



Topics: COVID and culture; when US states might “re-open”; Remdesivir; Sweden; and the remarkable yet historically consistent possibility that US equities bottomed in March

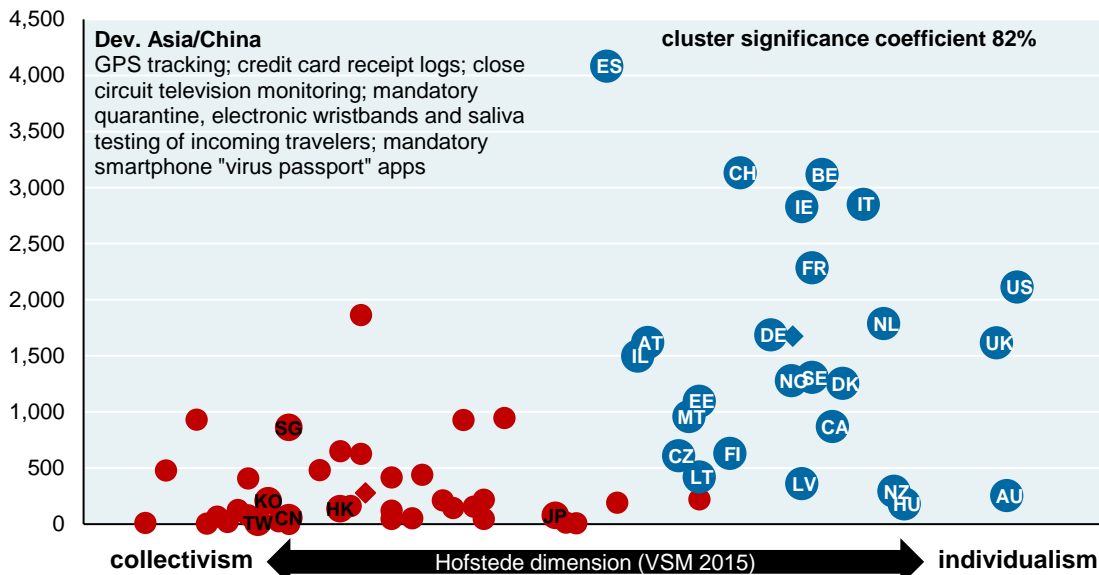
Yesterday, I received this note from a colleague about his return to see his family in Hong Kong:

“I flew to Hong Kong a little over a week ago. First, you can only travel to Hong Kong if you have some sort of residency status, which I still have. After I got off the plane, I was placed on a line to fill out paperwork, then off to another line to validate it, then another to test my phone for GPS tracking and to get my electronic wristband. Afterwards, I was placed on a shuttle bus to an area for saliva testing. Then off to my apartment for a 2 week quarantine. In addition to the wristband, I got random phone calls from the government to confirm that I was home. All in all, they really take it quite seriously in HK”.

We have summarized on our web portal all the ways that the Developed Asian region, along with China, are controlling the spread of COVID-19: electronic wristbands, GPS and credit card receipt tracking, close circuit TV monitoring, infectious disease laws and mandatory smartphone “virus passports” driven by machine learning. To illustrate the impact of these policy choices, we looked at **infection rates alongside a measure of “collectivism vs individualism”** first developed by Geert Hofstede in the 1970’s. There is no single variable that perfectly explains differences in COVID infection rates across regions; I believe this one is an indispensable part of the story. A standard cluster analysis shows a high degree of significance (on a 0 to 1 scale) when looking at infections within a collectivism/individualism dimension¹.

