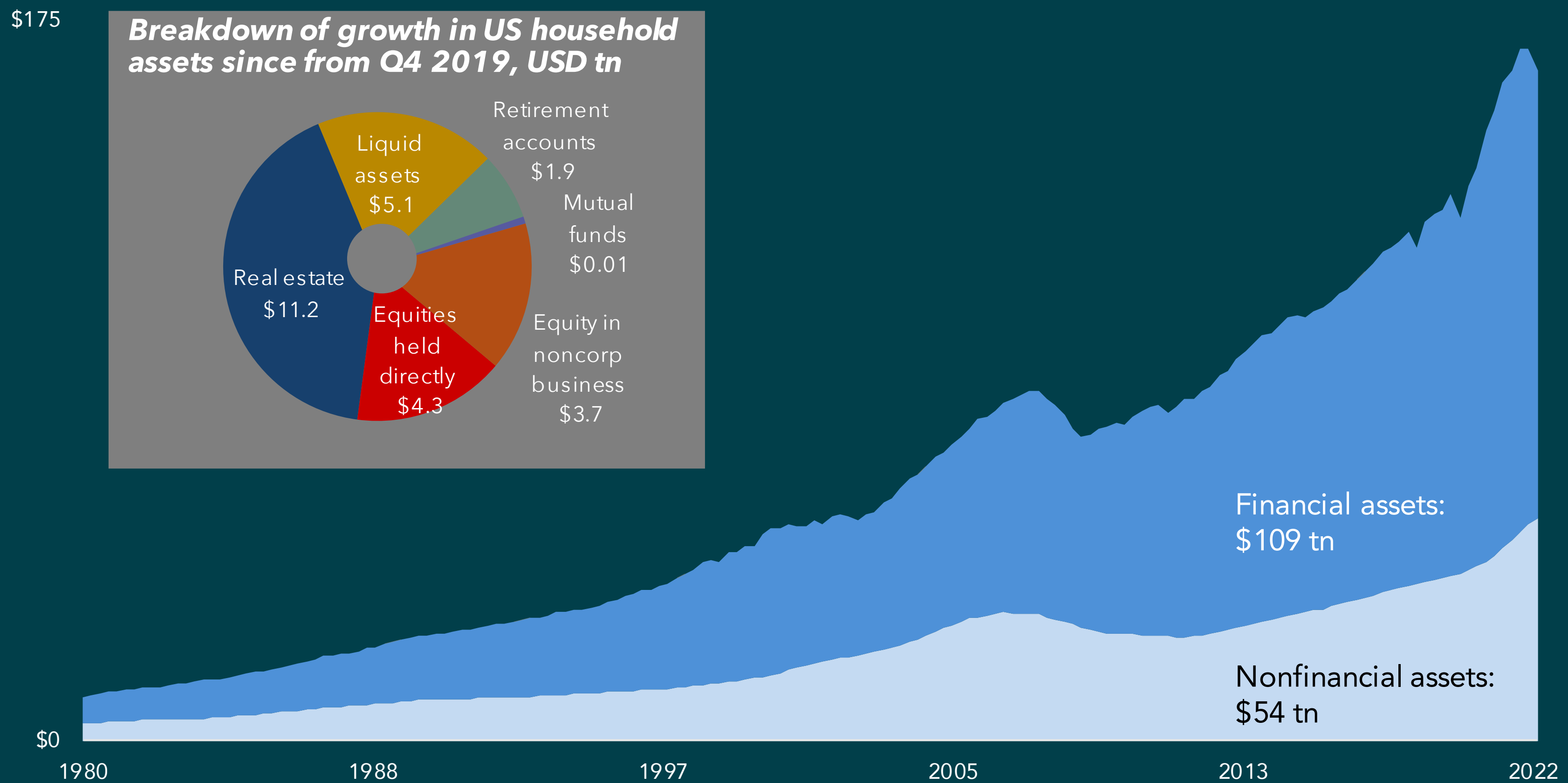


Source: (1) Oxford Economics. Data as of November 8, 2022.

US Household Balance Sheets Rose $30 Trillion

Total US household balance sheets increased nearly $30 trillion since the pandemic began at the end of Q4 2019. Though non-financial assets (i.e., Real Estate) account for roughly a third of household balance wealth, they account for almost half the COVID period increase.

US household balance sheet assets, USD tn



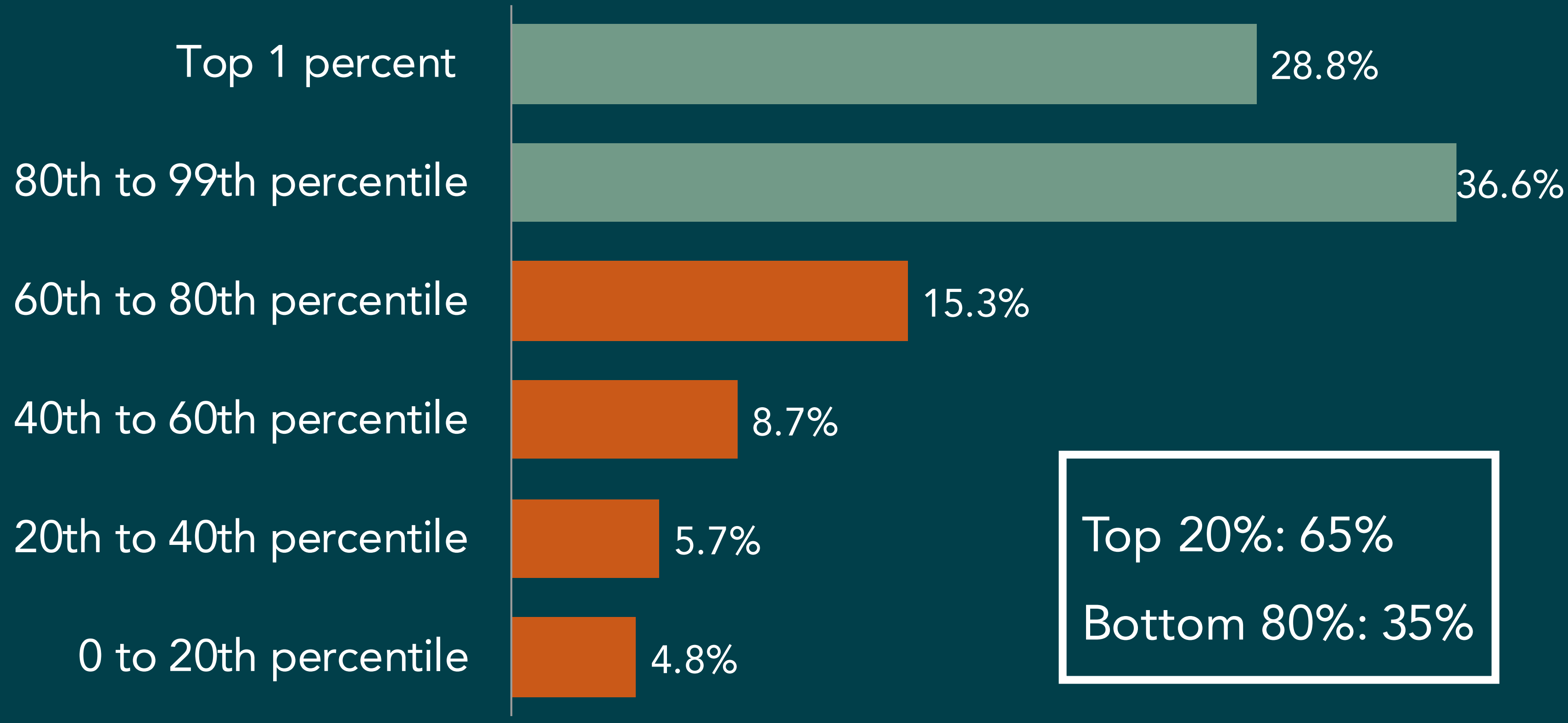
Source: (1) Federal Reserve. Financial Accounts of the US, Household balance sheets. Data through Q2 2022.

Wealth Gains Concentrated at Highest Quintile

While household wealth gains during the crisis period were robust, they were not evenly distributed. Just over 65% of total wealth gains since Q4 2019 accumulated to those in the top 20% income bracket, who spend more heavily on services.

US household wealth gains since Q4 2019

Share of cumulative household net worth change during the pandemic by percentile

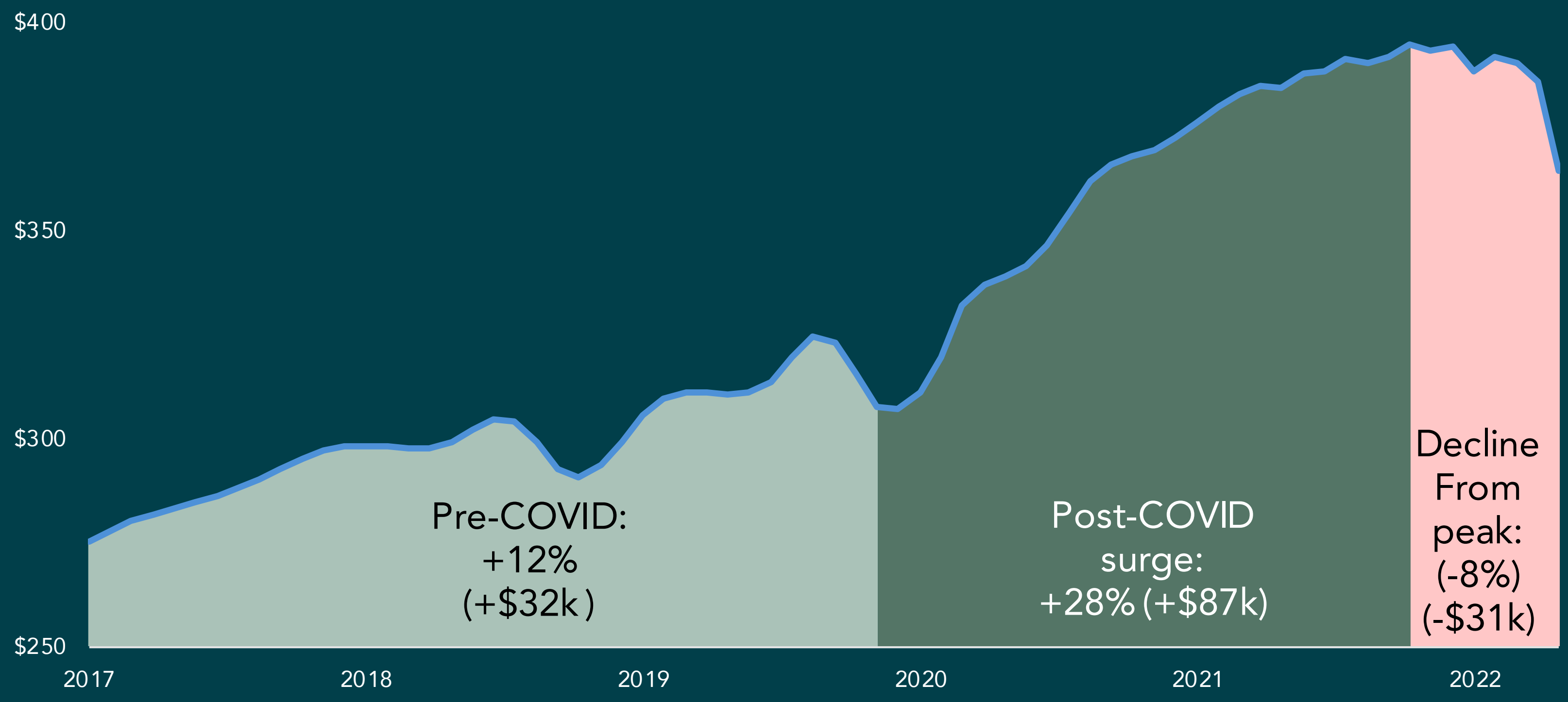


Source: (1) Oxford Economics, "US Excess Savings Offer Cushion to Only Some Households". Data through Q1 2022.

