How Might Investors Survive and Thrive in a World Gone Mad

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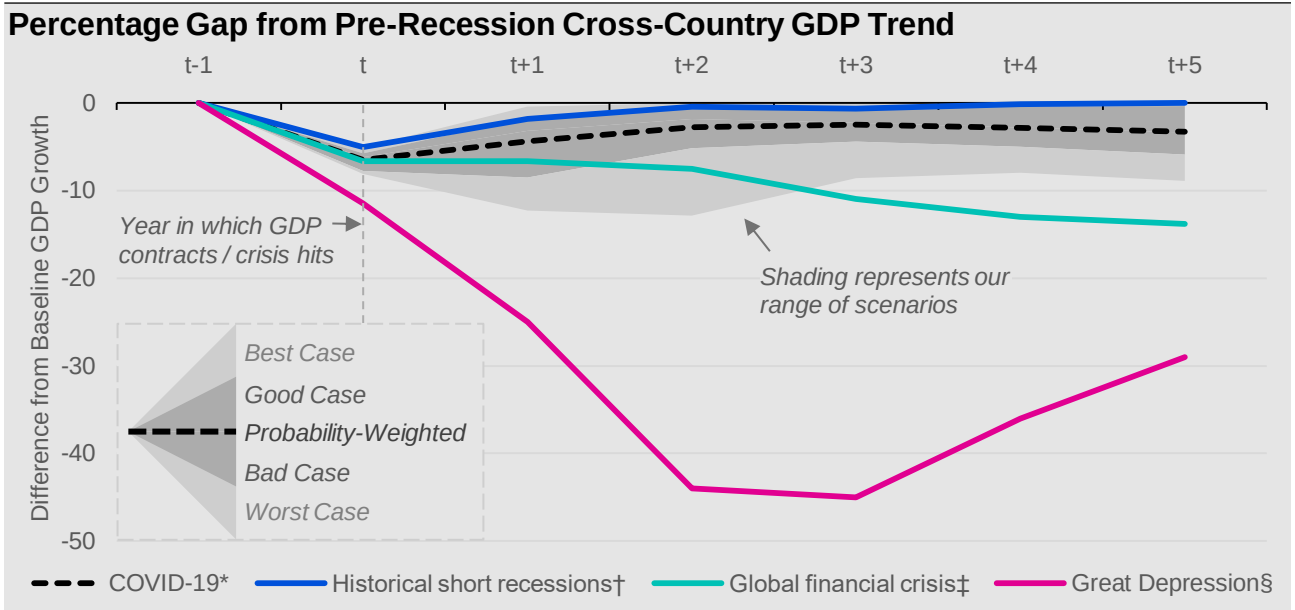
V-, U-, W-, L- or Swoosh-Shaped Recovery?
Depends on a variety of factors



- Our assessment of the COVID-19 crisis impact on global GDP shows activity hit worse than financial crisis initially, but with substantial bounce back in activity as real economy reopens
- We do not expect Great Depression-style extreme and protracted hit to growth

*COVID-19 scenario is based on an assessment of scenarios by the Global Market Strategy Office. Shaded areas represent the range of scenarios, while the dotted line indicates the probability-weighted path according to the probabilities assigned previously. †Classical "V-Shape" recession and recovery – the median of 410 short recessions over the last 200 years – GDP contracted in the prior calendar year (t-1 to t) before recovering to or above trend growth rate in the following year. ‡Median across developed market economies which experienced systemic banking crises from 2007-08. §Great Depression highlights the trajectory of the US experience only in the Great Depression.
Source: Oxford Economics, Haver Analytics, Maddison Project Database; Invesco. Data through calendar 2018.

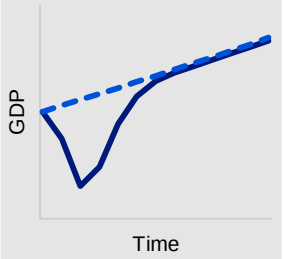
Outlook Dependent on a Variety of Factors

- infection rates
- development of therapies and a vaccine
- stringency measures
- mobility
- economic activity
- fiscal stimulus
- monetary stimulus

GDP Scenario Analyses

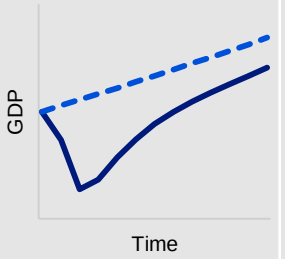
Lockdown stringency and resurgence of infections define scenarios

Best Case	V-shaped recovery	10% Probability



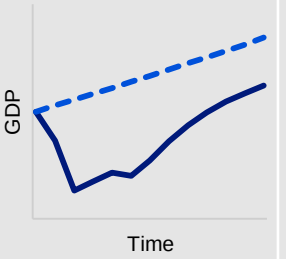
Rapid easing of lockdowns and speedy return to normal behaviour

Intermediate Case	Swoosh-shaped recovery	40% Probability



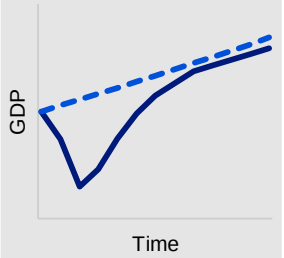
Gradual easing of lockdowns and gradual return to normal behaviour

Bad Case	L-shaped recovery	25% Probability



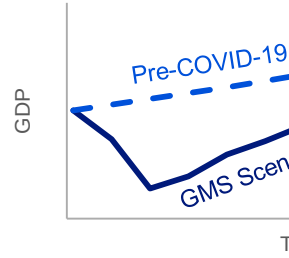
A second wave in late 2020 requiring partial re-imposition of lockdowns

Good Case	U-shaped recovery	20% Probability

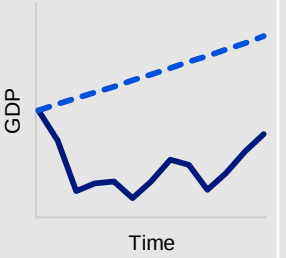


Rapid easing of lockdowns but delayed return to normal behaviour

Probability-Weighted Scenario



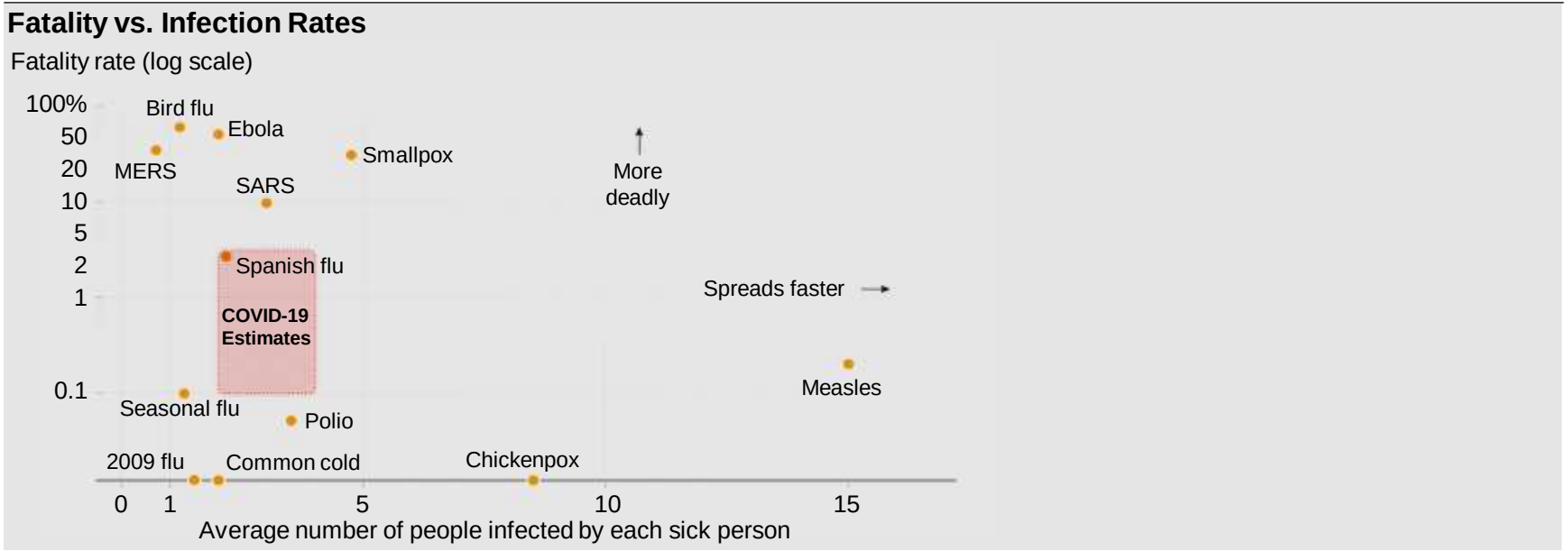
Worst Case	W-shaped recovery	5% Probability



Multiple waves of infection requiring repeated strong lockdowns

Source: Invesco Global Market Strategy Office scenario analysis, as of 16 June 2020. Charts are shown for illustrative purposes only and are not intended as investment advice. Please see appendix for additional information. *The dashed line labeled "Pre-COVID-19 Trend" is the annualized rate of GDP growth observed prior to the crisis for all economies. This rate of growth is based on the International Monetary Fund's global GDP weights according to purchase power parity multiplied by the rate of GDP growth observed over the past six years as reported in the national accounts of each country.

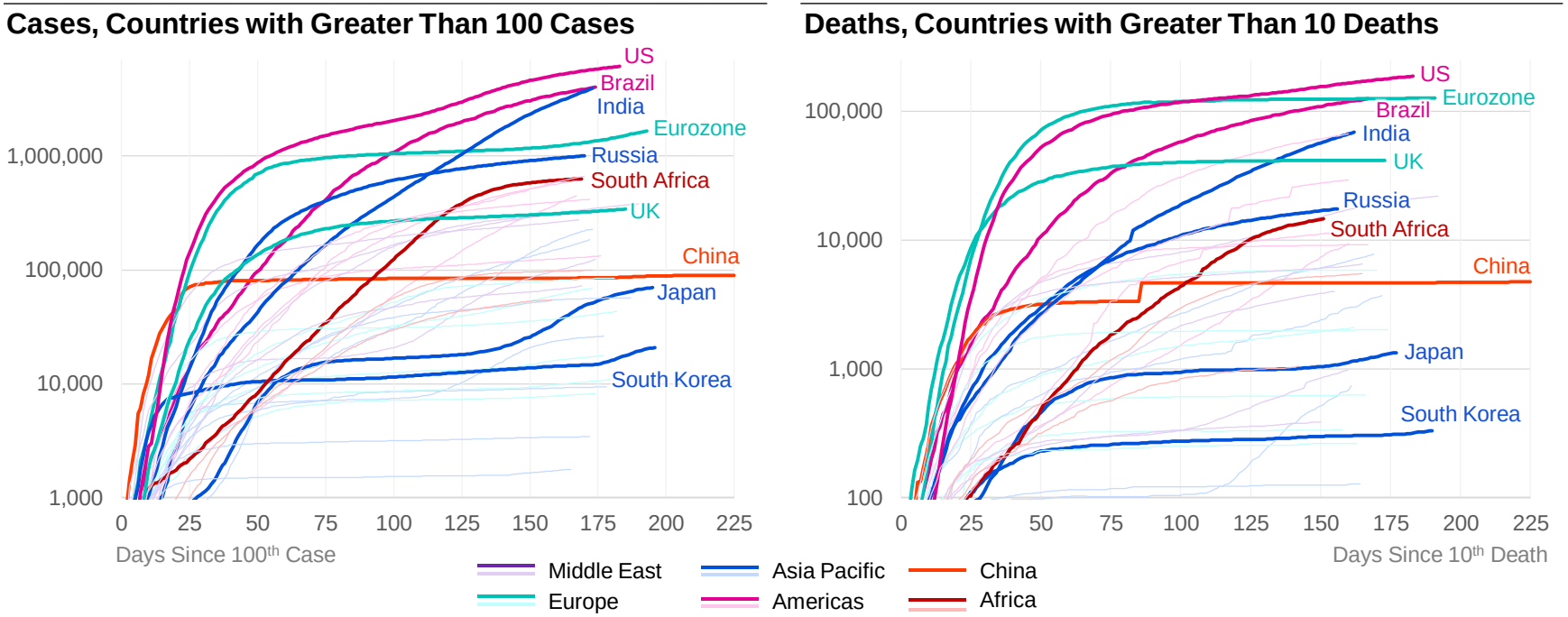
Comparison of Coronavirus with Other Infectious Diseases



Source: Philosophical Transactions of the Royal Society, World Health Organization, New York Times, Estimate based on preliminary figures as of 2/29/2020.

