



Covid-19 follow-up

Clinical newsflow and Economic
recovery tracking

Research team

09.09.2020



Treatment approach

Treatment approach / research	
Dexamethasone (low-cost steroid treatment) * First drug shown to reduce mortality *	June 16: The UK RECOVERY trial (11'500 patients - Randomised Evaluation of Covid-19 multiple therapies) demonstrated that dexamethasone reduces death by up to one third in hospitalised patients with severe respiratory complications of Covid-19
Remdesivir - antiviral (Gilead) * The drug shortens time to recovery by 4 days *	<ul style="list-style-type: none"> - June 29: Remdesivir will be priced at \$390 per vial (\$2'340 for a 5-day treatment) for governments in developed countries - June 13: Dr Reddy's has into a non-exclusive Licensing Agreement with Gilead that will grant Dr Reddy's the right to register, manufacture and sell remdesivir in 127 countries (in developing countries) - Gilead has donated the 1st wave of production (more than 280'000 treatment assuming a 5-day treatment duration) - Gilead has set a goal of producing at least 500'000 treatment by October and 1mio by December (assuming a 10-day treatment duration) - NIAID trial: patients who received remdesivir had 31% faster time to recovery vs placebo - The median time to recovery was 11 days (vs 15 days for placebo) - Mortality rate was 8% (vs 11.6% for placebo) - Evidence of lower respiratory tract infection - - Findings highlight the need to identify cases and start treatment before the pulmonary disease progresses to require mechanical ventilation - Gilead's SIMPLE trial (5-day vs 10-day dosing durations) demonstrated that a 5-day dosing duration is the optimal treatment - Antivirals should work best in recently infected patients (with viral load) and not in very late-stage of the disease caused by cytokine release syndrome (hyperinflammation)
Convalescent Plasma	<ul style="list-style-type: none"> - August 23: FDA issued Emergency Use Authorization (EUA) in hospitalized patients based on early data from Mayo Clinic showing 37% reduction in mortality at 7 days in patients treated with high titer convalescent plasma vs patients treated with low titer convalescent plasma - Convalescent plasma should not be considered as a new standard of care - Given that the clinical evidence supporting this authorization was not obtained from a large prospective, well-controlled randomized clinical trials (no placebo arm), additional data are needed to evaluate efficacy and safety profile - Plasma transfusion from recovered patients for critically ill patients - Clinical studies ongoing worldwide - This therapy was successfully used in the treatment of SARS, MERS and 2009 H1N1
Monoclonal antibody combination Eli Lilly Regeneron/Roche AstraZeneca	For prevention and treatment of Covid-19 <ul style="list-style-type: none"> - LY-CoV555 - Phase III clinical trial (2'400 participants) initiated for prevention of Covid-19 - REGN-COV2 - Phase II/III (2'900 participants) trials for treatment of Covid-19 + phase III (2'000 participants) trial for prevention of Covid-19 - AZD7442 - Phase I clinical trial initiated - up to 48 participants in the UK aged 18-55 years for the prevention and treatment of Covid-19
Hydroxychloroquine (anti-malaria) + Azithromycin (antibiotique)	<ul style="list-style-type: none"> - June 15: FDA revoked the Emergency Use Authorization for emergency use of chloroquine and hydroxychloroquine to treat Covid-19 - Based on recent clinical trial data, FDA concluded that this treatment may not be effective and that it's potential benefits for such use do not outweigh its known and potential risks - June 5: The investigators of the UK RECOVERY trial (11'500 patients) decided to stop enrolling participants to the hydroxychloroquine arm due to no beneficial effect
Actemra - rheumatoid arthritis - immunosuppressant (Roche)	- Failure of the phase III study - Actemra didn't show any statistically significant improvement in hospitalized patients with severe Covid-19 associated pneumonia
Lopinavir+ritonavir - HIV treatment (AbbVie)	Only little benefit
Favipiravir (generic)- Flu treatment (Fujifilm)	Study on 80 patients in China - showing a week earlier recovery vs HIV treatment
	Past pre-clinical studies showed side-effect suggesting risk for pregnant women

Vaccine developments 1/2

Vaccines: we have to wait at least 12 months before having a vaccine available for a public use --> potential approval for a public use H1 2021/mid-2021

Company	Phase/Timing
Moderna * mRNA based vaccine *	<ul style="list-style-type: none"> - Neutralizing antibody titers and T cell responses in the 56-70 and 71+ age cohorts were consistent with those reported in younger adults (3.1x the average seen in convalescent plasma) at one, two and four weeks after 2nd injection (Phase I) - On track to supply 500mio to 1bn doses per year - Phase III trial initiated at the end of July (30'000 participants) - Plan to complete in September - Positive phase I details (45 participants aged 18-55 years/two vaccine injections) - neutralizing antibodies at a level up to 3.1x the average seen in convalescent plasma at day 43 declining to 2.1x at day 57 - Immune response = vaccination elicited CD4+ T-cell responses in all participants - - Phase II study (600 participants) is evaluating two doses with the target to select one dose for Phase III (plan to start in July) - - The Vaccine was generally safe and well tolerated - all adverse events observed were transient and self-resolving - If the virus mutates, they can modify and produce the new vaccine in 40 days without redoing clinical studies - The vaccine could be available in fall for healthcare workers - CEO expects an approval for summer 2021 for a public use - mRNA based vaccine --> shorter development than traditional vaccine but unproven technology at this stage
University of Oxford/AstraZeneca * Non-Replicating Viral Vector (Adenovirus vaccine vector) *	<ul style="list-style-type: none"> - The trial has been temporary halted due to an unexplained rare illness in a participant - Vaccines moves into late-stage clinical trials in the US with 30'000 participants - Positive preliminary phase I details (543 participants aged 18-55 years) - efficacy data only available for 35 patients who had received a single injection and 10 more patients who had received two injections - neutralizing antibodies was seen in 91% participants with single injection and in 100% participants with two injections at a similar level to the average seen in convalescent plasma - level remaining stable between day 35 and 42 - Immune response = vaccination elicited T-cell responses in all participants peaking at day 14 and maintained two months after injection - Phase III in Brazil and Phase II/III ongoing in UK (10'000 participants - of which a children group) - Other late-stage trials are due to begin in other countries with plan to initiate a paediatric trial - AstraZeneca's CEO said the vaccine is expected to provide protection for 1 year - The vaccine will be distribute at cost during the pandemic phase - over 2bn doses expected between end-2020 and end-2021
BioNTech/Pfizer/Shanghai Fosun * mRNA based vaccine * Two variants of BNT162 vaccine (b1, b2)	<ul style="list-style-type: none"> - BNT162b2 had responses in older adults (65-85 years of age - Phase I) generated neutralizing antibodies at 1.6x the average seen in convalescent plasma at 1 week after 2nd injection, lower than the level generated in younger adults (3.8x the average seen in convalescent plasma) - BNT162b2 on track for regulatory review as early as October - talks with FDA on how to begin testing vaccine in children - Phase II/III safety and efficacy initiated (30'000 participants - two injections) with BNT162b2 (showing higher efficacy than BNT162b1) - BNT162b1 - Positive German phase I (48 participants aged 18-55 years with two injections) - vaccination elicited strong CD4+ (in all participants) and CD8+ (in c. 80% of participants) T-cell responses - BNT162b1 - Positive US phase I/II preliminary data (24 participants aged 18-85 years with two injections) - At day 28 all subjects had neutralizing antibodies at a level up to 2.8x the average seen in convalescent plasma - No serious events reported - Supply target of 100mio doses by the end of 2020 and more than 1.3bn doses by the end of 2021

Vaccine developments 2/2

CanSino Biologics	Phase III trial is initiating (40'000 participants) - Global multicenter trial
* Non-Replicating Viral Vector (Adenovirus vaccine vector) *	Phase II data (508 participants aged 18 years and older) - neutralizing antibodies at day 28 and T-cell immune responses in c. 90% of participants - The vaccine has been approved for limited military use in China
JNJ	- The company launches Phases I clinical trials - Phase III is expected to start in September
* Non-Replicating Viral Vector (Adenovirus vaccine vector) *	- In April, CEO mentioned he expects the vaccine to be available for emergency use authorization in early 2021 - Proven technology - Supply target of more than 1 bn doses capacity - JNJ is committed to bringing an affordable vaccine to public on a not-profit-basis for emergency pandemic use
Inovio	- Phase I/II --> Phase I (40 participants - 2 doses) - Analyses to date have shown that 94% demonstrated overall immune response rates based on preliminary data assessing humoral (binding and neutralizing) and T cell immune responses - Safe and well-tolerated with no serious adverse events
* DNA based vaccine *	- Phase I will expand to enroll an additional 120 participants aged 19-64 years in the phase II portion - Phase II/III efficacy trial is expected to begin in September - Target to provide at least 1mio doses in 2020 and 100mio doses in 2021 DNA vaccine --> shorter development than traditional vaccine - unproven technology at this stage
Sinovac - * Inactivated Covid-19 vaccine *	Phase I/II ongoing - 2 doses - Phase III initiated in July in Brazil and in August in Indonesia
Novavax - * Protein Subunit vaccine *	- Phase II trial initiated - 1'500 participants with c. 50% between 60 and 84 years of age - interim data expected in Q4 2020 - Detailed Phase I data were published - Neutralizing antibodies were 4x greater than the level seen in plasma of symptomatic outpatients but half of the level seen in plasma of hospitalized patients - Interesting data showing significant differences among convalescent plasma sample, depending on the severity of symptoms - Phase I data (131 participants ages 18-59 years) - two doses - All participants developed neutralizing antibodies at a level of up to the average seen in convalescent plasma - First sign of immune response with CD4+ T-cell responses in a subset of participants - No serious adverse event
Sinopharm	- Phase III trial initiated in China
* Inactivated Covid-19 vaccine *	- Clinical development in China - Phase I/II ongoing - 1'120 participants have received 2 injections - At the middle dose, all participants developed neutralizing antibodies that can defend a cell from infection
CureVac (private company) - * mRNA based vaccine *	Phase I clinical trial ongoing - 2 doses - Plan to start phase II shortly
GSK/Clover/Dynavax - * Protein Subunit vaccine *	Phase I clinical trial ongoing - 2 doses
Genexine - * DNA based vaccine *	Phase I/II clinical trial ongoing - 2 doses
Medicago Inc - * Virus-Like Particle vaccine *	Phase I clinical trial ongoing - 2 doses
Sanofi/GSK	Start of Phase I/II (440 participants in the US) - First results expected in early December and Phase III trial expected to begin also in December
* Protein Subunit vaccine *	Potential approval by H1 2021 Capacity to manufacture up to 1bn doses a year - The vaccine is likely to be priced at less than Eur 10
Sanofi/Translate Bio - * mRNA based vaccine *	Clinical trial expected to start end-2020 with a potential approval by H2 2021

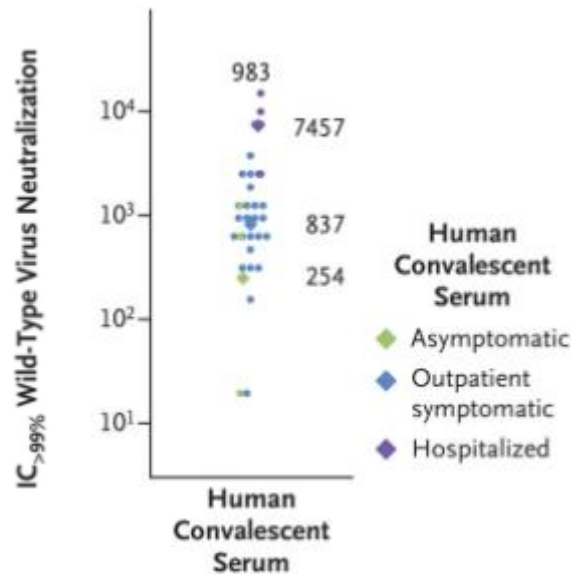
- **For the landscape of Covid-19 candidate vaccines, please find below the NEW link to the draft of the World Health Organization:**
- <https://www.who.int/publications/m/item/draft-landscape-of-covid-19-candidate-vaccines>

Comments on vaccine data 1/2

- Leading vaccines developed by AstraZeneca, Moderna and BioNTech/Pfizer triggered neutralizing antibodies and T-cell responses of some degree.
 - BioNTech/Pfizer vaccine in younger adults appeared to show stronger than peers neutralizing antibodies level and immune responses with both CD4+ (T helper cell) / CD8+ (killer cells)
 - But comparing data is not relevant due to very different approach and measures, lack of details for some
- **First data in older adults (over 55 years of age), published by Moderna and BioNTech/Pfizer, confirmed efficacy in this important part of the population.**
 - Moderna showed a stronger profile (consistent efficacy vs younger adults) than BioNTech/Pfizer (declining efficacy vs younger adults).
 - But BioNTech/Pfizer data were published just 1 week after 2nd injection, we need to see data at least 2 weeks after 2nd injection to conclude.
- **Clinical results of these three candidate vaccines are encouraging.** But we need Phase III to determine 1/ the relevance of the neutralizing antibody levels and 2/ the magnitude, effectiveness and durability of the immune response.
 - Interim data expected around September/October if clinical recruitment goes perfectly
- In an interview with the FT (August 30), **FDA's commissioner Stephen Hahn said his agency was prepared to authorise a vaccine before Phase III clinical trials were complete**, as long as officials believed the benefits outweighed the risks – **potentially by issuing an emergency authorisation for use by certain groups rather than a blanket approval.**

Comments on vaccine data 2/2

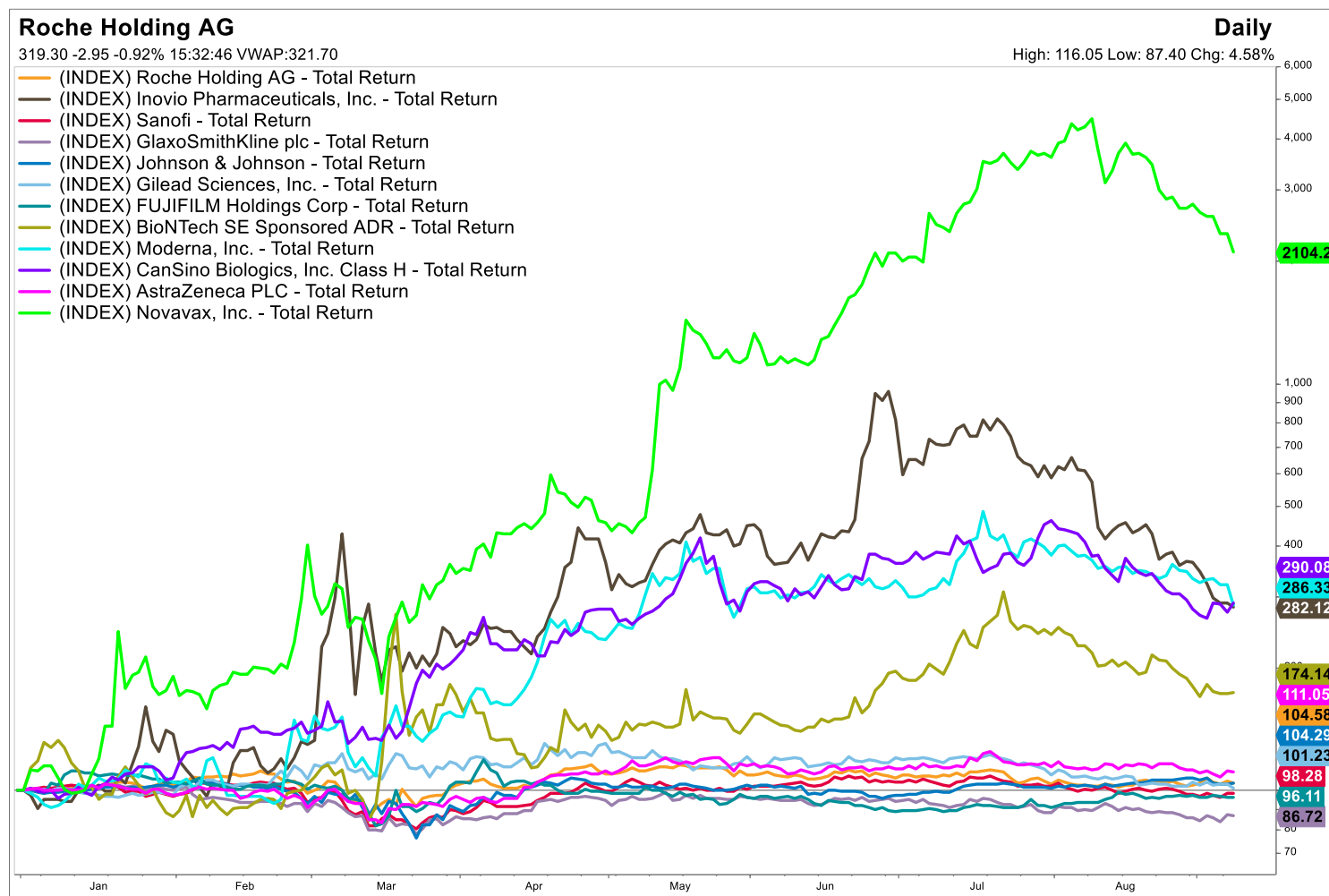
- Detailed phase I data from Novavax on neutralizing antibody levels were interesting, showing **the significant differences among convalescent plasma** (depending on the severity of symptoms – cf graph from data publication in NEJM)
- These data confirm AstraZeneca's comments during half year results conference call → The company mentioned that **convalescent plasma samples differ from a trial to another** and cautioned about comparing assays
 - 86% of convalescent patients sample used in AstraZeneca's trial were from severely hospitalized patients, far higher than the level seen in others trials