US Middle Class Wealth Surged During COVID

Middle-class Americans (those in the 50th to 90th wealth percentile) are the primary engine of the US economy and account for roughly half of consumption expenditure. After an unprecedented five year rise for this "middle 40%", average wealth levels appear to have peaked. In March 2022, average wealth for middle-class Americans reached a record $393,300, but has since declined roughly 8%.

Average individual US adult wealth, USD thousands

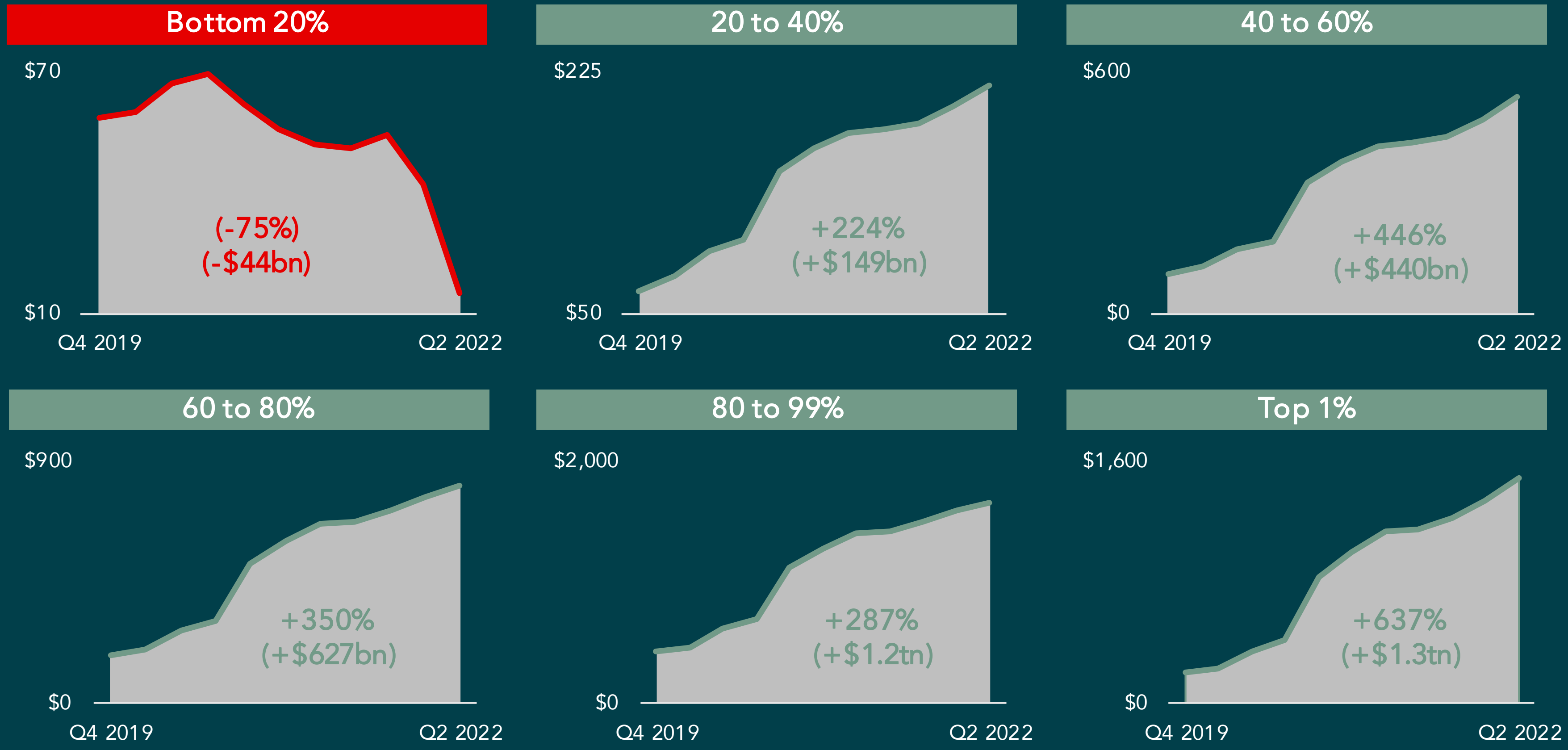


Source: (1) Real Inequality, University of California Berkeley. Average real income in September 2022 dollars for adults aged 20+ years. Data as of November 8, 2022. October value is estimate.

Strength of US Consumer Varies by Income Bracket

Total US liquid savings grew over $3.7 trillion since the start of the pandemic. However, the top 20% of earners hold nearly 70% of the savings. Conversely, liquid savings for the bottom 20% of US earners, or 26 million households, have declined 75% since the end of 2019.

Checkable deposits & currency, by income bracket, USD bn



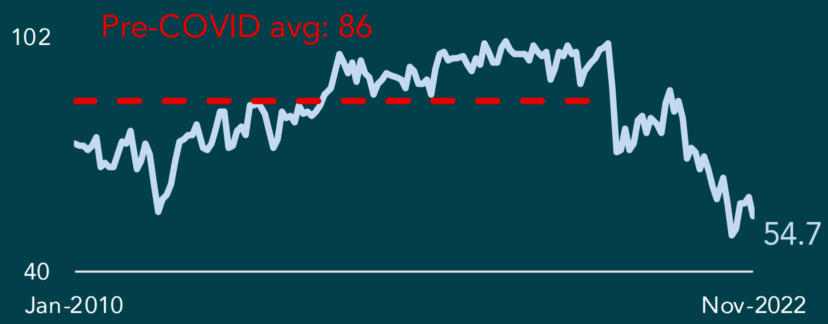
Source: (1-6) Federal Reserve. Distributional Financial Accounts. Data as of October 17, 2022.

Spending Resilient but 2023 Slowdown Expected

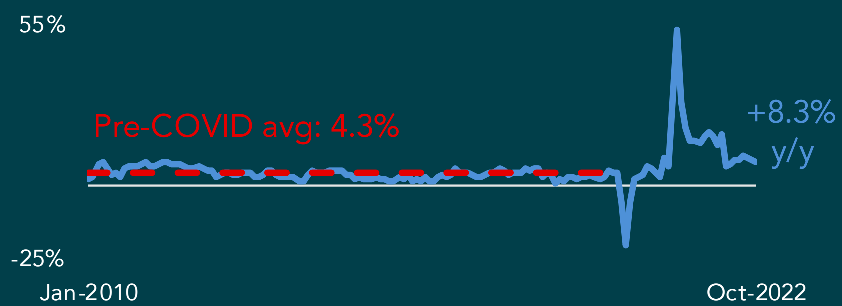
Despite weaker consumer sentiment, consumer spending has remained strong vs. pre-COVID levels, growing at over 8% y/y. The recent rise in consumer credit, paired with declining savings rates, suggests consumers may be turning to credit cards to finance spending. With interest rates rising and consumer sentiment likely to remain low in the months ahead, look for spending to slow in the first half of 2023.

