Capital Markets Strategy
Essential inCights for the C-Suite

Casualties of Tightening

The Historic Rise in Global Central Bank Policy Rates

OCT 2022


"And the sun took a step back, the leaves lulled themselves to sleep, and autumn awakened."
Raquel Franco, American poet

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."

Contents

Section 1:
Synchronicity

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			
Mexico	5.7%	8.0%	↑
US	4.7%	7.9%	↑
Canada	3.4%	6.7%	↑
Eurozone	**2.6%**	**8.1%**	↑
Netherlands	2.7%	10.3%	↑
Spain	3.1%	8.6%	↑
Italy	1.9%	7.8%	↑
Ireland	2.4%	7.7%	↑
Germany	3.1%	7.5%	↑
Finland	2.2%	7.1%	↑
France	1.6%	6.0%	↑
Other Europe			
Turkey	19.6%	73.0%	↑
Czech Republic	3.8%	15.3%	↑
Russia	6.7%	13.9%	↑
Poland	5.1%	13.6%	↑
UK	2.6%	9.0%	↑
Denmark	1.9%	7.6%	↑
Sweden	2.2%	7.4%	↑
Norway	3.5%	6.3%	↑
Switzerland	0.6%	2.8%	↑

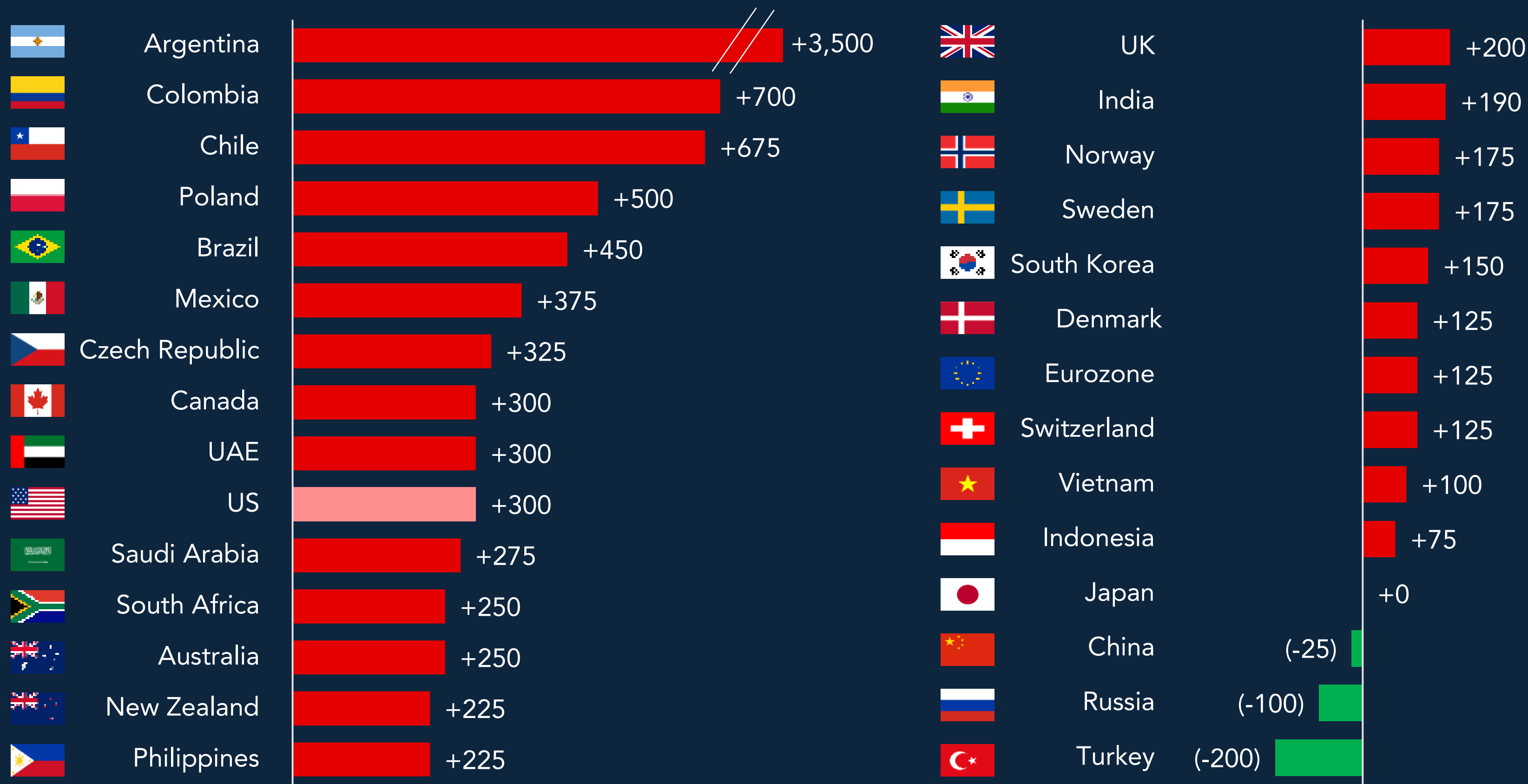
Region / country	2021	2022	
APAC			
India	5.1%	6.9%	↑
New Zealand	3.9%	6.7%	↑
Australia	2.8%	6.4%	↑
Singapore	2.3%	6.0%	↑
Vietnam	1.8%	3.3%	↑
Philippines	3.9%	5.8%	↑
South Korea	2.5%	5.3%	↑
Indonesia	1.6%	4.8%	↑
China	0.9%	2.3%	↑
Japan	(-0.2%)	2.1%	↑
LatAm			
Argentina	48.4%	74.3%	↑
Chile	4.5%	11.7%	↑
Colombia	3.5%	9.8%	↑
Brazil	8.3%	9.7%	↑
MENA			
Sub-Saharan Africa	15.4%	17.4%	↑
South Africa	4.6%	6.8%	↑
UAE	0.2%	4.5%	↑
Saudi Arabia	3.1%	2.3%	↓

Source: (1) Oxford Economics. Data as of October 4, 2022.

Synchronized Global Policy Tightening

In a shifting of the tectonic plates that have underpinned global economic policy over the last decade, nearly 90 central banks have embarked on the fastest global monetary tightening campaign in the modern era.

Cumulative change in policy rate for selected CBs (2022 YTD, bps)



Source: (1) Bloomberg. Data as of October 4, 2022. Axis cut off due to magnitude of Argentina rate hikes.

Synchronized Global Growth 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			
Canada	2.9%	(-1.1%)	↓
Mexico	1.9%	0.6%	↓
US	1.7%	0.0%	↓
Eurozone	3.0%	0.0%	↓
Ireland	7.8%	1.2%	↓
Netherlands	4.7%	0.9%	↓
Spain	4.3%	1.0%	↓
Italy	3.3%	(-0.1%)	↓
France	2.6%	0.2%	↓
Finland	2.3%	0.0%	↓
Germany	1.3%	(-0.8%)	↓
Other Europe			
Turkey	4.8%	0.8%	↓
Poland	4.4%	(-0.0%)	↓
UK	3.5%	0.2%	↓
Sweden	3.0%	0.9%	↓
Czech Republic	2.6%	(-0.4%)	↓
Denmark	2.3%	0.5%	↓
Switzerland	2.1%	0.0%	↓
Norway	2.0%	0.8%	↓
Russia	(-4.4%)	(-3.4%)	↑

Region / country	2022	2023	
APAC	3.5%	3.9%	↑
Vietnam	7.7%	6.3%	↓
India	7.0%	4.4%	↓
Philippines	6.1%	4.0%	↓
Indonesia	5.5%	4.7%	↓
Australia	3.8%	2.0%	↓
Singapore	3.6%	1.4%	↓
China	3.2%	4.9%	↑
South Korea	2.7%	1.6%	↓
New Zealand	1.9%	3.5%	↑
Japan	1.6%	1.4%	↓
LatAm	3.3%	0.7%	↓
Colombia	6.6%	(-1.5%)	↓
Argentina	3.7%	(-0.6%)	↓
Brazil	3.2%	0.4%	↓
Chile	2.0%	(-1.7%)	↓
MENA	4.6%	3.8%	↓
Saudi Arabia	8.1%	3.0%	↓
UAE	6.8%	3.6%	↓
Sub-Saharan Africa	3.3%	3.2%	↓
South Africa	1.8%	1.2%	↓

Source: (1) Oxford Economics. Data as of October 4, 2022.

Synchronized "Risk-Off" Global 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. As cross-asset volatility surges, a deleveraging and de-risking across all asset classes has followed.

2022 YTD market performance

Credit	
Loans	(-3.2%)
Japan Sovereign	(-3.3%)
CMBS	(-11.8%)
Munis	(-11.9%)
US Government	(-12.5%)
Mortgages	(-12.9%)
High Yield	(-14.1%)
Euro Sovereign	(-15.3%)
Preferred	(-16.1%)
High Grade	(-17.5%)
EM Sovereign	(-24.8%)
UK Sovereign	(-26.3%)

Equities	
Nifty 50 (India)	(-2.7%)
FTSE 100	(-6.4%)
Nikkei	(-8.9%)
Shanghai Composite	(-16.9%)
Dow	(-18.8%)
Euro Stoxx 50	(-22.2%)
S&P 500	(-22.8%)
DAX (Germany)	(-23.1%)
Russell 2000	(-23.9%)
Hang Seng	(-27.0%)
NASDAQ	(-30.9%)

Currencies	
USD index	+17.7%
Canadian Dollar	(-7.2%)
Swiss Franc	(-8.0%)
EMFX	(-8.1%
Australian Dollar	(-10.3%)
Euro	(-13.6%)
Danish Krone	(-13.6%)
New Zealand Dollar	(-16.2%)
British Pound	(-16.3%)
Norwegian Krone	(-17.2%)
Swedish Krona	(-17.8%)
Japanese Yen	(-20.4%)

Commodities	
Coal	+190.4%
Euro nat gas (TTF)	+141.5%
US nat gas	+73.5%
Palladium	+16.2%
Brent	+14.2%
Agriculture Index	+11.7%
WTI	+11.2%
Platinum	(-6.8%)
Gold	(-7.1%)
Silver	(-11.2%)
Aluminum	(-20.8%)
Copper	(-23.6%)

Source: Bloomberg. Data as of October 3, 2022. Credit is total returns. Agriculture is Bloomberg index. All FX performance is vs. USD.

The Worst is Yet to Come

Recognizing that visibility is low and tail risk high, businesses should prepare for a difficult period in the economy and markets over the next 3-4 months. Based on current facts and circumstances, Q1 2023 could be the low point for the global economy with a reasonably weak recovery expected in the 2H 2023.

3 converging forces expected in early 2023:

1. Maximum impact of central bank tightening
2. Maximum impact of mid-winter "energy crisis"
3. Maximum impact of "peak-inflation" (for many economies)

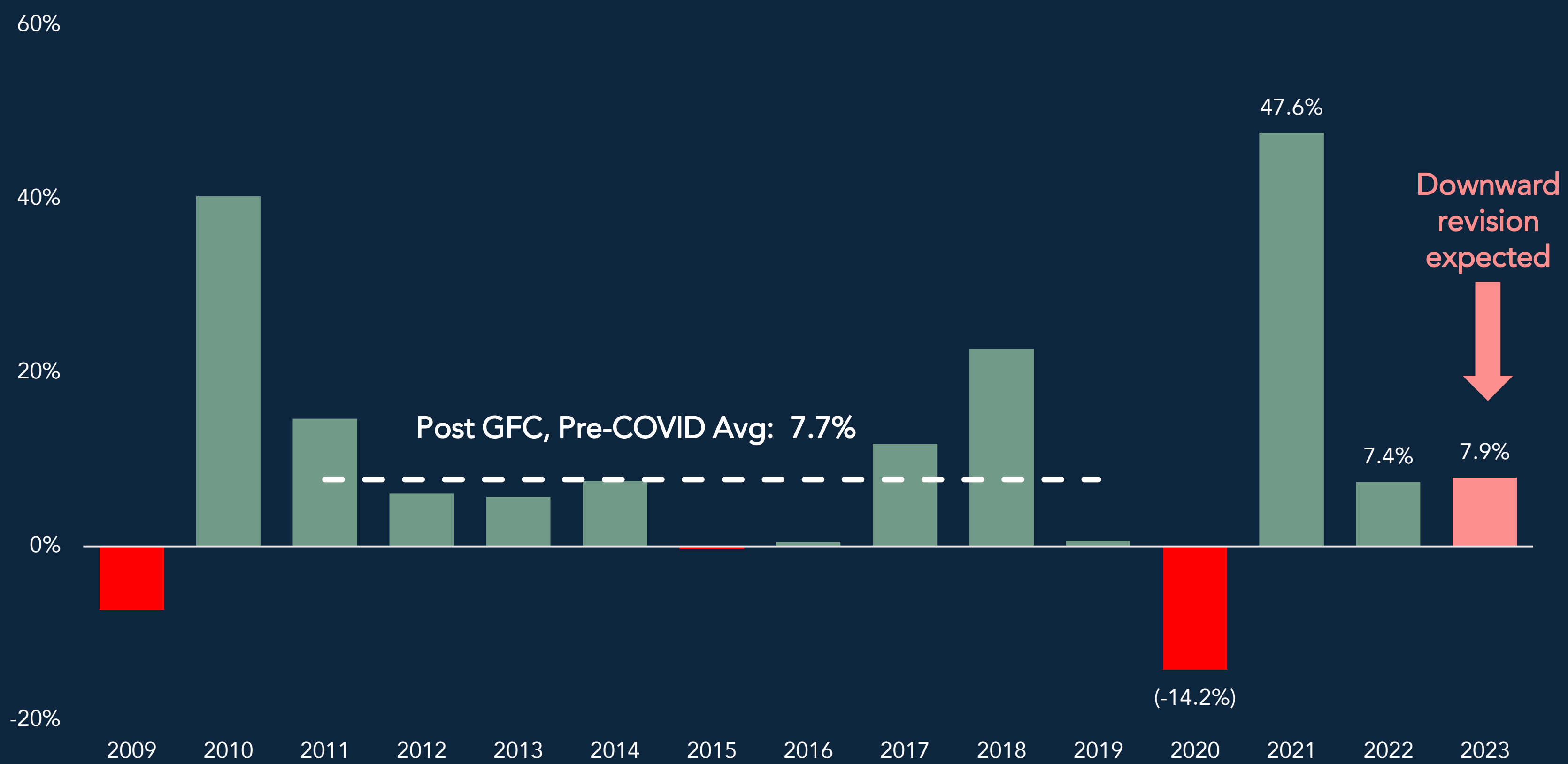
2023 corporate earnings likely revised lower for:

1. Nominal GDP growth declining
2. Funding costs rising
3. Labor & other input costs remaining high
4. Strong US Dollar

Corporate Earnings the Next Shoe to Drop

We expect a wave of downward corporate earnings revisions for 2023 in the weeks and months ahead given the close linkage between corporate earnings and nominal GDP growth. Additional headwinds include rising funding costs, higher labor and input costs and a strong US dollar. As earnings are revised lower, the pace of credit rating downgrades, in turn, will likely pick up.