Source: graph from Novavax Phase I - NEJM September 2, 2020

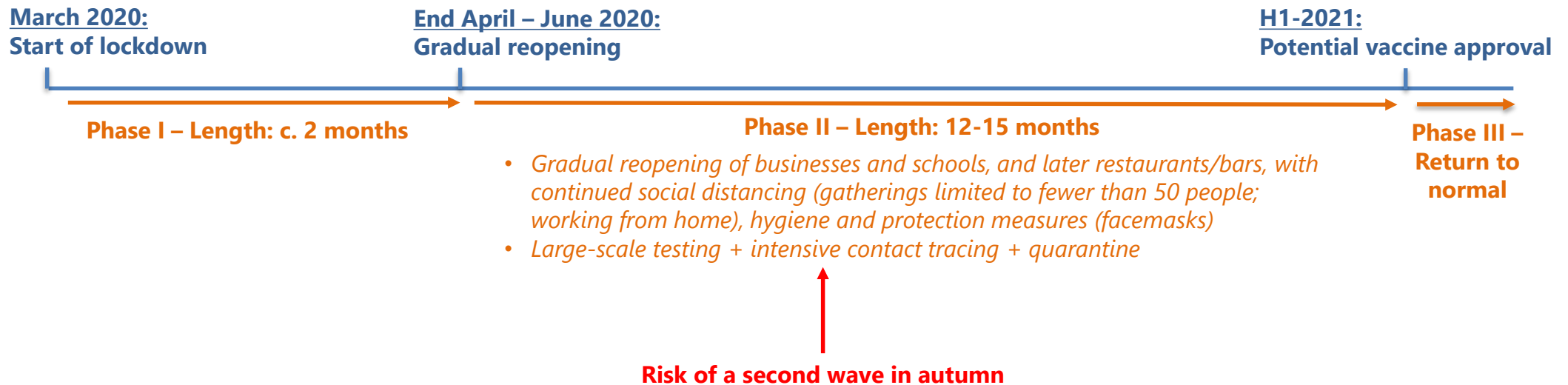
Share price performance of main players

Year to date – local currencies



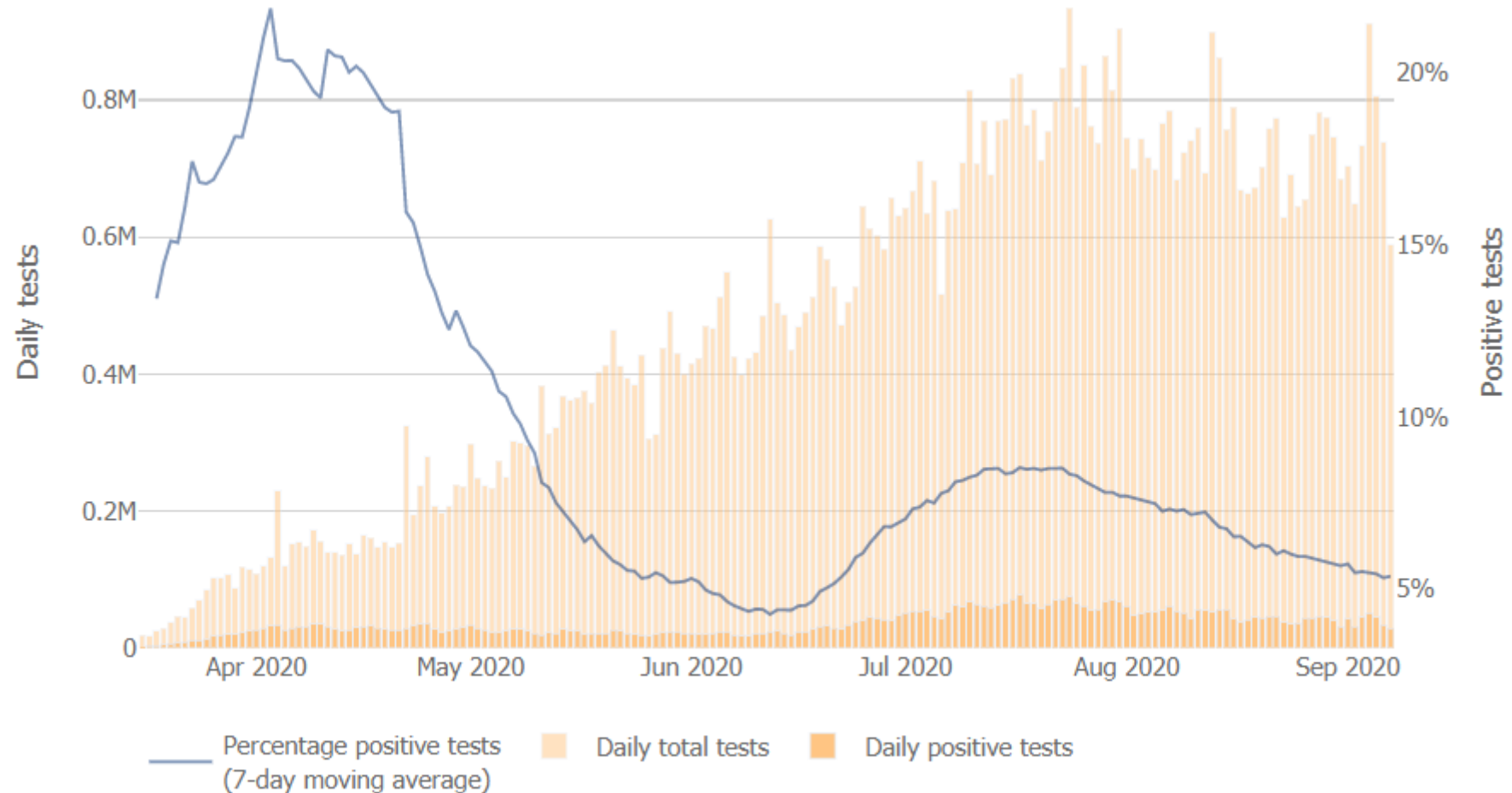
No return to normal before H1-2021

Reopening – gradual process, with some measures remaining in place



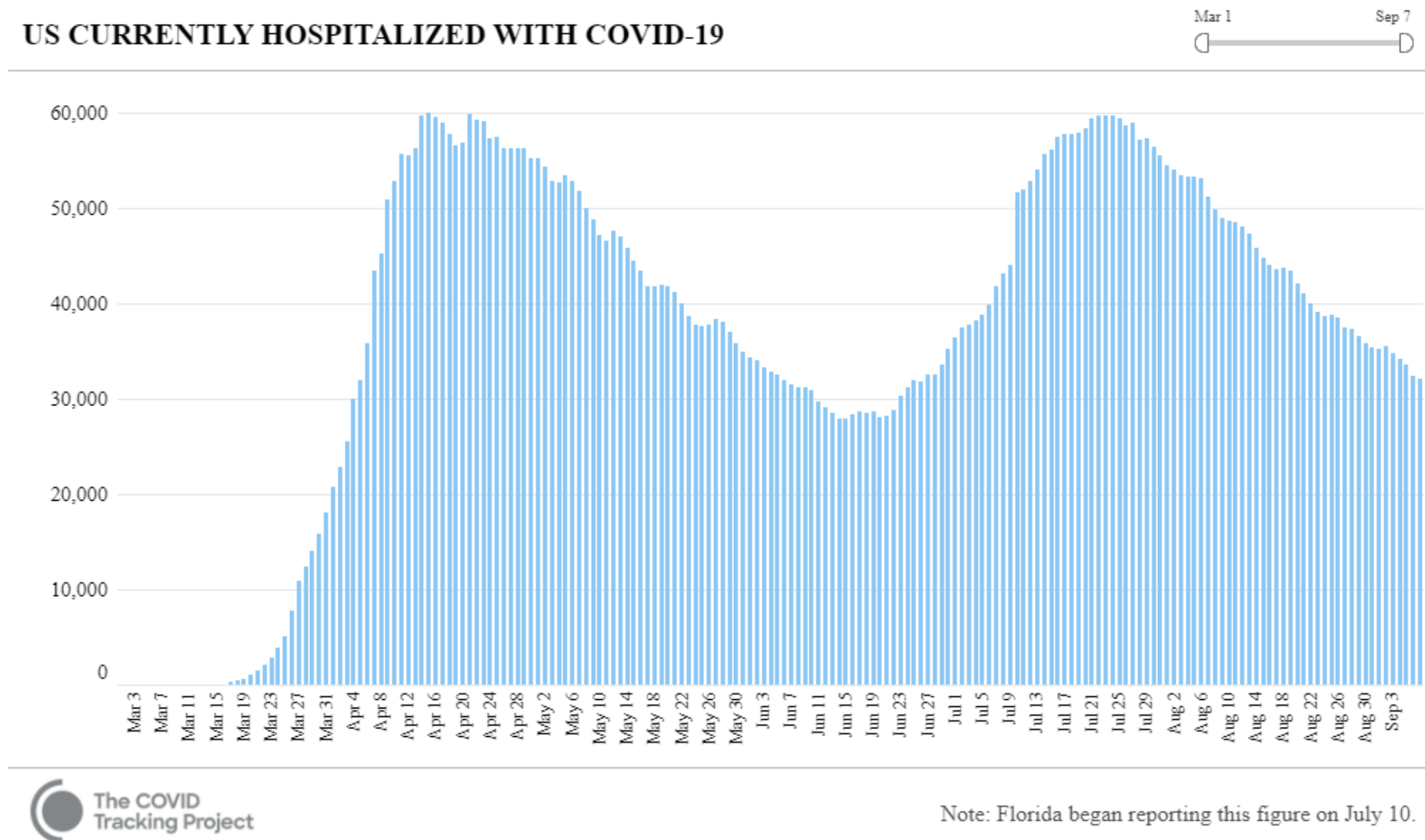
Daily US testing tracker

Source: Johns Hopkins/The COVID Tracking Project – 07.09.2020



US current hospitalization

Source: The COVID Tracking Project – 07.09.2020

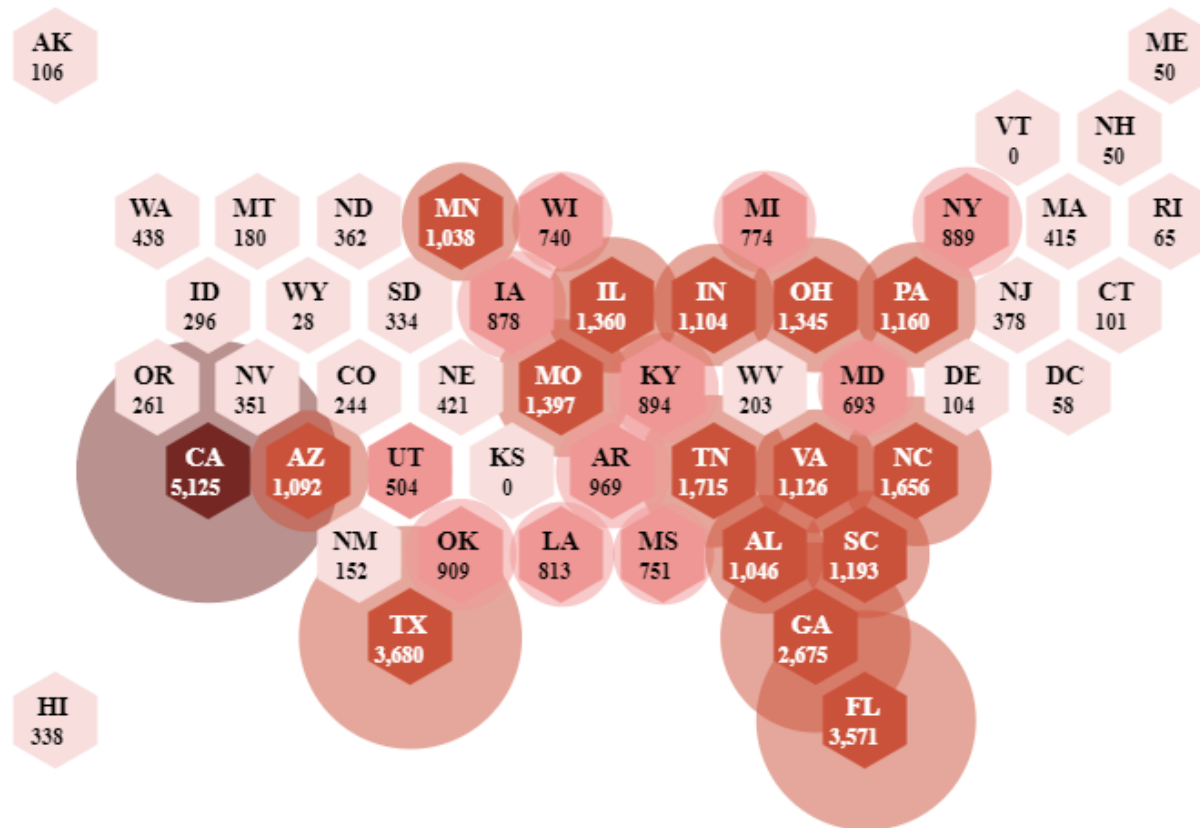


US new cases map

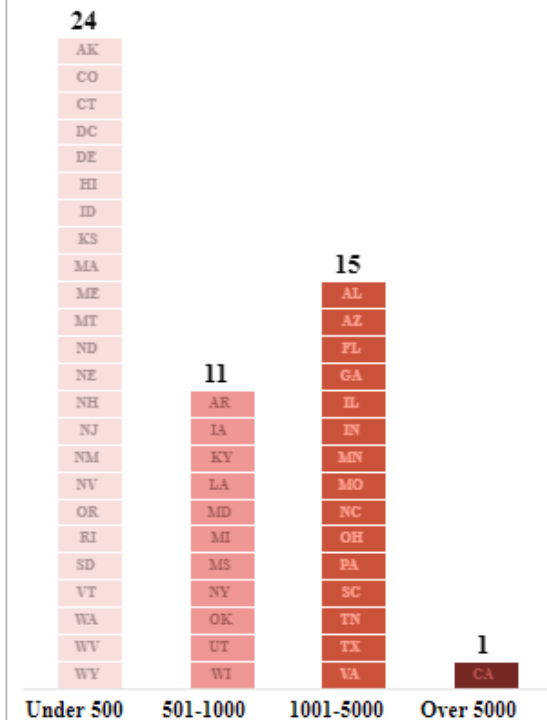
Source: The COVID Tracking Project – 07.09.2020

