

# Continuing the Discussion: Navigating Turbulent Markets

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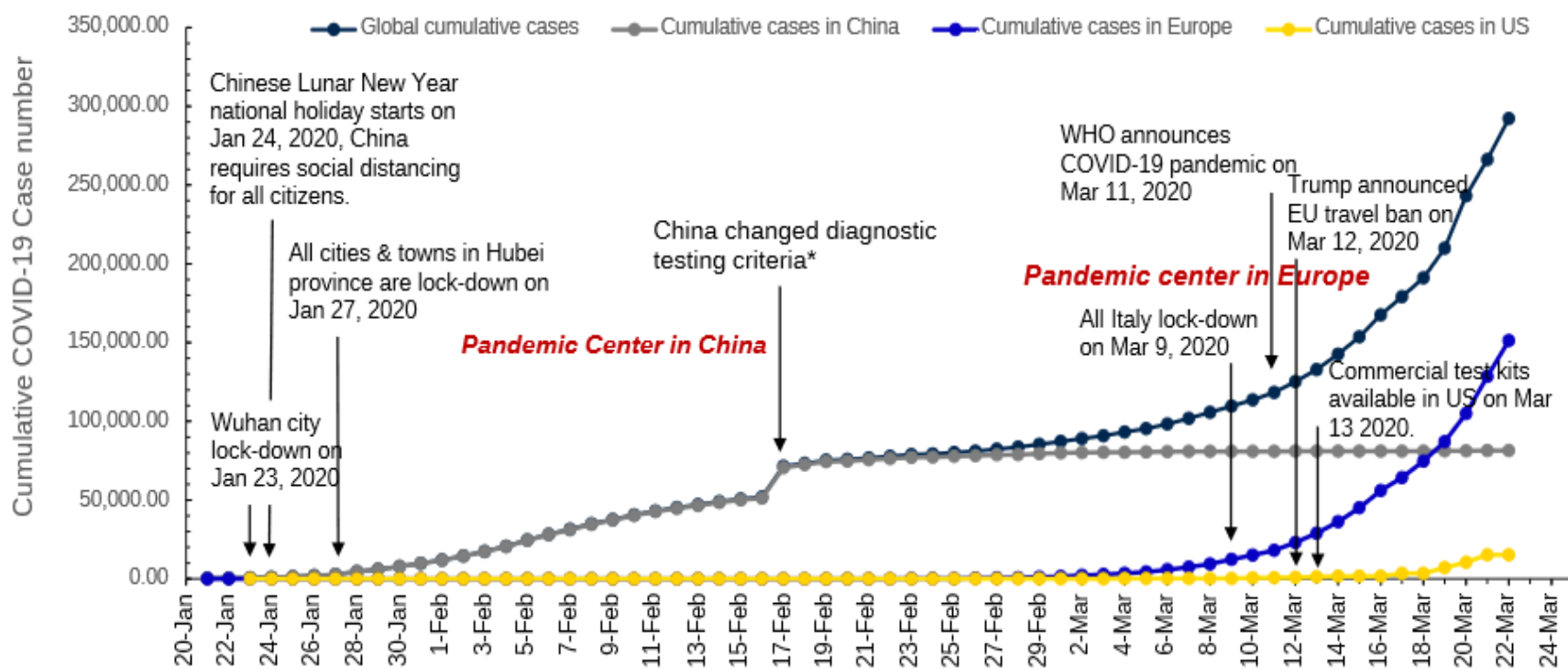
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COVID-19 Update

## Global COVID-19 Cumulative Cases Track

China's social distancing efforts took ~4 weeks to show impact and slow spread

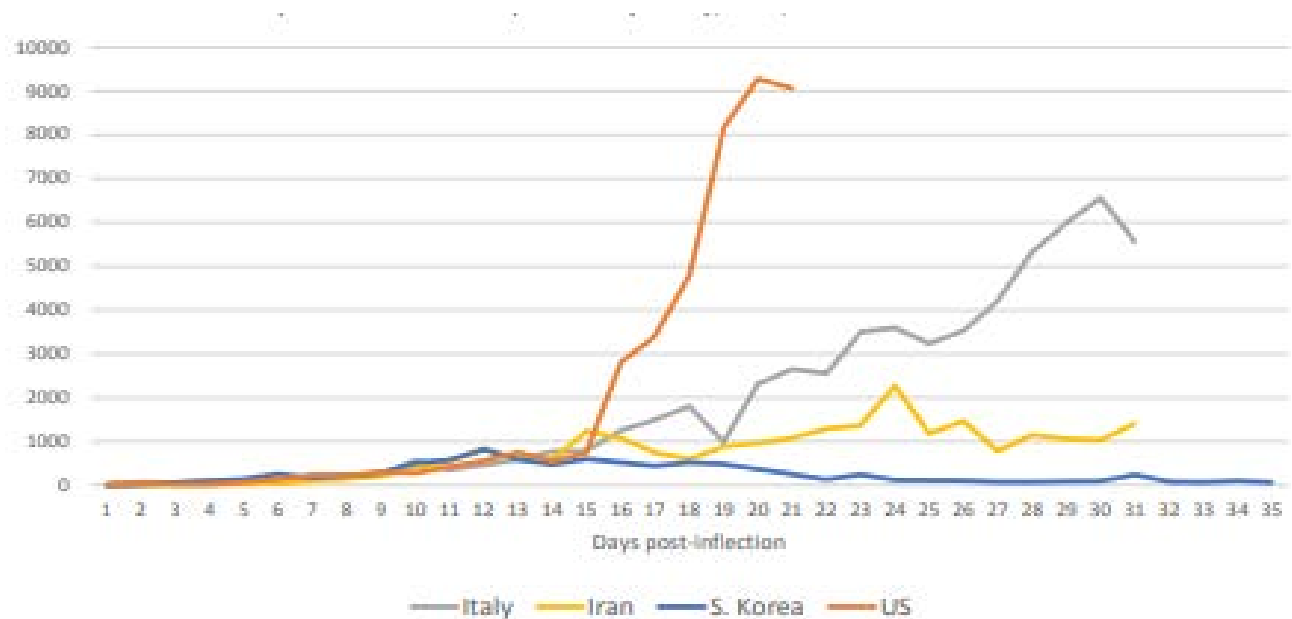
Global COVID-19 Cumulative Cases Track



## Epidemic curves by country: Higher testing drives inflection in U.S. cases

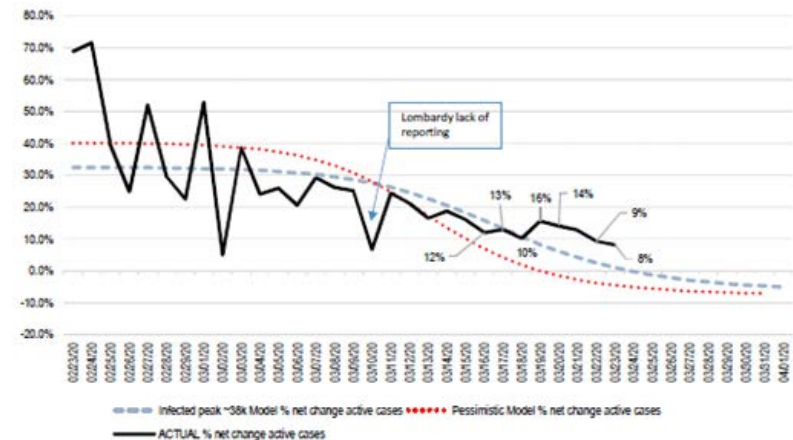
- Cases in the US began inflecting due to the public/private partnership between the CDC, public health labs and the private sector
- Emergency use authorization of automated testing platforms by the FDA accelerated turnaround times
- Most recent FDA approval of a COVID-19 point of care test with 45 minute readout should allow for rapid intervention

Epidemic Curves by Country: Italy, Iran, South Korea & U.S.