S&P 500 annual earnings growth, y/y



Source: (1) 2021 – 2023 earnings data is FactSet Earnings Insight (September 30, 2022). Yardeni Research, "YRI S&P 500 Earnings Forecast" (December 2021).

Section 2:
Magnitudes of Tightening

Negative Rates Experiment Comes to a Close

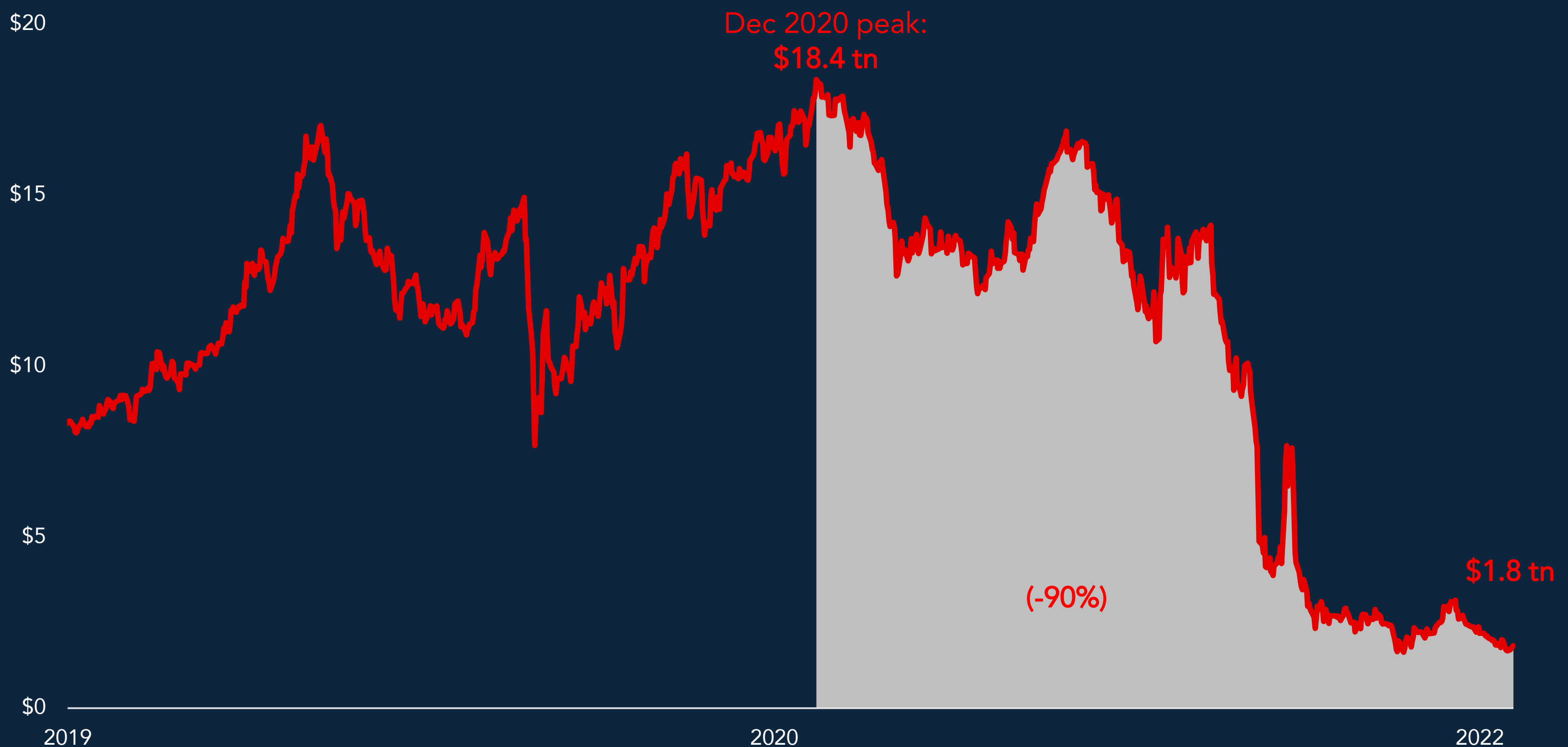
The grand experiment of negative policy rates began a decade ago when Denmark became the first central bank to go negative in 2012. With the ECB exiting negative policy rates in July, and Denmark and Switzerland following suit in September, Japan is now the only major global central bank with a negative policy rate. To be sure, markets will be watching the BOJ closely when a new governor succeeds Kuroda in April.

Source: Bloomberg. Data as of October 4, 2022.

90% Decline in Global Negative Yielding Debt

Global negative yielding debt peaked at the $18 trillion area during the peak US-China trade wars and COVID crisis period, but has since declined over 90% to less than $2 trillion as global central banks pivot to a new era of global synchronized tightening.

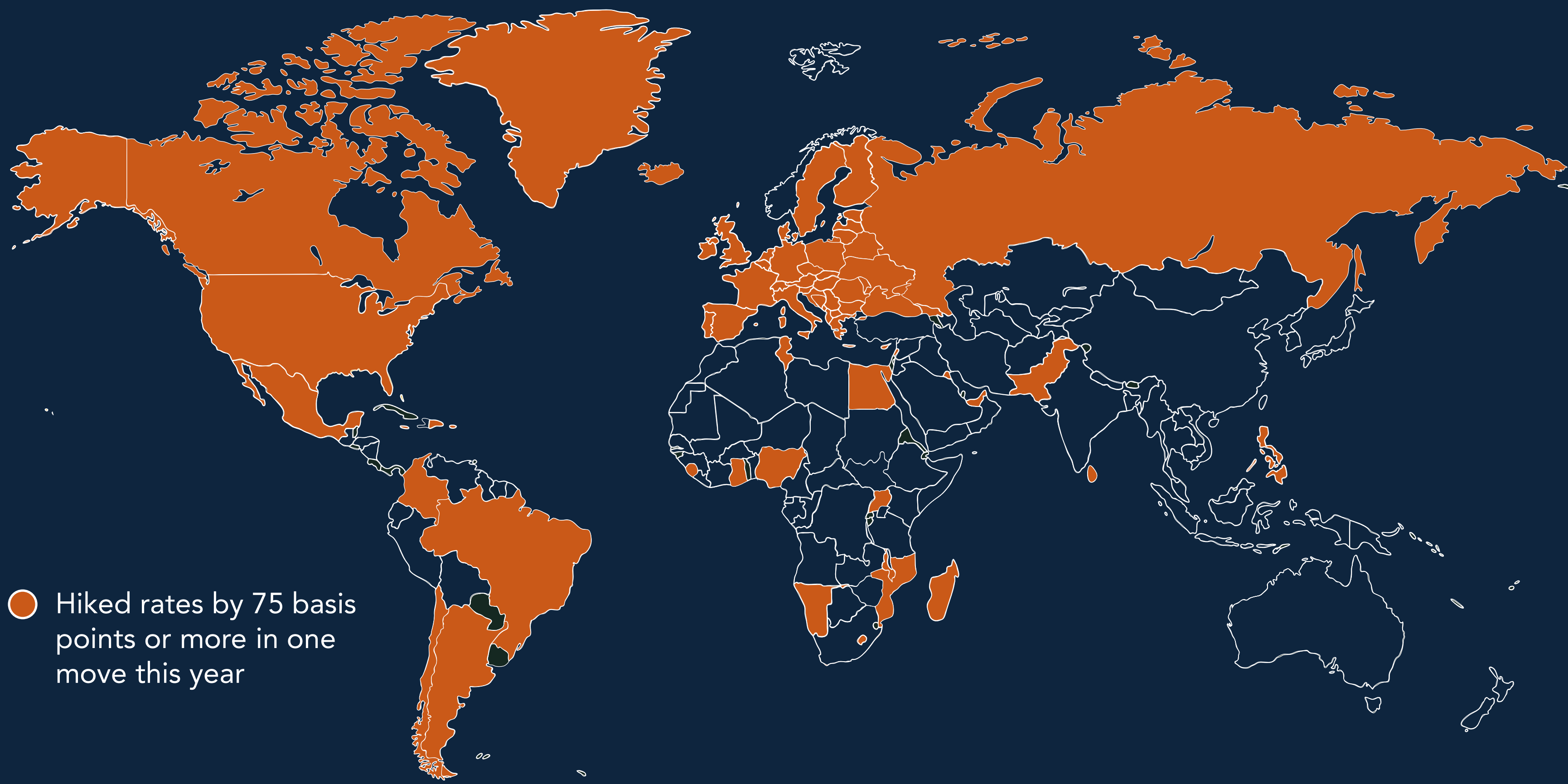
Global aggregate negative yielding debt, market value, USD tn



Source: (1) Bloomberg. Data as of October 4, 2022.

The 75 bps Hike Club

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 75 bps per meeting.



Source: (1) Bloomberg. Data as of October 4, 2022.

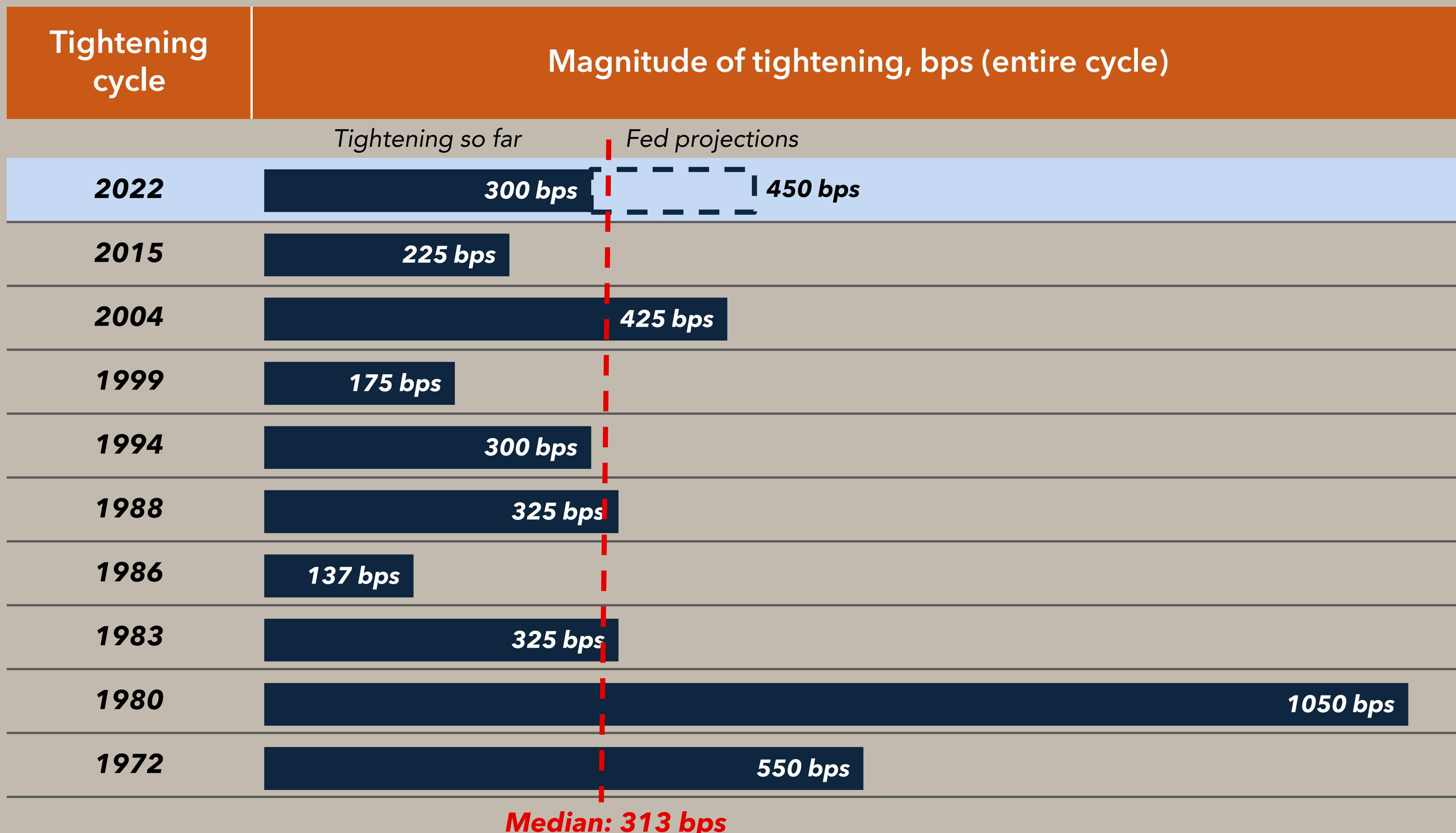
The 100 bps Hike Club

Sweden's Riksbank in September became the latest central bank to underestimate the rise in domestic inflation. Canada and Sweden are the only two central banks overseeing the world's 10 most traded currencies to hike rates by 100 bps in a single meeting this year, a remarkable development vis-a-vis expectations just months ago. Markets are also pricing in an outsized 100-125 bps of rate hikes at the Bank of England's next meeting on November 3.

