Capital Markets Strategy

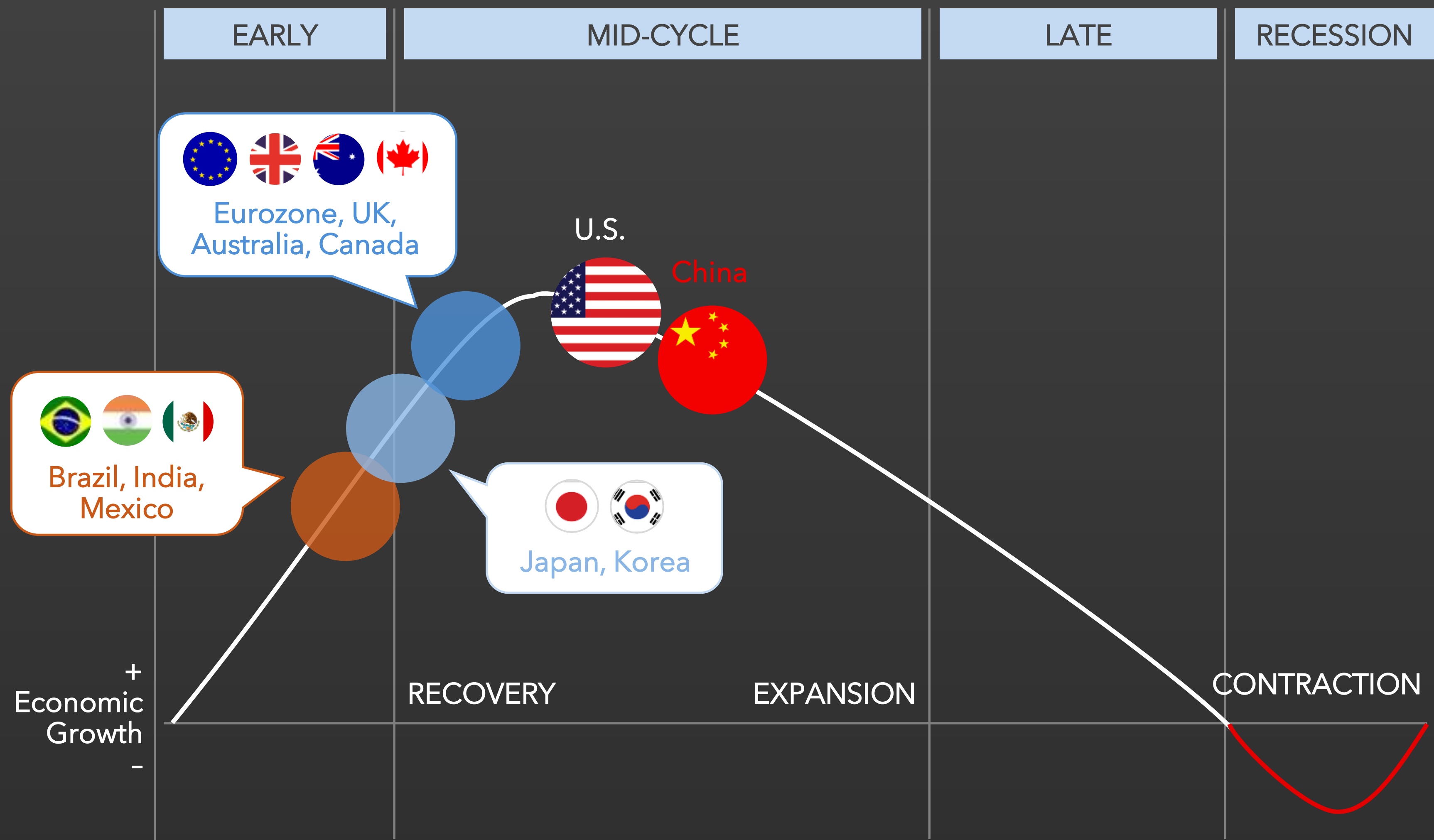
Essential inCights for the C-Suite

The Transition to Mid-Cycle

Expectations into Year End 2021 & Beyond

SEP 2021

The Transition to Mid-Cycle



Source: Fidelity Investments

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Introduction: Key Dates to Monitor into Year End

“It ain’t what you don’t know that gets you into trouble. It’s what you know for sure that ain’t so.”

Mark Twain

known as “the father of American literature”
(1835 – 1910)

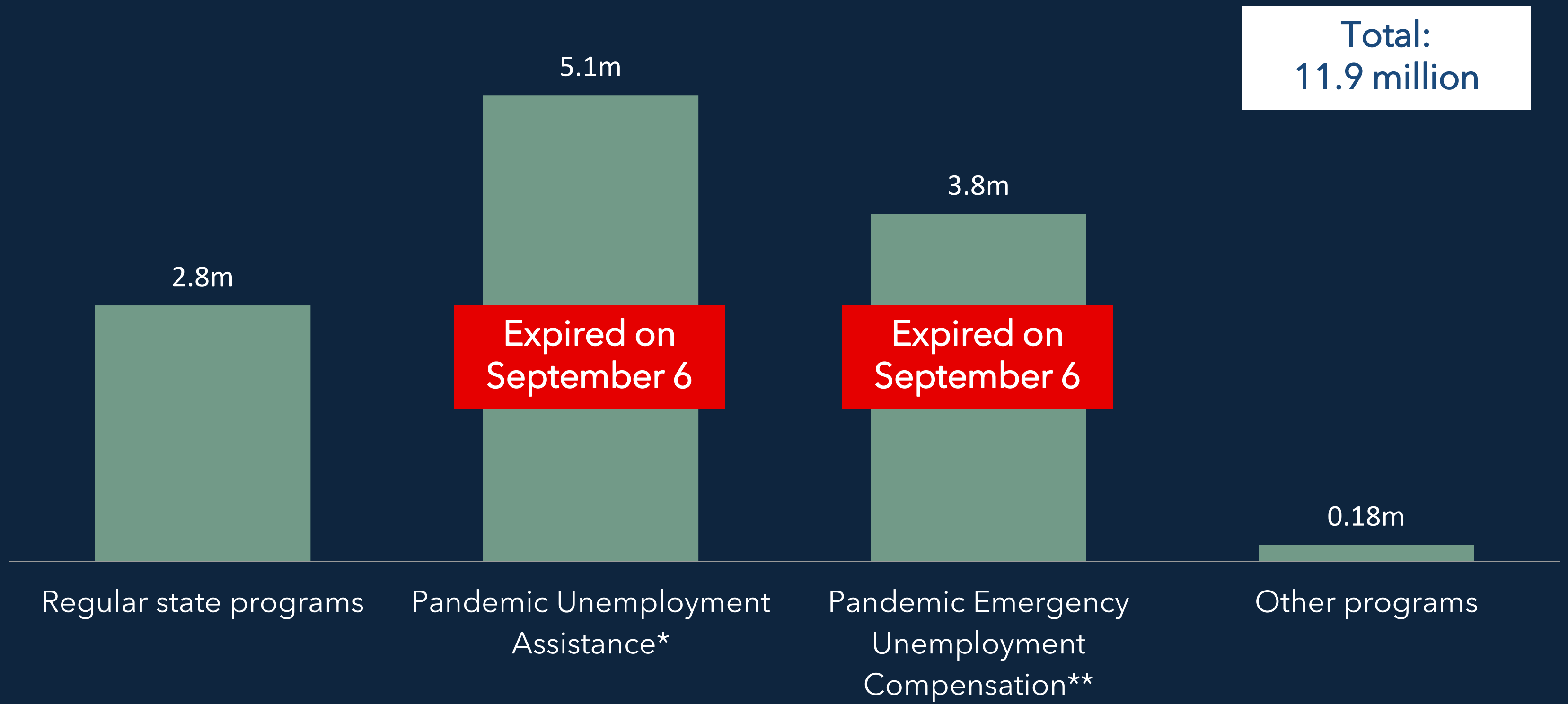
Key Dates to Watch into Year End 2021

Sep 6	Supplemental US unemployment benefits expired
Sep 13	US Senate returned from summer recess
Sep 15	Expected deadline for 24 house committees to submit budget bills for total of $3.5 tn of spending
Sep 21-22	FOMC meeting
Sep 30	End of US Government 2021 fiscal year
Oct 1	US Government funding and debt ceiling deadline; Surface Transportation Act expires
Mid – Oct	US Treasury cash shortfall for obligations if debt ceiling not raised
Oct 30-31	G20 Rome Summit
Nov 1-12	COP26 Climate Conference (Glasgow, Scotland)
Nov 2-3	FOMC meeting
Nov 16	Treasury Secretary Yellen & FSOC report on Biden climate Executive Order
Dec 14-15	FOMC meeting

Unemployment Benefits Expired on September 6th

Extended unemployment benefits for approximately 9 mm Americans, passed into law in March 2021 as part of President Biden's $1.9 trillion stimulus, expired on September 6th, though 25 US states had already ended the benefits over the summer

Number of persons claiming unemployment benefits in the US, by program



*available to individuals who are self-employed, or who otherwise would not qualify for regular unemployment compensation
** extends benefits by up to 24 weeks for individuals who have exhausted all rights to regular unemployment compensation

Source: (1) Statista. US Department of Labor. Data for the week ending August 21, 2021.

Biden Fed Appointments in Q4 2021 - Q1 2022

US Presidents appoint the 7 Fed Governors, subject to Senate confirmation, and President Biden currently has the opportunity to fill 4 seats over the next 6 months, including the Fed Chair. While President Biden has until February to appoint Fed Chair Powell to a 2nd term, we expect him to announce his decision for Fed chair and Vice Chair perhaps in early Q4, with other positions possibly sliding to early 2022.

Fed Board of Governors

Jerome H. Powell, Chair
Term expires February 2022

Richard H. Clarida
Vice Chair
Term expires January 2022

Randal K. Quarles
Vice Chair for Supervision
Term expires October 2021

Lael Brainard
Term expires January 2026

Michelle W. Bowman
Term expires January 2034

Christopher J. Waller
Term expires January 2030

Vacant

Vacant Seat

Federal Reserve Bank Presidents – voting members

- John C. Williams, New York, Vice Chair
- Thomas I. Barkin, Richmond
- Raphael W. Bostic, Atlanta
- Mary C. Daly, San Francisco
- Charles L. Evans, Chicago

Alternate Members

- James Bullard, St. Louis
- Esther L. George, Kansas City
- Naureen Hassan, First Vice President, New York
- Loretta J. Mester, Cleveland
- Eric Rosengren, Boston

COP 26: November 1-12 (Glasgow, Scotland)

The 26th UN Climate Change Conference of the Parties (COP 26), scheduled for November in Glasgow, is one of the most highly anticipated leadership summits of its kind. The event is expected to include over 30,000 participants representing more than 200 countries, businesses, NGOs and other organizations. All parties to the Paris Climate Agreement are expected to attend and submit updated GHG reduction goals.

UN CLIMATE CHANGE CONFERENCE UK 2021

IN PARTNERSHIP WITH ITALY

Stated goals for COP 26

Goal 1

Secure Global Net Zero by Mid-Century and Keep 1.5 Degrees Within Reach

- Detailed plans from each attending country for 2030 emission reduction targets that align with net zero 2050 goals

Goal 2

Adapt to Protect Communities and Natural Habitats

- Develop plans to protect and restore ecosystems & build defenses, warning systems and resilient infrastructure & agriculture to avoid loss of homes, livelihoods and lives

Goal 3

Mobilize Finance

- Mobilize at least $100 bn in climate finance / year via private and public sector

Goal 4

Work Together to Deliver

- Finalize Paris Rulebook, the detailed rules that make the Paris Agreement operational
- Accelerate action through collaboration between governments, businesses and civil society

Source: "What is COP 26." UN Climate Change Conference UK 2021.

Key Dates for Mandatory ESG Disclosure

2021	Mar 10	• EU SFDR high-level & principle-based requirements implemented
	May 20	• President Biden issued executive order instructing numerous government agencies to assess how climate risk could be integrated into regulation / policy
	Jun 30	• Deadline for large entities to disclose due diligence policies for Principle Adverse Impacts (PAIs) under EU SFDR
	Q4 2021	• US SEC to propose new rules on corporate climate risk disclosures
	Nov 1-12	• UN Climate Change Conference (COP26)
	Nov 16	• "Due date" for Janet Yellen and FSOC to submit report on member agencies integrating climate-related financial risk into policies and programs
2022	Jan 1	• EU Taxonomy Climate Delegated Act set to apply
	Jun 15	• EFRAG to provide draft corporate sustainability reporting standards
	Oct 31	• EC to adopt the first set of corporate sustainability reporting standards
	Dec 31	• Deadline for firms that consider PAIs to disclose how products consider impacts & firms that do not consider PAIs to explain why they do not under EU SFDR
2023	Jan	• Obligations under the EU CSRD to come into force
	Jun 30	• Deadline for firms to disclose details PAI indicators for full year 2022 under EU SFDR
	Oct	• EC to adopt the second set of corporate sustainability reporting standards
	Dec 31	• Numerous interim deadlines in-place in UK's move toward mandatory TCFD-aligned disclosure (full implementation by 2025)

Source: Oxford Analytica Research. EY "The future of sustainability reporting standards" June 2021.

Expectations for US Mandatory ESG Disclosure

SEC Chair, Gary Gensler, is expected to release guidance on mandatory corporate disclosures in the fall, following November's COP26. Based on speeches made, initial public comment responses and work-streams underway by SEC staff, disclosure guidance will likely include both environmental and human capital management components.

Expectations for SEC mandated ESG disclosures

Emissions disclosures: Scope 1 and 2 expected with possible Scope 3 inclusion as well

Inclusion of **climate disclosures** in the 10-K

Possibly different **disclosure requirements by sector** (i.e., banking, insurance, or transportation)

Inclusion of **scenario analysis outputs**: incorporate possible physical, legal, market and economic changes

TCFD as a platform but adjusted for US context

Information on **jurisdictional climate targets** and how that impacts foreign registrants

Verification process of corporate "green", "sustainable" and / or "low carbon" claims

Qualitative disclosures on leadership strategy for managing climate-related risks and opportunities

Human capital management disclosures around worker safety, diversity, compensation and pay equity analysis

Source: UN Intergovernmental Panel on Climate Change "Climate Change 2021: The Physical Science Basis". Environmental Finance "Key Takeaways from IPCC Report".
New York Time The Daily "A 'Code Red for Humanity'".

10 Key Risks to Monitor into Year End

While the baseline view of the global economic and market outlook remains constructive, risk has increasingly become more heavily weighted to the downside

Economy & Markets

1. Supply chain disruptions, inflation pressure, labor shortages
2. Delta variant and new mutations resistant to vaccine
3. Elevated financial market prices
4. Decelerating economic growth
5. China's elevated debt & growth slowdown concerns

Policy Changes

6. US tax code changes
7. Casualties of Fed taper & tightening
8. China regulatory activism
9. US-China tech and capital wars
10. Geopolitical risk / Washington partisan acrimony

1 Economic & Market Cycles

"Perhaps too much of everything is as bad as too little."

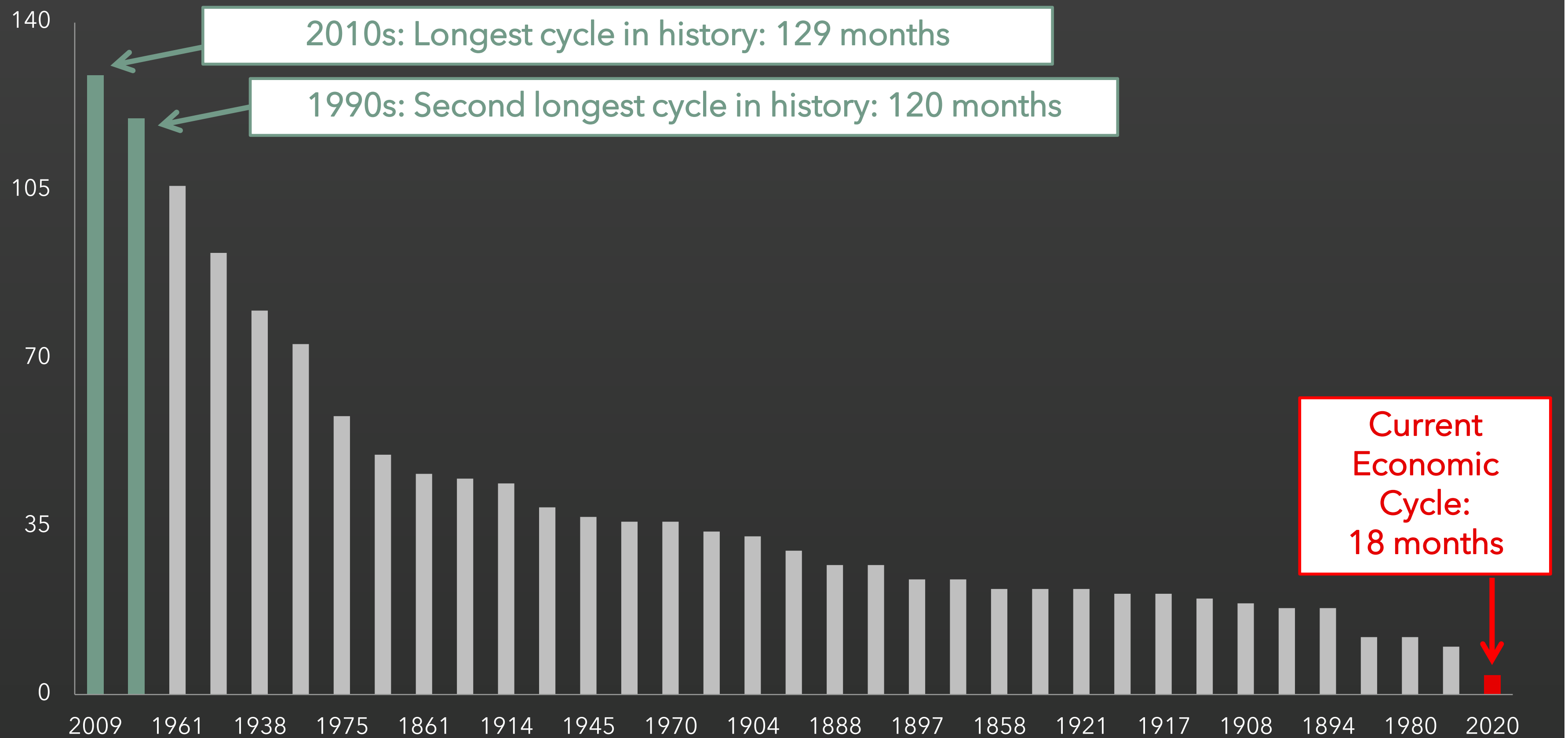
Edna Ferber

American Pulitzer Prize winning novelist
(1885 – 1968)

US Economic Cycles

There have been 35 US economic recoveries since 1854, the two longest of which occurred in the last 30 years. More effective central bank inflation policy, and improved business management of supply chains and inventory, have been important contributors to the length of recent cycles.

35 US recoveries since 1854

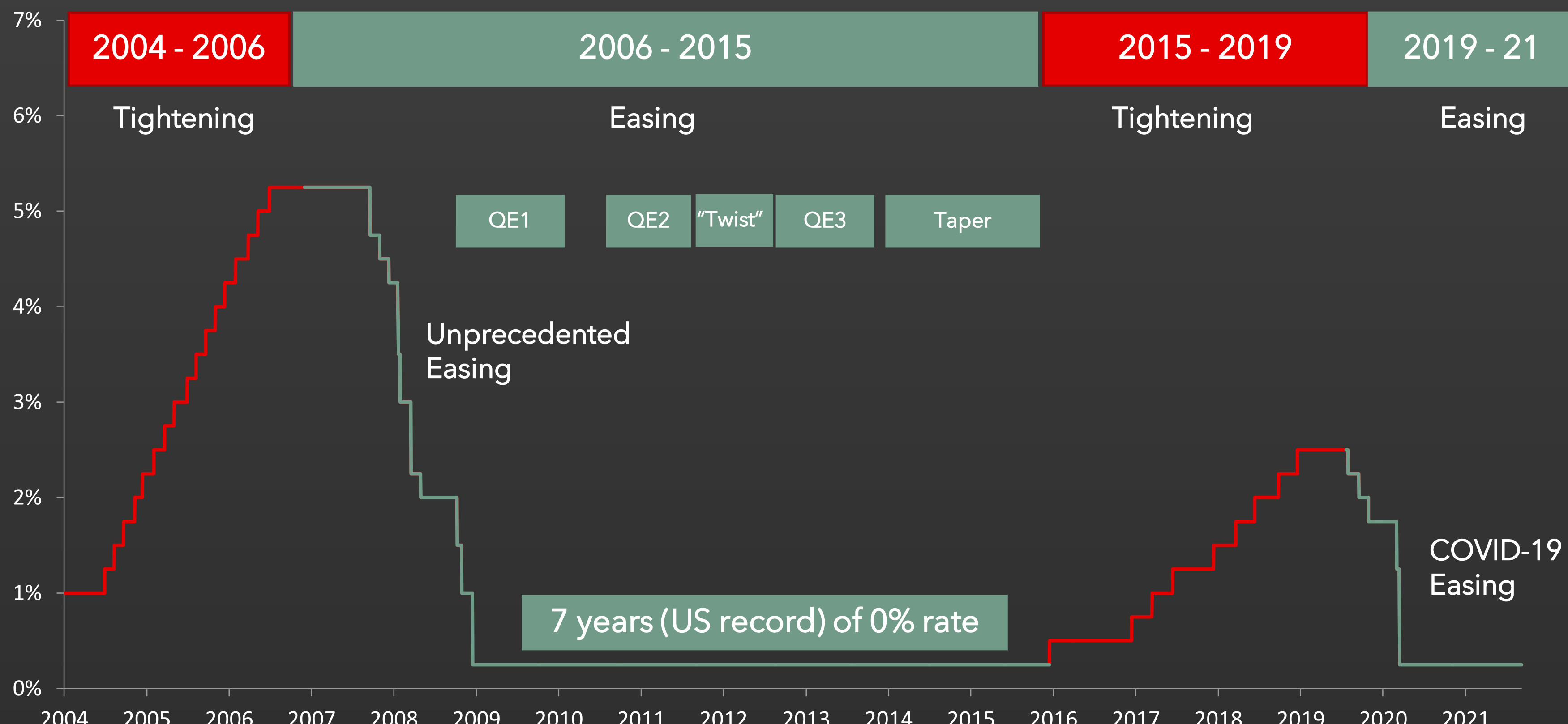


Source: (1) The National Bureau of Economic Research. Length of US recoveries as of September 2021.

Fed Tightening Cycles

Fed easing and tightening cycles have entered new territory since the global financial crisis, with extraordinary periods of zero interest rate policy (ZIRP) and balance sheet expansion (pre and post COVID), followed by a more dovish tightening cycle by historic standards. Thus far, Fed Chair Powell has signaled that another dovish taper and tightening cycle lies ahead.

Fed Funds Target Rate (Upper Bound)

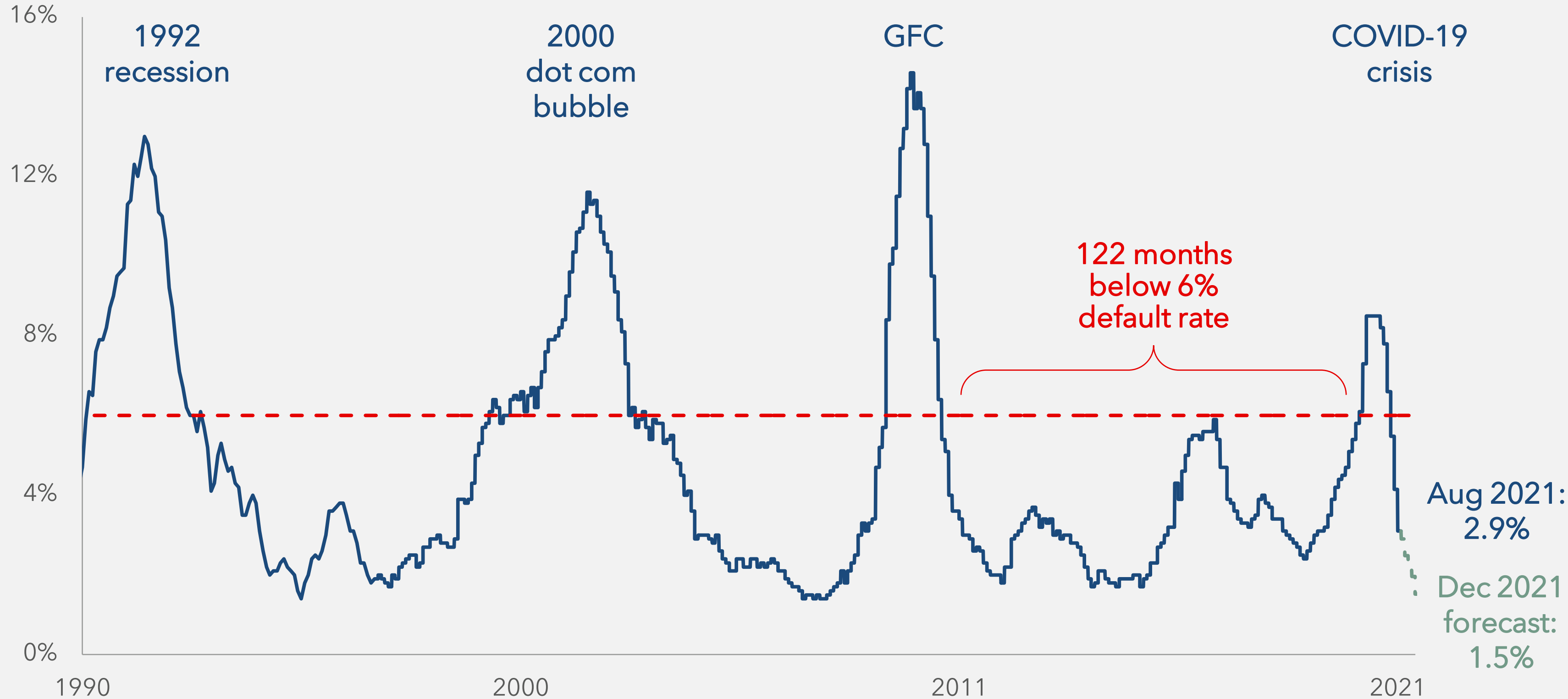


Source: (1) Bloomberg. Data as of September 10, 2021.

USD Credit Default Cycle

Generally speaking, credit cycles "turn" when default rates rise above 6%, and economic recessions typically follow soon after. The USD HY default rate declined to 5.5% in May and further to 2.9% in August. Moody's projects it to decline below 2% by year end, assuming economic recovery and funding conditions remain stable.

US corporate speculative grade trailing 12 month default rate



Source: (1) CreditSights. Moody's default data through September 19, 2021.

US Equity Bull Market Cycles

Since 1929, there have been 14 equity bear market cycles and 14 bull market cycles (defined by moves of 20% or more). In YTD 2021, the S&P has appreciated over 20%, hitting 53 new highs on the year by late August, itself a record for one calendar year (key drivers: stimulus, vaccine, low rates, corporate profits).

14 US equity bull markets since 1930

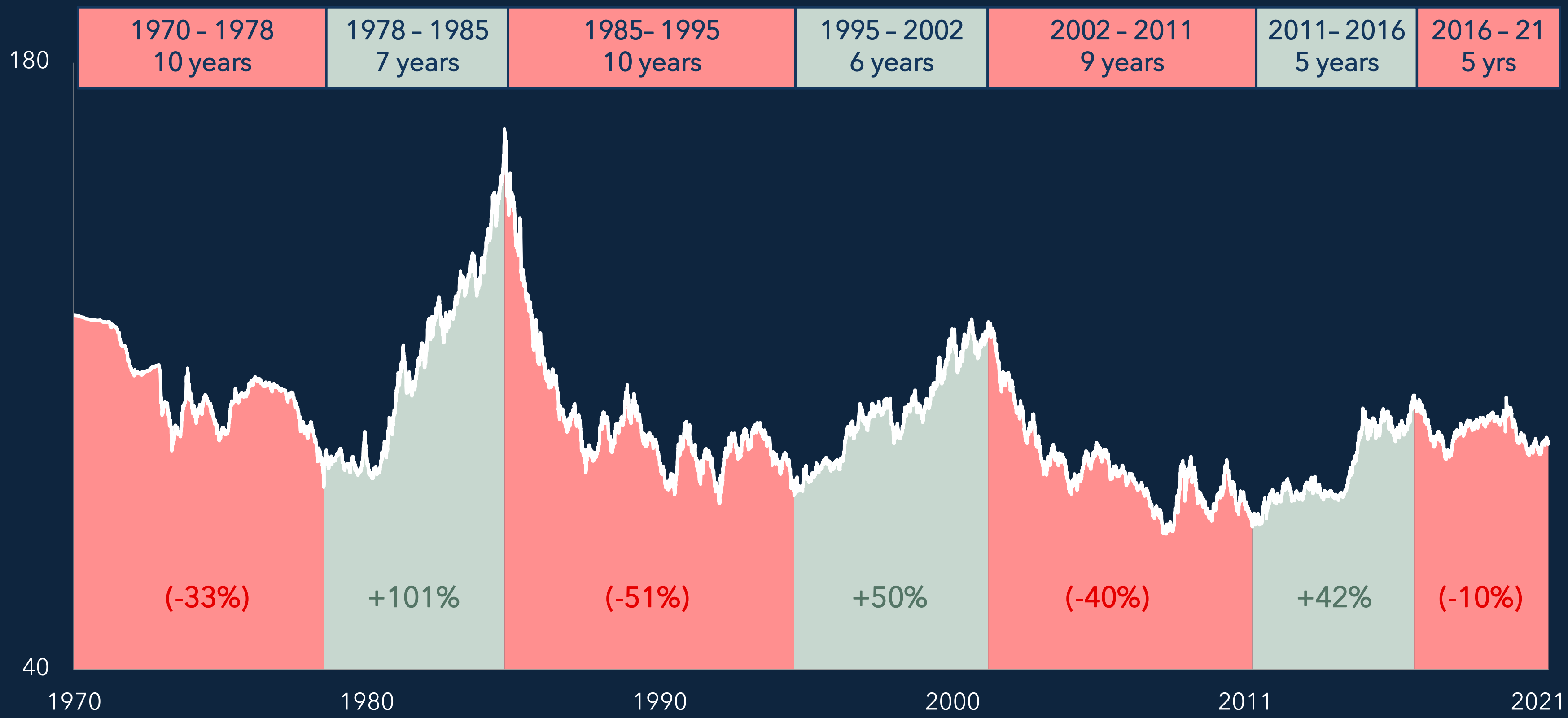
Start	Length (months)	S&P 500 Change
Jun 1932	57	325%
Apr 1942	49	158%
Jun 1949	86	266%
Oct 1957	50	86%
Jun 1962	44	80%
Oct 1966	26	48%
May 1970	32	74%
Oct 1974	74	126%
Aug 1982	60	229%
Dec 1987	31	65%
Oct 1990	113	417%
Oct 2002	60	102%
Mar 2009	131	401%
Mar 2020	18	101%
Median	53	114%

Source: (1) S&P. FactSet. Bloomberg. March 2020 equity bull market S&P 500 performance through September 10, 2021.

US Dollar Cycle

Since the fall of Bretton Woods approximately 50 years ago, big US dollar down cycles of 7-10 years have generally been followed by shorter 5-7 year up-cycles. While the US dollar's performance may vary depending on currency pair, and subject to episodic strengthening during risk off periods (i.e., early COVID), the USD index today is arguably in the middle stages of a longer depreciation cycle.

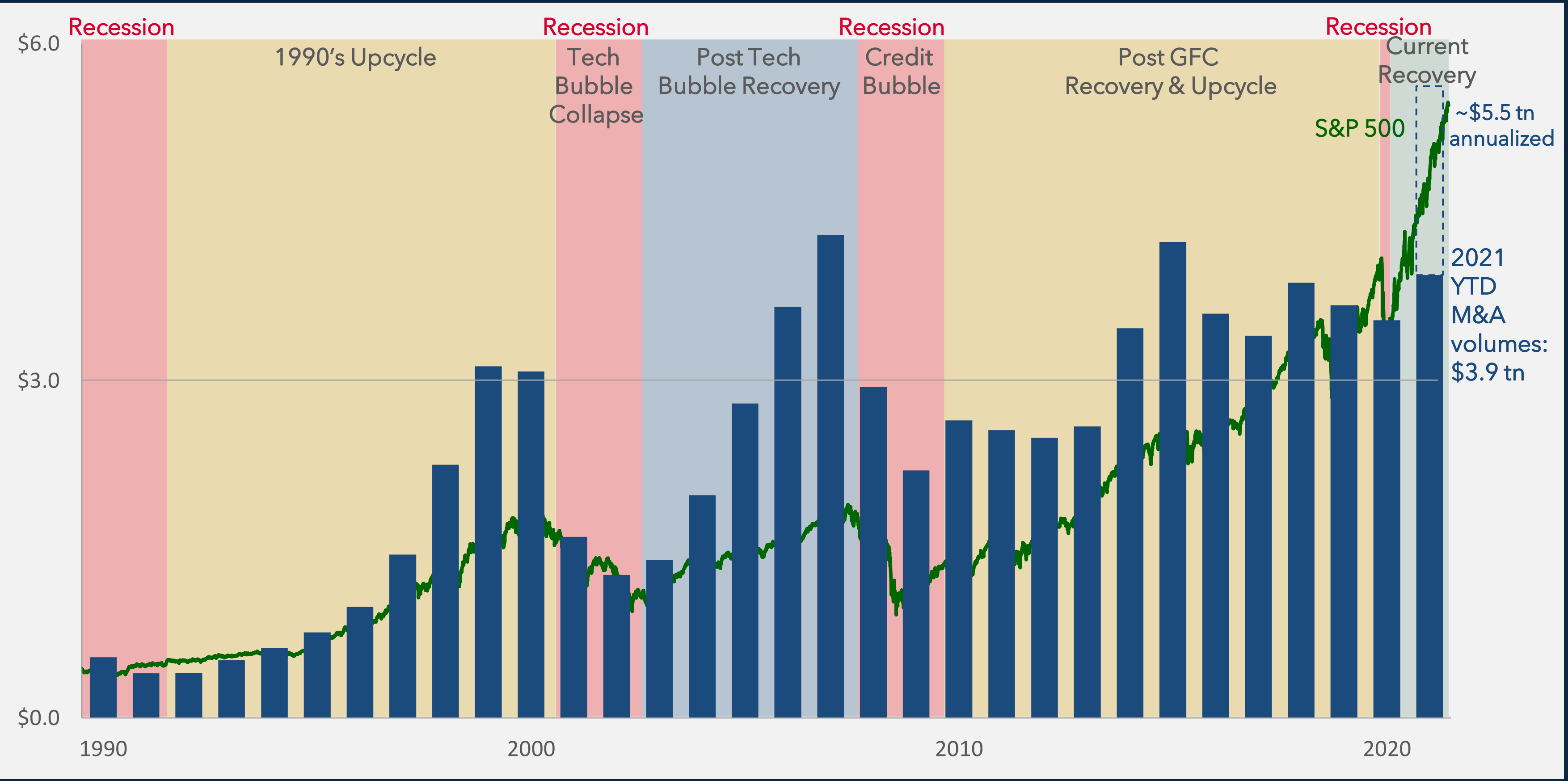
DXY index



Source: (1) Bloomberg. Data as of September 10, 2021.