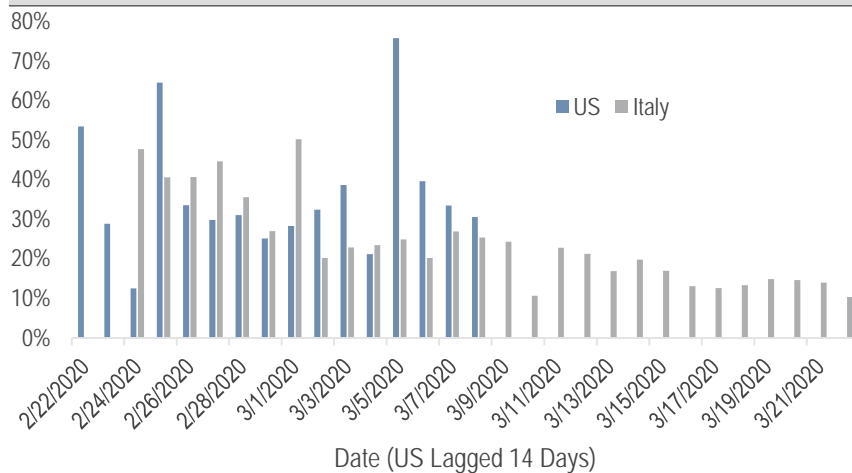
## Can the U.S. avoid Italy's fate? We believe so.....

- New cases in Italy have slowed in the past few weeks with the US fatality rate substantially lower than Italy at 1.2% vs Italy's alarmingly high ~8%
- On a per capita cases vs per capita ICU beds, the US has ~2.8x more beds to care for the ~5% of COVID-19 patients needing intensive care

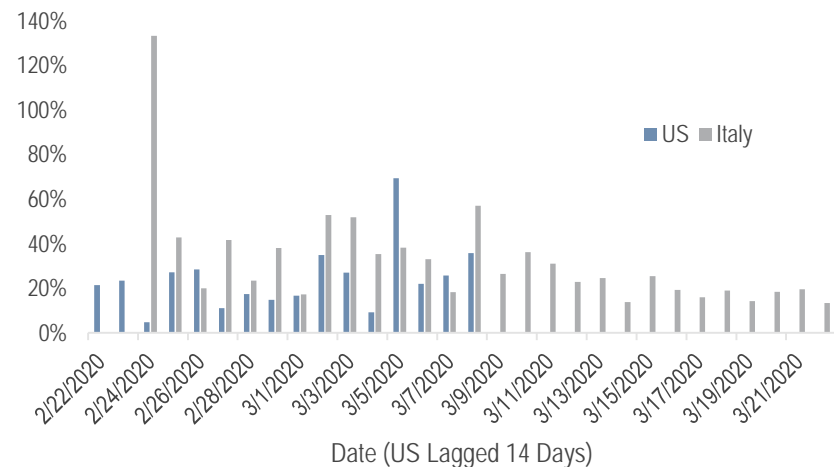


Source: WHO data; Worldometer; JP Morgan estimates

USA – DoD % Change in Cases vs. Italy (14 Day Lag)



USA -- DoD % Change in Deaths vs. Italy (14 Day Lag)



## COVID-19 Treatments on the Horizon

### The COVID-19 drug pipeline has rapidly expanded



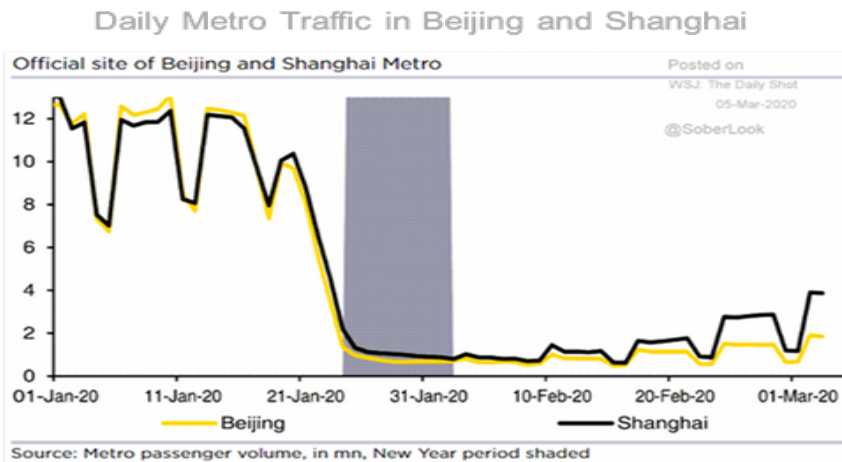
Company	Product name	Modality	Route of admin	Stage	Expected timeline
<b>Coronavirus treatments</b>					
Gilead	remdesivir	small molecule	intravenous	phase 3s ongoing	April read-outs
Moderna	mRNA-1273	vaccine	intramuscular	phase 1 first patient dosed; phase 2 planned	Phase 1 mid-20; phase 2 start mid-20
Regeneron	tbd	antibody	intravenous	preclinical	Phase 1 mid-20
Lilly / AbCellera	tbd	antibody	intravenous (est)	preclinical	Phase 1 mid-20
Pfizer/ Fosun/ BioNTech	BNT162	vaccine	intramuscular (est)	preclinical	Phase 1 mid-20
JNJ	tbd	vaccine	intramuscular (est)	preclinical	Phase 1 planned for November
Sanofi / BARDA	tbd	vaccine	intramuscular (est)	preclinical	tbd
GSK/ Clover	tbd	vaccine	intramuscular (est)	preclinical	tbd
Takeda	TAK-888	antibody (plasma)	intravenous	preclinical	tbd
BioCryst	galidesivir (BCX4430)	small molecule	intravenous, intramuscular, or oral	In discussion with US gov't agencies	2020: Potential trial start
Alnylam / Vir	undisclosed	RNAi silencing	N/A	preclinical	2020: Potential updates on lead selection
Cortexyme	Mpro inhibitor	small molecule	N/A	preclinical	2020: Potential updates on lead selection
CureVac / CEPI	tbd	vaccine	intramuscular (est)	preclinical	tbd
Inovio	tbd	vaccine	intramuscular (est)	preclinical	Plans to initiate May/June
Novavax	tbd	vaccine	intramuscular (est)	preclinical	Phase 1 to start within 4 months
Ascleptis Pharma	ganovo (+ ritonavir)	small molecule	oral	trials ongoing in China	tbd
<b>Coronavirus related complications</b>					
Roche	Actemra	antibody	Intravenous/ intramuscular	trials ongoing in China (TACOS)	Results due in May
Sanofi / Regeneron	Kevzara	antibody	intramuscular	phase 2/3 initiated in US	tbd

<sup>4</sup> Source: BofA Global Research; Company presentations

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## Additional Metrics: A sample of NB Big Data Team tracker