Source: (1) Bloomberg. Data as of October 4, 2022.

Largest Magnitude of Tightening in 40 Years

Since 1980, Fed tightening cycles have averaged just around 300 bps, with nearly 200 bps in the first year alone (equivalent to one rate hike in each of the 8 FOMC meetings in a year).

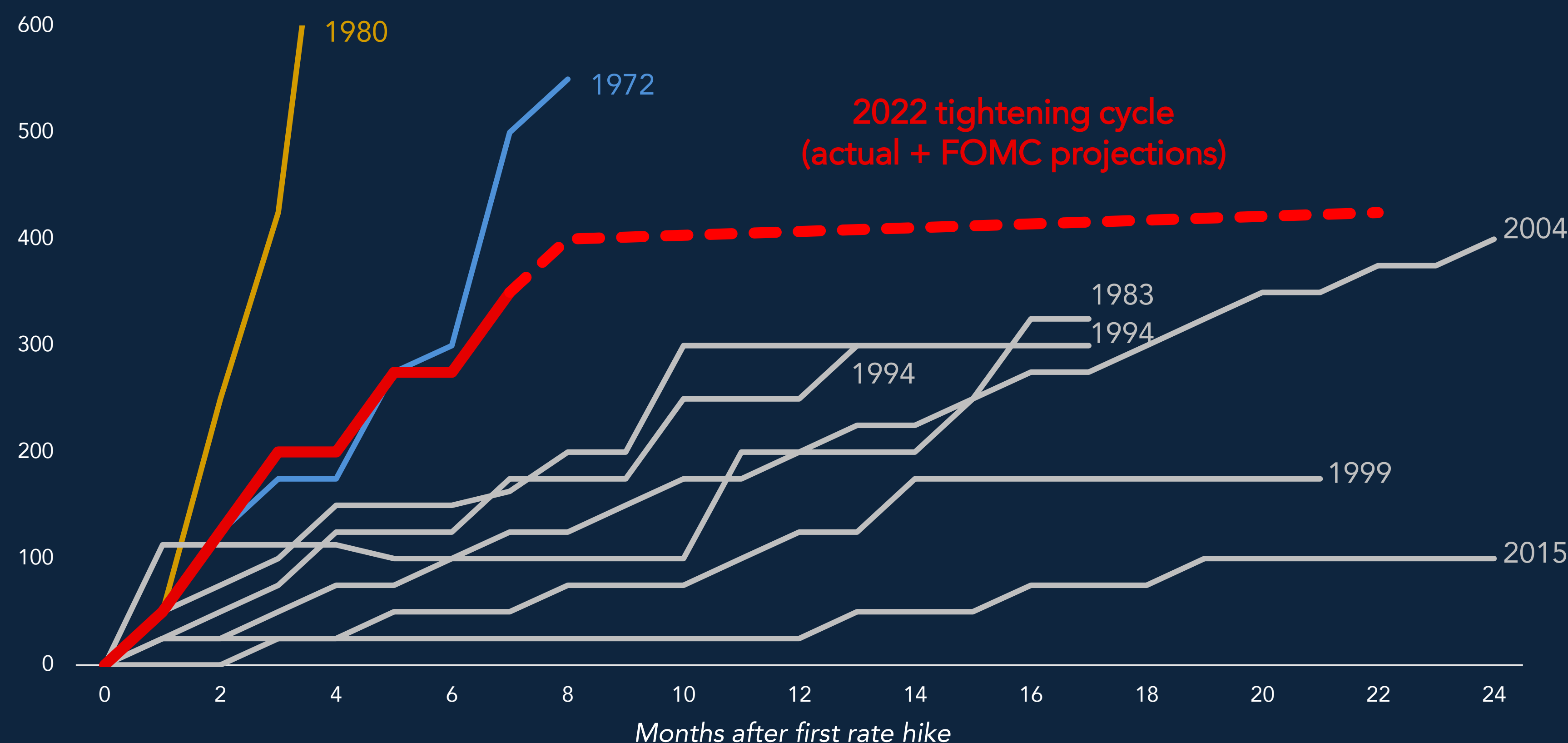


Source: (1) Bloomberg. Data as of September 30, 2022. Federal Reserve. Start rate is upper bound. 2022 hiking cycle is data as of September 2022 Fed meeting.

Fastest Pace of Tightening in 40 Years

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 three 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

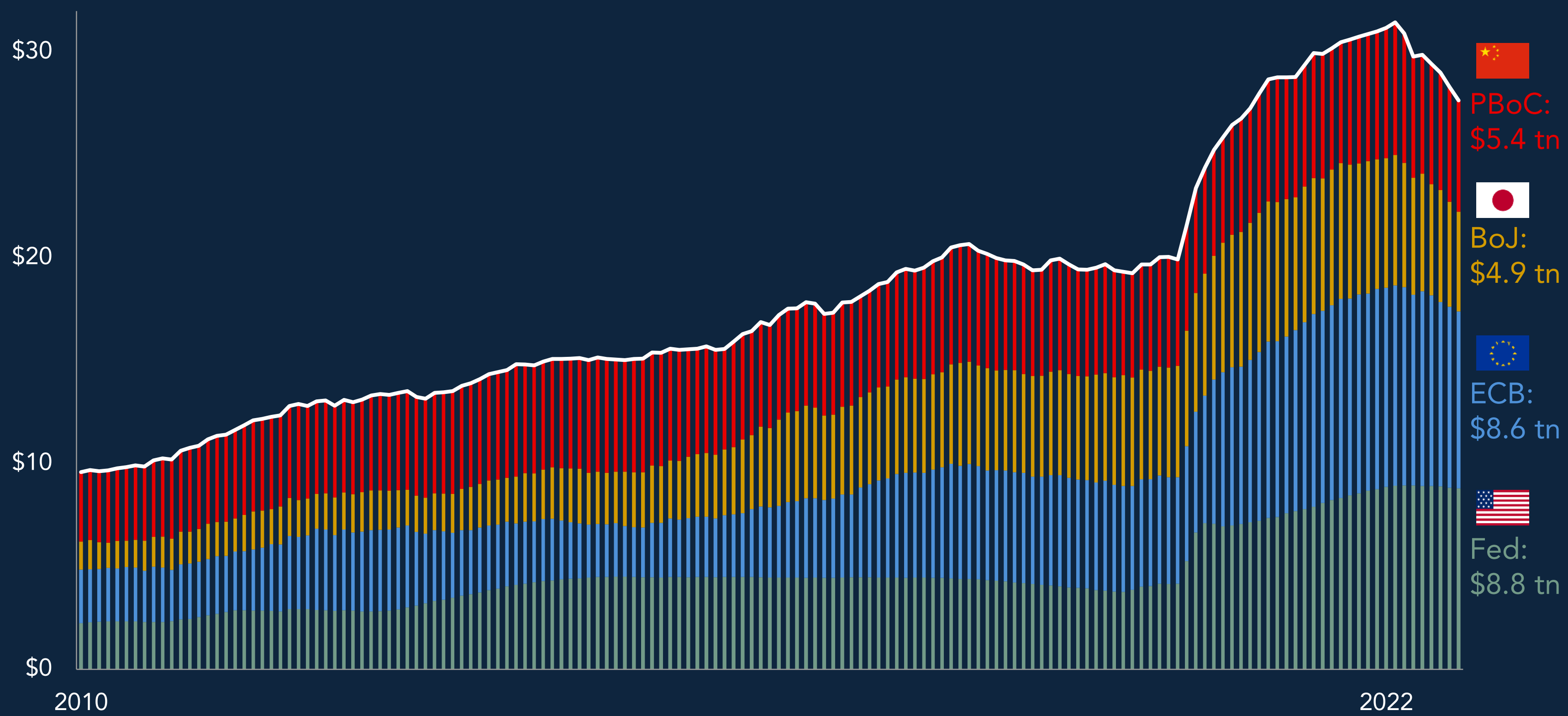


Source: (1) Bloomberg. Data as of October 4, 2022. X-axis is months after the first rate hike, 2022 tightening cycle dash line is Fed projections.

Big 4 Central Banks Draining Liquidity

Combined total assets of the four largest global central banks peaked at over $31 trillion in February and have declined to just under $28 trillion. While still very high relative to the pre-COVID period, the systematic draining of liquidity from the global financial system is putting pressure on bond markets. In September, the Fed started its maximum balance sheet reduction pace of $95 bn per month.

Total balance sheet assets, USD tn



Source: (1) "Recession Risks Across Emerging Markets" (Khoman). Bloomberg. Data as of October 4, 2022.

US M2 Money Supply Plunging Toward Zero

US M2 money supply growth, previously reaching a record high of 27% in 2021 (nearly 3x 2009 levels), is now plunging toward zero.

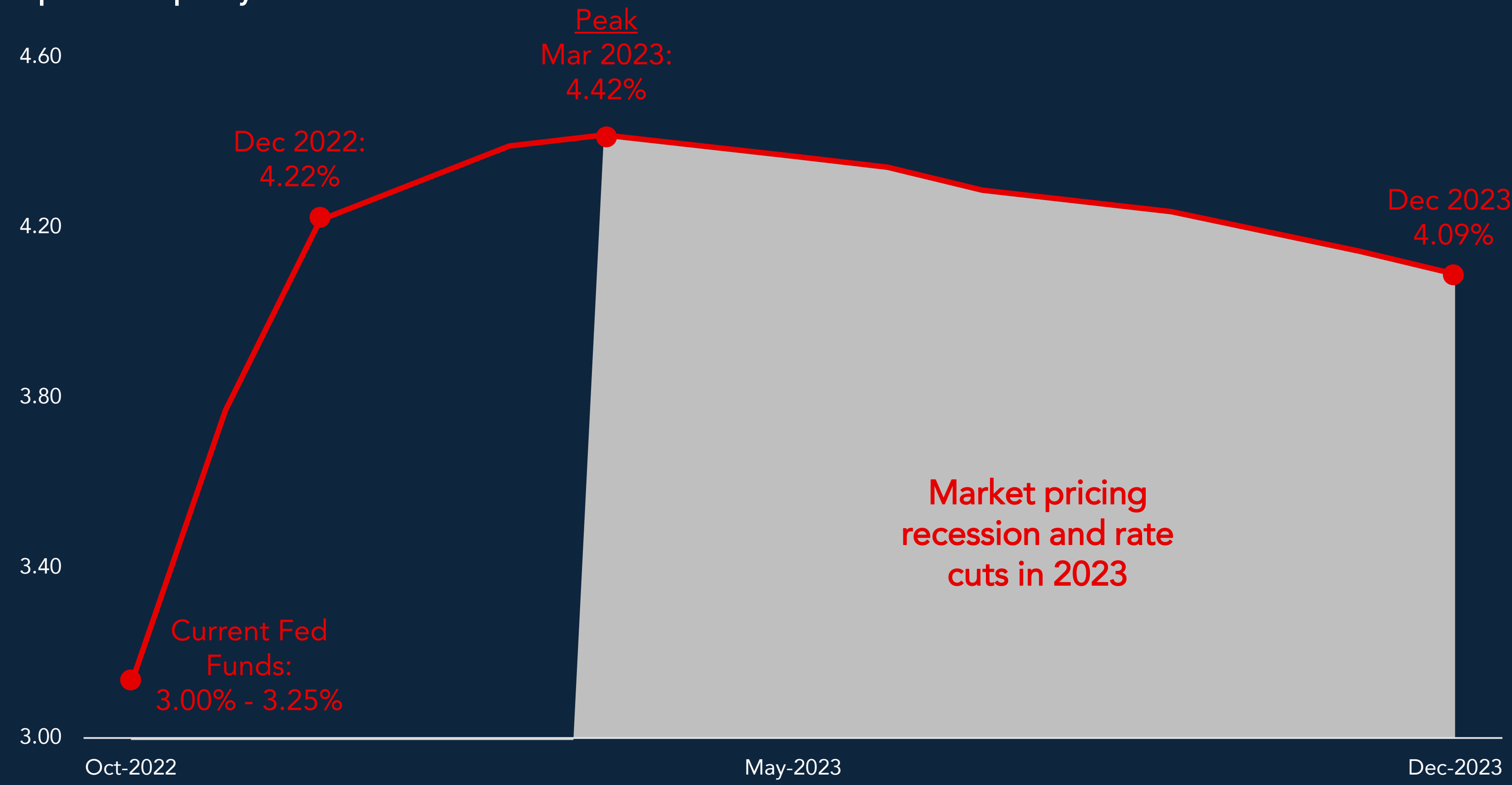
US M2 money supply, y/y growth

Source: (1) Bloomberg. Data as of October 4, 2022.