Global M&A Cycle

Correlations between economic and market cycles are also common. The global M&A cycle, for example, has historically been correlated with global equity markets, albeit with a 6-12 month lag on average. In fact, M&A volumes increase alongside four variables in particular, all of which were adversely impacted by the COVID crisis, but are now recovering strongly: strong economic growth, rising equity markets, low cost debt financing and high CEO confidence metrics.



Source: (1) Institute for Mergers, Acquisitions and Alliances (IMMA). S&P Capital IQ. Dealogic. Bloomberg. Data as of September 13, 2021.

2 The Transition to Mid-Cycle

“The U.S. shifted fully into the mid-cycle phase in Q3, as a broadening expansion accompanied the economy's reopening. Major economies are on differing trajectories, with a number of developing countries inhibited in particular by their more-limited vaccination and reopening progress.”

Fidelity Investments Q3 2021 Business Cycle Report

Notable Attributes of Mid-Cycle

Strong but decelerating economic and earnings growth

Lower financial market returns (compared to early cycle)

Higher market volatility

Policy pivot toward tightening

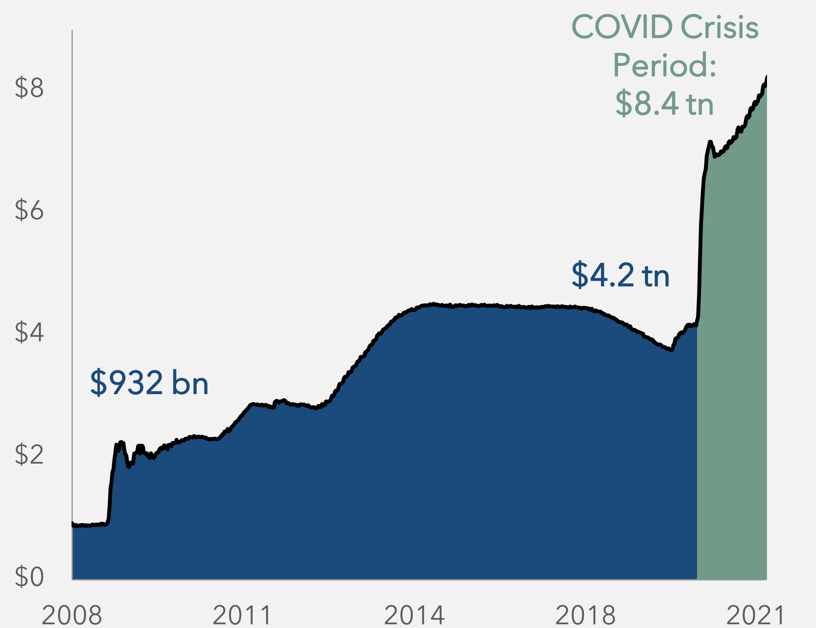
Bearish yield curve flattening

Extraordinary Stimulus Accelerating the Cycle

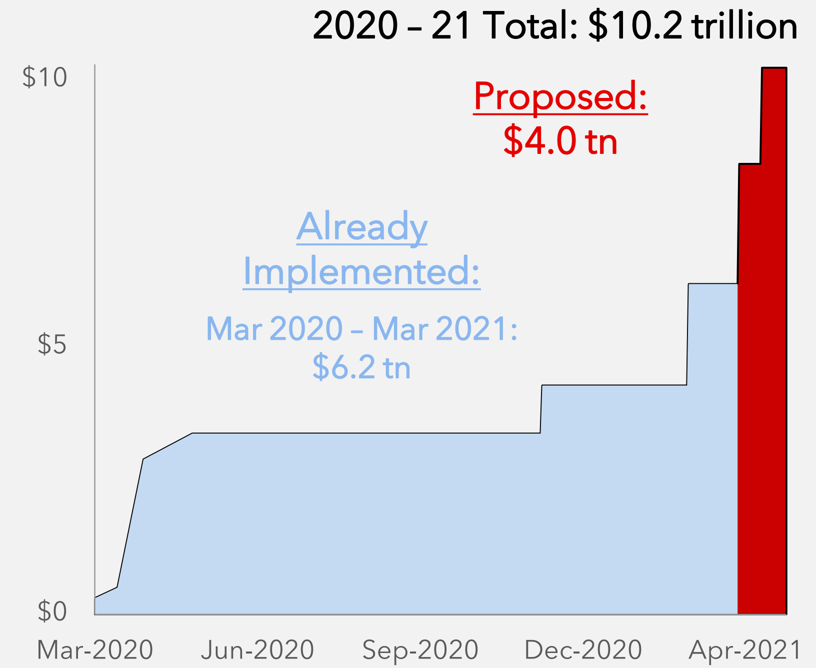
The extraordinary US monetary and fiscal stimulus in response to the COVID crisis has had the effect of accelerating the economic and market recovery cycle vis-a-vis historical cycles

Historic monetary expansion

Fed balance sheet total assets, USD tn



Record fiscal stimulus

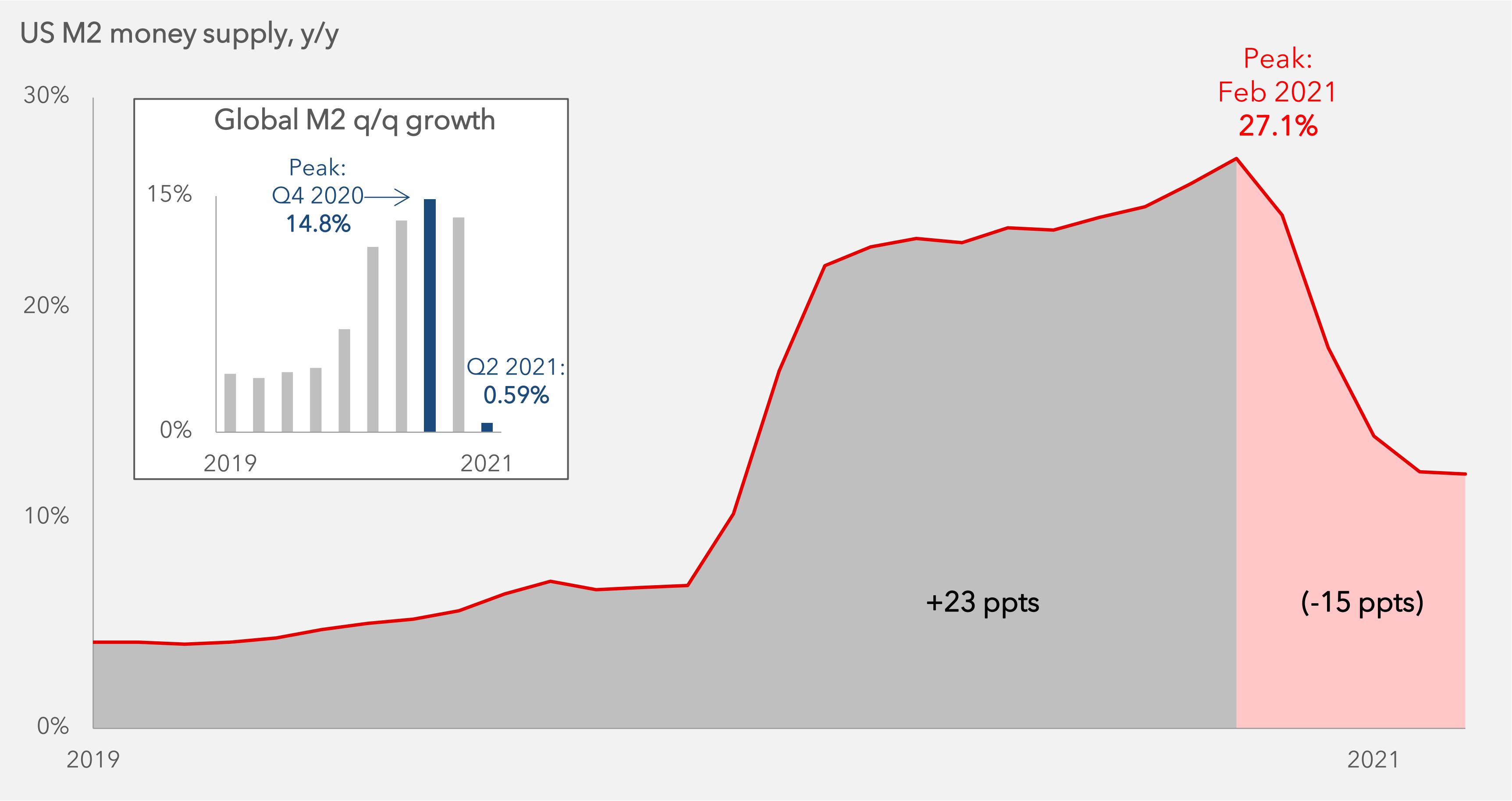


Why it matters: As growth accelerates early in the cycle, financial market returns (stocks, bonds, commodities) tend to be higher. As the economy progresses through mid-cycle, the rate of economic and corporate profit growth decelerate, the yield curve flattens, asset returns slow and volatility generally increases.

Source: (1) Bloomberg. Data as of September 10, 2021. Federal Reserve. (2) Committee for a Responsible Federal Budget. CBO. Note – bill size includes mandatory and discretionary outlays, loss of revenue and loan guarantees that are not expected to have a net effect on the budget. Families First Act includes $8 bn from the Coronavirus Preparedness and Response Supplemental Appropriates Act. Deferred tax payments originated by Treasury Department not US Congress.

Fed Accommodation Past Peak

While monetary and fiscal policy stimulus remains strong, the velocity of Fed monetary support peaked in February, and is decelerating from here

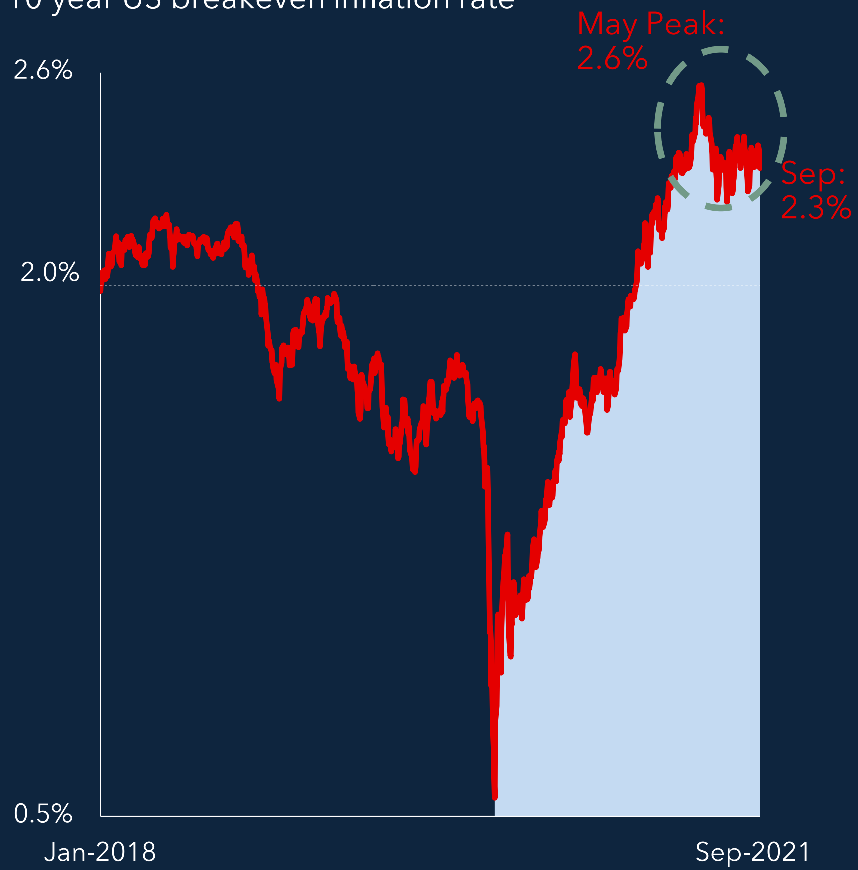


Source: (1) Oxford Economics. Global M2 growth is the big 4 Central Banks; The Federal Reserve, the PBOC, the BoJ and the ECB. (2) Bloomberg. Data as of September 10, 2021.

Market Expectations for Inflation Past Peak

As the debate on the magnitude and timing (i.e., "transitory"?) of inflationary pressures remains uncertain, market expectations of rising inflation reached a peak in early May. Softer than expected economic data since June, and the rapid pace of the Delta variant contagion, have modestly dampened expectations for growth in the 2H of 2021 and beyond.

10 year US breakeven inflation rate

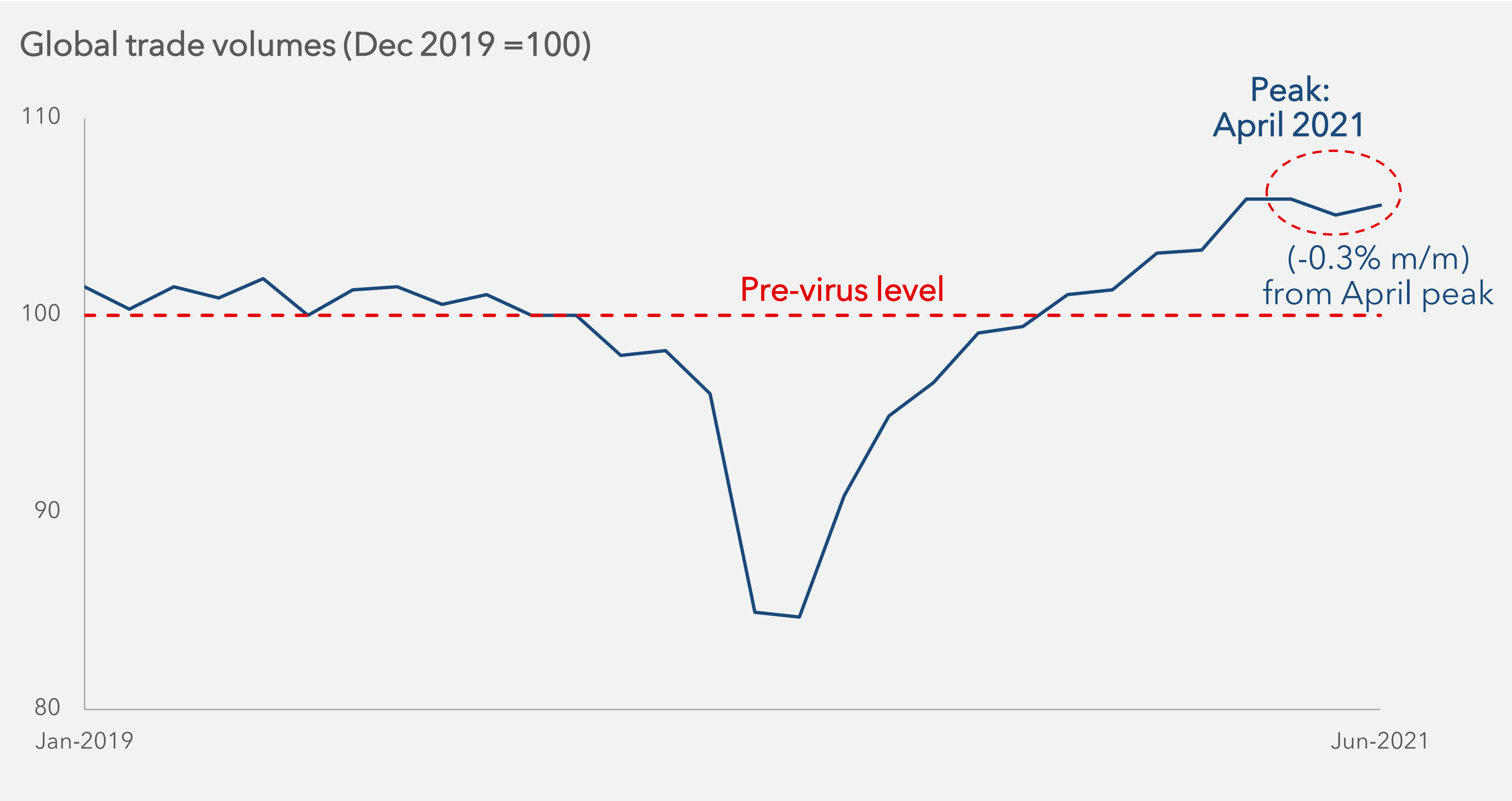


US core CPI

Source: (1) Bloomberg. Data as of September 14, 2021. FRED.

Global Trade Normalizing Since April Peak

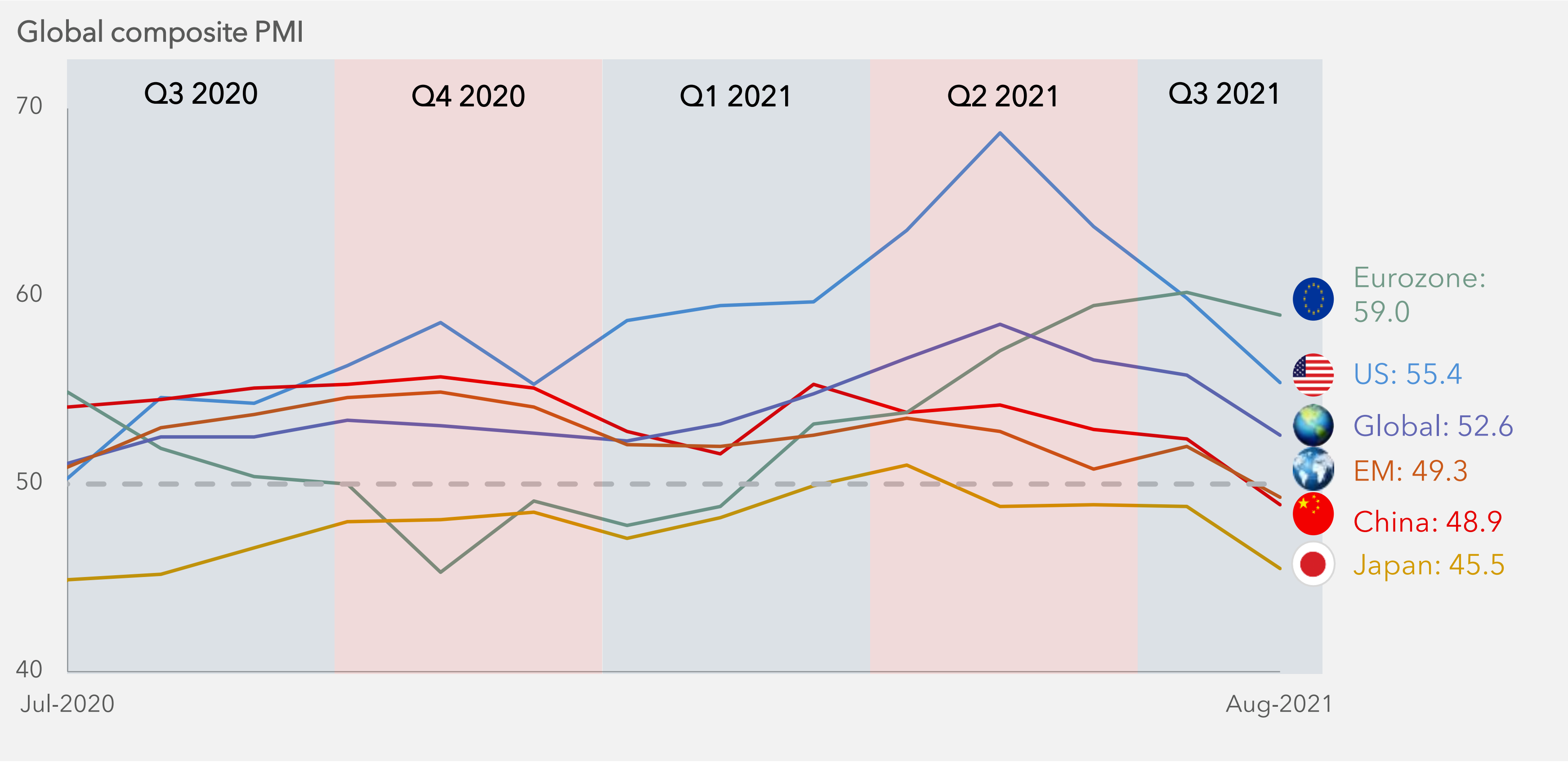
Global trade fully recovered from the COVID global shutdown by late 2020, peaking in April 2021. Since then, the Delta variant and global supply chain disruptions have contributed to a more normalized level of trade activity vis-a-vis the rapidly accelerating recovery rates of the prior year.



Source: (1) CPB Netherlands Bureau for Economic Policy Analysis. Data as of September 10, 2021.

Global Economy Passing Peak Growth in Q3

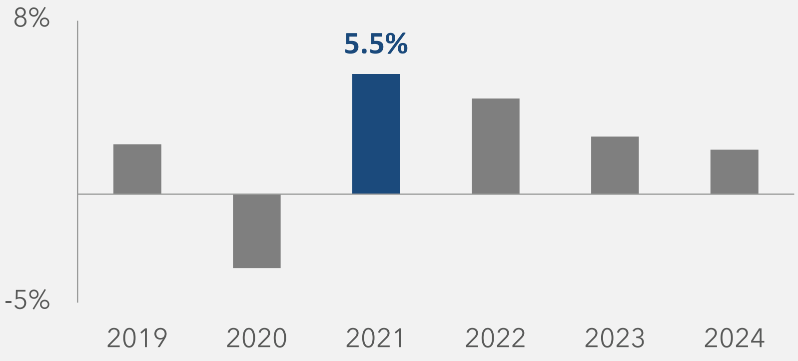
PMI data has historically provided a useful early indicator of future economic growth, typically with about six months lead time. To this end, various economic indicators suggest that the US and global economy likely past peak growth in Q2 and Q3, respectively. While growth rates may be decelerating from 2021 peaks, it is important to emphasize that growth rates are expected to continue at rates "above long term trends" into 2022.



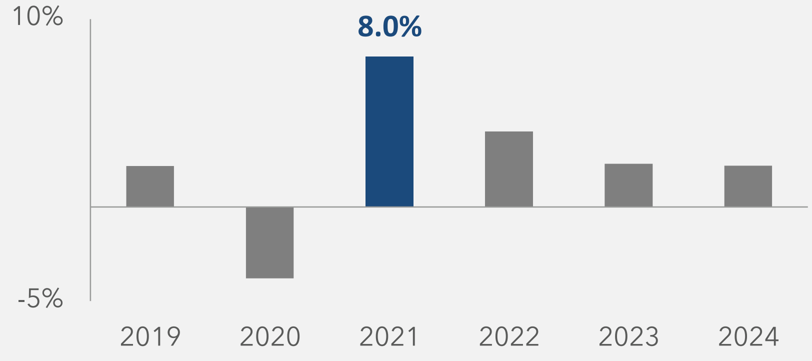
Source: (1) Bloomberg. Data as of September10, 2021. Markit composite PMI. China is Official PMI Composite Index.

US Economy Passed Peak Growth in Q2

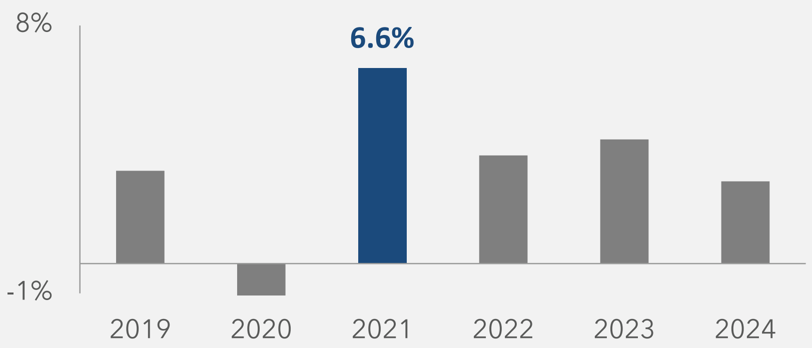
US GDP growth reaching peak in 2021



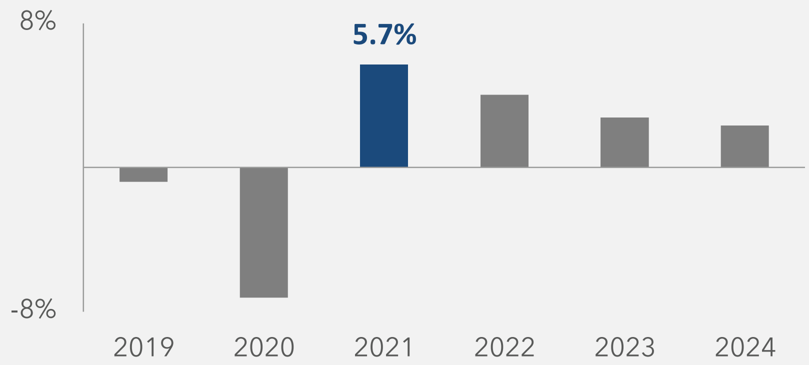
US private consumption growth reaching peak in 2021



US business fixed investment growth reaching peak in 2021



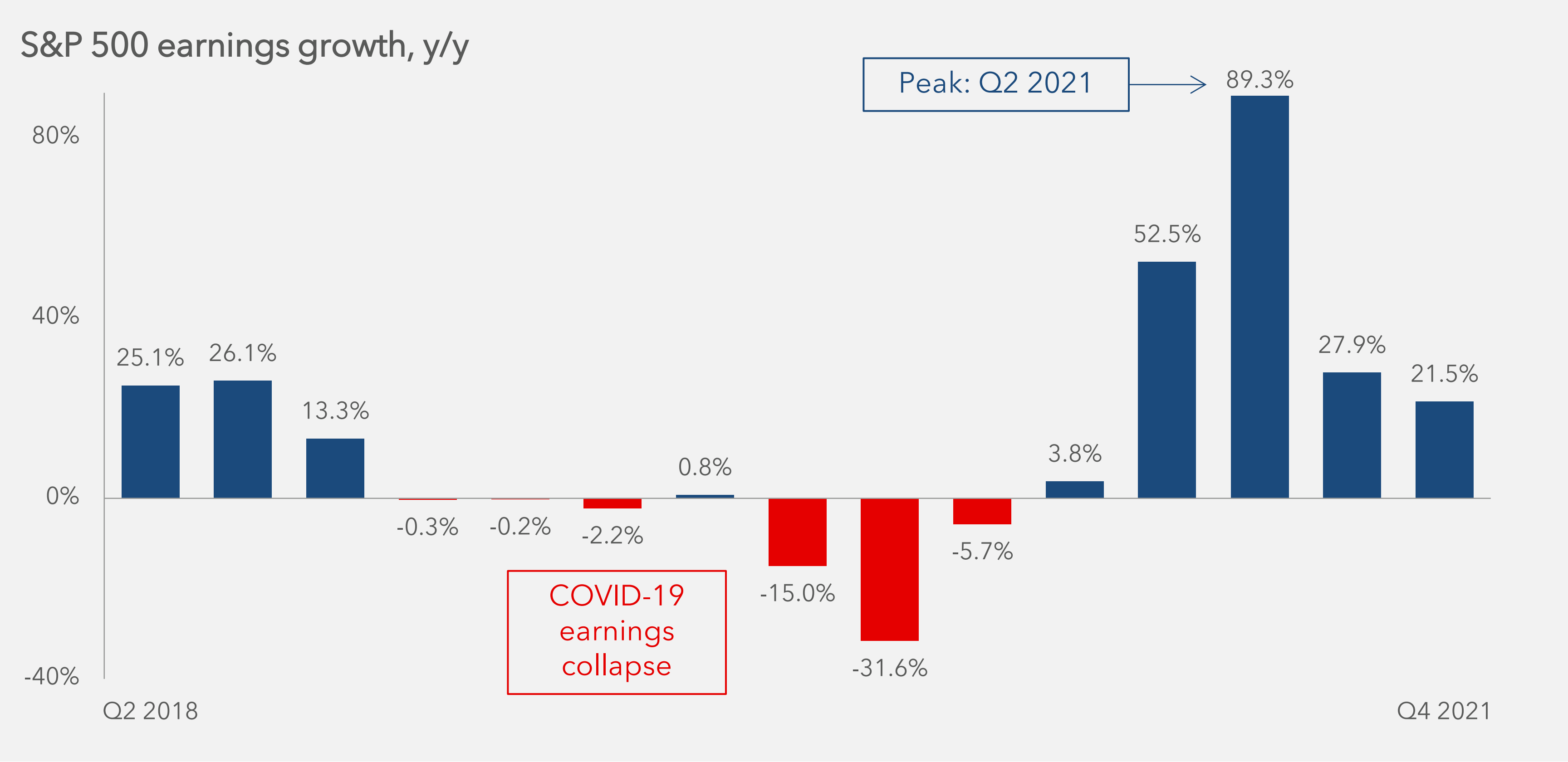
US industrial production growth reaching peak in 2021



Source: (1-4) Oxford Economics "United States: Summer boom coincides with peak growth". All metrics shown are year on year growth. Data as of September 10, 2021.

Corporate Earnings Past Peak

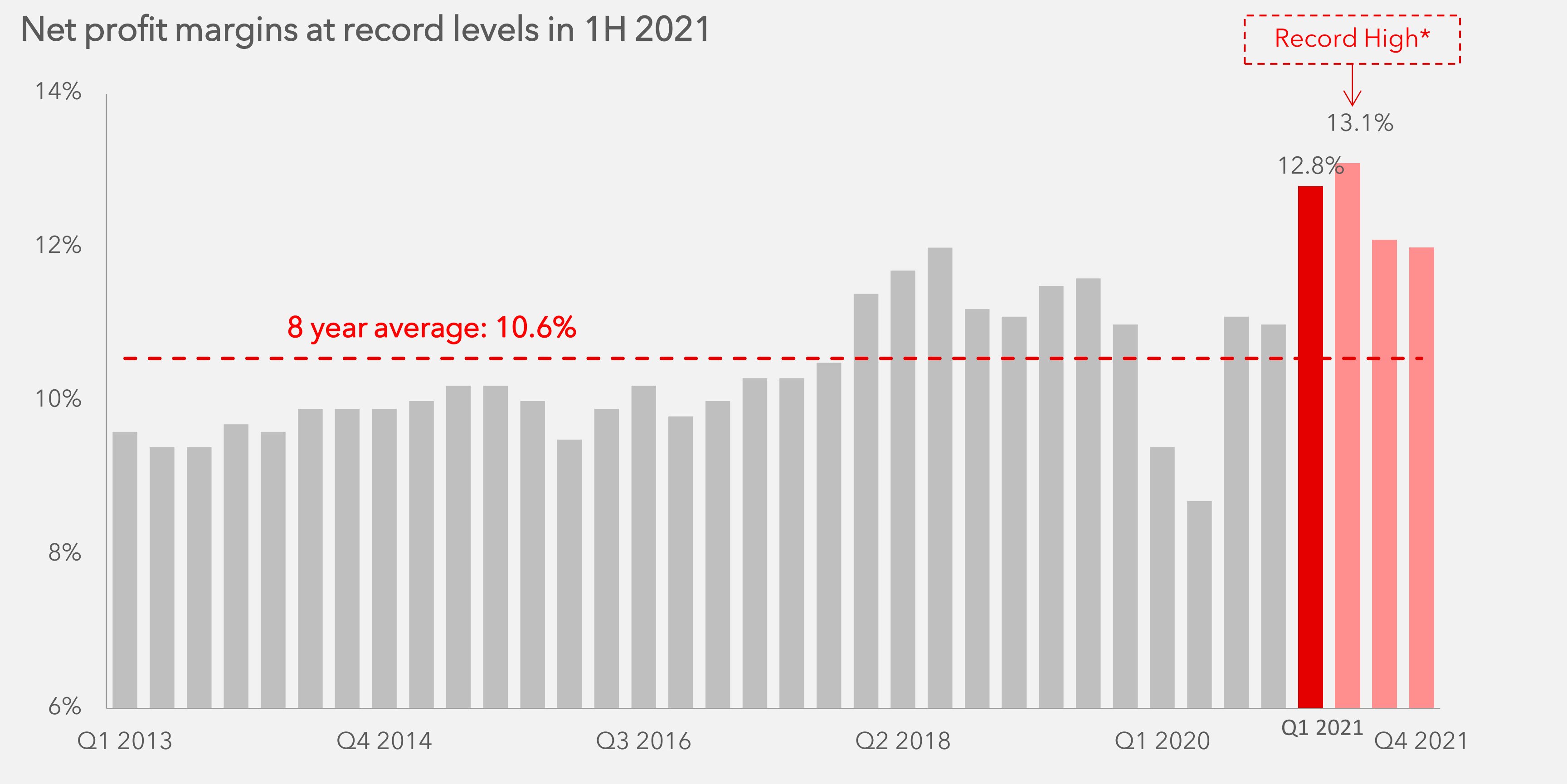
The extraordinary high growth in Q1 and Q2 2021 earnings are the highest since 2009, and a function of both the strong economic reopening, and comparisons to a very weak 1H 2020. While we expect earnings momentum to remain quite strong in the months ahead, the market will be closely watching possible tax code policy changes, as well as whether businesses can continue to make the impressive business strategy adjustments of prior periods to exceed expectations on earnings.



Source: (1) FactSet. Earnings Insight (September 10, 2021)

Net Profit Margins Likely Past Peak

Record top-line revenue growth has been an important factor in the positive corporate earnings surprises in 2021. However, since the pandemic arose in early 2020, companies have also made impressive adjustments to business models and strategy, while simultaneously benefitting from lower corporate taxes, as evidenced by profit margins rising well above pre-COVID periods.