### China metro traffic

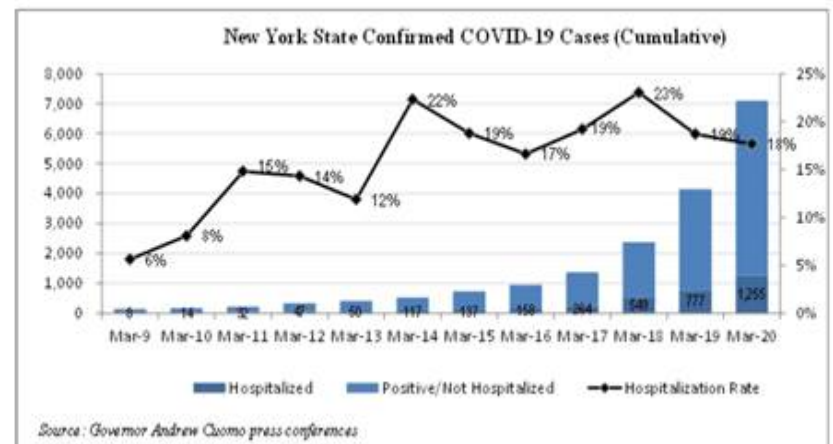


### NYC subway traffic

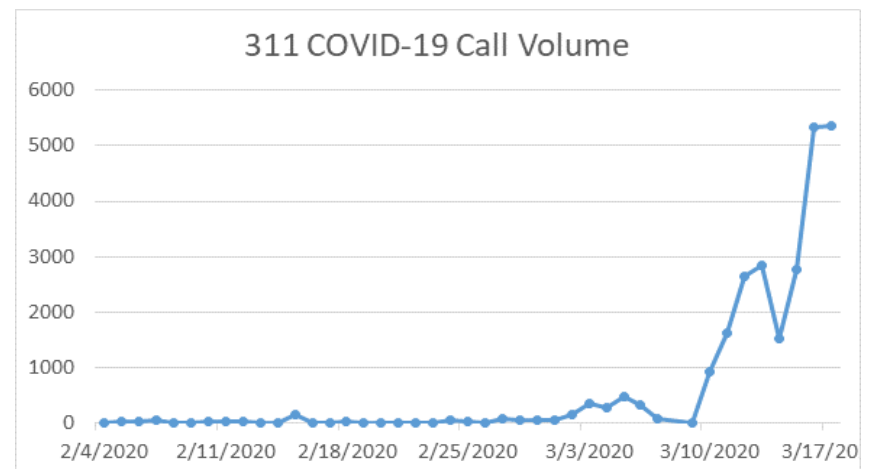


Source: Neuberger Berman

### New York hospitalization



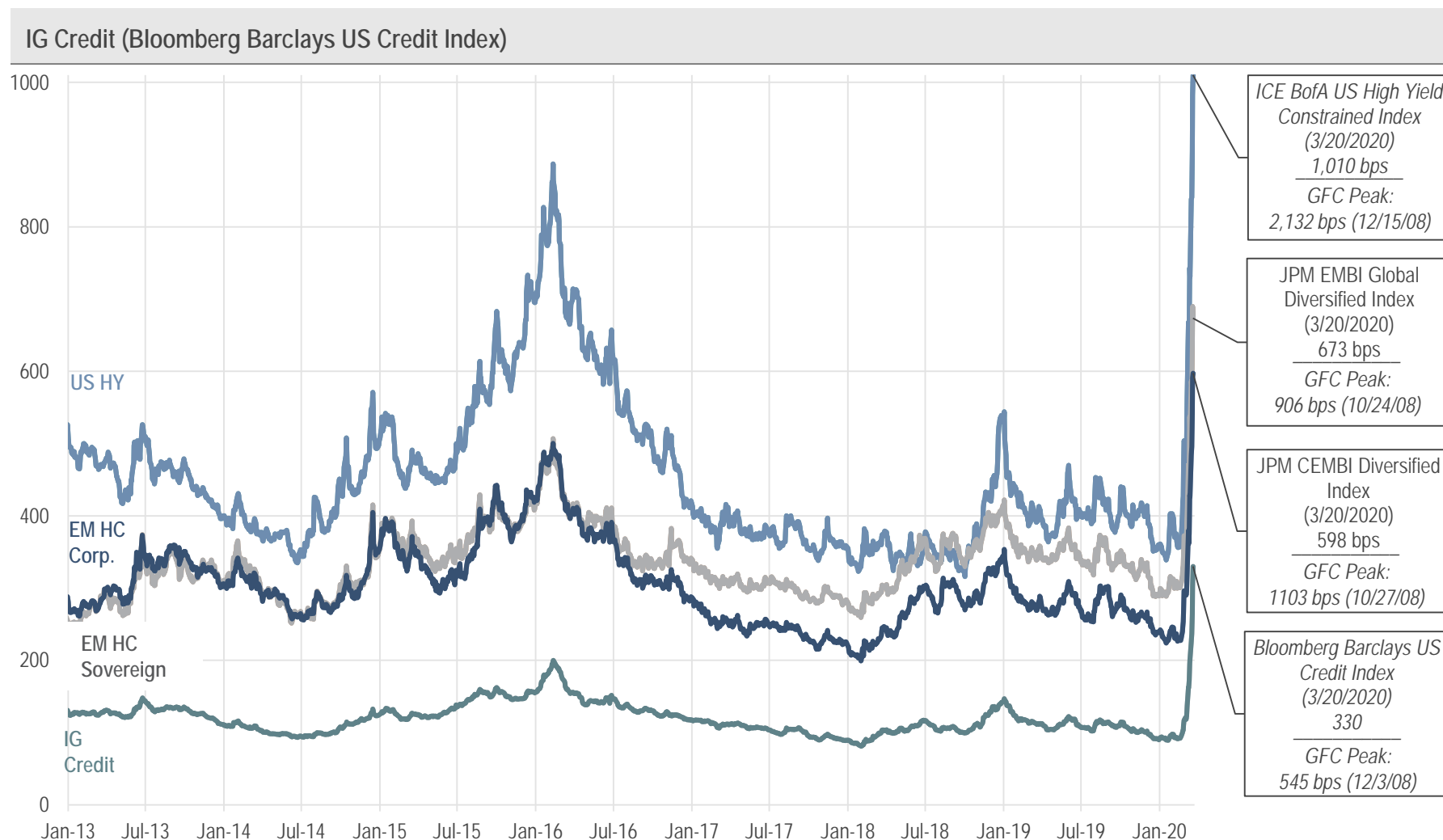
### US COVID-19 call volume



Economy & Fixed Income

## Speed of Sell-off

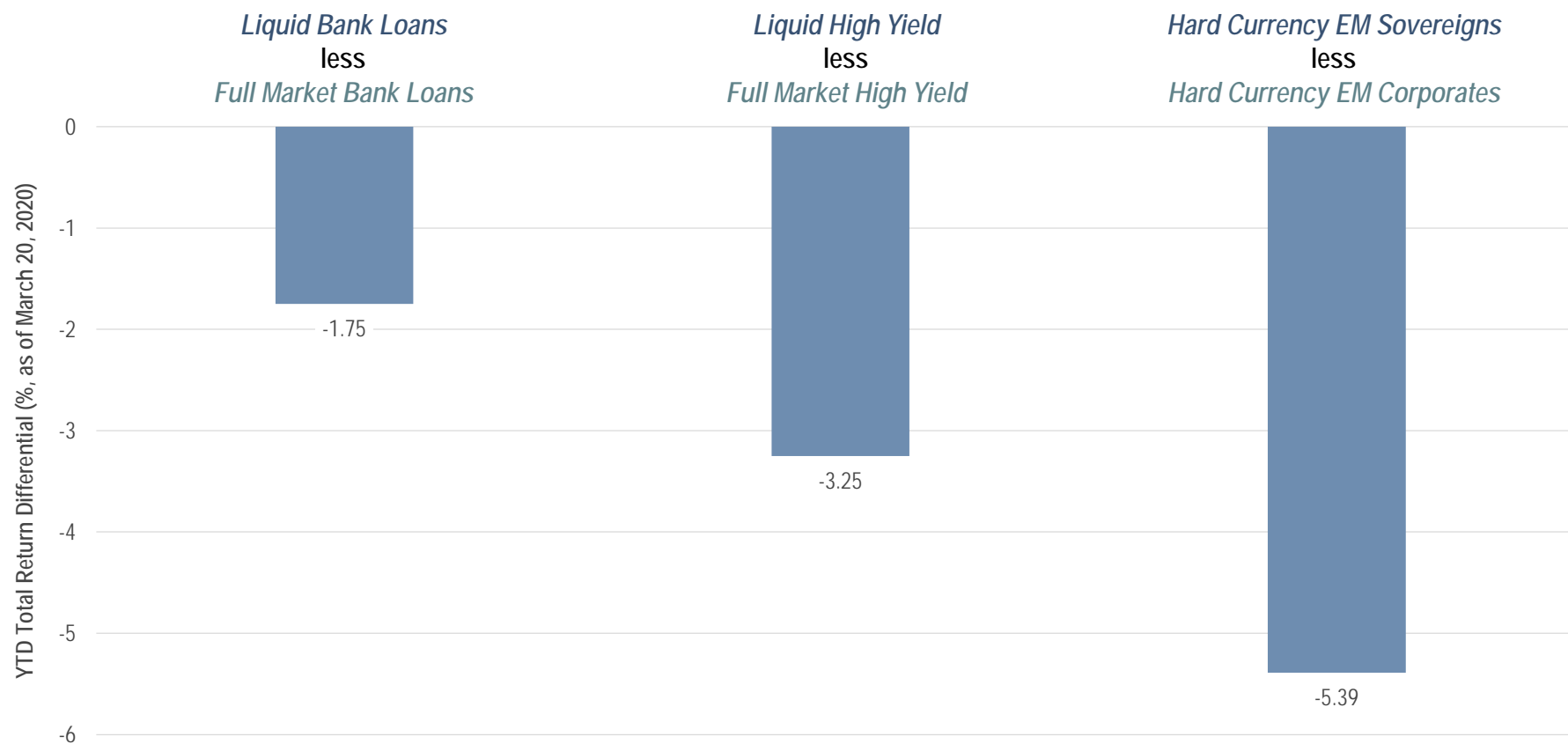
The recent velocity of repricing in credit markets has been unprecedented



Source: Bloomberg Barclays, ICE Index Services, JPMorgan. As of March 20, 2020. Information is as of the date indicated and subject to change without notice. Nothing herein constitutes a prediction or projection of future events or future market behavior. For illustrative and discussion purposes only. Nothing herein constitutes investment, legal, accounting or tax advice, or a recommendation to buy, sell or hold a security. This material is not intended as a formal research report and should not be relied upon as a basis for making an investment decision. Investing entails risks, including possible loss of principal. Past performance is no guarantee of future results. Historical trends to do imply, forecast or guarantee future results. Due to a variety of factors, actual events or market behavior may differ significantly from any views expressed.

## Liquid Securities Have Underperformed Broad Indices

Selling pressure has been felt most acutely in the more liquid segments of various credit markets



**Liquid Bank Loans:** S&P LSTA Leveraged Loans 100 Index | **Full Market Bank Loans:** S&P LSTA Leveraged Loans Index

**Liquid High Yield:** Bloomberg Barclays US Corporate HY Very Liquid Original Index | **Full Market High Yield:** Bloomberg Barclays US Corporate HY Index

**HC EM