"Higher for Longer" Rates Narrative into 2023

The market is pricing in an additional 100 bps of rate hikes in Q4 2022, peak Fed Funds close to 4.5% in March 2023 and rate cuts in the latter half of the year. However, the market has consistently "underpriced" Fed tightening all year. In our view, companies should position themselves for a "higher for longer" rates narrative in 2023 as inflation may prove "stickier" than currently anticipated.

Implied Fed policy effective rate



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

Section 3:
Casualties of Tightening

Casualties of Fed Tightening

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.

Early 1980s
LatAm Debt Crisis

Late 1980s
US Commercial Real Estate

1994
G10 Bond Turmoil

Late 1990s
Asia Financial Crisis

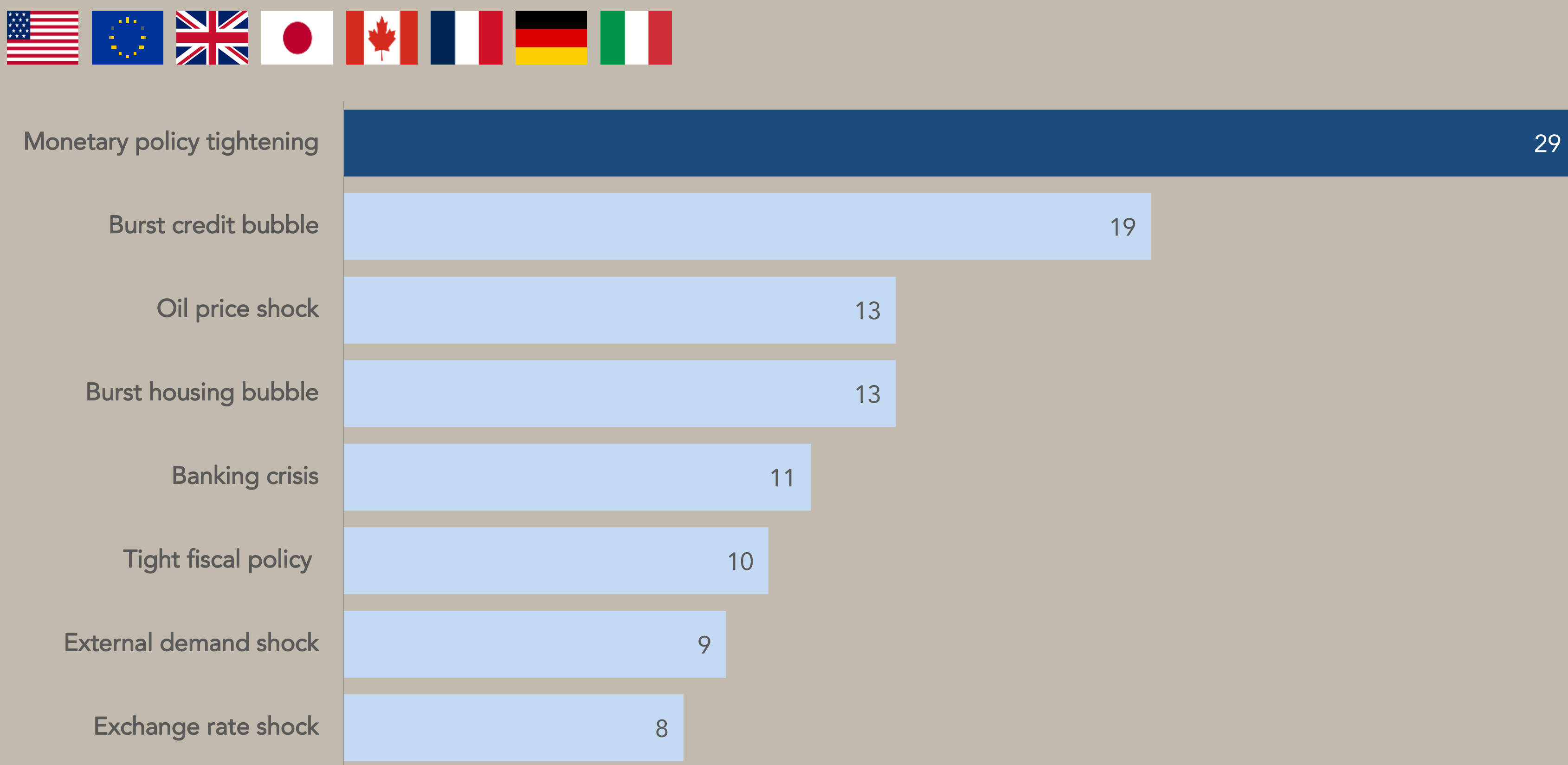
2008
Global Financial Crisis

2014-2016
Commodities Super Cycle Bust

Tightening Cycles Pose Risks for Markets

Monetary policy tightening and credit cycle turns have accounted for over half of G7 recessions since 1960

Factors contributing to 46 recessions in G7 economies since 1960

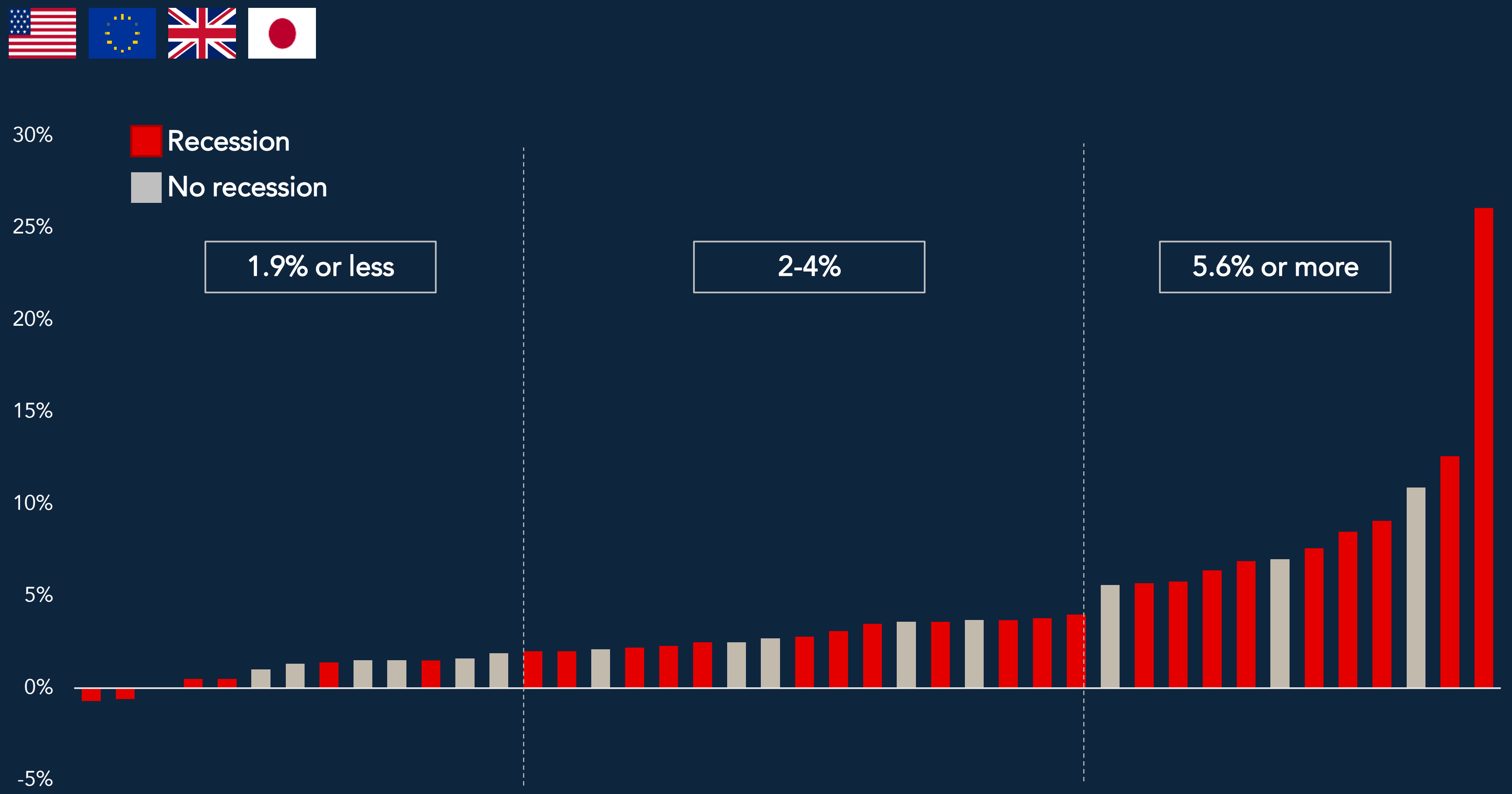


Source: (1) WSJ. Capital Economics. Factors contributing to 46 recessions in G7 economies since 1960. Bars do not sum to 46 due to multiple factors for specific recessions.

The More Inflation, the More Hard Landing Risk

In a study of 42 developed economy hiking cycles since 1950 (US, UK, EU, Japan), Oxford Economics found that higher levels of inflation at the start of a tightening cycle correspond with higher probability of recession.

G4 central bank tightening cycles by peak inflation rate (hard vs. soft landing)

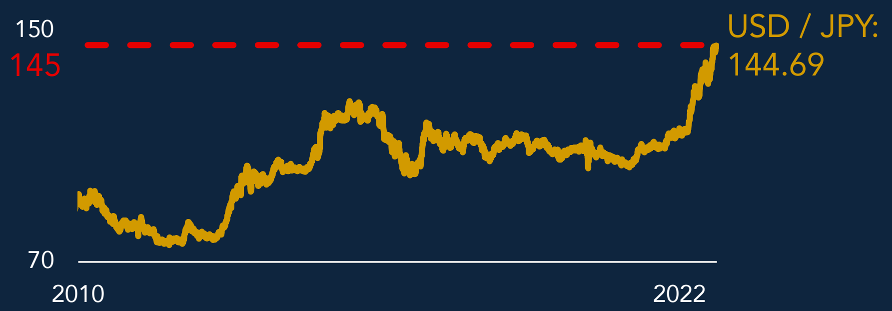


Source: (1) Oxford Economics, "What History Tells us About Rate Hikes and Recession Risk" (May 9, 2022).

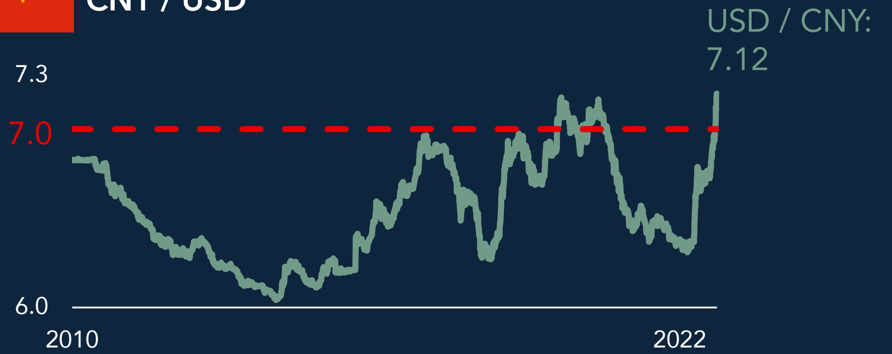
China, Japan and UK Intervene in Markets

Three of the world's largest economies – China, Japan & the UK – were forced to intervene in markets in late September. China moved to stem the 11% decline in RMB YTD, the largest drop since 1994. Japan's intervention, following Yen's 20% YTD decline, was the first in 25 years. The most serious, however, was the BOE's intervention to restore financial stability in Gilt bond markets and to mitigate insolvency risk for their pension funds (facing margin calls and pressure to liquidate Gilts). Recent interventions should be viewed as a bullet dodged, and crisis averted (for now), rather than a fundamental turning point.