*Source: (1) FactSet. Earnings Insight (September10, 2021) . *Record high since FactSet started tracking this metric in 2008.*

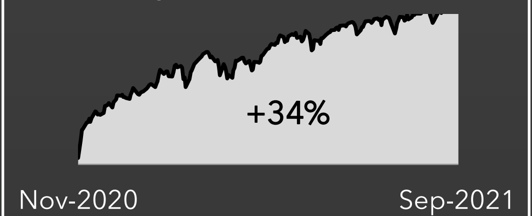
Asset Valuations Already Mid-to-Late Cycle

While numerous economic metrics (i.e., labor markets) and supply side forces may still be early to mid-cycle, extraordinary monetary and fiscal stimulus have contributed to an acceleration of asset valuations that more closely resemble late cycle

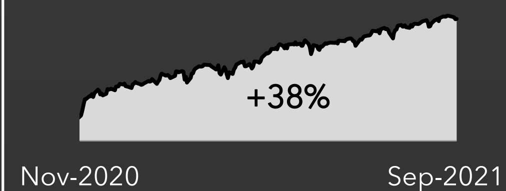
Performance since November 1, 2020

Equity Valuations

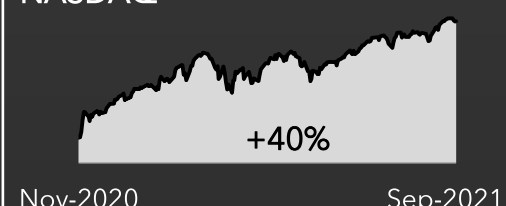
Global equities



S&P 500

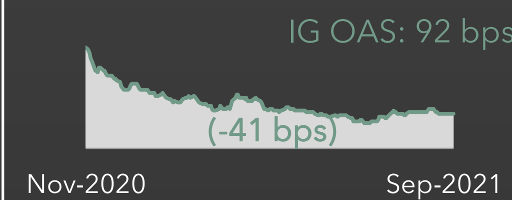


NASDAQ

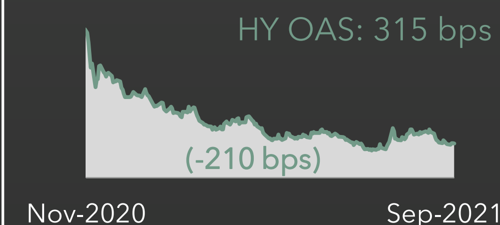


Credit Valuations

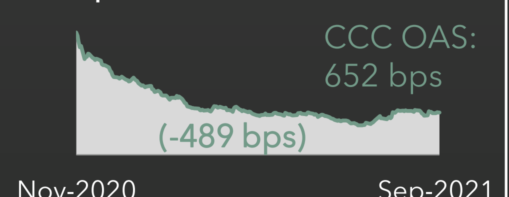
IG spreads



HY spreads

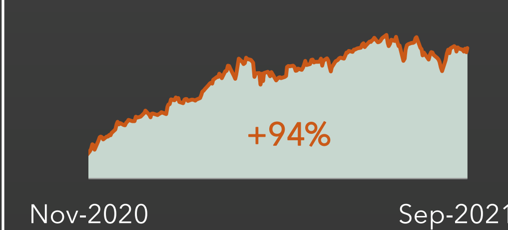


CCC spreads



Commodity Prices

Brent prices



WTI prices

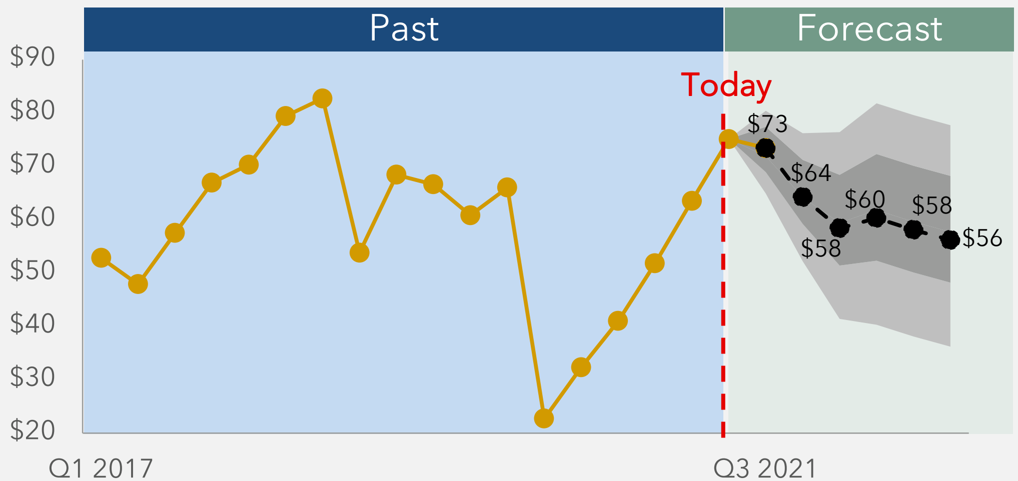
Industrial metals

Source: (1-12) Bloomberg. Data as of September 10, 2021. FRED. Global equities is MSCI all world.

Oil Prices Moving Beyond Cyclical Peak

The counterbalancing factors of vaccine-induced demand recovery in developed markets and a more tepid reopening in emerging markets are likely to keep oil prices range bound for the balance of the month, according to MUFG's Head of Emerging Markets Research, Ehsan Khoman. However, looking forward to Q4 2021 and early 2022, Khoman has a below consensus forecast for oil as he expects prices to be driven more by higher supply rather than the demand recovery story.

Quarter end Brent price, USD / barrel



Drivers of Neutral to Bearish Outlook

Demand side:

- Demand normalizing to pre-COVID levels as growth past peak
- Downside risk from low vaccination rates in Emerging Markets
- Delta variant risk in key geographies

Supply side:

- Higher OPEC+ production
- Eventual return of Iranian supply
- Increasing US shale production
- Steady inventory build-up pushing market into surplus

		Q3 2021		Q4 2021		Q1 2022		Q2 2022	
	Spot	Consensus	MUFG	Consensus	MUFG	Consensus	MUFG	Consensus	MUFG
Brent	73	74	73	72	64	71	58	69	60
WTI	70	67	69	69	61	68	55	67	58

Source: (1) MUFG EM Research "Oil Markets Weekly Report – OPEC+ Close to a Compromise Deal" July 15, 2021, (Khoman). Oil spot data as of September 10, 2021 .

3 Global Growth Reassessment

“After 40 years of allowing the market to play an expanding role in driving prosperity, China’s leaders have remembered something important – they’re Communists.”

Tom Orlik

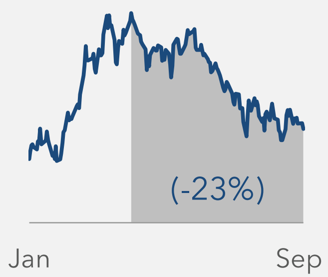
Bloomberg Chief Economist

Markets Repricing Growth Expectations

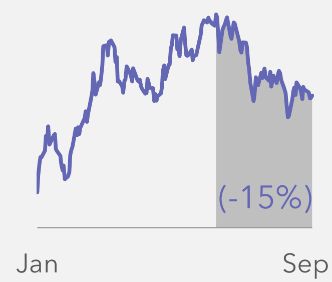
Over the last several months, markets have begun to reprice growth expectations in light of mid-cycle data and the global acceleration of the spread of the Delta variant

Lumber prices have declined 69% since peak in May

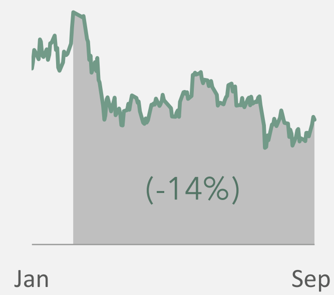
Airline stocks have declined 23% since peak in April



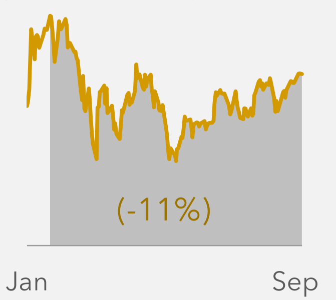
Energy stocks have declined 15% since peak in June



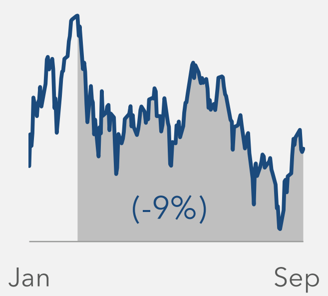
Chinese equities have declined 14% since peak in February



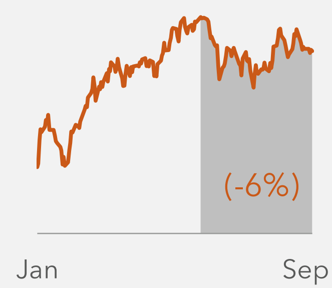
Autos & Components stocks have declined 11% since peak in January



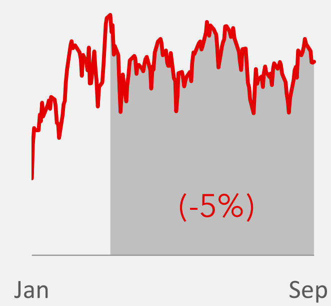
EM Equities have declined 9% since peak in February



Bank stocks have declined 6% since peak in June



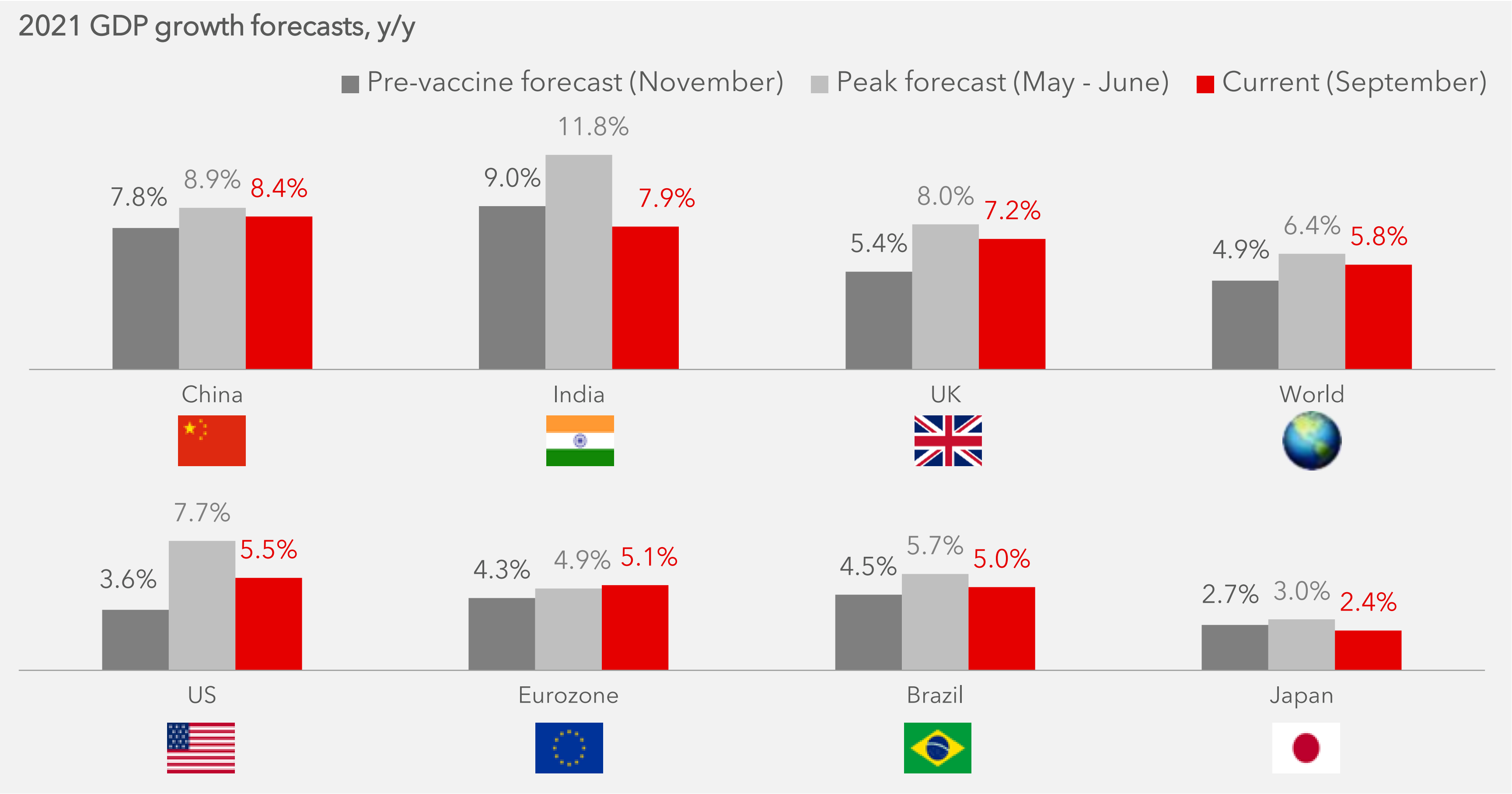
Small cap stocks have declined 5% since peak in March



Source: (1-8) Bloomberg. Data as of September 10, 2021. Chinese equities is the CSI 300, Small Cap stocks is the Russell 2000.

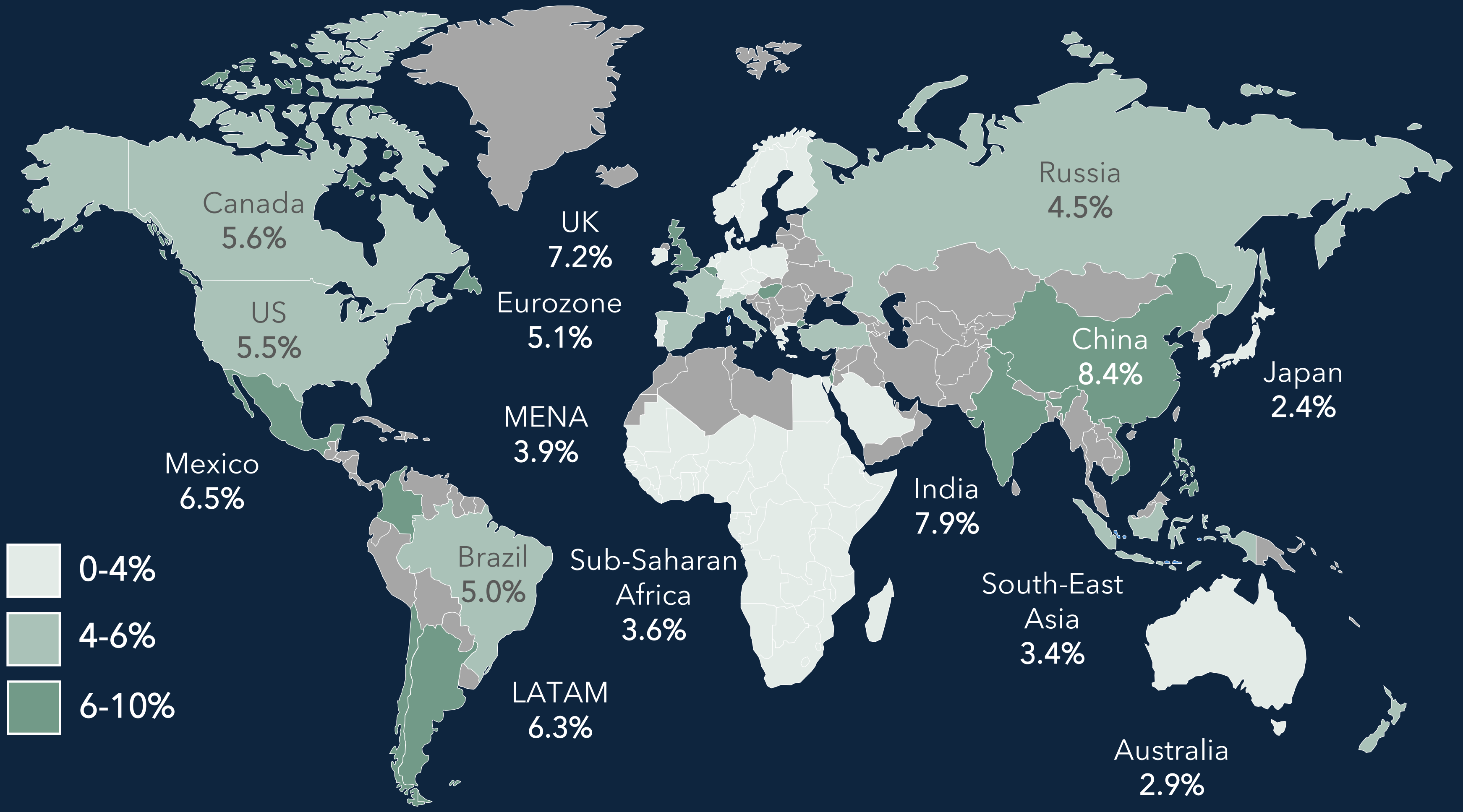
More De-Synchronized Global Recovery

While the initial early-cycle stages of the COVID recovery were highly synchronized on a strong and simultaneous global policy response, we expect the economic recovery in this mid-cycle stage to decelerate in terms of rate of growth, and to also become more de-synchronized and uneven



Source: (1) Oxford Economics. Data as of September 10, 2021. Eurozone peak forecast in July.

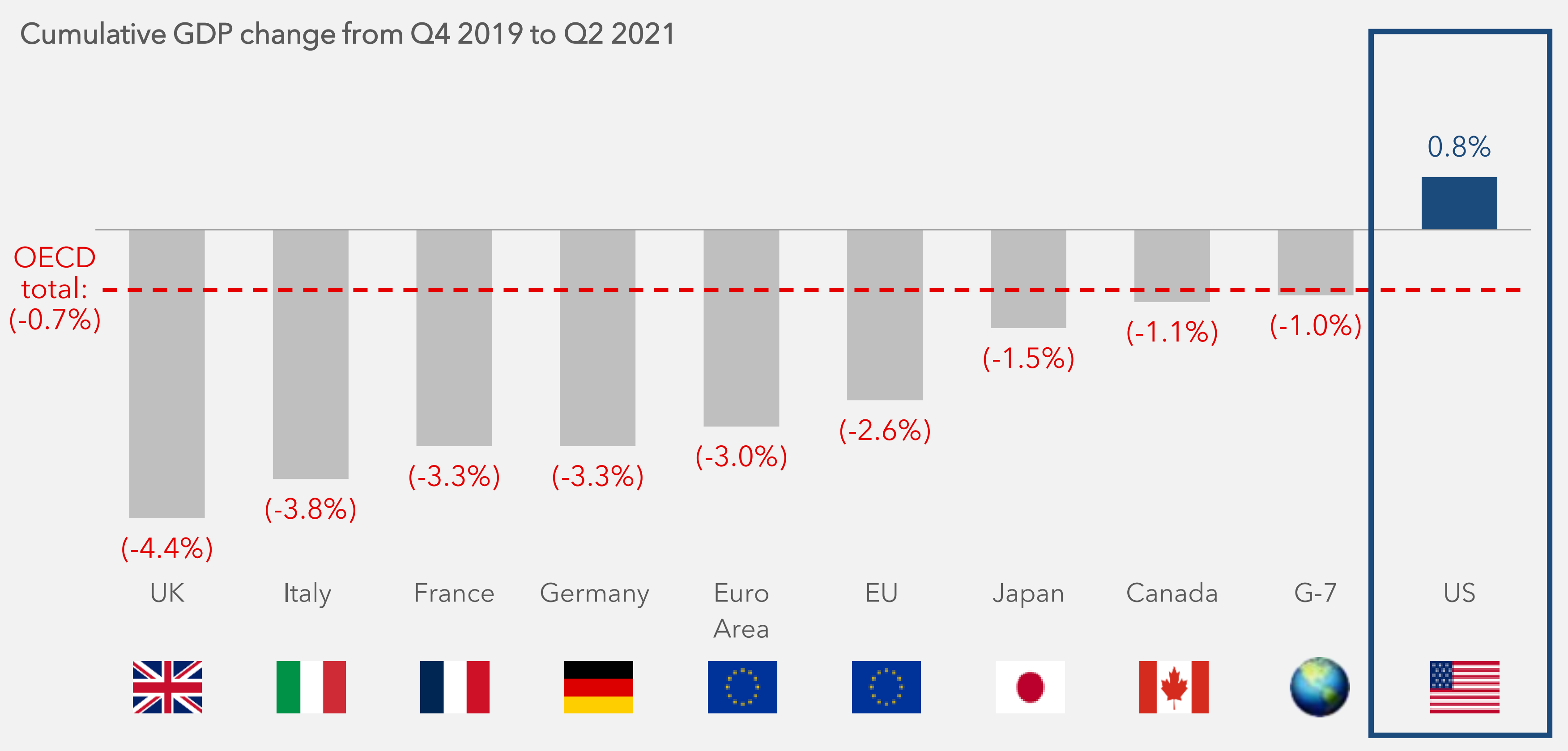
2021 Global GDP Forecasts



Source: Oxford Economics. Data as of September 10, 2021.

United States Leads G7 Recovery

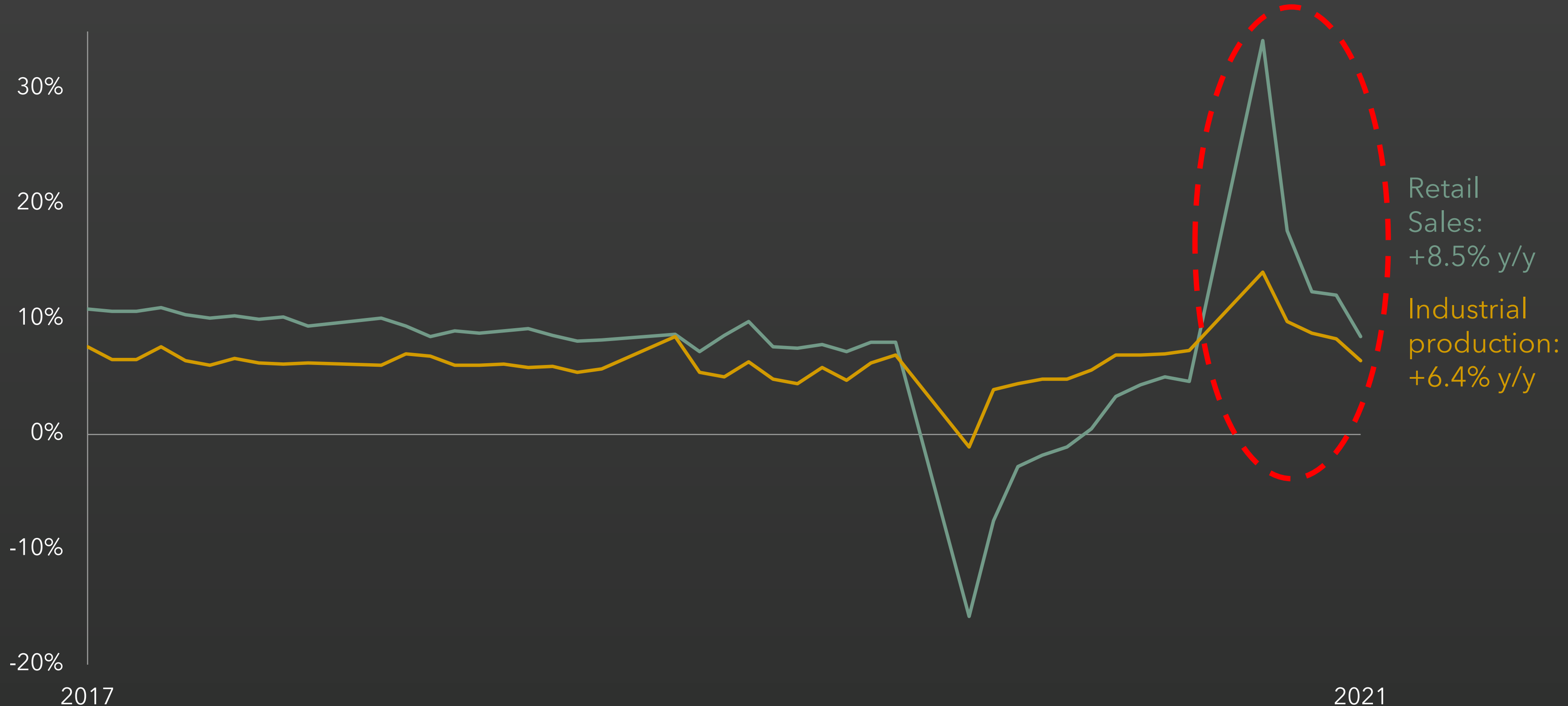
According to the OECD's Q2 report of the world's largest economies, the US is the first and only G7 economy to return to its pre-COVID crisis size. The report notes that the 38 member countries of the OECD have also not reached pre-crisis levels in aggregate. While the UK recorded the fastest growth among G7 economies in Q2, it also has the largest gap to close to return to pre-pandemic output levels.



Source: (1) Bloomberg "US Economy Wins the G-7 Race to Return to Normal" (August 30, 2021). OECD.

China Growth Has Become a Concern

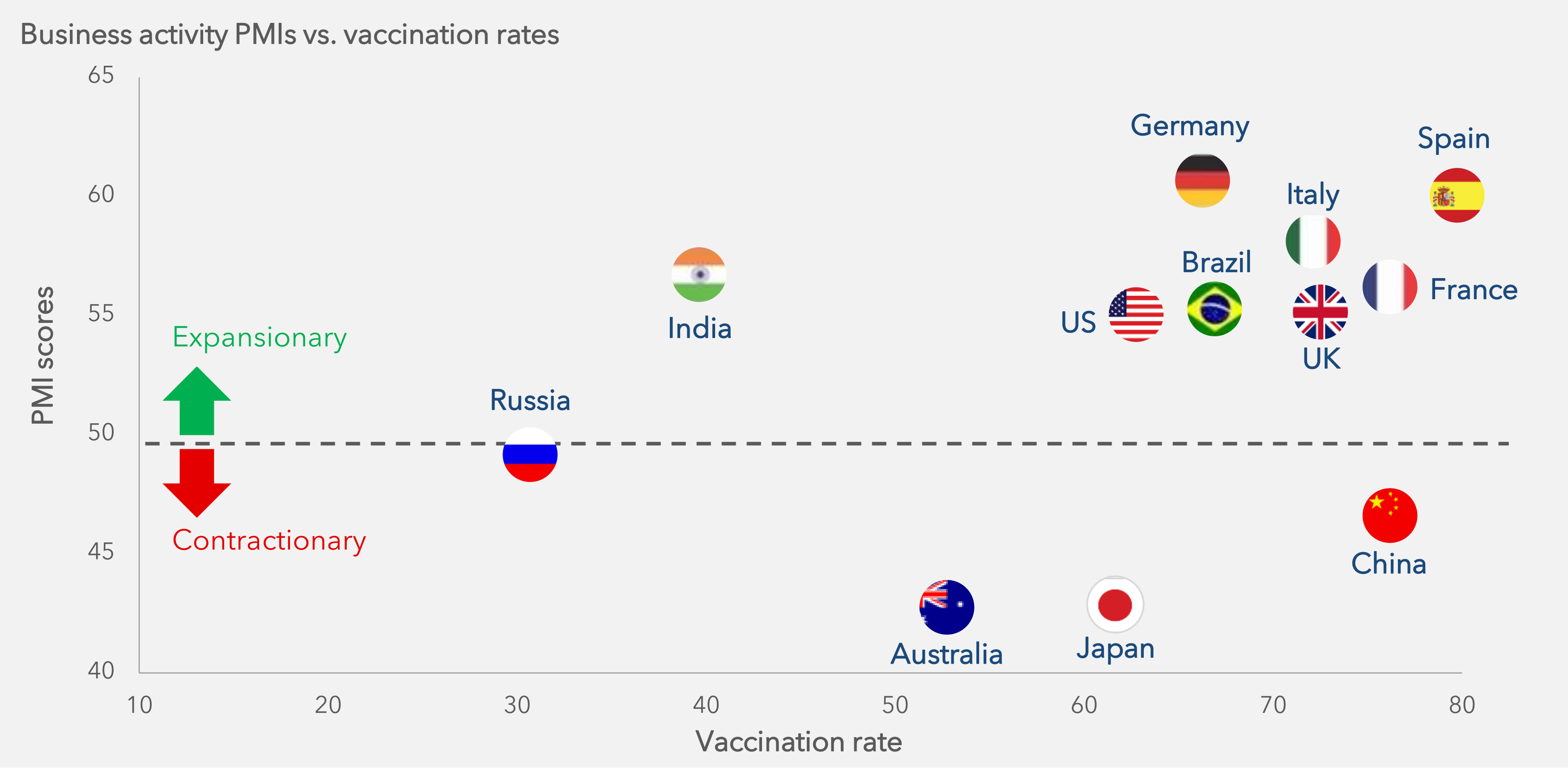
While the Delta variant outbreak is causing China's worst COVID flare up in six months, widespread movement restrictions were only implemented toward the end of July. The larger driver of China's slowing growth to date has been fiscal tightening, tight credit conditions and supply chain bottlenecks putting downward pressure on the industry and construction sectors. Increased regulatory activism may also dampen growth in certain important sectors.



Source: Bloomberg. Data as of September 10, 2021. Capital Economics "Delta speed bump not the only drag". Oxford Economics " China: Q3 growth downgraded to reflect recent Covid outbreak".

The Uneven COVID Recovery

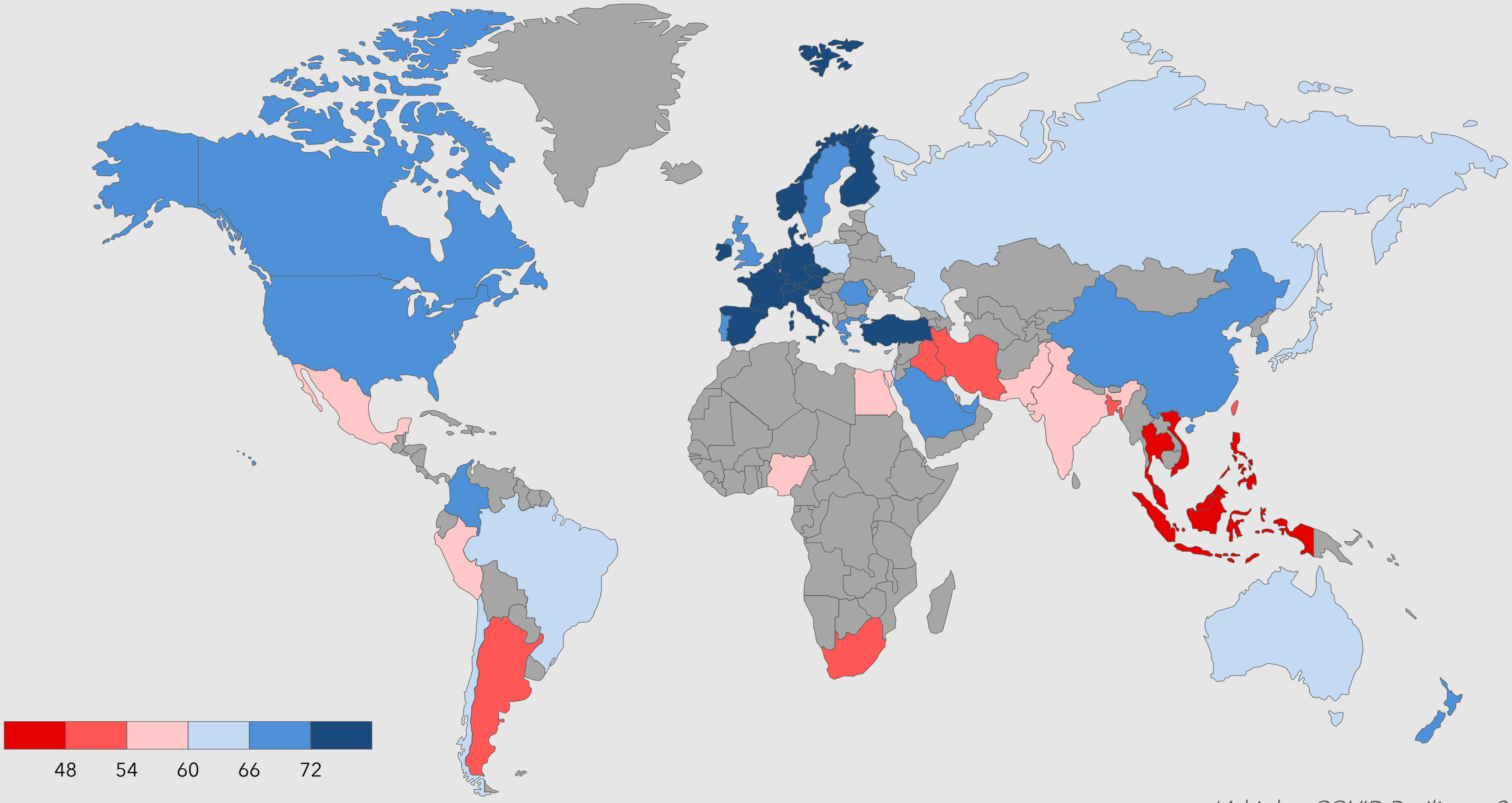
The World Bank expects Global GDP to grow 5.6% in 2021, the strongest post recovery growth in 80 years, but the recovery has been and will continue to be uneven. Regional COVID policies, including vaccination rates have been heavily influencing the economic recovery with economies that have "re-opened" showing significantly higher PMI readings for both services and manufacturing.



Source: (1)Markit "Global economic growth depends increasingly on COVID-19 vaccination progress". Bloomberg. Data as of September 10, 2021. PMI is August Business Activity PMI data.

COVID Resilience Ranking

The Covid Resilience Ranking is a monthly snapshot of where the virus is being handled the most effectively with the least social and economic disruption. Tapping 12 data indicators that span Covid containment, quality of healthcare, vaccination coverage, overall mortality and—as of last month—progress toward restarting travel and easing border restrictions, the Ranking's top performers are increasingly those economies where vaccination is driving containment and underpinning reopening.



Source: Bloomberg. Data through August 2021.