Sovereigns:** JPM EMBI Global Diversified Index | **HC EM Corporates:** JPM CEMBI Diversified Index

Source: Bloomberg Barclays, S&P LSTA, JPMorgan, as of March 20, 2020. Information is as of the date indicated and subject to change without notice. Nothing herein constitutes a prediction or projection of future events or future market behavior. For illustrative and discussion purposes only. Nothing herein constitutes investment, legal, accounting or tax advice, or a recommendation to buy, sell or hold a security. This material is not intended as a formal research report and should not be relied upon as a basis for making an investment decision. Investing entails risks, including possible loss of principal. Past performance is no guarantee of future results. Historical trends do not imply, forecast or guarantee future results. Due to a variety of factors, actual events or market behavior may differ significantly from any views expressed.

## Historical Performance Following Spread Widening

### IG Credit

Historical 1 year Performance  
After Spreads Widened  
to 200+ basis points...  
(3/20 OAS: +330 bps)

1 Yr. Total Returns	Bloomberg Barclays U.S. Credit Index
Average	10.2%
Median	10.3%
High	27.6%
Low	-6.1%
Positive	18
Negative	4

### High Yield

Historical 1 year Performance  
After Spreads Widened  
to 800+ basis points...  
(3/20 OAS: +1,010 bps)

1 Yr. Total Returns	JPM Domestic High Yield Index
Average	25.5%
Median	24.1%
High	61.4%
Low	-20.1%
Positive	42
Negative	2

### EM Sovereign

Historical 1 year Performance  
After Spreads Widened  
to 500+ basis points...  
(3/20 OAS: +673 bps)

1 Yr. Total Returns	JPM EMBI Global Diversified Index
Average	20.8%
Median	21.3%
High	41.6%
Low	3.3%
Positive	31
Negative	0