NEW CASES BY STATE

Sep 3 



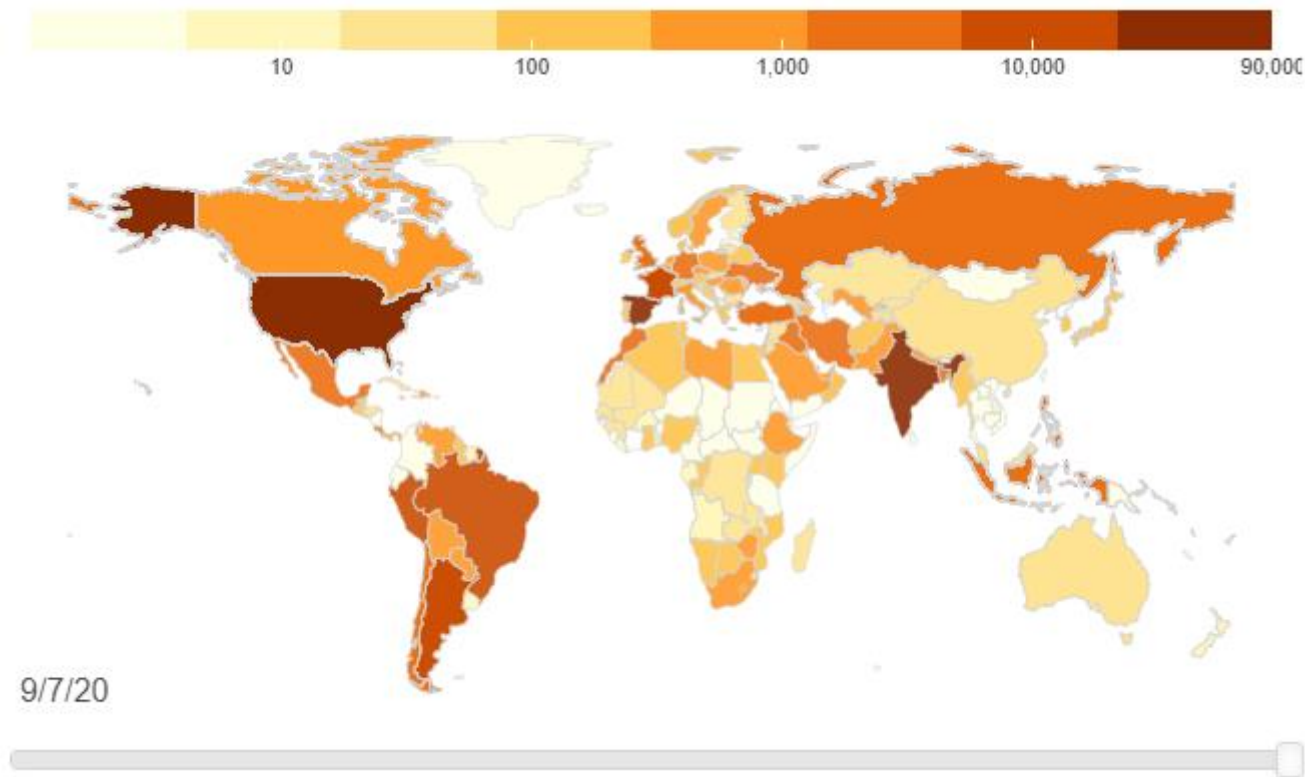
States By Number of New Cases



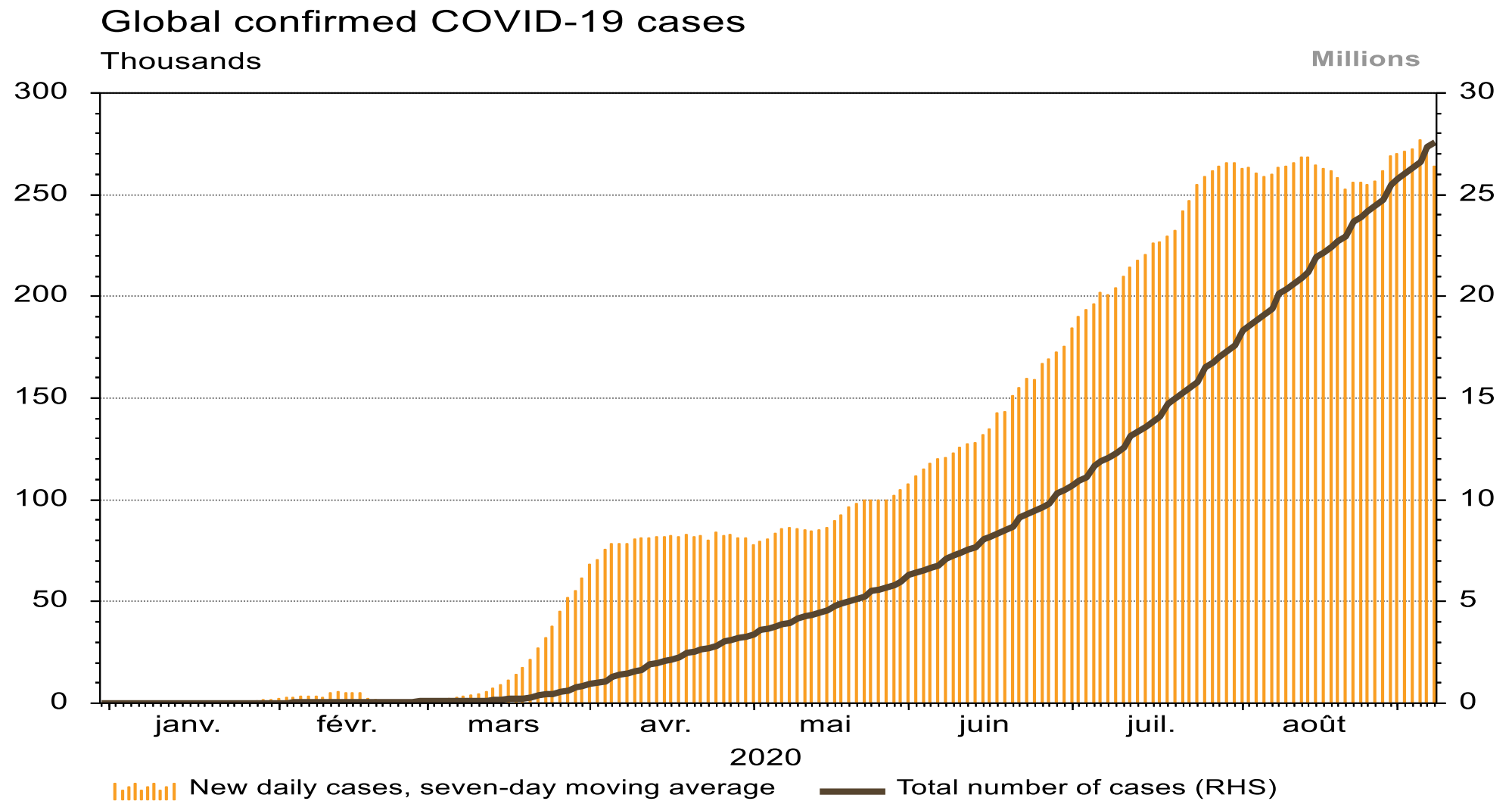
Current outbreak activity by country

Source: John Hopkins – 07.09.2020

DAILY CONFIRMED NEW CASES

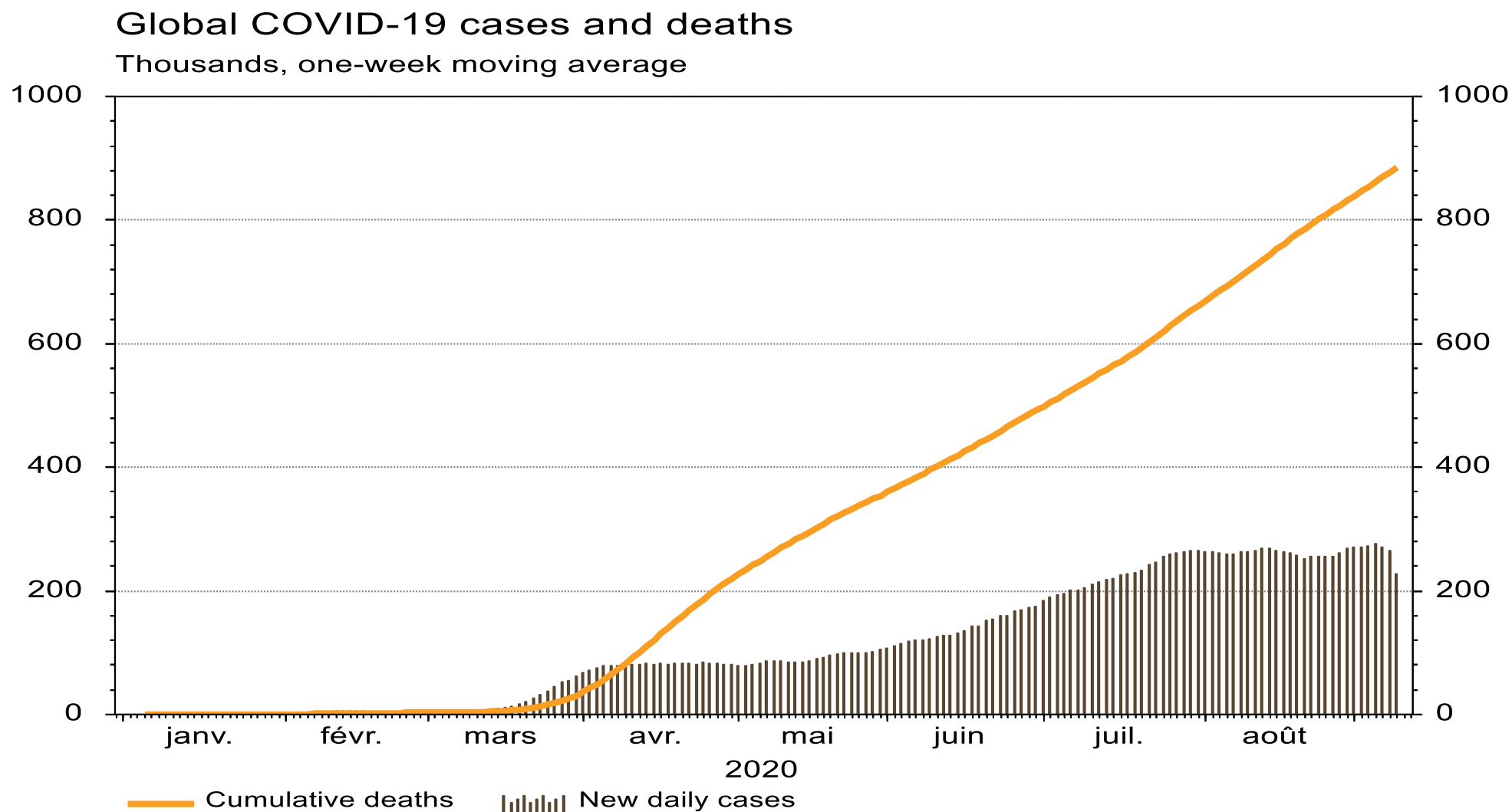


World – Cumulative & New cases



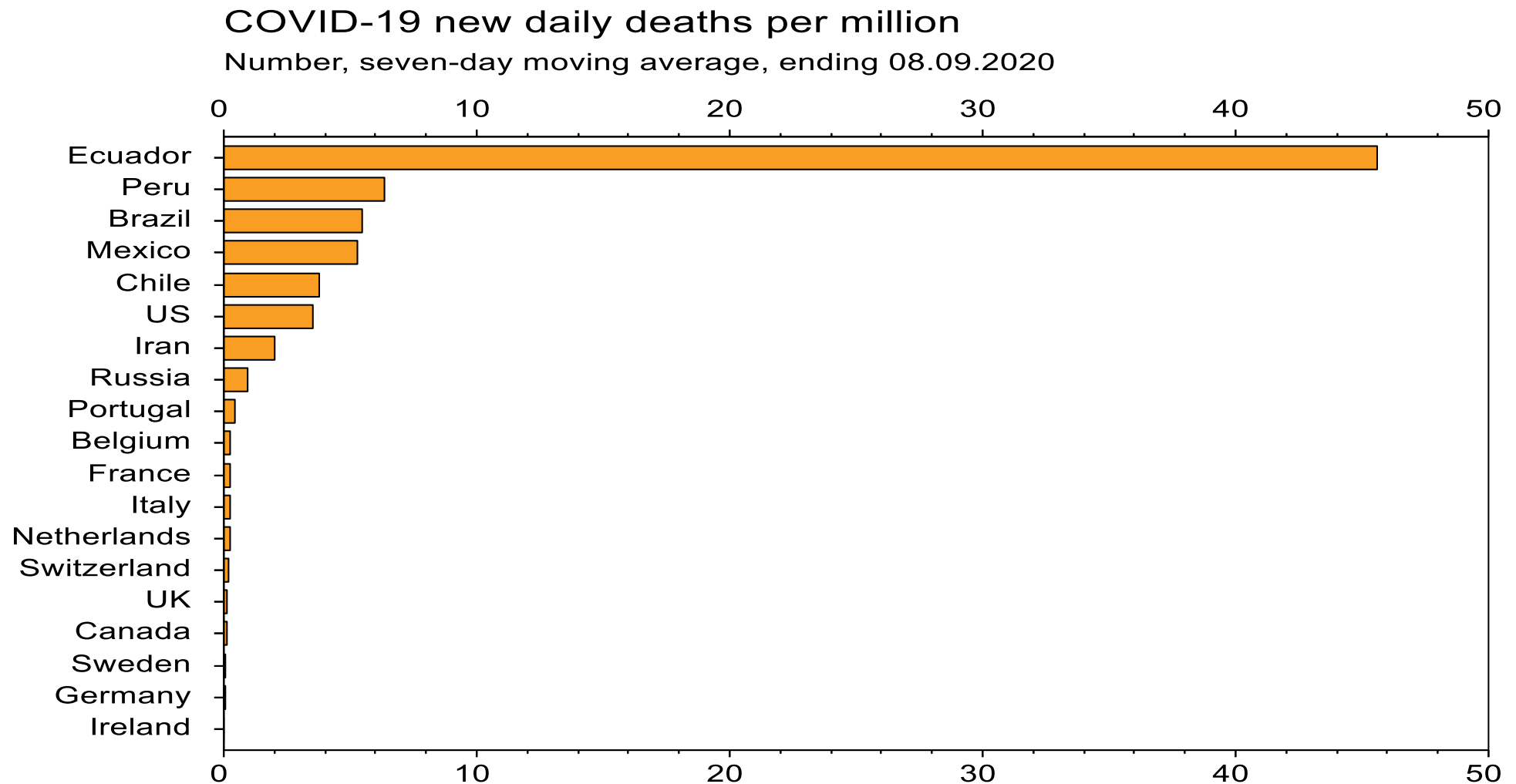
Source: Refinitiv Datastream, 09.09.2020

World – Deaths and New daily cases



Source: Refinitiv Datastream, 09.09.2020

World – Deaths per country

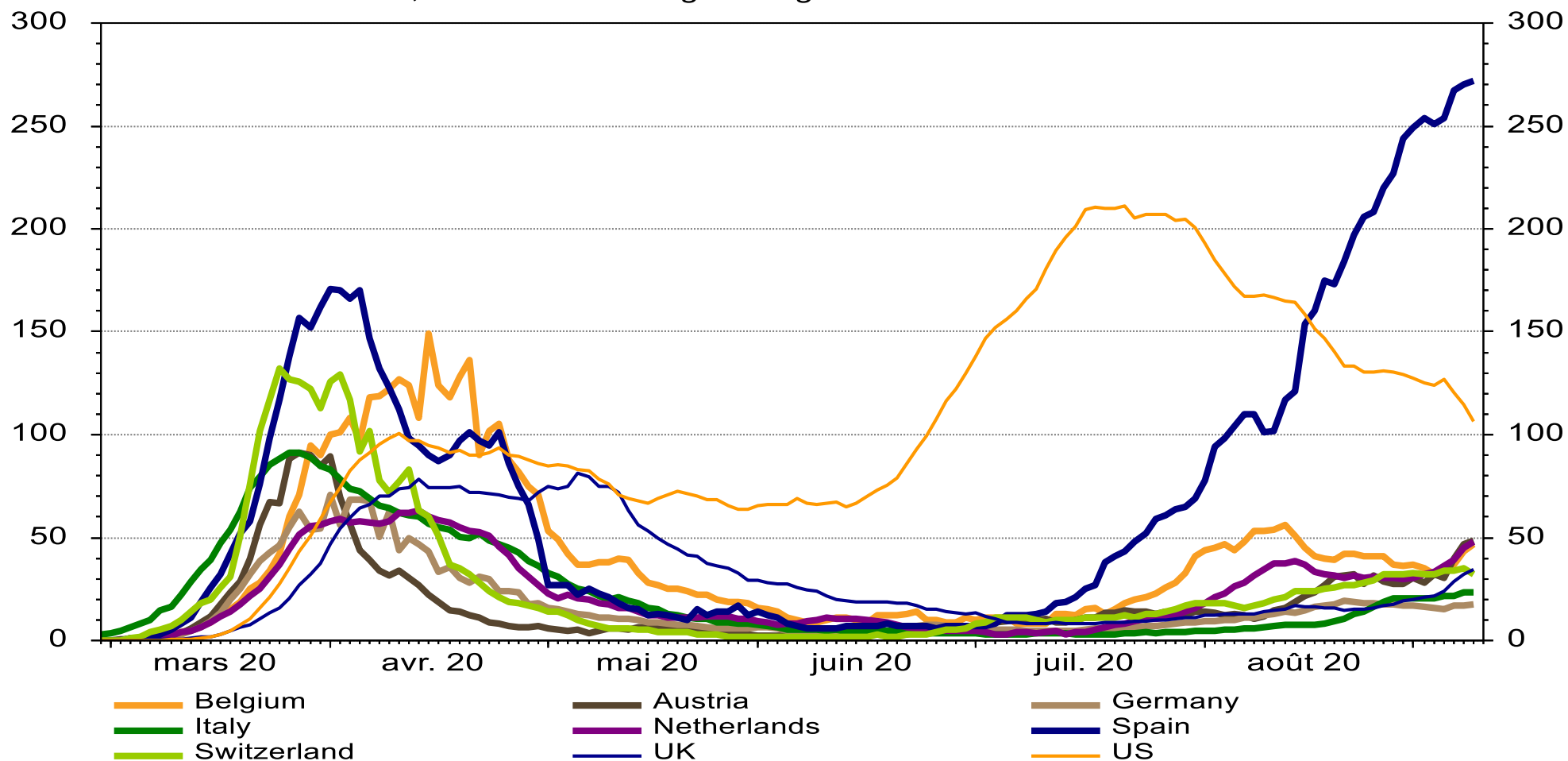


Source: Refinitiv Datastream, 09.09.2020

World – New cases (Europe & US)