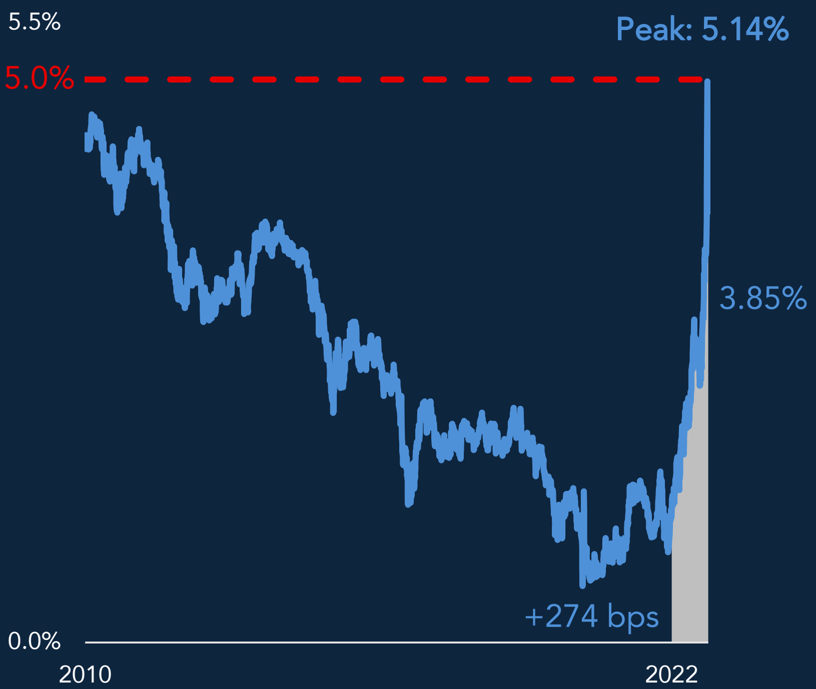
USD / JPY



CNY / USD



UK 30 year gilts

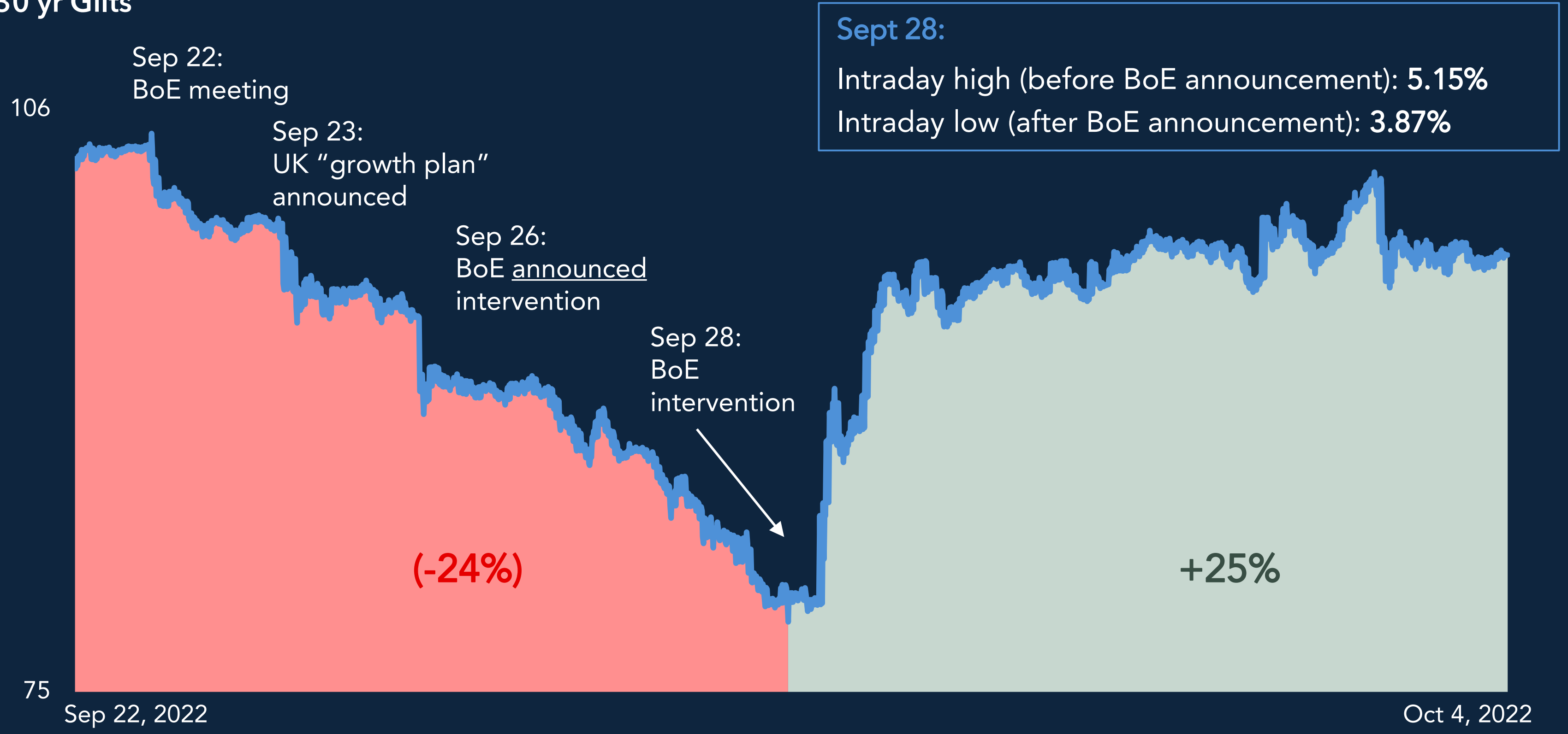


Source: (1-3) Bloomberg. Data as of October 4, 2022.

Reversing Course on Fiscal Misstep

As 30 year Gilt yields surged to a 20 year high above 5%, the Bank of England announced it would intervene in "whatever scale is necessary" to calm markets and protect UK financial stability. Initially, the BoE announced it would purchase up to £5 bn of long dated (> 20yr) Gilts for 13 consecutive business days. On October 3, under heavy political and market pressure, UK Finance Minister Kwarteng announced a reversal in part of the tax cut plan for the highest income tax bracket. Pressure on Sterling markets may nonetheless continue.

30 yr Gilts



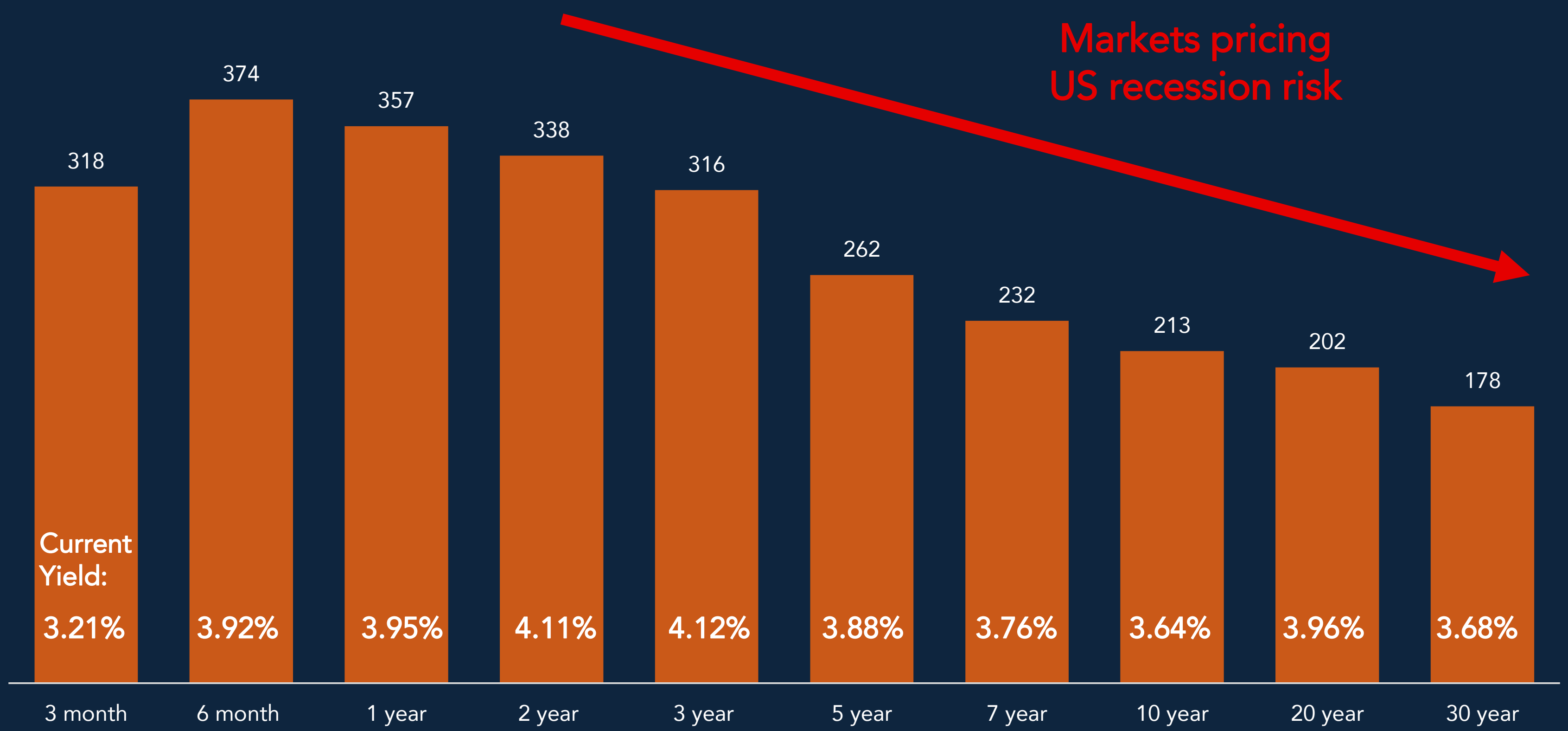
Source: (1) Bloomberg. Data as of October 4, 2022. Graph is intraday.

Section 4:
Financial Market Conditions

Risk Assets Taking Their Cue from Bonds

Losses in government bond markets have been the largest in six decades. The sell-off has been across the curve, with poor liquidity exacerbating the move. In September, the entire maturity spectrum from one to seven years was trading above 4%. More moderate spread widening at the long end of the curve, with 2s-30s at its most deeply inverted level since 2000, signals rising recession risk.

YTD change in US treasury yields, bps

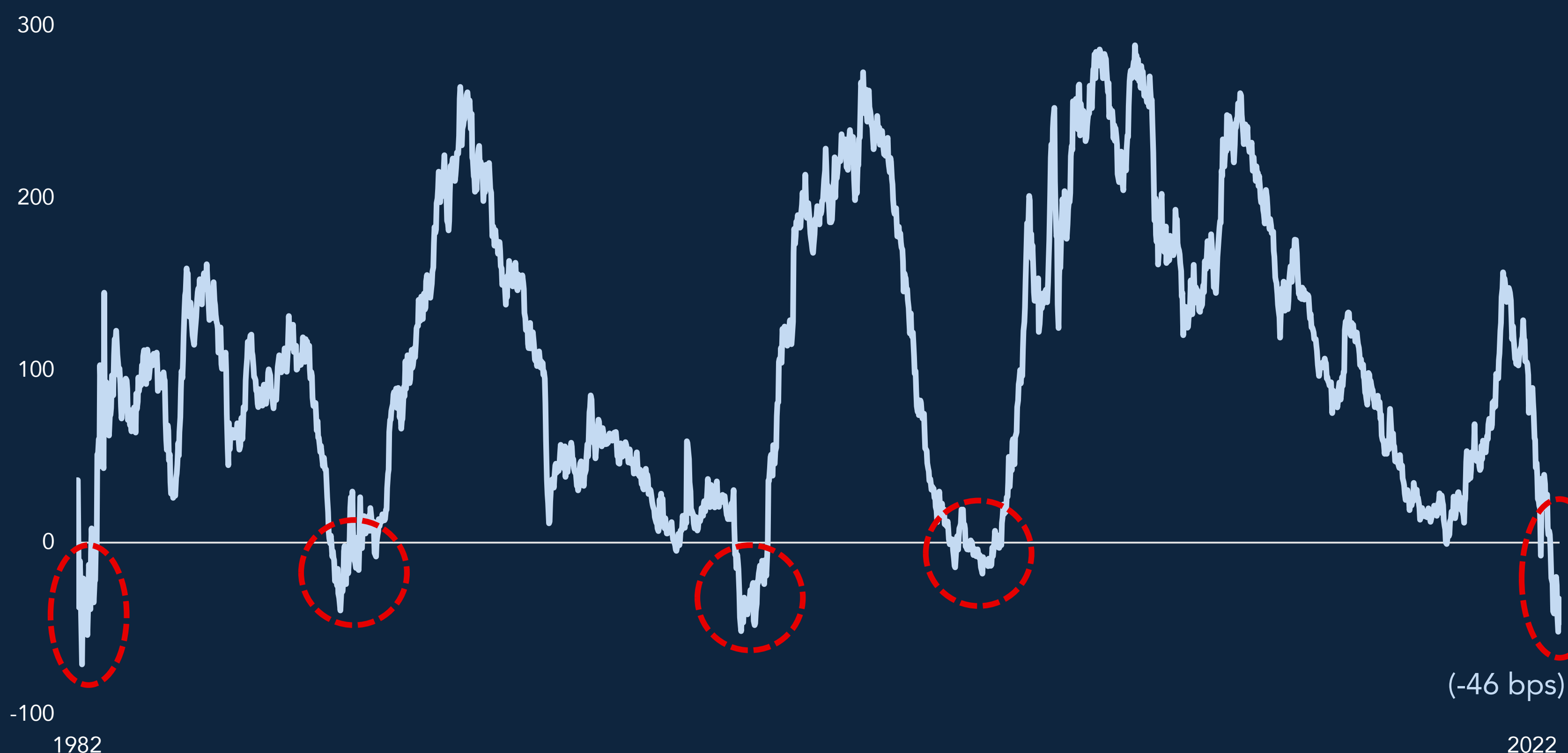


Source: (1) Bloomberg. Data as of October 4, 2022.

