

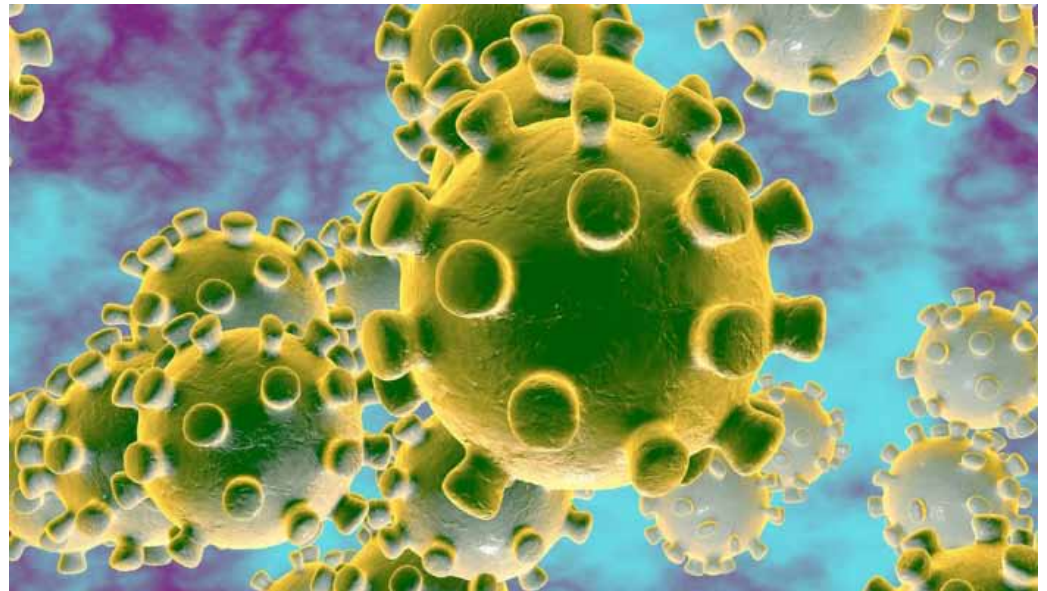


High Frequency Economics[®]

Daily Data Analysis and Assessment of the Global Economy

Coronavirus And You... It's The Policy Response That Matters

Carl B. Weinberg and Rubeela Farooqi
High Frequency Economics, Ltd.