COVID-19 infections rates vs a measure of societal collectivism / individualism

Total infections to date per million people



Source: Johns Hopkins University, IMF, G. Hofstede Cultural Dimensions (2015), JPMAM. Diamonds represent cluster centroids. April 17, 2020

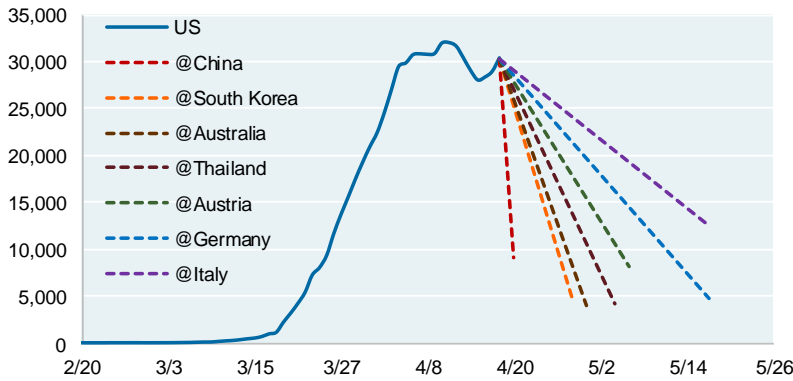
¹ We could also have used Inglehart/Welzel scores on individualism and self-expression by region; they are very similar to the Hofstede results. Thank you to internet pen pal and tech entrepreneur Paul Kedrosky for suggesting the clustering analysis as alternative to exponential trend line analysis.



When might the US “re-open”?

IF we assume that the US has now entered the decline phase of the virus (which is a big if), we can overlay recovery paths from other countries whose infection rates have declined substantially from their peak levels. Since the US has not conducted quarantine or contact tracing as broadly as China and South Korea, in my view those paths are not as relevant to the US. Austria and Germany are more likely paths for the US, with Italy as a very slow-decline outlier. Italy’s infection rate is still only 40% below peak levels, and has experienced the slowest pace of decline of all countries currently in decline mode.

US new daily infections (5 day avg), with projections based on observed decline rates in other countries, assuming that the US has entered a terminal infection decline phase (which is still unclear)



Source: Johns Hopkins University, IMF, JPMAM. April 18, 2020

How might this happen? US states will probably dictate the process to a greater degree than the Federal Government. I have seen a lot of proposals on how and when to proceed. “Phase I” plans often share the following common features and litmus tests:

- avoid non-essential travel, but allow restaurants, schools, shops and churches to reopen subject to strict social distancing rules (harder than it sounds for businesses with low margins even at full capacity)
- need to see downward trajectory of documented cases within a 14 day period, or a downward trajectory of positive tests as a % of total tests over a 14 day period before lockdown lifted
- hospitals need to be able to treat all patients without resorting to crisis care (i.e. rationing ventilators, etc.) and need to have testing programs in place for healthcare workers
- development of adequate workforce to conduct contact tracing of new clusters
- continued lockdown of seniors and people with co-morbidity issues; no visitation
- **AND**, any significant resumption of infection rates would result in lockdowns being reimposed, which is what is currently happening in Singapore

These kind of plans strike a balance between public safety and economic necessities, and implicitly acknowledge the high likelihood that countries will be developing back to work plans in the absence of an effective anti-viral, the promise of a vaccine or anything close to herd immunity. To, me they also suggest an elongated economic recovery rather than a quicker one.



The White House announced general guidelines on what constitutes reduced infection, but exactly how that might be defined by individual states remains to be seen. The table below shows some **possible litmus tests by state**, with my own assessment of thresholds that state governors might use to judge whether any declines are meaningful.