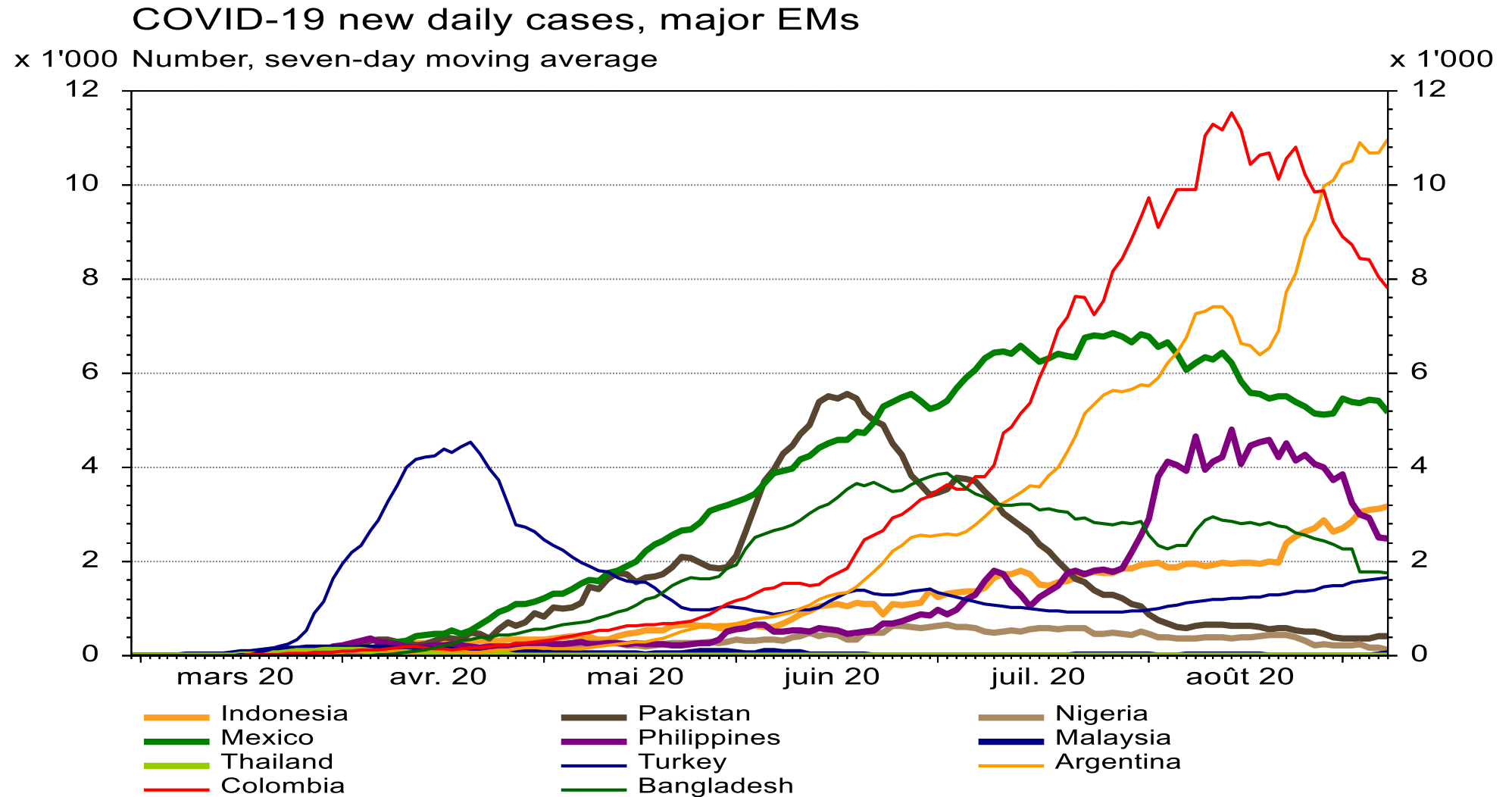
COVID-19 new daily cases, Europe and US

Per million residents, one-week moving average

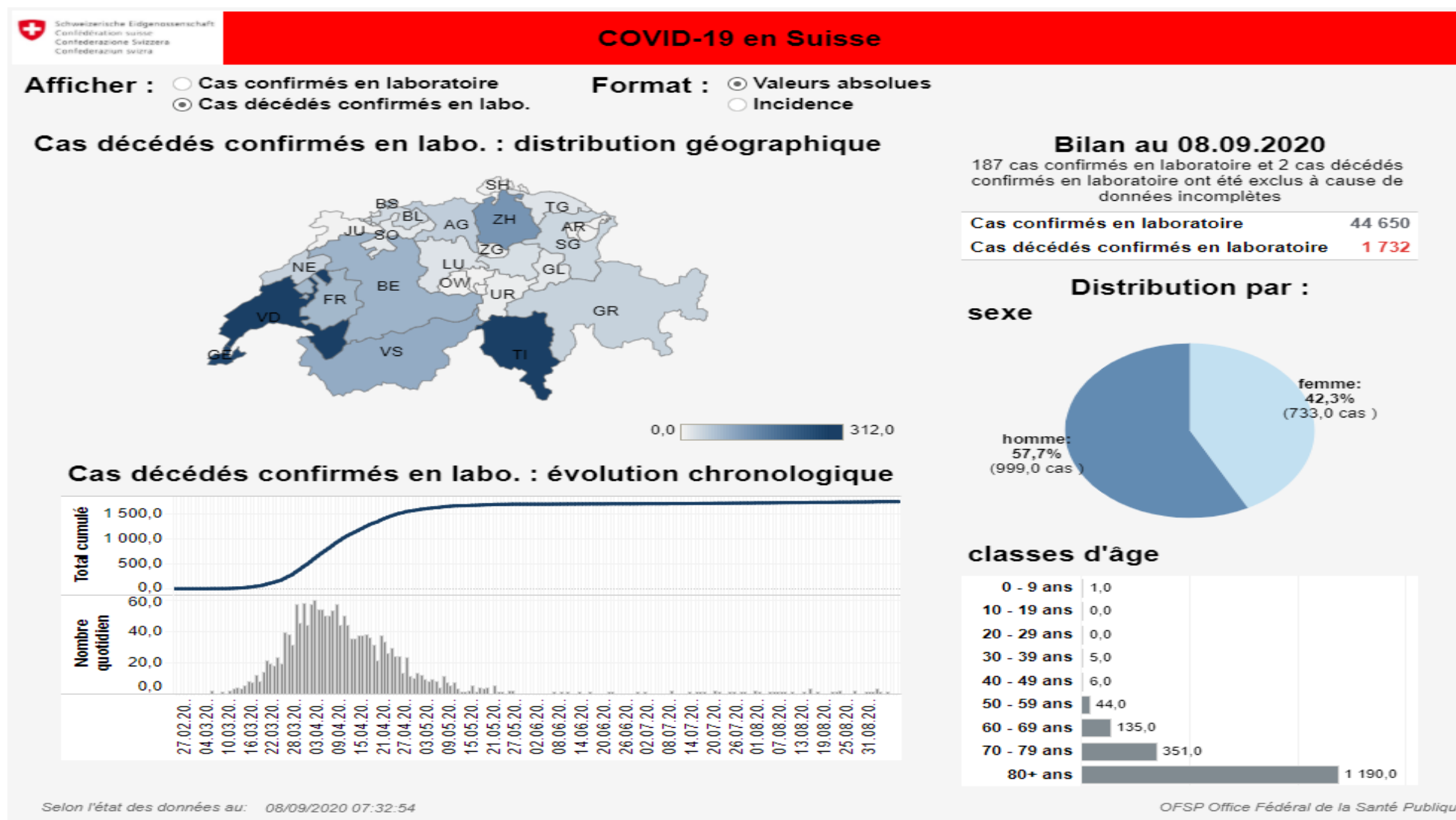


Source: Refinitiv Datastream, 09.09.2020

World – New cases (emerging countries)



Switzerland – deaths (cumulative vs new)



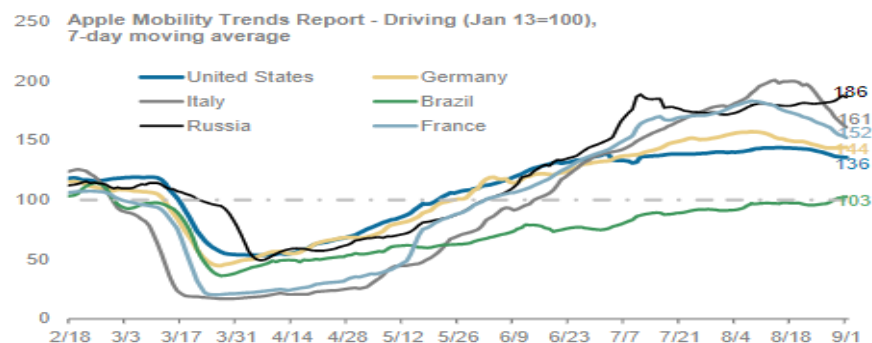
Tracking the economic Recovery

Based on high frequency data (daily) from external sources

- **China** leading the global recovery, the first region to unlock its economy:
 - Consumption: auto sales growth improving again and positive YoY. Same thing for housing transactions
 - Hotel occupancy at 93% of last year level!
- **US:**
 - Electricity consumption is at record high!
 - Generalized improvement in consumption ex travel and movie theaters. Retail sales growth positive YoY!
 - Industrial capacity utilisation still low but improving
- **Europe:**
 - Electricity consumption is back on track. Retail sales growth positive YoY even though latest figures disappointed
 - Sentiment is improving despite some disappointment in August PMI due to new restrictions in some areas
- **Mobility:**
 - Ongoing recovery globally
- **Global manufacturing PMI** (monthly data):
 - Most developed countries in expansion territory (>50 level) in August! Pace of improvement slowing if not disappointing (Europe) after the May/June significant rebound
 - Economic surprise indices at very high level in the US and EMU! A pause appears in the cards...

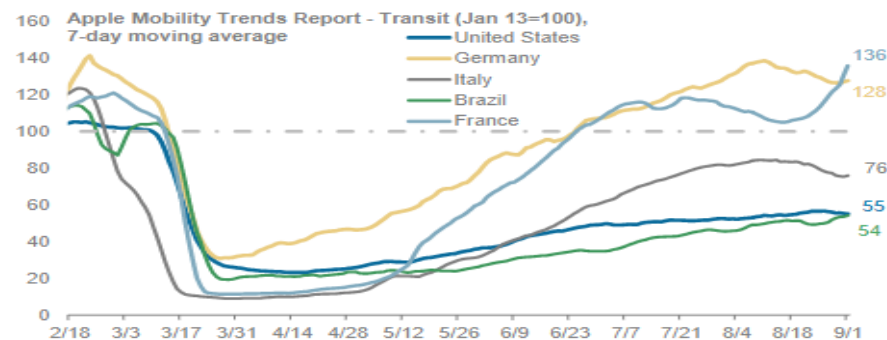
World – driving and transit mobility

Exhibit 1: Driving mobility has softened in major DMs



Source: Apple, Morgan Stanley Research; Note that May 11 and May 12 data are not reported thus not included in the 7-day moving average.

Exhibit 2: Transit mobility picked up notably in France



Source: Apple, Morgan Stanley Research; Note that May 11 and May 12 data are not reported thus not included in the 7-day moving average.

Exhibit 3: Mobility in driving fell in the US and major economies in euro area, held up elsewhere

Apple Driving Mobility WoW Trend (Jan 13, 2020 = 100, 7-day avg)					
	9/1	8/25	8/18	9/1 vs 8/25	9/1 vs 8/18
Russia	186	181	179	+5	+7
Italy	161	186	200	-25	-39
France	152	165	173	-12	-21
Germany	144	145	150	-1	-5
United States	136	141	144	-5	-8
Spain	133	153	167	-20	-33
United Kingdom	132	129	126	+4	+6
Japan	125	129	147	-3	-21
Brazil	103	96	97	+7	+5
Mexico	98	99	100	-1	-2
India	87	80	78	+7	+9
Republic of Korea	62	70	84	-8	-22

Source: Apple, Morgan Stanley Research; Note: Table is ranked by current level of mobility index.

Exhibit 4: Transit mobility improved the most in France, remained relatively flat in other economies

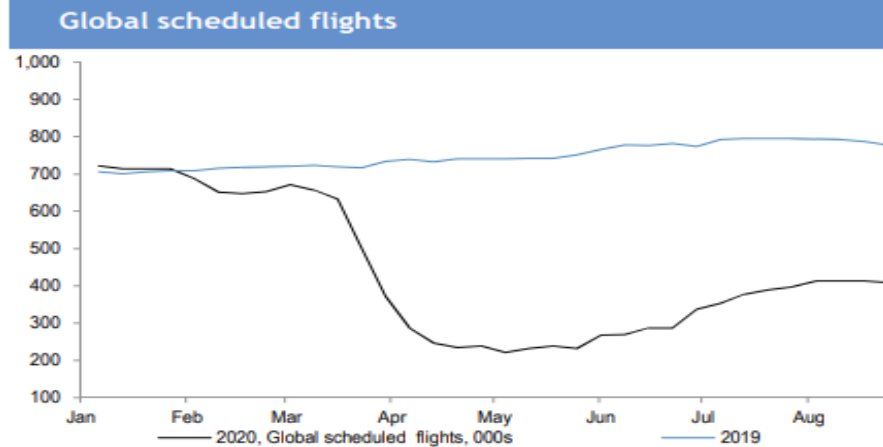
Apple Transit Mobility WoW Trend (Jan 13, 2020 = 100, 7-day avg)					
	9/1	8/25	8/18	9/1 vs 8/25	9/1 vs 8/18
France	136	113	106	+22	+30
Germany	128	129	133	-2	-5
Japan	125	127	137	-2	-12
United Kingdom	79	75	71	+4	+8
Spain	77	74	75	+3	+2
Italy	76	79	83	-3	-7
Singapore	66	64	63	+2	+3
United States	55	57	55	-1	+0
Brazil	54	50	51	+4	+3
Mexico	50	51	51	-1	-1

Source: Apple, Morgan Stanley Research; Note: Table is ranked by current level of mobility index.

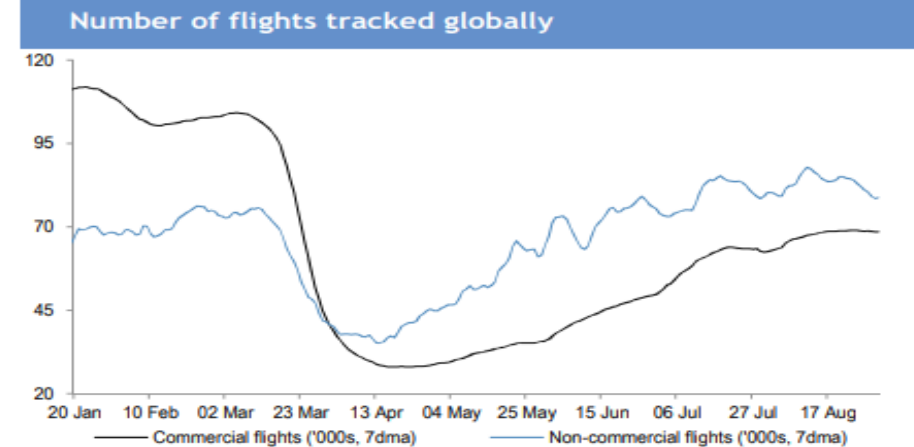
World – Air traffic

(old)

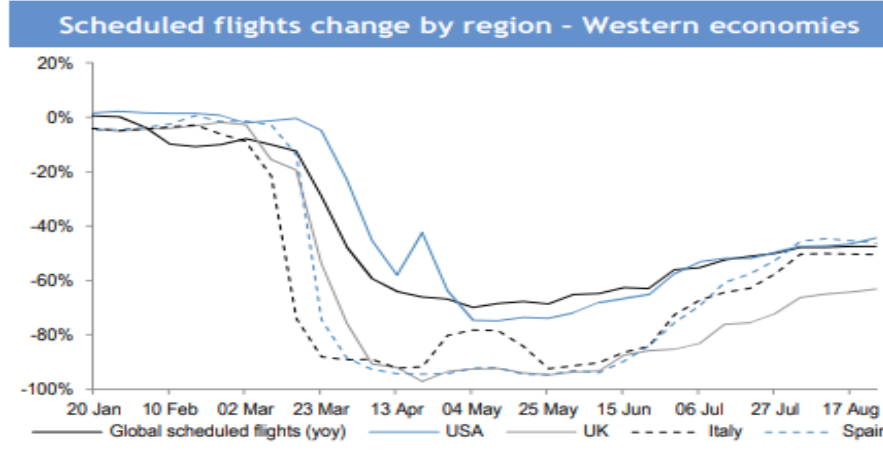
Air traffic – FlightRadar24, OAG



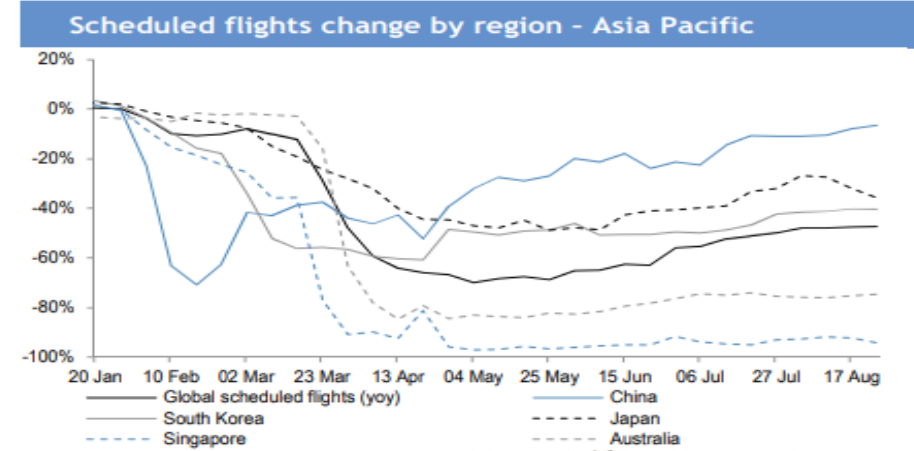
Source: OAG, As of 24th August



Source: FlightRadar24, As of 31st August



Source: OAG, As of 24th August



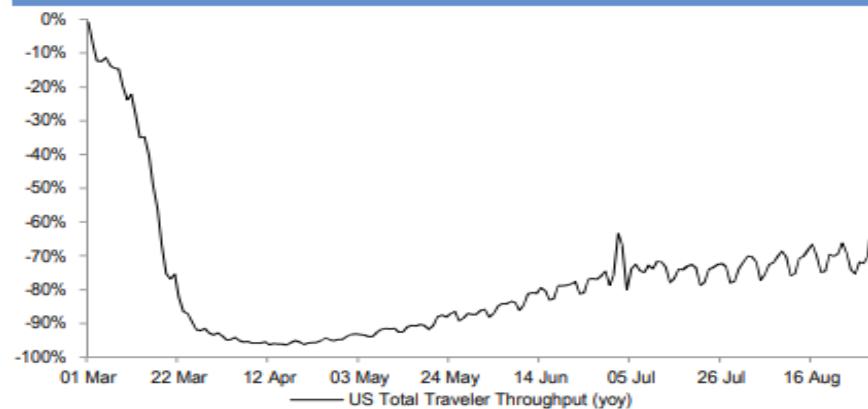
Source: OAG, As of 24th August

World – Air traffic

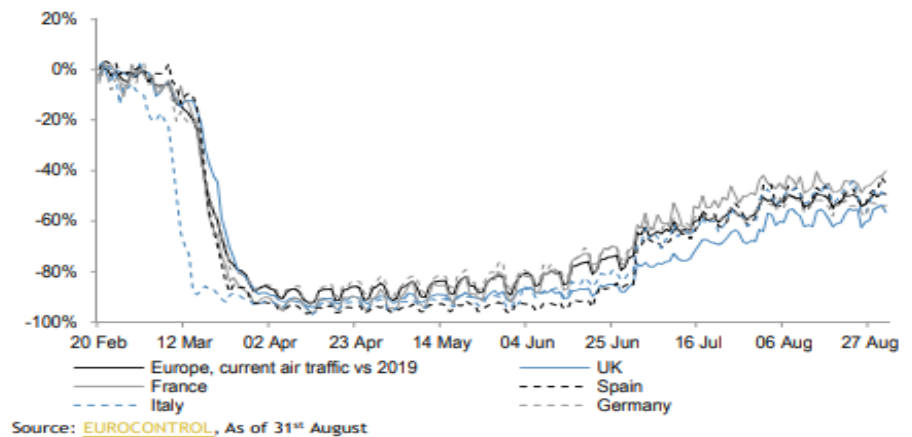
(old)