**A higher COVID Resilience Score indicates a better outcome*

4 Corporate Credit’s Historic Tightening

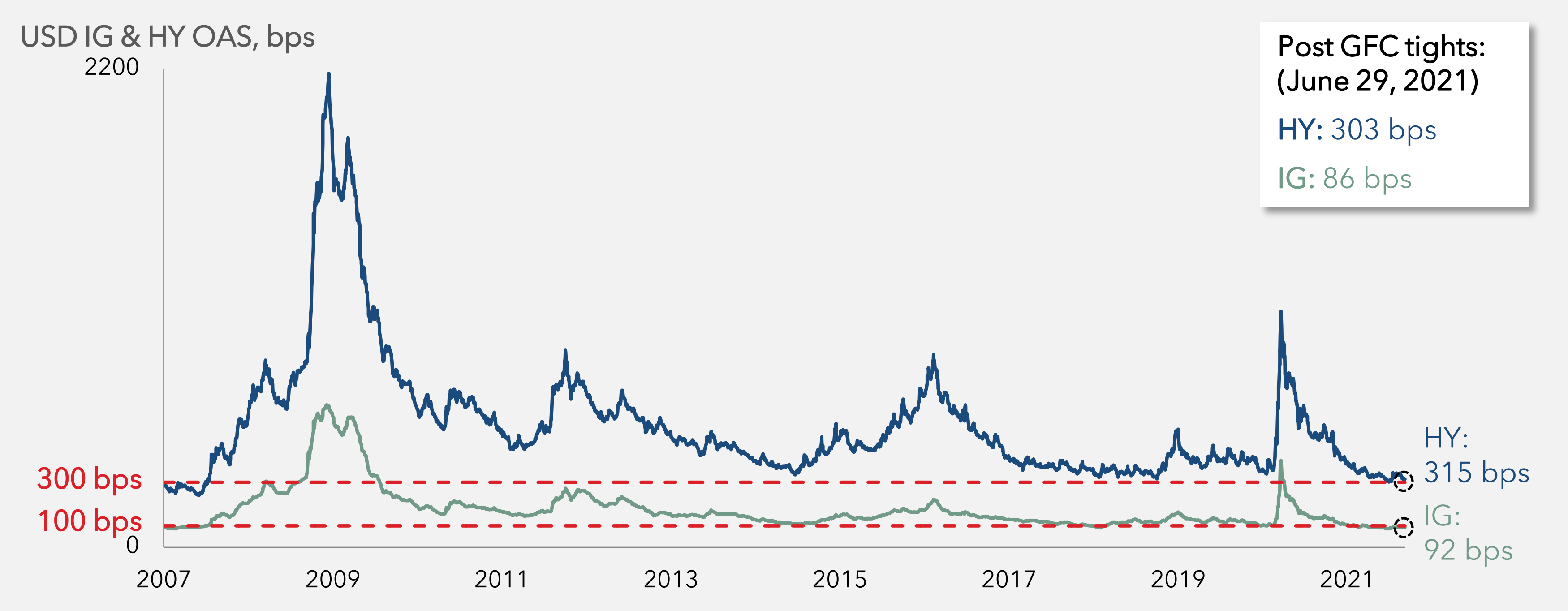
"The past is never dead,
it's not even past."

William Faulkner

Nobel Prize Winning American Author
(1897 – 1962)

Corporate Credit Near Post GFC Tights

US dollar IG and HY spreads tightened to 86 and 303 bps at the end of the second quarter, their lowest levels since 2005 and 2007, respectively. While the recent Fed policy pivot could have introduced volatility to the detriment of HY spreads, investors have instead expressed confidence in the ability of the Fed to derail a rise in inflation that could curtail the recovery.



Strong fund flows, and new issue supply poised to slow in Q4 2021, we expect credit spreads to remain close to their post GFC tights so long as the Fed taper remains dovish and well communicated, economic data stays stable, and virus mutations evolve within the scope of vaccine resilience.

Source: (1) FRED. Indices are ICE BofA effective yields. Data as of September 10, 2021. HY OAS low on June 29, 2021 of 303 bps and IG OAS low of 86 bps from June 25-30, 2021.

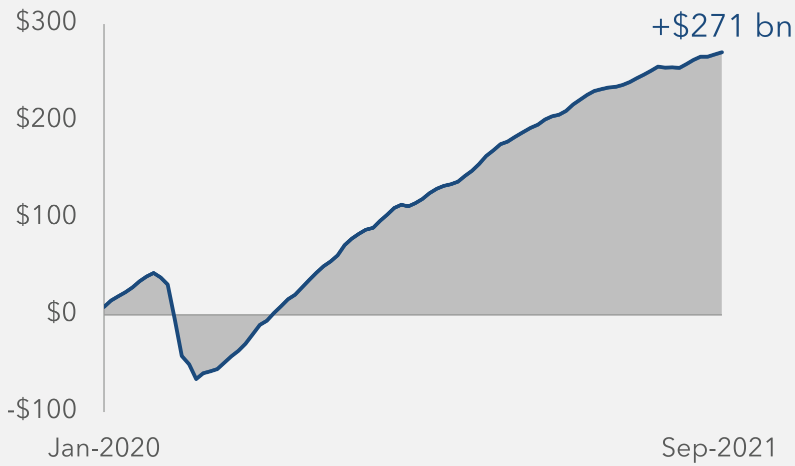
Historically Low Yields Across the Ratings Spectrum

Source: (1-8) FRED. Data as of September 10, 2021.

Record Fund Flows into USD Credit

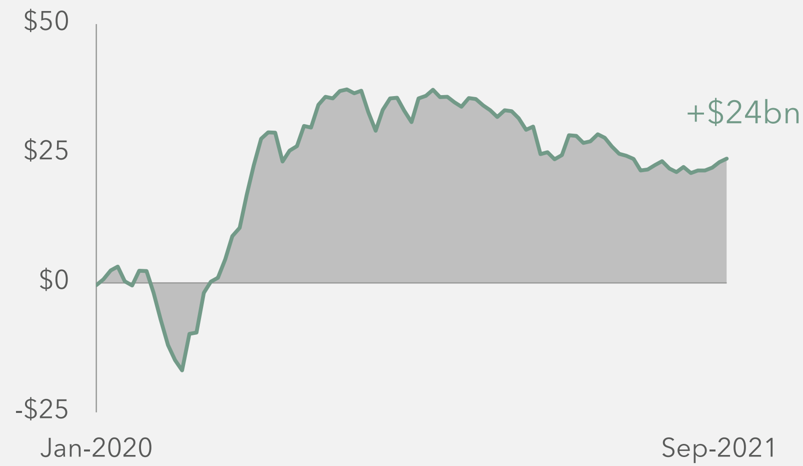
Investment Grade USD fund flows have proceeded at a record pace in 2021, driven by accommodative Fed policy, a strong economic reopening, and a global search for high quality, yield producing assets

Cumulative IG fund flows since January 2020, USD bn



YTD IG fund flows, USD bn

Cumulative HY fund flows since January 2020, USD bn

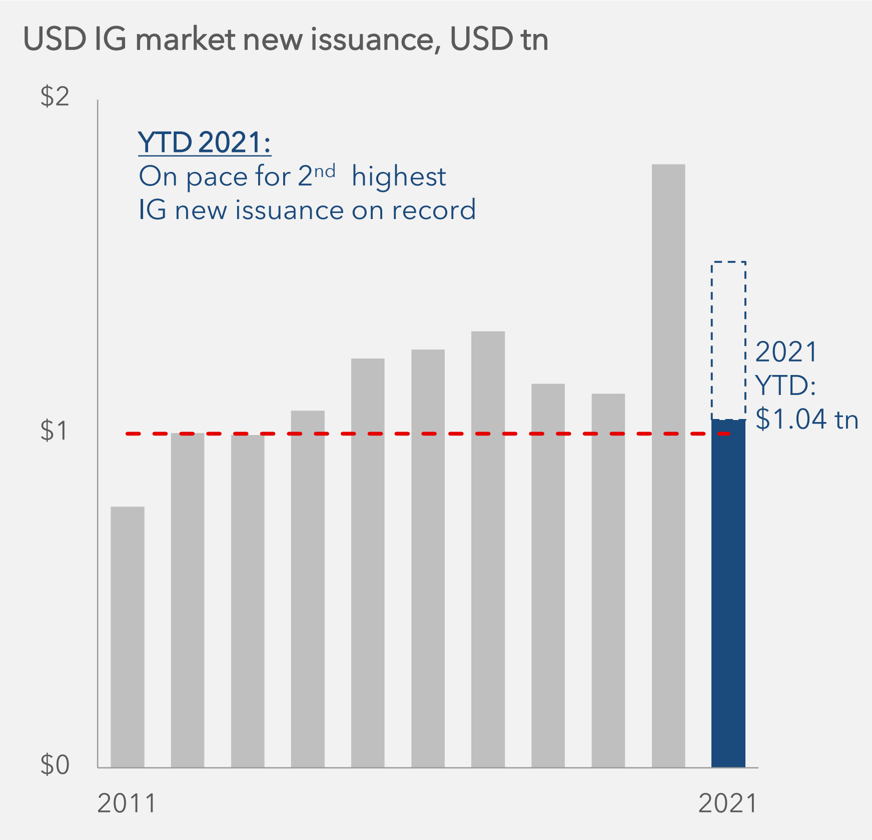


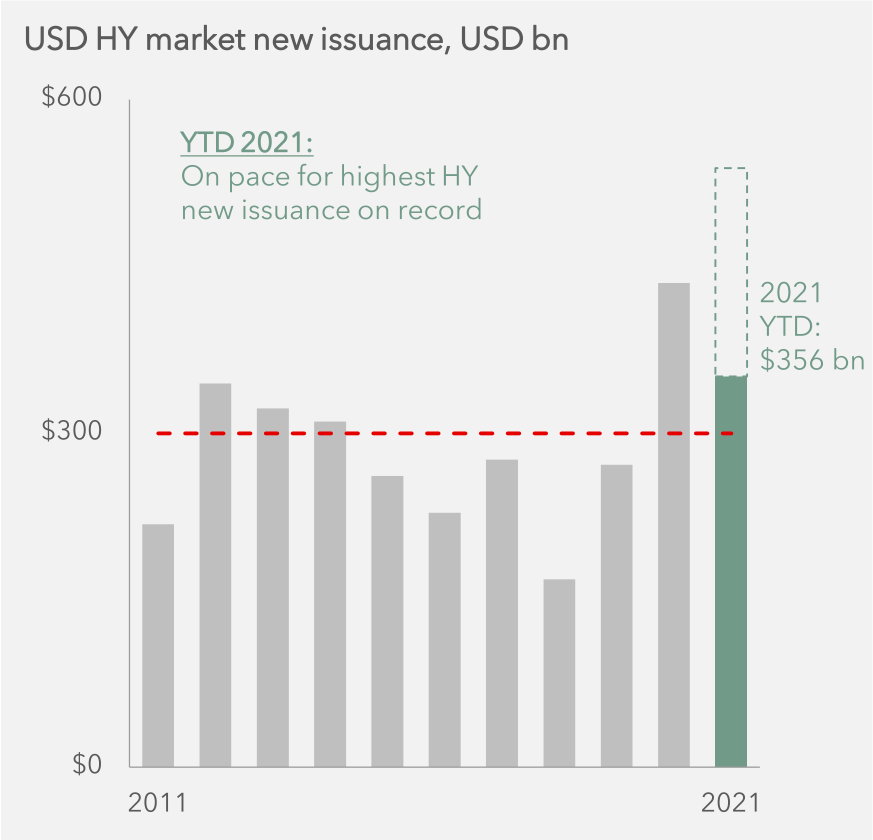
YTD HY fund flows, USD bn

Source: (1-2) MUFG DCM. Lipper fund flows. YTD data as of August 27 of each year. Cumulative data through September 10, 2021.

New Issue Supply at Near Record Levels

After nearly a decade of annual IG issuance at or above the $1 trillion threshold, 2021 is on pace to be the second highest issuance year on record, with HY on pace for its strongest year ever. With September IG issuance off to an exceptionally strong start, market forecasts for the month are calling for approximately $135 bn of new issuance. However, Q4 volumes may slow compared to prior quarters this year.





Source: (1-2) MUFG DCM. IG New issuance data through September 9, 2021. HY new issuance data through September 9, 2021.

Key Drivers of Historic Spread Tightening

With US interest rates near multi-century lows, and corporate credit spreads near their lowest levels since before the financial crisis, the cost of debt financing for corporates has declined to historic lows

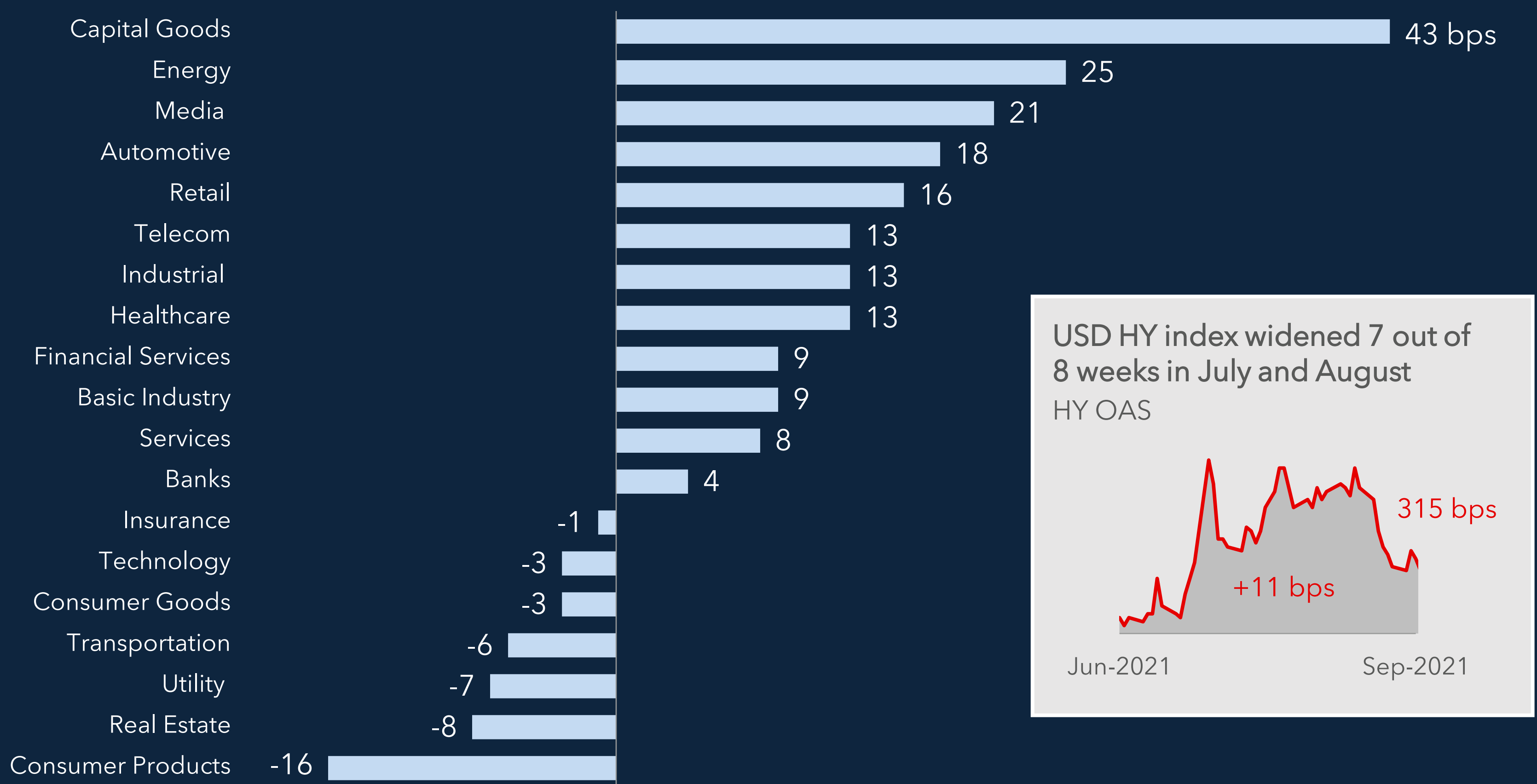
Key drivers of this historic credit spread tightening

1. Robust US economic, corporate earnings and credit quality recovery
2. Investor confidence in Fed's ability to curtail inflation
3. Strong historic performance of HY credit spreads in high growth Fed tightening cycles
4. US financial conditions near easiest levels on record (despite peak in Fed accommodation (M2 money supply) in February)
5. Extraordinary technical demand for yield-producing assets amidst historic global policy accommodation
6. Sharp rise in oil prices supporting energy related sectors

Recent HY Credit Spread Widening

Though still tight by historical standards, high yield credit spreads widened in July and August as a result of growing COVID concerns, expectations that earnings may be past peak, lower oil prices and increased geo-political risks (i.e., Afghanistan)

Change in High Yield Credit Spreads since June 30, 2021 (bps)



Source: (1) Refinitiv, IFR. CreditSights. Data through September 2, 2021. (2) FRED. Data as of September 10, 2021.

5 Infrastructure Spending & Tax Code Changes

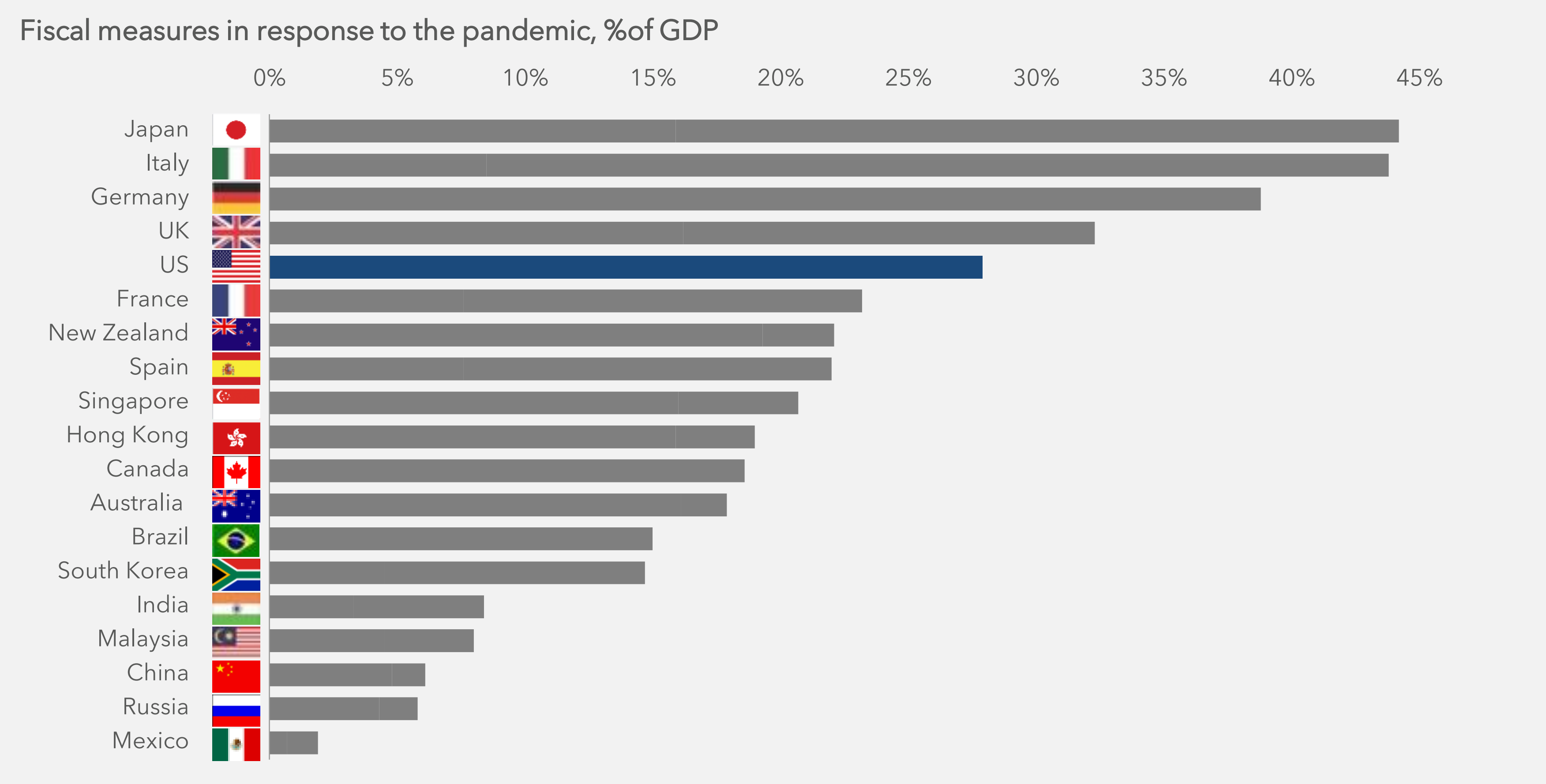
“Every Senator can look at bridges and roads and need for more broadband, waterways in their states, seaports, airports, and see the benefits–the very concrete benefits, no pun intended–of this legislation,”

Susan Collins, US Senator (R-ME)

during an appearance on CNN’s “State of the Union” on August 1

Global COVID Fiscal Policy Response

In just one year, the US provided over $6 trillion of fiscal stimulus in response to the COVID crisis, the largest absolute fiscal stimulus of any country globally. Japan's fiscal packages, the largest response on as a percentage of GDP basis, equated to under $3 trillion, less than half of US spending.



Source: (1) PIIE. International Monetary Fund Fiscal monitor, April 2021. Includes above the line measures such as additional spending or reductions in revenues that directly impact economic activity and liquidity support which refers to equity injections, loans, asset purchases or debt assumptions. Contingent liabilities refer to payments that will be made if a triggering event occurs.

The Path to $2-3 Trillion of Infrastructure

We expect $2-3 trillion of infrastructure spending to pass the US Congress in a two-step process in Q4 2021 as follows: a $1.2 trillion BIPARTISAN "hard" infrastructure bill before October 1, followed by a $1.2 – 2.0 trillion DEMOCRAT-ONLY "soft" infrastructure bill later in the year

Step 1: By October 1
$1.2 tn bipartisan "hard" infrastructure

- Size:
  $1.2 trillion
- Form:
  Surface Transportation Act (STA) extension and additional "hard" infrastructure spending
- Process:
  Already passed US Senate on bipartisan basis
- Timing:
  Passage in US House before STA expiration on October 1
- Tax Implications:
  No new taxes or tax increases

Step 2: November / December
$1.2 - 2 tn "soft" infrastructure

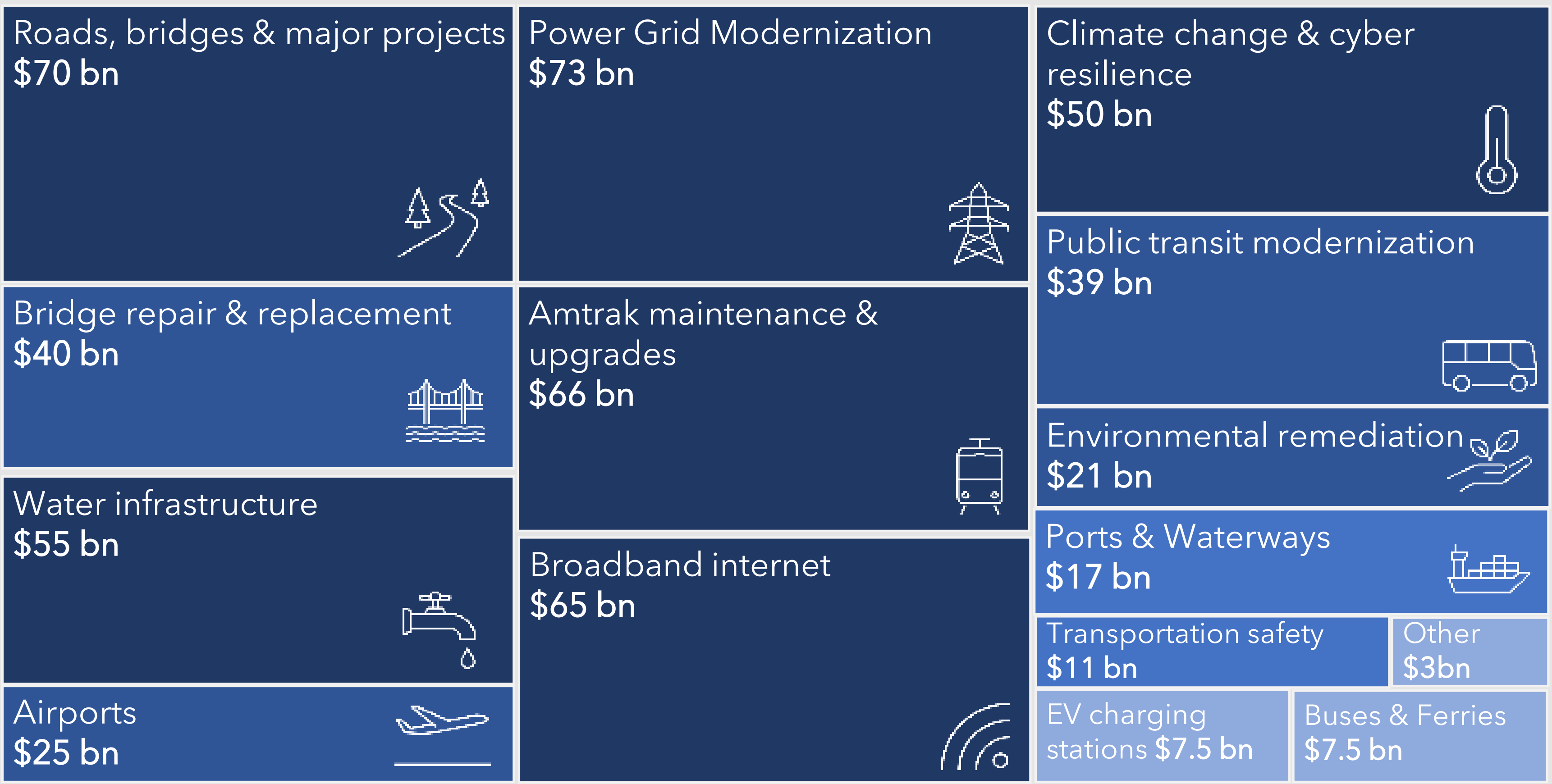
- Size:
  $1.2 - $2 trillion expected
- Form:
  "Soft / human" infrastructure
  Climate spending
  Tax legislation
- Process:
  Democrat only support via budget reconciliation process
- Timing:
  Expect House vote week of Sept 20
  Senate vote & reconciliation to follow
- Tax Implications:
  $500 - $750 bn expected
  House Dems to propose up to $2 tn

Source: (1) Veda Partners (Henrietta Treyz); "Peak Headline Risk for Tax Hikes This Week" (September 7, 2021); "How We're Thinking About the Reconciliation Bill" (August 26, 2021). PIMCO (Libby Cantrill)

Breaking Down the Bipartisan Infrastructure Bill

The US Senate voted 69 – 30 in August to approve a $1.2 trillion bipartisan infrastructure bill. In addition to a five year re-authorization of the Surface Transportation Program, the bipartisan bill also includes $550 billion of "new" infrastructure spending.

Breakdown of new federal spending in bipartisan infrastructure bill



Source: Bloomberg Government "What's in the $550 Billion Bipartisan Infrastructure Deal". Veda (Henrietta Treyz). White House "Fact Sheet: Historic Bipartisan Infrastructure Deal".

Expectations for US Tax Code Change

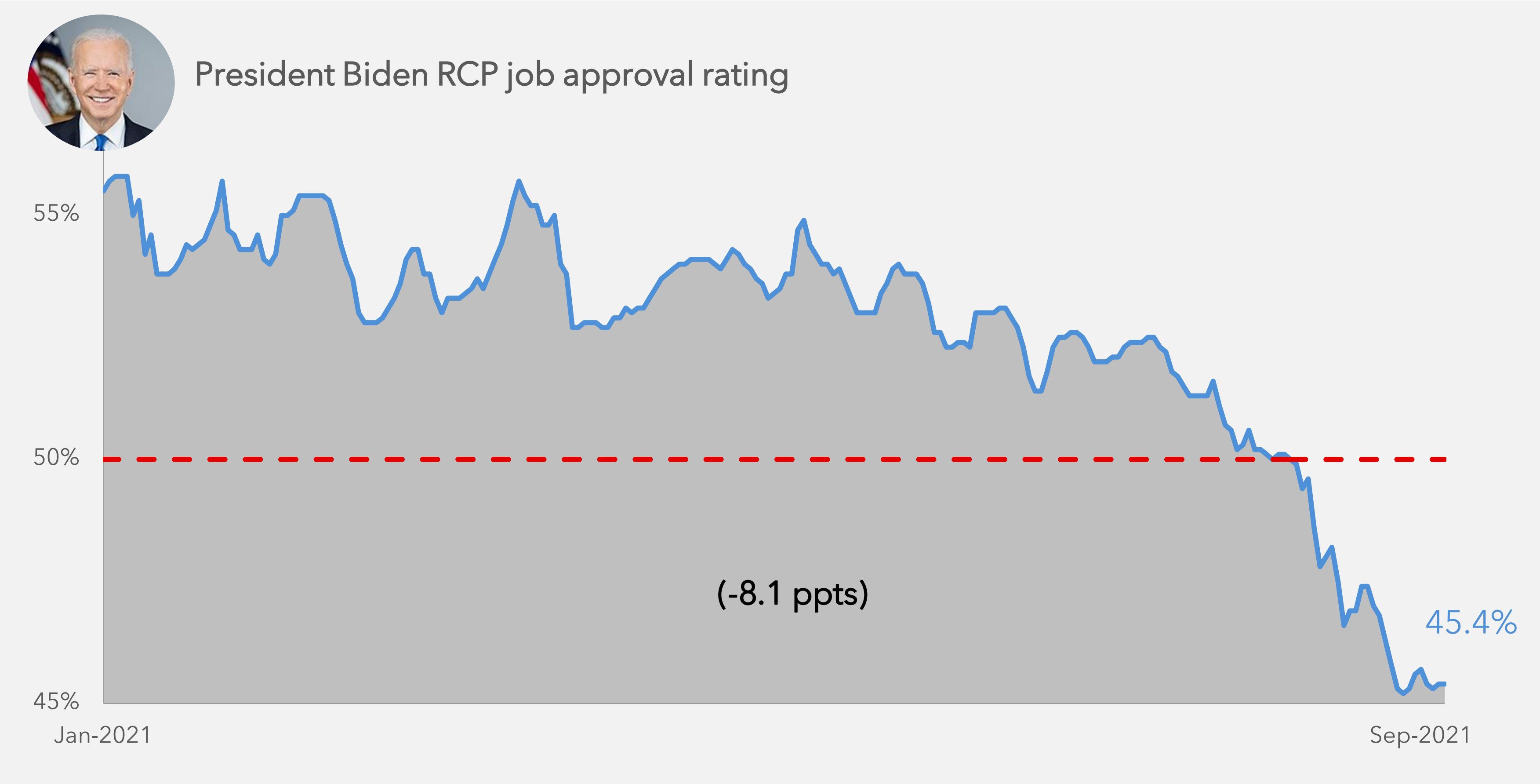
The $1.2 trillion bipartisan "hard" infrastructure bill expected in September-October is fully paid for, and will not require tax code change to finance (nor would GOP members support such tax code changes). However, we expect some portion (possibly $500 - $750bn) of a second "soft" infrastructure bill (which could total $1.2-2 trillion), passed by Democrats only via budget reconciliation in Q4, to be potentially financed with modest changes to the US corporate and individual tax code.

Corporate Tax Provisions		Expected and / or Potential Change
	Effective date	Largely prospective (2022), not retroactive
	Corporate statutory rate	25% - 26% area
	GILTI rate	15% - 16% area
	Country minimum tax	Likely (approach TBD)
	Domestic production incentives	Yes
	Green energy tax incentives	Yes

Individual Tax Provisions		Expected and / or Potential Change
	Capital gains	25% - 28% area (immediate 2021 effectiveness possible)
	Individual Rate	Increase to prior 39.6% rate for those with income over $400 thousand
	SALT deduction	Moderate expansion; possibly $15-20k, possible elimination of marriage penalty

President Biden's Declining Approval Ratings

President Biden's approval ratings have declined 10 points in the first year of his Presidency, and nearly 5 points in August alone. While this may, on the margins, reduce the President's negotiating position with the US Congress, passage of large scale domestic infrastructure will remain a political imperative for Democrats going into a 2022 mid-term election year.



Source: (1) Bloomberg. Data as of September 10, 2021.

6 Markets at the Fed Turn

“The world breaks everyone, and afterward, many are strong at the broken places.”

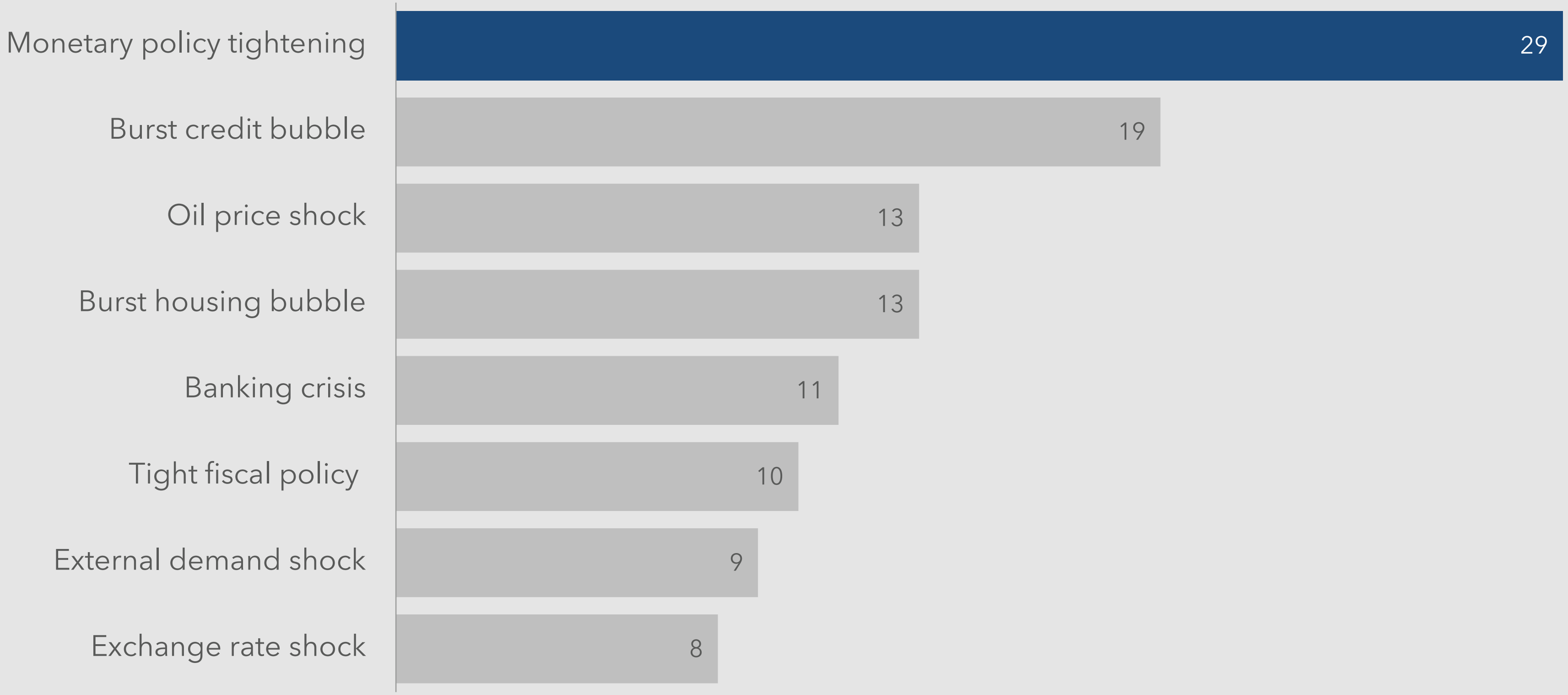
Ernest Hemingway

Nobel Prize winning American novelist
(1899 – 1961)

Tightening Cycles Pose Risks for Markets

Monetary policy tightening and credit cycle turns have accounted for nearly half of G7 recessions since 1960. While recession risk remains low near term, policy risk nonetheless remains high, with potentially adverse economic and market consequences at a time when risk asset-valuations are already at late cycle levels.