Tracking Pandemic: The Affliction of COVID-19 Across the Globe

Observing curve-flattening on a relative scale

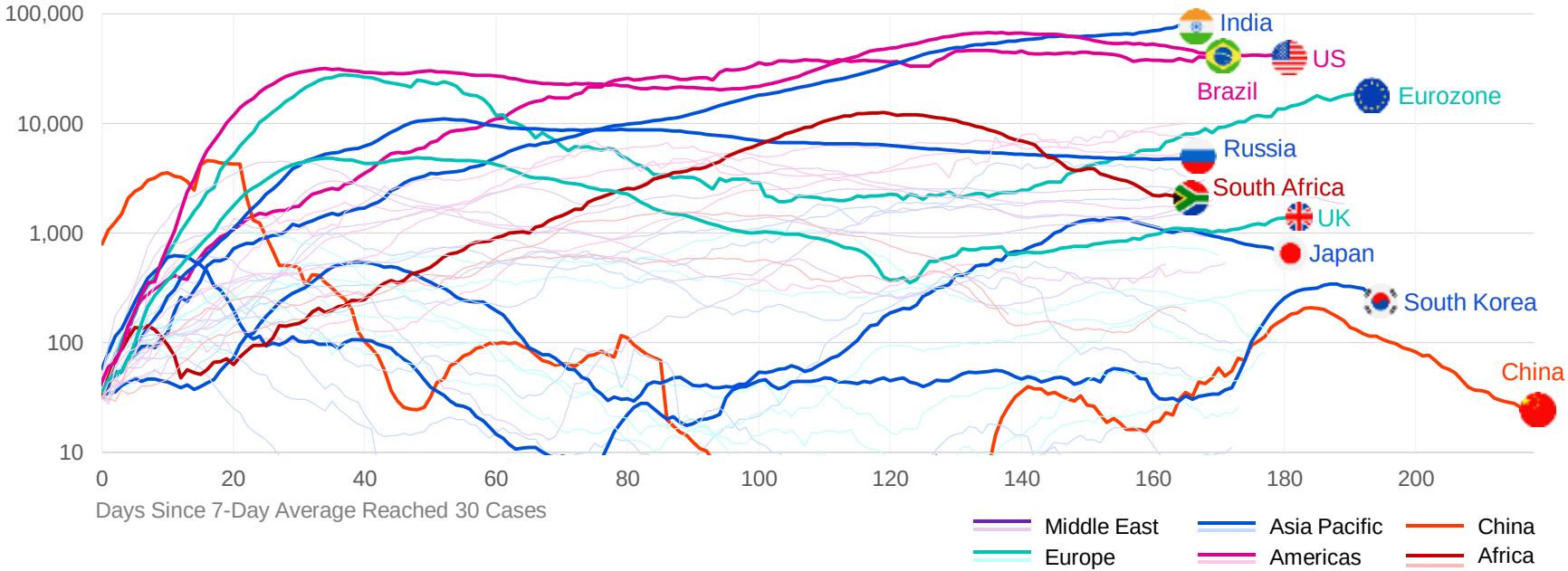


Source: Invesco, Johns Hopkins, as of 3 September 2020. Vertical scale in both charts is logarithmic with a factor base of 10.

Curve-Flattening in Motion

Eurozone, UK, and India infections are on the rise; others in plateau

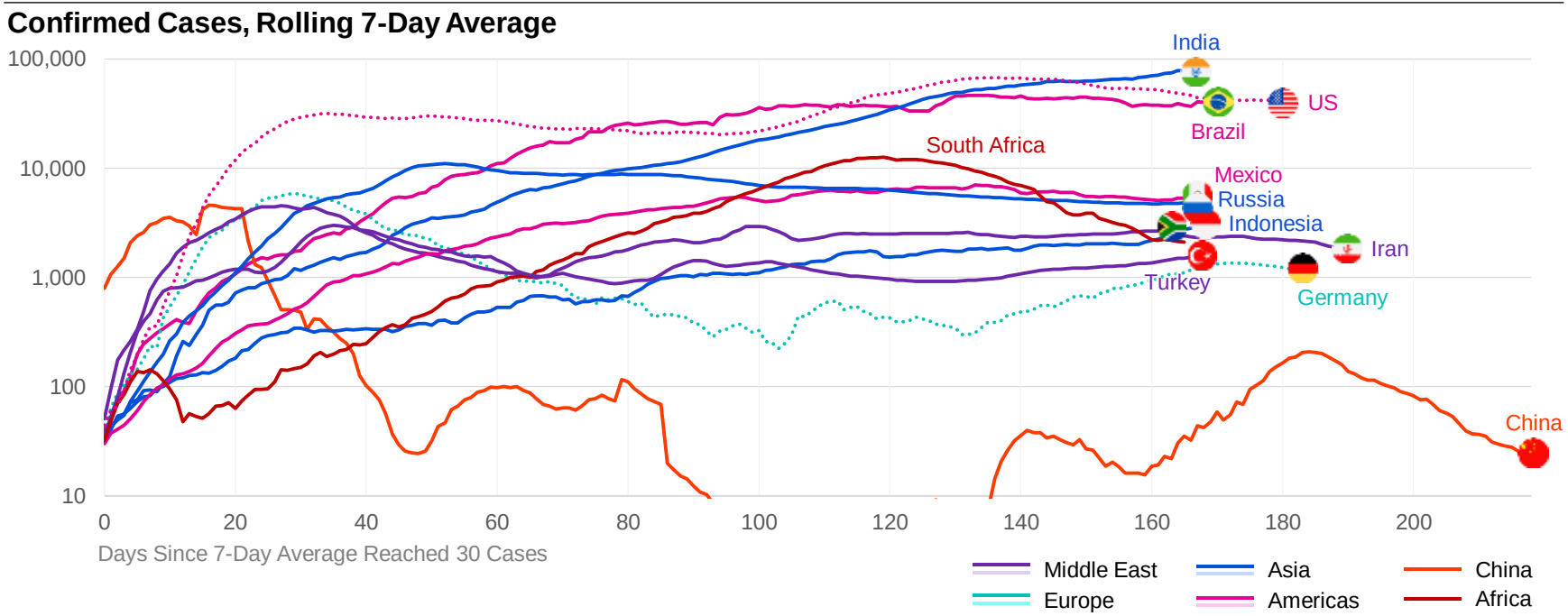
Confirmed Cases, Rolling 7-Day Average



Source: Invesco, Johns Hopkins, as of 3 September 2020. Vertical scale in both charts is logarithmic with a factor base of 10.

Emerging Markets (EM) Take Center-Stage in Viral Spread

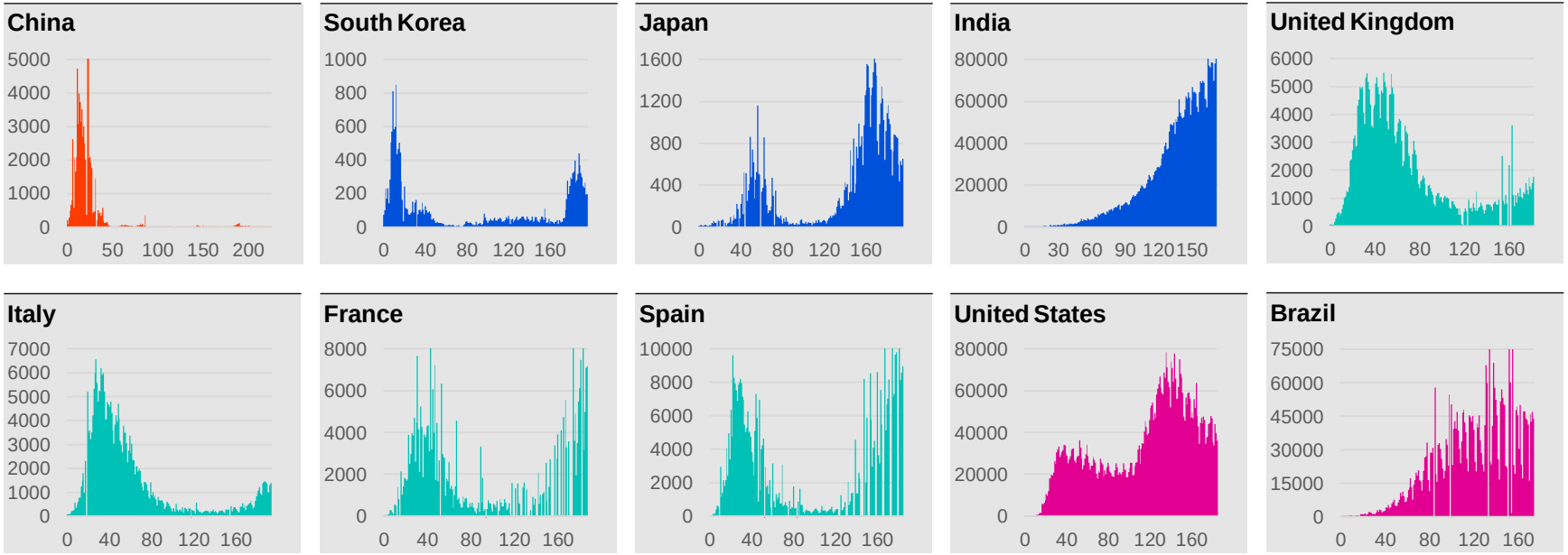
Most major EM economies have leveled off, except India



Source: Invesco, Johns Hopkins, as of 3 September 2020. Vertical scale in both charts is logarithmic with a factor base of 10. US and Germany are included for reference.

COVID-19 in Key Economies
A resurgence in cases across developed economies

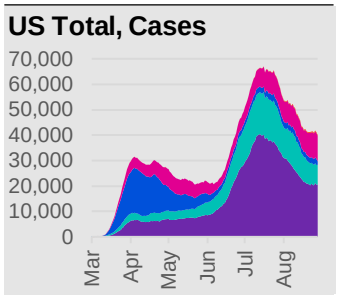
Daily New Infections in Selected Countries, Days Since 100 Infections

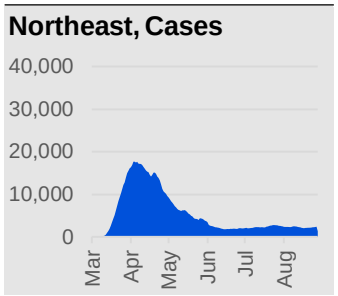


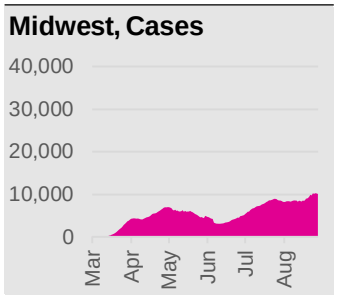
Source: Bloomberg, Invesco, as of 3 September 2020. Large outlying datapoints are selectively hidden in the above axis scales for China and France.

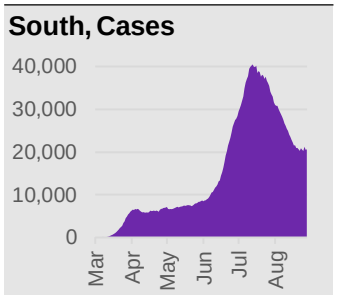
Wave 1.5 in the United States Fading

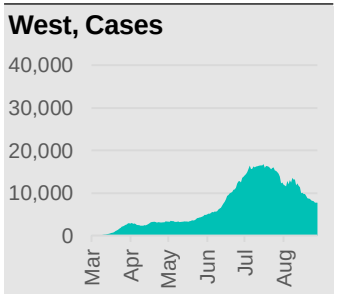
Concentrated in South and parts of the West, but on the way down