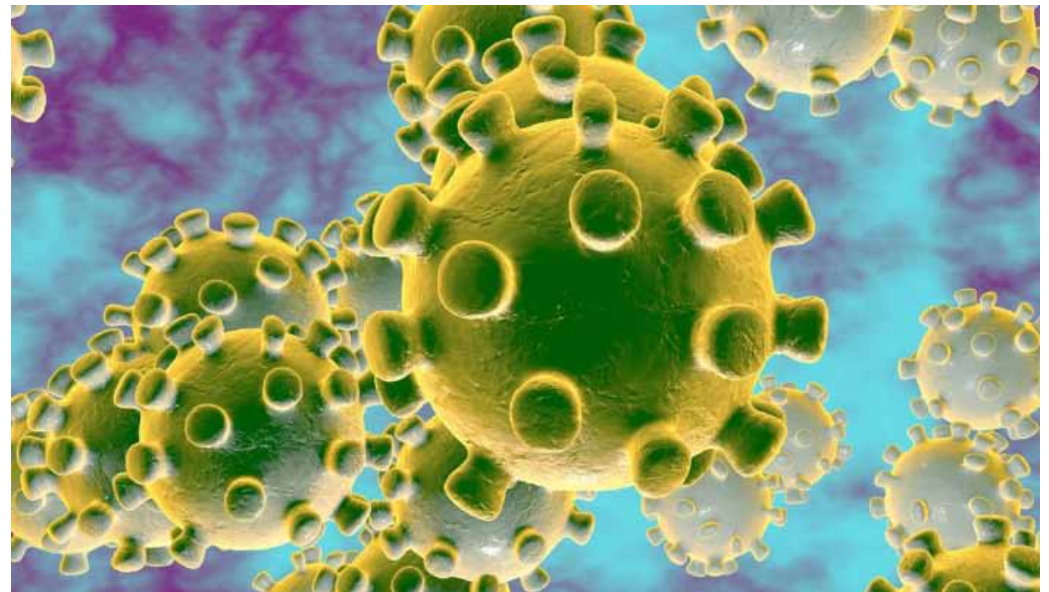




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Risks to the U.S. Outlook



Rubeela Farooqi
Chief U.S. Economist

Downside Risks From Covid-19 To Global And Potentially U.S. Growth

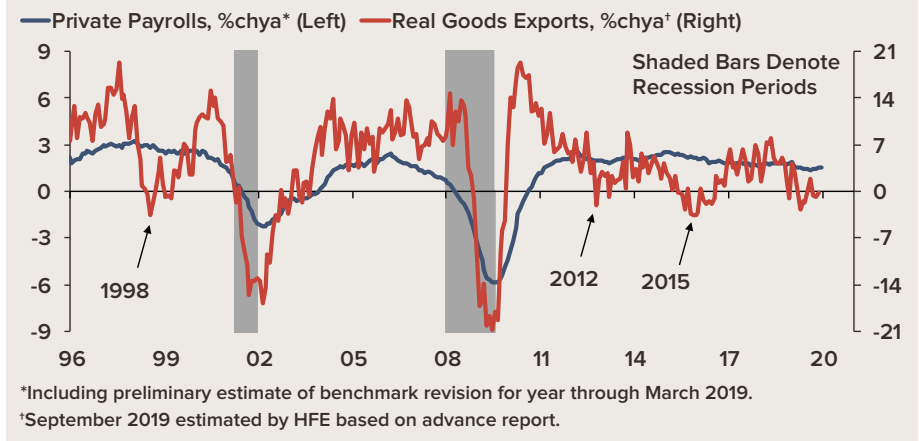
1. Supply chain disruptions across industries.
2. Travel and tourism.
3. A hit to U.S. exports?
4. Sustained volatility in financial markets that results in tightening of financial conditions.
5. The impact of a slowdown in the global economy on U.S. business investment.
6. The impact of negative news on U.S. consumers.

Global Trade Flows Have Been Weak... Will U.S. Growth Follow?

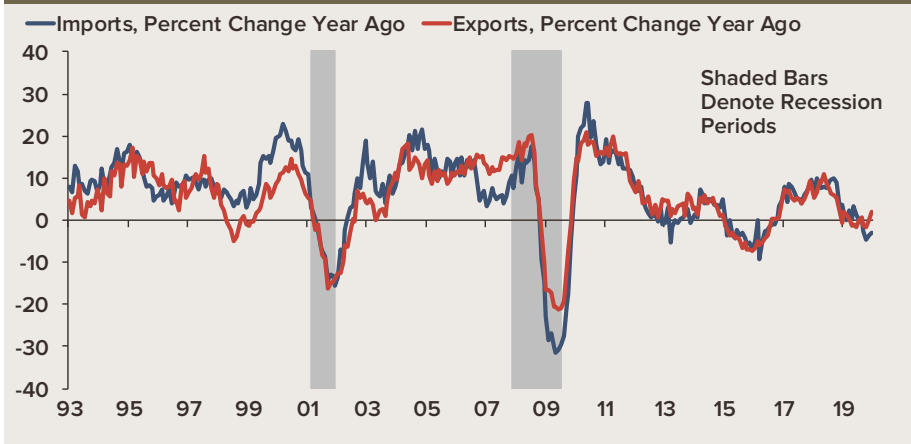
Global Trade Flows Associated With Slowing U.S. Growth