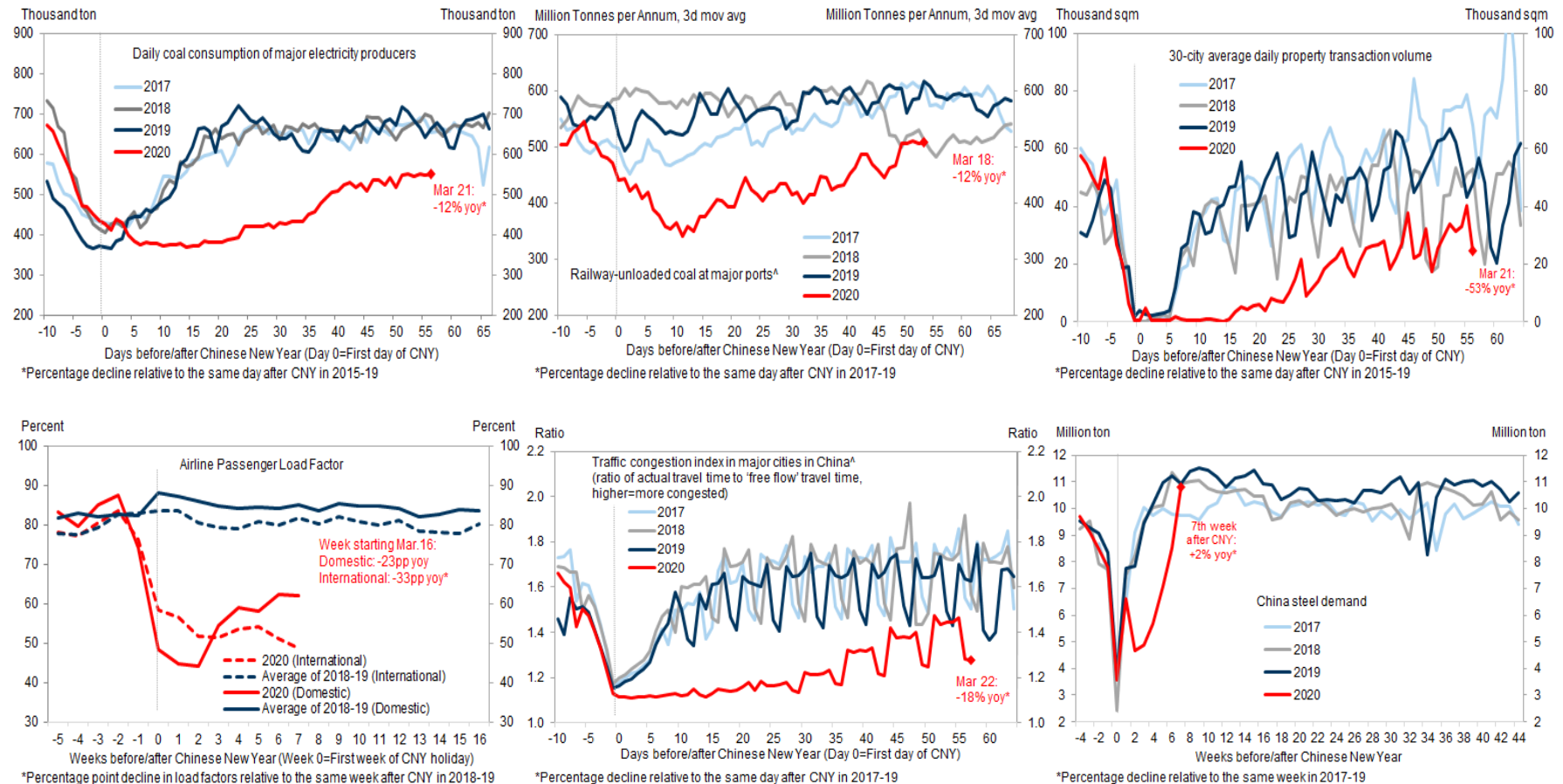
Source: JPM High-Yield and Leveraged Loan Morning Intelligence, Bloomberg Barclays, JPMorgan, Neuberger Berman (NB calculating forward return statistics for IG Credit and Emerging Markets Debt. Data as of March 20, 2020. U.S. High Yield bond performance is measured by the J.P. Morgan Domestic High Yield Index for the period January 1987 to present; IG Credit performance is measured by the Bloomberg Barclays U.S. Credit Index for the period January 2001 to present, and EM Sovereign performance is measured by the J.P. Morgan EMBI Global Diversified Index for the period January 2002 to present. 'Positive' and 'Negative' reflect the number of historical observations in which the index went on to generate a positive / negative 1-year return.

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China



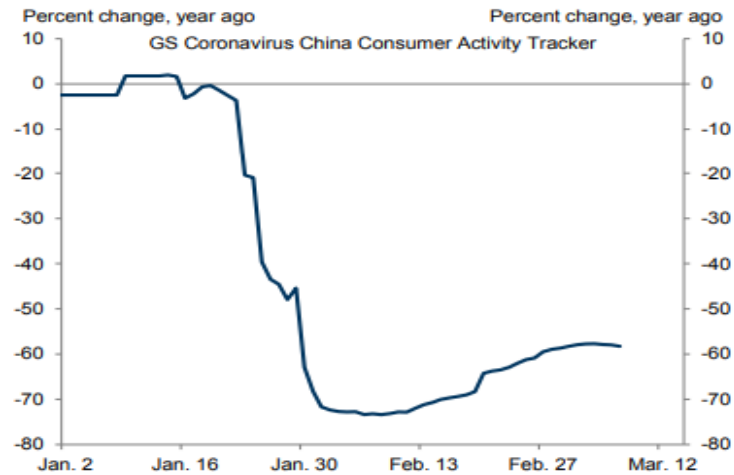
# China – Economic Activities have started recovering



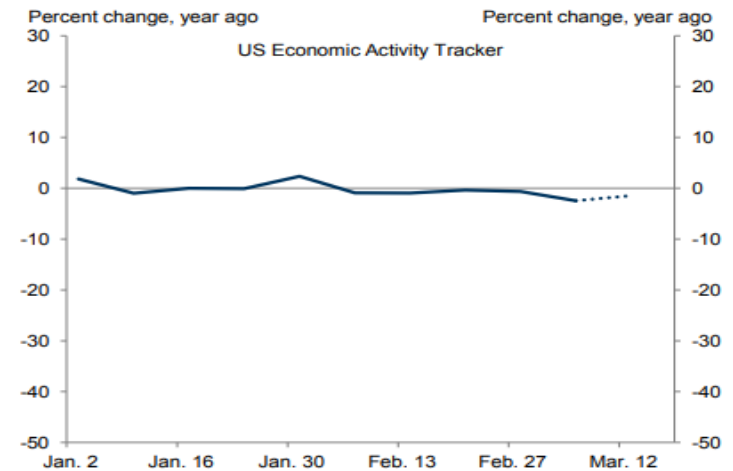
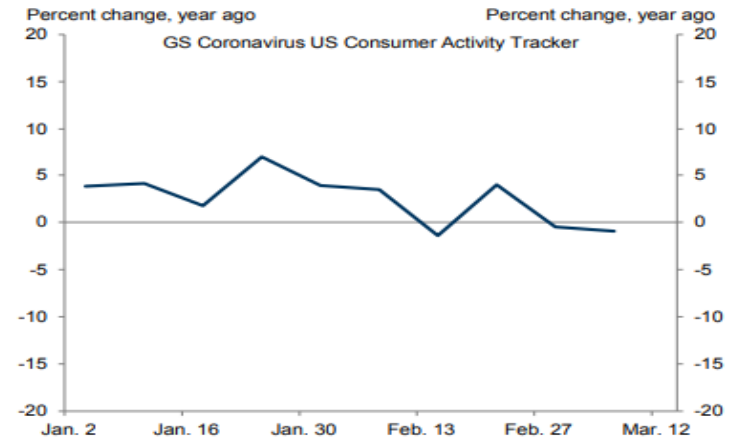
Source: Goldman Sachs. As of March 22, 2020.

## Activity Tracker – China vs. U.S.

China – Consumer (top) and Economic (bottom) Activity Tracker



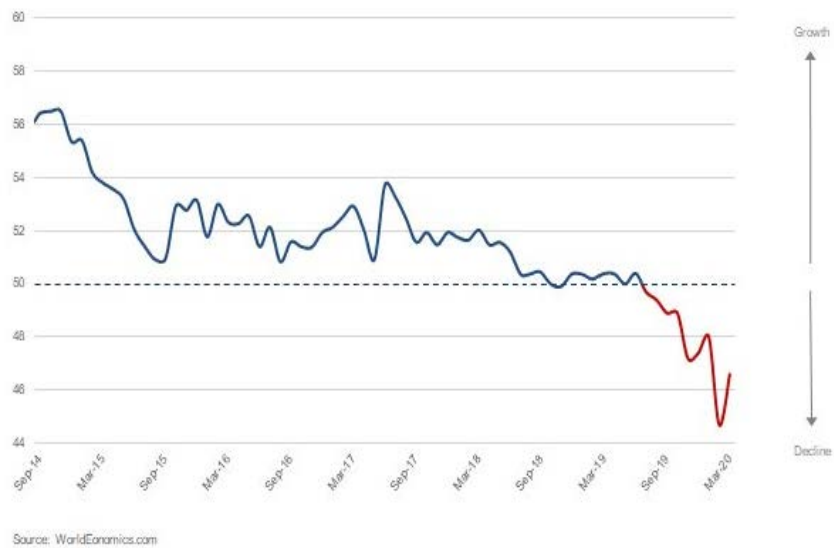
U.S. – Consumer (top) and Economic (bottom) Activity Tracker