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.

Casualties of Fed Tightening

Every Fed tightening cycle of the last 40 years has claimed a large financial casualty, and this cycle (though gradual) should be monitored closely. While the Fed may not have been the primary cause of the market dislocations noted below (i.e., the preconditions), Fed tightening cycles have nonetheless been a precipitant for numerous global market shocks 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

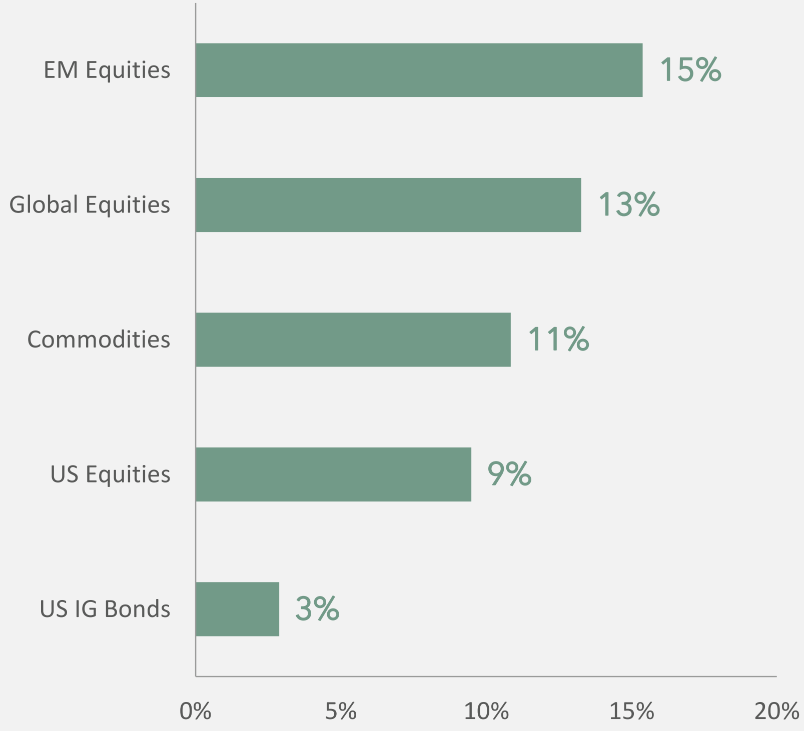
2008
Global Financial Crisis

2014-2016
Commodities Super Cycle Bust

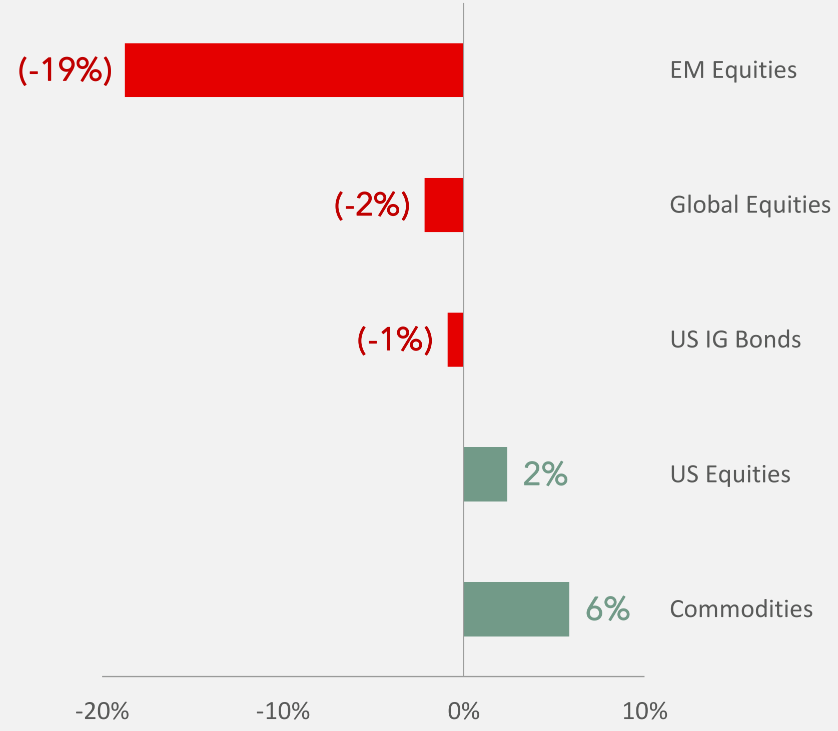
Communication Critical for Markets

Though conventional wisdom suggests that risk assets and bonds perform poorly during Fed tightening cycles; historical evidence suggests otherwise. Tightening typically accompanies strong underlying fundamentals which are supportive of risk assets. 1994, however, offers a case study on the importance of clear and advance communication on Fed policy pivots.

Average returns in first 12 months of Fed tightening cycles since 1983



Average returns in 12 months after poorly communicated 1994 tightening



Source: (1-2) FRED. Data as of September 10, 2021. Bloomberg. Average returns based on 7 tightening cycles dating back to 1983 except for EM equities & IG bonds where data availability is limited to 5 cycles.

Magnitude of Fed Tightening

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). The most recent tightening cycle (2015) was longer and slower by comparison, and was ultimately interrupted by the US-China trade wars.

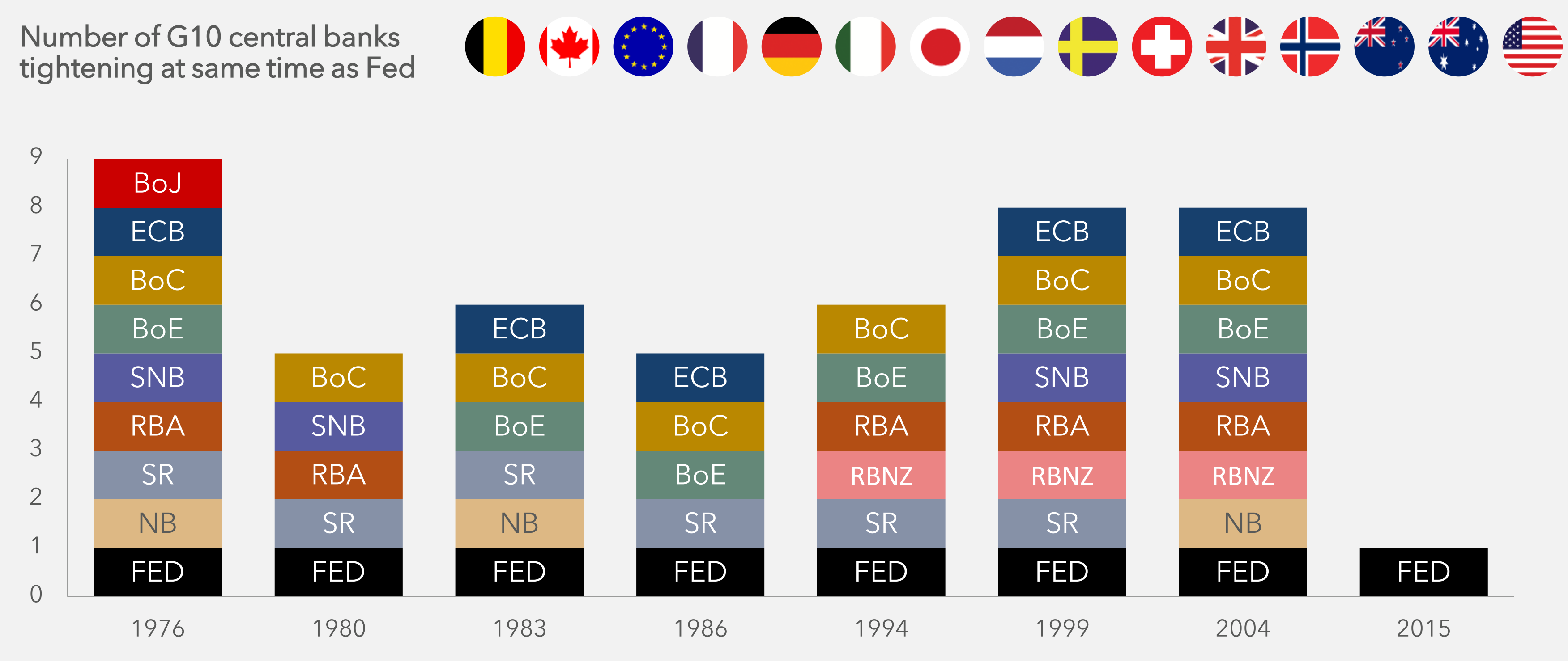
Tightening cycle	Duration (months)	Start rate	Magnitude of tightening, bps (entire cycle)
2015	36 months	0.25%	225 bps
2004	24 months	1.00%	425 bps
1999	11 months	4.75%	175 bps
1994	12 months	3.00%	300 bps
1988	11 months	6.50%	325 bps
1986	9 months	5.88%	137 bps
1983	15 months	8.50%	325 bps

Median: 300 bps

Source: (1) Bloomberg. Data as of September 10, 2021. Federal Reserve. Start rate is upper bound.

Advanced Economy Tightening Cycles

In most tightening cycles over the last 50 years, Fed tightening has been accompanied by concurrent policy shifts from numerous other G10 central banks, with one exception in particular. In 2015, the Fed was alone for the vast majority of its tightening cycle (until late 2017). According to MUFG's FX Strategist, Derek Halpenny, we have returned more closely to historical patterns with other G10 central banks concurrently pivoting policy toward tightening with the Fed in the current cycle, which in turn has implications for US rates, currencies and markets (with rate differentials and dollar strength more muted by comparison to the Fed "on its own" in 2015).



Source: (1) Bloomberg. Data as of September 10, 2021. Bundesbank until 1992, ECB onwards. New Zealand data only available after 1988. BoJ = Bank of Japan. ECB = European Central Bank. BoC = Bank of Canada. BoE = Bank of England. SNB = Swiss National Bank. RBA = Reserve Bank of Australia. RBNZ = Reserve Bank of New Zealand. SR = Sveriges Riksbank (Sweden). NB –Norges Bank (Norway).

US Equities During Fed Tightening Cycles

US equities have performed well in 6 of the 7 Fed tightening cycles since 1986, with median 12 month returns in the 7% area. While initial equity returns can be poor immediately following the policy pivot, the market has typically regained losses and generated positive returns in the 12 months following the transition.

Tightening Cycle	Start Fed Funds Rate	S&P 500 Total Return After Tightening: 3 months after	S&P 500 Total Return After Tightening: 12 months after
1988	6.50%	7%	18%
2015	0.25%	3%	15%
1983	8.50%	13%	14%
1999	4.75%	-6%	7%
2004	1.00%	-2%	6%
1986	5.88%	21%	5%
1994	3.00%	-6%	1%

Comprehensive tax reform became law in 1986

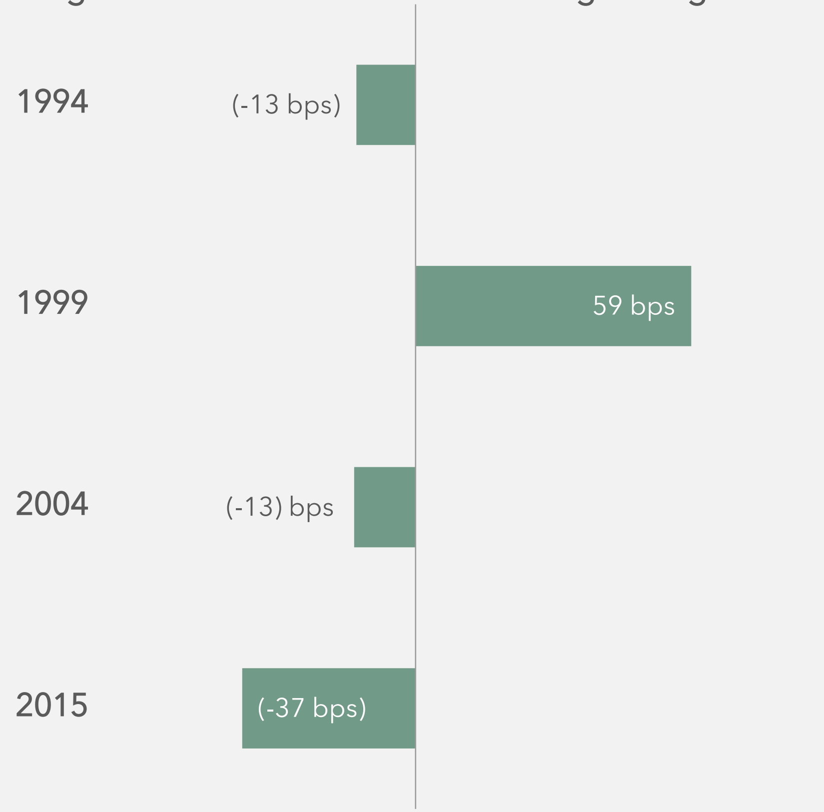
12 month median: 7.2%

Source: (1) Bloomberg. Data as of September 10, 2021. Calculated from start of Fed tightening cycle. Total returns. Start rate is upper bound.

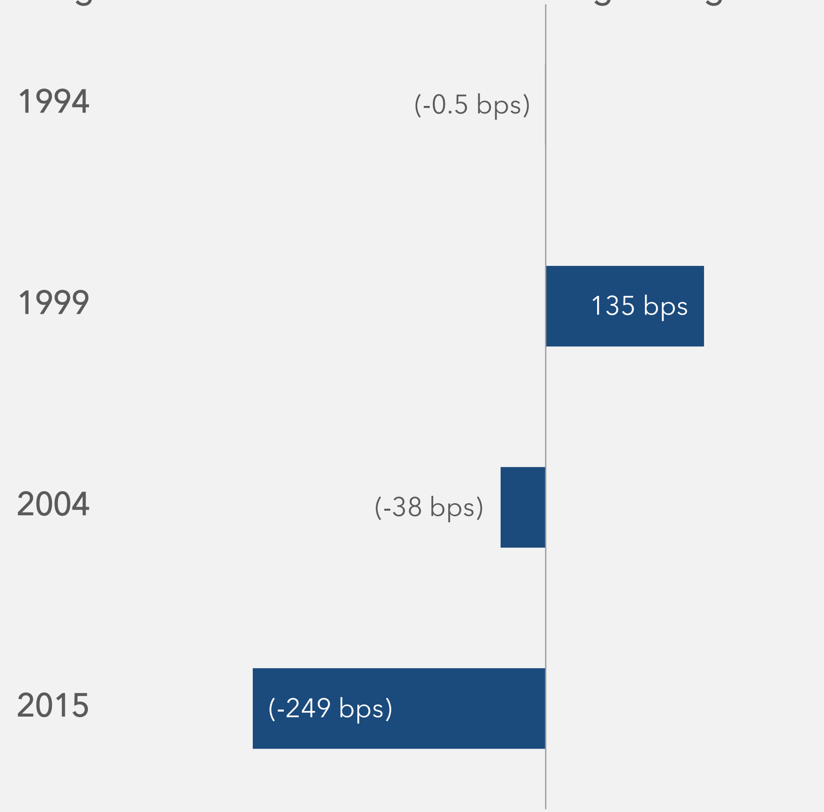
USD Credit During Fed Tightening Cycles

Historically, HY spreads have generally outperformed IG in tightening cycles, though both can perform well. Generally speaking, both IG and HY spreads have widened in the early stages of a tightening cycle (on the policy transition), but then grind tighter over the course of the tightening cycle (so long as volatility remains in check).

Change in IG OAS 12 months after Fed tightening



Change in HY OAS 12 months after Fed tightening

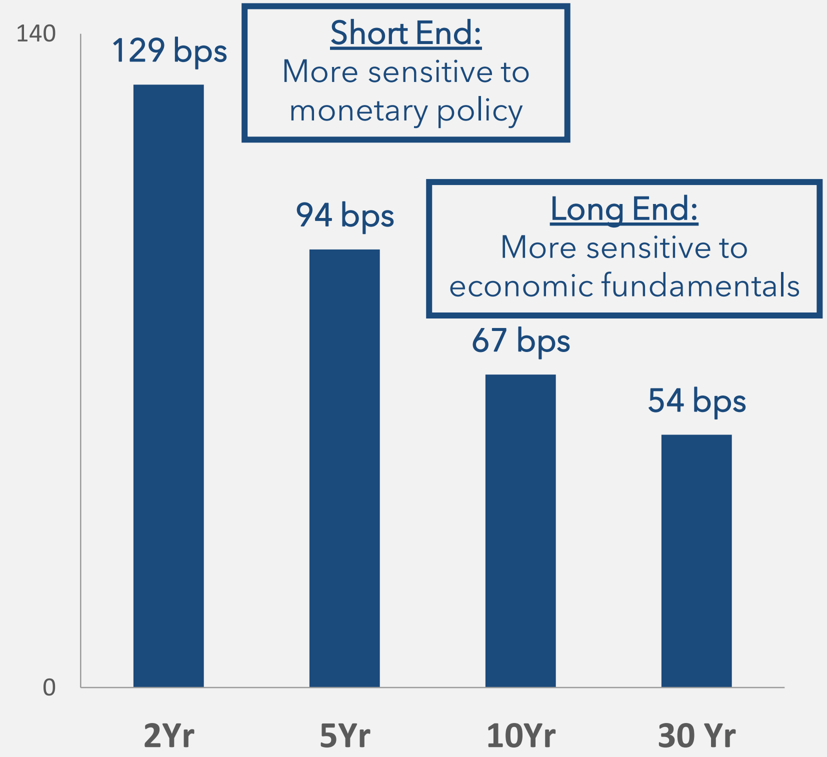


Source: (1-2) FRED. Data as of September 10, 2021. Bloomberg.

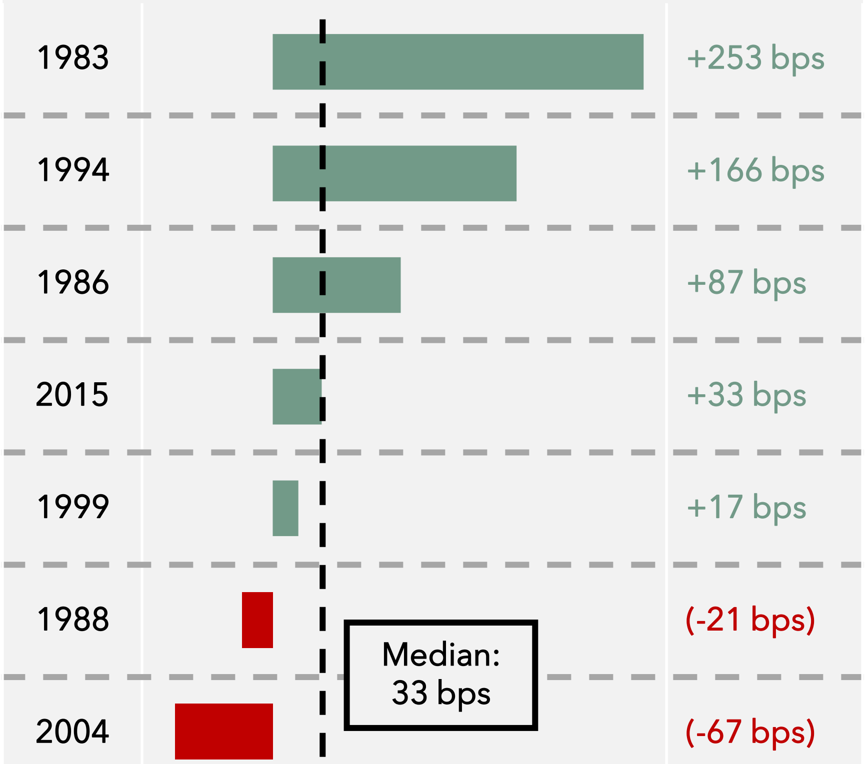
US Treasuries During Fed Tightening Cycles

In prior tightening cycles, UST rates generally rose across the curve by 50 - 150 bps, with the front end more sensitive to monetary policy transition, and the long end generally more driven by economic fundamentals. This, in turn, drives a general "bear flattening" trend in most cycles, with much of the rate move occurring early. In the current cycle, rates have remained lower than prior tightening cycles as a result of decelerating growth, elevated tail risk and strong global technical factors.

Average UST yield change 12 months after Fed tightening



10yr UST yield change 12 months after Fed tightening



Source: (1-2) Bloomberg. Data as of September 10, 2021. Average across duration based on same seven cycles shown on right.

US Dollar During Fed Tightening Cycles

Historically, the US Dollar has had high variance in its performance during tightening cycles. Looking more closely at the recent 2015-18 tightening cycle, this was the first time since the 1970s that the Fed was the only major central bank tightening, and as such, the strong USD gains were more front-loaded going into the cycle than in prior pre-Fed tightening periods.

Tightening Cycle	Start Fed Funds Rate	US Dollar Performance
1983	8.50%	11.9%
1988	6.50%	11.1%
2015	0.25%	4.5%
1994	3.00%	3.8%
1999	4.75%	1.3%
1986	5.88%	(-2.5%)
2004	1.00%	(-3.4%)

Source: (1) Bloomberg. Data as of September 10, 2021. Index is US Fed trade weighted nominal broad dollar index. 12 month performance calculated from start of Fed tightening cycle. Start rate is upper bound.

7 The Fed’s Tantrum-less Taper

“The timing and pace of the coming reduction in asset purchases will not be intended to carry a direct signal regarding the timing of interest rate liftoff, for which we have articulated a different and substantially more stringent test.”

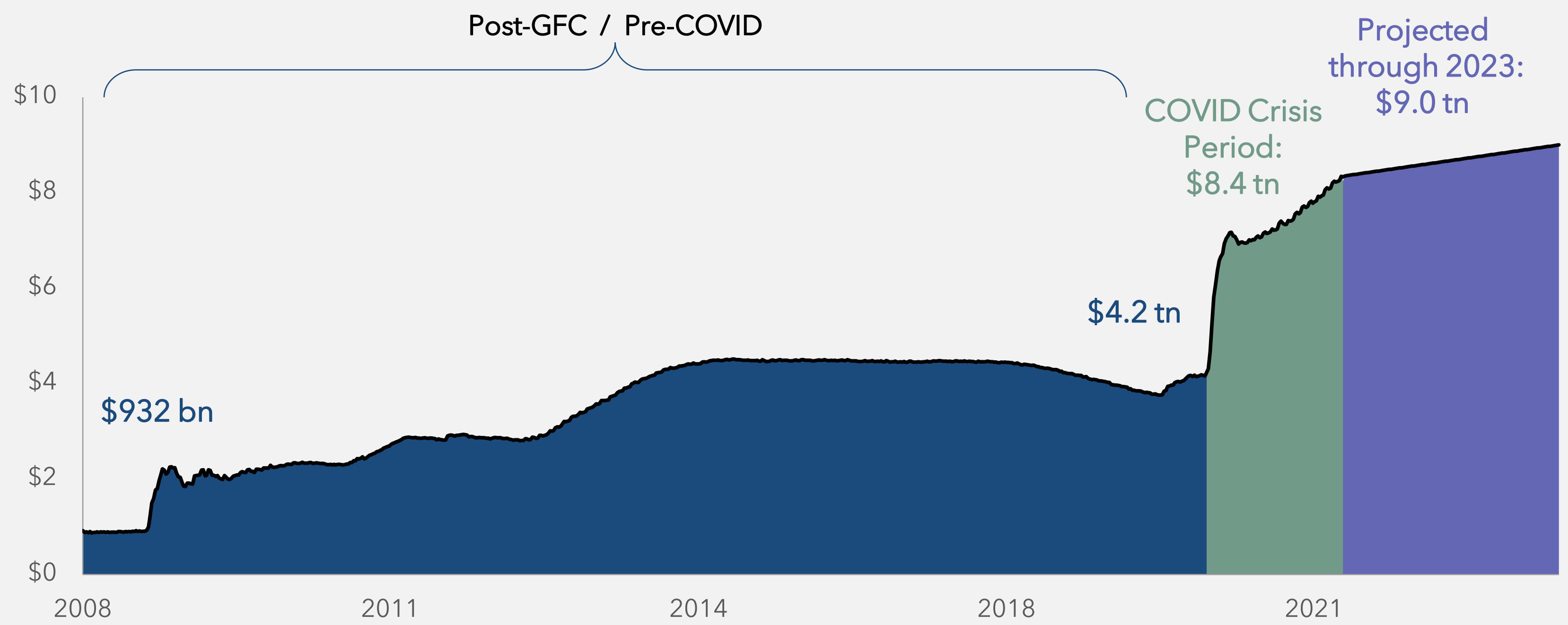
Jerome Powell
Chair of the Federal Reserve

Balance Sheet Taper Before Rate Tightening

The Fed doubled its balance sheet from $4 to $8 trillion during the 18 month COVID crisis period. Chair Powell has recently communicated a gradual two-step process with "dovish" balance sheet taper (announcement likely in late Q4 2021) proceeding well in advance of interest rate tightening (Fed forecasting 2023), which itself would be subject to a "different and substantially more stringent test."

Historic monetary expansion

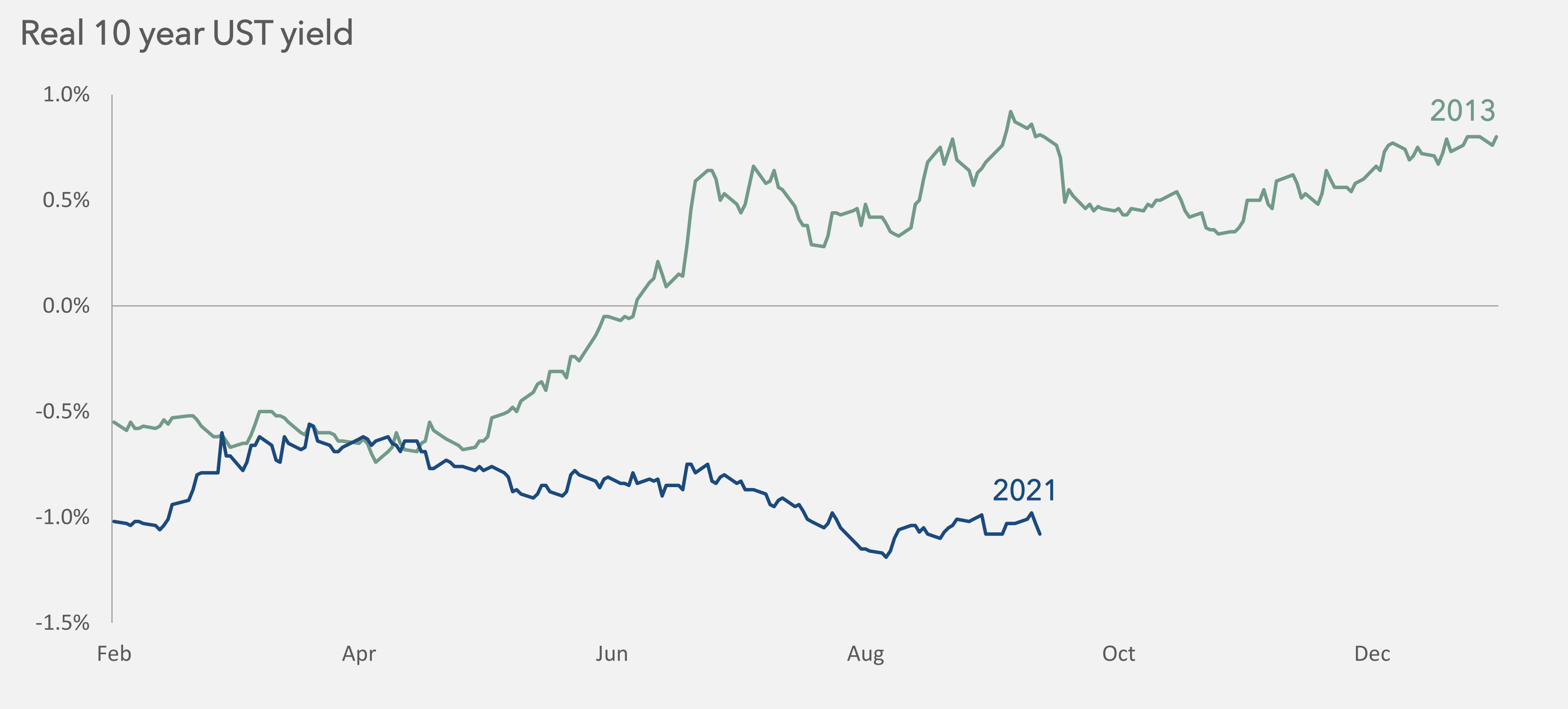
Fed balance sheet total assets, USD tn



Source: (1) Bloomberg. Data as of September 10, 2021. Federal Reserve. (2) Committee for a Responsible Federal Budget. CBO. Note – bill size includes mandatory and discretionary outlays, loss of revenue and loan guarantees that are not expected to have a net effect on the budget. Families First Act includes $8 bn from the Coronavirus Preparedness and Response Supplemental Appropriates Act. Deferred tax payments originated by Treasury Department not US Congress.

The Fed's Tantrum-less Taper

Remarkably, real yields remain near historic lows despite the Fed policy pivot expected in Q4. To be sure, Chair Powell has been cautious to avoid the bond market meltdown (and near EM crisis) that accompanied Chair Bernanke's unexpected policy pivot in 2013. With yields declining and the curve flattening this year, Chair Powell has succeeded in preparing the market for this transition by initially not addressing taper at all, to talking about it, to now making it a data dependent event more likely for late Q4.

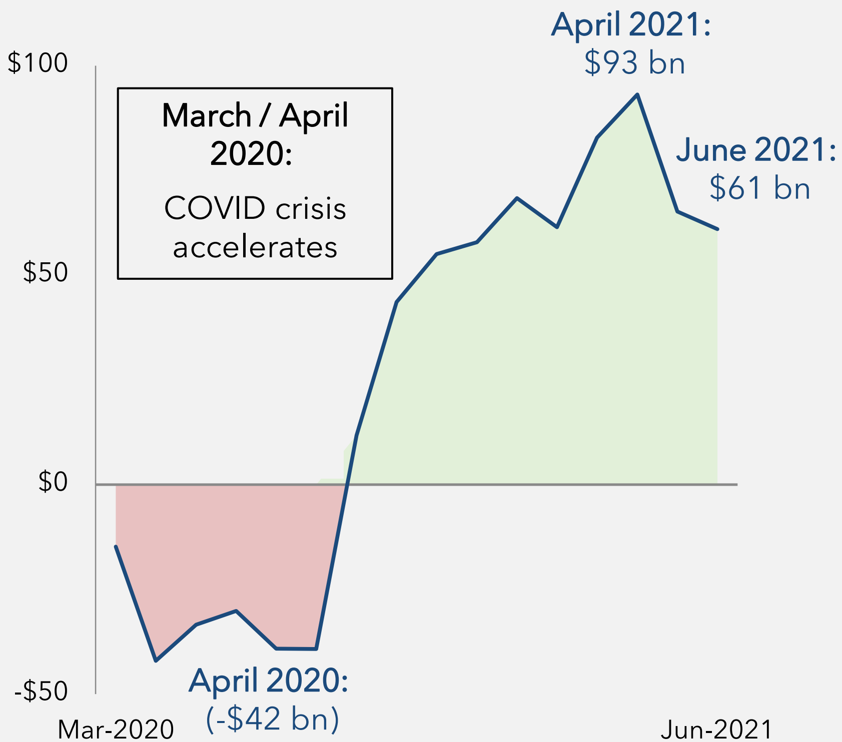


Source: (1) Bloomberg. Data of September 10, 2021. John Authors, Bloomberg Opinion.