Previous Episodes Of Economy Growing With Exports Down



US Exports Have Weakened In Line With Global Trade Flows

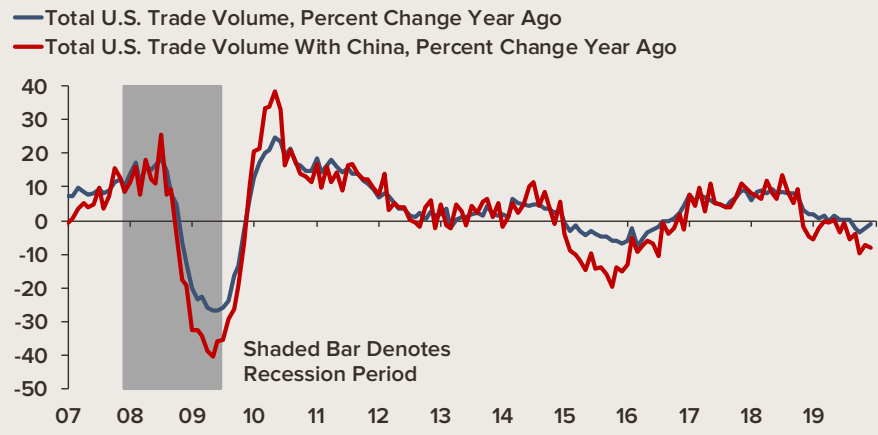


Manufacturing ISM Export Orders Index Moved Up Above 50

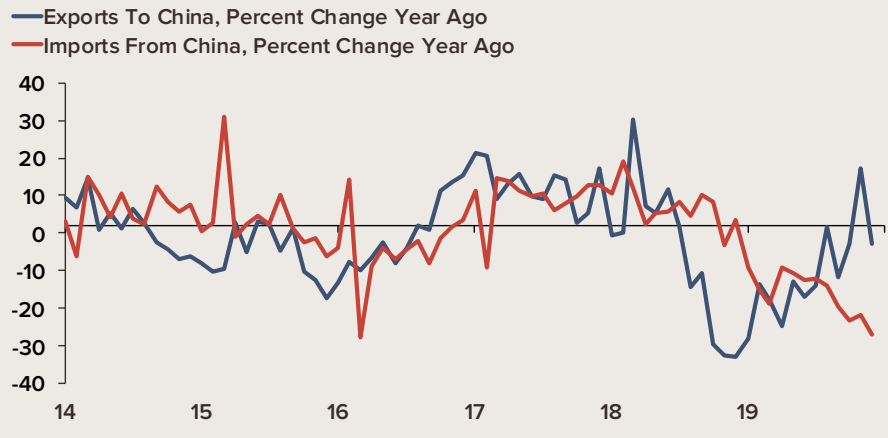


Phase One Trade Deal Commitments In Question

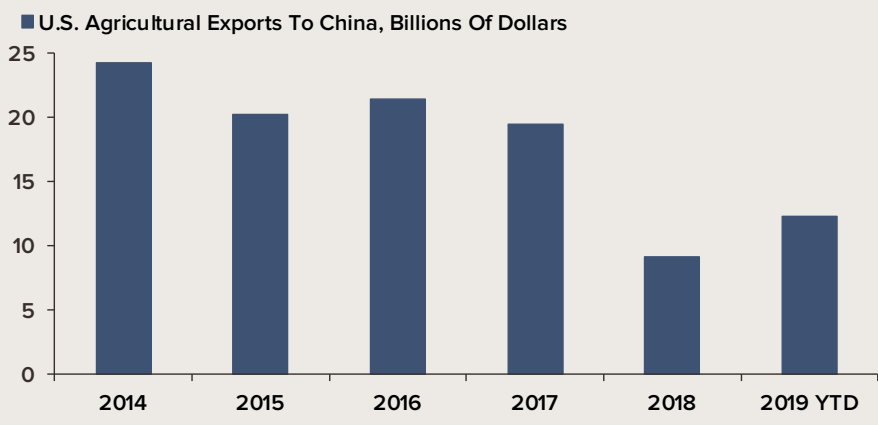
Trade Flows With China Remain Soft