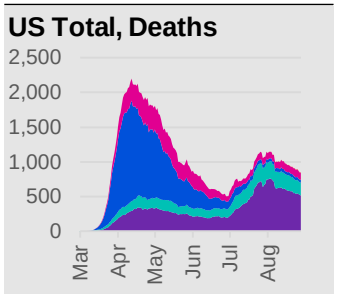


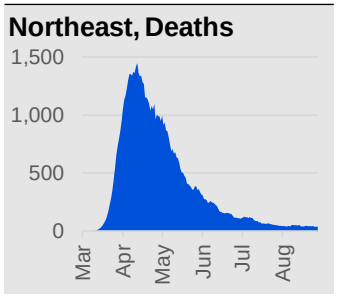


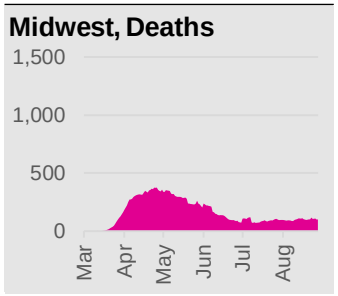


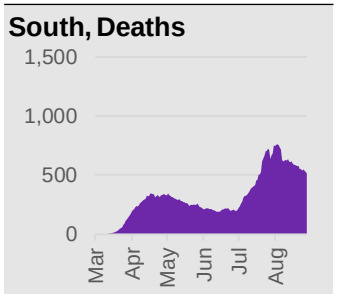


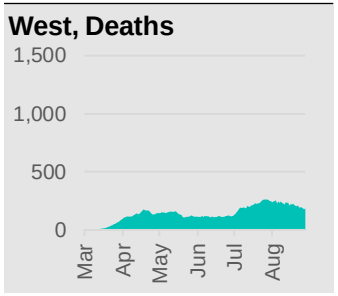










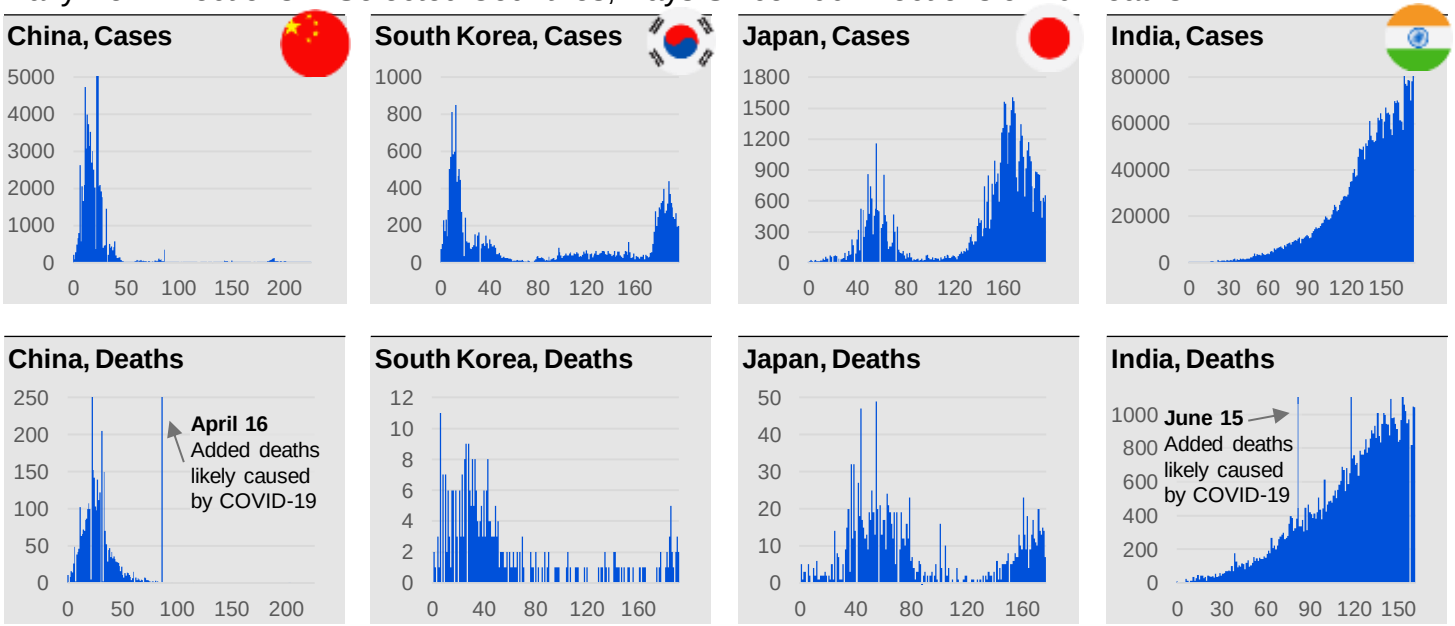


Sources: Bloomberg, Invesco, as of 3 September 2020. The District of Columbia is included in the Southern aggregates above. All values displayed are rolling 7-day averages of daily new cases and deaths of COVID-19.

COVID-19 in Asia

East Asia handling well, but seeing pockets of emerging infections

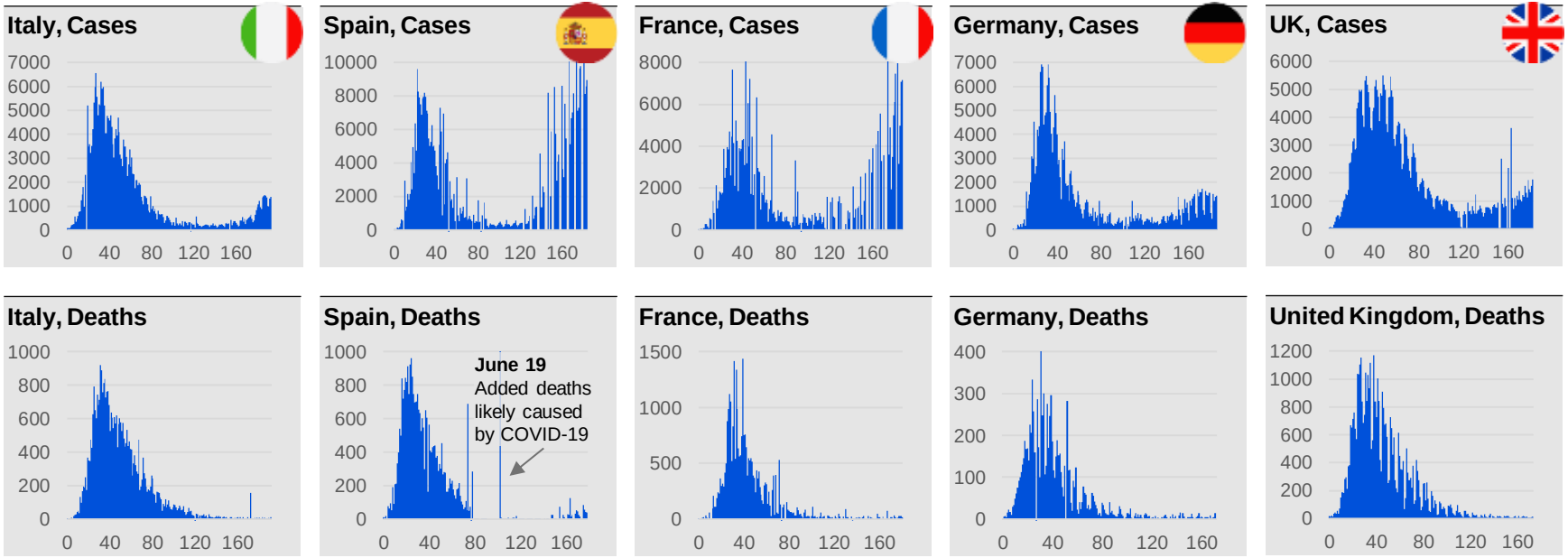
Daily New Infections in Selected Countries, Days Since 100 Infections or 10 Deaths



Source: Bloomberg, Invesco, as of 3 September 2020. Large outlying datapoints are selectively hidden in the above axis scales.

COVID-19 in Europe
Time to pause reopening? Cases in Europe on the rise

Daily New Infections in Selected Countries, Days Since 100 Infections or 10 Deaths

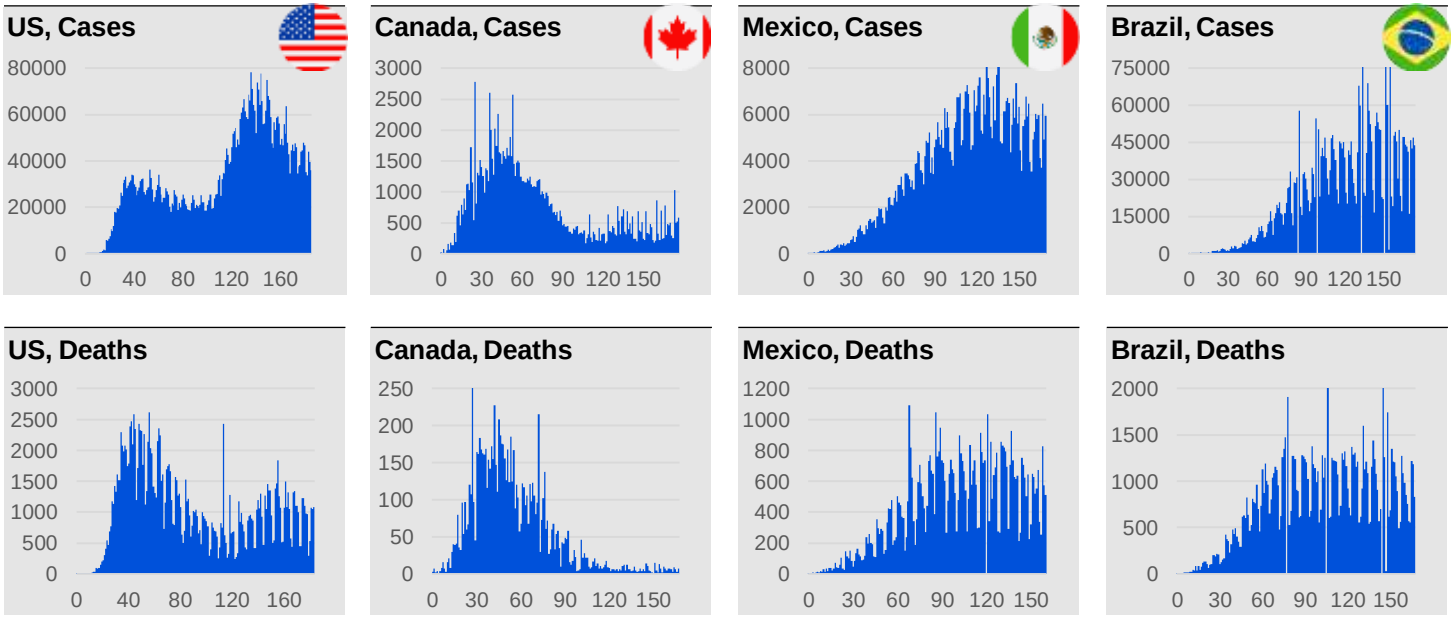


Source: Bloomberg, Invesco, as of 3 September 2020. Large outlying datapoints are selectively hidden in the above axis scales.

COVID-19 in the Americas

Canada is a bright spot, whereas other Americas nations lagging

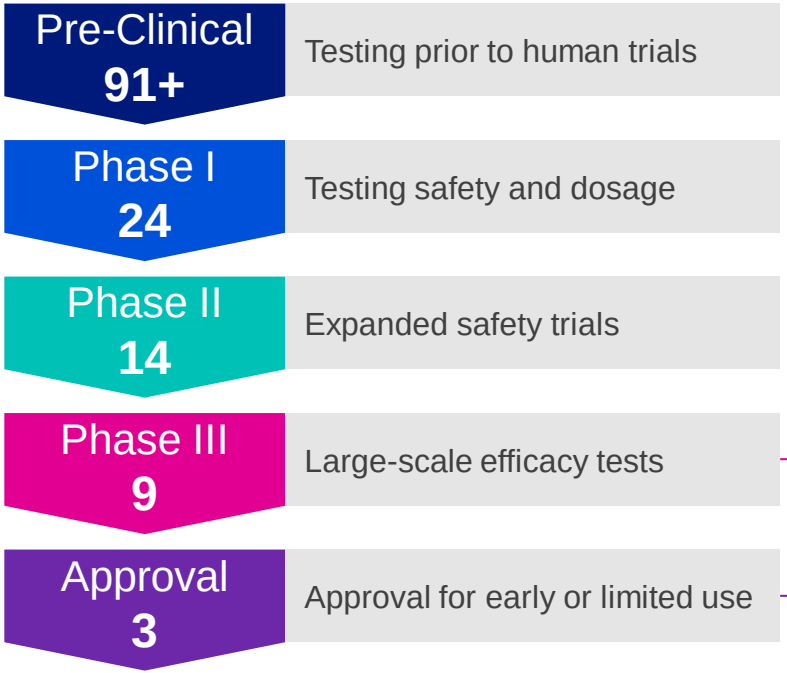
Daily New Infections in Selected Countries, Days Since 100 Infections or 10 Deaths



Source: Bloomberg, Invesco, as of 3 September 2020. Large outlying datapoints are selectively hidden in the above axis scales.

The Search for a Vaccine

Early signs are encouraging, but vast rollout will take time



Phase III

- Astrazeneca & Oxford
- Moderna & US National Institutes of Health
- BioNTech, Pfizer & Fosun Pharma
- Wuhan Institute of Biological Products
- Sinopharm
- Sinovac Biotech
- Murdoch Children's Research Institute
- CanSino Biologics

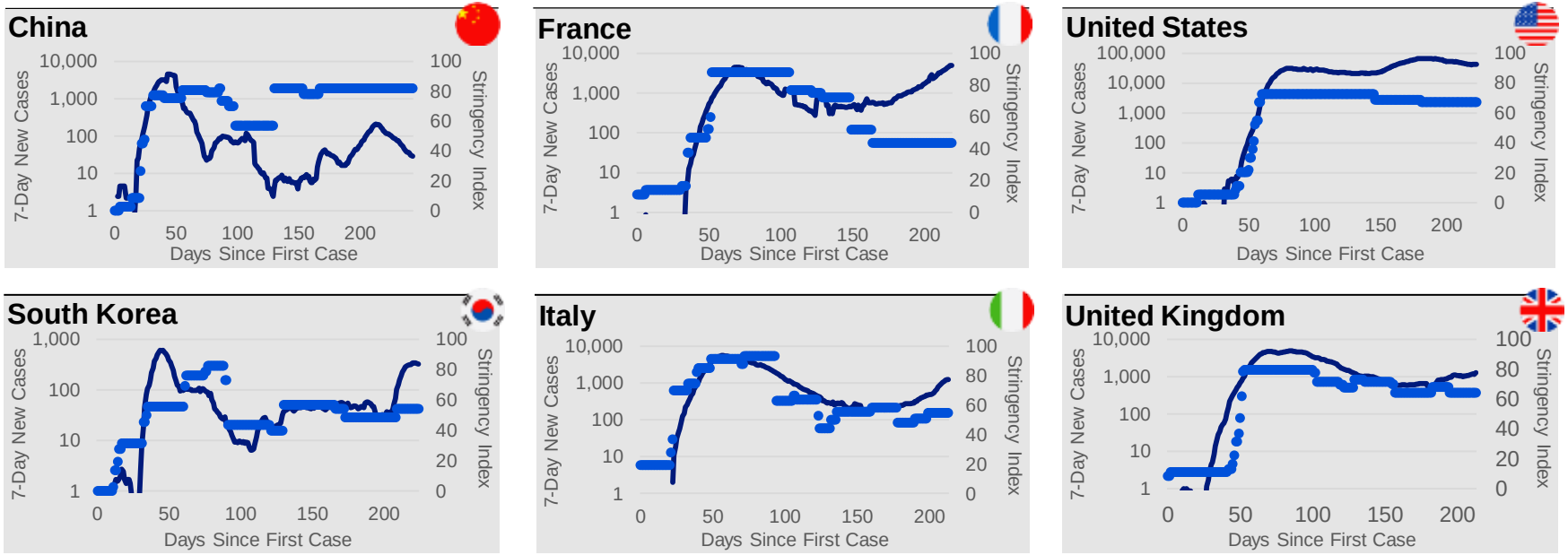
Approval

- *25 June* – CanSino Biologics approves vaccine early for Chinese military use. Phase III to begin in Saudi Arabia.
- *11 August* – Russia approves vaccine prior to Phase III trials beginning
- *July* – Sinovac Biotech vaccine reportedly given an emergency approval for limited use in July

Sources: Adapted from a New York Times. Original sources include: World Health Organization, National Institute of Allergy and Infectious Diseases, National Center for Biotechnology Information, New England Journal of Medicine. Most recent data as of 23 August 2020. Please visit https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html for the original interactive.

