

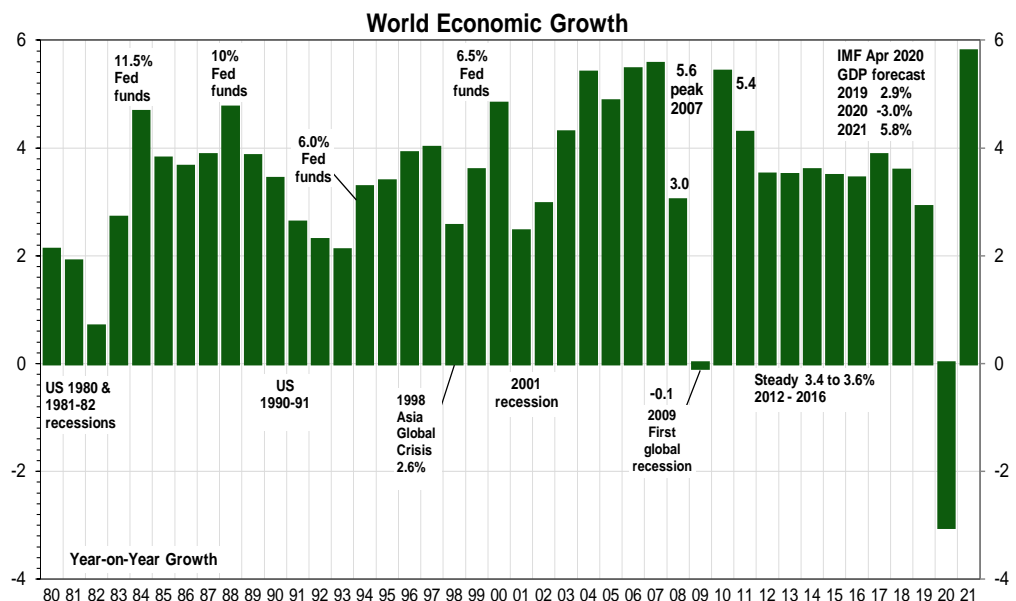
MUFG UNION BANK, N.A.
 ECONOMIC RESEARCH (NEW YORK)
 CHRISTOPHER S. RUPKEY, CFA
 MANAGING DIRECTOR
 CHIEF FINANCIAL ECONOMIST
 (212) 782-5702
 crupkey@us.mufg.jp

17 APRIL 2020

MUFG Bank, Ltd.
 A member of MUFG, a global financial group

IT'S NOT JUST THE U.S., THE WHOLE WIDE WORLD IS IN RECESSION

We thought it was just us who were being negative on the economy, but take a look at this week's IMF update on the outlook. Wow. The world economy sank in one year only once before looking all the way back to the 1980s when the world first became the world after Japan ramped up its car exports to America and started the trend toward globalization. World GDP fell 0.1% in



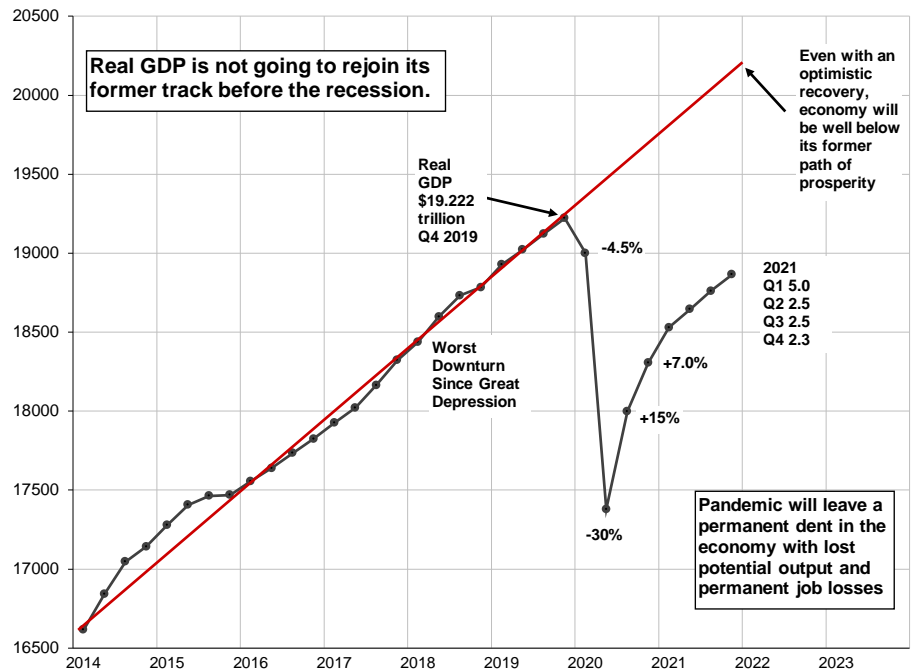
2009 when the senior U.S. monetary officials let Lehman go bankrupt triggering a global financial market crisis that brought down the entire world. Global recession is back. The IMF looks for -3.0% growth in 2020 for the world. Japan down 5.2%, the Euro Area down 7.5%, the U.K down 6.5%, Canada down 6.2%, and China slowing to 1.2% positive growth this year from 6.1% in 2019 (this was before the 6.8% YOY drop in Q1 2020 reported later in the week). And we don't want to leave out the IMF forecast for us here in America: down 5.9% in 2020 after the best economy in 50 years growth of 2.3% in 2019. Thanks a lot.