Consumer Sentiment & Spending

University of Michigan consumer sentiment

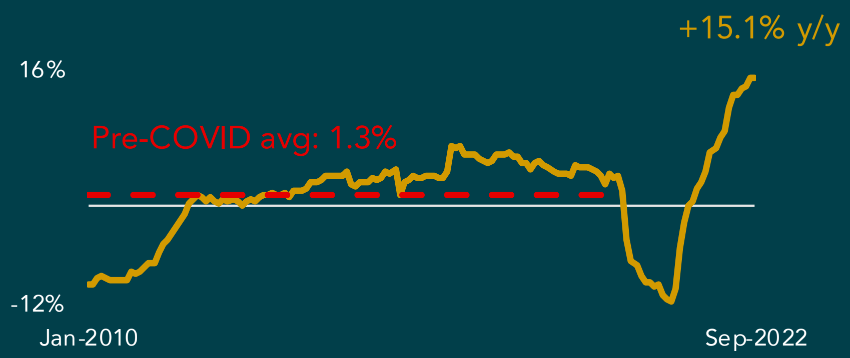


US retail sales, y/y

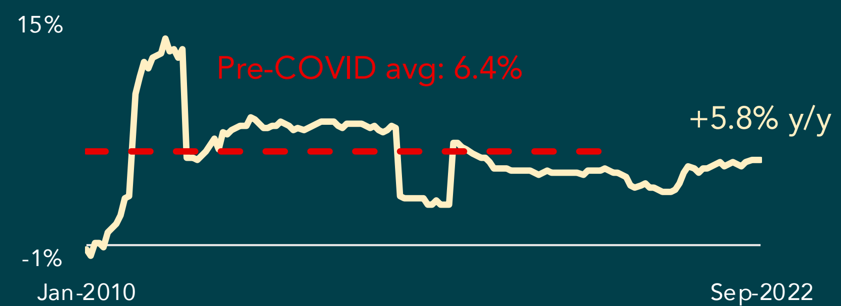


Consumer Credit Balances

Y/Y growth in consumer revolving credit



Y/Y growth in consumer nonrevolving credit



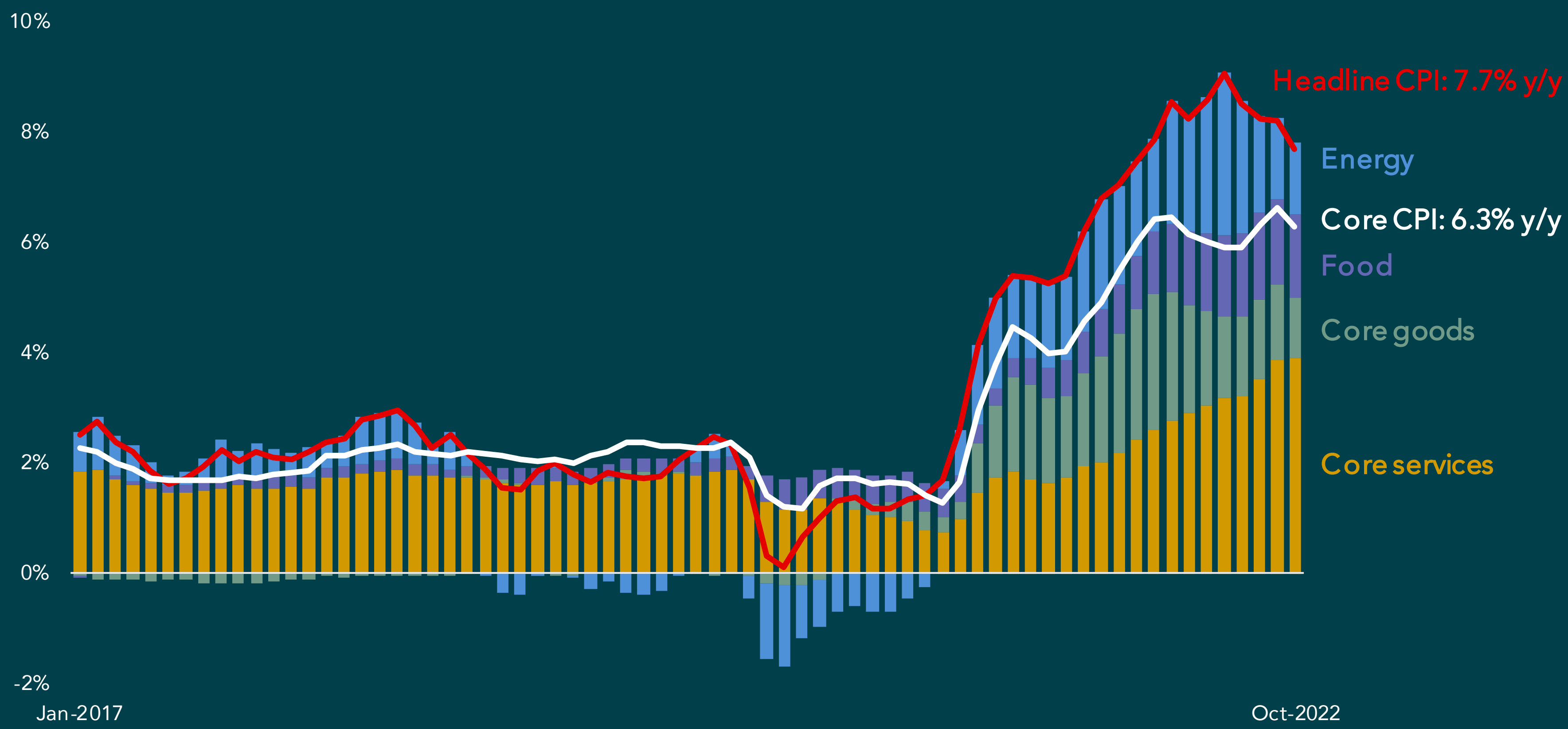
Source: (1-4) Bloomberg. Data as of November 16, 2022. FRED. Real retail sales are adjusted for inflation.

5. From “Peak Inflation” to “Sticky Inflation”

Markets Focused on "Peak Inflation" in 2022

Headline inflation in October came in at 7.7% y/y, the slowest since January and below market expectations. Core CPI also decelerated more than expected at 6.3% y/y, driven by sizeable declines in utilities, used vehicles and airfares.

Breakdown of CPI by components

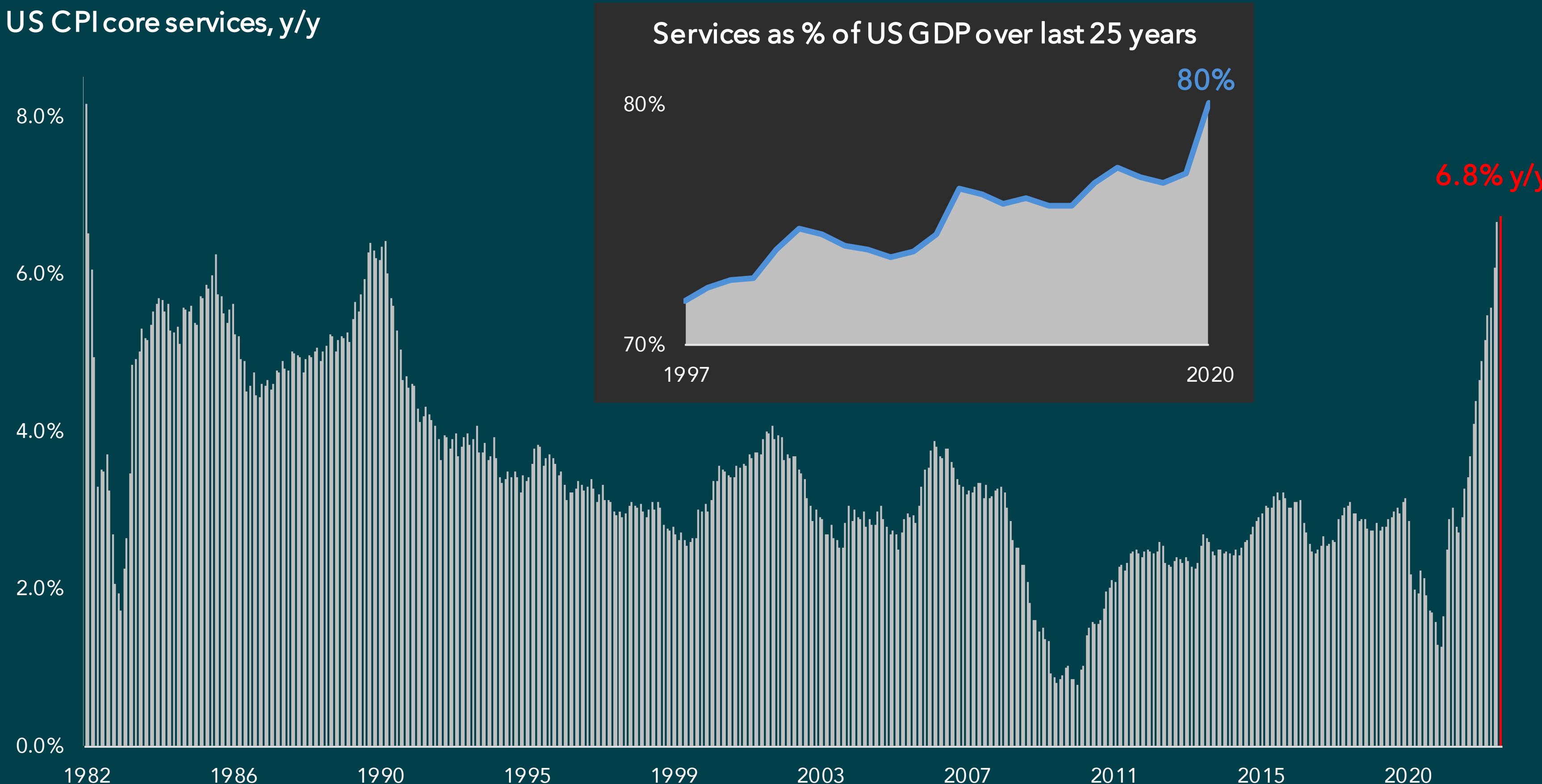


Source: (1) Bloomberg. Data as of November 10, 2022.

Market Focus will Shift to "Sticky Inflation" in 2023

With services representing approximately 80% of US GDP, the persistent rise in US core services CPI has become the most concerning area of persistent US inflation. The 6.8% y/y rise in core services CPI in October is the highest annual increase since August 1982.

US CPI core services, y/y

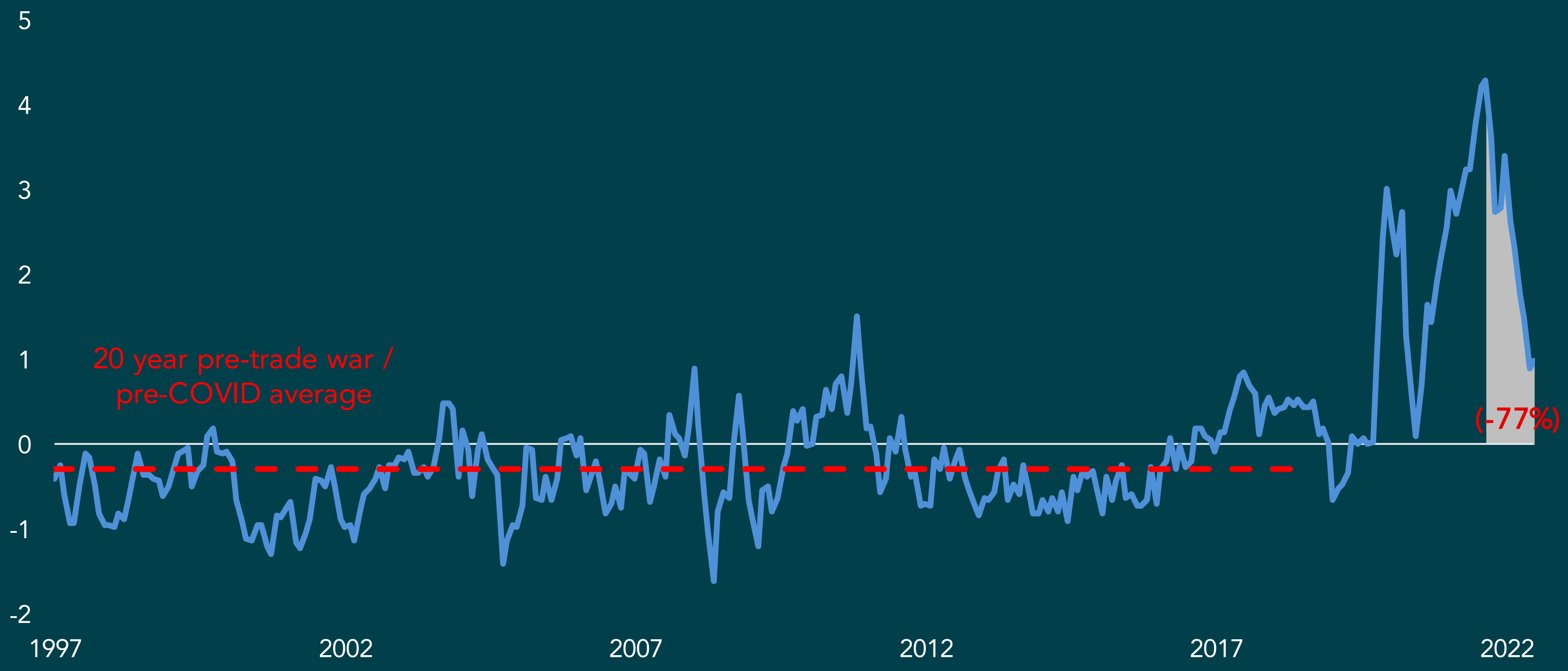


Source: (1) Bloomberg. Data as of November 10, 2022. (2) World Bank national accounts data. OECD National Accounts data files.

Supply Chain Stress Moderating, but Elevated

The Federal Reserve's Global Supply Chain Pressure Index, which examines 27 variables from cross-border transportation costs to country-level manufacturing data (delivery times, backlogs, purchased stocks) in seven regions (US, China, Eurozone, Japan, South Korea, Taiwan and the UK), has declined 77% since its peak in December 2021. While the improvement is expected to continue in the near term, a full "normalization" of price pressures could still take another 1-2 years.