Possible COVID litmus tests for economic re-opening by state

	Positive tests to date	Negative tests to date	Decline by 3% over last 2 weeks?	3 day avg of new cases 2 weeks ago	3 day avg of new cases today	Decline by 10% over last 2 weeks?	3 day avg of current hosp 2 weeks ago	3 day avg of current hosp today	Decline by 10% over last 2 weeks?	3 day avg of current ICU 2 weeks ago	3 day avg of current ICU today	Decline by 10% over last 2 weeks?
AK	3.0%	3.3%	FAIL	14	6	PASS	-	25	no data	-	-	no data
AL	15.9%	11.8%	PASS	188	164	PASS	-	-	no data	-	-	no data
AR	8.0%	7.9%	FAIL	62	54	PASS	70	86	FAIL	-	-	no data
AZ	9.0%	10.3%	FAIL	224	232	FAIL	-	588	no data	-	284	no data
CA	13.0%	12.1%	FAIL	1,416	1,384	FAIL	2,295	4,853	FAIL	983	1,477	FAIL
CO	23.6%	26.8%	FAIL	408	384	FAIL	766	858	FAIL	-	-	no data
CT	32.3%	43.2%	FAIL	617	555	FAIL	1,028	1,943	FAIL	-	-	no data
DC	17.1%	25.6%	FAIL	115	148	FAIL	-	313	no data	-	105	no data
DE	10.6%	20.7%	FAIL	93	154	FAIL	86	232	FAIL	-	-	no data
FL	12.0%	11.3%	FAIL	1,380	1,033	PASS	-	-	no data	-	-	no data
GA	31.4%	29.7%	FAIL	433	877	FAIL	-	-	no data	-	-	no data
HI	2.8%	2.5%	FAIL	31	15	PASS	-	-	no data	-	-	no data
IA	8.7%	13.4%	FAIL	85	254	FAIL	85	191	FAIL	-	86	no data
ID	11.7%	11.0%	FAIL	136	27	PASS	-	-	no data	-	-	no data
IL	23.6%	26.9%	FAIL	1,187	1,541	FAIL	-	4,369	no data	-	1,195	no data
IN	24.2%	22.5%	FAIL	457	556	FAIL	-	-	no data	-	650	no data
KS	10.0%	11.4%	FAIL	65	87	FAIL	-	-	no data	-	-	no data
KY	5.8%	9.2%	FAIL	79	139	FAIL	-	370	no data	-	238	no data
LA	27.5%	20.4%	PASS	1,287	465	PASS	1,745	1,792	FAIL	-	-	no data
MA	21.0%	30.7%	FAIL	1,178	1,965	FAIL	-	3,729	no data	-	987	no data
MD	14.6%	23.3%	FAIL	426	682	FAIL	-	-	no data	-	-	no data
ME	7.7%	6.2%	FAIL	31	24	PASS	-	50	no data	-	22	no data
MI	43.6%	40.2%	PASS	1,150	720	PASS	-	3,570	no data	-	1,398	no data
MN	3.6%	5.4%	FAIL	64	148	FAIL	96	230	FAIL	43	111	FAIL
MO	9.5%	11.7%	FAIL	178	185	FAIL	279	931	FAIL	-	-	no data
MS	29.4%	12.3%	PASS	154	217	FAIL	-	-	no data	-	149	no data
MT	4.5%	4.1%	FAIL	20	6	PASS	-	19	no data	-	-	no data
NC	6.9%	9.0%	FAIL	243	343	FAIL	239	427	FAIL	-	-	no data
ND	3.1%	4.5%	FAIL	16	64	FAIL	7	15	FAIL	-	-	no data
NE	6.5%	9.7%	FAIL	39	112	FAIL	-	-	no data	-	-	no data
NH	8.4%	11.1%	FAIL	69	68	FAIL	-	82	no data	-	-	no data
NJ	84.0%	99.9%	FAIL	3,972	3,328	PASS	3,672	7,741	FAIL	-	1,975	no data
NM	3.3%	5.2%	FAIL	60	105	FAIL	36	93	FAIL	-	-	no data
NV	12.2%	13.4%	FAIL	126	136	FAIL	-	-	no data	-	-	no data
NY	67.7%	64.8%	FAIL	9,883	6,834	PASS	15,731	16,779	FAIL	4,078	5,030	FAIL
OH	10.2%	14.9%	FAIL	380	959	FAIL	-	-	no data	-	-	no data
OK	89.4%	7.9%	PASS	124	81	PASS	57	313	FAIL	41	142	FAIL
OR	5.5%	5.1%	FAIL	81	58	PASS	63	294	FAIL	-	72	no data
PA	17.4%	25.5%	FAIL	1,498	1,516	FAIL	-	2,617	no data	-	-	no data
RI	14.7%	15.7%	FAIL	88	289	FAIL	91	262	FAIL	26	65	FAIL
SC	12.1%	12.1%	FAIL	165	240	FAIL	-	-	no data	-	-	no data
SD	4.5%	15.7%	FAIL	25	108	FAIL	-	-	no data	-	-	no data
TN	8.7%	7.9%	FAIL	263	269	FAIL	-	-	no data	-	-	no data
TX	10.6%	11.6%	FAIL	714	823	FAIL	406	1,438	FAIL	-	-	no data
UT	5.5%	5.1%	FAIL	177	129	PASS	-	-	no data	-	-	no data
VA	12.5%	18.5%	FAIL	310	549	FAIL	-	1,311	no data	-	395	no data
VT	8.4%	6.8%	FAIL	58	15	PASS	29	47	FAIL	-	-	no data
WA	10.4%	9.5%	FAIL	457	340	PASS	385	575	FAIL	117	181	FAIL
WI	9.0%	9.6%	FAIL	179	157	PASS	-	373	no data	-	146	no data
WV	3.8%	4.5%	FAIL	36	41	FAIL	-	80	no data	-	37	no data
WY	6.5%	4.4%	FAIL	16	4	PASS	-	19	no data	-	-	no data