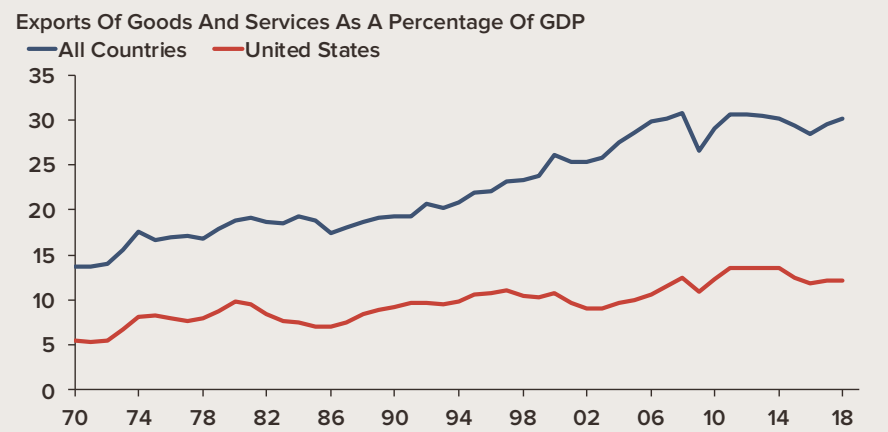
Imports And Exports Are Weak



U.S. Agricultural Exports To China Unlikely To Meet Terms

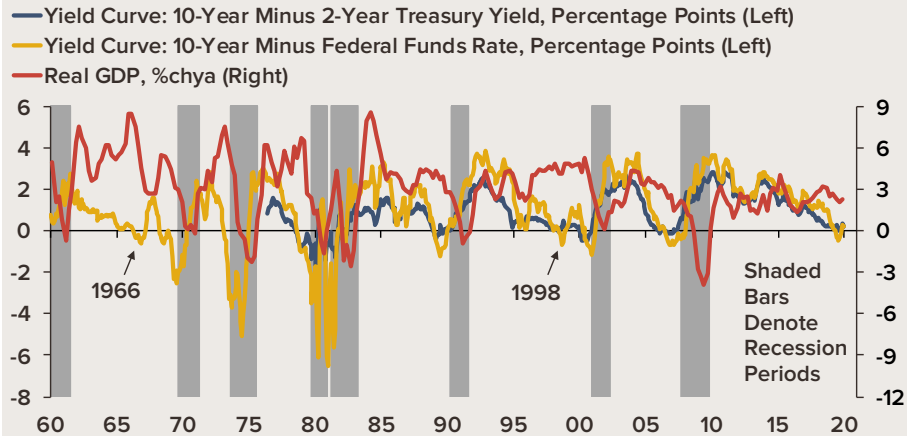


Exports Account For A Small Percent Of U.S. GDP

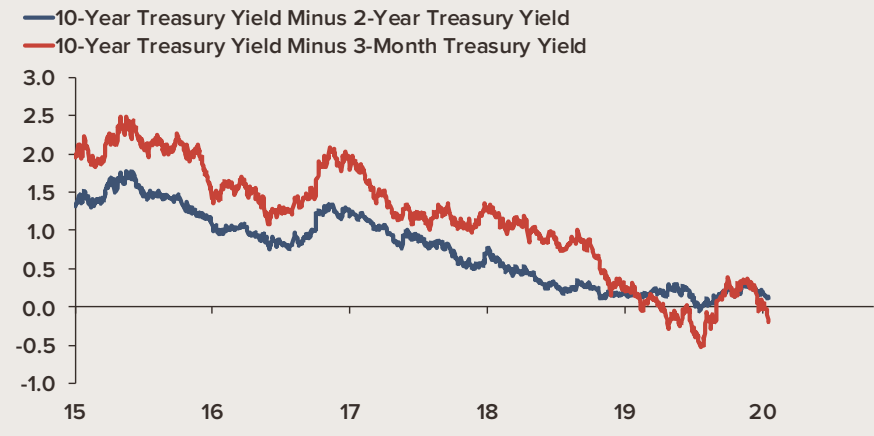


Financial Markets Jittery On Virus Risks

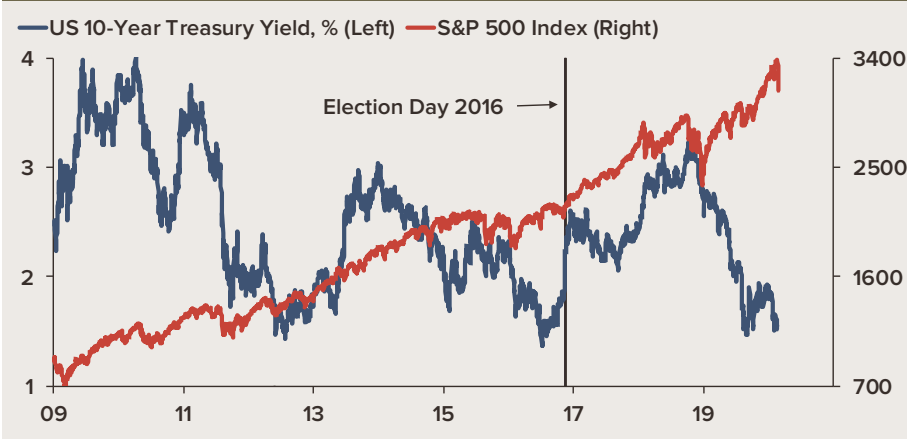
Yield Curve Signaling Recession?