New York Fed global supply chain pressure index



Source: (1) Bloomberg. New York Fed index based on data from the Bureau of Labor Statistics; Harper Petersen; Baltic Exchange; IHSMarkit; ISM; Haver Analytics; Bloomberg; NY Fed researchers' calculations. Index is normalized such that zero indicates that the index is at its average value with positive values representing how many standard deviations the index is above this average and negative values the opposite. Data updated as November 3, 2022.

Breakdown of October US Inflation Report

US inflation by sector (y/y)

Energy | Food | Core goods | Core services

Eggs	43%
Airline fares	43%
Public transportation	28%
Health insurance	21%
Utility gas service	20%
Energy commodities	19%
Motor fuel	18%
Energy	18%
Cereals & bakery products	16%
Energy services	16%
Transportation services	15%
Milk	15%
Electricity	14%
Delivery services	14%

Tools, hardware & supplies	14%
Vehicle accessories	13%
Motor vehicle insurance	13%
Nonalcoholic beverages	13%
Pets & pet products	13%
Food at home	12%
Motor vehicle parts and equipment	12%
Housekeeping supplies	12%
Tires	12%
Veterinarian services	11%
Motor vehicle maint. & Repair	10%
Fruits and vegetables	9%
Household furnishings & supplies	9%
Food away from home	9%

New vehicles	8%
Furniture & bedding	8%
Outdoor equip. & supplies	8%
New trucks	8%
Laundry & cleaning services	7%
Rent of shelter	7%
Owners' equivalent rent	7%
Shelter	7%
Services less energy services	7%
Tobacco & smoking products	7%
Lodging away from home	6%
Garbage & trash collection	6%
Personal care products	6%
Legal services	5%

Source: (1) Bureau of Labor Statistics. CPI Report October 2022.

Breakdown of October US Inflation Report

Energy | Food | Core goods | Core services

US inflation by sector (y/y)

Medical care services	5%
Financial services	5%
Alcoholic beverages	5%
Day care and preschool	5%
Cosmetics	5%
Educational books	5%
Music instruments & acces.	5%
Moving, storage, freight expense	5%
Recreational reading	5%
Funeral expenses	5%
Water & sewerage maint.	4%
Nursing homes	4%
Photo equipment & supplies	4%

Apparel	4%
Recreation services	4%
Hospital services	3%
Land-line phone services	3%
Audio equipment	3%
Professional services	3%
Toys	3%
Sporting goods	3%
School tuition	3%
Meats	3%
Medicinal drugs	3%
Footwear	3%
Jewelry and watches	3%

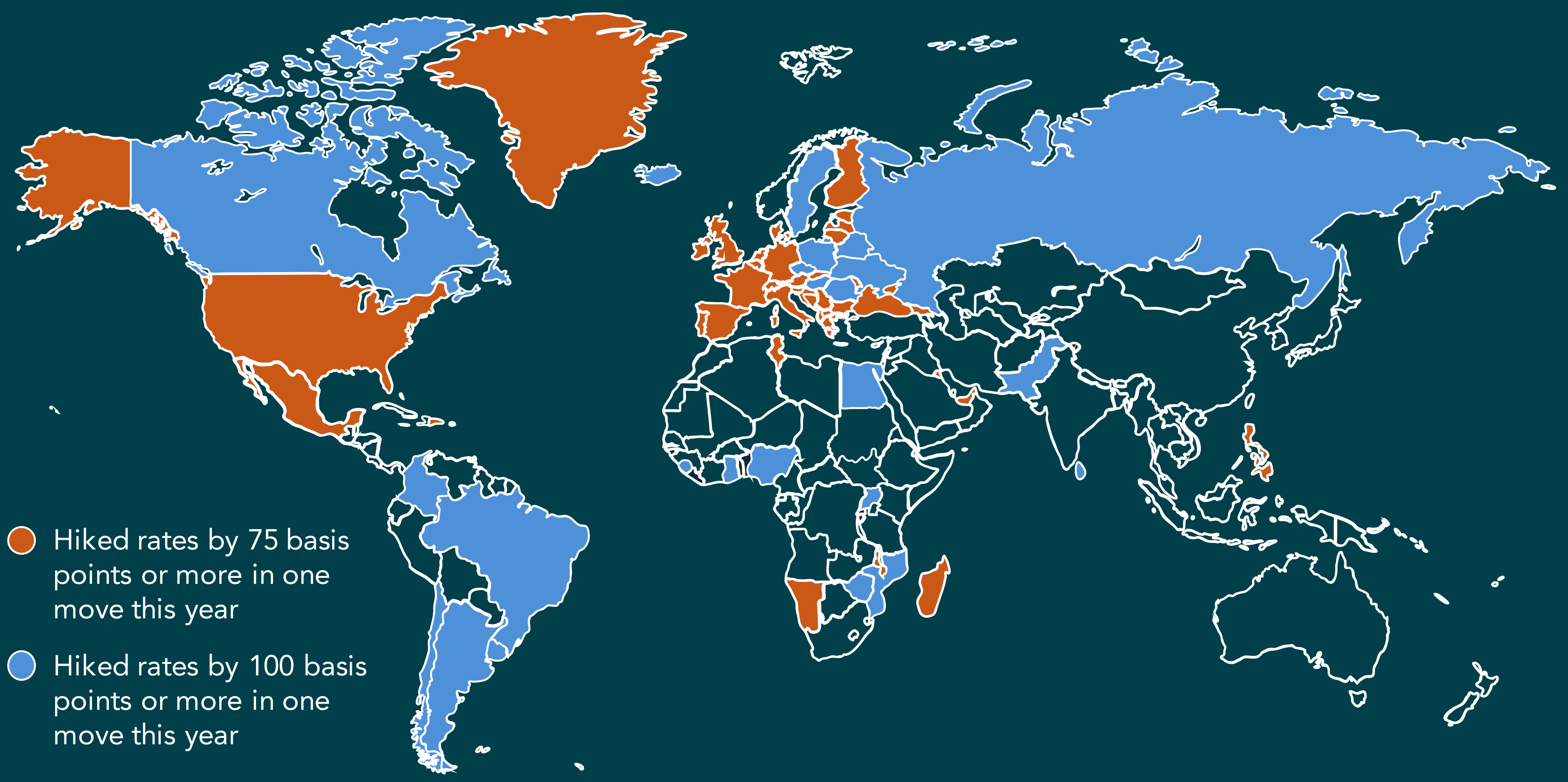
Used cars and trucks	2%
College tuition and fees	2%
Physicians' services	2%
Intracity mass transit	1%
Technical & bus. school tuition	1%
Appliances	1%
Internet services	1%
Computer software and accessories	-1%
Wireless phone services	-1%
Computers and smart home assistants	-3%
Car & truck rental	-4%
TVs	-17%
Smartphones	-23%

Source: (1) Bureau of Labor Statistics. CPI Report October 2022.

6. Starting Late, Doing too Much

Magnitude of Tightening

Trying to keep pace with the Fed and defend their currencies, nearly 50 of the 90 central banks tightening policy globally have been doing so at a pace of at least 75 bps per meeting (with several having hiked 100bps in a single meeting). Even with a potential step-down to 50 bps by the Fed in December, the pace and level of tightening remains high.

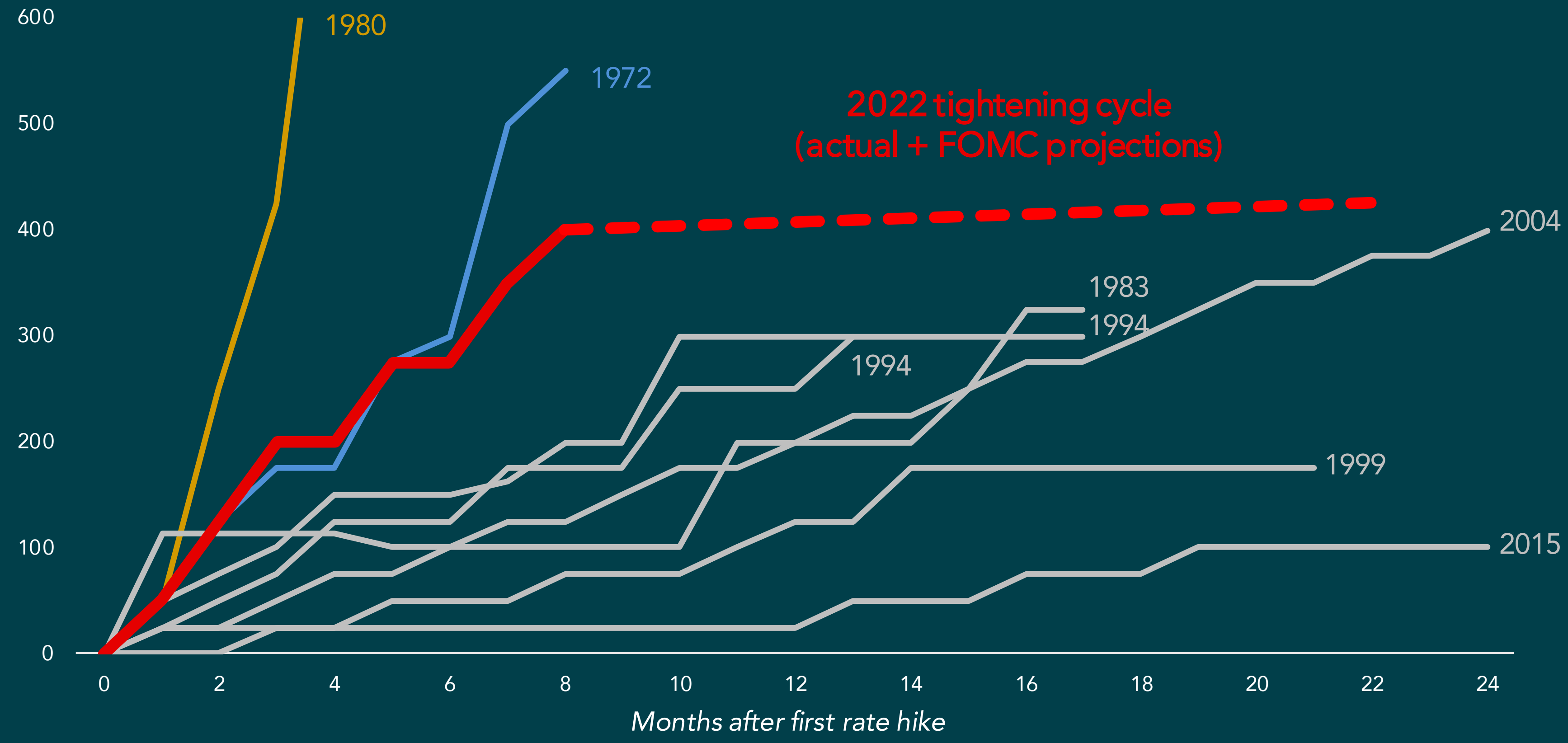


Source: (1) Bloomberg. Data as of November 3, 2022.