The world looks pretty V-shaped in terms of recovery dropping 3.0% in 2020 and rising back 5.8% in 2021 say the IMF economists who are known to be fairly cautious if not pessimistic in their forecasts.

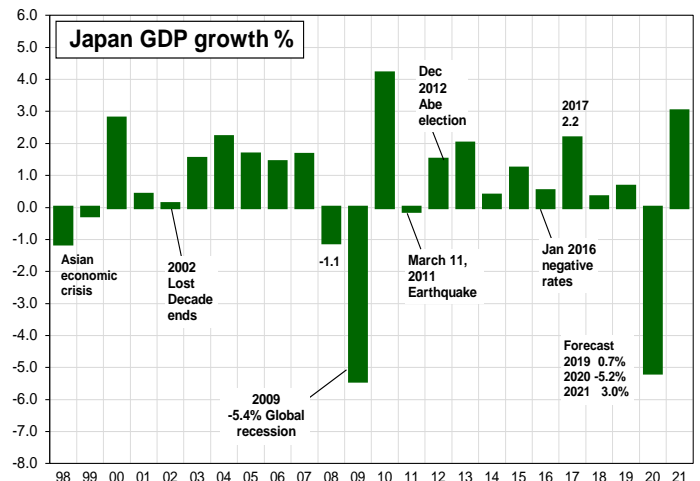
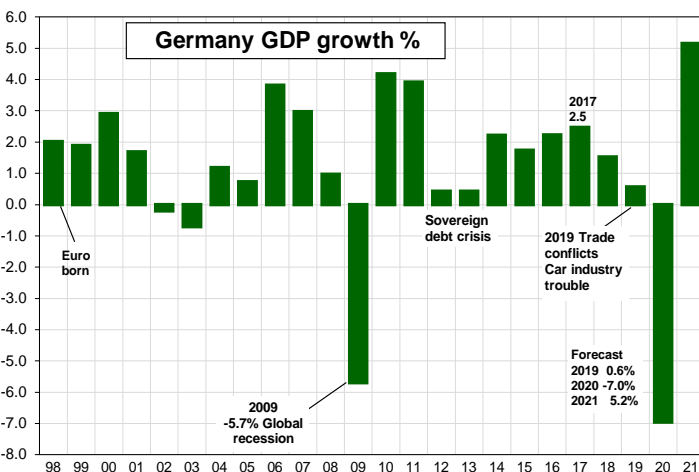
	IMF APRIL 2020 WORLD ECONOMIC GROWTH FORECASTS														
	World GDP	U.S.	Euro Area	Germany	France	Italy	Spain	UK	Japan	Canada	China	Russia	India	Brazil	Mexico
2019	2.9	2.3	1.2	0.6	1.3	0.3	2.0	1.4	0.7	1.6	6.1	1.3	4.2	1.1	-0.1
2020	-3.0	-5.9	-7.5	-7.0	-7.2	-9.1	-8.0	-6.5	-5.2	-6.2	1.2	-5.5	1.9	-5.3	-6.6
2021	5.8	4.7	4.7	5.2	4.5	4.8	4.3	4.0	3.0	4.2	9.2	3.5	7.4	2.9	3.0

It isn't V-shaped for Germany, France, Italy, and Spain along with most other advanced economies. For the Euro Area in particular with -7.5% this year and recovering 4.7% in 2021, things won't be back to normal still almost two years from now at the end of 2021. That's the math and that's why economics is called the dismal science.

There can't really be a V-shaped recovery strong enough to get the economy back up on its growth path prior to a recession, any recession. The recovery is always going to end up short with lost wealth and production and incomes and jobs and prosperity. What could have been and is now gone. We have been updating the U.S. GDP forecast every day this week or at least thinking about it. Retail sales fell 8.7% in March dragging down the first quarter of 2020. If some economic indicator drops 8 percent the final month of a quarter, assuming unchanged readings the months before, the quarter on average is going to fall 2.7%. Our latest GDP forecast here shows the level of GDP never returns to pre-recession levels after falling 4.5% in Q1 (released Wednesday, April 29) and dropping 30% in Q2 (released Thursday, July 30). We have a fairly optimistic recovery in the next several quarters with positive growth, but the nation will still be short of returning to the best economy in 50 years earlier this year. If that's what it was as don't forget manufacturing was weak with purchasing manager executives saying manufacturing was in a recession from August 2019 to December 2019 before the coronavirus pandemic. We look for GDP to grow 15% in Q3 2020, 7.0% in Q4 2020, and 5.0% in Q1 2021. Consumer spending can bounce back in recoveries as there is pent-up demand, although you wonder about this with the hole being dug by car sales falling from a 16.7 million annual rate in February to 11.4 million in March to zero in April 2020? What doesn't bounce back for some time in economic recoveries is business investment spending especially if firms have taken substantial financial losses.