Source:covidtracking.com, JPMAM, April 20, 2020



Remdesivir: getting closer, but still no randomized human clinical trial with a control group

An article in Stat News last week on Gilead's anti-viral drug Remdesivir created a lot of excitement. As I understand it, the partial results were based on just 125 patients out of a 4,000 person global study which is still ongoing (which was odd). There was also no control group, which ended up being one of the many issues that led to the eventual unraveling of the hydroxychloroquine story. Furthermore, the 125-person trial reportedly screened out patients requiring ventilation, and those with multi-organ failure. This leaves a group with a better chance of recovering, with or without Remdesivir².

On the other hand, a less well-publicized Remdesivir study *did* have a control group, but was based on primates (12 rhesus macaque monkeys)³. Twelve hours after initial treatment, scientists found six treated animals in better health than the untreated group, a trend that continued during the seven-day study. Only one of the six treated animals showed mild breathing difficulty, whereas all six untreated animals showed rapid and difficult breathing. The amount of virus found in the lungs was significantly lower in the treatment group compared to the untreated group, and the virus caused less damage to lungs in treated animals than in untreated animals. More promising news, but a long way from an approved anti-viral.

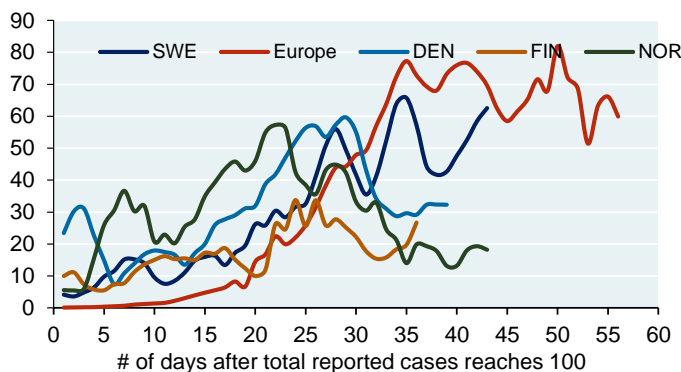
Sweden

Sweden has taken a different approach than other Scandinavian countries on lockdown policies. Sweden issued "recommendations" rather than restrictions; recommends handwashing and working from home for those who can; self-isolation for those who feel ill or are older than 70; bans meetings of more than 50 people, forcing bars and restaurants to only serve seated customers; has only closed universities and upper secondary schools; has left cinemas, gyms and schools for those under 16 open; and has left borders open to EU citizens as well. The goal: faster attainment of herd immunity.