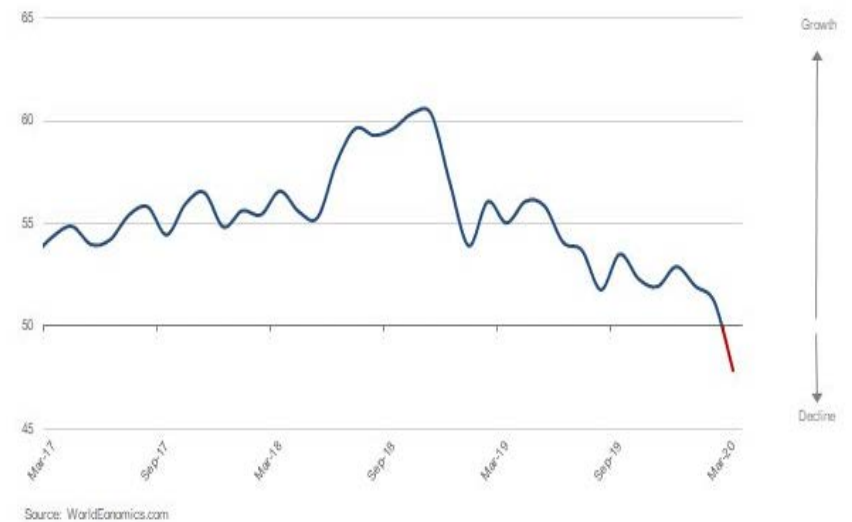
Source: Goldman Sachs. As of March 15, 2020.

## Activity Tracker – China vs. U.S.

China – Sales Managers Index (market growth)



United States – Headline Sales Managers' Index (SMI excl. prices)



Equities



# Sentiment/Positioning

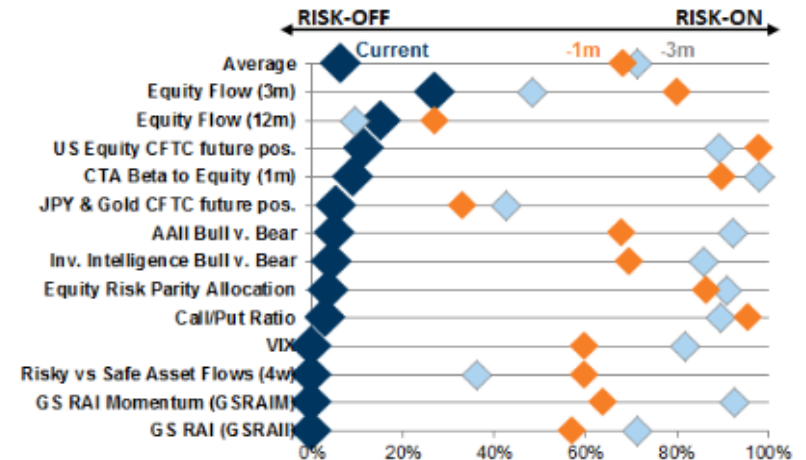
Investor sentiment has plummeted

Sentiment and positioning have turned bearish

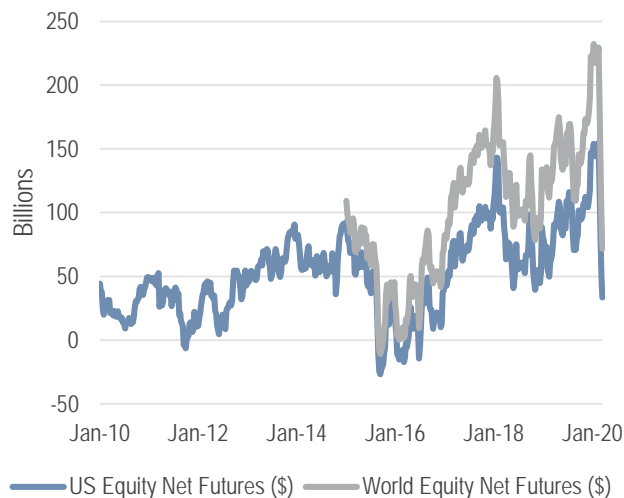
As of 19-Feb-2020 (est.)	EQUITY % of total assets		DEBT % of total assets		CASH % of total assets	
	19-Feb-20	Percentile since '90	19-Feb-20	Percentile since '90	19-Feb-20	Percentile since '90
Holder						
Pension funds	52 %	64 %	27 %	43 %	2 %	0 %
Households	41	95	20	35	14	4
Foreign investors	52	88	35	11	8	7
Mutual funds	56	81	25	62	17	8
<b>Total</b>	<b>47 %</b>	<b>95 %</b>	<b>25 %</b>	<b>40 %</b>	<b>12 %</b>	<b>1 %</b>

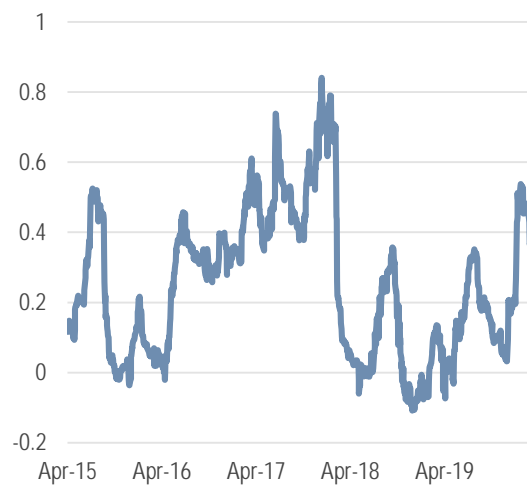
As of 16-Mar-2020 (est.)	EQUITY % of total assets		DEBT % of total assets		CASH % of total assets	
	Current	Percentile since '90	Current	Percentile since '90	Current	Percentile since '90
Holder						
Pension funds	42 %	17 %	34 %	79 %	2 %	9 %
Households	33	38	24	81	16	51
Foreign investors	42	23	43	80	9	45
Mutual funds	46	29	32	88	20	24
<b>Total</b>	<b>37 %</b>	<b>36 %</b>	<b>30 %</b>	<b>98 %</b>	<b>14 %</b>	<b>35 %</b>



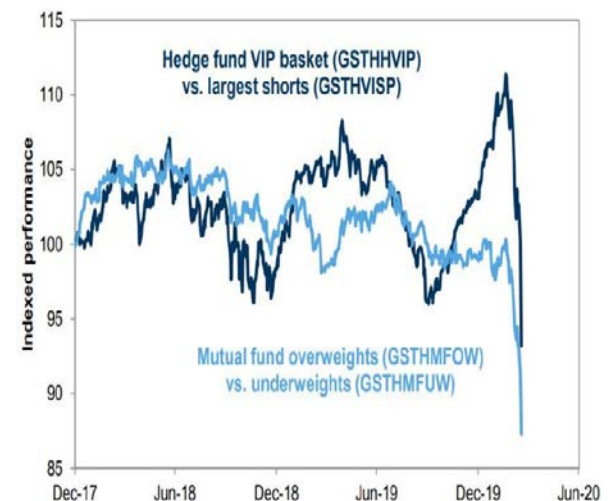
Equity net future pos. (asset managers & HFs)