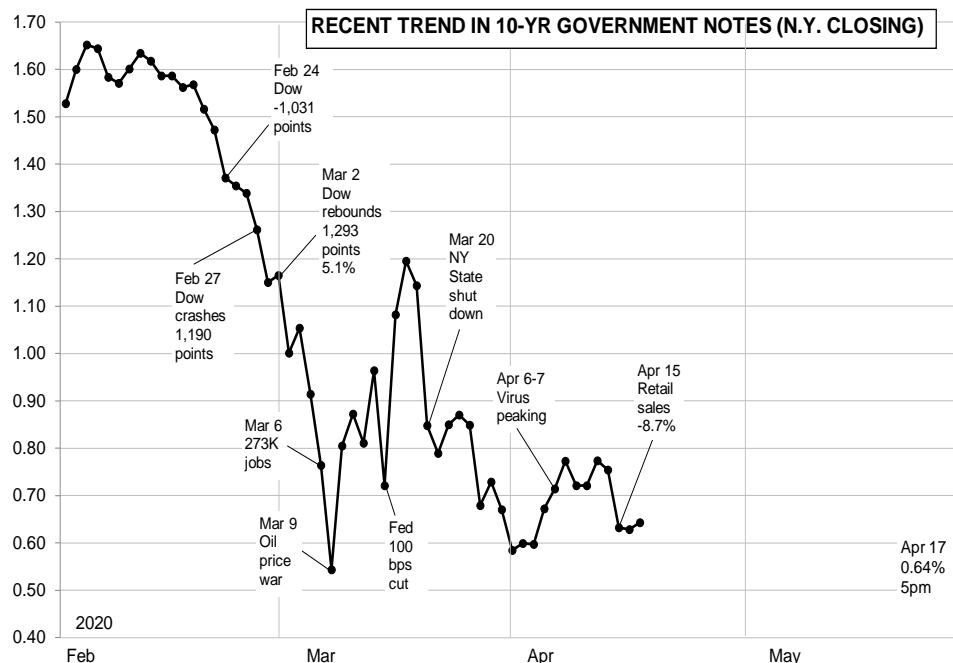
Our latest GDP forecast here shows the level of GDP never returns to pre-recession levels after falling 4.5% in Q1 (released Wednesday, April 29) and dropping 30% in Q2 (released Thursday, July 30). We have a fairly optimistic recovery in the next several quarters with positive growth, but the nation will still be short of returning to the best economy in 50 years earlier this year. If that's what it was as don't forget manufacturing was weak with purchasing manager executives saying manufacturing was in a recession from August 2019 to December 2019 before the coronavirus pandemic. We look for GDP to grow 15% in Q3 2020, 7.0% in Q4 2020, and 5.0% in Q1 2021. Consumer spending can bounce back in recoveries as there is pent-up demand, although you wonder about this with the hole being dug by car sales falling from a 16.7 million annual rate in February to 11.4 million in March to zero in April 2020? What doesn't bounce back for some time in economic recoveries is business investment spending especially if firms have taken substantial financial losses.



MARKETS OUTLOOK

	29-Mar 2019	28-Jun 2019	30-Sep 2019	31-Dec 2019	31-Mar 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021
30-Yr Treasury	2.81	2.53	2.11	2.39	1.32	1.20	1.10	1.20	1.20	1.30
10-Yr Note	2.41	2.01	1.67	1.92	0.67	0.70	0.70	0.80	0.90	1.00
5-Yr Note	2.23	1.77	1.55	1.69	0.38	0.40	0.50	0.60	0.70	0.80
2-Yr Note	2.26	1.76	1.62	1.57	0.25	0.30	0.30	0.30	0.40	0.40
3-month Libor	2.60	2.32	2.09	1.90	1.45	1.10	1.00	0.80	0.60	0.50
Fed Funds Rate	2.50	2.50	2.00	1.75	0.25	0.25	0.25	0.25	0.25	0.25
2s/10s spread	15	25	5	35	42	40	40	50	50	60

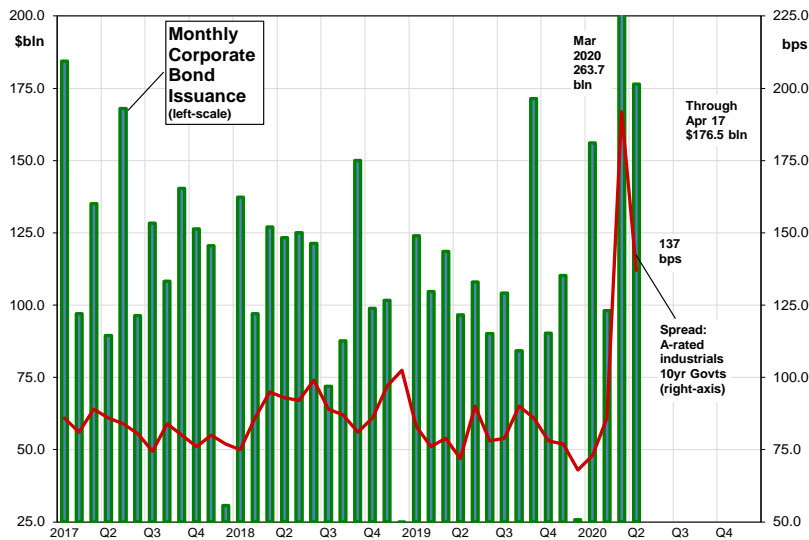
10-year Treasury yields started falling early Wednesday morning from Tuesday's 0.75% close. Crude oil fell to \$20 despite the OPEC+ agreement to cut supply, and there was bad economic news ahead. Wednesday morning's retail sales report at 830am ET indeed showed a "record" sales decline of 8.7% in March. Yields saw a boost Thursday evening with stock futures as Boeing was going open a plant, Gilead Sciences' drug helps Covid-19 patients, and Trump



said some parts of the country would open May 1. The yield rally fizzled Friday, new 0.59% low for the week, before closing higher at 0.64% after the Fed cut the QE life support line.