Pace of Tightening

Despite a late start, the Fed has embarked on its fastest rate hiking cycle since Volker in 1980, while simultaneously reducing its balance sheet by nearly $100 bn per month. Historically, the Fed has more typically tightened at a pace of 25 bps per meeting, much slower than the 75 bps hike in each of the last four FOMC meetings. For markets, the "rate of change" in policy rates or currency can be more disruptive than the valuation level itself.

Historic Fed tightening cycles, bps



Source: (1) Bloomberg. Data as of November 14, 2022. X-axis is months after the first rate hike, 2022 tightening cycle dash line is Fed projections.

Fed's Track Record for "Hard Landings"

Looking back at the 12 Fed tightening cycles in the post-WWII era, the Fed only avoided a "hard landing" on three occasions (mid-1960s, 1983, and 1994). Historically, recessions have been more likely to follow tightening cycles when the total rate increases were larger and when initial and peak inflation were higher.

US rate cycles and recession periods

Tightening Cycle	Total bps hiked	Peak inflation rate	Hard or soft landing?
1954 - 1957	227 bps	3.7%	Hard
1958 – 1960	305 bps	3.6%	Hard
1964 – 1966	**210 bps**	**3.8%**	**Soft**
1968 – 1969	500 bps	6.2%	Hard
1972 – 1974	850 bps	12.3%	Hard
1977 – 1980	1,040 bps	14.8%	Hard
1980 – 1981	790 bps	11.0%	Hard
1983 – 1984	**250 bp**	**4.8%**	**Soft**
1988 – 1989	300 bps	5.2%	Hard
1994 – 1995	**300 bps**	**3.0%**	**Soft**
1999 – 2000	175 bps	3.8%	Hard
2004 – 2006	425 bps	4.7%	Hard

Source: (1) Oxford Economics, "What History Tells us About Rate Hikes and Recession Risk" (May 9, 2022). 2017-2018 tightening cycle not included because interrupted by exogenous COVID shock.

Casualties of Tightening

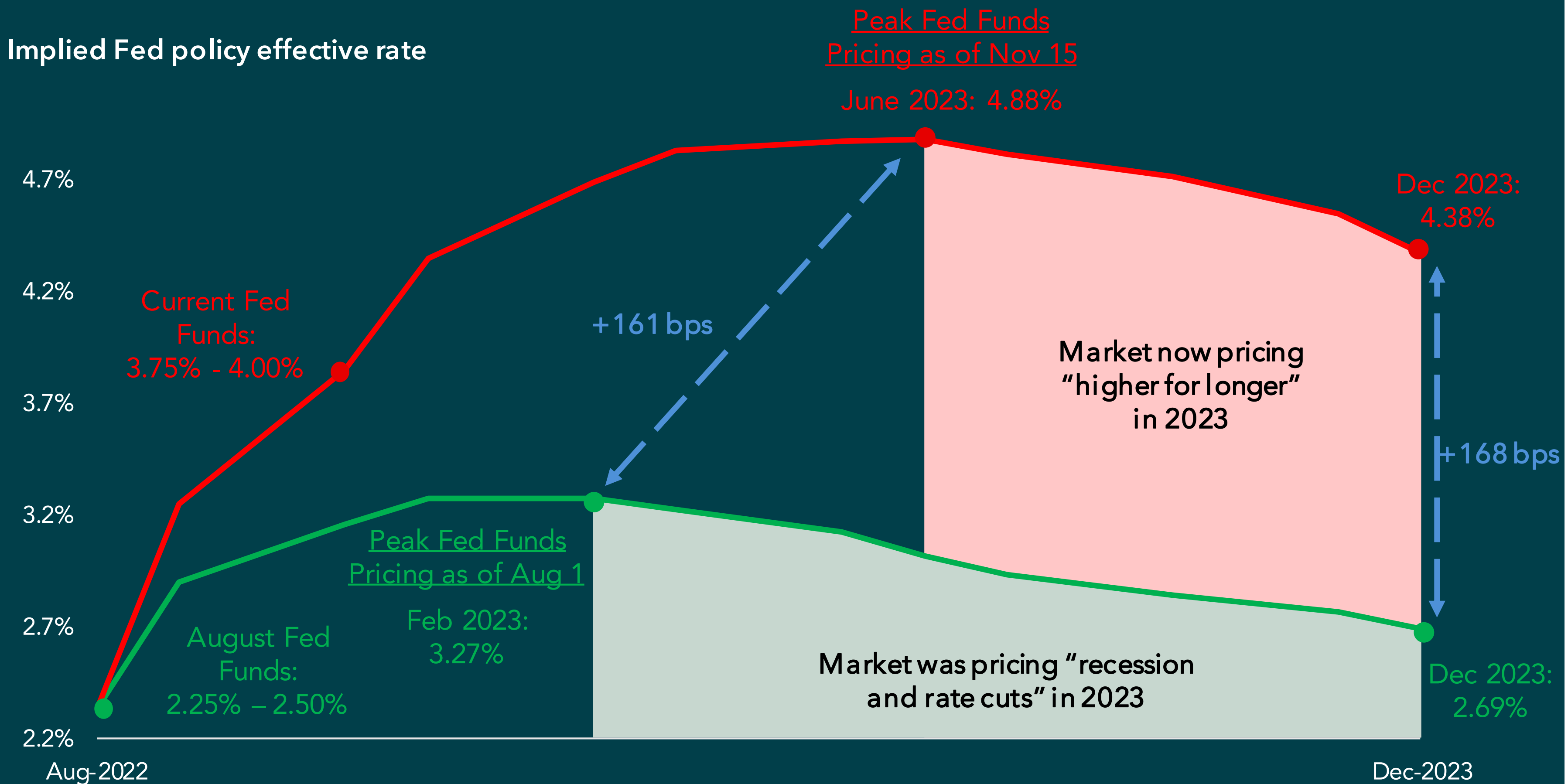
Almost every Fed tightening cycle of the last 40 years has claimed a large financial casualty, given the impact of US monetary policy on rates, currency markets and risk assets globally.

LatAm Debt Crisis	**Early 1980s**
US Commercial Real Estate	**Late 1980s**
G10 Bond Turmoil	**1994**
Asia Financial Crisis	**Late 1990s**
Global Financial Crisis	**2008**
Commodities Super Cycle Bust	**2014-2016**
UK GILTS Crisis	**2022**

7. “Higher for Longer” Rates Narrative

Market Repricing to "Higher for Longer"

Time and again, markets have persistently under-estimated US inflation and Fed hawkishness in 2022, and the November Fed meeting was no exception. Over the last 3 months alone, markets have repriced "peak Fed Funds" assumptions nearly 170 bps higher. Importantly, there will be one more US CPI print before the December meeting.

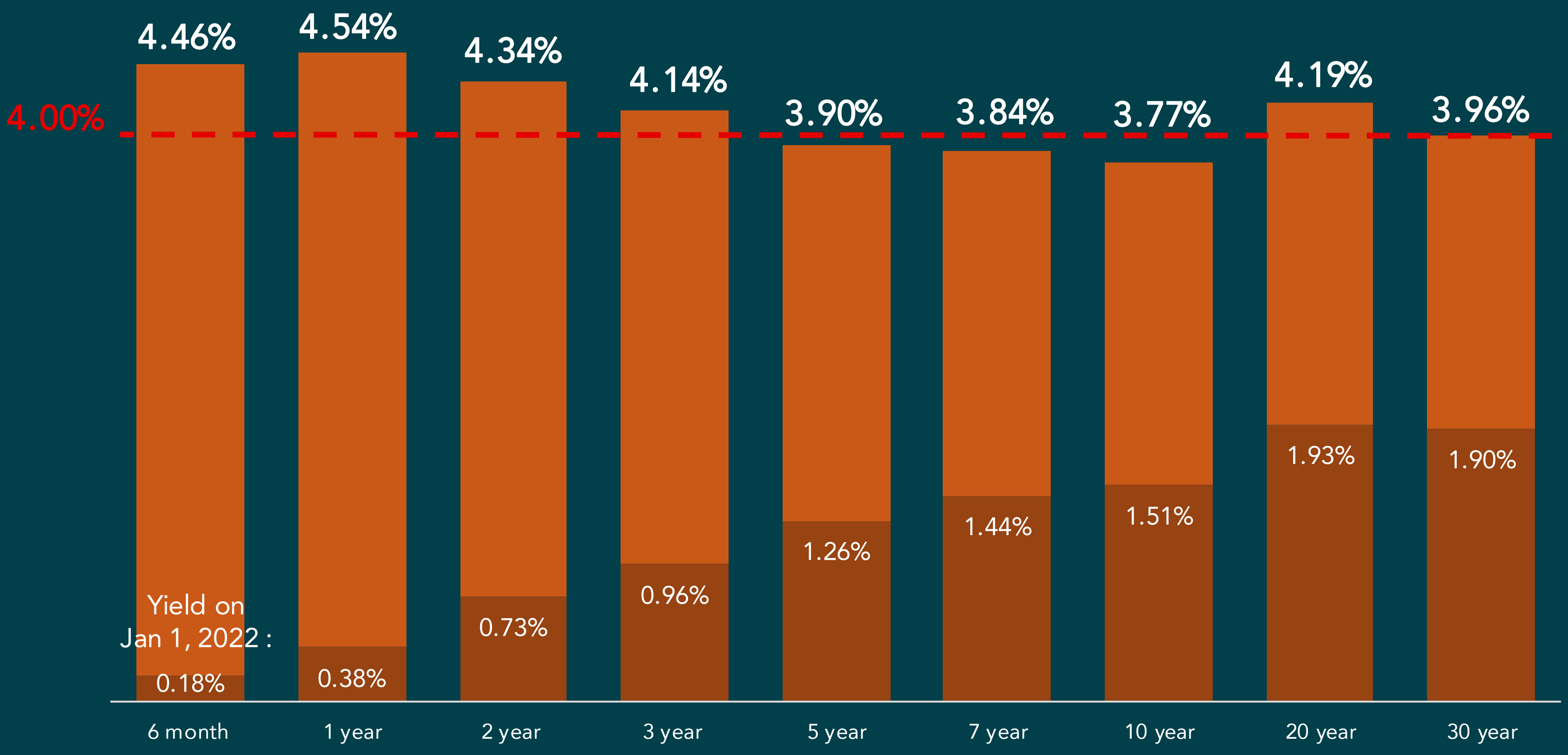


Source: (1) Bloomberg. Data as of November 15, 2022.

Much of UST Curve Above 4%

With inflation proving more persistent than anticipated, and the Fed more hawkish, much of the US Treasury curve from 6 months to 30 years is now trading above 4%, a significant repricing from earlier this year. Market expectations for peak Fed Funds have also repriced to approximately 5%, up more than 150 bps since early August alone.