Analyzing the Stringency of Lockdowns

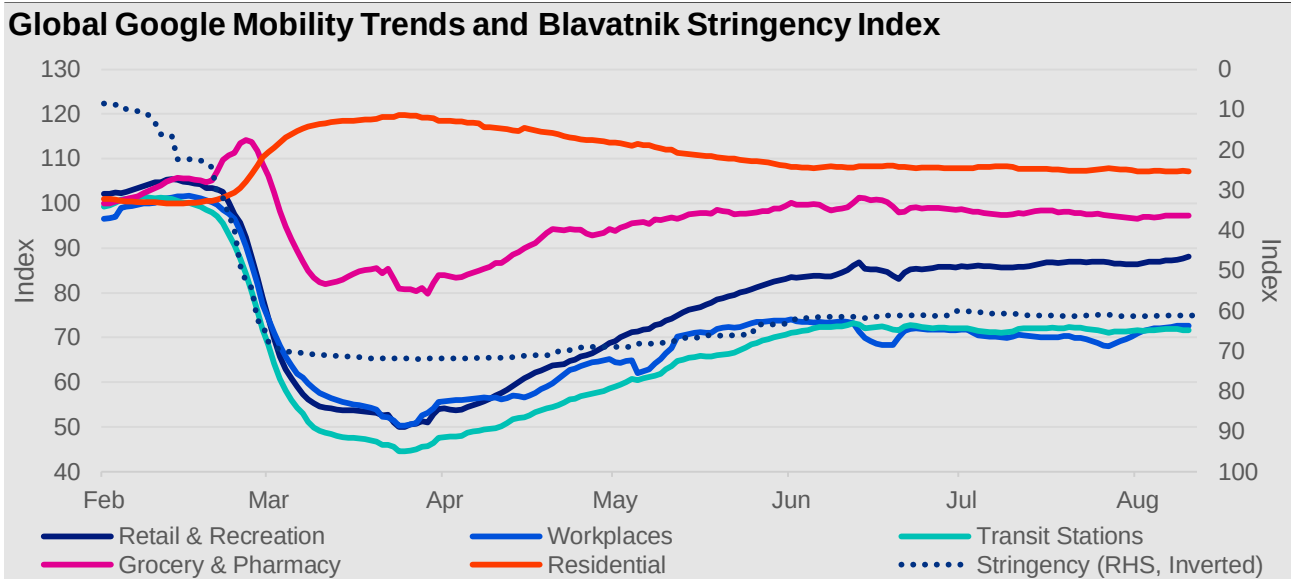
Easing of lockdown has brought a resurgence in cases



The Stringency Index tracks policies such as school closures and travel bans. Left-hand vertical scale in all charts is logarithmic with a factor base of 10.
Source: University of Oxford, Blavatnik School of Government, Oxford COVID-19 Government Response Tracker, 3 September 2020.

Mobility Data Generally Tracks Lockdowns…

Stringency index may help gauge economic impacts

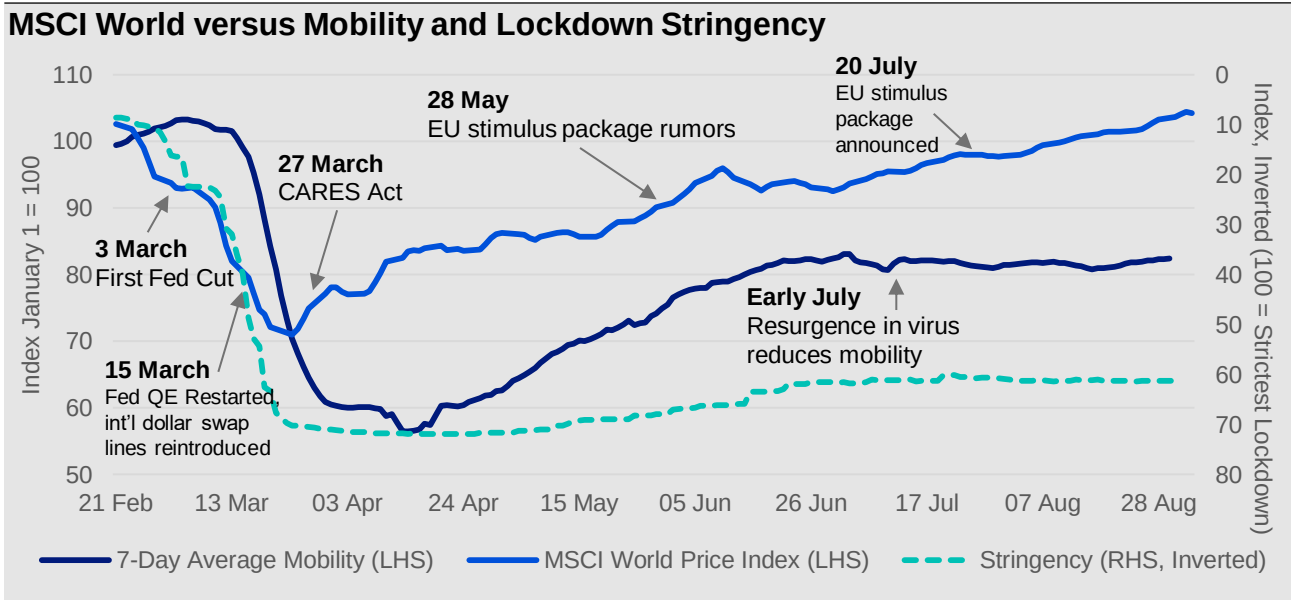


- Mobility appears to have plateaued at about 80% of normal
- Some governments are saying they will not re-impose lockdowns even if infection rates rise
- Activity may be a more predictive indicator of economic activity than stringency

The mobility indices shown above are the Google mobility trends indices, expressed as 7-day moving averages. These show how visits and length of stay at different places vary compared to a 100 basis, measured as the median value for the corresponding day of the week, during the 5-week period Jan 3–Feb 6, 2020. We have excluded the "Parks" series above. The "Blavatnik Stringency Index" is the Oxford Covid-19 Government Response Stringency Index from the Blavatnik School of Government, Oxford. It measures the stringency of government responses to Covid-19, including the extent of school, business and travel shut-downs and healthcare actions. The index ranges from 0 to 100, with higher scores indicating a more stringent response. The above indices are weighted sums of the indices representing the geographic weights of the MSCI World Index. Sources: Google, Blavatnik School of Government, University of Oxford, MSCI, Macrobond and Invesco. As of 31 August 2020. Mobility data published with up to a one-week lag.

The Intersection of Lockdowns, Mobility, and Policy

Our measures of activity link market performance with macro factors

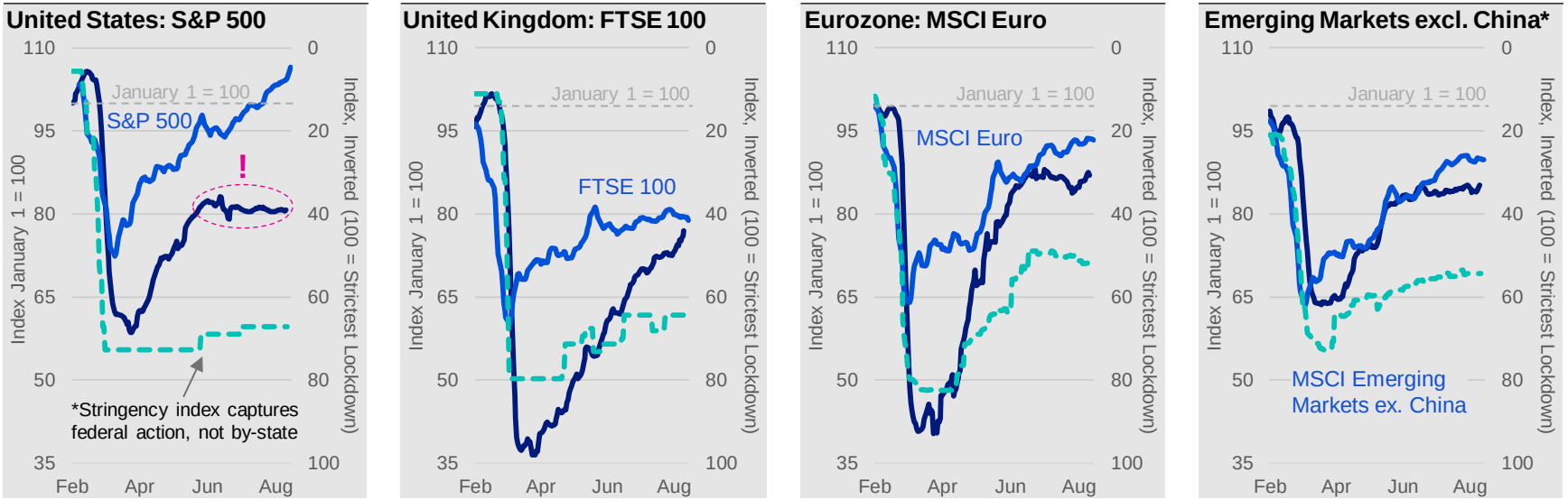


- We watch for three factors in assessing market direction:
  1. Mobility trends
  2. Lockdown progression
  3. Policy support

The 7-Day Average Mobility is the Google mobility trends indices. These show how visits and length of stay at different places vary compared to a 100 basis, measured as the median value for the corresponding day of the week, during the 5-week period Jan 3–Feb 6, 2020. The "average" above is the simple average of retail & recreation, workplace, transit stations, and grocery & pharmacy series. "Stringency" is measured by the Oxford Covid-19 Government Response Stringency Index from the Blavatnik School of Government, Oxford. It measures the stringency of government responses to Covid-19, including the extent of school, business and travel shut-downs and healthcare actions. The index ranges from 0 to 100, with higher scores indicating a more stringent response. The above indices are weighted sums of the indices representing the geographic weights of the MSCI World Index. Sources: Google, Blavatnik School of Government, University of Oxford, MSCI, Macrobond and Invesco. As of 3 September 2020. Mobility data published with up to a one-week lag. Past performance does not guarantee future results. An investment cannot be made directly into an index.

Mobility Across the Globe Has Flatlined at a Depressed Level

Mobility supplements the stringency index in telling the macro story



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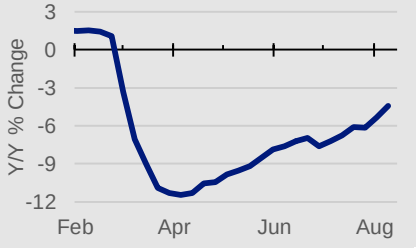
A Closer Look: US High Frequency Data Dashboard

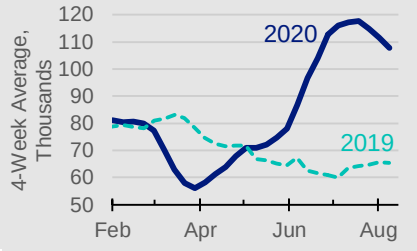
We look to high frequency data to monitor the ongoing recovery

All Economy

Weekly Economic Index (WEI)