Yield Curve Most Inverted in 40 Years

US yield curve inversion has historically been the most reliable metric for signaling US recessions, 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

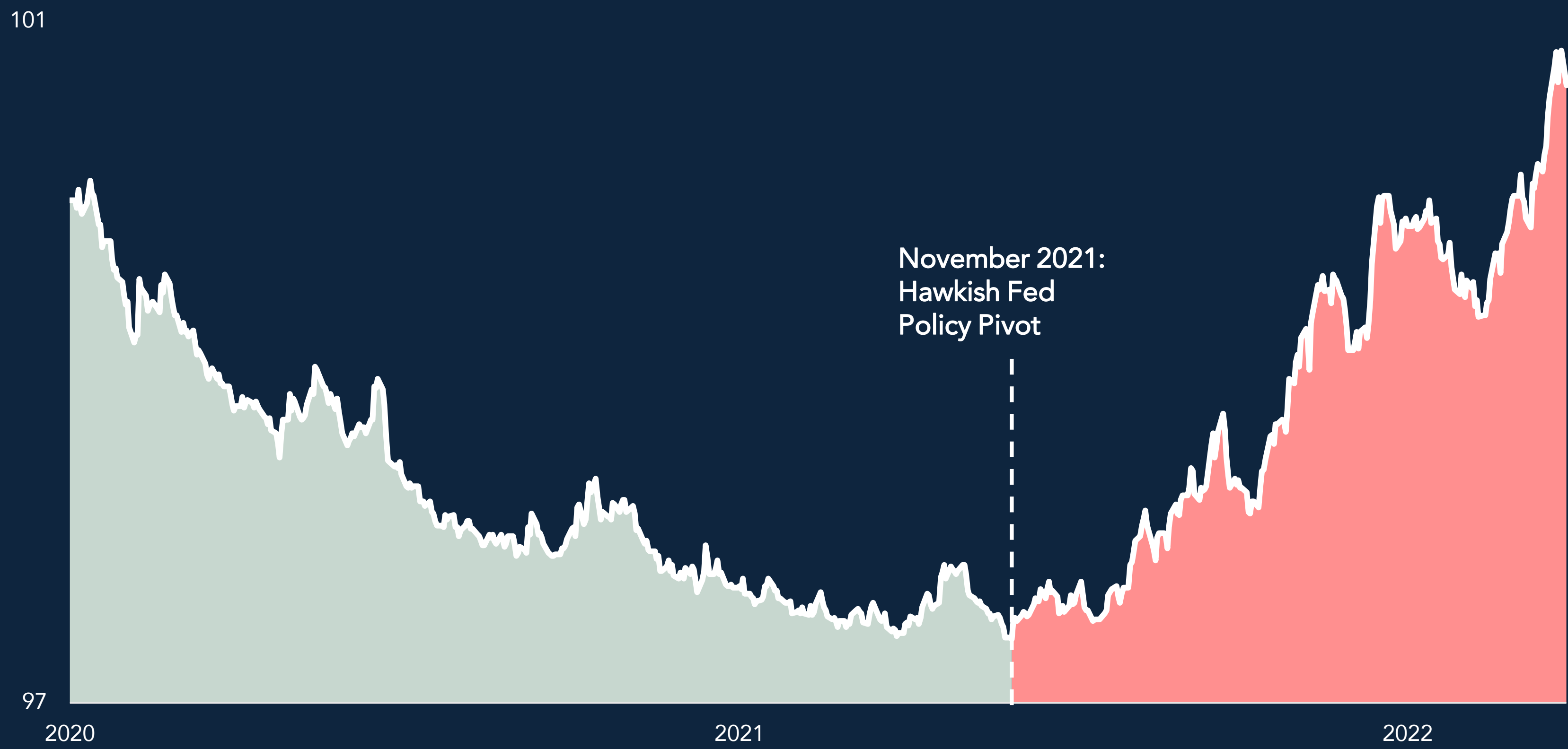


Source: (1) Bloomberg. Data as if October 4, 2022.

Financial Conditions Tightening

Outside of China and Japan, financial conditions have tightened across nearly every major market globally in 2022. US financial conditions (as impacted by higher interest rates, wider credit spreads, a stronger US dollar and lower equities) have tightened considerably since the Fed embarked on its hawkish pivot in November.

US financial conditions

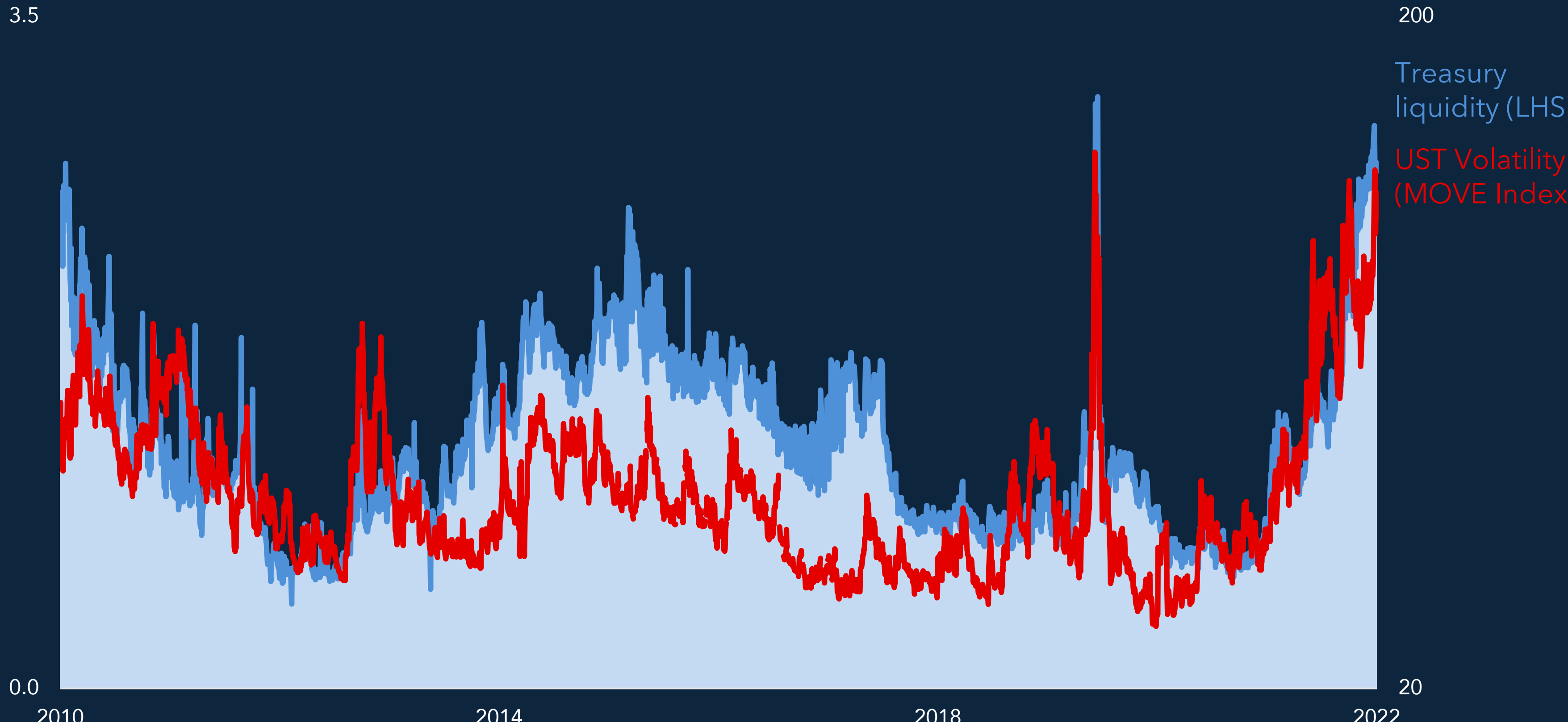


Source: (1) Bloomberg. Data as of October 4, 2022.

Treasury Illiquidity & Volatility Near Record Levels

The exit of the US Treasury market's largest buyer (the Fed!), and banks less willing to make markets with volatility so high, has had a profound impact on liquidity in the world's largest ($23 trillion) Government bond market. As noted by MUFG's George Goncalves, the move in real rates and rate volatility is now approaching the speed and slope of what markets experienced going into the GFC in 2008-9.

Treasury liquidity index & bond volatility (MOVE index)

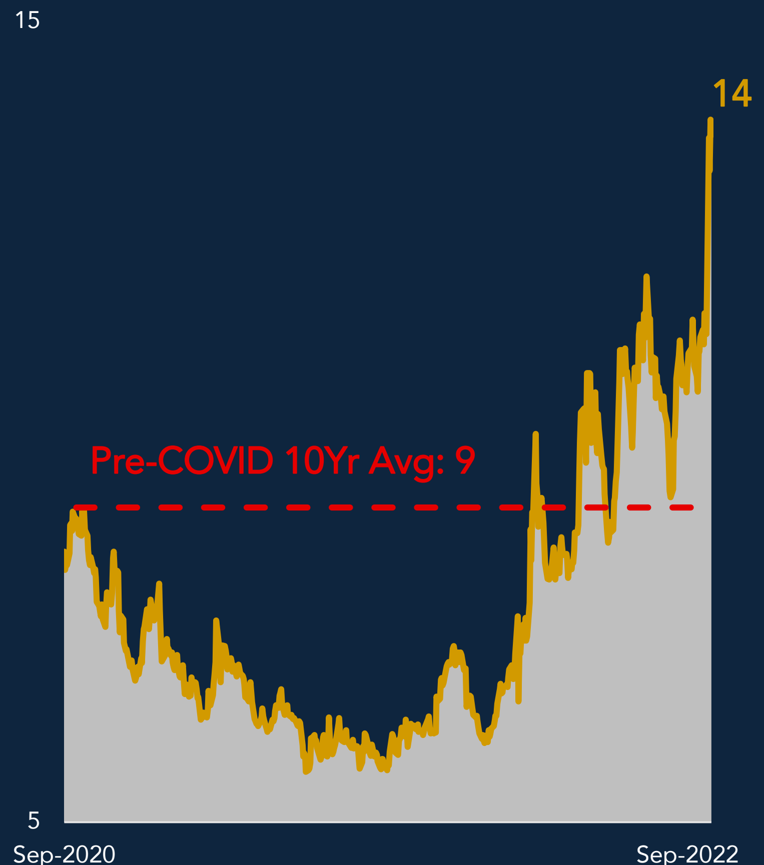


Source: (1) Bloomberg. Data as of October 4, 2022.

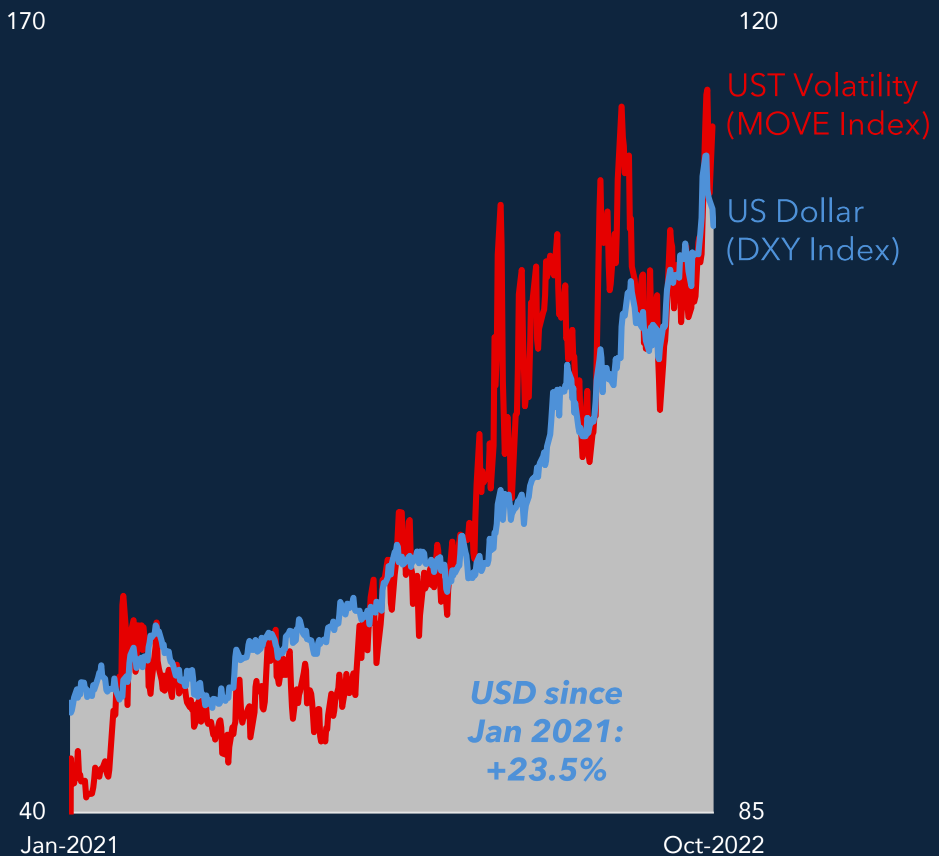
FX Volatility Surging on Dollar Strength

The US dollar has risen 3% since Jackson Hole, 16% YTD and nearly 20% over the last 12 months. Such USD strength, in turn, is pushing much of the global economy "under the bus" as central banks compete to raise rates. Benchmark volatility (one-month) for global currencies is now well into double digits, and in late September rose above 20 for British Pound (an extremely rare event).