CORPORATES: EXXON MOBIL \$9.5B, FORD \$8B, GE \$6B, COSTCO \$4B

Corporate bond offerings were \$69.5 billion in the April 17 week versus \$39.0 billion in the April 10 week. On Thursday, Costco sold \$4.0 billion 7s/10s/12s. It priced a \$1.75 billion 1.6% 10-yr (m-w +15bp) at 100 bps (Aa3/A+). The warehouse club merchandise retailer will use the proceeds to repay senior notes: \$1 billion 2.15% May 2021, and \$500 million 2.25% Feb 2022. Corporate bond yields (10-yr Industrials rated A2) were 137 bps above 10-yr Treasuries Friday versus 143 bps last Friday.



FEDERAL RESERVE POLICY

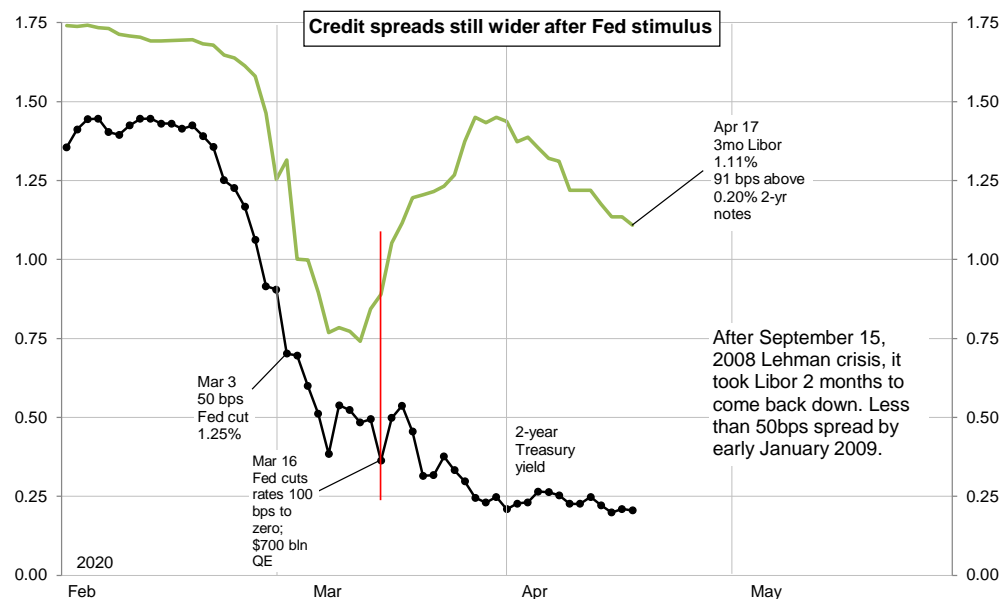
The Fed meets April 28-29, 2020 to consider its monetary policy. A lot of Fed speakers this week maybe because they have nothing else to do with interest rates at zero. Powell said they had authorized nine lending facilities and there is a third new one on the balance sheet this week: a Commercial Paper Funding Facility. New York Fed President Williams said Friday there were some risks that an economic recovery could take longer, economic pain was likely to continue for some time, and he doesn't see the economy back to full strength by the end of the year. Oh, and he said Q2 real GDP would be horrible. Meanwhile, the Fed continues to buy Treasury securities. It

Selected Fed assets and liabilities						
Fed H.4.1 statistical release						Sep 10
billions, Wednesday data	15-Apr	8-Apr	1-Apr	25-Mar	2008**	
	pre-LEH					
Factors adding reserves						
U.S. Treasury securities	3788.858	3634.386	3340.832	2978.372	479.782	
Federal agency debt securities	2.347	2.347	2.347	2.347	0.000	
Mortgage-backed securities (MBS)	1568.171	1459.701	1457.721	1384.563	0.000	
Repurchase agreements	181.100	192.751	263.050	352.355	126.750	
Primary credit (Discount Window)	36.284	43.449	43.744	50.768	23.455	
Factors draining reserves						
MMLF	50.656	53.171	52.667	30.634		
PDCF	33.409	33.018	33.050	27.718		
Commerical Paper Funding Facility	0.974					
<u>Central bank liquidity swaps</u>	378.291	358.077	348.544	206.051	62.000	
Federal Reserve Assets	6416.1	6131.4	5859.6	5302.6	961.7	
3-month Libor %	1.13	1.31	1.44	1.27	2.82	
Reserve Balances (Net Liquidity)						
Treasuries within 15 days	58.644	47.112	36.238	44.037	14.955	
Treasuries 16 to 90 days	225.035	233.415	233.009	221.051	31.549	
Treasuries 91 days to 1 year	527.601	500.589	468.063	430.067	69.272	
Treasuries over 1-yr to 5 years	1493.336	1432.206	1298.345	1111.145	170.807	
Treasuries over 5-yrs to 10 years	621.255	576.918	509.228	436.318	91.863	
Treasuries over 10-years	862.987	844.146	795.949	735.754	101.337	
**September 10, 2008 is pre-Lehman bankruptcy of 9-15-08						
MMLF: Money Market Mutual Fund Liquidity Facility: loans secured by assets bought by banks from money market funds						
PDCF: Primary Dealer Credit Facility: o/n and term funding with maturities to 90 days						