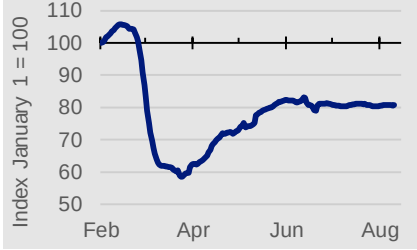


New Business Applications

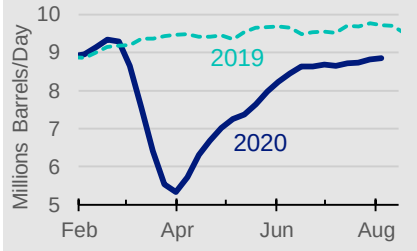


Mobility

Google Mobility

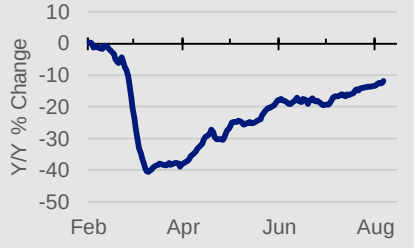


Gasoline Supplied per Day

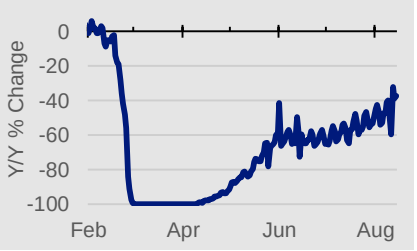


Consumption

Consumer Spending

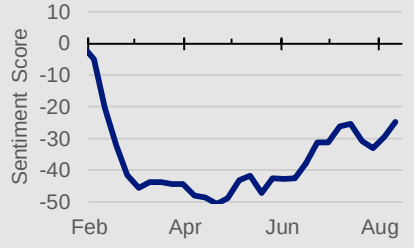


OpenTable Diners

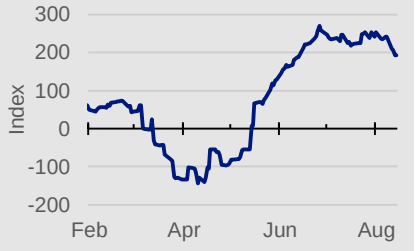


Sentiment

SF Fed News Sentiment

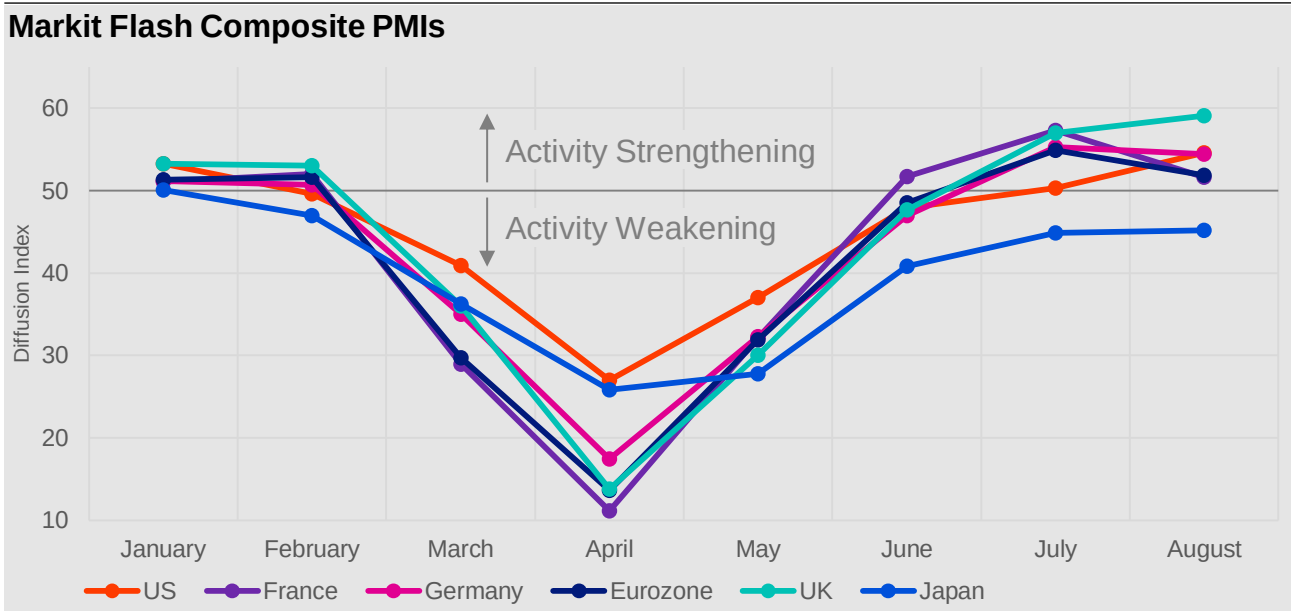


Economic Surprise Index



All series begin on February 21. This date was selected as it is the best in-common start date for the above data series.
Data as of 3 September 2020. Please see page 42 for definitions.

Green Shoots Emerging in Developed Economies
After dramatic fall in Q1 activity, Q2 and Q3 Indicate Pickup

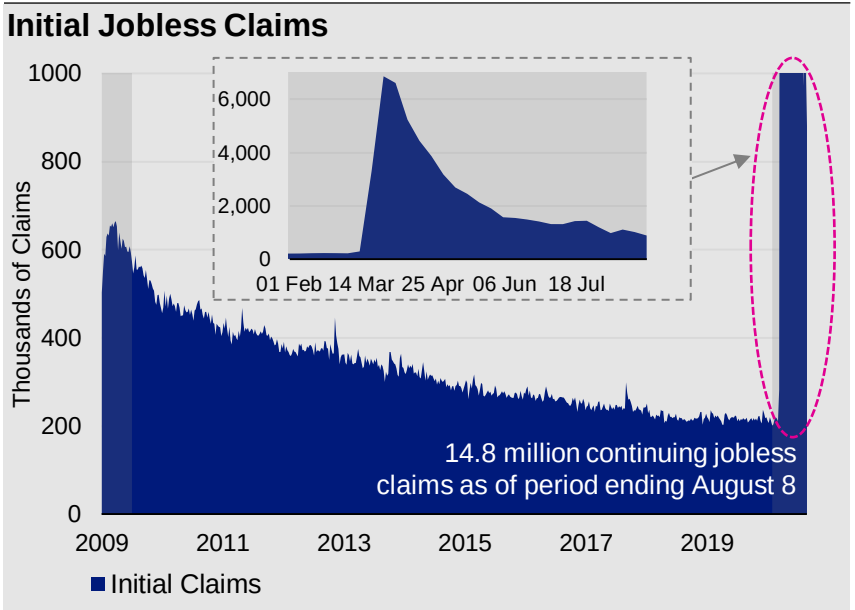


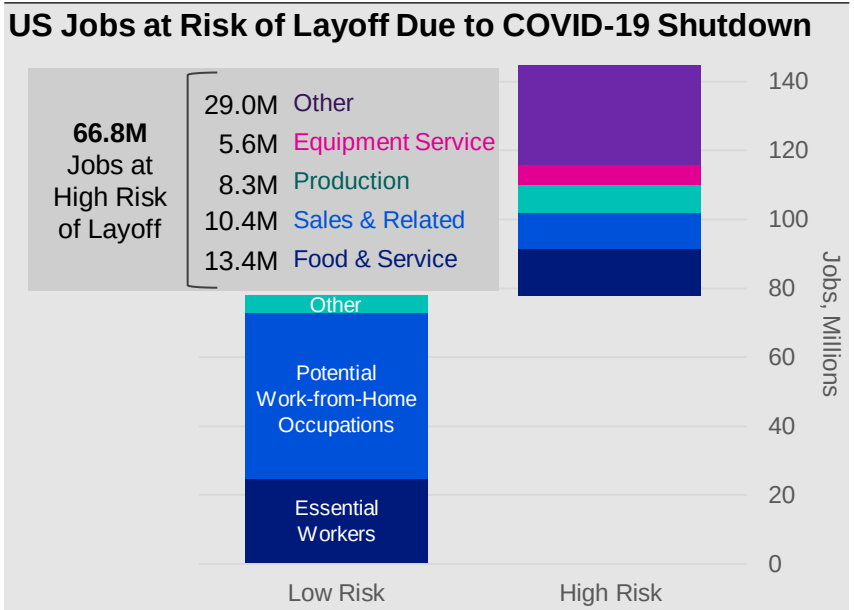
- Reviewing developed market (DM) economic activity shows extent of damage
- Greenshoots emerging: activity has been recovering after catastrophe, but re-emergence of virus spells trouble

Sources: IHS Markit, Bloomberg, and Invesco, as of 9 September 2020. PMIs are measured according to a diffusion index, which is a measure of survey responses comparing positive and negative responses. A reading above 50 generally indicates economic expansion, whereas a level below 50 generally indicates contraction. The Composite index is weighted according to the relative size of the manufacturing and services sectors in each economy. The "Flash" reading is the latest available data, including early releases.

Historic Pace of US Layoffs

Policy support necessary to keep households, businesses solvent

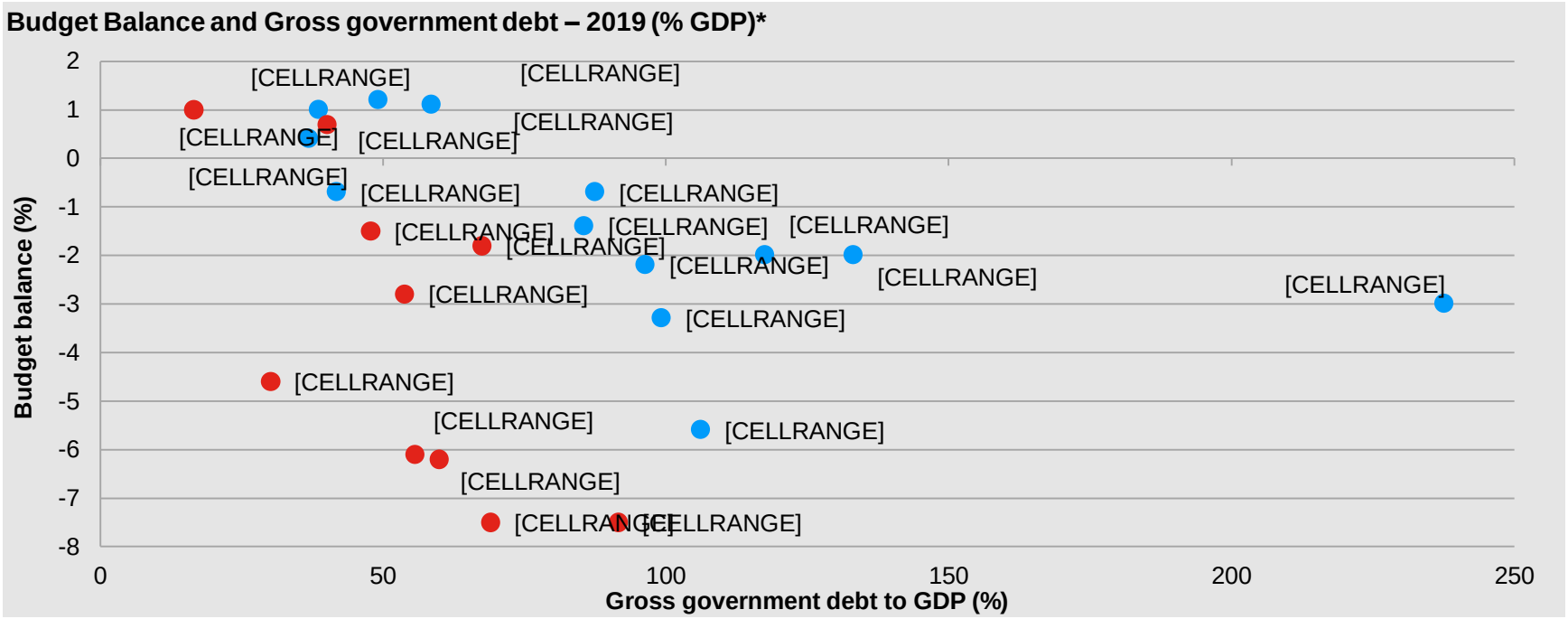




Sources: US Bureau of Labor Statistics Occupational Employment Statistics (2018) and Federal Reserve Bank of St. Louis, as of 9 September 2020.

Fiscal Policy: Room for Maneuver Varies Widely

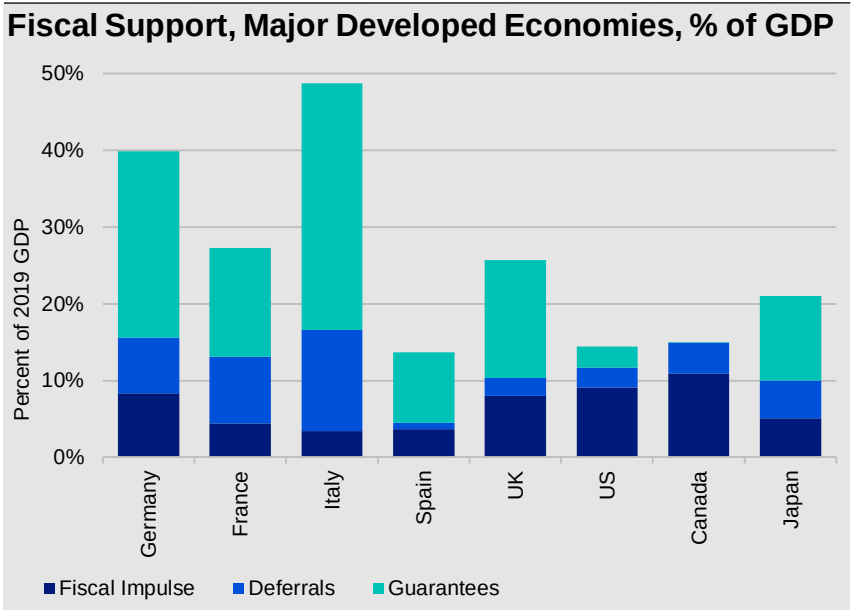
Major EM countries bear monitoring – especially those with large COVID-19 risks

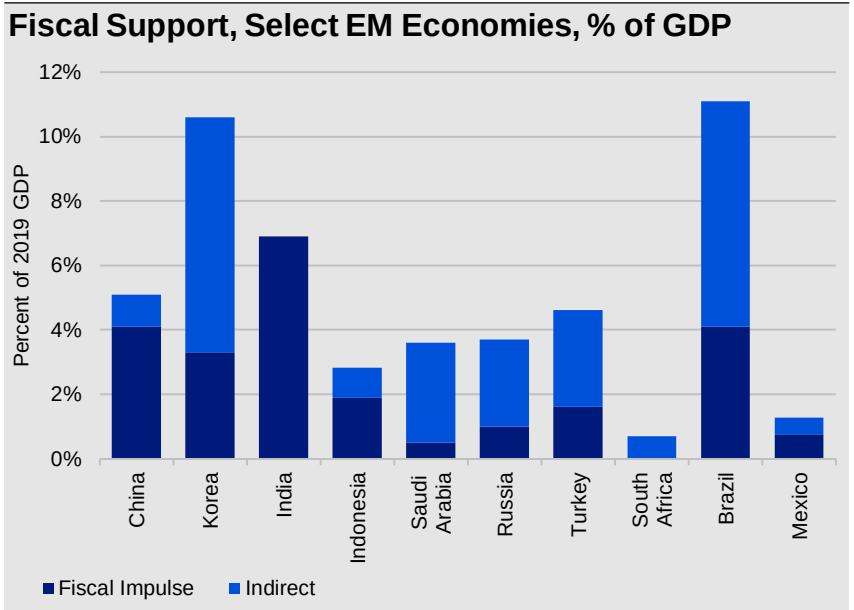


Source: IMF Fiscal Monitor October 2019, Invesco. *Blue blob = Developed Markets, Red blob = Emerging Markets.