Considerations Driving a Tantrum-less Taper

In the view of MUFG's US Rates Strategist, George Goncalves, the September FOMC will be an opportunity for the Fed to align itself for a dovish taper that is more likely to be announced in November

Net foreign purchases of US treasuries, USD bn

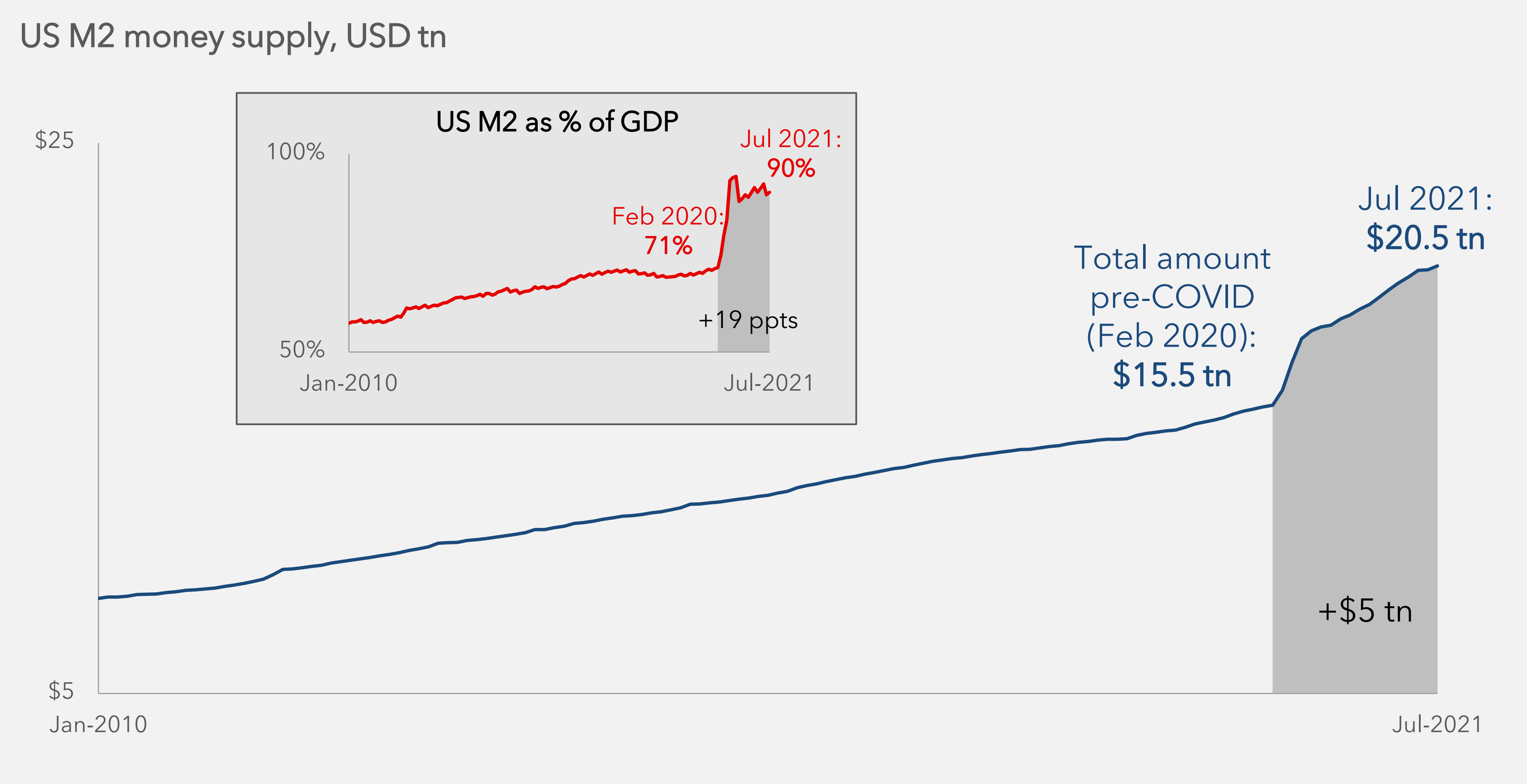


Considerations
• Foreigners as strong net buyers of Treasuries since COVID crisis began
• Additional demand (up to $500 bn) from the Fed's new Standing Repo Facility
• Economic growth strong, though "uneven" (Powell quote) and decelerating
• Inflation pressures remain high, though moderating (except sectors most exposed to supply chain disruption)
• The Fed's early policy change signaling
• A gradual two-step process with "dovish" balance sheet taper preceding rate tightening

Source: (1) Oxford Economics "Macro Strategy Themes Cross Asset -Jackson Hole memo: Don't fear the taper" (September 1, 2021). Net foreign purchases of US treasuries is 2-quarter moving average.

Monetary Policy Extraordinarily Accommodative

Although Fed accommodation is past peak, monetary policy remains extraordinarily easy, with M2 money supply currently $5 trillion above its pre-COVID levels

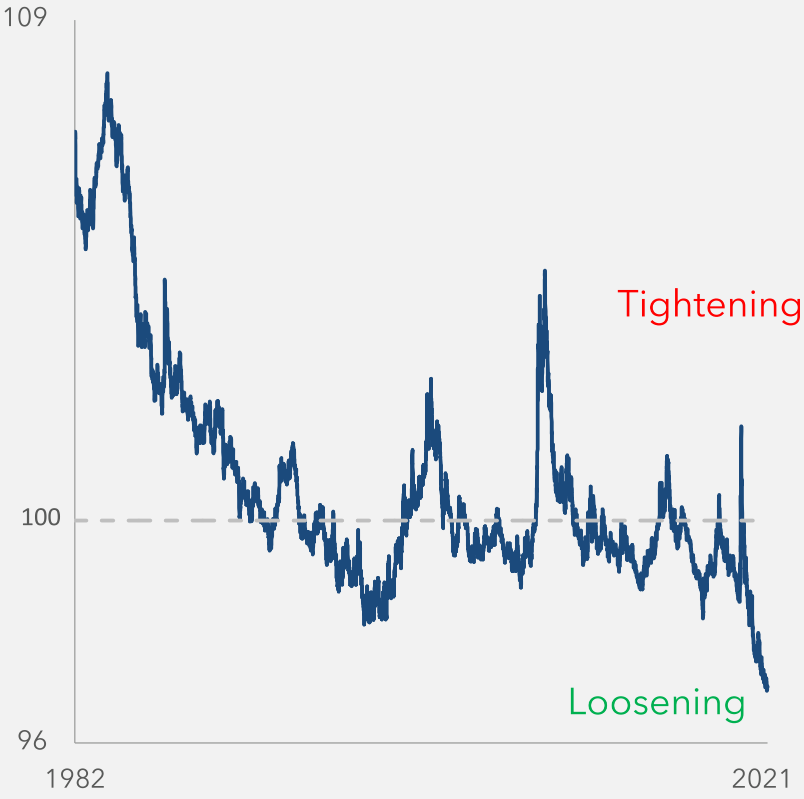


Source: (1-2) Bloomberg. Data of September 10, 2021.

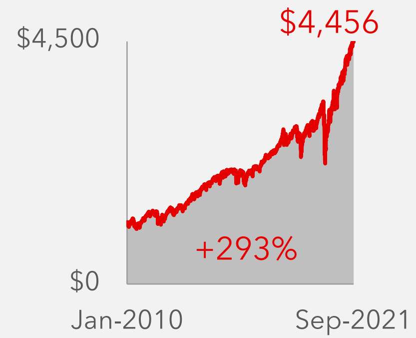
Financial Conditions Remain Easy

Even as the Fed pivots policy in a more tightening direction, financial market conditions remain at historically easy levels with equities high, rates and credit spreads tight, and the USD index stabilizing at more accommodative levels

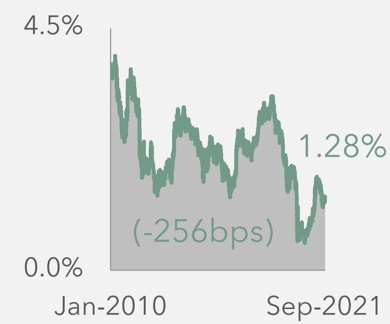
Financial conditions index



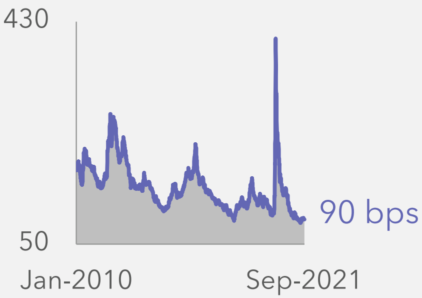
Equity markets at record highs
S&P 500



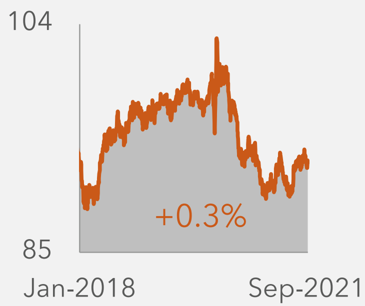
Rates near multi-century lows
10 yr UST



Credit spreads near post GFC tights
USD IG OAS



US dollar stabilizing
DXY index

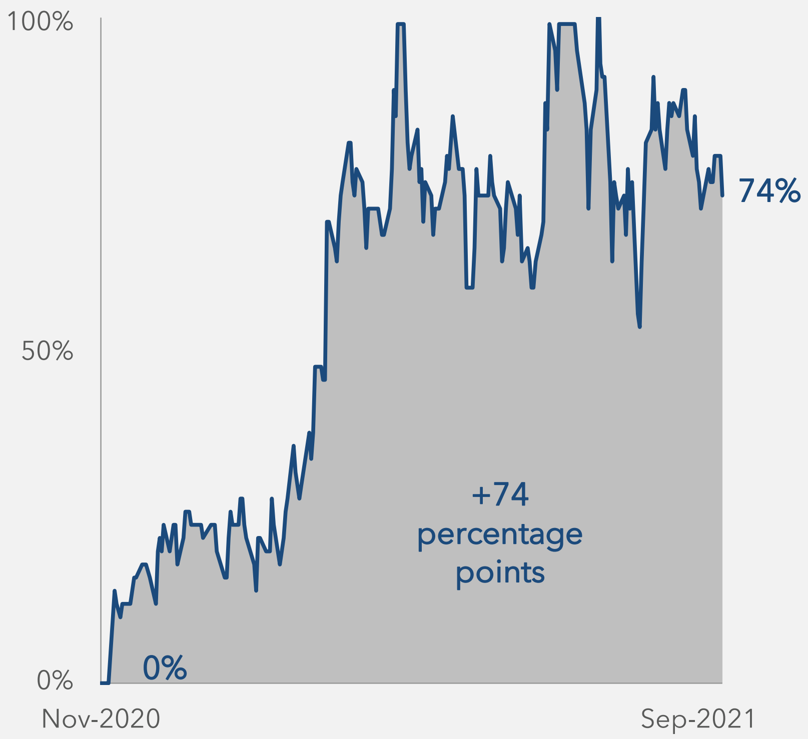


Source: (1-5) Bloomberg. Data as of September 14, 2021. Financial conditions index is Goldman Sachs FCI.

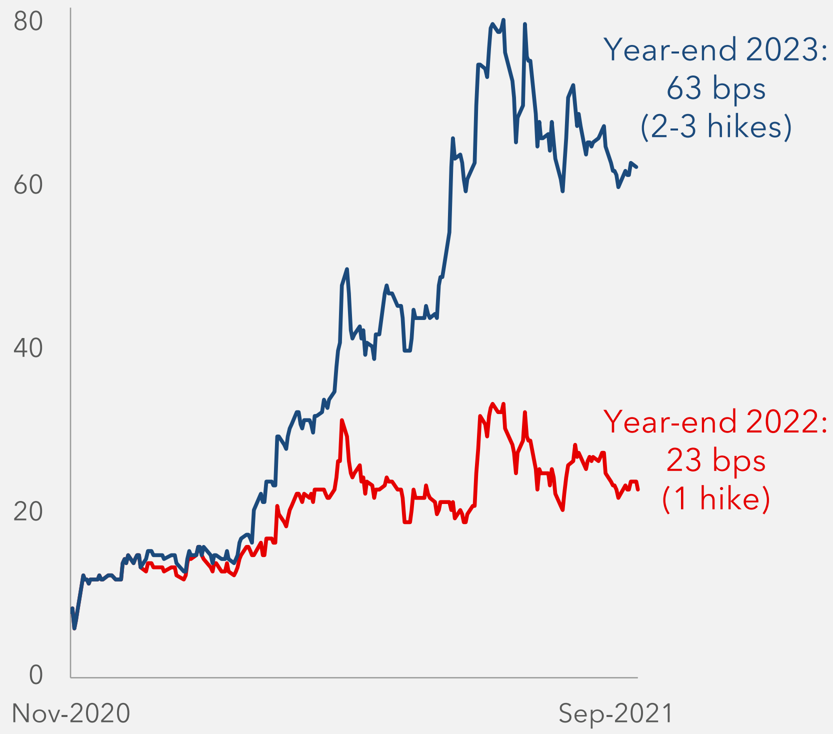
Market Repricing Timing of Fed Rate Hike

Softer than expected July and August CPI reports and weaker Consumer Confidence have reduced market concern of a more aggressive policy pivot. Based on Fed Funds futures contracts, the market is only pricing in two to three rate hikes between now and year-end 2023.

Market implied probability of a Fed hike by year end 2022



Market implied rate hikes, bps



Source: Oxford Economics. (1-2) Bloomberg. Data as of September 14, 2021. Market implied probability of Fed rate hike based of off January 2023 futures contract and current effective federal funds rate. Market implied rate hikes based on December 2022 futures contract and December 2023 futures contract.

FOMC Dove - Hawk Analysis

Most Dovish

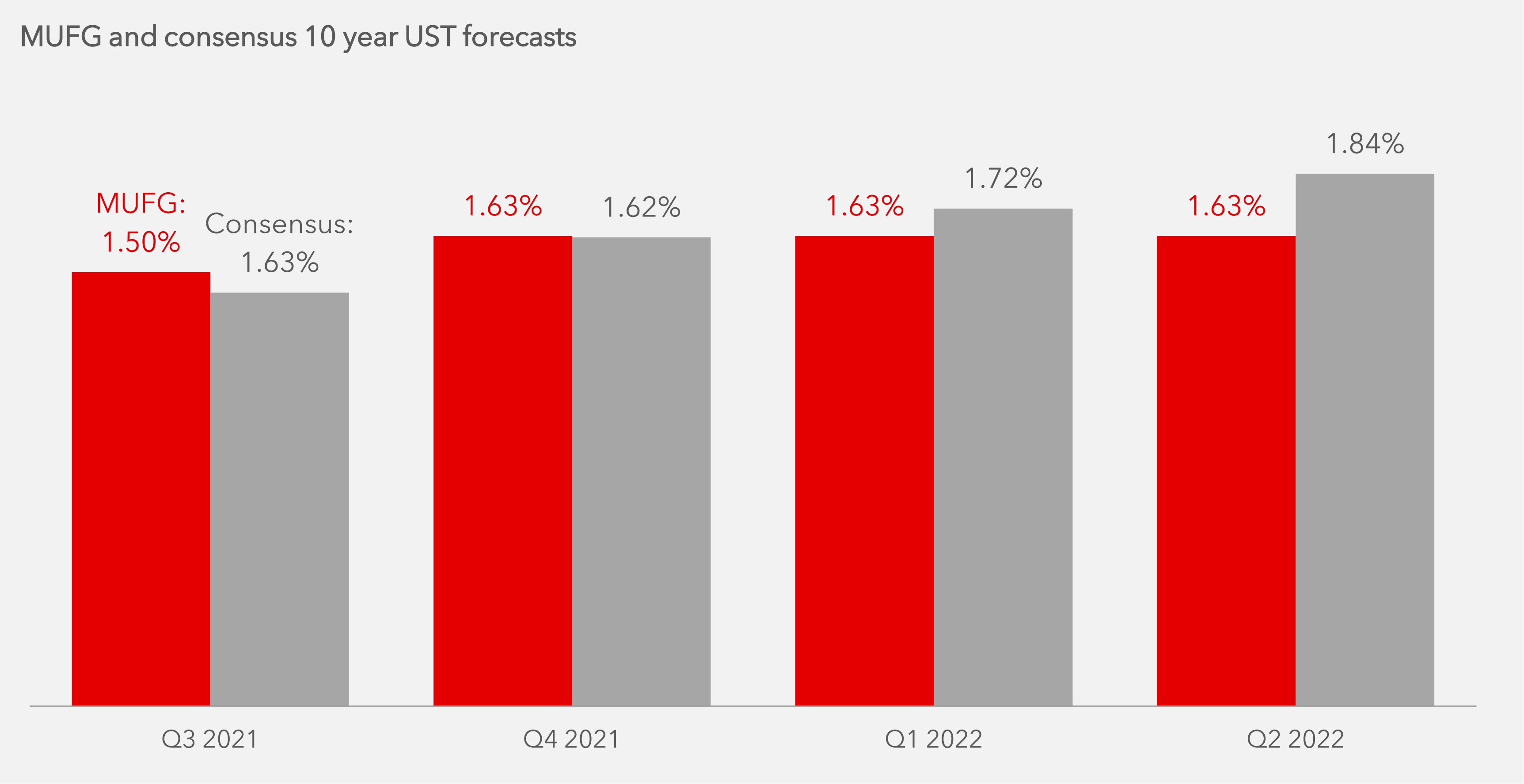
Name	Position	Dove to Hawk Scale	Voter? 2021	Voter? 2022	Voter? 2023
Kashkari	Minneapolis		X	X	✓
Brainard	**Board**		✓	✓	✓
Evans	**Chicago**		✓	X	✓
Powell	**Chairman**		✓	✓	✓
Williams	**New York**		✓	✓	✓
Bowman	**Board**		✓	✓	✓
Daly	**San Francisco**		✓	X	X
Clarida	**Vice Chair**		✓	✓	✓
Mester	Cleveland		X	✓	X
Quarles	**Board**		✓	✓	✓
Rosengren	Boston		X	✓	X
Barkin	Richmond		✓	X	X
George	Kansas City		X	✓	X
Bostic	**Atlanta**		✓	X	X
Harker	Philadelphia		X	X	✓
Waller	**Board**		✓	✓	✓
Kaplan	Dallas		X	X	✓
Bullard	St. Louis		X	✓	X

Most Hawkish

Notes: 2021 Voting members in bold
Source: InTouch Capital Markets. Data updated as of August 5, 2021.

US Rates Forecast Below Consensus

With US GDP growth and inflation expectations likely past peak, as well as the dampening downside risk posed by the Delta variant, MUFG's US Rates Strategist George Goncalves is forecasting a US rates outlook below Bloomberg consensus estimates



Source: (1) MUFG Rates Research "US Desk Strategy Macro2Market – At a Critical Crossroad?" (George Goncalves). (August 20, 2021). Consensus data as of September 10, 2021.

8 Transitory vs. Persistent Inflation

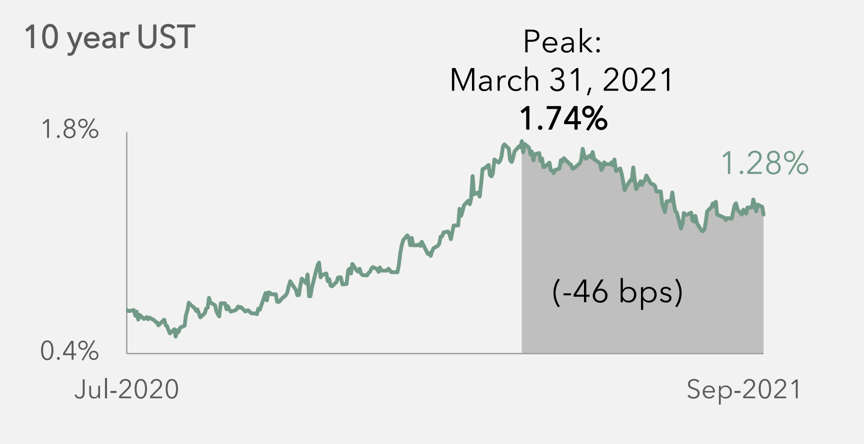
“I continue to believe that the American people have a love-hate relationship with inflation. They hate inflation but love everything that causes it.”

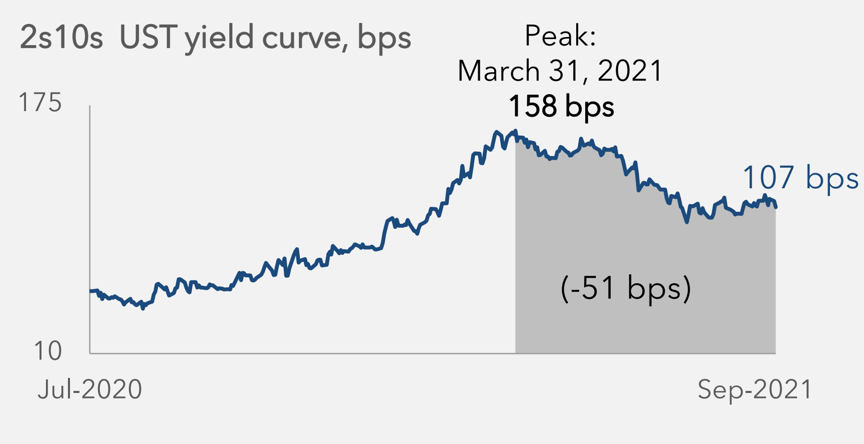
William E. Simon

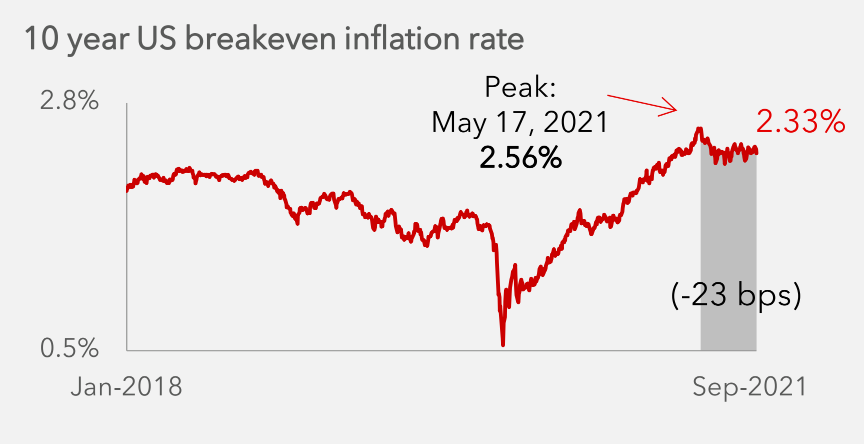
US Treasury Secretary
(1974 – 1977)

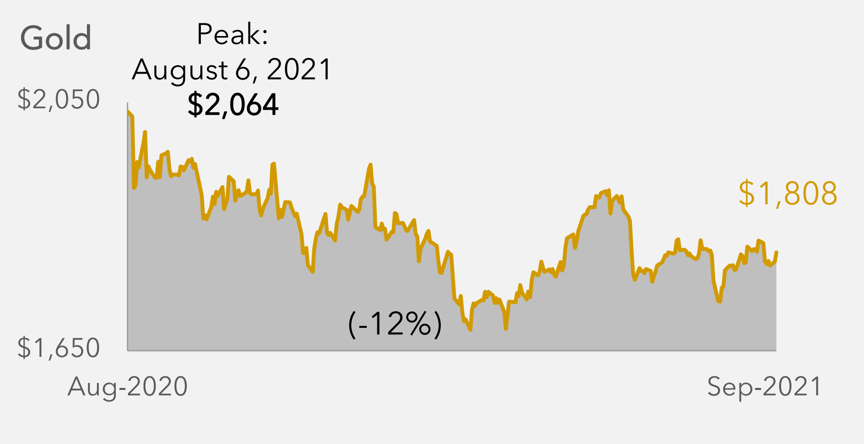
Markets Not as Concerned About Inflation

Declining US government bond yields, a flattening yield curve, and inflation breakevens "past peak" all suggest that markets believe many of the supply-side inflationary pressures in the economy will be resolved in the year ahead. Gold, historically a hedge against inflation, has declined over the past year of the COVID recovery, even as inflation pressures have increased.







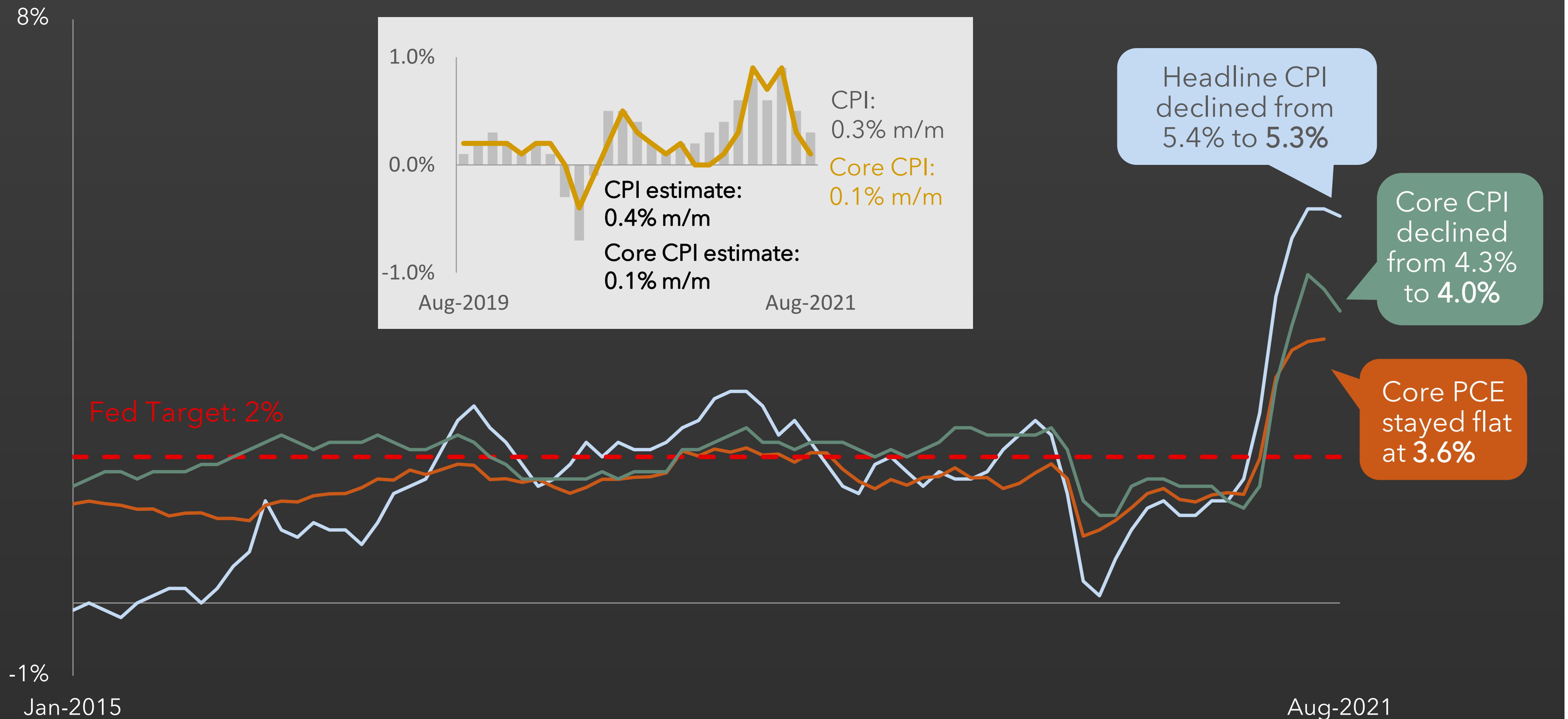


Source: (1-4) Bloomberg. Data as of September 14, 2021.

Inflation Pressures High, but Moderating

The July and August CPI reports showed a moderation in inflation after record increases over the prior four months, though it remains high. While inflation likely peaked in June, price increases from the reopening of the economy and ongoing supply chain bottlenecks will keep inflation elevated through year-end and into 2022.

US Headline CPI & Core PCE (y/y)



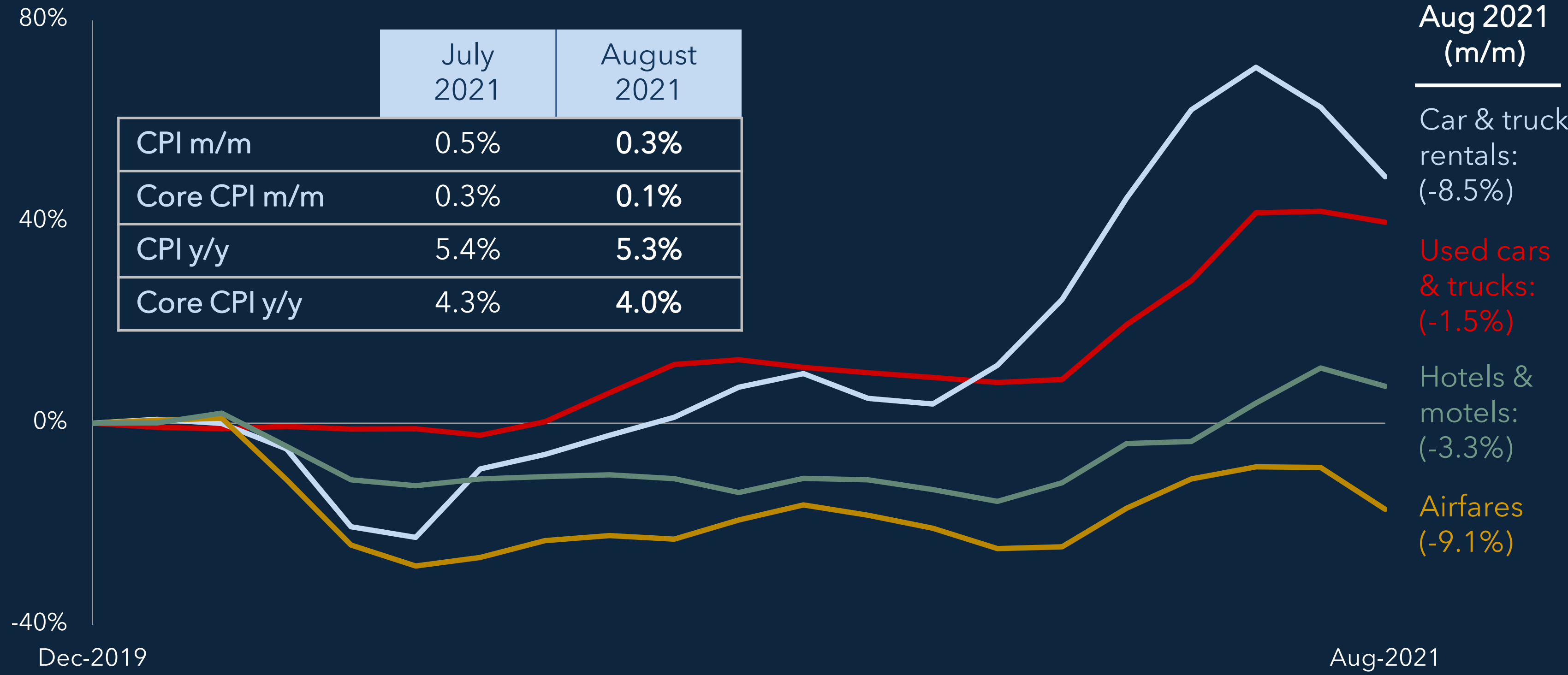
Source: (1) Bloomberg. Data as of September 14, 2021. FRED.

Transitory Components of Inflation Moderating

Core CPI increased 0.1% in August, the slowest monthly increase since February 2021, and a sign that pricing pressures in several "re-opening sectors" have eased (i.e., hotels, airlines, used vehicles). While the Delta variant has exerted downward pricing pressures on numerous high contact industries, pricing pressures remain elevated across much of the economy on continued demand strength, tight labor markets and supply chain dislocations.

US monthly CPI, normalized as of December 2019

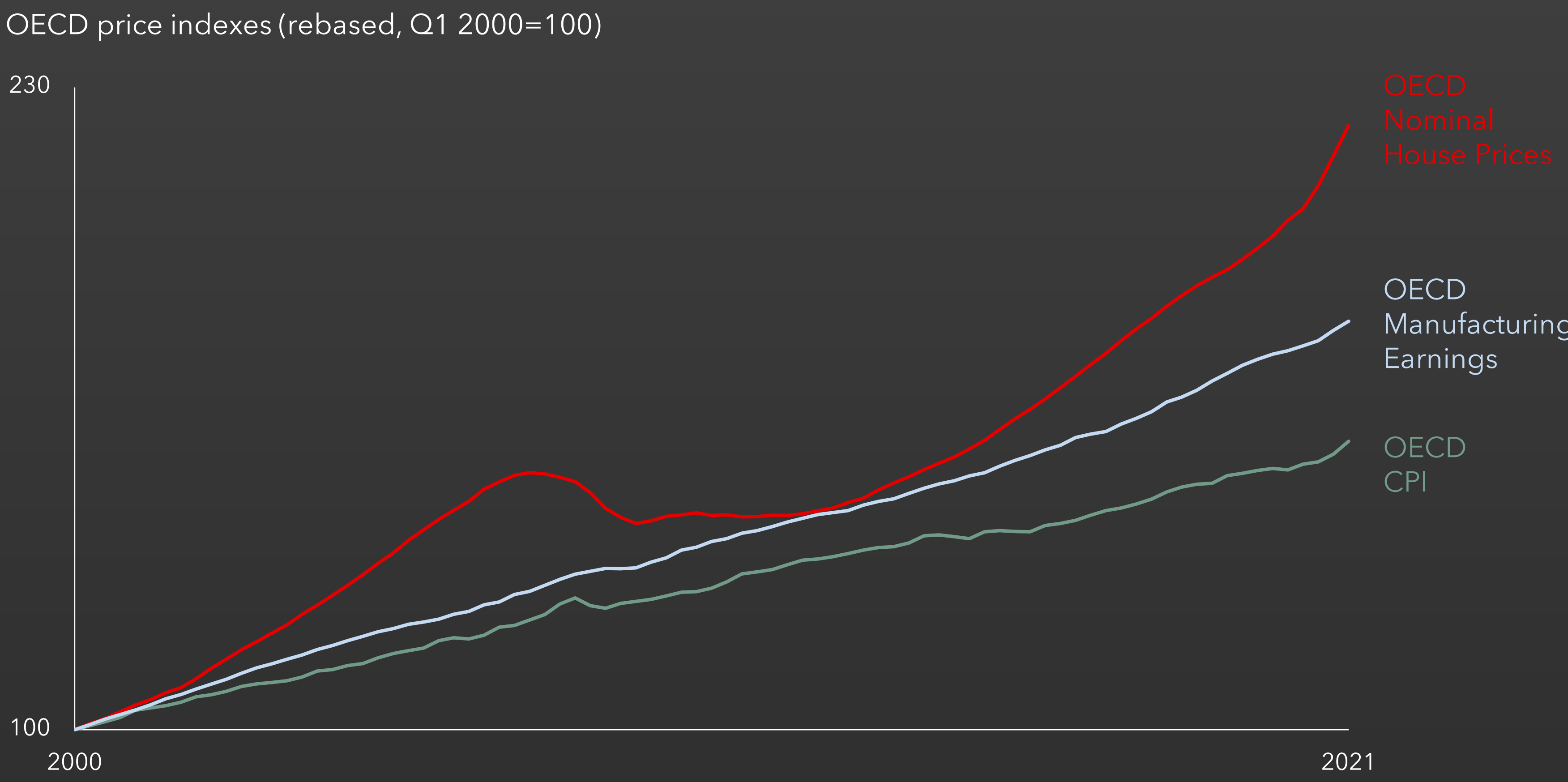
	July 2021	August 2021
CPI m/m	0.5%	**0.3%**
Core CPI m/m	0.3%	**0.1%**
CPI y/y	5.4%	**5.3%**
Core CPI y/y	4.3%	**4.0%**



Source: (1-2) Bloomberg. Data as of September 14, 2021. FRED.

Housing Inflation Outpacing Earnings & CPI

Across the OECD, nominal housing prices have increased far more rapidly than either earnings or broader inflation



Source: (1) OECD. Mohamed El-Erian. OECD Earnings is Hourly Manufacturing Earnings, SA.

The Case for Transitory Inflation

Central bankers, market participants and economists have engaged in a debate over whether recent inflationary pressures are "transitory," or if they represent a new "paradigm shift" in the macro-economic environment that is likely to persist for a multi-year period. In our view, the case for "transitory" inflation is more compelling, though we believe for certain micro-sectors of the economy, "transitory" may be a longer time period than expected (i.e., > 6-18 months). For most sectors, however, many of the supply side adjustments to the demand shock should be resolved in the 2H 2021.