could be our imagination but it looks like they are helping the U.S. Treasury fund the country's growing pandemic recession Federal budget deficit. So far this fiscal year ending September, the Fed has bought \$1.681 trillion and the Treasury has auctioned \$1.874 trillion of debt for new cash to fund the Federal government. We think this QE is money-printing, and go ahead, fine by us, but the last we saw

from the Federal Reserve was that these purchases would be in "the amounts needed to support smooth market functioning and effective transmission of monetary policy to broader financial conditions and the economy." Still not sure how "unlimited" the Fed thinks its own QE is. On Friday, they said they would scale back Treasury purchases from \$30 billion daily this week to \$15 billion daily next week.

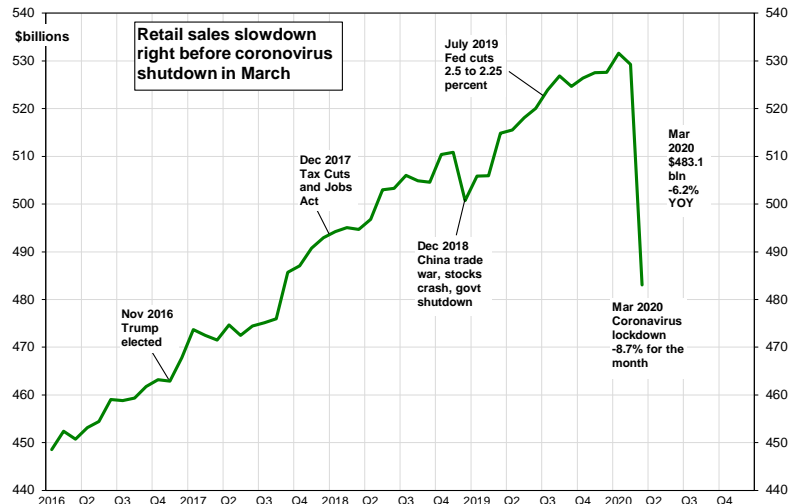
U.S. Treasury New Cash Needs and Fed Treasury Purchases (QE)								
Monthly Changes (\$ billions)								
Fiscal Year (FY) Ending September 2020								
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Fed QE	67.808	73.007	80.364	80.246	64.952	504.312	810.486	1,681.2
<u>New Cash</u>	166.8	112.5	50.9	38.5	199.8	238.7	1067.7	1,874.9
Bills	79.1	59.0	-98.2	-12.5	160.3	92.8	1064.9	1,345.4
Coupons	87.6	53.4	149.2	51.1	39.5	145.8	2.8	529.4



OTHER ECONOMIC NEWS THIS WEEK

Consumers are only buying groceries as they see the end is near for the economy (Wednesday)

Breaking economy news. Retail sales fell a mind-boggling 8.7% in March and this is just the advance report that may grow even darker after revision. The economy's outlook is darker than even we thought. A 30% GDP decline this quarter is nearly certain now as the consumer has pulled the rug out from under the economy. The Treasury says those emergency relief checks are in the mail once they find someone to sign them and the money is sorely needed as this looks like a complete disaster. The economy has lost its most reliable engine for growth: the consumer.



We already know auto sales fell 31% in March to a 11.4 million annual rate from 16.7 million in February. They are going to

zero in April. No one is buying cars they are panicking and buying groceries like they will be shut in not for days or weeks, but for months. In the retail sales report motor vehicles dropped 25.6% and grocery store sales rose 26.9%. Even Internet sales rose modestly by just 3.1% as consumers are too frightened for their futures to pick up their smartphones. Clothing store sales, a new dress or a jacket, forget about it, down 50.5% in March which is the biggest drop of any spending category.

Net, net, the economy is literally in freefall with consumers unable to get out to the shops and malls in March and about the only retailers smiling are grocery stores with consumers stockpiling food for the coming economic apocalypse. This report today breaks all modern-day records for the consumer who has dealt the economy a body blow from which it will be difficult to recover. The stock market has discounted a flattening of the curve of new coronavirus cases, but it can't have discounted an end of the sharpest downturn since the Great Depression when

there is little sign the worst is over yet. Sure, there can be a faster economic recovery, but we don't know yet from what level the economy will rebound from. Is this a downturn, a recession, a depression, or is the economy in freefall down to the very bottom of the well from which there is no return? We can't guess at the recovery until the economy hits bottom, and the economy won't hit bottom until consumers can emerge from the coronavirus lockdown and start spending again.