US treasury yields



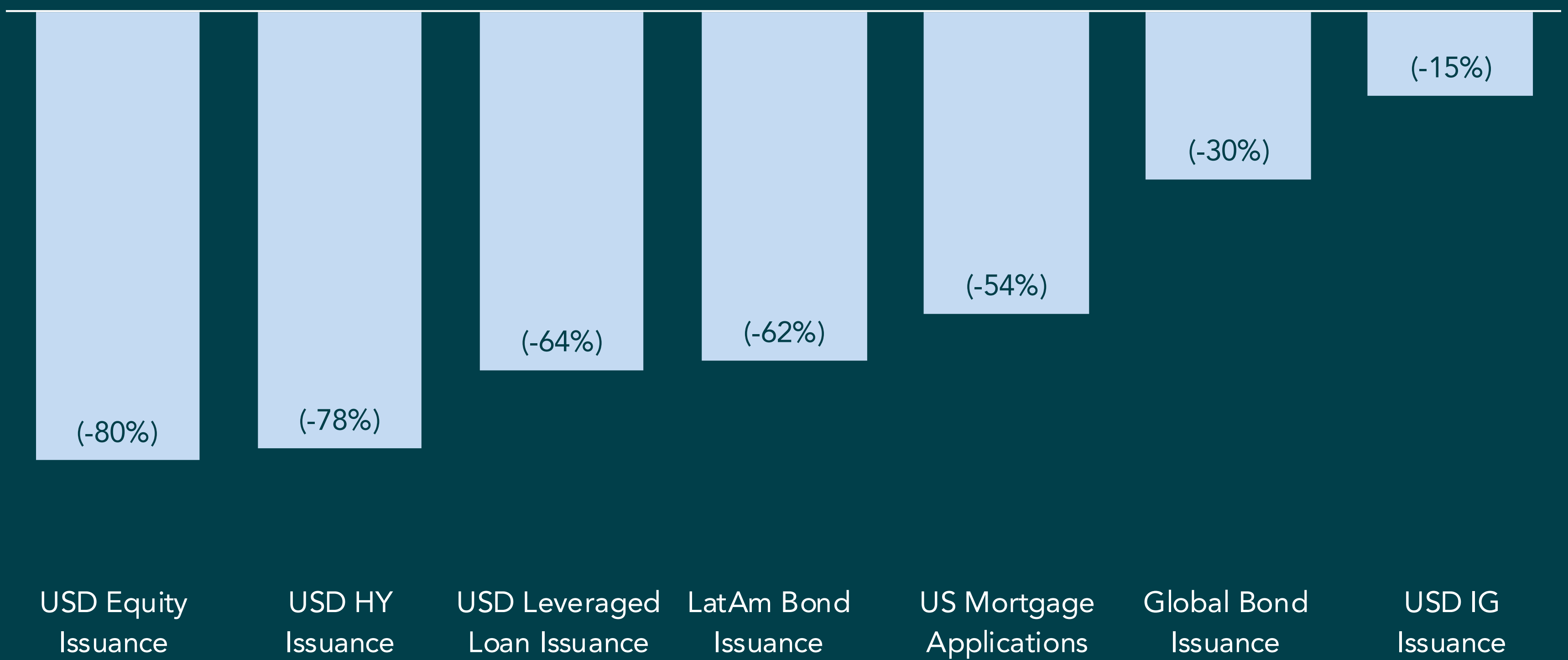
Source: (1) Bloomberg. Data as of November 15, 2022.

8. Constructive Windows for Issuance

Tightening Financial Market Conditions

With high pre-funding activity and fortress balance sheets, corporate new issue activity has dropped sharply in 2022 as central banks tighten policy and global geopolitical tensions spike. Private sector funding, mortgages and bank lending are also down sharply over the period.

YTD issuance volumes (y/y)

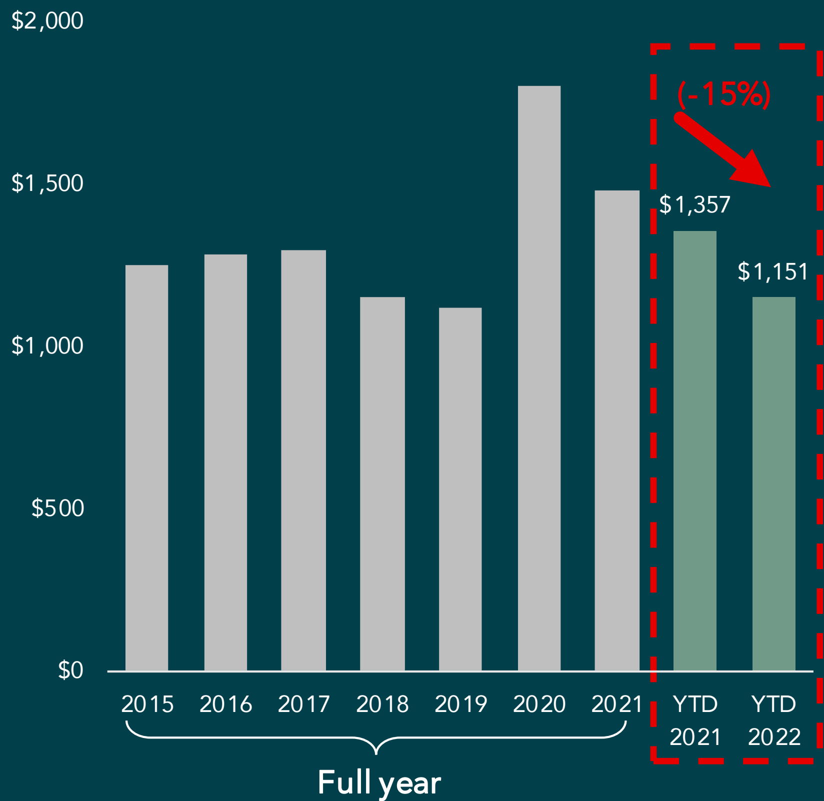


Source: (1) MUFG Capital Markets. DCM. ECM. FT. Bloomberg. Reuters. IG, HY, Equity and leveraged loan issuance is as of November 11, 2022. LatAm issuance is as of October 28, 2022. Global bond issuance is global IG corporates, from Dealogic, data as of November 1, 2022. Mortgage data as of November 5, 2022.

Constructive Windows for Issuance

Despite higher volatility and wider credit spreads, IG new issue markets have remained very open, resilient and orderly compared to most global financing markets in 2022. As the year has progressed, investors have increasingly differentiated based on ratings, industry sector and issuance format (SEC-registered vs. 144A). Strong balance sheets, and lower issuance volumes, will continue to provide fundamental and technical support for constructive issuance windows in the months ahead.

IG USD new issue, bn



Narrowing issuance windows into year end

Nov 14 Week:

- One of the few "clean" weeks left in 2022

Nov 21 Week:

- Long Thanksgiving holiday weekend

Nov 28 & Dec 5 Weeks:

- Last 2 relatively "clean" weeks of year

Dec 12 Week:

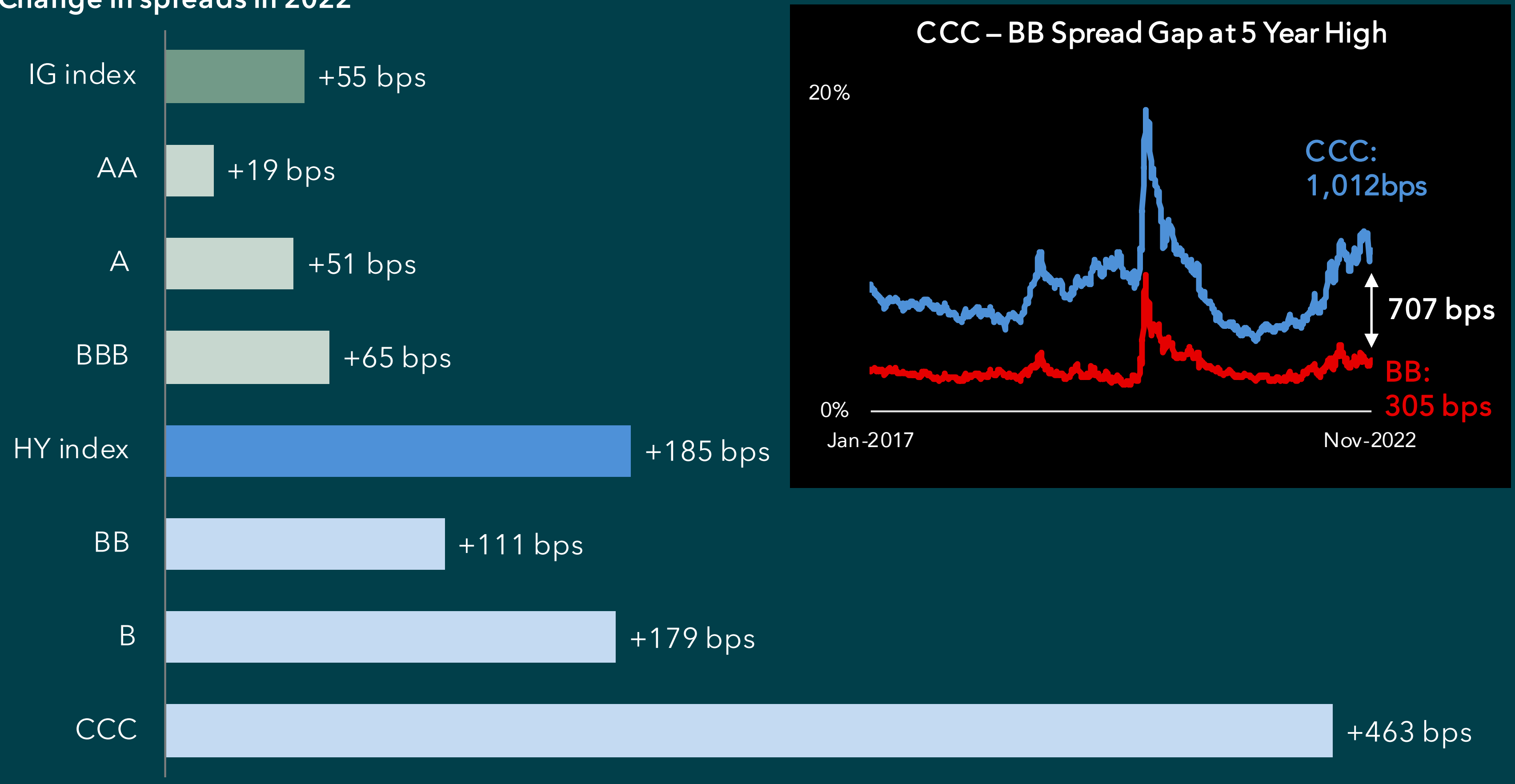
- Dec 13: US CPI report
- Dec 14: FOMC meeting on Dec 14
- Last issuance week of year

Source: (1) IFR. MUFG Syndicate. 2022 IG issuance data as of November 11, 2022.

Market Differentiating More by Credit Quality

During 2020 / 2021, HY and IG spreads reached post GFC tights, spreads compressed across the ratings spectrum and lower credits outperformed. As volatility returns to the market in 2022, higher rated credits have strongly outperformed with significant differentiation across the entire ratings spectrum.