CTA exposure to SPX (3m rolling)



HF & MF favorites have plunged



Source: Goldman Sachs

# U.S. Equity Earnings

## S&P 500 Forecasts

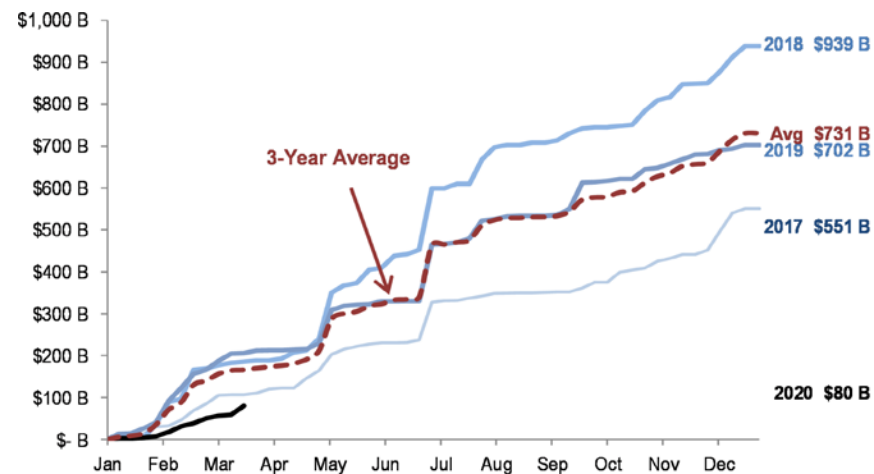
	Target Price	EPS	EPS Growth	PE Ratio
GS	3000	110	-33%	18.2
MS	2700	142	-13%	17.0
JPM	3400	150	-8%	
CS	2700	125	-24%	
BAML	3100	138	-15%	
Citi	2700	125	-24%	18.0
ISI		100	-39%	
Average	2933	127	-22.3%	17.7

## Yield gap and equity risk premium have widened

as of March 19, 2020; assuming 10-yr UST yield of 0.5% at mid-year, 1% at year-end



## Buybacks to Decline Materially in 2020



Source: Goldman Sachs, JP Morgan

## U.S. Equity P/E Multiples

S&P is currently trading at ~15x compared to ~19.5x in 2019 and ~15.5x in 2018

	S&P 500 Level Implied by Price-to-Forward Earnings Combinations					
P/E Multiple: EPS	10x	12x	14x	16x	18x	20x
160	1,600	1,920	2,240	2,560	2,880	3,200
150	1,500	1,800	2,100	2,400	2,700	3,000
140	1,400	1,680	1,960	2,240	2,520	2,800
130	1,300	1,560	1,820	2,080	2,340	2,600
120	1,200	1,440	1,680	1,920	2,160	2,400
110	1,100	1,320	1,540	1,760	1,980	2,200
100	1,000	1,200	1,400	1,600	1,800	2,000

Recession	Forward P/E
2/1961	20.4
11/1970	17.4
3/1975	10.1
7/1980	8.2
11/1982	11.1
3/1991	17.1
11/2001	29.1
6/2009	15.5

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Multi-Asset Class



## Asset Allocation Committee: Market Views

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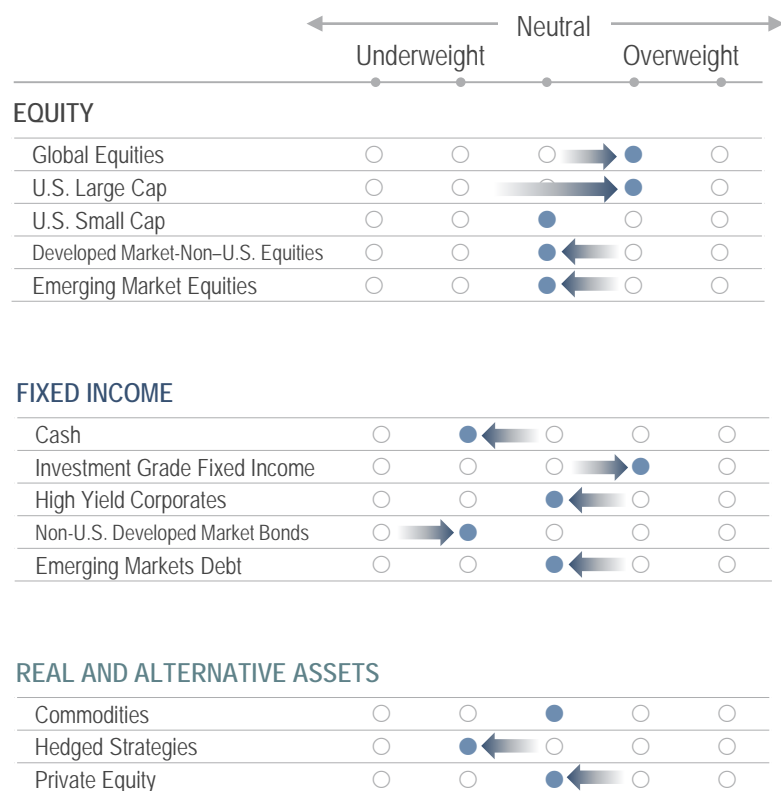
### The Markets

- We expect an extended period of volatility until there is a peak in virus cases in the U.S., liquidity returns to credit markets, and there is clarity on key stimulus measures.
- A 25-35% decline in earnings for 2020 is realistic; based on our outlook, we see the potential for the S&P 500 to bottom around 2,000.
- Interest rates likely remain lower for longer as central banks maintain zero and lower policy rates.
- We expect credit to experience continued short-term pressure until liquidity conditions improve.

**The environment is evolving rapidly and we will continue to refine and update our views as the situation changes.**

As of March 2020. Views shown reflect near-term tactical asset allocation views and are based on a hypothetical reference portfolio. Nothing herein constitutes a recommendation, investment advice or a suggestion to engage in or refrain from any investment-related course of action. See "Additional Disclosures" at the end of this presentation, for additional information regarding the Neuberger Berman Multi-Asset Class team and Asset Allocation Committee and the views expressed.