Retail spending, actual dollars, each month

	\$million	% to Total	Percent Changes %		
			Mar	Feb	Year/year
Total Retail Sales	483,066	100.0	-8.7	-0.4	-6.2
Motor vehicles/parts	79,302	16.4	-25.6	-0.5	-23.7
Furniture/furnishings	7,337	1.5	-26.8	-0.9	-24.6
Electronics/appliances	6,870	1.4	-15.1	-0.9	-15.9
Building materials/garden	33,829	7.0	1.3	-0.2	7.6
Food & beverage	82,099	17.0	25.6	-0.1	28.0
Health/personal care	30,807	6.4	4.3	-0.4	4.3
Gasoline stations	35,326	7.3	-17.2	-2.9	-18.0
Clothing/accessories	11,088	2.3	-50.5	-1.6	-50.7
Sporting goods, books	4,982	1.0	-23.3	-0.2	-22.7
General merchandise	63,781	13.2	6.4	-0.1	7.5
Department stores	8,779	1.8	-19.7	-0.2	-23.9
Miscellaneous retailers	10,299	2.1	-14.3	-0.7	-4.9
Nonstore retailers (internet)	68,787	14.2	3.1	0.7	9.7
Eating & drinking places	48,559	10.1	-26.5	-0.2	-23.0

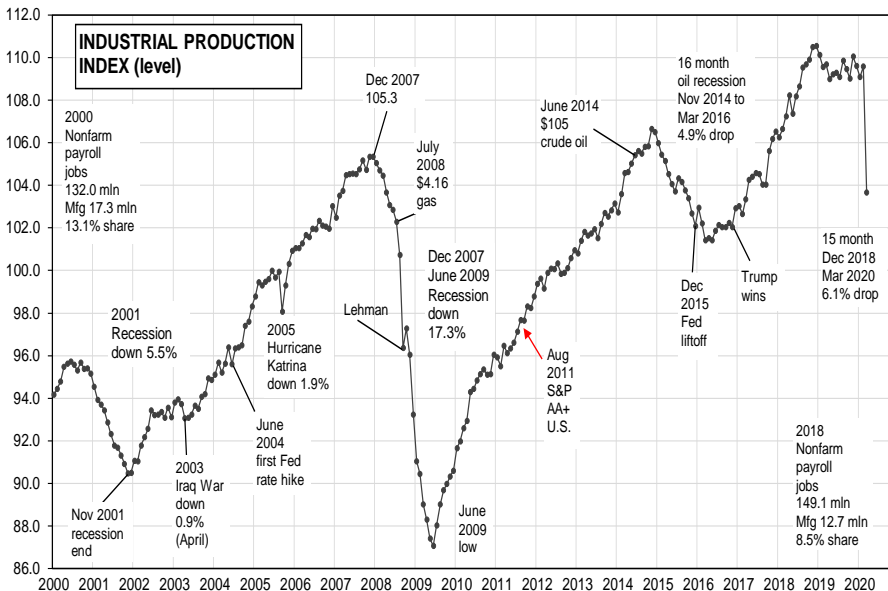
Today's report tells us that it's worse out there than many thought and that the economy is doomed. The stock market can discount the slowing of the spread of the coronavirus, but it can't ignore the sharpest one-month drop in retail sales on record. The consumer is panicking and stockpiling

groceries like the economy will never recover again. Stock market investors may have piled back into the market too early because the economy is literally in freefall and no one knows when it will hit bottom. Retail sales say this is a depression not a recession and who knows when corporations will make money again to justify current stock valuations.

Economy drops another engine as factory doors slam shut (Wednesday)

Breaking economy news. Industrial production plummeted 5.4% in March and that's not annualized. The Federal Reserve's report dryly notes the COVID-19 pandemic led many factories to suspend operations "late in the month" which means the worst is still coming. 5.4 percent times four is an annual rate of decline of over 20 percent which more or less sinks the economy's ship this quarter and will make this downturn the worst since the Great Depression. The decline is the biggest since production fell (and was no longer needed) after end of World War II.

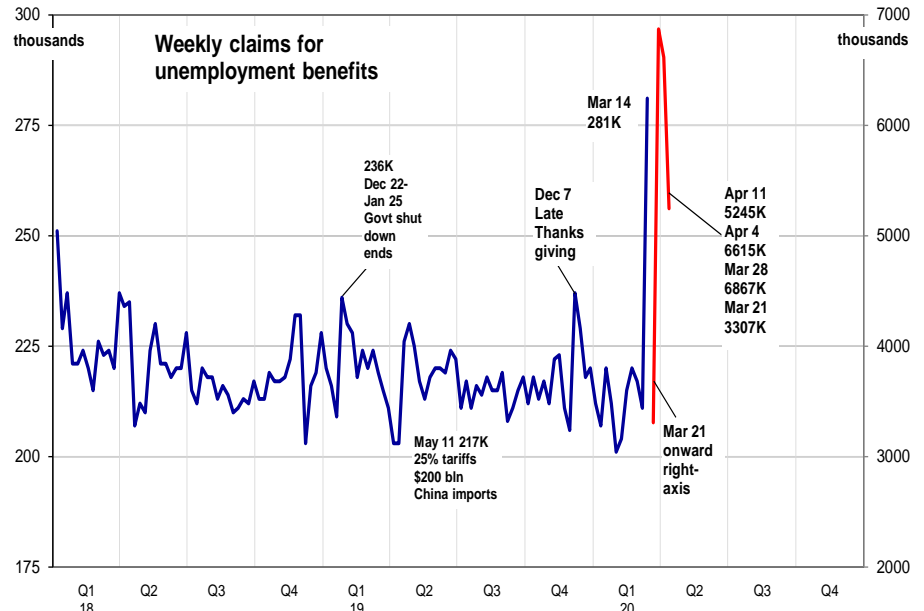
Net, net, no one is shopping at the mall and no one is working on the factory floor and the magnitude of these March declines in production and retail sales tells you the market's optimism that the worst was over for the economy was misplaced. Economists have long imagined over the years what a new Great Depression would look like, but today they can stop thinking about it, it's here with an unimaginable 20% of workers likely to have lost their employment. The Federal government's fiscal package is looking more like a handout that will merely keep the economy's ship from sinking all the way to the bottom of the ocean floor. This is not a stimulus package. The bailout money from the government can do nothing for growth when the economy is in freefall. Things will plainly never be the same again for consumers and factories where everyone in the country will have to make do with less now that the longest economic expansion in history is over. Bet on it.