Fiscal Policy: Stimulus… in Size

Mounting government actions in the developed world, while EM lags

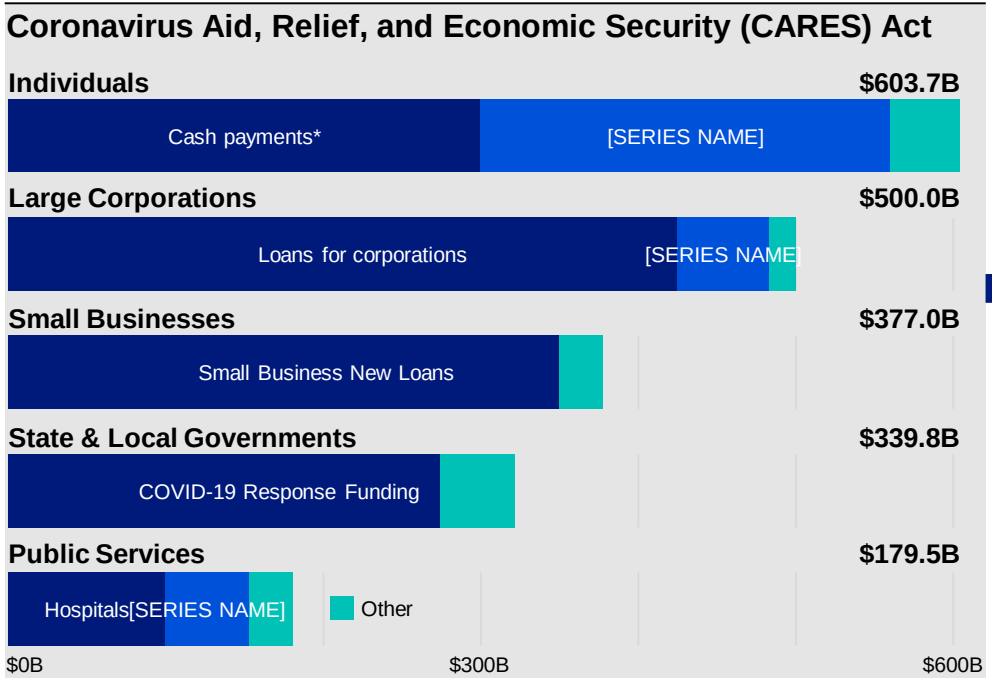




"Fiscal Impulse" refers to direct fiscal spending. "Deferrals" refer to temporary delays in tax filings and payments, and other fees to governments. "Guarantees" refer to loan guarantees and related vehicles. Indirect refers to measures that do not involve direct fiscal revenue or spending, including guarantees, deferrals and other measures.
Sources: Invesco calculations, Breugel Datasets (left-side chart), International Monetary Fund (right-side), as of 14 August 2020. Calculations are updated according to the per-country availability of policy analysis.

US Fiscal Response: The CARES Act

Broad array of fiscal support to individuals, businesses



Fiscal Phases in the COVID-19 Response

- **Phase 1:** $8.3B targeting vaccines, R&D, telehealth
- **Phase 2:** $192B targeting sick leave, unemployment insurance, SNAP, Medicaid
- **Phase 3:** $2.2T via direct checks, credit lines for small businesses and targeted highly impacted industries

Tax filing deadline extended to July 15, 2020

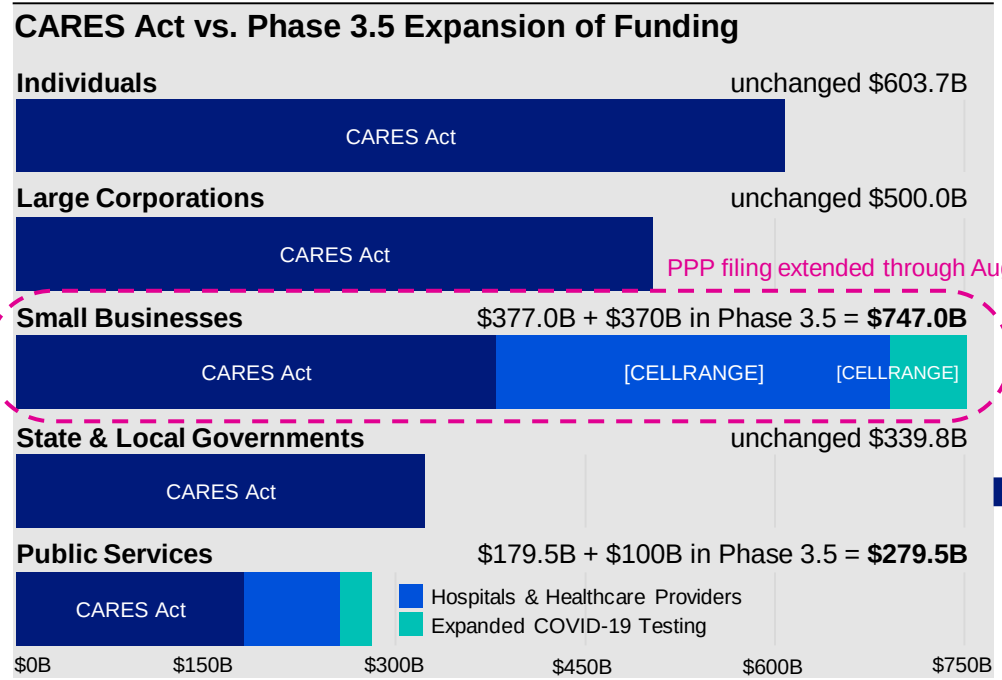
- **Phase 3.5:** $484 billion, providing additional funding for small business liquidity, hospitals, testing

Estimated total COVID-19 response: about $2.9T

* Estimated.
Source: Invesco, as of 26 April 2020.

US Fiscal Response: “Phase 3.5”

Expansion of action provides additional funding to small businesses



Fiscal Phases in the COVID-19 Response

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Source: Invesco, as of 26 April 2020.

US Fiscal Response: Phase 4 Could Bring $3T in New Spending

Democrat “wish list” legislation targets household support

Households & Consumers	
$400B (est.)	Extend unemployment insurance (UI) claims expansion to January 2021
$200B	“Heroes Fund” hazard pay for essential workers, employers apply for $13/hr wage premium up to $10,000
$383B (est.)	Cash to households: $1,200 per family member, max $6,000 per household
$175B	Housing assistance covering rent, mortgage, and utility payments
$100B	Education assistance provisions
$44B	Food security provisions

State & Local Government Support	
$916B	State and local relief: $500B to states, $376B to localities, $40B to tribes/territories

Businesses	
$200B (est.)	Expanded employee retention credit

COVID-19 Response	
$100B	Public Health provisions, including expanded Medicaid federal match to 14%
$100B	Provider relief
$75B	Testing and tracing
	Temporary COBRA subsidies to maintain coverage and special enrollment for the Affordable Care Act

Sources: House Appropriations Committee, American Enterprise Institute, and Cornerstone Macro. As of 13 May 2020.

US Monetary Policy Response
Zero rates, huge liquidity provisions and wide-ranging facilities

Rates
- Federal Open Market Committee (FOMC) cut rates to 0, through 50 bps and 100 bps cuts
- Discount window credit rate cut by 150 bps to 0.25%, 90-day term, repayable and renewable daily

Reserves & Regulatory
- Reserve requirement ratios reduced to 0%
- Discount window credit rate cut by 150 bps to 0.25%, 90-day term, repayable and renewable daily
- Fed's reserve management purchases extended beyond Treasury bills to full spectrum of Treasury securities

Asset Purchases
- Unlimited Quantitative Easing (QE), including commercial mortgage-backed securities (CMBS)

Liquidity
- Overnight repurchase agreements (repos) up to $175B each, 2-week repos to $45B each, weekly 1-month repos introduced at $50B each, 3-month repos at $500B each
- Dollar liquidity swaps daily, with major DM & EM central banks
- Targeted liquidity facilities
- Amended Regulation D to delete the six-per-month limit on savings deposits transfers

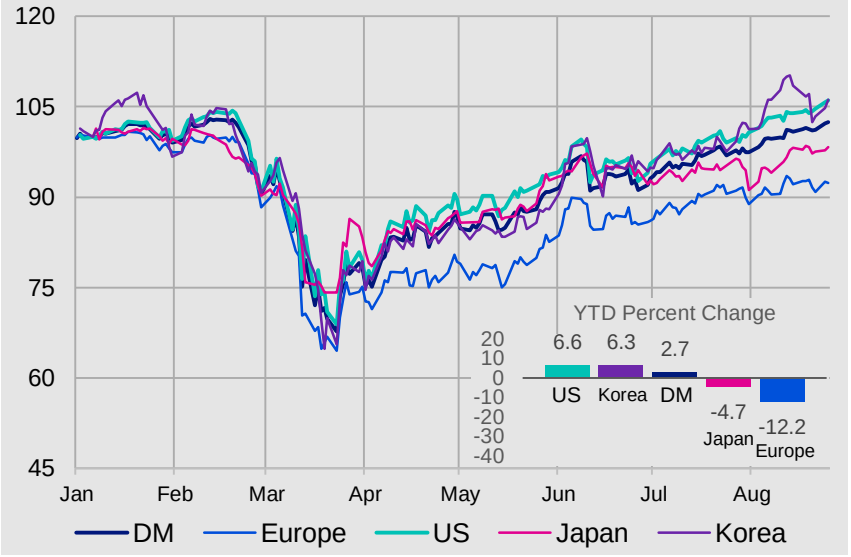
February 28
Powell: "We will use our tools and act as appropriate to support the economy."

Sources: Federal Reserve Board, Invesco, 17 July 2020.

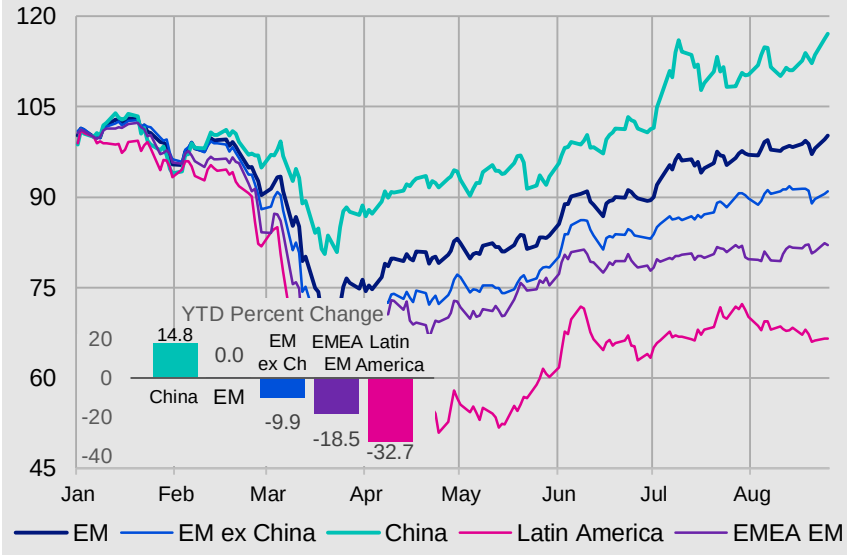
Reviewing Equity Performance

Developed world lags, Latin America heavily hit; China perseveres

Developed Markets: Europe lags developed markets

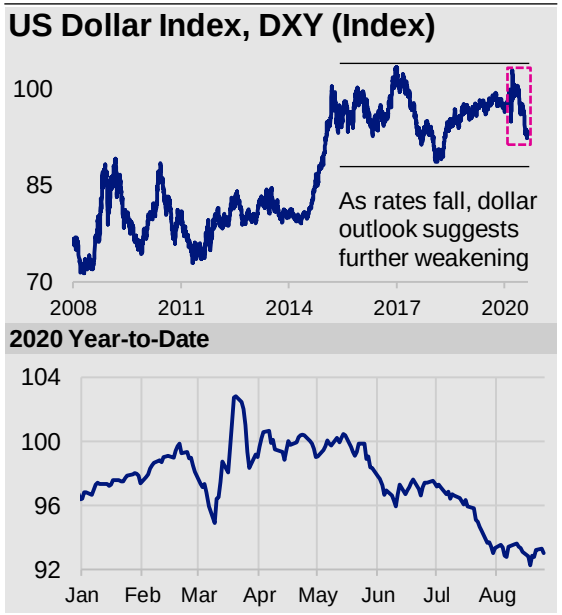


Emerging Markets: LatAm depressed, China leads



Source: Bloomberg, as of 25 August 2020. DM = Developed Markets, EM = Emerging Markets. The legend items above are calculated using the following indices: DM = MSCI World Index; Europe = MSCI Europe Index; US = S&P 500 Index; Japan = MSCI Japan Index; Korea = MSCI Korea Index; EM = MSCI Emerging Markets Index; EM ex China = MSCI Emerging Markets ex China Index; China = MSCI China Index; Latin America = MSCI Latin America Index; EMEA EM = MSCI Emerging Markets Europe Index. All prices are quoted in terms of USD, benchmarked at 100 on 6 January 2020. Past performance does not guarantee future results. An investment cannot be made directly into an index.