Change in spreads in 2022

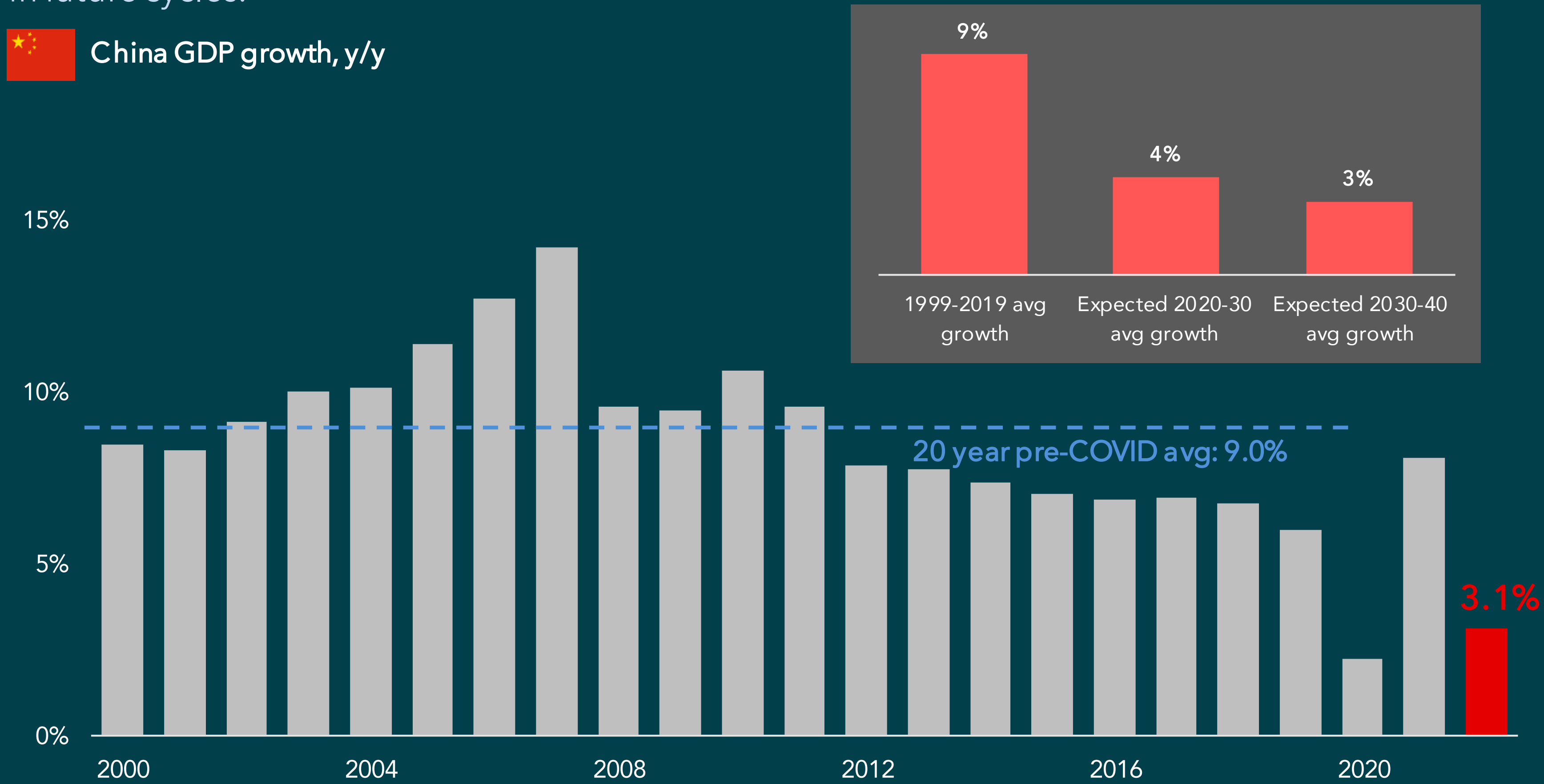


Source: (1) Bloomberg. Data as of November 14, 2022. Bloomberg OAS indices.

9. Politics Over the Economy in China

China Unlikely as Counter-Cyclical Buffer

China is unlikely to play its historical role as a counter-cyclical buffer for the global economy in the current cycle. In recent decades, when the global economy slowed down, China sharply increased policy stimulus, lifting "all boats" around it that were high beta to China growth (from SE Asian and European economies to energy and industrial metals markets). In our view, this is less true today, and in future cycles.



Source: (1) Oxford Economics. Data as of November 14, 2022.

China After the 20th Party Congress

1. Highly choreographed consolidation of power
2. "Politics" asserting its primacy over the "economy"
3. "Quality" (security, resilience) of growth over "rate" of growth
4. "State-driven" growth over "private sector" and markets
5. A new Marxist nationalism over pragmatic, less-ideological governance
6. "Common prosperity" over private sector wealth creation
7. Domestic sourcing of growth and technology innovation
8. Zero COVID policy unlikely to change ("sanctity of life," social control)
9. "The great rejuvenation of the Chinese nation" (globally, regionally)
10. More assertive foreign policy (i.e., Taiwan unification)

"President Xi has pushed politics to the Leninist left, economics to the Marxist left, and foreign policy to the nationalist right."
Kevin Rudd, Former PM of Australia, in Foreign Affairs

Selected Outgoing Members of China's Politburo

Li Keqiang
67 Years old

Outgoing Premier of People's Republic of China

- Key part of Chinese leadership under Xi Jinping before the most recent party congress
- Often seen as political ally of Hu Jintao and had been viewed as a candidate to become Paramount Leader (before Xi took on the role)
- Architect behind shift in economic priority to consumption rather than export led growth and "Made in China 2025" strategic plan
- Advocate for economic liberalization policies

Wang Yang
67 years old

Outgoing Chairman of the National Committee of the Chinese People's Political Consultative Conference

- Vice Premier under Li Keqiang between 2013 and 2018
- Seen as leading reformer and emphasized private enterprise, economic growth and a greater role for civil society

Hu Chunhua
59 years old

Outgoing Vice Premier under Li Keqiang

- Previously considered a potential future leader of the party
- Advocate for relatively liberal economic policies
- Many political and career similarities to Hu Jintao

Chen Quanguo
66 years old

Outgoing deputy head of the CCP Central Rural Work Leading Group

- Previously CCP Committee Secretary of Tibet and Xinjiang Uyghur Autonomous Regions

Liu He
70 years old

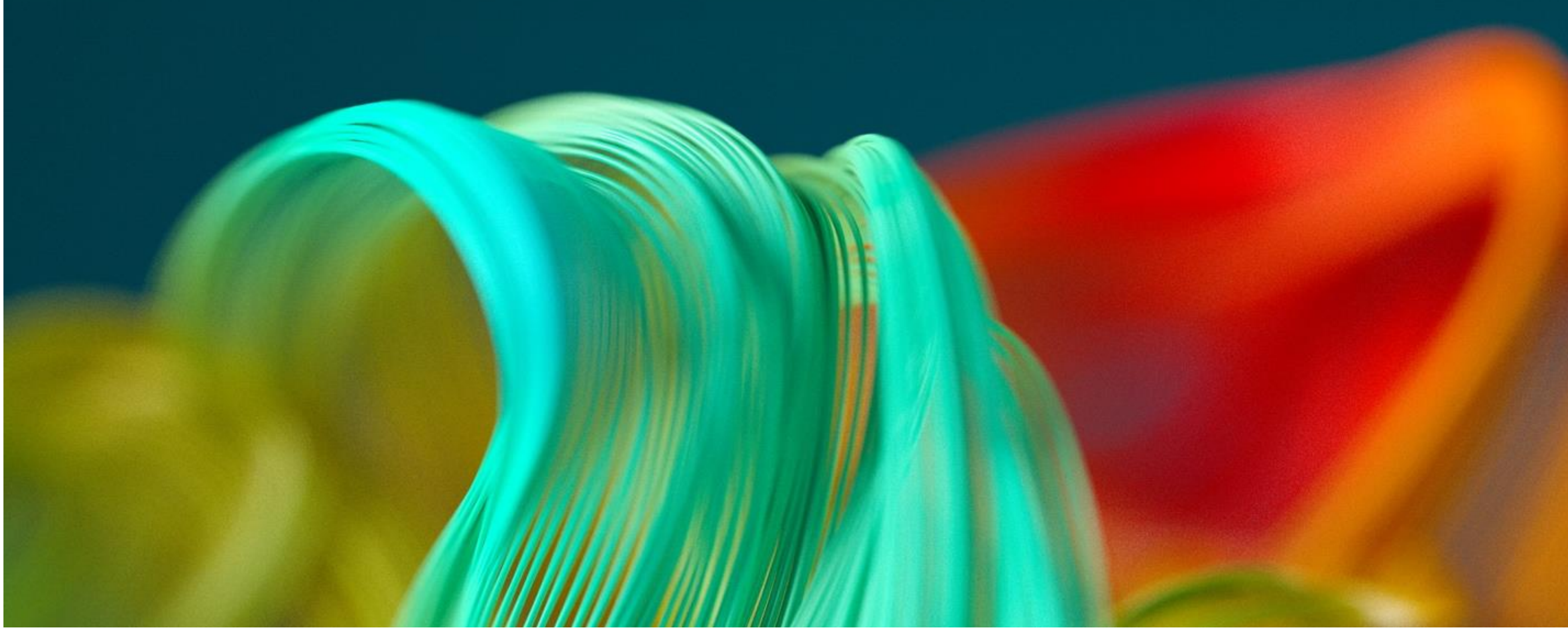
Outgoing Vice Premier under Li Keqiang

- Formerly responsible for Central Financial and Economic Affairs Commission
- Architect of much of China's recent economic policy
- Childhood friend of Xi Jinping
- Foreign-educated and reform minded

Unmistakable "Symbolism" of Hu Jintao's Removal

On the last day of China's 20th Communist Party Congress in October, a photo shown 'round the world captured former Chinese Premiere Hu Jintao's forcible removal from his seat immediately next to President Xi Jinping. While speculation on his visible removal from the Congress has ranged from "health-related" reasons to "power politics," the symbolism of this highly orchestrated and climactically timed action was unmistakable in our view.