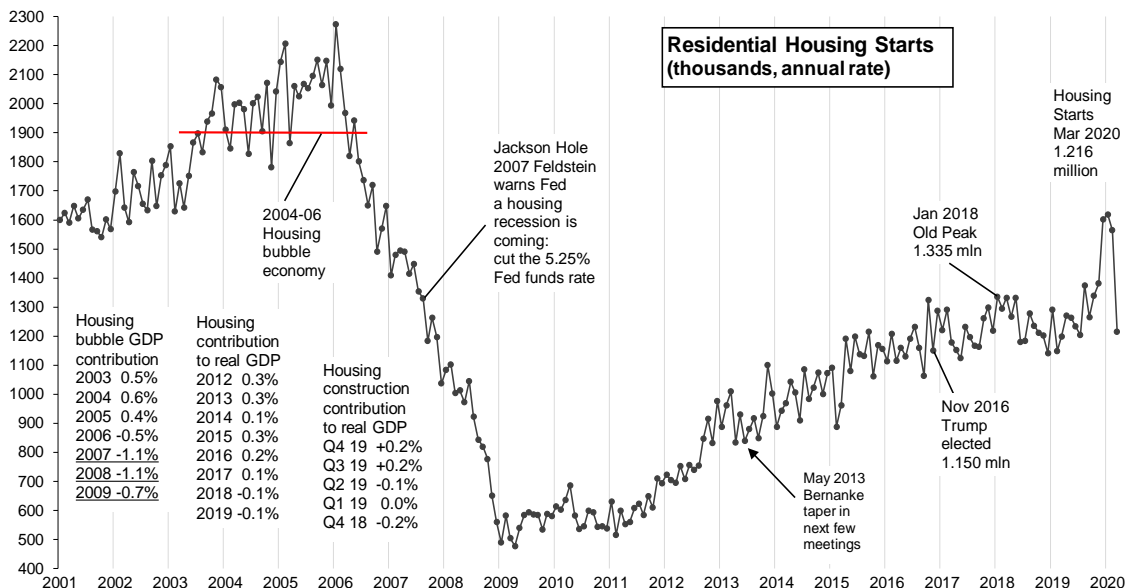
Percent changes			Industrial Production March 2020	
Jan	Feb	Mar	YOY	Weight
-0.5	0.5	-5.4	<u>-5.5</u> <u>Total Index</u>	<u>100.0</u>
-0.1	-0.1	-6.3	-6.6 Manufacturing	75.3
0.6	-1.3	-2.0	0.0 Mining	14.2
-4.7	7.0	-3.9	-5.1 Utilities	10.4
			Manufacturing payroll jobs 12.8 million -18K YOY 10.0% of Private Payroll Jobs	

Jobless claims peaking, housing construction sinking (Thursday)

Breaking economy news. Housing starts down 22.3% to 1.216 million at an annual rate in March from 1.564 million in February. Jobless claims are peaking at only 5.245 million applications in the April 11 week. The stock market seems to count job layoffs the same way they read the curve of new positive coronavirus cases and think that 5.245 million jobless claims this week is better and lower than the 6.615 million applications last week. The labor market curve is flattening and that's a good thing for the economic outlook as it signifies a recession this time around not a new Great Depression from the 1930s that lasted three and a half years. We hope stock market investors are right that the peak in layoffs each week means the worst is over, but somehow it seems irrelevant how fast the layoffs are coming as long as they are coming. And more job layoffs are coming.



Residential housing construction collapsed in March, but housing is no longer the canary in the coal mine warning of recession like it was over a year before the Great Recession. This time it was manufacturing that was the weak sector of the economy warning this was not the best economy in 50 years for everyone before the pandemic suddenly struck down the economy this year.



Net, net, this is the worst recession since the 1930s with job losses soaring the last four weeks to mark this dark day forever in the history books. 22 million have lost their jobs and applied for unemployment benefits over the last four weeks and to put this number in context, there were only 15.352 million unemployed at the peak of the Great Recession over a decade ago. It looks right now like 29 million are out of work for an unemployment rate of 18 percent. This does not count the number

of workers who have lost their jobs and are ineligible to file for unemployment compensation, so the real job losses could be closer to the Great Depression magnitude of 25 percent. Look around you and count for yourself whether there are one out of four of your neighbors out of a job.

Housing was a bright spot for the economy but now that construction is tumbling we should expect that the rising trend of job losses isn't over yet. Stay tuned. Story developing. The economic outlook is bleak and growing bleaker by the day as workers losing their wages will be unable to spend the money that supports other companies and businesses. The economy is in a downward spiral where job losses beget job losses and the Federal government emergency relief checks will not be enough to turn the tide. The recovery is looking less V-shaped by the day as the deeper we fall, the harder it will be for the nation to climb back out of this deep hole the pandemic has dug for the economy. The worst is yet to come. Bet on it.