Air traffic – TSA, EUROCONTROL

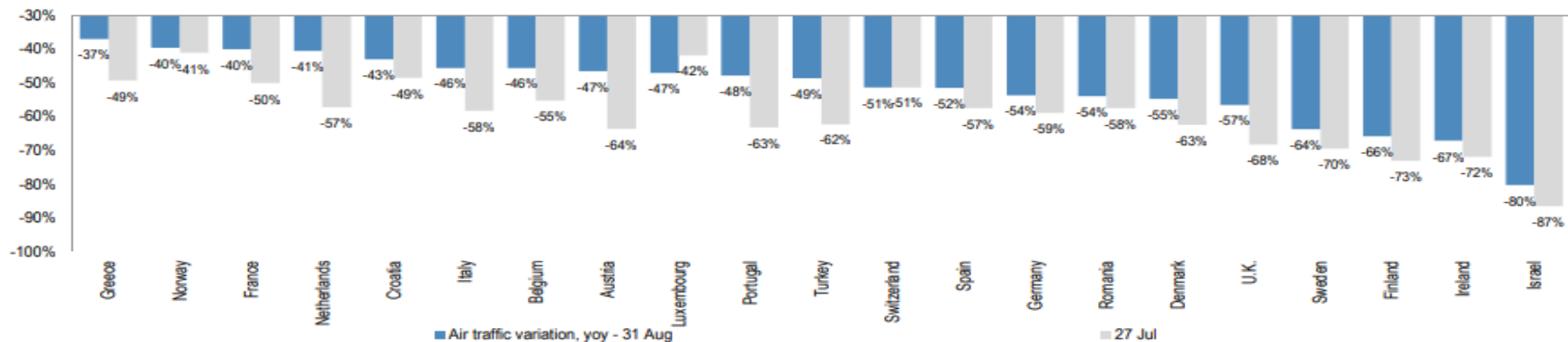
US air passenger throughput vs 2019



Europe air traffic variation vs 2019



Daily air traffic variation vs 2019

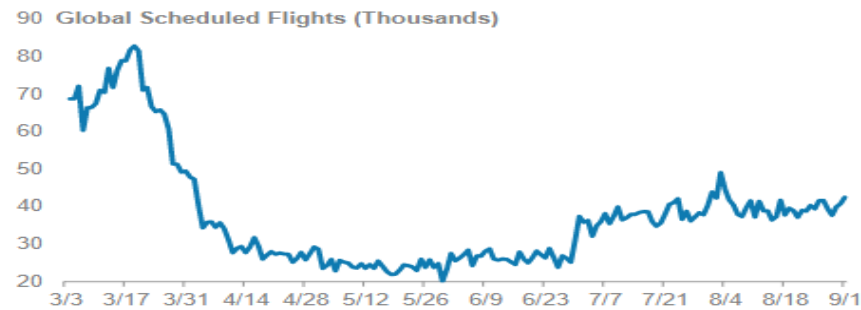


11

J.P. Morgan CAZENOVE

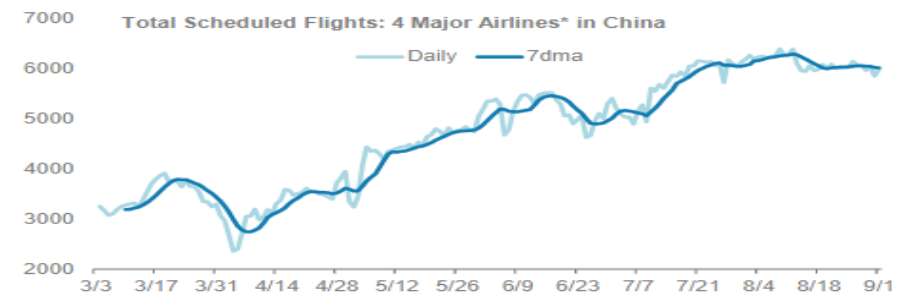
World – Air traffic

Exhibit 7: Global scheduled flights remain range-bound



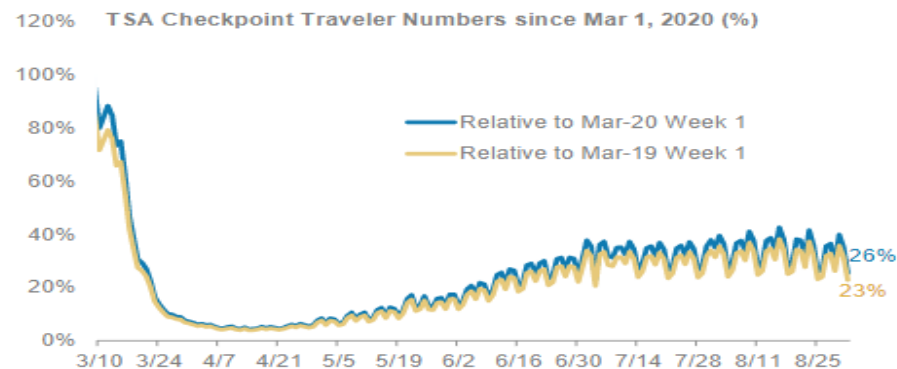
Source: Flightaware, AlphaWise, Morgan Stanley Research

Exhibit 8: Scheduled flights in China remained flat in the past two weeks



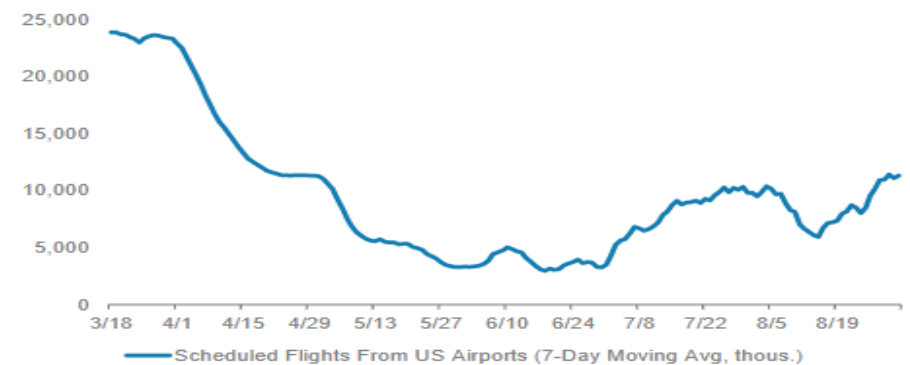
Source: Flightaware, Alphawise, Morgan Stanley Research. *4 major airlines are Air China, China Eastern, China Southern and Hainan Airlines

Exhibit 91: Airport passenger traffic moving sideways



Source: Transportation Security Administration, Morgan Stanley Research

Exhibit 92: Scheduled flights from US airports have improved substantially

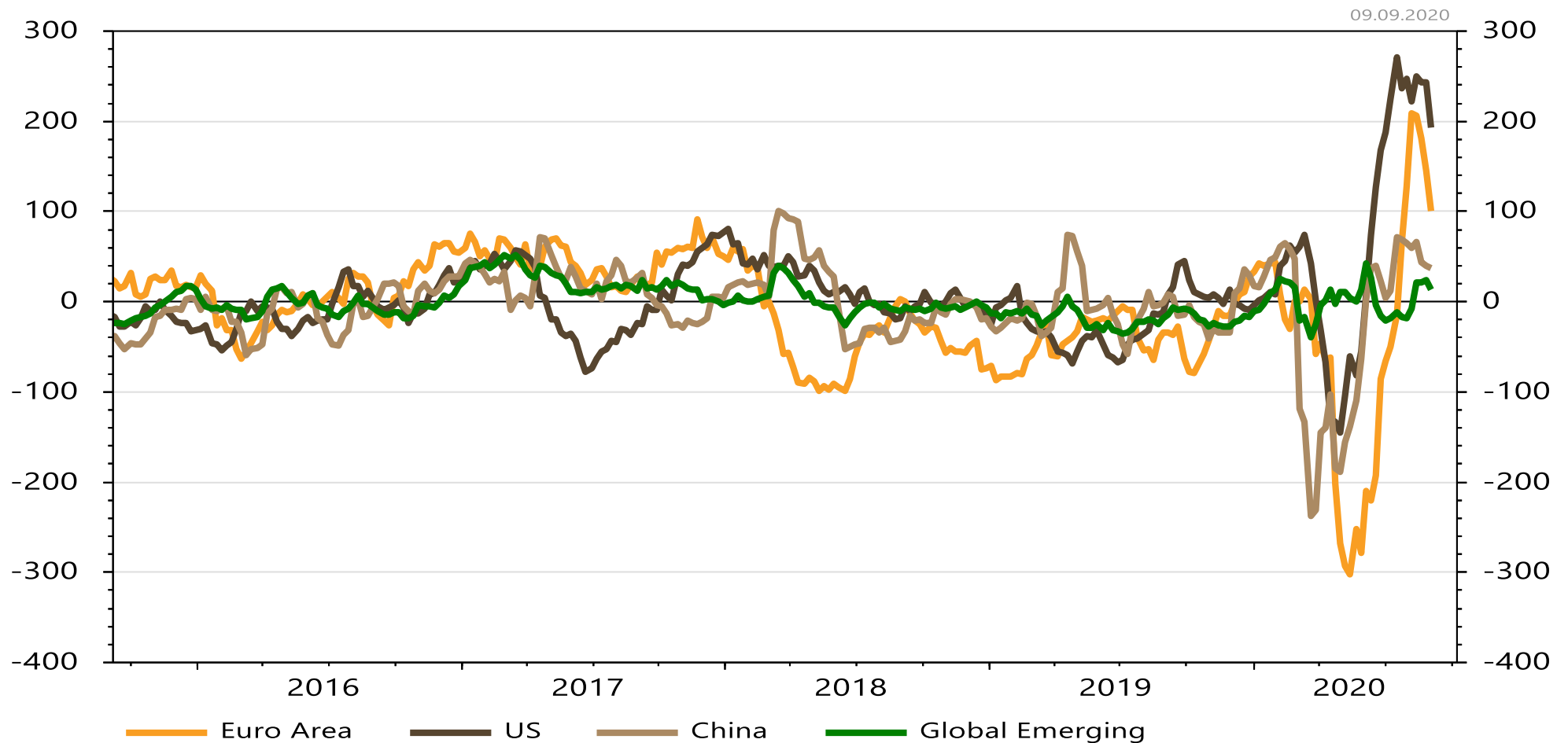


Source: Flightaware, Alphawise, Morgan Stanley Research

World – economic surprise index (by country/regions)

Economic Surprise Index

US - China - Euro Area - Global Emerging



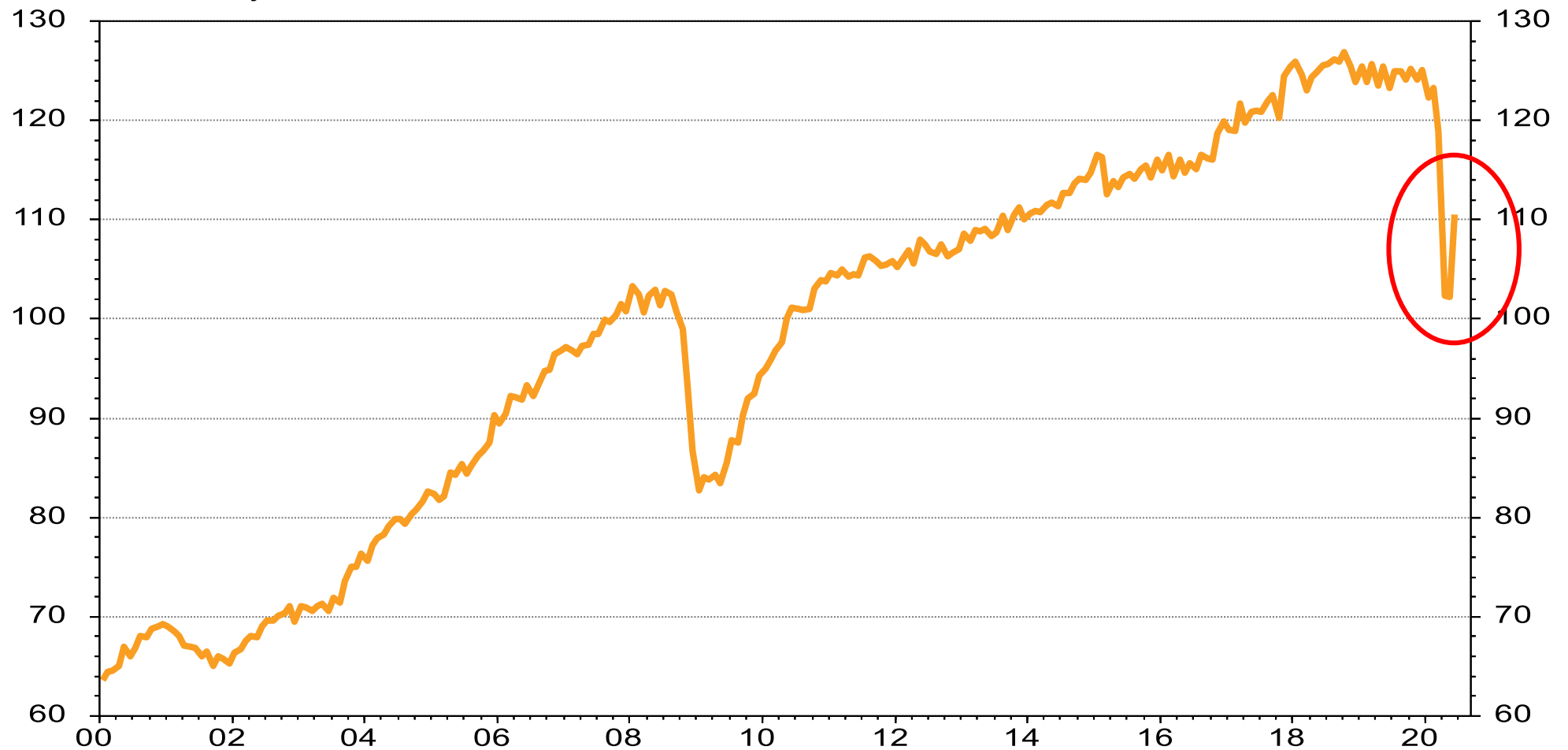
Source: Refinitiv Datastream, 09.09.2020

World exports

(New)

World exports

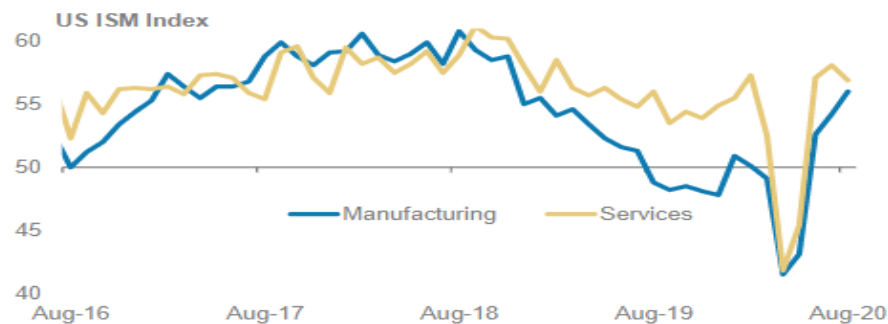
Index, May 2010 = 100



Source: Refinitiv Datastream, 09.09.2020

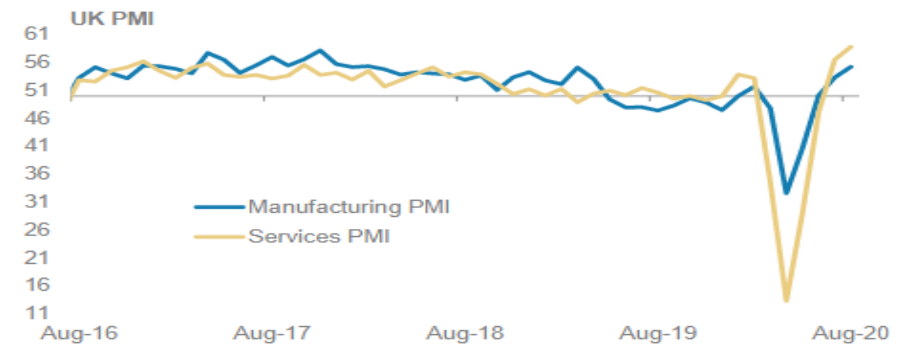
World – manufacturing vs services PMI

Exhibit 13: Services sector continues to outperform manufacturing sector in the US...



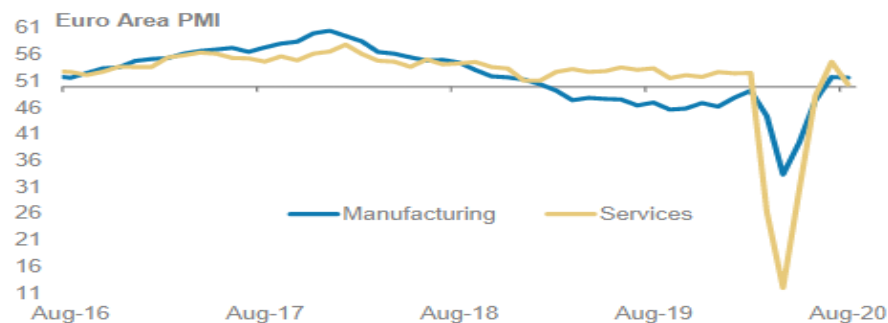
Source: ISM, NY Fed, Philly Fed, Kansas City Fed, Dallas Fed, Richmond Fed, Morgan Stanley Research estimate

Exhibit 14: ... and in UK



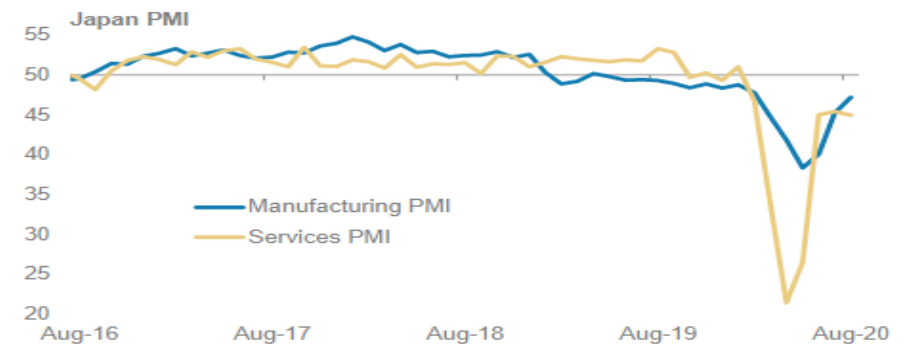
Source: Markit, Haver Analytics

Exhibit 15: While in euro area...