The Case for Transitory Inflation

Growth past peak (normalizing)

Consumer spending rebalancing towards services (normalizing)

Supply side adjustments to "demand shock" will take months (not years)

Labor market shortages should improve significantly by 2022

Commodities approaching cyclical highs

Strong Y/Y base effects subsiding / return of pre-COVID structural headwinds (aging, debt)

9 Supply Chain Dislocations

"We do not expect freight rates to stabilize in the near term. The combination of a year of disruption, lack of containers, port congestions and a shortage of vessels in the right positions is creating a situation where cargo demand far exceeds available capacity."

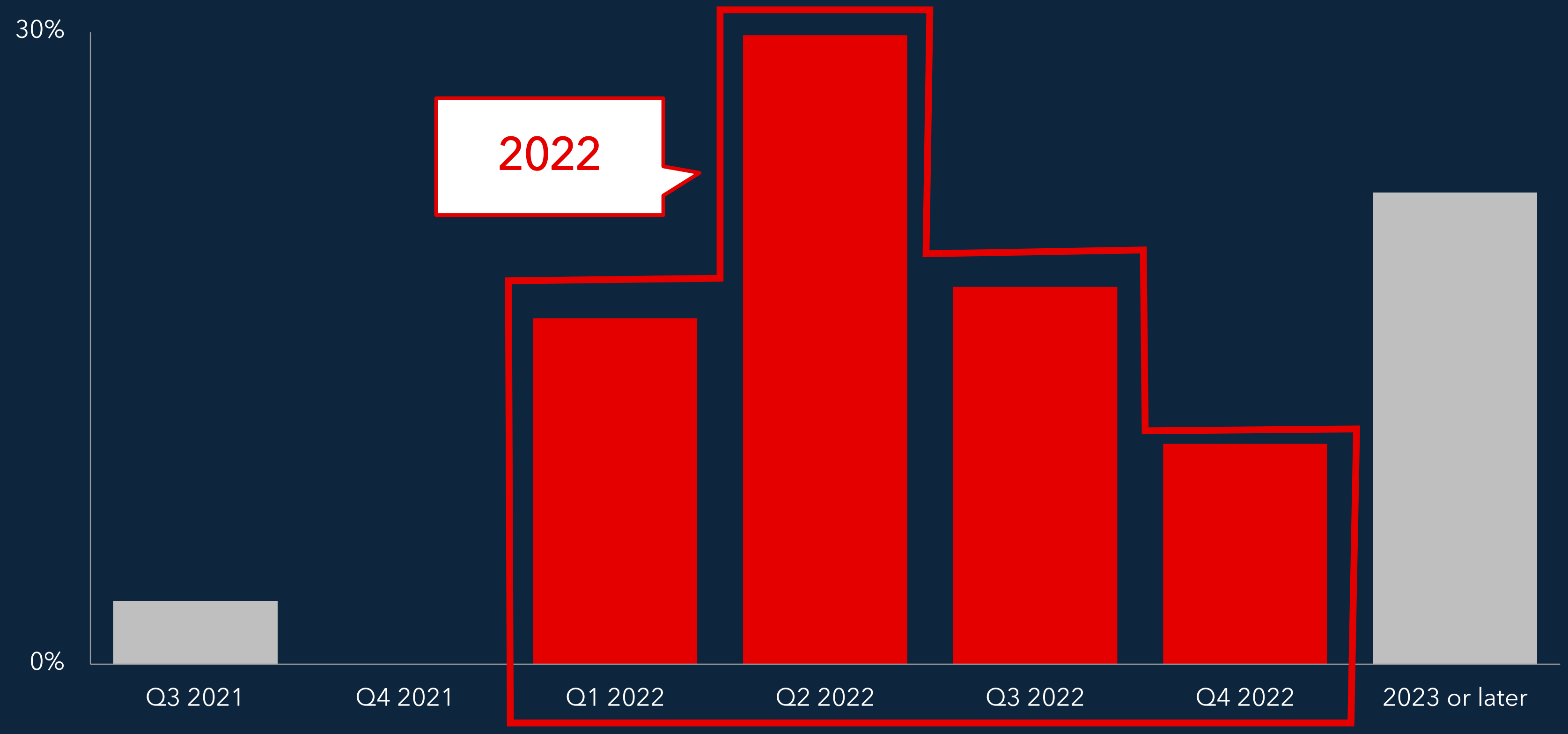
Karsten Michaelis,

Head of ocean freight at
DHL Global Forwarding Asia Pacific

Supply Chain Disruptions Well into 2022

Global supply chain disruptions are likely to persist well into 2022, as evidenced by a recent business survey from Oxford economics

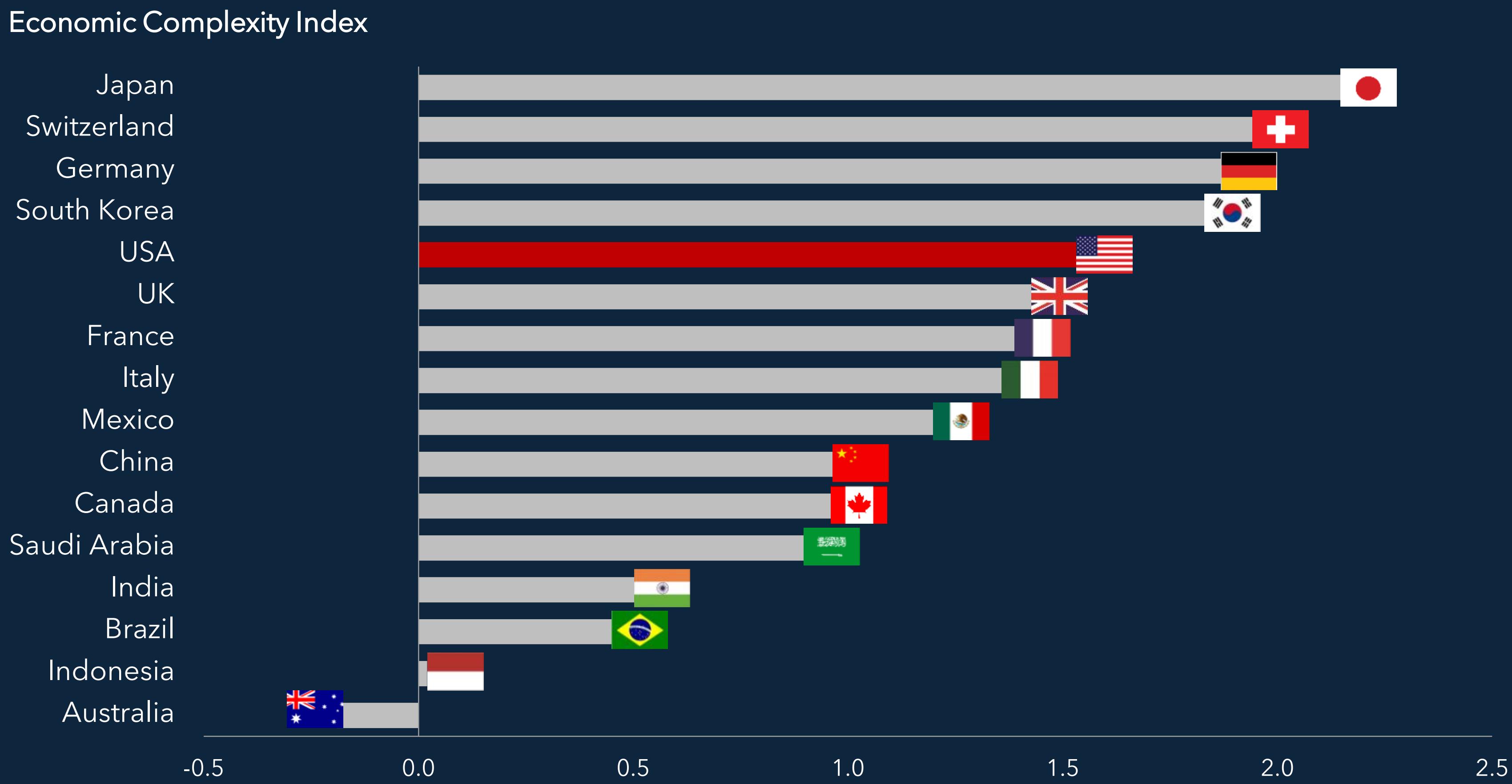
When do you expect supply-chain disruption to end for your business?
% of respondents affected by disruption



Source: Oxford Economics, September Oxford Economics Global Risk Survey, September 2021 flash survey. The survey was completed by 129 businesses from September 1 to 9.

Economies More Vulnerable to Supply Chain Disruption

Countries with higher trade in intermediate goods and production complexity are relatively more exposed to global supply chain disruption. In addition, the United States has been more highly impacted than many other advanced economies due to the strength of its economic demand shock.



Source: Oxford Economics, "Global Scenarios: Delta Surge" (September 2021). The Observatory of Economic Complexity

Supply Chains Shifting to Resilience & Digitization

COVID-19 has precipitated a broad range of formidable supply chain disruptions driven by employee health issues, regional lockdowns and changing consumer behavior patterns. The unexpected demand drops and surges, supply shortages and inventory placement challenges have been formidable. This, in turn, has contributed to significant bottlenecks, shortages and inflation in numerous micro sectors of the economy.

McKinsey survey of 60 supply chain leaders

93%	Plan to increase resilience across the supply chain	53%	Dual sourcing of raw materials
		47%	Increasing inventory of critical products
		40%	Near-shoring and increasing supplier base
		38%	Regionalizing supply chains
54%	Expect changes to supply-chain planning after COVID-19	58%	Centralizing supply-chain planning
		50%	Retaining faster sales & operations planning cycle
		60%	Implementing advanced analytics
90%	Plan to increase digital supply-chain talent in-house	70%	Reskilling today's labor force
		55%	Acquiring new talent from the labor market
11%	Face budget constraints in transforming supply chains		

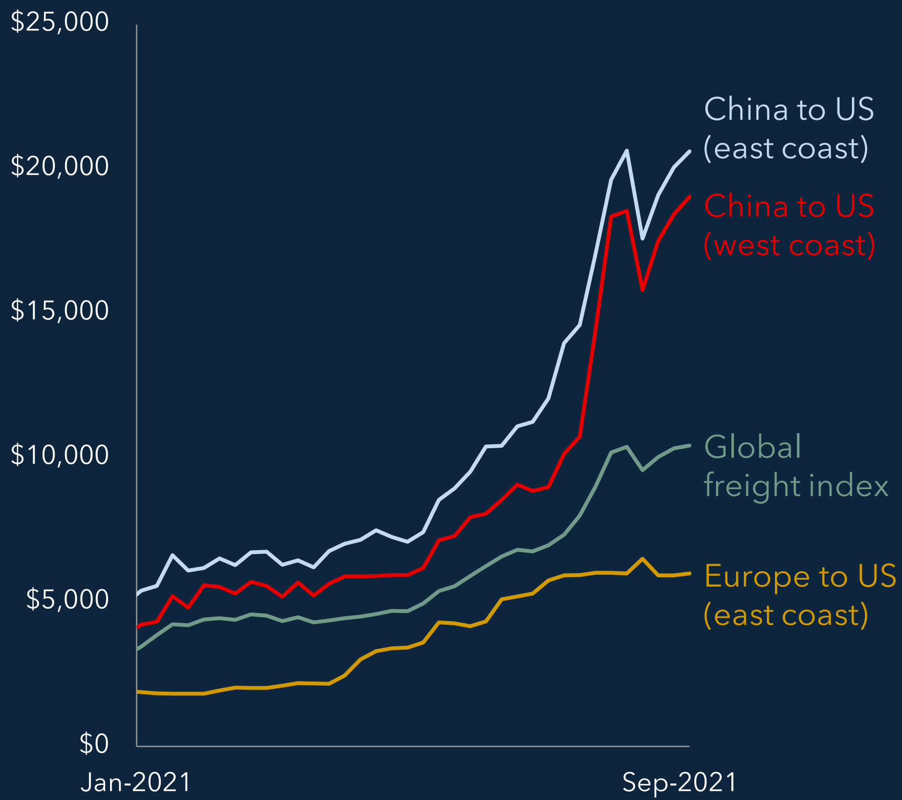
McKinsey & Company

Source: McKinsey. "Resetting Supply Chains for the Next Normal" (July 2020). 60 senior supply chain executives surveyed in Q2 2020 across industries and geographies.

Transportation Costs Elevated, But Past Peak

While past peak, transportation costs are expected to remain elevated through at least 2022 and possibly in 2023. The rotation from goods to services spending will alleviate some pricing pressures caused by a shortage of shipping containers, but the risk of COVID related shutdowns is keeping supply chain disruption risk high.

Cost of shipping a container, USD



China (Export) Containerized Freight Index

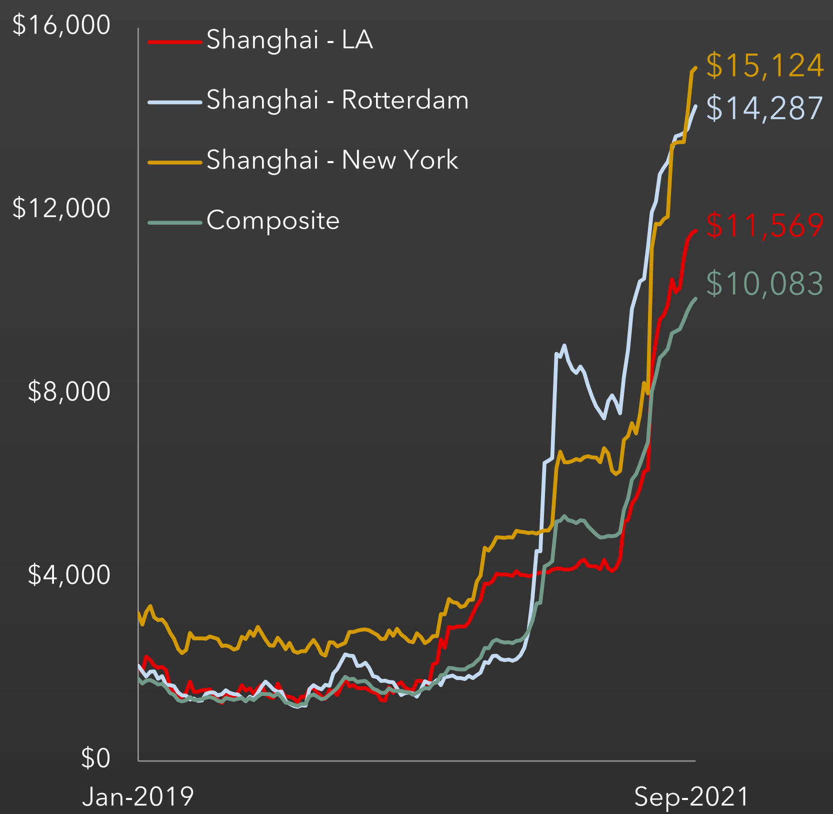
Vessel container prices, USD bn

Source: (1) Oxford Economics ""How the Pandemic is Reshaping the Trade Outlook" (August 18, 2021). Bloomberg. Data as of September 10, 2021. Freightos Baltic Index. Ocean Freight. (2-3) Bloomberg. Data as of September 10, 2021.

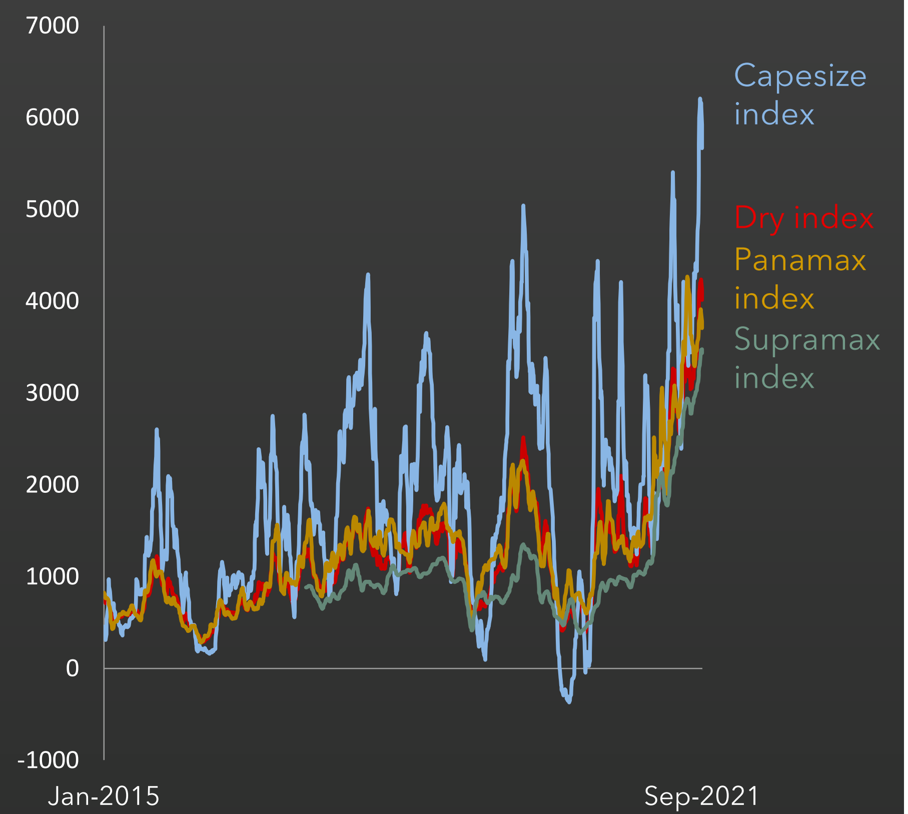
Transportation Costs Elevated

As Asia accounts for approximately 40% of global exports, global supply chain disruption has escalated in the region due to Delta's contagion, higher container prices and material input costs. Further, the Baltic exchange index is hitting multi-year highs across all types of ships.

Cost of shipping goods from China, USD per 40 foot box



Baltic exchange index, by ship size

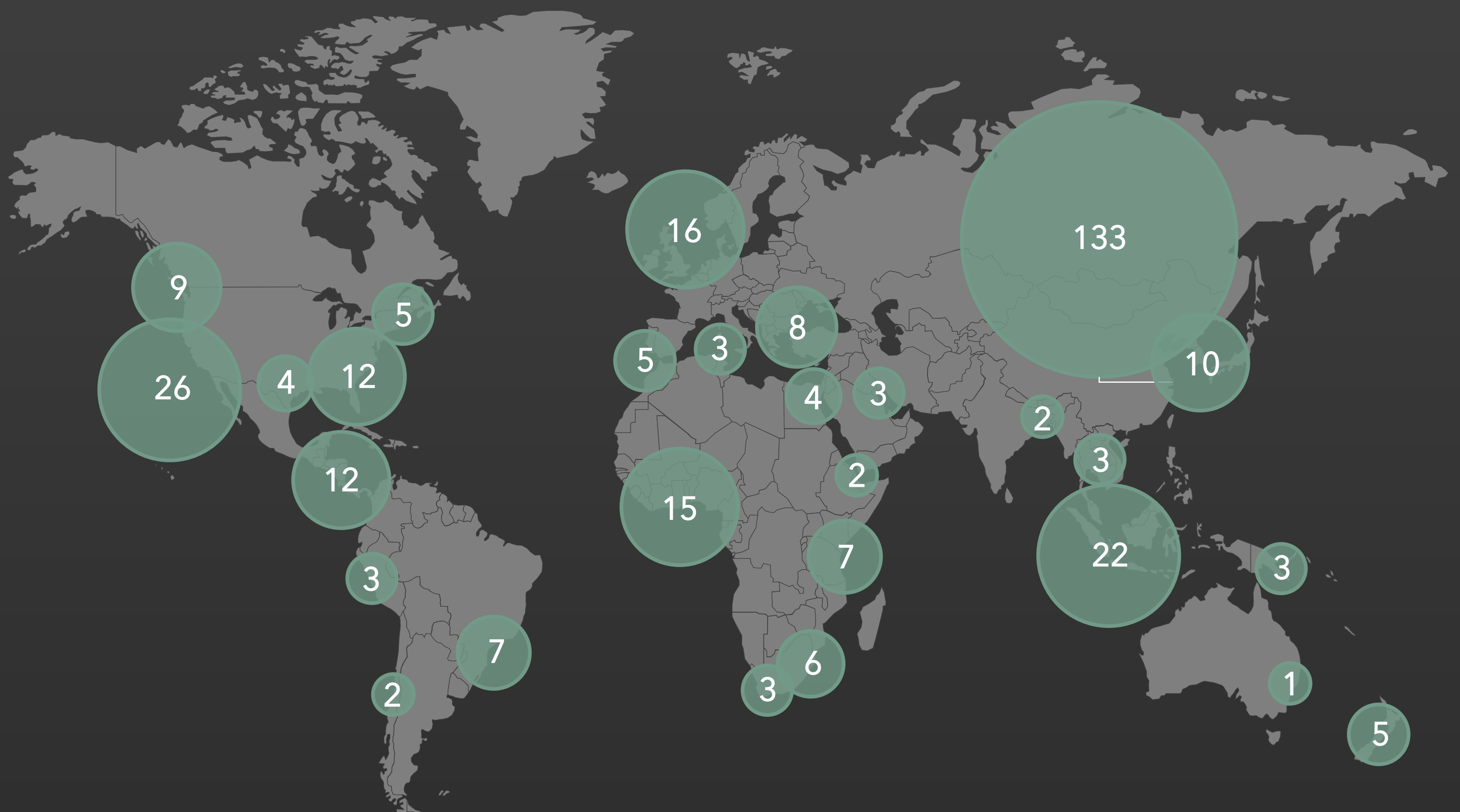


Source: (1-2) Bloomberg. Data as of September 10, 2021. Drewry World Container Index.

Container Shipping Disruption

COVID has disrupted global trading networks, and the delays and bottlenecks are showing few signs of fading. The Suez Canal blockage in March, gateway to 12% of global trade, further exacerbated delays. According to VesselsValue, about 350 container ships capable of almost 2.4 mm 20 ft boxes are waiting in ports globally. In July, idle capacity increased from 3.5% to 4.6%.

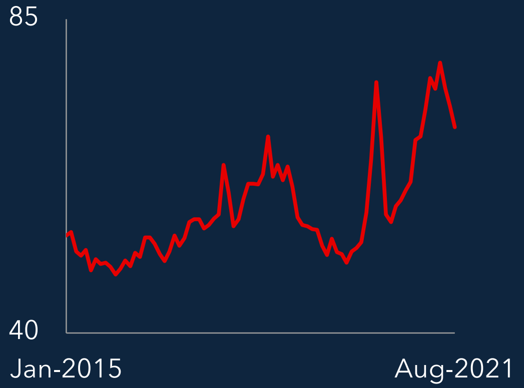
Number of ships waiting for berth at port



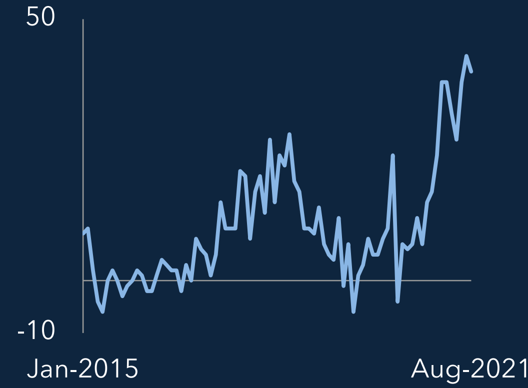
Source: FT "Shipping bottlenecks set to prolong supply chain turmoil" (August 16, 2021). Seaexplorer/Kuehne+Nagel. Number of ships waiting at port as of August 13, 2021.

Longer Delivery Times & Elevated Backlogs

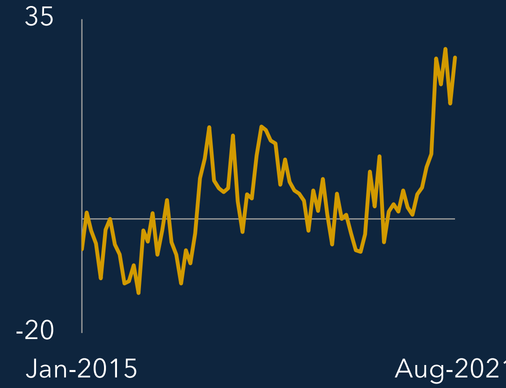
ISM delivery times



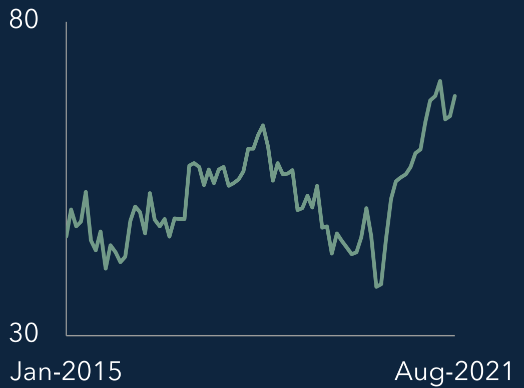
Kansas City Fed delivery times



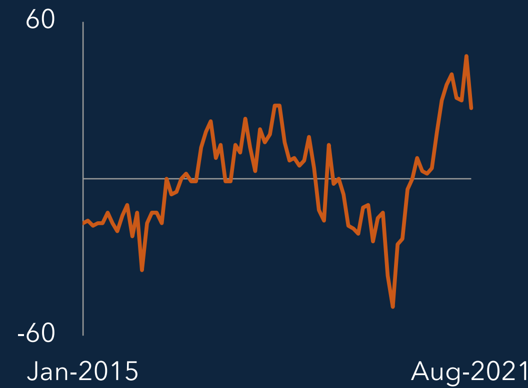
Empire State delivery times



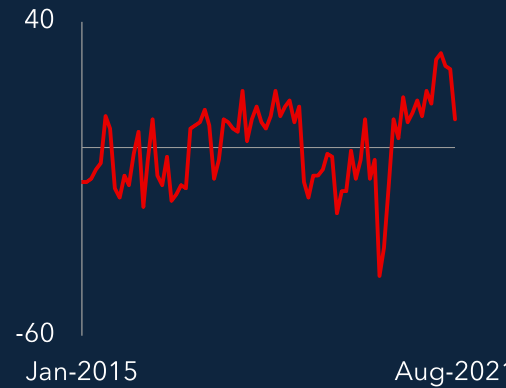
ISM order backlog



Kansas City Fed order backlog



Richmond Fed order backlog



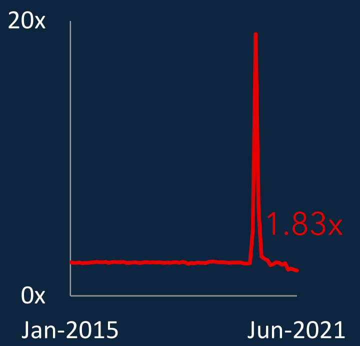
Source: (1-6) Bloomberg. Data as of September 10, 2021. ISM orders backlog is manufacturing report.

Low Inventory Levels

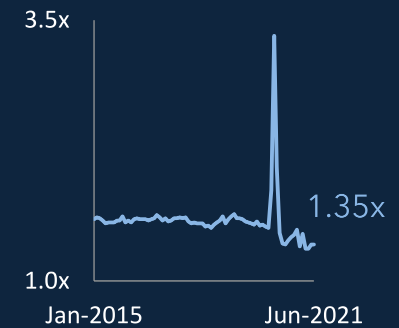
Retail inventory to sales ratios have hit their lowest level in records going back to 1992. However, the recent US ISM Manufacturing Index report suggests that some of the supply-chain and price pressures may be slowly starting to abate (inventories expanded across industries in aggregate, though delivery times slowed). Nonetheless, supply-chain bottlenecks will likely persist well into 2022.

Inventory to sales ratio, by sector

Clothing



Home furnishings & electronics,



General merchandise

Motor vehicles & parts

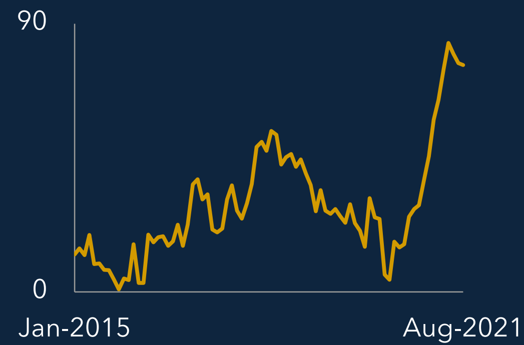
Source: (1-5) Oxford Economics,. Bloomberg. FRED. Data as of September 10, 2021.

Prices Paid Rising

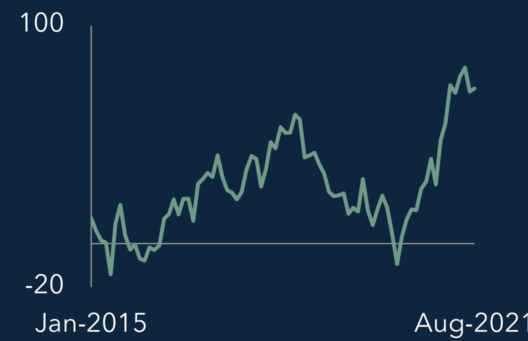
The supply side of the global economy has been slow to adjust to the largest positive demand shock since WW2, on fiscal stimulus and a rapid vaccine-induced reopening. The persistent labor shortages, shipping delays, production bottlenecks and higher commodity prices have, in turn, created pricing pressures that appear to have peaked in aggregate, but which remain elevated.

ISM manufacturing prices paid

Empire State prices paid

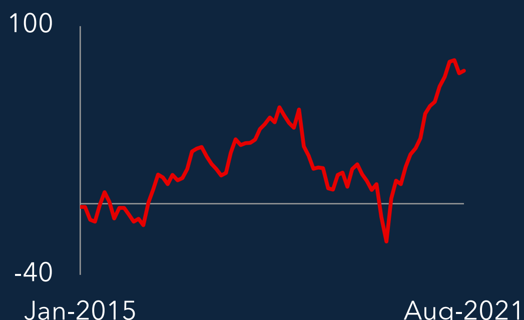


Philadelphia Fed prices paid

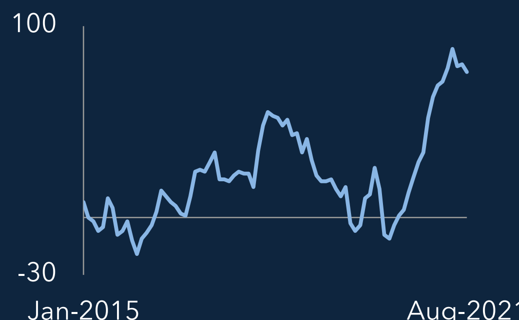


Richmond Fed prices paid

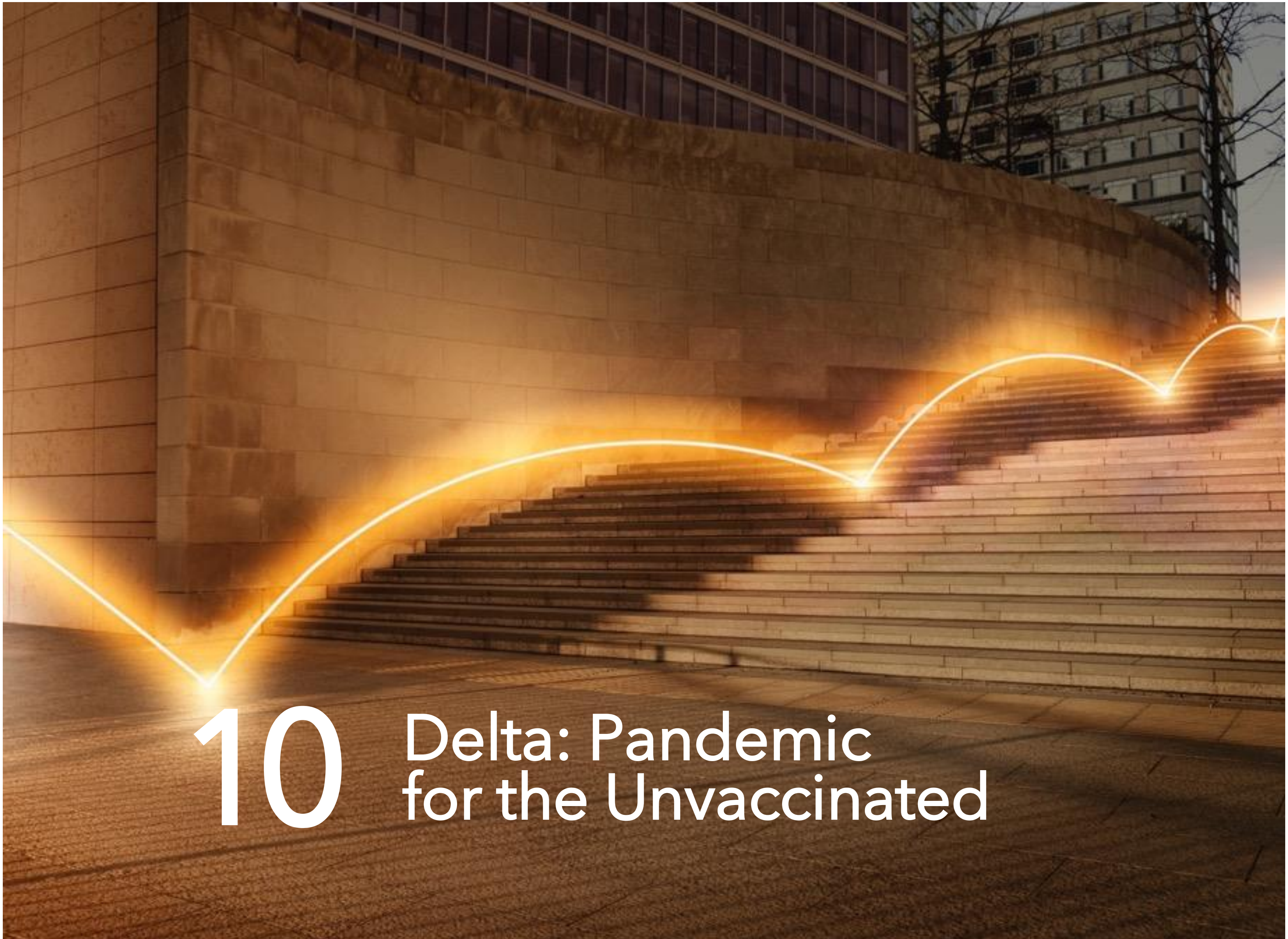
Dallas Fed prices paid for raw materials



Kansas City Fed prices paid for raw materials



Source: (1-6) Bloomberg. Data as of September 10, 2021.