Assets React to Crisis – and the Response to the Crisis

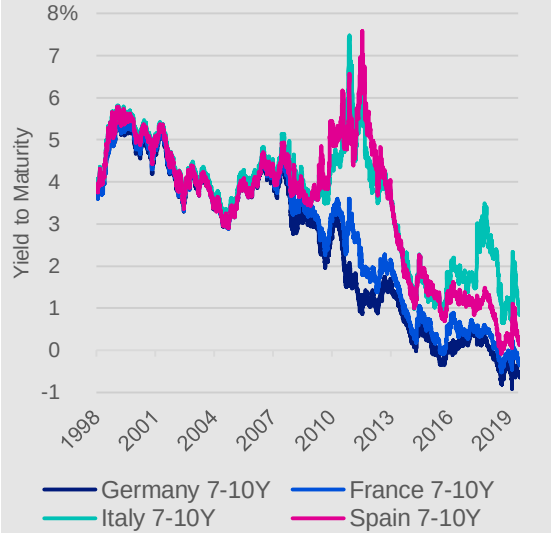


Source: Bloomberg, as of 25 August 2020. Past performance does not guarantee future results.

Weak Links in the Eurozone

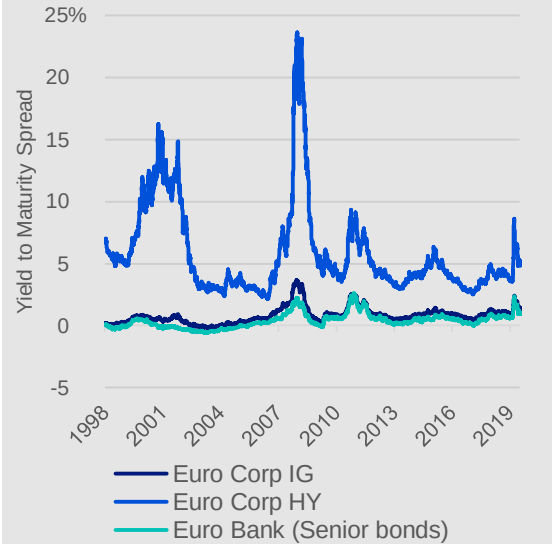
Demonstrating the Urgency of EZ Fiscal, Banking and Capital Markets Unions

Key Euro Government 7-10Y Yields to Maturity (%)



Euro Stoxx; Euro Stoxx Bank Equity Risk Premium

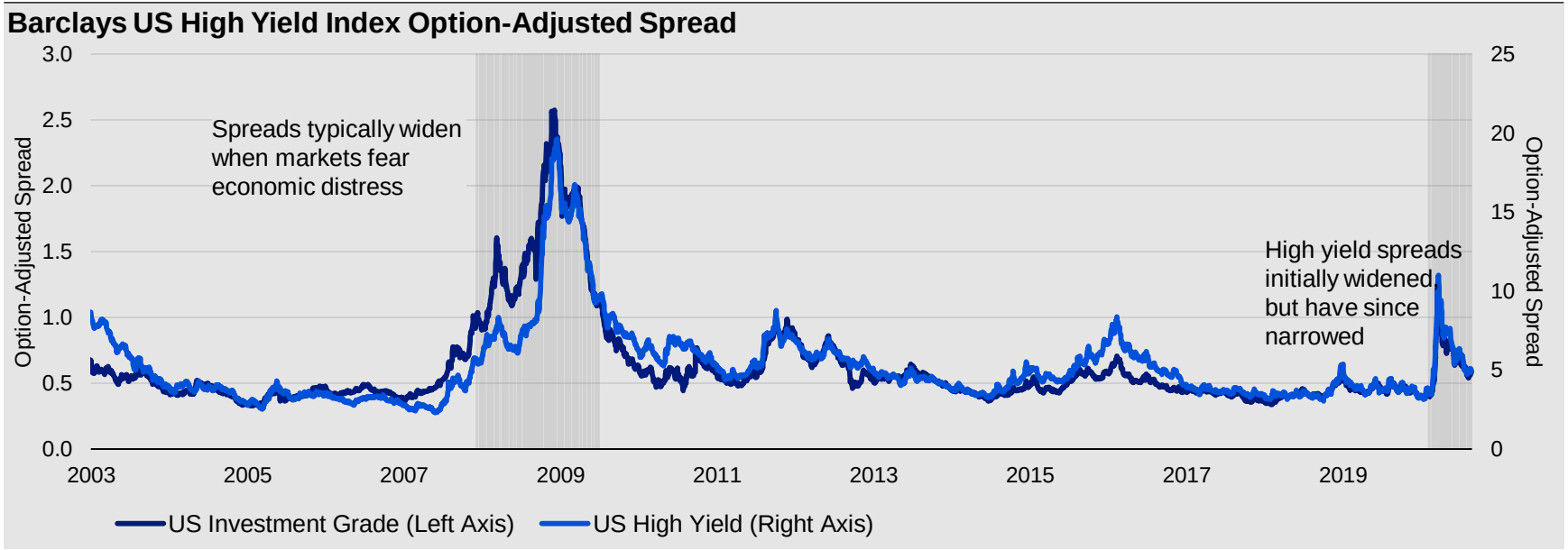
Spreads YTM vs Germany Govt 7-10Y (%)



Note: Equity Risk Premium – Earnings Yield less 10-year Bond Yield (EZ Government Bond Aggregate). The Earnings Yield is the reciprocal of the Price/Earnings Ratio. "Euro Corp IG" = Intercontinental Exchange (ICE) Bank of America (BofA) Euro Large Cap Corporate Index, "Euro Corp HY" = ICE BofA Euro High Yield Index, and "Euro Bank (Senior bonds)" = ICE BofA Euro Senior Banking Index. Sources: Bloomberg, Macrobond, Invesco calculations, 31 July 2020. Past performance does not guarantee future results. An investment cannot be made directly into an index.

US High Yield Credit Spreads Are a Key Indicator of Credit Stress

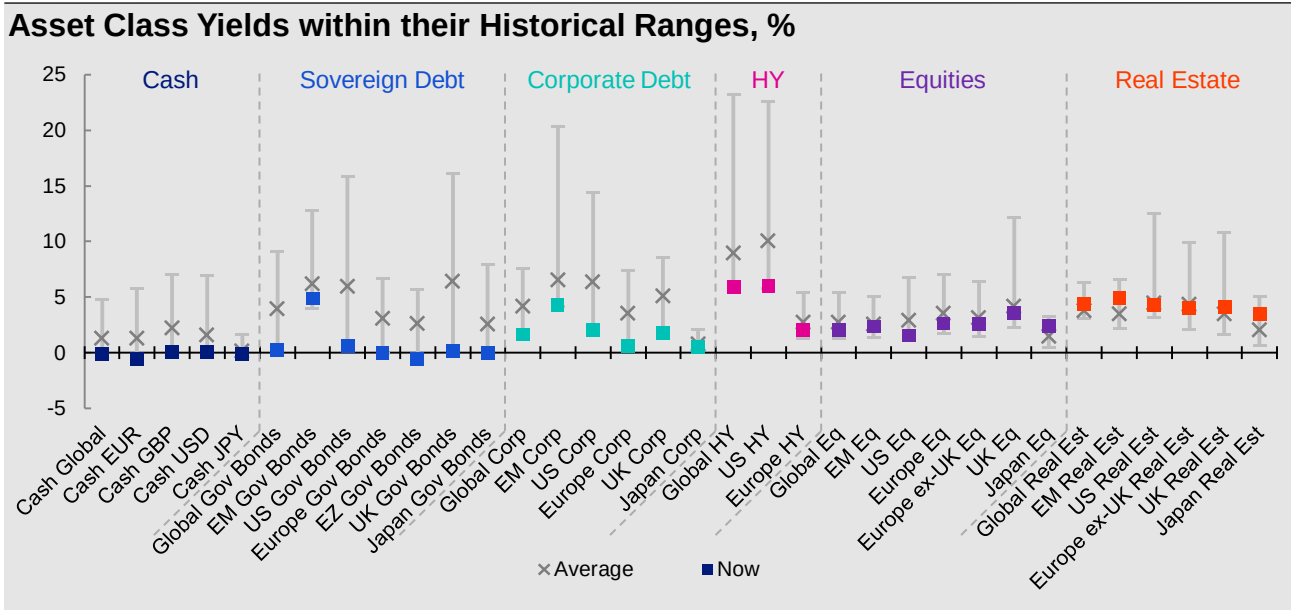
Credit Spreads Widened with COVID-19 Outbreak



Source: Bloomberg, as of 25 August 2020. Past performance does not guarantee future results. An investment cannot be made directly into an index. Shaded areas indicate US recessions.

Global Perceived Safe-Asset Yields Below Long-Run Averages

Western and EM risk-/growth-geared assets above average



- Asset class differences point to high premium on perceived safety, liquidity – in a reversal of recent reach for yield across assets
- However, geographic differences suggest COVID-19 success can pay-off:
  - Most Japan growth-geared and risk asset yields are below long term averages
  - Japan real estate yields, however, are above their long-run average

Notes: As of 21 August 2020. Past performance is no guarantee of future results. See appendices for definitions, methodology and disclaimers.
Sources: Bloomberg Barclays, BofAML, FTSE, JP Morgan, Refinitiv Datastream, Invesco. An investment cannot be made directly into an index.