Source: Markit, Haver Analytics, Morgan Stanley Research

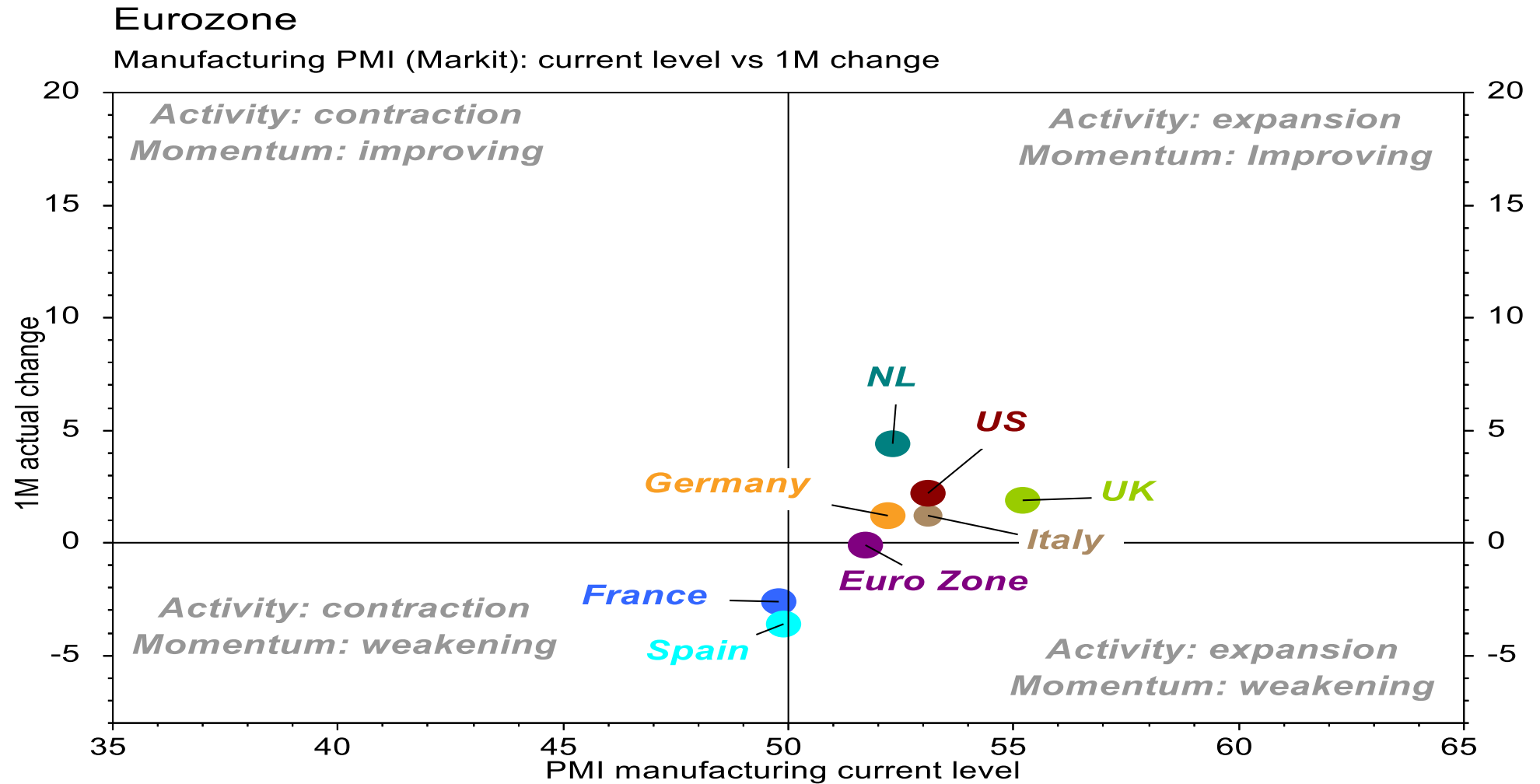
Exhibit 16: ... and Japan, services PMI ticked down slightly below manufacturing PMI



Source: Markit, Haver Analytics, Morgan Stanley Research

Manufacturing PMI – developed economies

Level vs one-month change (August vs July)



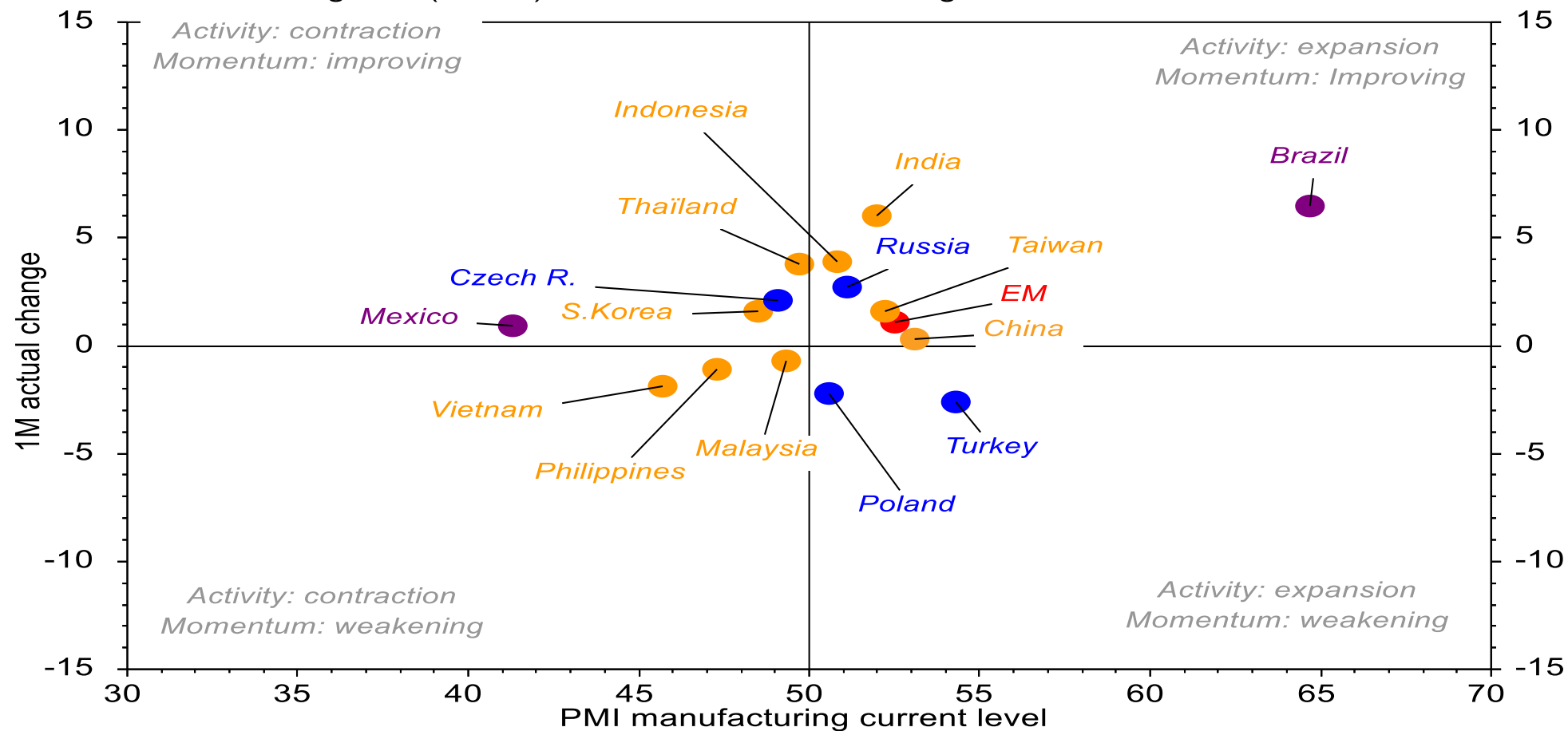
Source: Refinitiv Datastream, 09.09.2020

Manufacturing PMI – emerging economies

Level vs one-month change (July vs June)

Emerging economies

Manufacturing PMI (Markit): current level vs 1M change

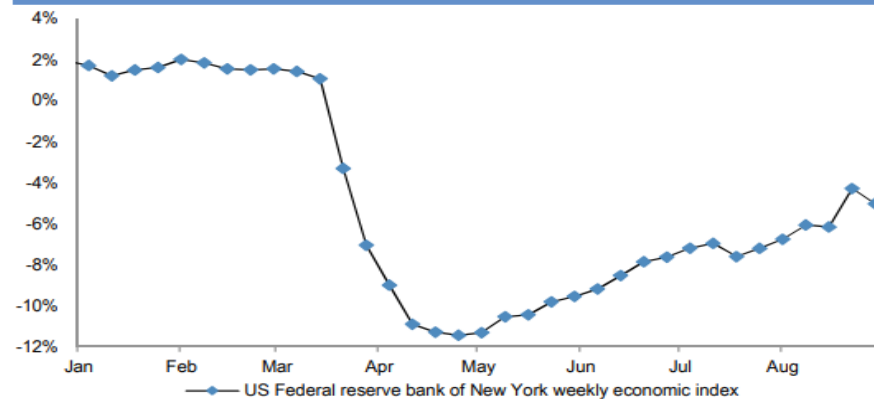


Source: Refinitiv Datastream, 09.09.2020

US – industrial activity

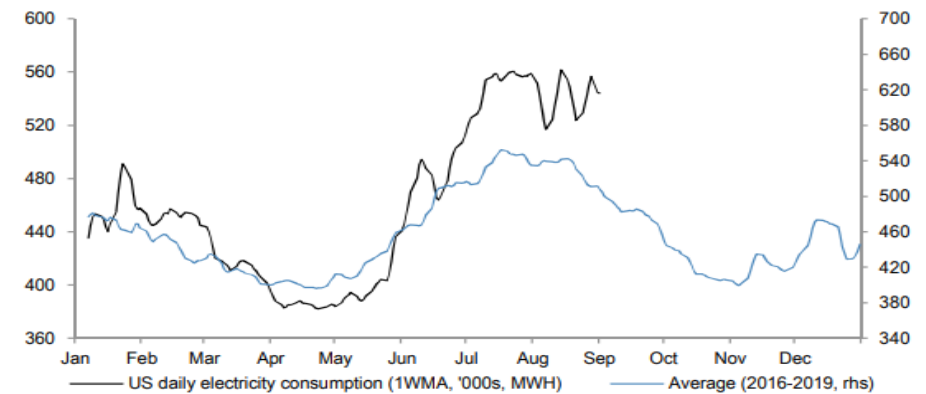
Industrial/manufacturing activity – US

New York FED weekly economic index



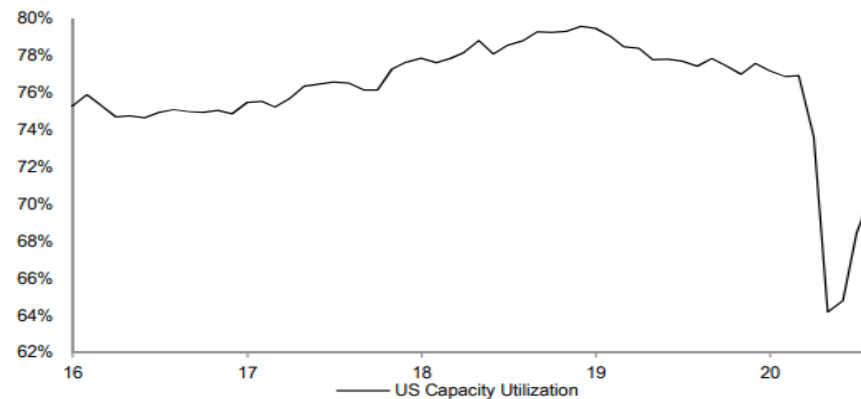
Source: Federal Reserve Bank of New York, Bloomberg. As of 29th August

US daily electricity consumption (MWh)



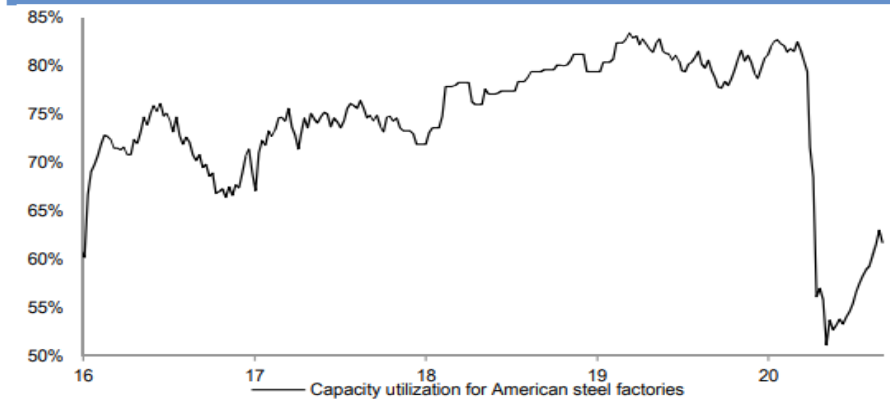
Source: EIA, As of 31st August

US capacity utilization



Source: Bloomberg

Capacity utilization for US steel factories

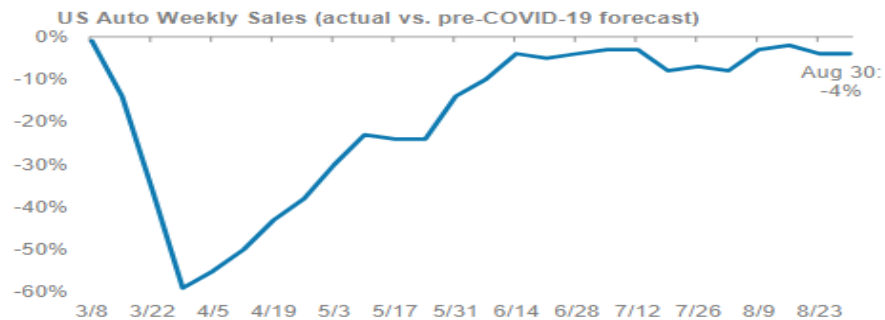


Source: Bloomberg, As of 31st August

J.P.Morgan CAZENOVE

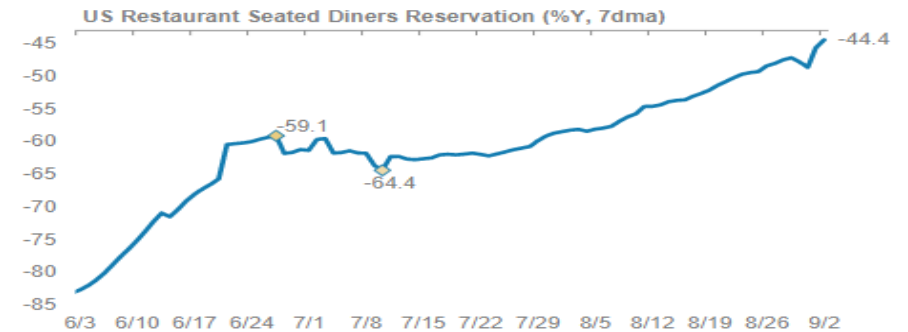
US – consumption

Exhibit 24: US auto sales now at 4% below pre-COVID-19 forecast



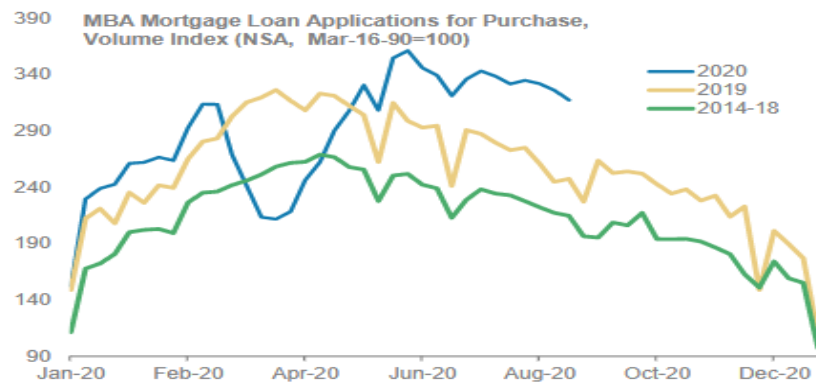
Source: J.D. Power, Morgan Stanley Research

Exhibit 25: US restaurant reservations steadily rising



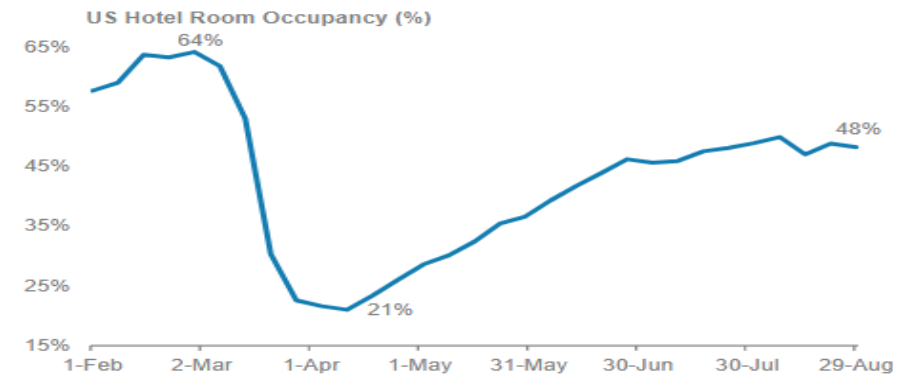
Source: Opentable, Morgan Stanley Research