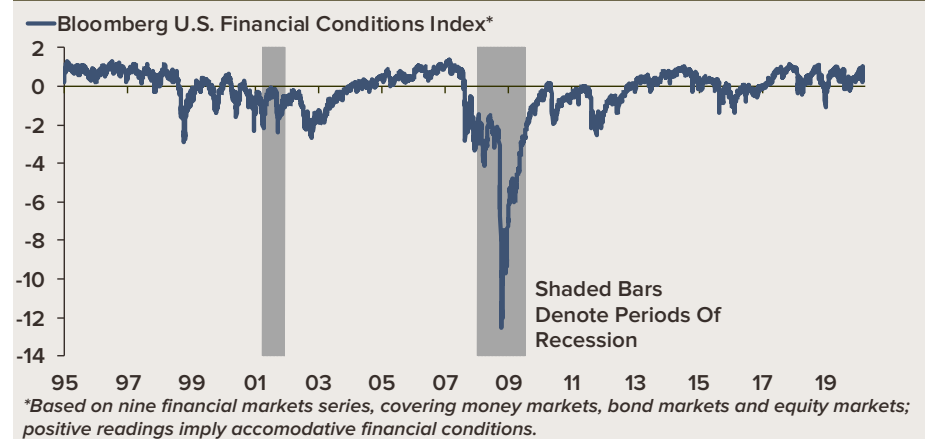
10-Year to 3-Month Spread Negative



Markets Reacting To Risk From Coronavirus Risks



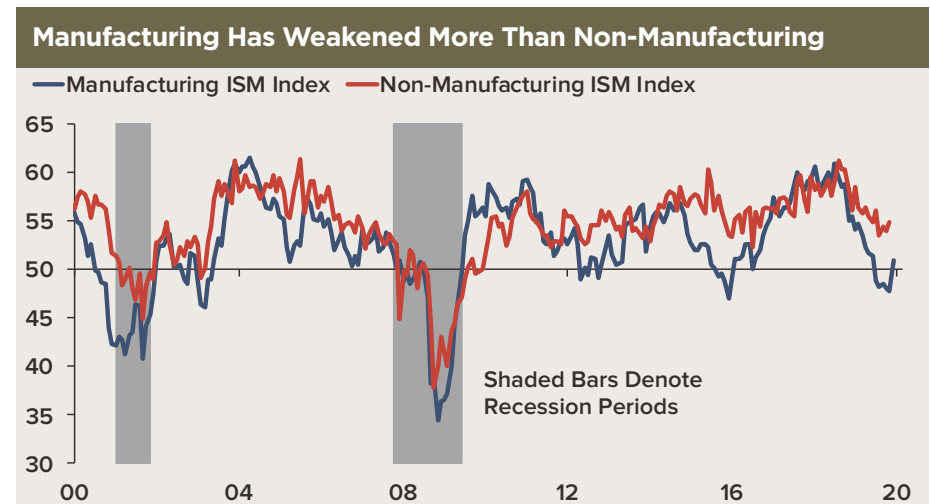
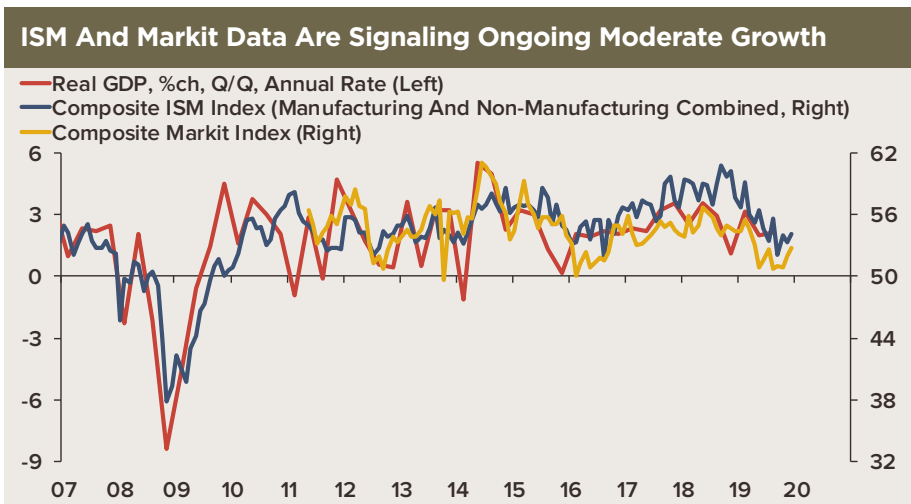
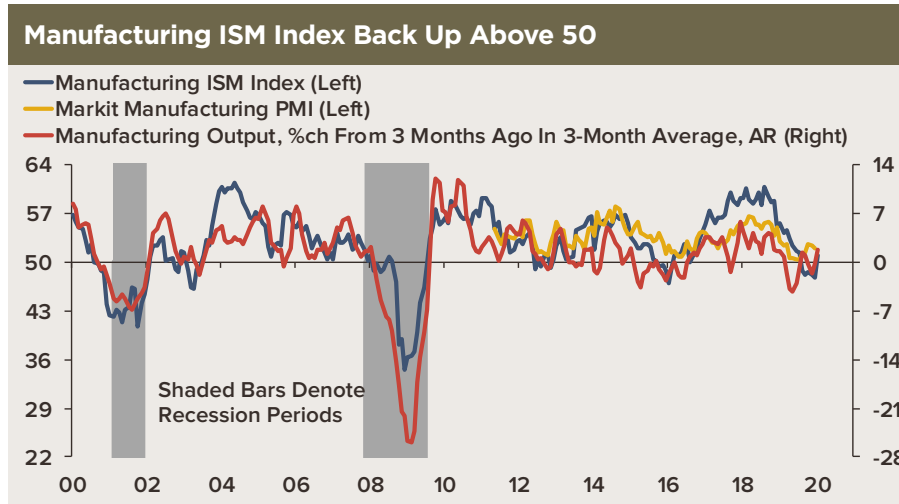
Financial Condition Slightly Less Accommodative