How's it going so far? Sweden's pace of infection is higher than the rest of Scandinavia, and almost as high as Europe overall; and its mortality rate as a % of reported infections is higher than the rest of Scandinavia, and even higher than the composite for Europe. We won't know actual infection levels for a long time, so I agree with the Swedish government's advisor that the figures below are likely to decline once serology tests show the true spread of infection. But that's true for every country shown, and so far, Sweden looks worse than the rest of its neighbors. Sweden is betting that when the other countries exit lockdowns, they will "catch up" to Sweden and will have experienced more economic calamity; we'll see.

New daily infections per mm people

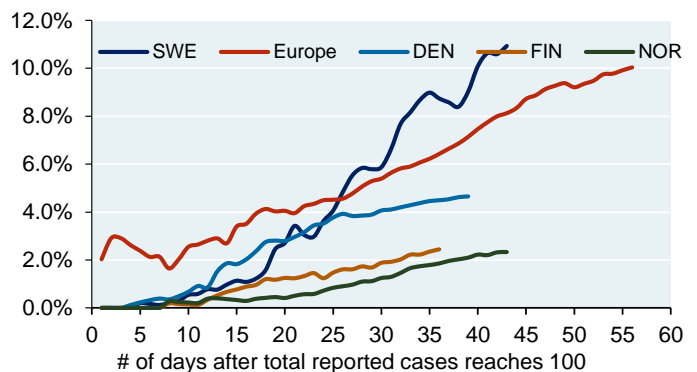
Linear scale, 3 day trailing average



Source: Johns Hopkins University, IMF, JPMAM. April 18, 2020

Mortality: Case fatality rate

Linear scale, 1 day trailing average



Source: Johns Hopkins University, IMF, JPMAM. April 18, 2020

² Bloomberg, April 17, 2020

³ "Antiviral Remdesivir prevents disease progression in monkeys with COVID-19", NIH, April 17, 2020



Did US equities bottom in March?

This table summarizes our “market bottom” analyses since the Great Depression. The consistent theme: markets often rally substantially as the crisis indicators of the time were actually getting worse (unemployment, bank failures, household delinquencies, corporate defaults, etc). If US equities did in fact bottom on March 23, they would have done so when COVID infections were just 6% of current levels. Remarkable as it may seem, that would be consistent with history.

Market appreciation during times of ample economy-wide distress

Date	Market	Rallied By	From	Before	Action
1932	Dow Jones	67%	Lowest Level	Bank Failures	Reached 75% of eventual total
1957	US Equities	4%	Lowest Level	GDP	Bottomed
1974	US Equities	25%	Lowest Level	GDP	Bottomed
1974	US Equities	35%	Lowest Level	Unemployment	Peaked
1982	US Equities	26%	Lowest Level	GDP	Bottomed
1983	US Equities	27%	Lowest Level	Unemployment	Peaked
1990	US High Yield	350 bps	Widest Spread	HY Defaults	Reached 75% of eventual total
1990	S&P Bank Index	90%	Lowest Level	Bank Failures	Reached 75% of eventual total
2002	US High Yield	0 bps	Widest Spread	HY Defaults	Reached 75% of eventual total
2003	US Equities	17%	Lowest Level	Unemployment	Peaked
2008	US High Yield	1177 bps	Widest Spread	HY Defaults	Reached 75% of eventual total
2009	US Equities	24%	Lowest Level	GDP	Bottomed
2009	S&P Bank Index	180%	Lowest Level	Bank Failures	Reached 75% of eventual total
2009	AAA CMBS	975 bps	Widest Spread	Delinquency rates	Reached 75% of max delinquency rate
2009	Leveraged Loans	6%	Lowest Level	Defaults	Reached 75% of max default rate
2009	US Equities	33%	Lowest Level	Unemployment	Peaked
2012	European Equities	33%	Lowest Level	Unemployment	Peaked

Sources: Spreads measured in basis points. STOXX, Eurostat, FDIC, BBG, J.P. Morgan Securities, BLS, Trepp, S&P, S&P/LSTA Leveraged Loan Index, BEA, Shiller, JPMAM. 2020. It is not possible to invest directly in an index. Past performance is no guarantee of future results.

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