Exhibit 26: Mortgage applications in the US continues to track well above historical levels



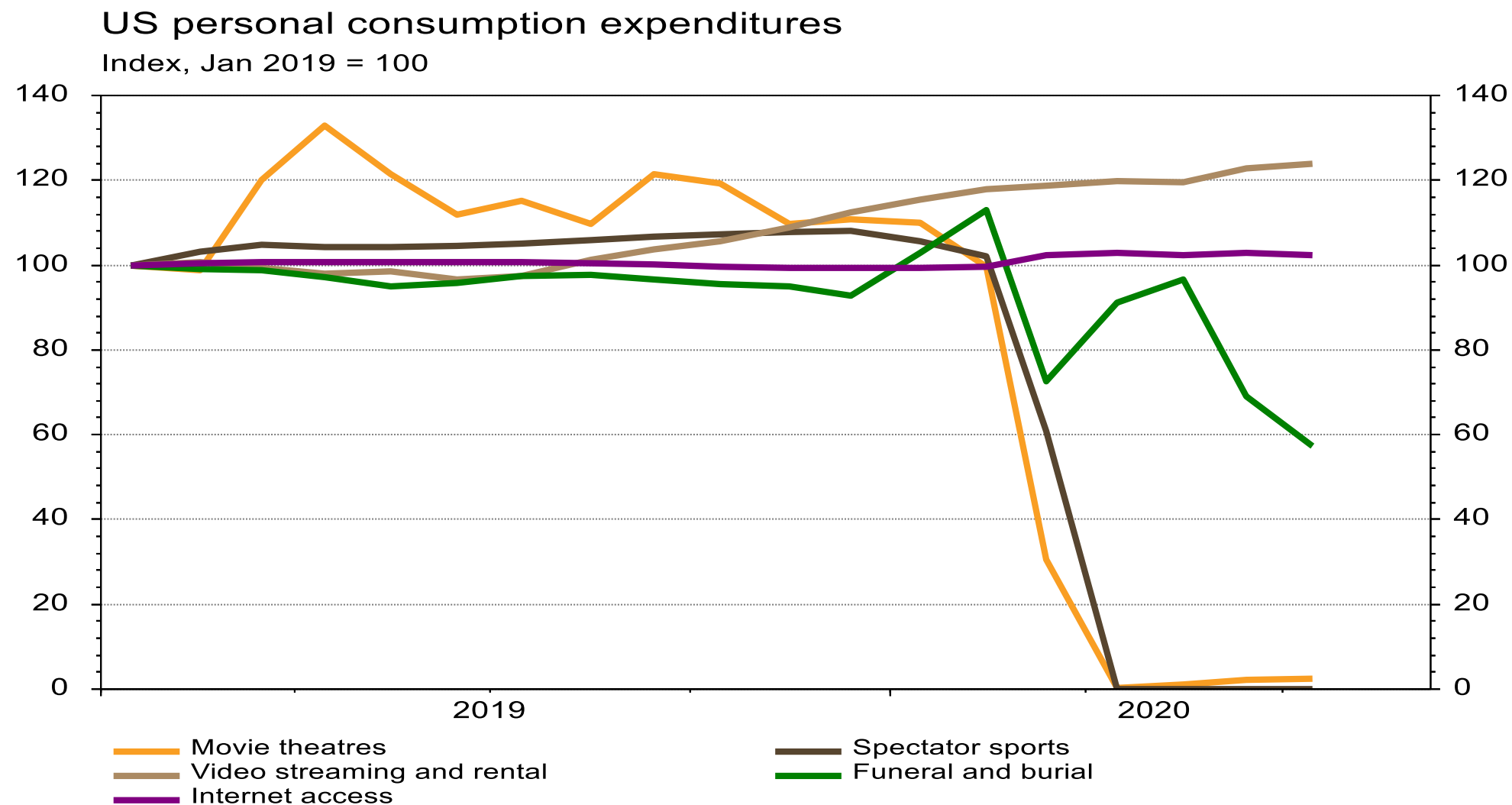
Source: MBA, Haver Analytics, Morgan Stanley Research

Exhibit 27: US hotel room occupancy moving sideways



Source: STR, Morgan Stanley Research

US – consumer activity



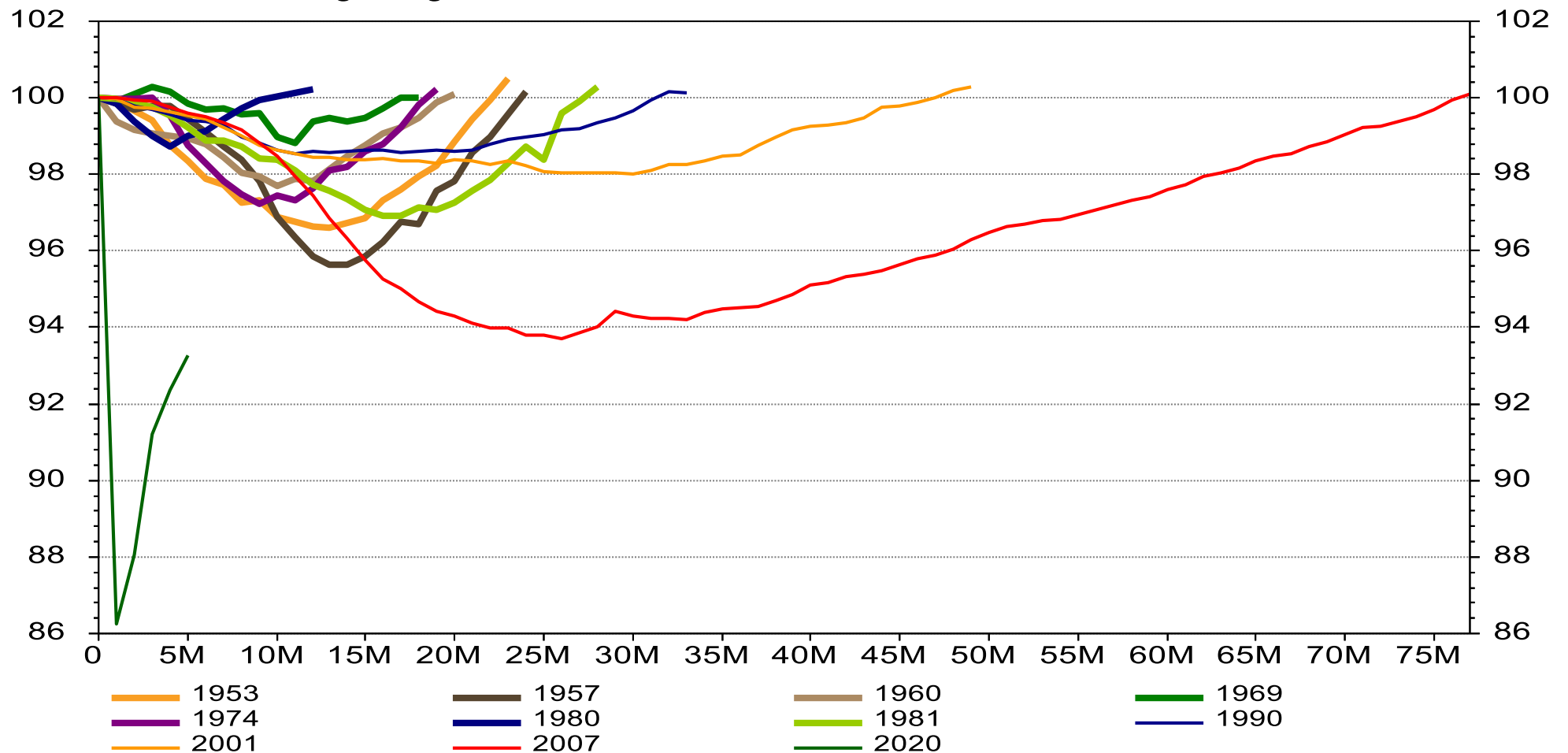
Source: Refinitiv Datastream, 09.09.2020

US employment – current vs previous recovery

(New)

US employment during & after recessions

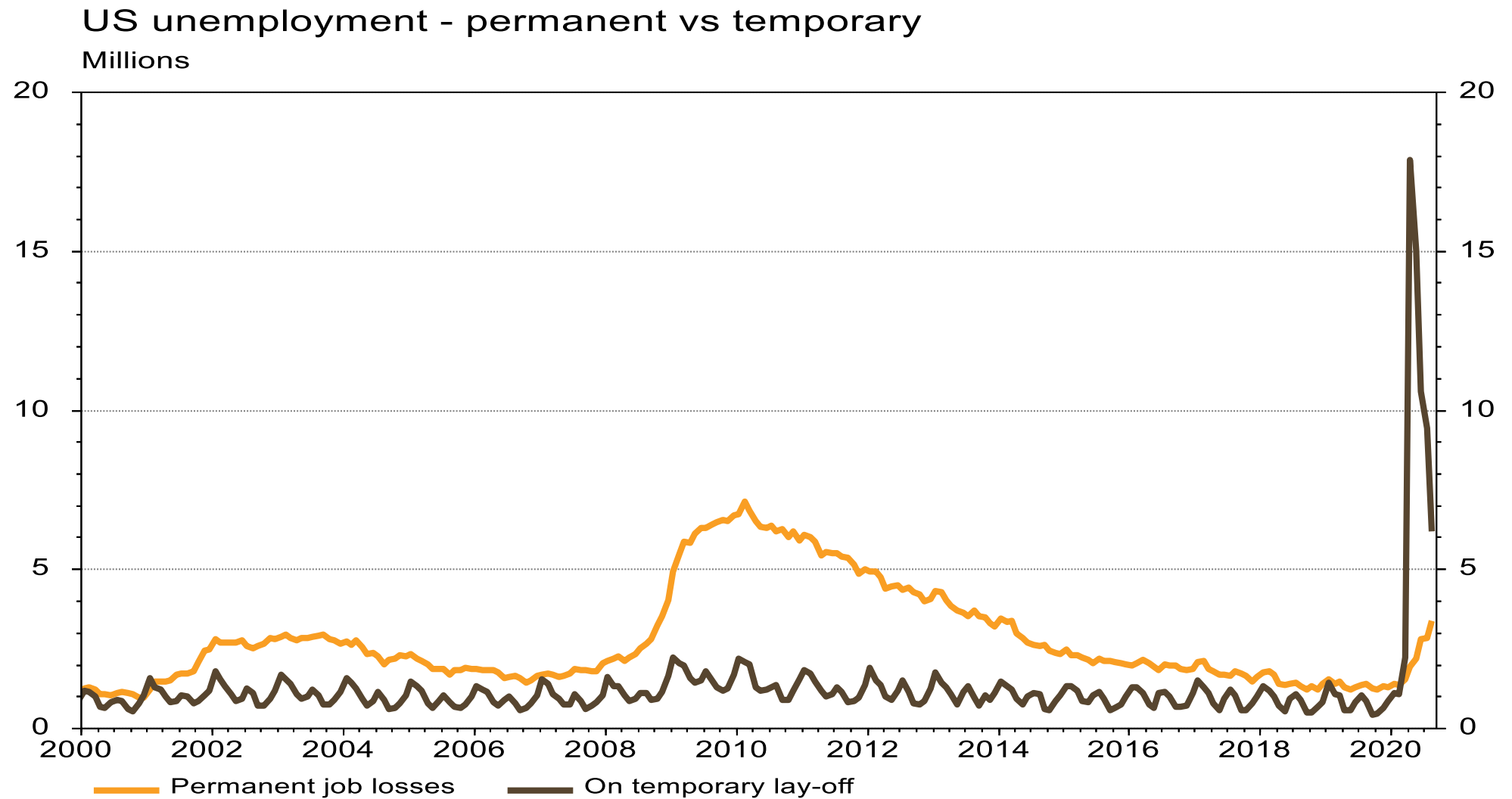
Index, 100 = beginning of recession



Source: Refinitiv Datastream, 09.09.2020

US unemployment – permanent vs temporary

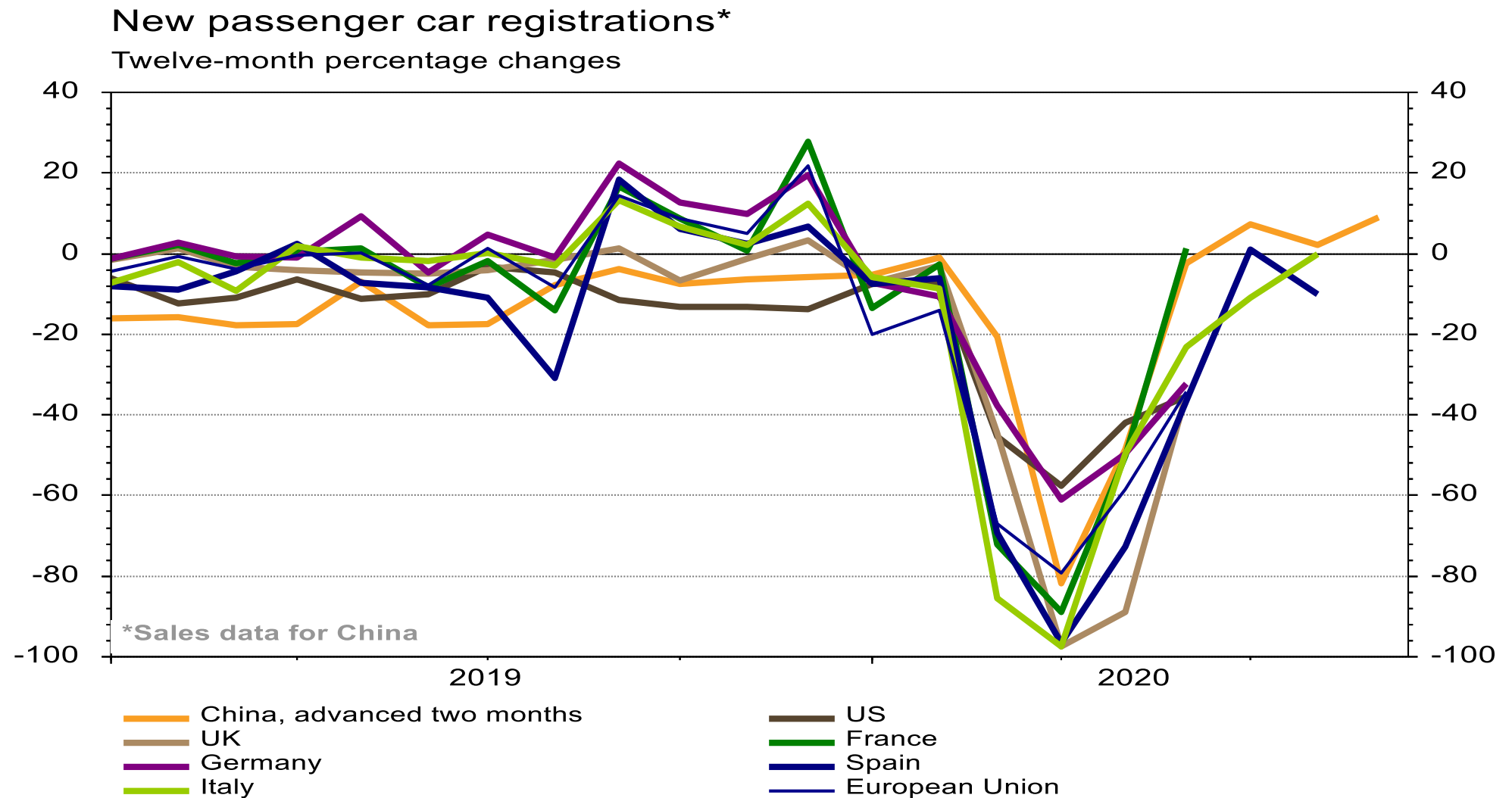
(New)



Source: Refinitiv Datastream, 09.09.2020

World – New passenger car registrations

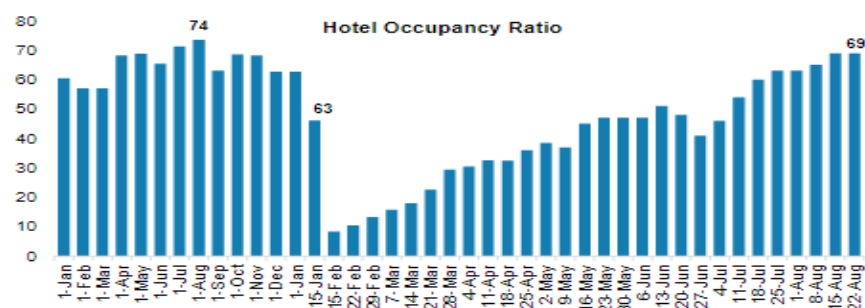
(New)



Source: Refinitiv Datastream, 09.09.2020

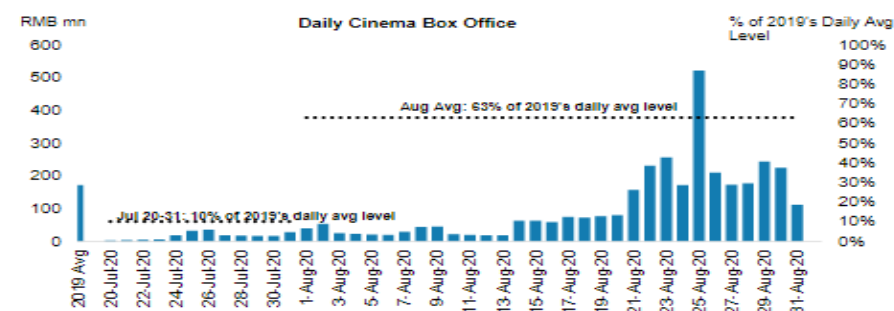
China – consumption

Exhibit 129: Hotel occupancy reaching about 93% of the level in same period last year