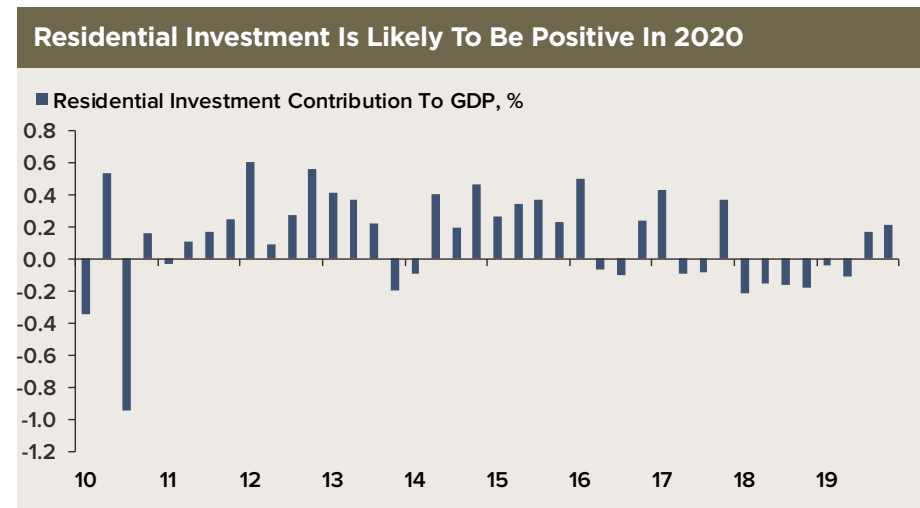
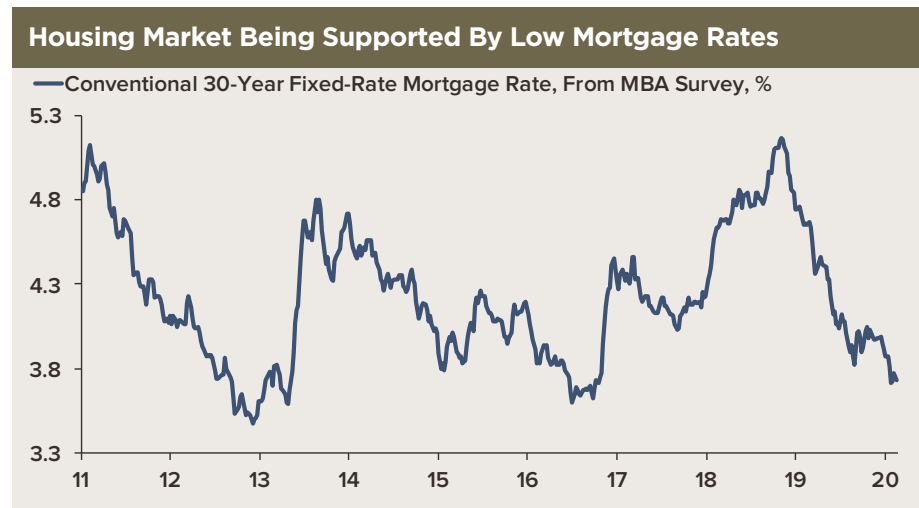
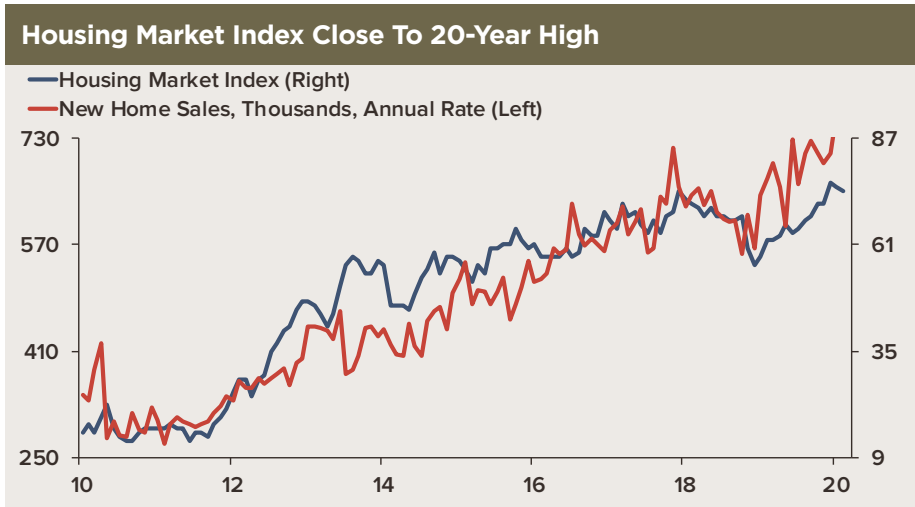
U.S. Fundamentals Remain Positive

- The U.S. economy is set to grow at a moderate pace in 2020.
- The consumer will continue to drive growth going forward. Residential investment is also set to make a positive contribution. Business confidence and investment may benefit from less uncertainty on trade, though the coronavirus and ongoing issues at Boeing will weigh, at least in the near-term.
- The labor market should remain strong, with the unemployment rate at a 50-year low and measures of underemployment improving.
- Inflation is likely to gradually rise towards the Fed's 2% target.
- Against a backdrop of moderate growth, a strong labor market and low inflation, the Fed seems committed to holding policy steady in 2020—unless there is a material change in the outlook—as it assesses the impact of last year's policy action. Risks remain to the downside, especially in the aftermath of the outbreak of the virus.