Housing Starts Total, Single-Family, Multi-Family											
	United States			Northeast		Midwest		South		West	
000s	Total	1 unit	Multi	Total	1 unit	Total	1 unit	Total	1 unit	Total	1 unit
Mar 20	1216	856	347	69	52	153	107	693	454	301	243
Feb 20	1564	1037	511	120	63	195	144	881	601	368	229
Mar 19	1199	833	361	83	57	132	102	655	480	329	194
% Chgs											
Mar/Feb	-22.3	-17.5	...	-42.5	-17.5	-21.5	-25.7	-21.3	-24.5	-18.2	6.1
Mar/Mar	1.4	2.8	...	-16.9	-8.8	15.9	4.9	5.8	-5.4	-8.5	25.3

Analyst Certification

The views expressed in this report accurately reflect the personal views of **Christopher S. Rupkey**, the primary analyst responsible for this report, about the subject securities or issuers referred to herein, and no part of such analyst's compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed herein.

The information herein is provided for information purposes only, and is not to be used or considered as an offer or the solicitation of an offer to sell or to buy or subscribe for securities or other financial instruments. Neither this nor any other communication prepared by MUFG Bank, Ltd. (collectively with its various offices and affiliates, "MUFG Bank") or should be construed as investment advice, a recommendation to enter into a particular transaction or pursue a particular strategy, or any statement as to the likelihood that a particular transaction or strategy will be effective in light of your business objectives or operations. Before entering into any particular transaction, you are advised to obtain such independent financial, legal, accounting and other advice as may be appropriate under the circumstances. In any event, any decision to enter into a transaction will be yours alone, not based on information prepared or provided by MUFG Bank. MUFG Bank hereby disclaims any responsibility to you concerning the characterization or identification of terms, conditions, and legal or accounting or other issues or risks that may arise in connection with any particular transaction or business strategy. While MUFG Bank believes that any relevant factual statements herein and any assumptions on which information herein are based, are in each case accurate, MUFG Bank makes no representation or warranty regarding such accuracy and shall not be responsible for any inaccuracy in such statements or assumptions. Note that MUFG Bank may have issued, and may in the future issue, other reports that are inconsistent with or that reach conclusions different from the information set forth herein. Such other reports, if any, reflect the different assumptions, views and/or analytical methods of the analysts who prepared them, and MUFG Bank is under no obligation to ensure that such other reports are brought to your attention.

Copyright 2020 MUFG All Rights Reserved

The articles and opinions in this publication are for general information only, are subject to change, and are not intended to provide specific investment, legal, tax or other advice or recommendations. The information contained herein reflects the thoughts and opinions of the noted authors only, and such information does not necessarily reflect the thoughts and opinions of MUFG or its management team. We are not offering or soliciting any transaction based on this information. We suggest that you consult your attorney, accountant or tax or financial advisor with regard to your situation. Although information has been obtained from sources we believe to be reliable, neither the authors nor MUFG vouch for its accuracy, and such information may be incomplete or condensed. Neither the authors nor MUFG shall be liable for any typographical errors or incorrect data obtained from reliable sources or factual information.

About Mitsubishi UFJ Financial Group, Inc.'s U.S. Operations including MUFG Americas Holdings Corporation

The U.S. operations of Mitsubishi UFJ Financial Group, Inc. (MUFG), one of the world's leading financial groups, has total assets of \$341.4 billion at December 31, 2019. As part of that total, MUFG Americas Holdings Corporation (MUAH), a bank holding company and intermediate holding company, has total assets of \$170.8 billion at December 31, 2019. MUAH's main subsidiaries are MUFG Union Bank, N.A. and MUFG Securities Americas Inc. MUFG Union Bank, N.A. provides a wide range of financial services to consumers, small businesses, middle-market companies, and major corporations. As of December 31, 2019, MUFG Union Bank, N.A. operated 349 branches, consisting primarily of retail banking branches in the West Coast states, along with commercial branches in Texas, Illinois, New York and Georgia. MUFG Securities Americas Inc. is a registered securities broker-dealer which engages in capital markets origination transactions, private placements, collateralized financings, securities borrowing and lending transactions, and domestic and foreign debt and equities securities transactions. MUAH is owned by MUFG Bank, Ltd. and Mitsubishi UFJ Financial Group, Inc. MUFG Bank, Ltd., a wholly owned subsidiary of Mitsubishi UFJ Financial Group, Inc., has offices in Argentina, Brazil, Chile, Colombia, Peru and Canada as well as branches, agencies and representative offices in the U.S. Visit <https://www.unionbank.com/> or <https://www.mufgamericas.com/> for more information.

About MUFG

Mitsubishi UFJ Financial Group, Inc. (MUFG) is one of the world's leading financial groups. Headquartered in Tokyo and with over 360 years of history, MUFG has a global network with over 3,000 locations in more than 50 countries. The Group has over 180,000 employees and offers services including commercial banking, trust banking, securities, credit cards, consumer finance, asset management, and leasing. The Group aims to "be the world's most trusted financial group" through close collaboration among our operating companies and flexibly respond to all of the financial needs of our customers, serving society, and fostering shared and sustainable growth for a better world. MUFG's shares trade on the Tokyo, Nagoya, and New York stock exchanges. For more information, visit <https://www.mufg.jp/english>.