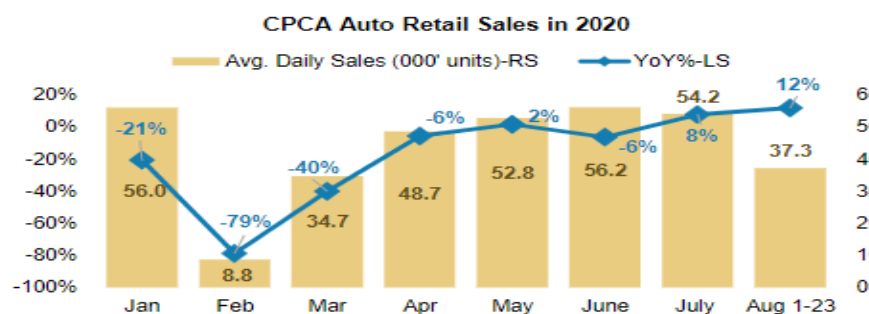
Source: STR, Morgan Stanley Research

Exhibit 130: August cinema box office bounced back to over 60% of 2019's daily average



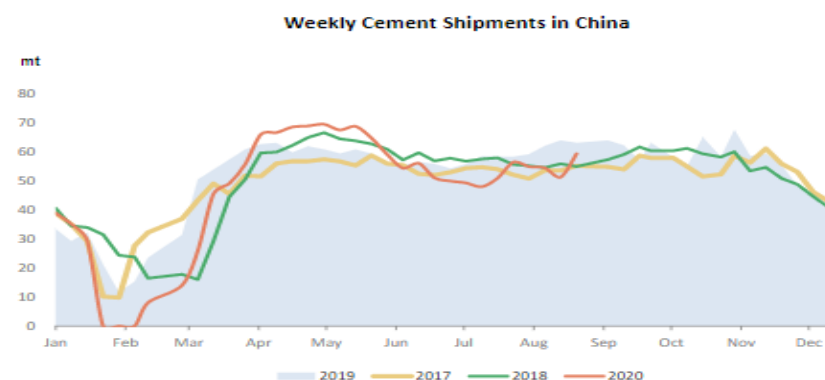
Source: Wind, Morgan Stanley Research

Exhibit 131: Further acceleration in CPCA auto sales in August



Source: CPCA, Morgan Stanley Research

Exhibit 132: Notable pickup in cement shipments

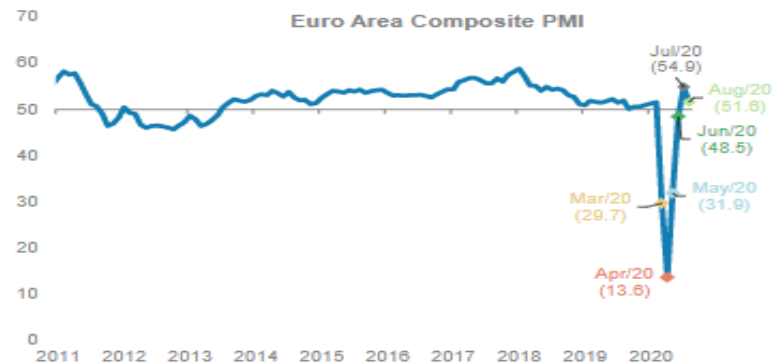


Source: SCI, Digital Cement, Morgan Stanley Research

Europe – economic indicators

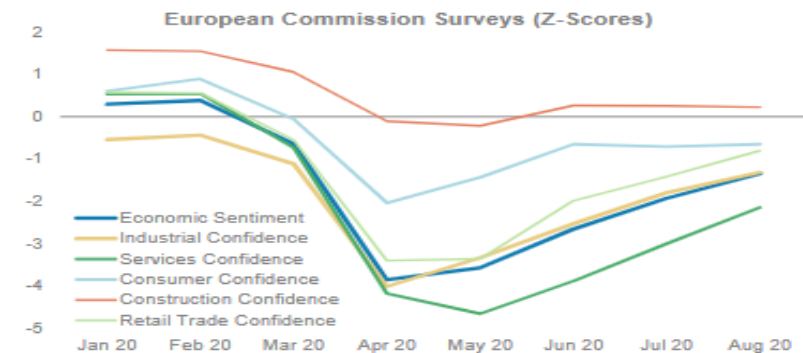
(New)

Exhibit 16: August PMIs were a notable miss...



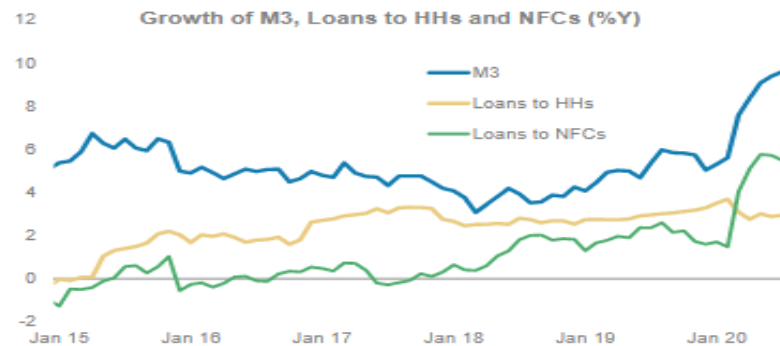
Source: IHS Markit, Morgan Stanley Research

Exhibit 17: ...but economic sentiment continues to recover in the euro area



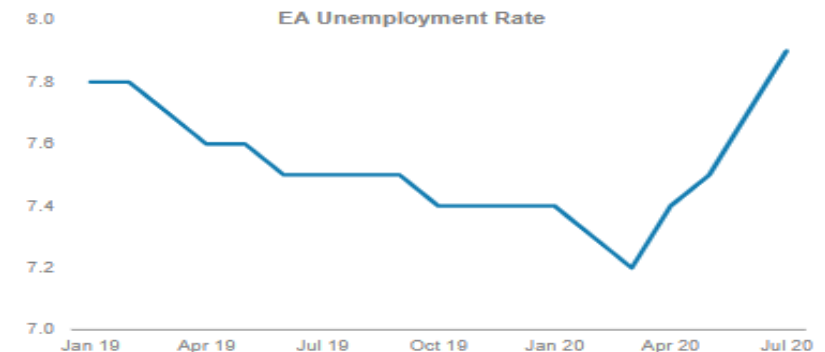
Source: Eurostat, Morgan Stanley Research

Exhibit 18: M3 and loan growth remained strong in July, driven by QE and policy support



Source: Eurostat, Morgan Stanley Research

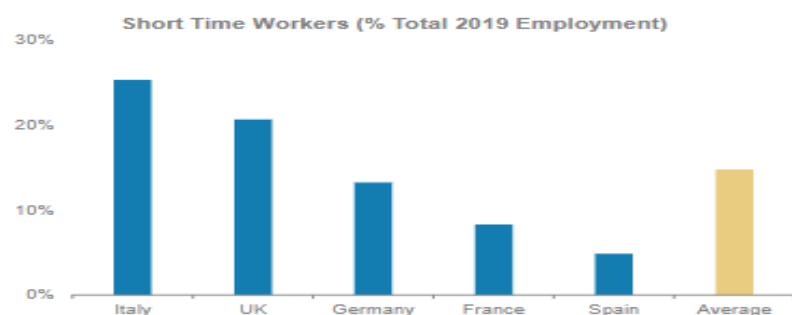
Exhibit 19: Euro area unemployment is rising, with the "real" rate still obscured by furlough programs



Source: Eurostat, Morgan Stanley Research

Europe – government measures

Exhibit 39: Furlough programs have been extended in recent weeks...



Source: Ifo, INPS, French Labour Ministry, Spanish Gov't, HMRC, Morgan Stanley Research; Note: The UK figure is based on applications, the German one based on a recent ifo estimate, and for France and Italy we quote claimants

Exhibit 40: ... as demand for emergency loans continues to slow

	Emergency Credit	Comment
Germany	€53.7bn KfW loans requested	Around 85k applications, most for less than €800k
France	State backed lending amounts to €118.5bn (as of Aug 14)	
Italy	€82 billion for central guarantee fund and €11.6 for SACE	
Spain	€73bn of guarantees provided	Gov't announced intention to boost guaranteed loans by ICO by €40bn to €140bn
UK	£52.7bn (as of 16 Aug)	This compares to £28bn of SME loans approved in 2018

Source: National sources, media reports, Morgan Stanley Research

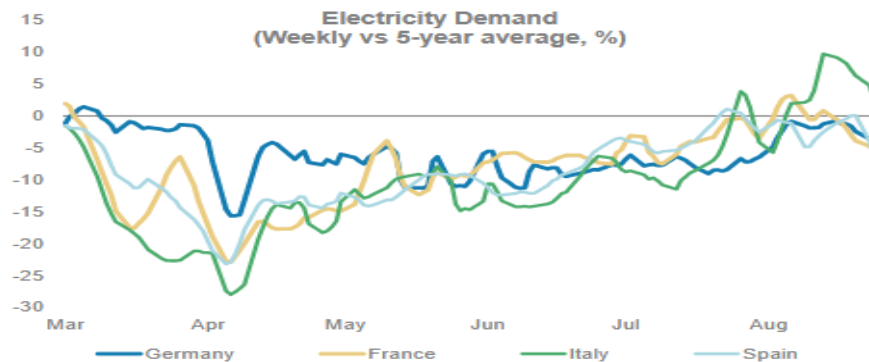
Exhibit 41: European Lockdown: Some Key Dates

	Germany	France	Italy	Spain	UK
Start of national lockdown	22 Mar	17 Mar	10 Mar	16 Mar	24 Mar
Some non-essential production restarts	Not stopped	Not stopped	04 May	13 Apr	Not stopped
Opening of some non-essential shops	20 Apr	11 May	04 May/ Most retail on 18 May	04 May/11 May	Indoor retail: June 15, outdoor retail & car showrooms: June 1
Shopping malls	Differences between states	Varied – between 11 May and 28 May	18 May	25 May (With regional differences)	15 Jun
First schools reopen	04 May	11 May	14 Sep	25 May (With regional differences)	01 Jun
Restaurants & cafes (earliest)	Differences between states	Regional differences, but June 2 at the earliest	18 May	May 11/May 25	04 Jul
Wuhan timeline (76 days)	06 Jun	01 Jun	25 May	31 May	08 Jun

Source: Government announcements, Morgan Stanley Research

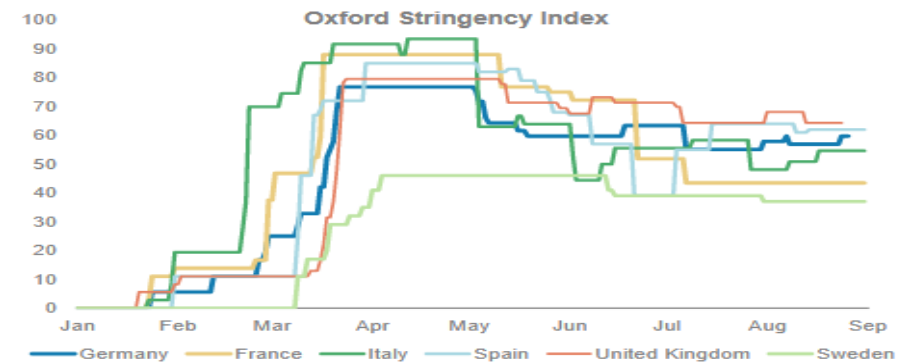
Eurozone – electricity demand, restrictions, ...

Exhibit 93: Following a surge across EA-4, electricity demand came off somewhat in recent days



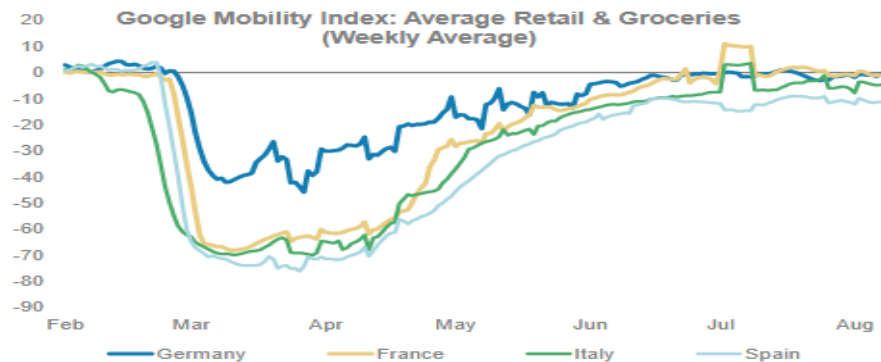
Source: ENTSO-E, Morgan Stanley Research

Exhibit 94: New infections continue to rise, but the type of restrictions we are seeing are very localised



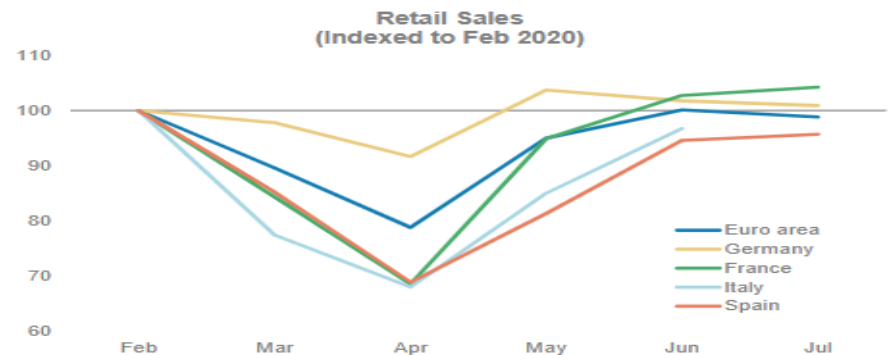
Source: Oxford University, Morgan Stanley Research

Exhibit 95: Google mobility data suggests increased footfall in stores...



Source: Google, Morgan Stanley Research

Exhibit 96: ...but with retail sales growth abating after the initial sharp bounce

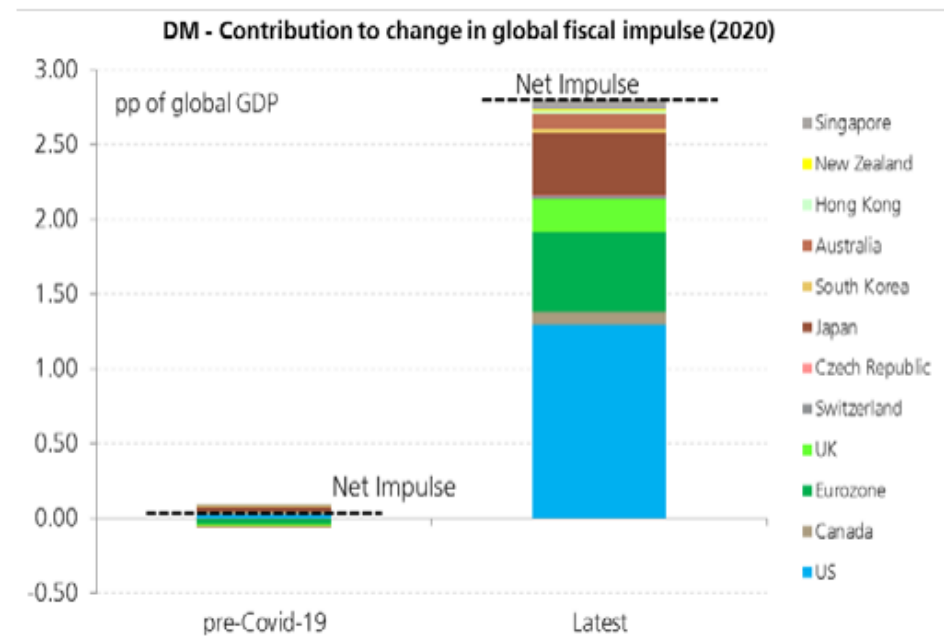


Source: Euorstat, Morgan Stanley Research

World – stimulus plans

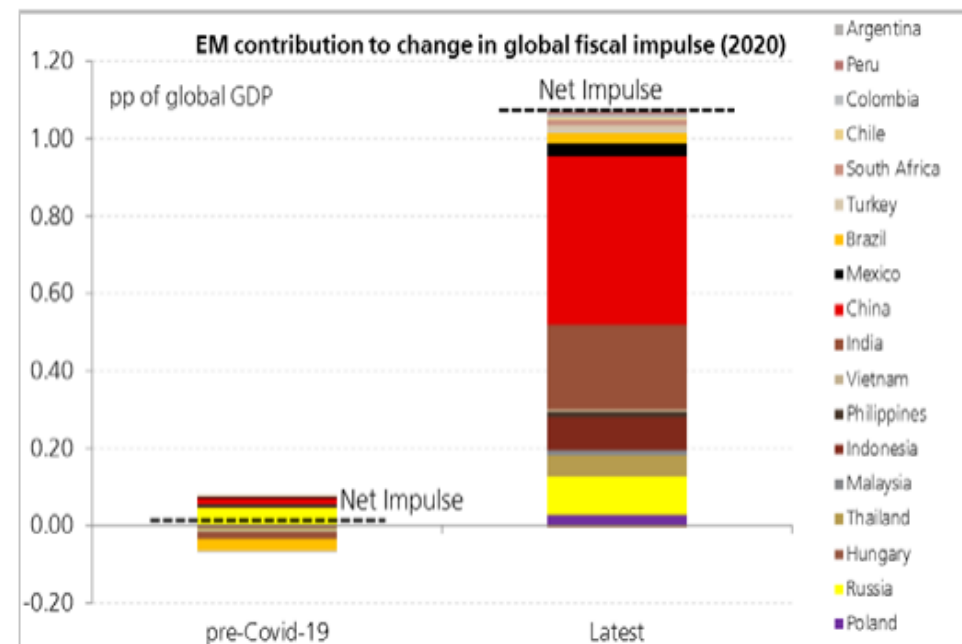
Massive stimulus in developed economies, less so in emerging ones

Figure 4: DM contribution to change in 2020 impulse



Source: UBS, Haver, IMF, European Commission, CBO

Figure 5: EM contribution to change in 2020 impulse



Source: UBS, Haver, IMF

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