Currency volatility (CVIX)



US Dollar & US Treasury Yields



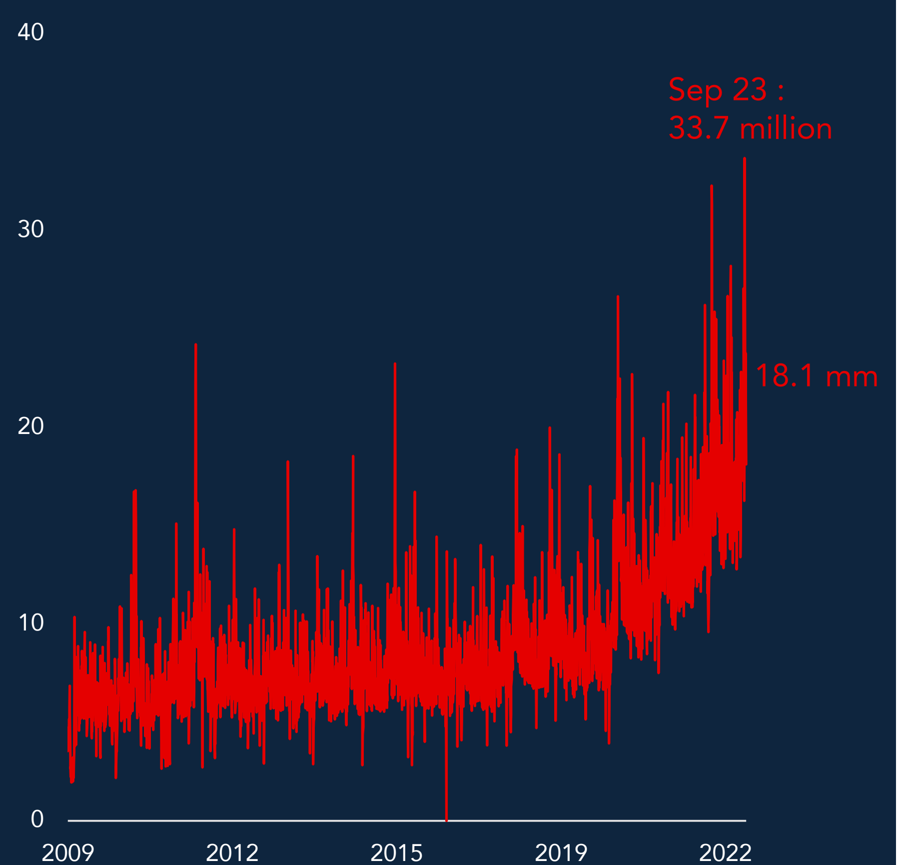
Source: (1-2) Bloomberg. Data as of October 4, 2022.

Investors Seeking Shelter from Volatility

Investor demand for Fed money market assets has sent the Fed's reverse repo balances to new record highs. Put option volumes have also been surging.

Fed reverse repo balance (accepted bids), USD tn

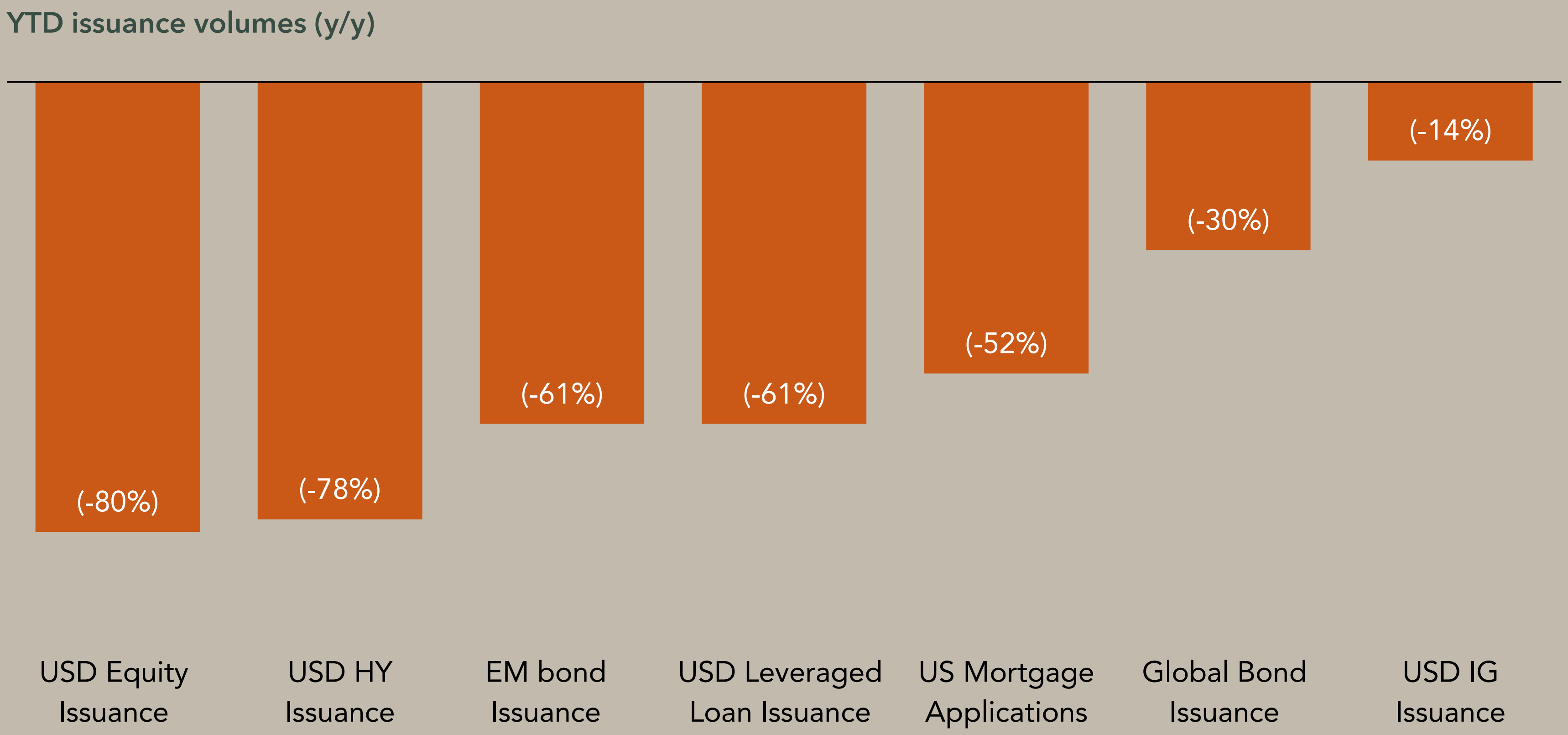
Daily put option volumes, millions



Source: (1-2) Bloomberg. Data as of October 4, 2022. Fed reverse repo data is total amount of accepted bids. Daily put option volume is total equity and index put option volume trade on all opra exchanges: Amex, Philadelphia, Pacific, NYSE, CBOE, ISE, Boston, NASDAQ, BATS, C2, NASDAQ OMX BX, Miami.

Financing Volumes Down Sharply in 2022

With high pre-funding activity and fortress balance sheets built in 2021, 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.

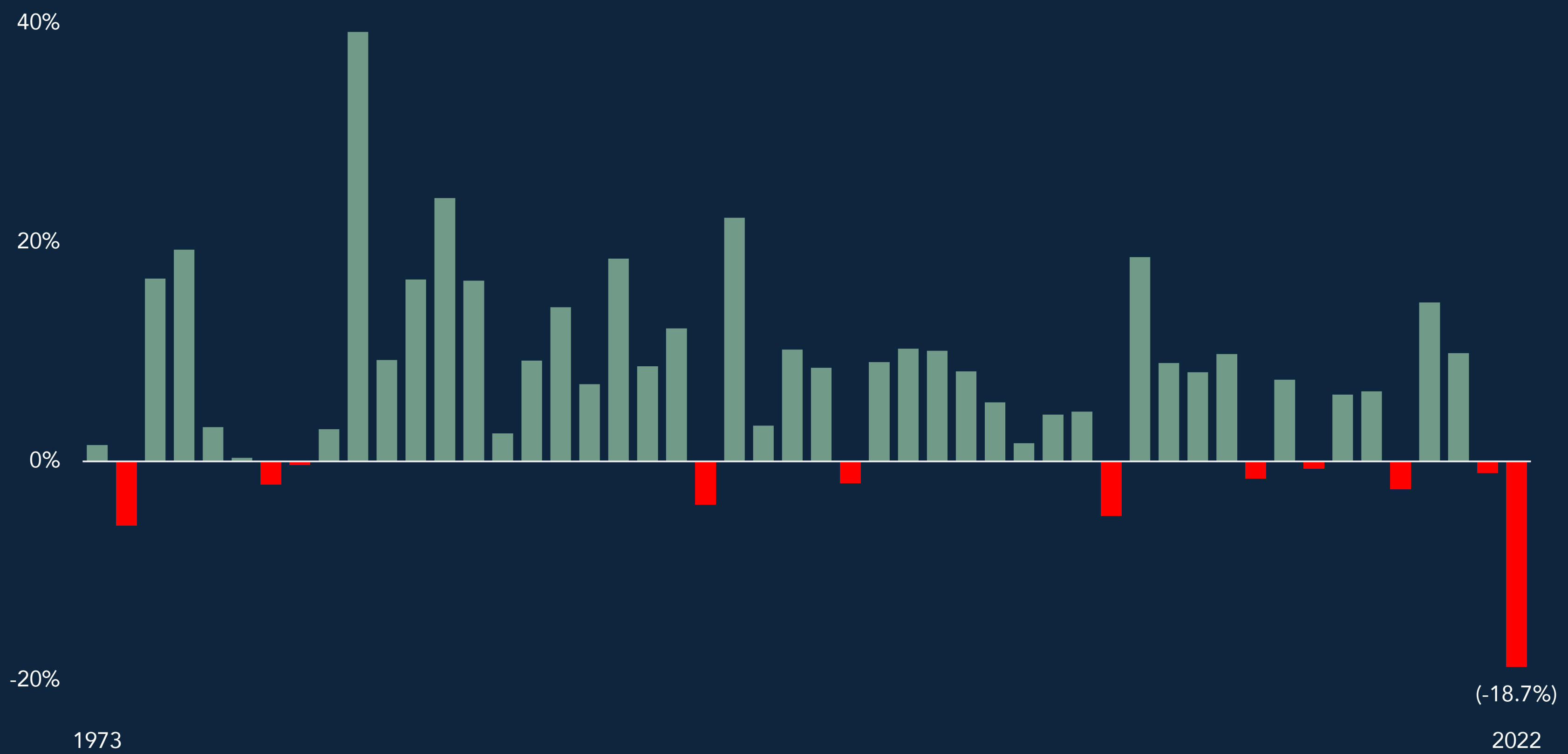


Source: (1) MUFG Capital Markets. DCM. ECM. FT. Bloomberg. Reuters. IG issuance is as of October 3, 2022. HY, EM and equity issuance is as of September 30, 2022. Global bond issuance is global IG corporates, from Dealogic, data as of October 4, 2022. Mortgage data as of September 23, 2022.

Worst Credit Returns in Over 50 Years

Dislocations in USD credit markets have begun to build as 2022 has been the worst total return year for credit investors in over 50 years. As accelerated Fed rate hikes have tightened credit market conditions YTD, concerns around corporate earnings and financial stability risk have begun to creep into previously resilient USD credit markets.

USD investment grade bond index annual returns

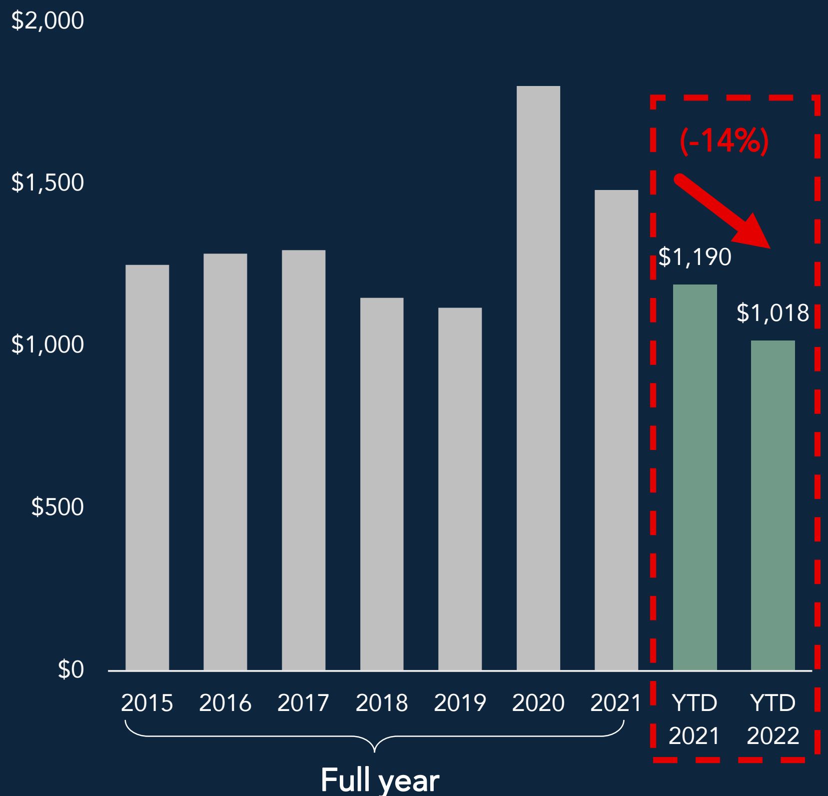


Source: (1) Bloomberg, "Credit Market Moves Toward Break Point as Sales Flop, Funds Flee" (September 30, 2022). 2022 is through September 30, 2022.