## Asset Allocation Committee: 12-Month Outlook as of March 2020



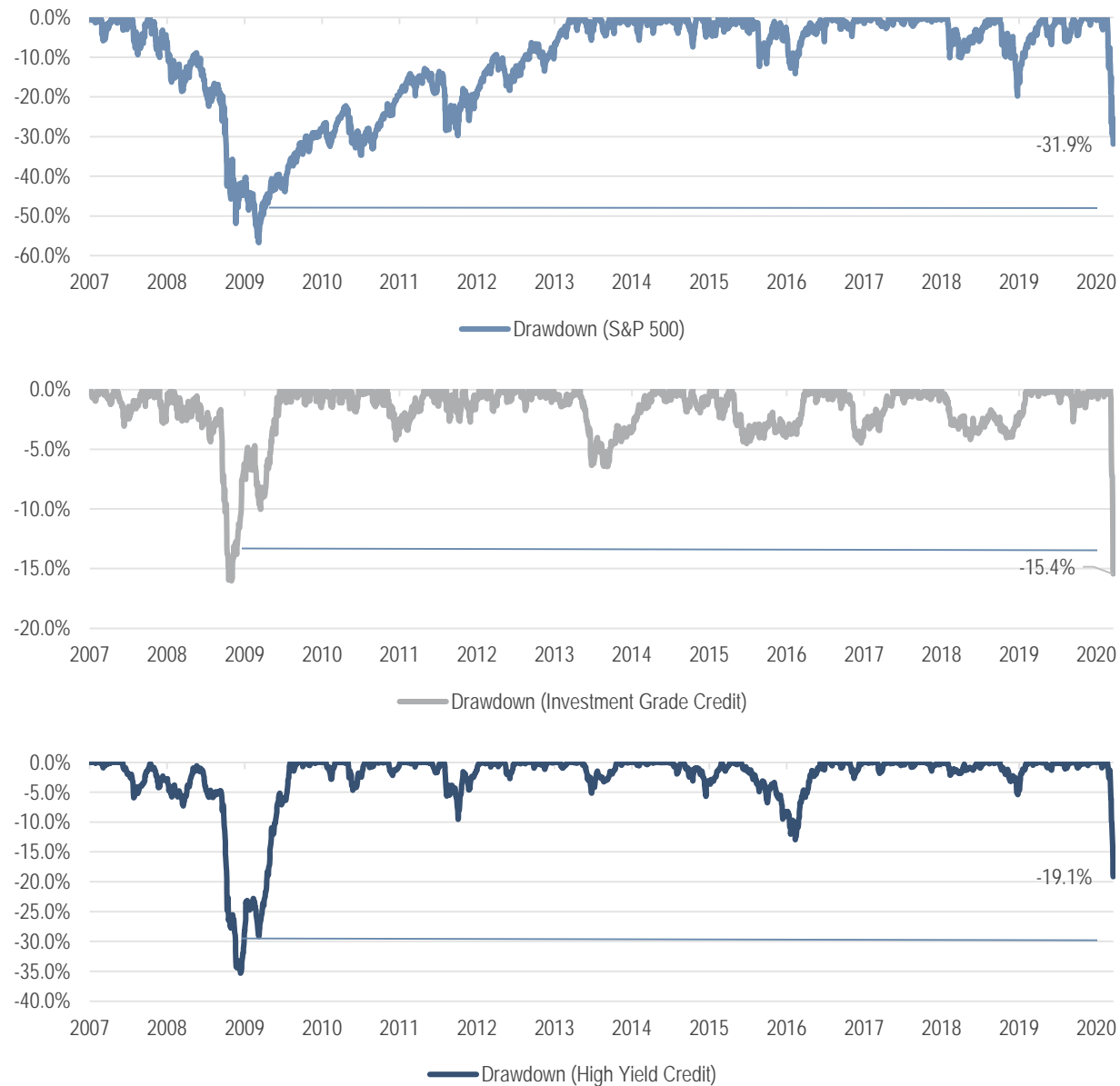
### Asset Allocation

- In the very short-term, risk management and diversification are paramount.
- Once we reach the peak in infections, we favor increasing allocations to riskier assets with an orientation towards quality and yield.
- Investment grade credit represents the best risk-adjusted return profile.
- Within equities, we have an overweight view on U.S. large company stocks.
- Emerging markets could be vulnerable, but there may be regionally-specific opportunities.
- We expect the oil price war to continue for 12-18 months, but action on U.S. supply, demand recovery, and potential for mean reversion may point to some upside in the medium-term.
- Hedged strategies can be important diversifiers as volatility remains elevated, but may lag when markets begin to recover.
- Private markets, while currently at a standstill, have high levels of dry powder give GPs room to support portfolio companies and take advantage of market dislocations.

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## Equity Versus Credit Markets

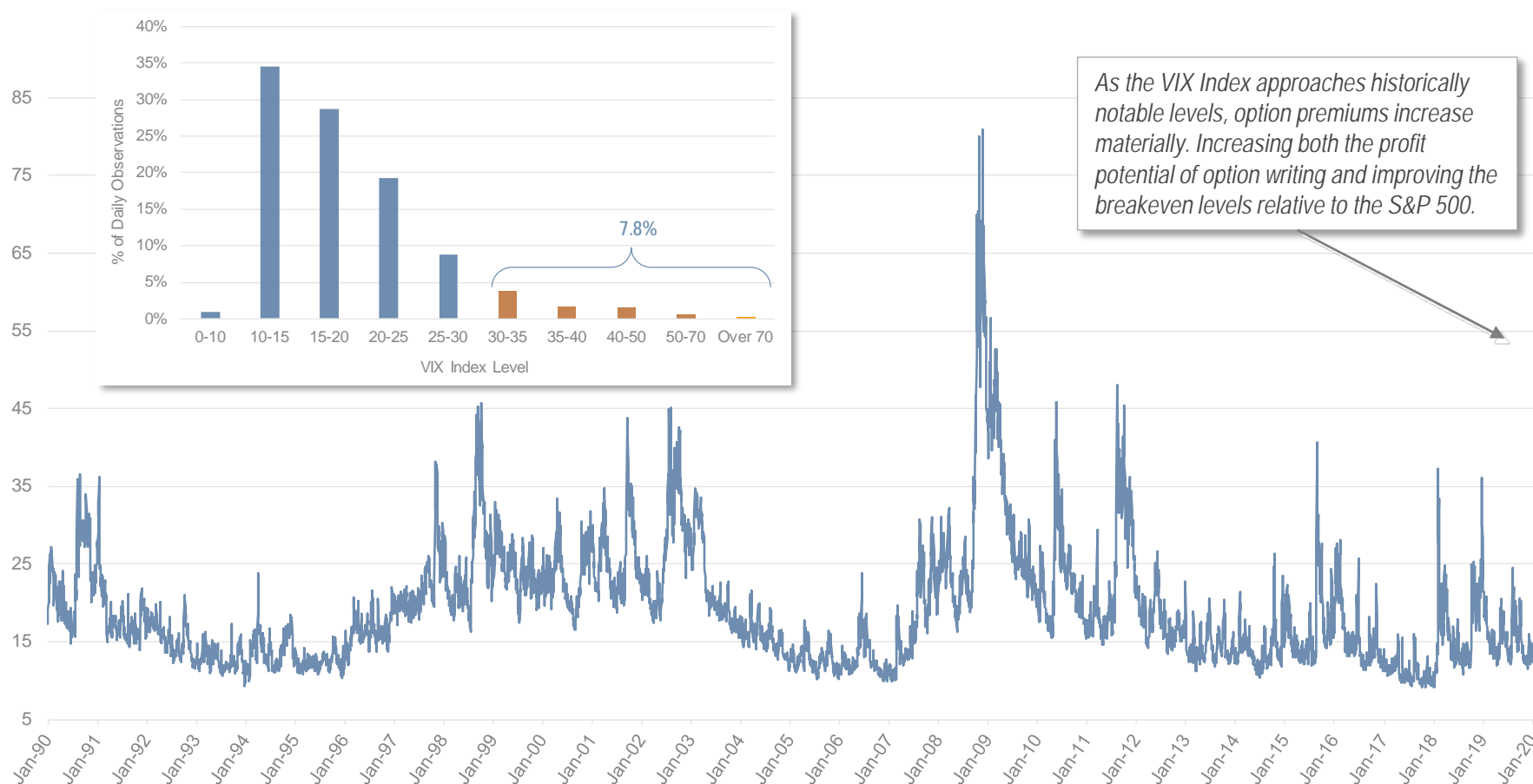


Source: Bloomberg, as of March 20, 2020.

# Options Premiums Surge with Uncertainty

## Opportunity in Chaos

Daily CBOE S&P 500 Volatility Index ("VIX") (January 2, 1990 – March 9, 2020)



Source: CBOE and Bloomberg

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