Broad Themes

Growing Debt

Yield Scarcity

De-globalization – supply chain disruption

Industry Themes

Be at Home

E-commerce

Drones and robots

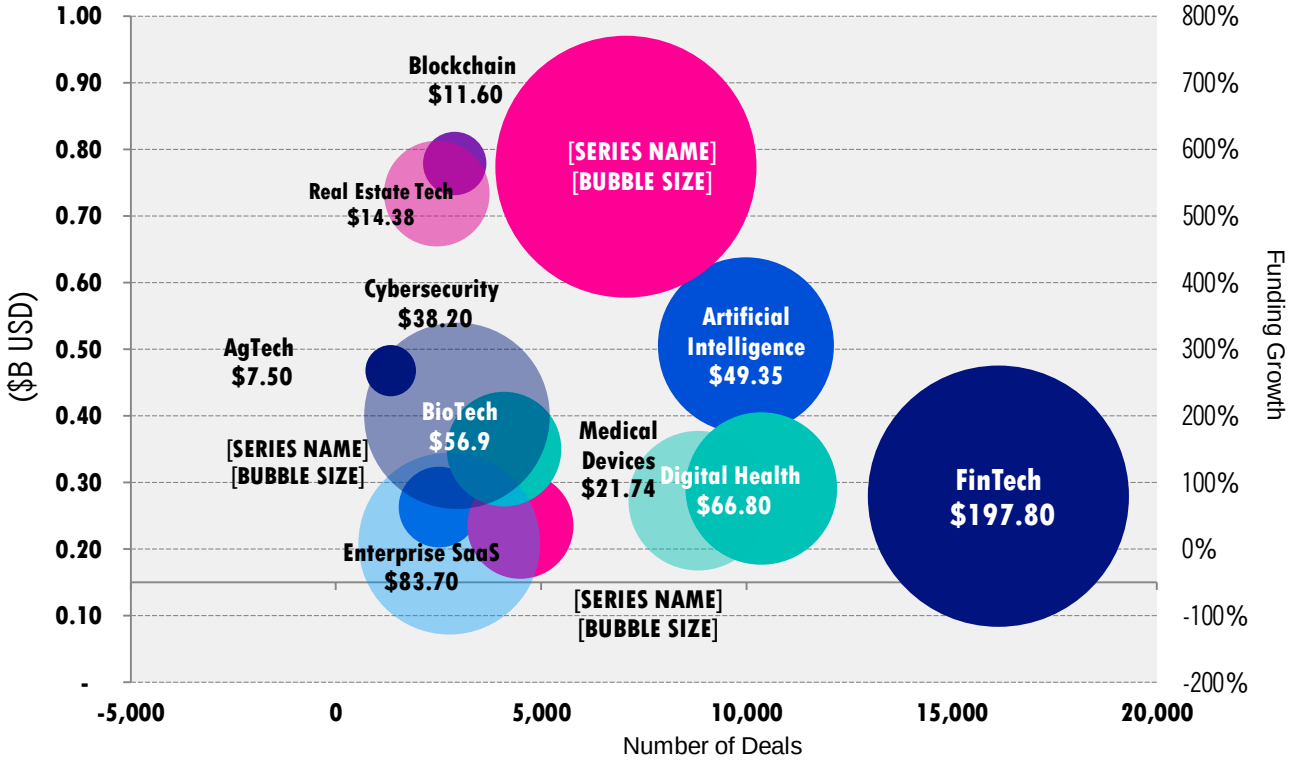
Fintech

Infrastructure

Real estate

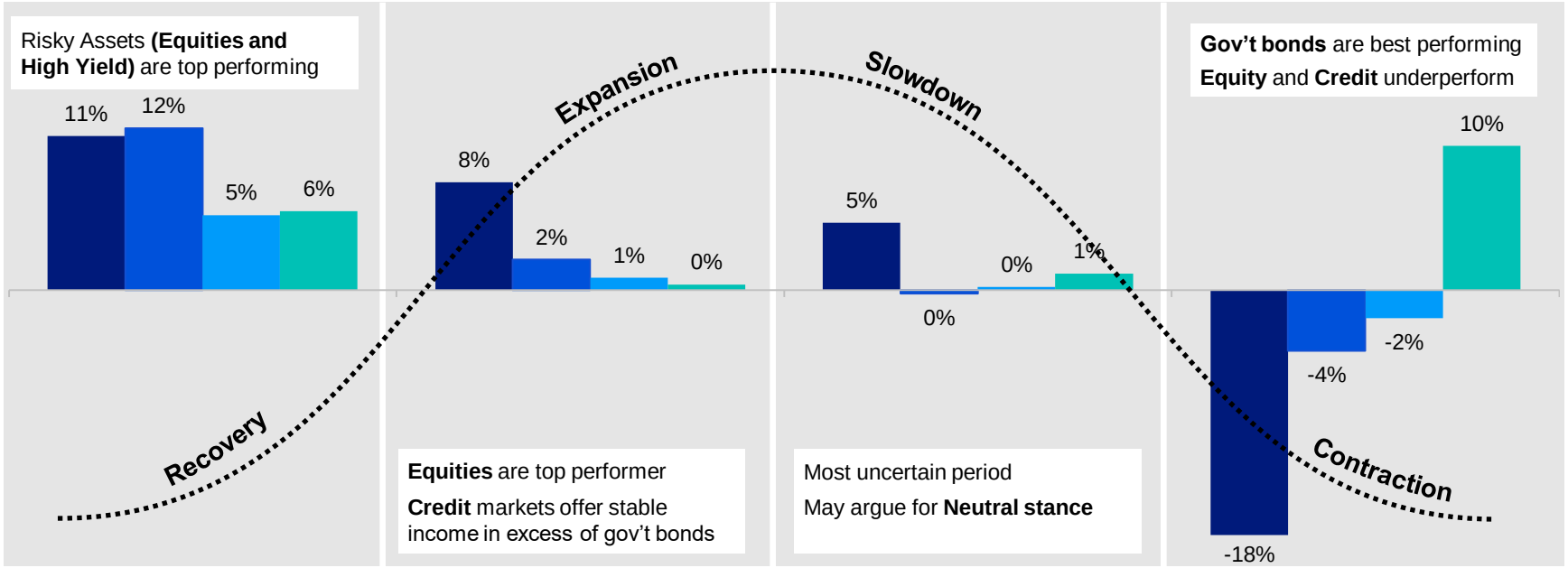
The Innovation Economy

- Technology innovation is driving most of the modern economy (7 of the top 10 most valuable companies in the world are technology companies)[1]
- Innovation is impacting our lives as well as every sector, within the global economy
- Industries previously seen as impossible to disrupt due to capital intensity or regulation, are now seeing increased disruption



Source: CB Insights, Venture Funding by Industry, Global Venture Funding for time period 01/01/15-12/31/19.
$ = billions unless otherwise mentioned
Funding momentum representative of compound annual growth rate in total global venture funding between FY 2014 and FY 2018.
Note: All IPC expressions of opinion are subject to change without notice and are not intended to be a forecast of future events or results.
1. Publicly traded companies measured by market cap. As of 1/1/14-12/31/19.

Translating Macro Regimes into Actions
Case study: Back-tested US historical returns



Source: Invesco's proprietary research of the US Business Cycle Leading Indicator and Bloomberg L.P. Index return information includes back-tested data. Returns, whether actual or back-tested, are no guarantee of future performance. Annualized monthly returns of the defined risk premia from January 1970 – June 2019. Risk Premia are defined as follows: US Equity Premium = MSCI US Total Return Index – US Treasuries 10YR. High Yield Premium = US High Yield – US Investment Grade Credit. Credit Premium = US Investment Grade – US Treasuries. Duration Premium = US Treasuries 10YR – US T-bills 3-Month. For illustrative purposes only. **See the appendix for asset class premium definitions and additional information on back-filled index data.**

Other Factors Impacting Markets

US Presidential Election

US-China Relations

Specter of Inflation

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** Affiliated member. EMEA indicates the Europe, Middle East, and Africa regions. AP indicates the Asia-Pacific region.*

Appendix

Definitions – US High Frequency Data Dashboard

Weekly Economic Index (WEI) – The Weekly Economic Index is published by the Federal Reserve Bank of New York on a weekly basis, measuring real-time economic data from These include a measure of same-store retail sales, an index of consumer sentiment, initial unemployment insurance claims, an index of temporary and contract employment, a measure of steel production, a measure of fuel sales, and a measure of electricity consumption.

New Business Applications – These data are published by the US Census Bureau on a weekly basis. The Business Formation Statistics data cover Employer Identification Number (EIN) applications made in the United States, including those associated with starting a new employer business. 2019 data is shown for reference.

Google Mobility – The Google mobility index displayed here is the simple average of the 7-Day moving average of the following Google mobility indices: retail & recreation, workplace, transit stations, and grocery & pharmacy. These indices show how visits and length of stay at different places vary compared to a 100 basis, measured as the median value for the corresponding day of the week, during the 5-week period Jan 3–Feb 6, 2020. Mobility data is published with a one-week lag on a daily basis. This data can be accessed here: https://www.google.com/covid19/mobility/

Gasoline Supplied per Day – Gasoline supplied per day is measured in terms of millions of barrels of petroleum products classified as motor vehicle gasoline supplied per day. This data is published by the US Energy Information Administration, an office of the Department of Energy, and is available on a weekly basis. 2019 data is shown for reference.

Consumer Spending – The consumer spending data shown here are sourced from 1010Data. The index shows the year-over-year change on a seven-day moving average window, capturing transaction data across all sectors. This data can be accessed here: https://1010data.exabel.com/covid-19/

OpenTable Diners – The OpenTable diners index shown here captures US seated diners on the OpenTable network across reservations and walk-in diners. These data are available on a daily basis. These data can be accessed here: https://www.opentable.com/state-of-industry

SF Fed News Sentiment – The Daily News Sentiment Index is a high frequency measure of economic sentiment based on lexical analysis of economics-related news articles. The index is described in Buckman, Shapiro, Sudhof, and Wilson (2020, hereafter SSW) and based on the methodology developed in Shapiro, Sudhof, and Wilson (2020). The study by SSW constructs sentiment scores for economics-related news articles from 16 major U.S. newspapers compiled by the news aggregator service LexisNexis. These data are updated at a weekly frequency.

Economic Surprise Index – The Citi Economic Surprise Index (CESI) measures data surprises relative to market expectations for the US economy. A positive reading means that data releases have been stronger than expected and a negative reading means that data releases have been worse than expected. For more information please contact your

Appendix 1:
Asset allocation methodology, definitions and sources

Asset class descriptions and sources (we source data from Datastream unless otherwise stated)

Cash: returns are based on a proprietary index calculated using the Intercontinental Exchange Benchmark Administration overnight LIBOR (London Interbank Offer Rate). The global rate is the average of the euro, British pound, US dollar and Japanese yen rates. The series started on 1st January 2001 with a value of 100. The same data is used to construct historical comparisons (yields within historical ranges, say).

Gold: London bullion market spot price in USD/troy ounce.

Government bonds: Current values chart (slide 32) uses Datastream benchmark 10-year yields for the US, Eurozone, Japan and the UK and the Thomson Reuters China benchmark 10-year yield for China. Historical and projected yields and returns (slides 32 and 36) are based on Bank of America Merrill Lynch government bond indices with historical ranges starting on 31st December 1985 for the Global, Europe ex-UK, UK and Japanese indices and 30th January 1978 for the US. The emerging markets yields and returns are based on the Bloomberg Barclays emerging markets sovereign US dollar bond index with the historical range starting on 28th February 2003. The same indices are used to construct historical comparisons (yields within historical ranges, say).

Corporate investment grade (IG) bonds: Bank of America Merrill Lynch investment grade corporate bond indices with historical ranges starting on 31st December 1996 for the Global, 31st January 1973 for the US dollar, 1st January 1996 for the euro, 31st December 1996 for the British pound, and 6th September 2001 for the Japanese yen indices. The emerging markets yields and returns are based on the Barclays Bloomberg emerging markets corporate US dollar bond index with the historical range starting on 28th February 2003.

Corporate high-yield (HY) bonds: Bank of America Merrill Lynch High-Yield indices with historical ranges starting on 29th August 1986 for the US dollar, and 31st December 1997 for the Global and euro indices. The same indices are used to construct historical comparisons (yields within historical ranges, say).

Equities: We use MSCI benchmark indices to calculate projected returns and calculate long-term total returns with historical ranges starting on 31st December 1969 for the Global, US, Europe ex-UK, UK and Japanese indices, and 31st December 1987 for the emerging markets index. Equity index valuations (such as yields within historical ranges) are based on dividend yields using Datastream benchmark indices with historical ranges starting on 1st January 1973 for the Global, US, Europe ex-UK and Japanese indices, on 31st December 1969 for the UK index and 2nd January 1995 for the Emerging Markets index. The same indices are used to construct historical comparisons (yields within historical ranges, say).

Real estate: We use FTSE EPRA/NAREIT indices with historical ranges starting on 29th December 1989 for the US, Europe ex-UK, UK and Japanese indices, 18th February 2005 for the Global index, and 31st October 2008 for the Emerging Markets index. The same indices are used to construct historical comparisons (yields within historical ranges, say).

Commodities: Standard and Poor's Goldman Sachs Commodity Total Return Indices with historical ranges starting on 31st December 1969 for the All Commodities and Agriculture indices, 31st December 1982 for the Energy index, 3rd January 1977 for the Industrial Metals index, and 2nd January 1973 for the Precious Metals index. We refer to oil & gas and industrial metals as industrial commodities.

Appendix 2:
Coronavirus scenarios

We consider five scenarios along with our subjective probabilities:

- **Worst case (5%).** Multiple waves of infection requiring repeated strong lockdowns. Central banks ease with large quantitative easing; yield curve flattening limited by concerns about government debt; credit, equity and REIT markets return to global financial crisis conditions.

- **Bad case (25%).** A second wave in late 2020 requiring partial re-imposition of lockdowns. Central banks ease; yield curves flatten; credit spreads widen to recent peaks (Default rise); equity and Real Estate Investment Trust (REIT) yields rise to recent peaks and dividends fall sharply.

- **Intermediate case (40%).** Gradual easing of lockdowns and gradual return to normal behaviour. Central banks ease a little; yield curves steepen; credit spreads/equity yields are stable (REIT yields fall), high yield defaults and dividends declines as per normal recession conditions.

- **Good case (20%).** Rapid ease of lockdowns but delayed return to normal behaviour. Central banks unchanged; yield curves, credit spreads and equity yields normalise (REIT yields move toward normal); high yield defaults and dividend declines are limited.

- **Best case (10%).** Rapid easing of lockdowns and speedy return to normal behaviour. Central banks tighten (quantitative easing tapered); yield curves steeper than normal; credit spreads fall to recent year lows (defaults normalise); equity and REIT dividends rise; yields fall (equities to extreme lows, REITs to normal levels).

Index Definitions

The S&P 500® Index is a capitalization-weighted index of 500 stocks intended to be a representative sample of leading companies in leading industries within the US economy. Index includes reinvestment of dividends but does not include fees, expenses, or taxes.

The Bloomberg Barclays U.S. Aggregate Bond Index is designed to measure the performance of investment grade bonds in the United States. The Bloomberg Barclays High Yield Index is designed to measure the performance of high yield (below investment grade) bonds in the United States. Option Adjusted Spread (OAS) is a measure of the spread (or difference in yield) between a bond index in this case and Treasuries of comparable maturities. Indexes are unmanaged and cannot be purchased directly by investors.

The 10-Year U.S. Treasury Yield is generally considered to be a barometer for long-term interest rates.

The US Dollar Index indicates the general value of the USD by averaging the exchange rates between the USD and the major world currencies.

The copper-gold ratio is viewed as a market-based barometer of expected economic activity. It is a ratio of the price of copper, which is often viewed as a measure of global expansionary momentum due to its use as a global industrial metal, and gold, which is typically used as a store of value when investors are risk-off in financial markets.

The price of copper and the price of gold are reflected according to the first-expiring future contract listed through the COMEX Commodity Exchange. Gold is measured at the price per troy ounce and copper is measured at the price per pound of high-grade copper on the COMEX Commodity Exchange.

Initial jobless claims track the number of people who have filed unemployment claims for the first time during the specified period with the appropriate government labor office.

Indices are unmanaged and cannot be purchased directly by investors. Index performance is shown for illustrative purposes only and does not predict or depict the performance of any investment. **Past performance does not guarantee future results.**

Important Information

The opinions referenced above are those of Kristina Hooper and Ashley Oerth as of September 8, 2020. These comments should not be construed as recommendations, but as an illustration of broader themes. Forward-looking statements are not guarantees of future results. They involve risks, uncertainties and assumptions; there can be no assurance that actual results will not differ materially from expectations.

This does not constitute a recommendation of any investment strategy or product for a particular investor. Investors should consult a financial professional/financial consultant before making any investment decisions. Invesco does not provide tax advice. The tax information contained herein is general and is not exhaustive by nature. Federal and state tax laws are complex and constantly changing. Investors should always consult their own legal or tax professional for information concerning their individual situation. The opinions expressed are those of the presenters, are based on current market conditions and are subject to change without notice. These opinions may differ from those of other Invesco investment professionals.

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September 9, 2020