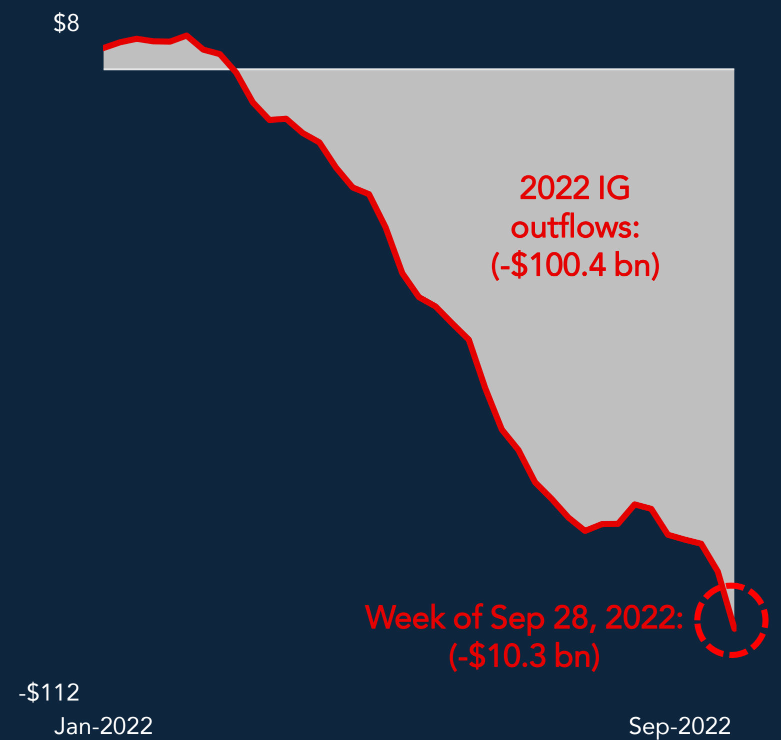
Financial Market Contagion Spreads to USD IG

In late September, global financial market contagion began creeping into the large and liquid USD IG corporate credit markets. For the week ended Sept 28, USD IG fund outflows surged to $10.3 bn, one of the highest outflow weeks in recent years. USD IG issuance in September, historically the most active month of the year, also disappointed with volumes at $81 bn, the 2nd slowest month of the year and nearly 50% below expectations of $140-150 bn.

IG USD new issue, bn



IG USD 2022 YTD cumulative fund flows, bn

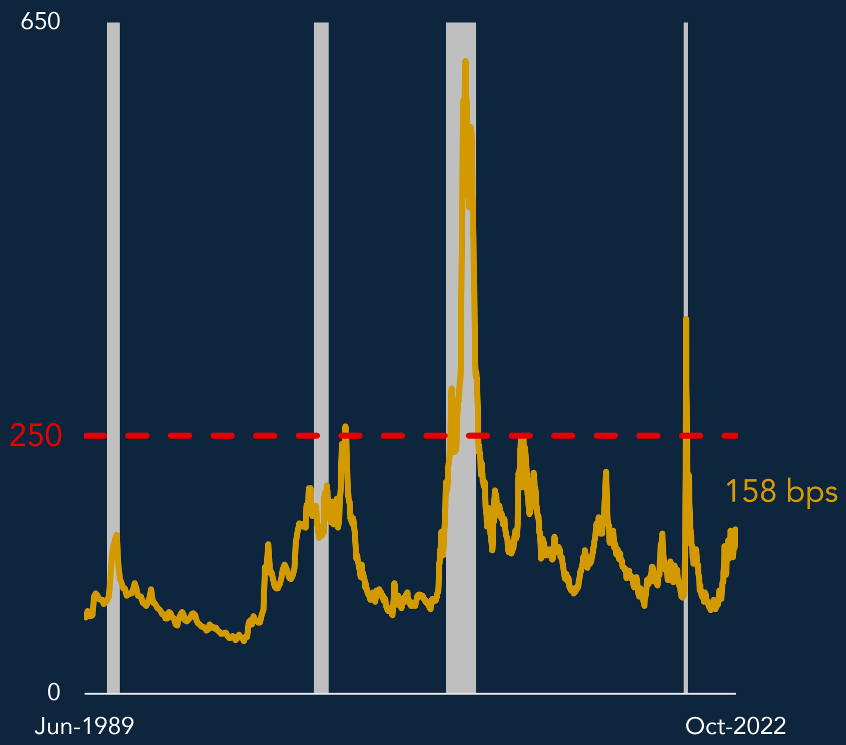


Source: (1-2) IFR. MUFG Syndicate. 2022 IG issuance data as of October 3, 2022.

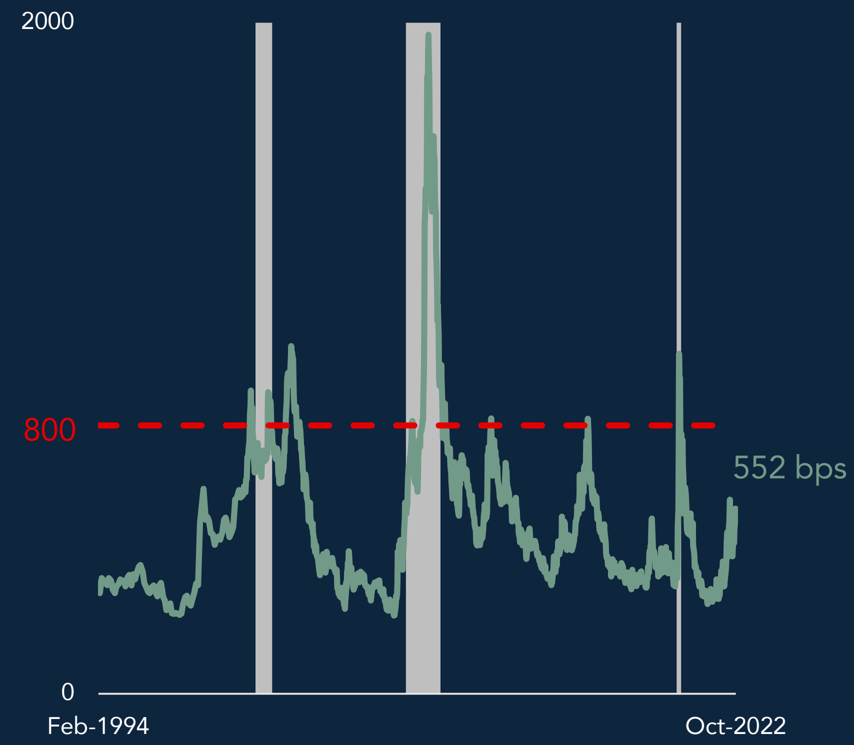
Credit Market Contagion Beginning to Mirror Other Markets

IG and HY spreads are still below historic thresholds for US recession risk. However, over the course of 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

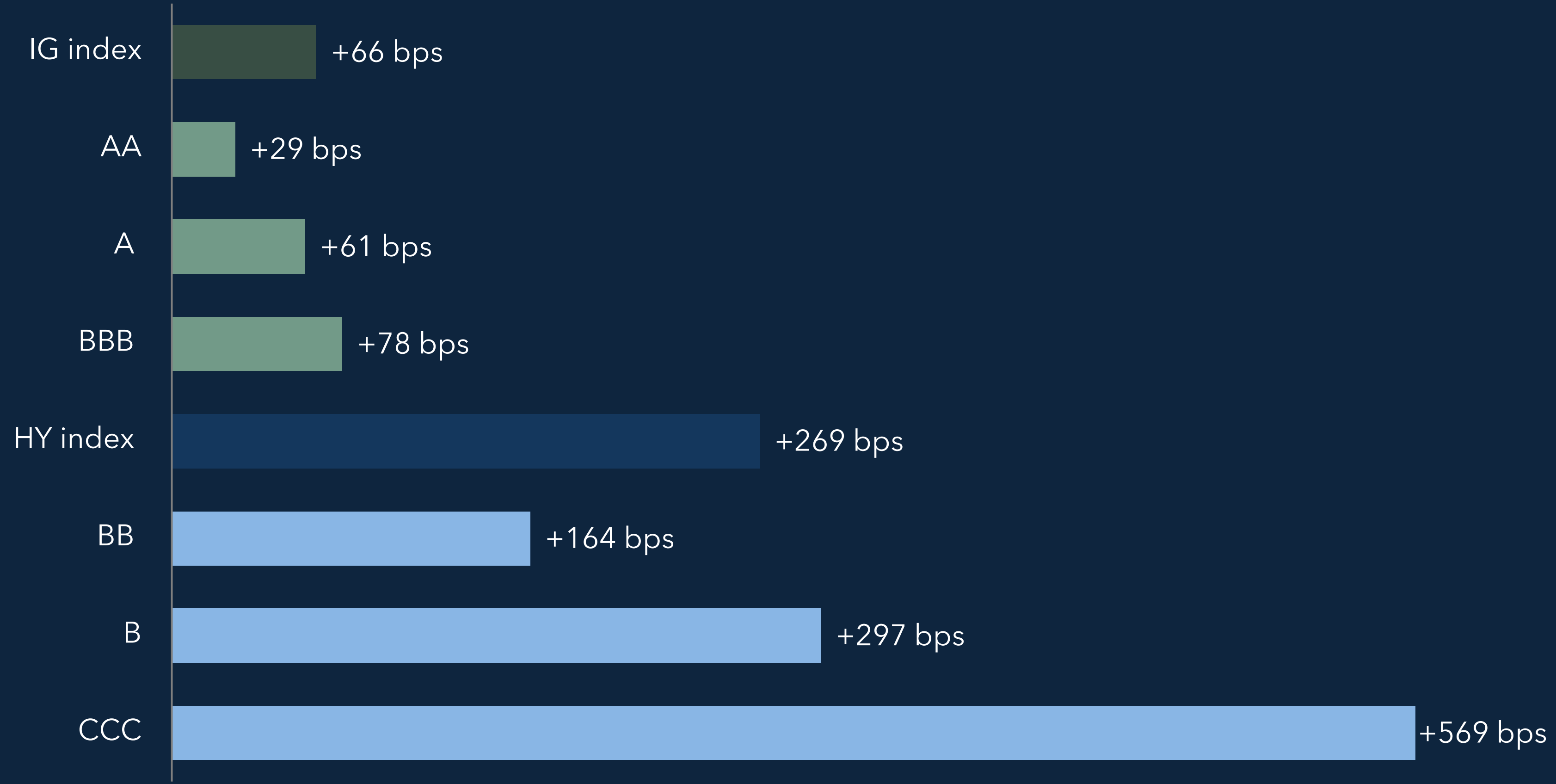


Source: (1-2) Bloomberg. Data as of October 4, 2022.

Greater Differentiation by Ratings Category

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 October 3, 2022. Bloomberg OAS indices.

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 .

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

Disclaimer

The information herein provided is for information purposes only, and is not to be used or considered as investment research, a proposal or the solicitation of an offer to sell or to buy or subscribe for securities or other financial instruments. Neither this nor any other communication prepared by MUFG Bank, Ltd. (“MUFG Bank”), MUFG Union Bank, N.A., MUFG Securities Americas Inc. (“MUFG Securities”), or other MUFG Group Company (collectively, "MUFG") is or should be construed as investment advice, a recommendation or proposal to enter into a particular transaction or pursue a particular strategy, or any statement as to the likelihood that a particular transaction or strategy will be effective in light of your business objectives or operations. Before entering into any particular transaction, you are advised to obtain such independent financial, legal, accounting and other advice as may be appropriate under the circumstances. In any event, any decision to enter into a transaction will be yours alone, not based on information prepared or provided by MUFG. MUFG hereby disclaims any responsibility to you concerning the characterization or identification of terms, conditions, and legal or accounting or other issues or risks that may arise in connection with any particular transaction or business strategy. MUFG is not acting and does not purport to act in any way as an advisor or in a fiduciary capacity.

Certain information contained in this presentation has been obtained or derived from third party sources and such information is believed to be correct and reliable but has not been independently verified. While MUFG believes that factual statements herein and any assumptions on which information herein are based, are in each case accurate, MUFG makes no representation or warranty regarding such accuracy and shall not be responsible for any inaccuracy in such statements or assumptions. Note that MUFG may have issued, and may in the future issue, other reports that are inconsistent with or that reach conclusions different from the information set forth herein. Such other reports, if any, reflect the different assumptions, views and/or analytical methods of the analysts who prepared them, and MUFG is under no obligation to ensure that such other reports are brought to your attention. Furthermore, the information may not be current due to, among other things, changes in the financial markets or economic environment and MUFG has no obligation to update any such information contained in this presentation. This presentation is not intended to forecast or predict future events. Past performance is not a guarantee or indication of future results. Any prices provided herein (other than those identified as being historical) are indicative only and do not represent firm quotes as to either price or size. This presentation has been prepared by members of our capital markets strategy team and does not necessarily represent the MUFG “house” view.

This presentation is proprietary to MUFG Securities and may not be quoted, circulated or otherwise referred to without our prior written consent. Notwithstanding this, MUFG Securities shall not be liable in any manner whatsoever for any consequences or loss (including but not limited to any direct, indirect or consequential loss, loss of profits and damages) arising from any reliance on or usage of this presentation and accepts no legal responsibility to any investor who directly or indirectly receives this material.

IRS Circular 230 Disclosure: MUFG Securities does not provide tax advice. Accordingly, any discussion of U.S. tax matters included herein (including any attachments) is not intended or written to be used, and cannot be used, in connection with the promotion, marketing or recommendation by anyone not affiliated with MUFG Securities of any of the matters addressed herein or for the purpose of avoiding U.S. tax-related penalties.

The MUFG logo and name is a service mark of Mitsubishi UFJ Financial Group, Inc., and may be used by it or other Group companies for branding or marketing purposes. Group companies include MUFG Bank, MUFG Americas Capital Leasing & Finance, LLC, Mitsubishi UFJ Trust and Banking Corporation, MUFG Securities Americas Inc., and MUFG Union Bank, N.A. ("MUB”). Corporate or commercial lending or deposit activities are performed by banking affiliates of MUFG, including, in the United States, MUFG Bank and MUB.

FLOES™ is a service mark of MUFG Securities Americas Inc.