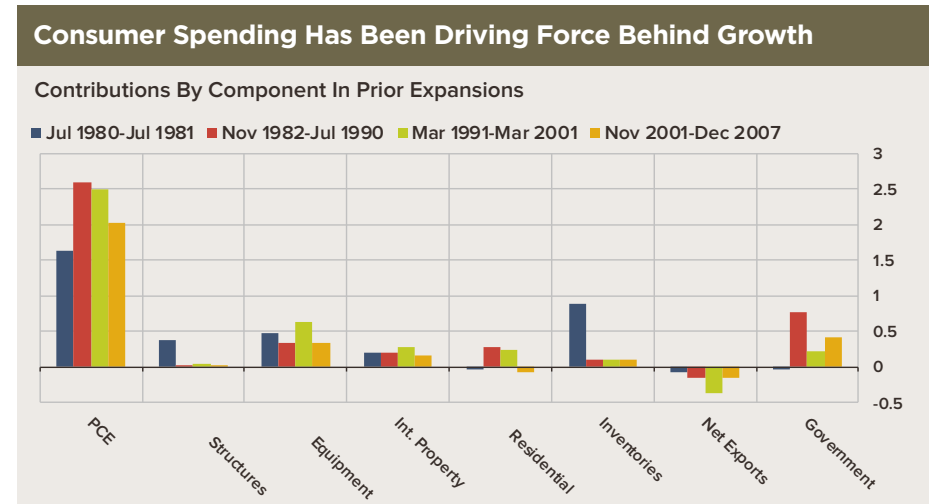
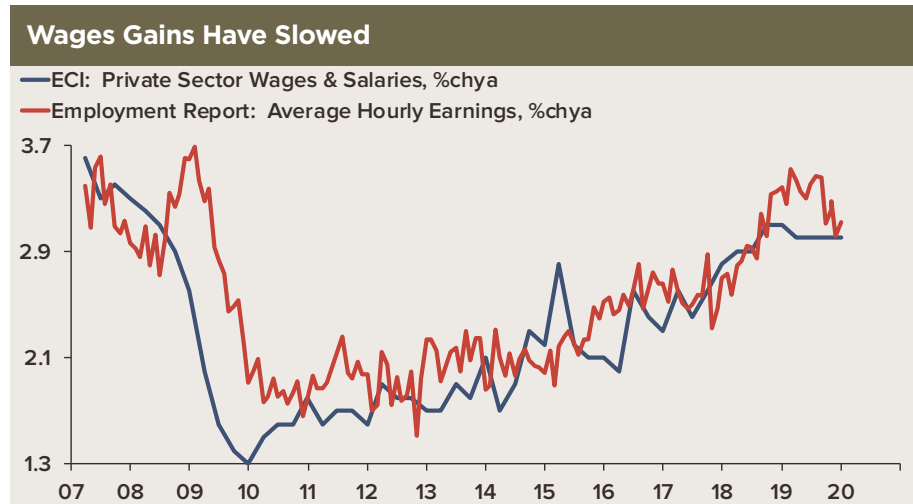
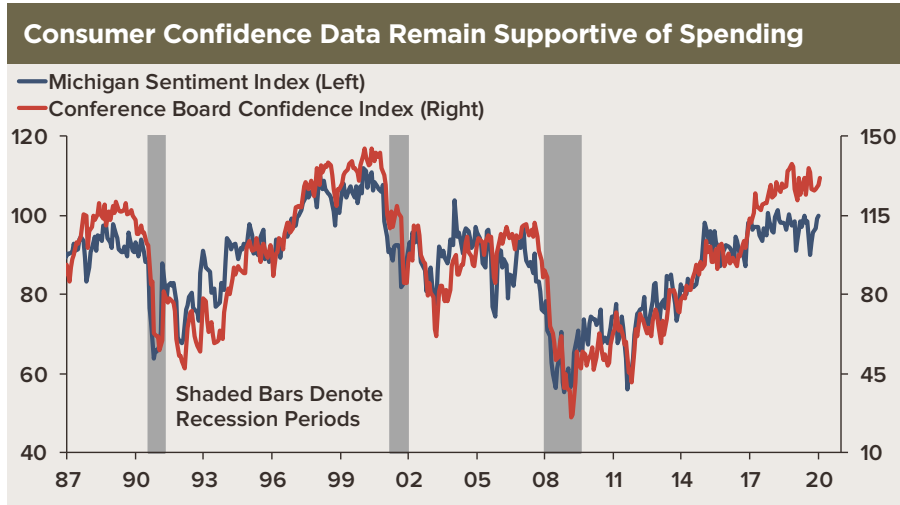
Manufacturing Weak, But No Spillover To Non-Manufacturing