10 Delta: Pandemic for the Unvaccinated

“The variants continue to spin out of infections around the world and have gotten more complicated and more dangerous. We have a mistaken belief the pandemic is over here, but there are over 100 countries where less than 20% of the people have one dose of the vaccine.”

Michael Osterholm, American epidemiologist

Director of Center for Infectious Disease Research and Policy at University of Minnesota

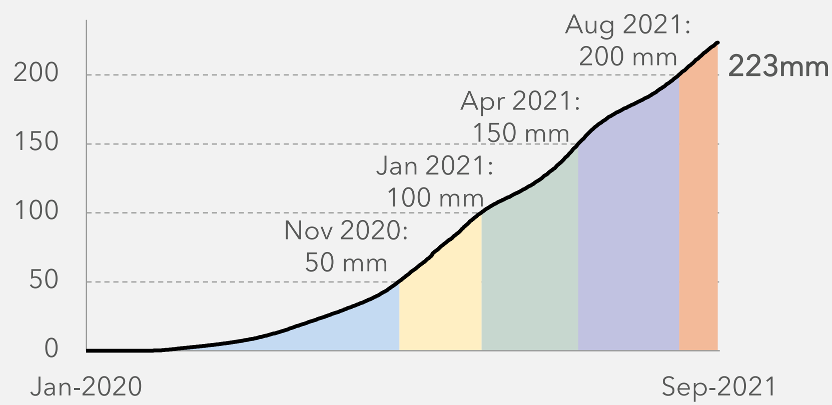
Markets Grappling with Known Unknowns

As most of the global population transitions toward another long, indoor cold and flu season, the "end of COVID" and a continuation of a strong, sustainable recovery appear less certain than in the 1H 2021. Importantly, a reasonably large range of public health, economic and market outcomes are still dependent on the resolution of numerous "known unknowns."

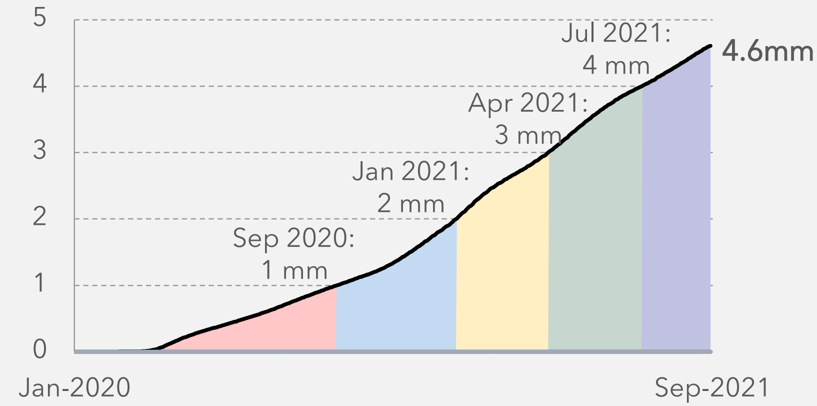
- **Residual strength of vaccines** in keeping hospitalizations and mortality rates low
- **Impact of "long COVID" risks** for infected people
- Pace and magnitude of **additional virus mutations**
- **Effectiveness of existing vaccines** to future virus variants
- **Ability of governments** to reduce case counts, hospitalizations and deaths
- **Policy prescriptions** for future demand and supply disruptions

Concerning COVID Milestones

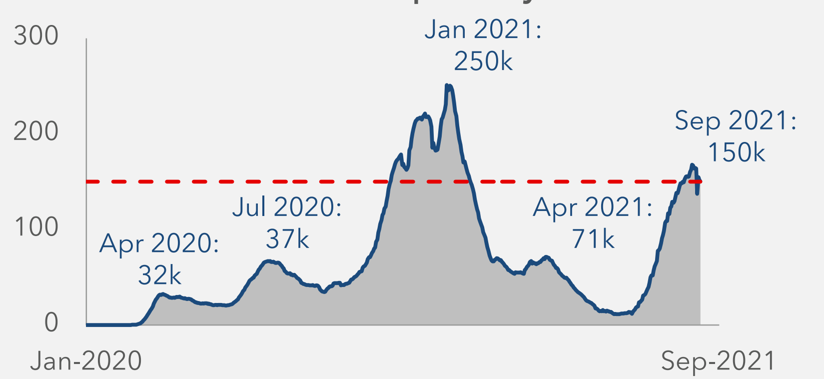
Global COVID cases surpass 200 million



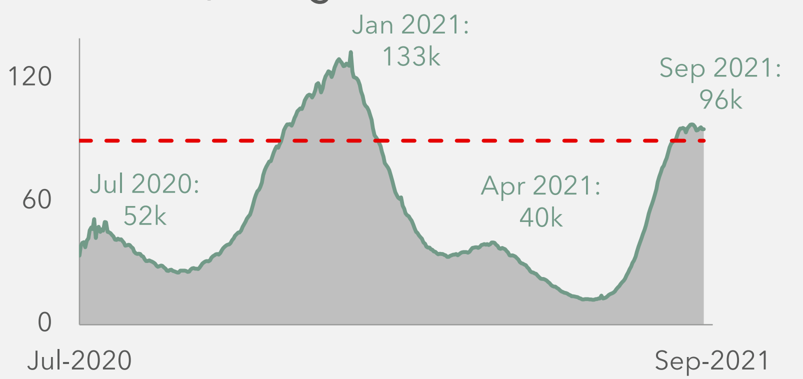
Global COVID deaths top 4.5 million



US is now averaging over 150,000 new COVID cases per day



US COVID hospitalizations are over 90,000 again



Source: (1-3) Bloomberg. Data as of September 10, 2021. US daily COVID cases are 7-day moving average. (4) "Ourworldindata." Data as of September 10, 2021

Notable “Variants of Concern”

Among thousands of mutations to date, four notable “variants of concern” (as declared by the WHO) have emerged, though fortunately each of them remains addressable with existing vaccines. As long as the virus does not mutate into something much more powerful and concerning, COVID-19 will more likely manifest itself in the months ahead as a series of localized events with regional-level public health and economic implications, rather than as a systemic event with global implications.

COVID-19 Variants of Concern

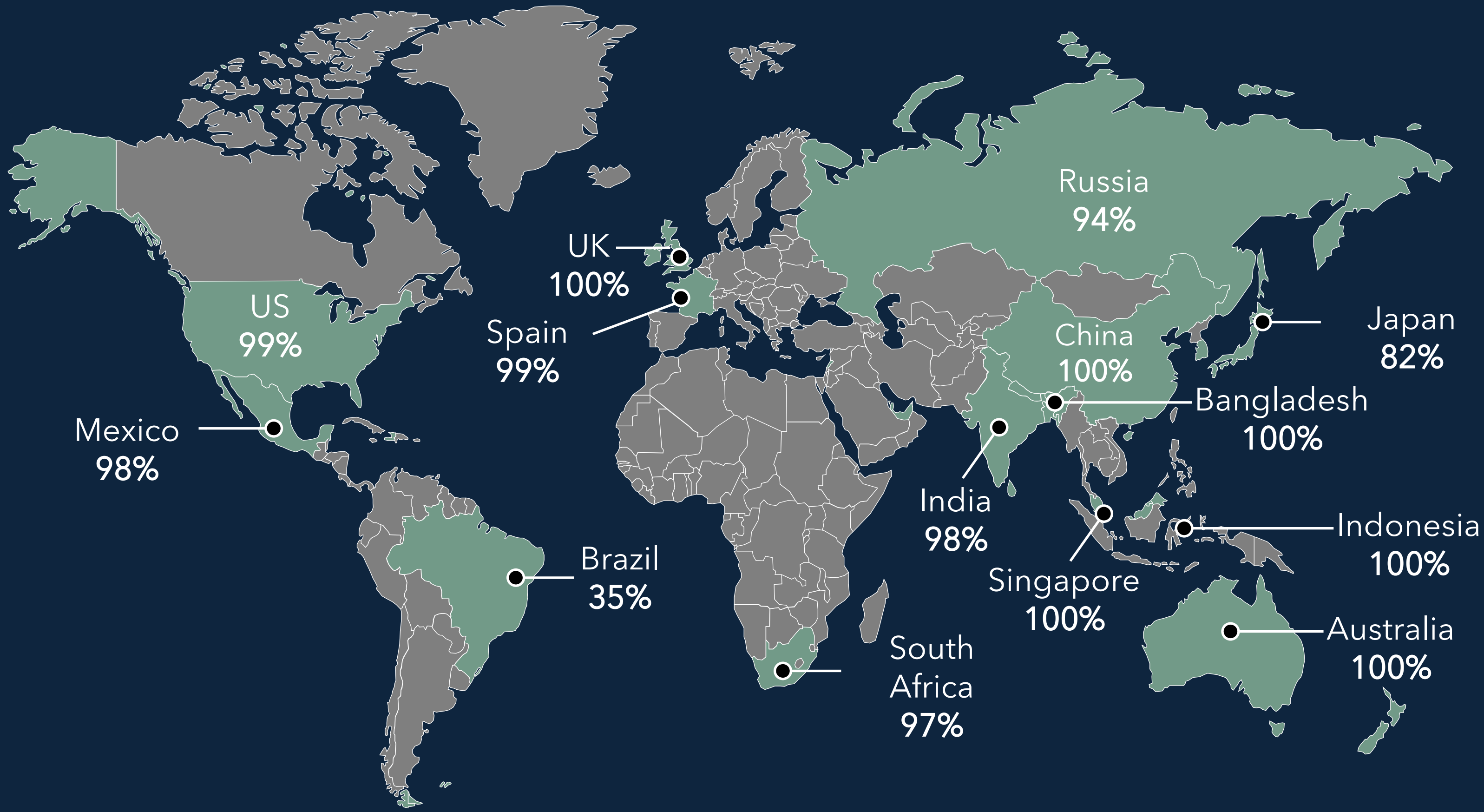
	Scientific Name	Country of Origin	Date of Origin	Countries Impacted
Alpha	B.1.1.7	England	September 2020	173
Beta	B.1.351	South Africa	August 2020	122
Gamma	P.1	Brazil & Japan	December 2020	74
Delta	B.1.617.2	India	October 2020	104

Source: World Health Organization

Delta Variant the Predominant COVID Strain

The COVID-19 Delta Variant has now spread to over 100 countries and has become the dominant strain globally. The variant, which is believed to have been the cause of India's second wave of infections, now represents almost all of new COVID cases in the US, up from less than 50% in early July.

Share of Delta variant cases

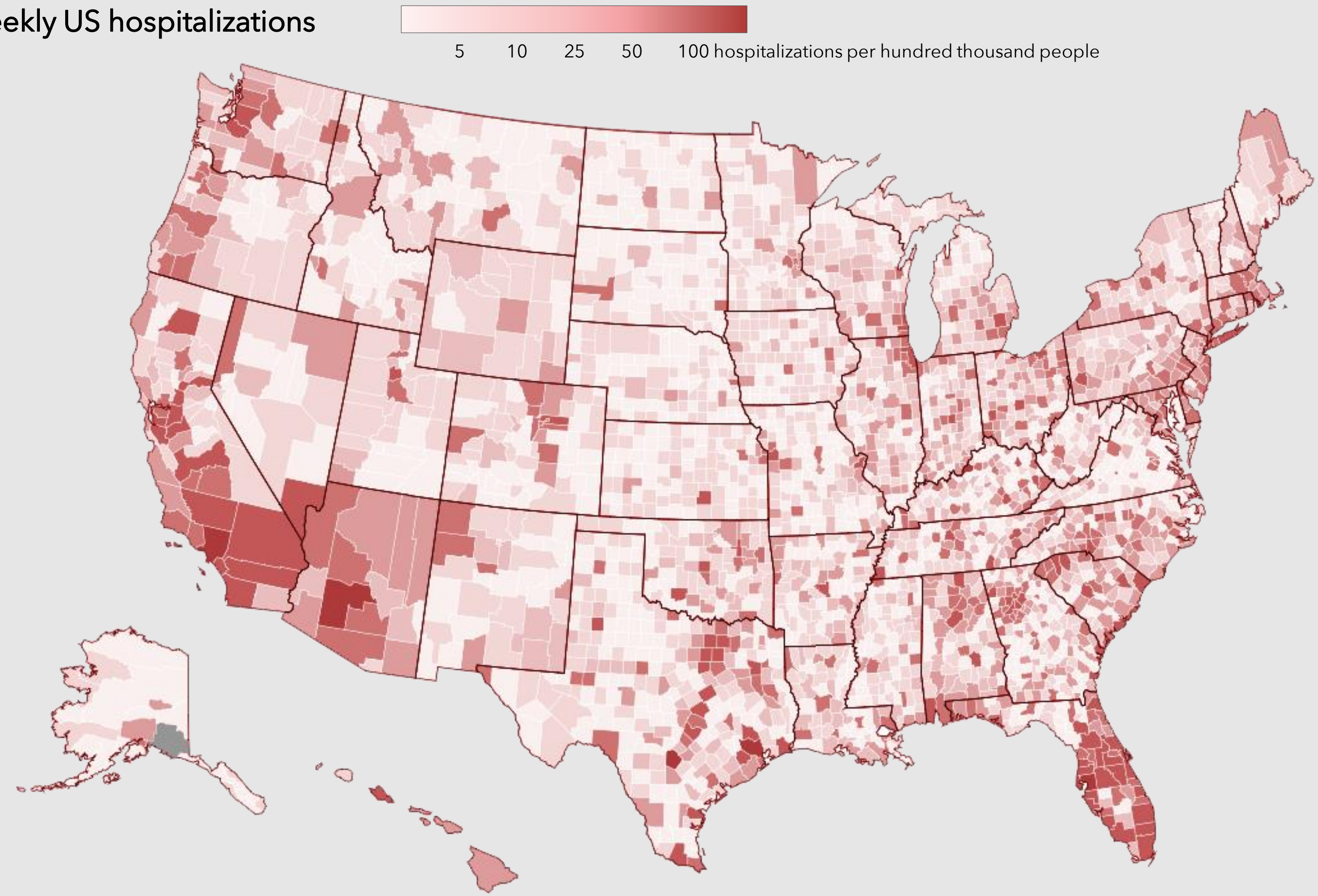


Source: (1) GISAID. Share of Delta variant cases in the last two weeks ending August 23, 2021.

US Hospitalizations Highest in South & West

US COVID-19 hospitalizations rose sharply in July – August , particularly in the South and West regions of the country

Weekly US hospitalizations

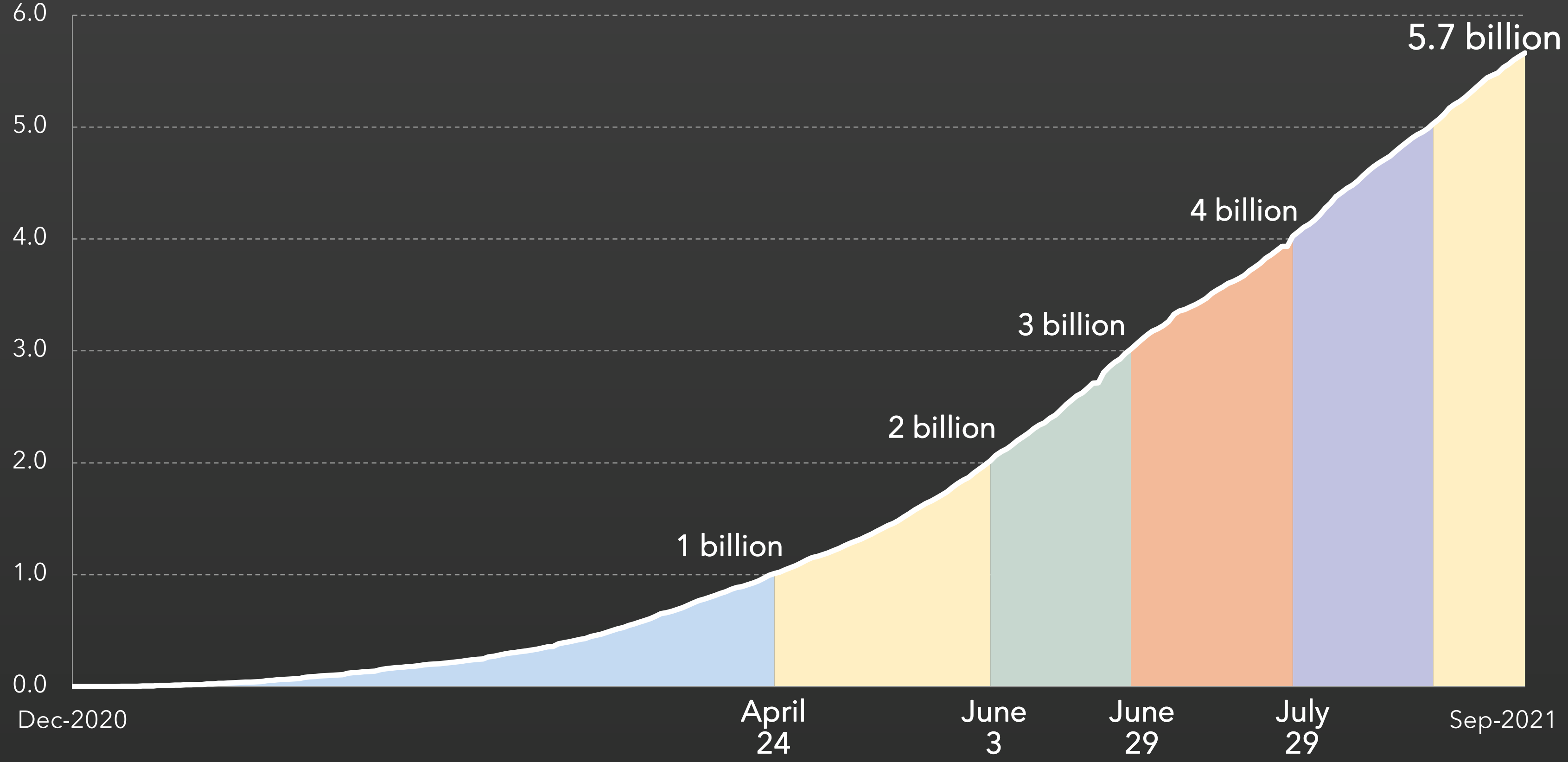


Source: Bloomberg. CDC COVID Data Tracker. Weekly data from September 1 – September 7, 2021.

Largest Vaccination Campaign in History

The largest vaccination campaign in history is underway, with more than 5.7 billion doses administered across 180 countries, according to data collected by Bloomberg. In the US, more than 379 million doses have been given, with an average of over 722k per day over the last week, a significant decline from prior periods.

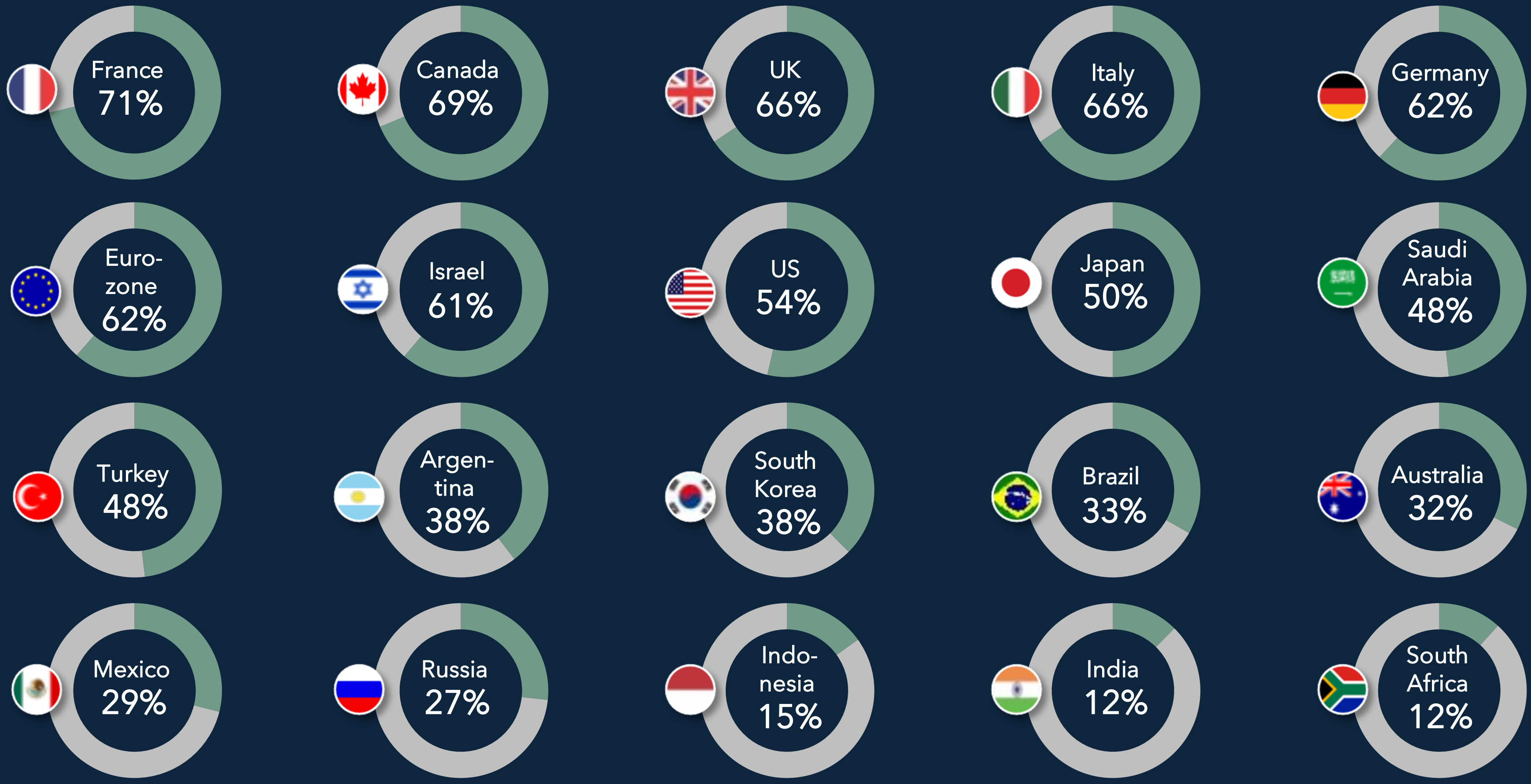
Total global vaccinations



Source: (1) Bloomberg. Data as of September 10, 2021.

Delta: Pandemic of the Unvaccinated

While vaccination progress has been impressive in the first six months of 2021, numerous concerns persist, including: (i) the slow pace of vaccination in numerous large economies (i.e., Japan, India, Brazil, South Africa); (ii) the declining pace of vaccinations in the United States; (iii) the uneven distribution of vaccinations within and between societies; and (iv) the impact of the delta variant in steepening confirmed case curves in under-vaccinated regions.

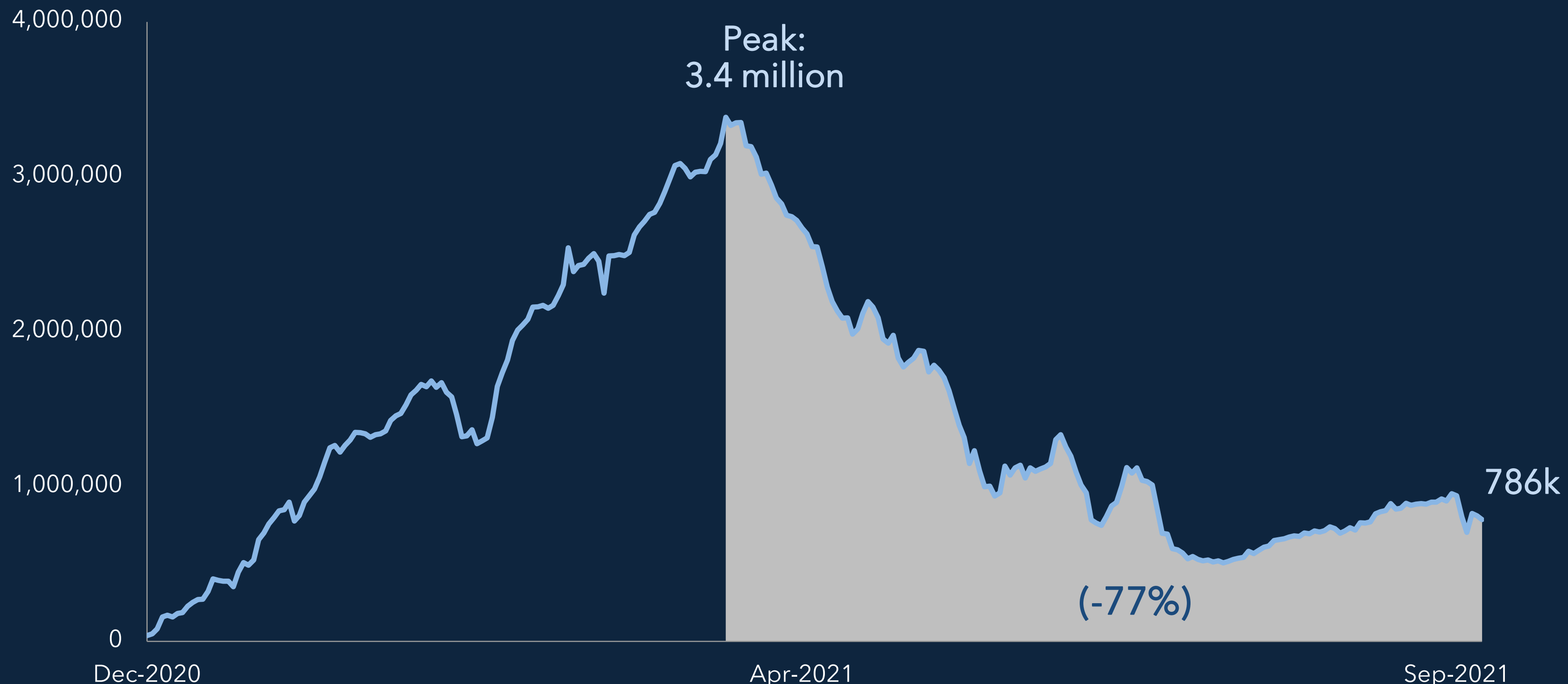


Source: Bloomberg. Data as of September 10, 2021.

Declining US Vaccinations

Despite vaccination rates as low as 40% in some US states, far from levels necessary for herd immunity, the daily number of vaccines given in the US is now only 786k doses per day, a 77% decline from the peak rate in April of 3.4 mm doses per day.

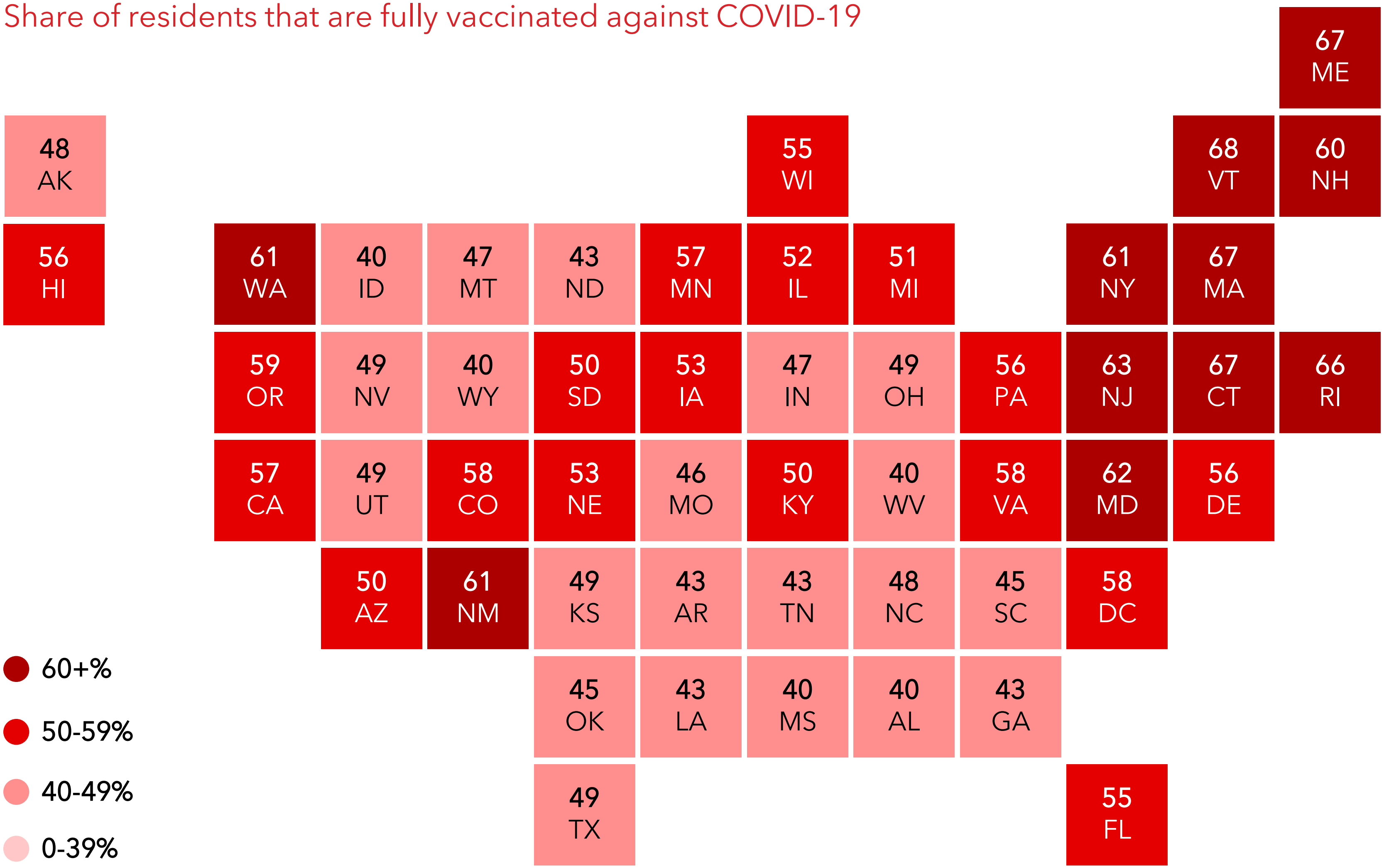
US daily vaccine doses administered



Source: (1) Bloomberg. Data as of September 10, 2021. Daily vaccine doses administered is 7-day moving average.

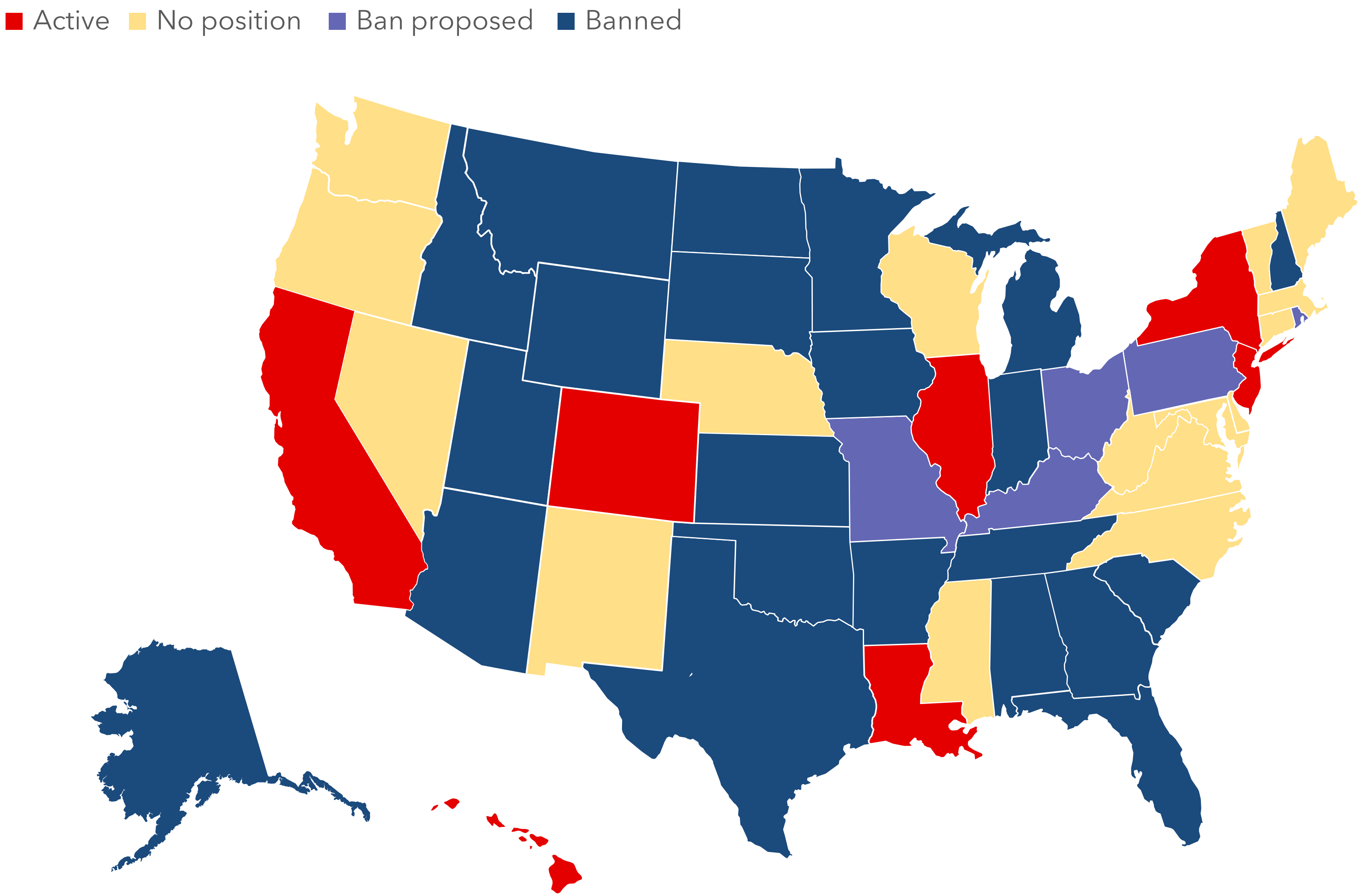
The US States Closest To Full Vaccination

Share of residents that are fully vaccinated against COVID-19



Source: OurWorldinData. Bloomberg. Data as of September 10, 2021.

Vaccination Status Apps in the US



Source: (1) MIT Technology Review data as of August 31, 2021.

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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 US corporates and Fortune 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.

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.

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.

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, as well as the Board of the New Canaan Football (Soccer) Club.

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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.

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