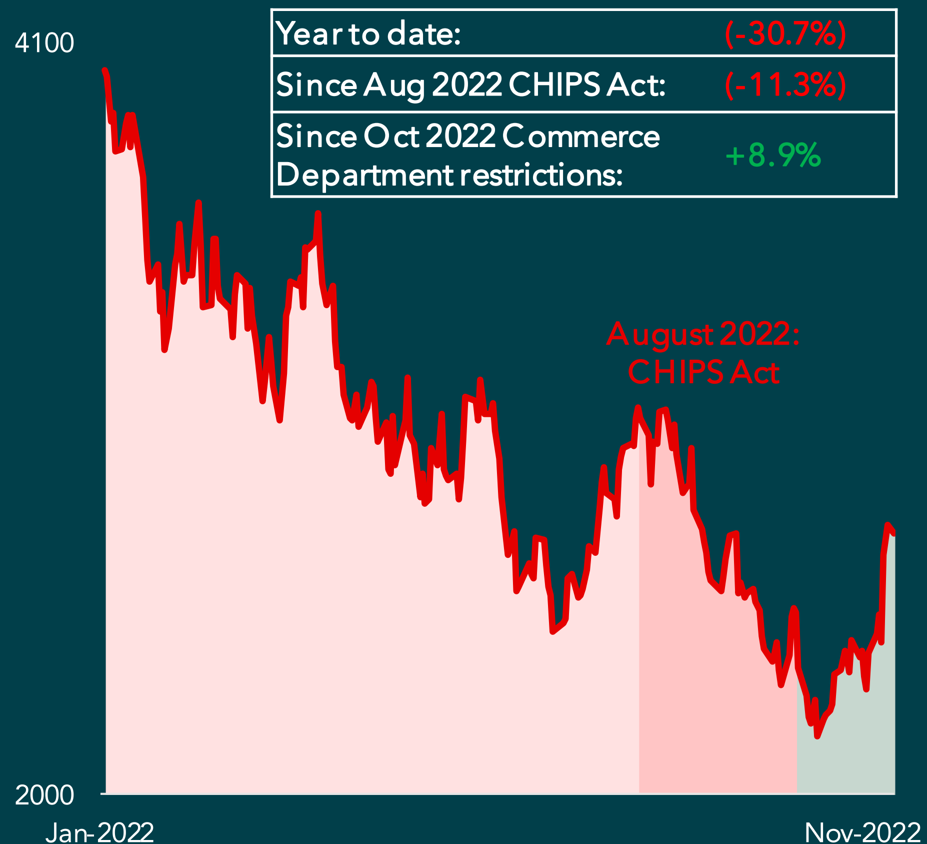
10. Semiconductor Showdown



Semiconductor Showdown

While the Russia-Ukraine crisis will likely remain the primary geopolitical risk over the next 1-2 years, we believe that US-China will reassert itself as the most important bilateral relationship globally over the next 2-10 years. As US-China structural rivalry escalates, we expect technology decoupling to be the primary channel of confrontation.

Philadelphia semiconductor index



Recent US Policy Escalation On Semiconductors

CHIP 4 Alliance (2021)

- US, Japan, S. Korea and Taiwan framework limits high tech investment with China

$280 bn US CHIPS Act. (Aug 2022)

- Restricts sharing technology with China better than 28 nanometers

US Commerce Department (Oct 2022)

- Restrictions on China semi investment
- 31 Chinese entities added to "Unverified List" (restrictions)

Source: (1) Bloomberg. Data as of November 14, 2022.

Semiconductor Showdown

On October 7th, the US Department of Commerce announced a myriad of new technology restrictions, including on semiconductor exports to China. The new restrictions prohibit certain semiconductor chips from being exported to China if they are produced with US equipment, regardless of where production occurs. The chips restricted include logic chips under 16 nanometers, DRAM chips below 18 nanometers and NAND chips with 28 layers or more (relatively advanced chips). The Commerce department also added 31 Chinese companies to the "Unverified List" for 60 days which could trigger additional restrictions going forward.

October 7th additions to the Commerce Department's "Unverified List"

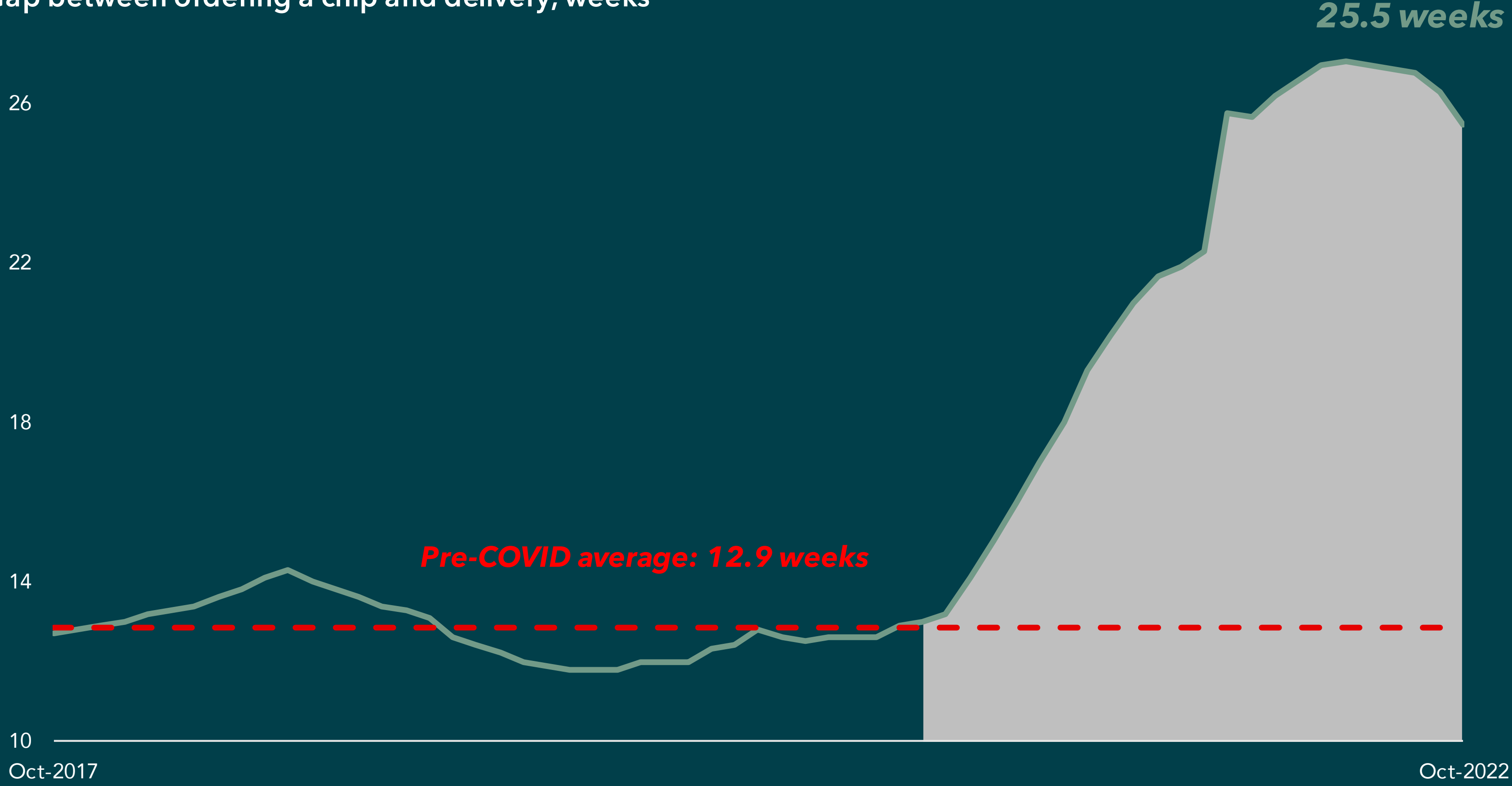
1. *Beijing Naura Magnetoelectric Technology Co., Ltd.*
2. *Beijing PowerMac Company*
3. *CCIC Southern Electronic Product Testing Co., Ltd.*
4. *Chang Zhou Jin Tan Teng Yuan Machinery Parts Co., Ltd.*
5. *Institute of Mineral Resources, Chinese Academy of Geological Sciences*
6. *Chinese Academy of Science (CAS) Institute of Chemistry*
7. *Chongqing Optel Telecom*
8. *Chongqing Xinyuhang Technology Co., Ltd.*
9. *Dandong Nondestructive Electronics*
10. *DK Laser Company Ltd.*
11. *Foshan Huaguo Optical Co., Ltd.*
12. *GRG Metrology & Test (Chongqing) Co., Ltd.*
13. *Guangdong Dongling Carbon Tech. Co., Ltd.*
14. *Guangxi Yuchai Machinery Co., Ltd.*
15. *Guangzhou GRG Metrology & Test (Beijing) Co., Ltd.*
16. *Jialin Precision Optics (Shanghai) Co., Ltd.*
17. *Lishui Zhengyang Electric Power Construction*
18. *Nanjing Gova Technology Co., Ltd.*
19. *Ningbo III Lasers Technology Co., Ltd.*
20. *Qingdao Sci-Tech Innovation Quality Testing Co., Ltd.*
21. *Shanghai Tech University*
22. *Suzhou Sen-Chuan Machinery Technology Co., Ltd.*
23. *Tianjin Optical Valley Technology Co., Ltd.*
24. *University of Chinese Academy of Sciences*
25. *University of Shanghai for Science and Technology*
26. *Vital Advanced Materials Co., Ltd.*
27. *Wuhan Institute of Biological Products Co., Ltd.*
28. *Wuhan Juhere Photonic Tech Co., Ltd.*
29. *Wuxi Hengling Technology Co., Ltd.*
30. *Xian Zhongsheng Shengyuan Technology Co., Ltd.*
31. *Yangtze Memory Technologies Co., Ltd.*

Source: (1) Bloomberg. Data as of October 13, 2022. Federal Registrar, "Revisions to the Unverified List; Clarifications to Activities and Criteria That May Lead to Additions to the Entity List"

Microchips at Center of Supply Chain Bottlenecks

The regionally concentrated, and globally extended, supply chain for semiconductors is at the center of both global supply chain bottlenecks and US-China-Taiwan relations. While chip delivery times shrank by six days in October to 25.5 weeks, the biggest drop since 2016, they are still well above their pre-COVID average of 12.9 weeks.

Gap between ordering a chip and delivery, weeks



Source: (1) Bloomberg, "Chip Delivery Times Shrank Rapidly in October as Supply Crunch Subsides" (November 10, 2022). Susquehanna Group.

About the Authors

Tom Joyce

Managing Director
Capital Markets Strategist
New York, NY

Tom.Joyce@mufgsecurities.com
(212) 405-7472

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.

About the Authors

Hailey Orr

Director
Capital Markets Strategist
New York, NY

Hailey.Orr@mufgsecurities.com
(212) 405-7429

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".

Stephanie Kendal

Associate
Capital Markets Strategist
New York, NY

Stephanie.Kendal@mufgsecurities.com
(212) 405-7443

Role

Stephanie Kendal is an associate 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

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

Education

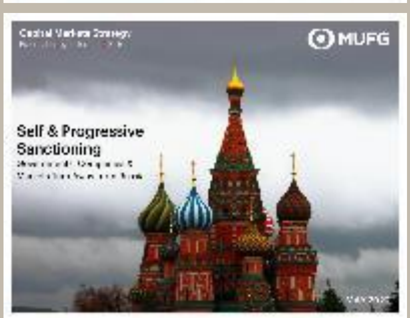
Stephanie graduated with honors from the University of Michigan's Ross School of Business with a BBA .

Personal

Stephanie is actively involved in NYC's iMentor program, mentoring high school students with their journey to college graduation.

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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