Residential Investment Should Provide Further Support To The Economy

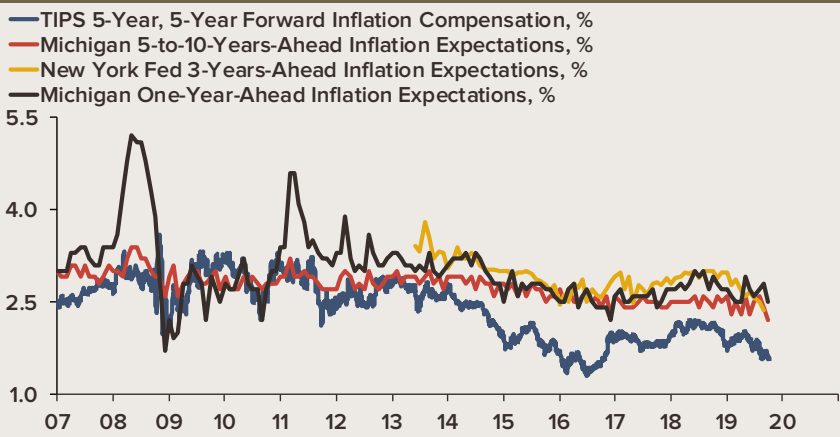


Tight Labor Market Supportive Of Wages And Spending

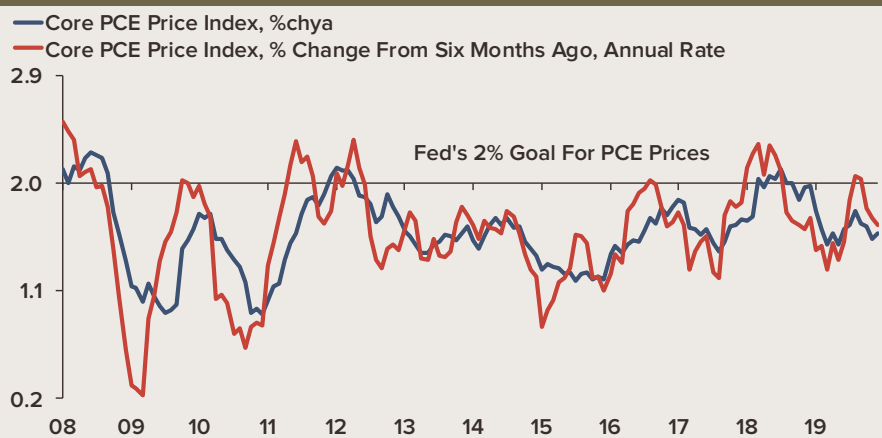


Trend In Core Inflation Remains Tame, Without Deceleration

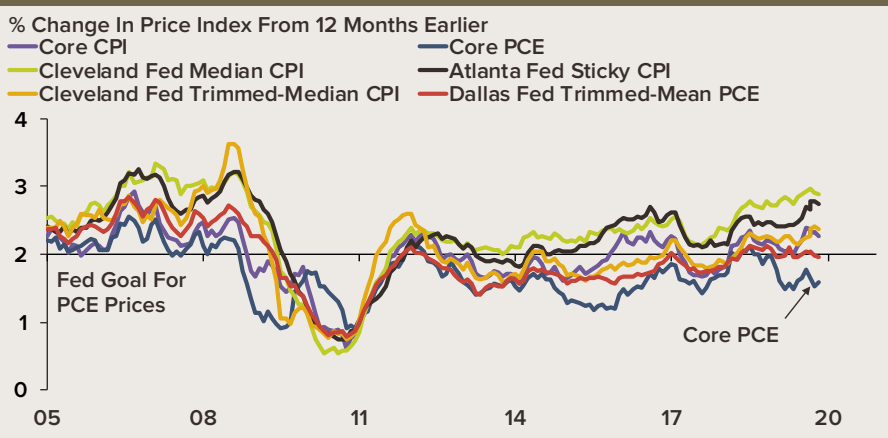
Michigan Long-Term Inflation Expectations Remain Low



Core PCE Prices Rising At A Subdued Pace



Most Inflation Trend Measures Show Little Net Change In Past Year



Outlook For Fed Policy

- **After a mid-cycle adjustment that resulted in a cumulative 75 basis points of easing, the Fed has indicated it is on hold as it assesses the impact of policy action on the economy.**
- **The most recent dot plot revealed that most policymakers expect no change in policy this year, with a few expecting policy to be tightened modestly.**
- **We continue to think the bias to policy remains downward, especially now in light of uncertainties surrounding Covid-19. The longer it takes to contain the virus, the bigger potential impact on the global economy. Fed officials have indicated it is too soon to gauge how the virus may effect growth.**
- **The Fed will stay on the sidelines unless there is a material change in the outlook. However, as Fed officials have said, policy is not on a preset course.**



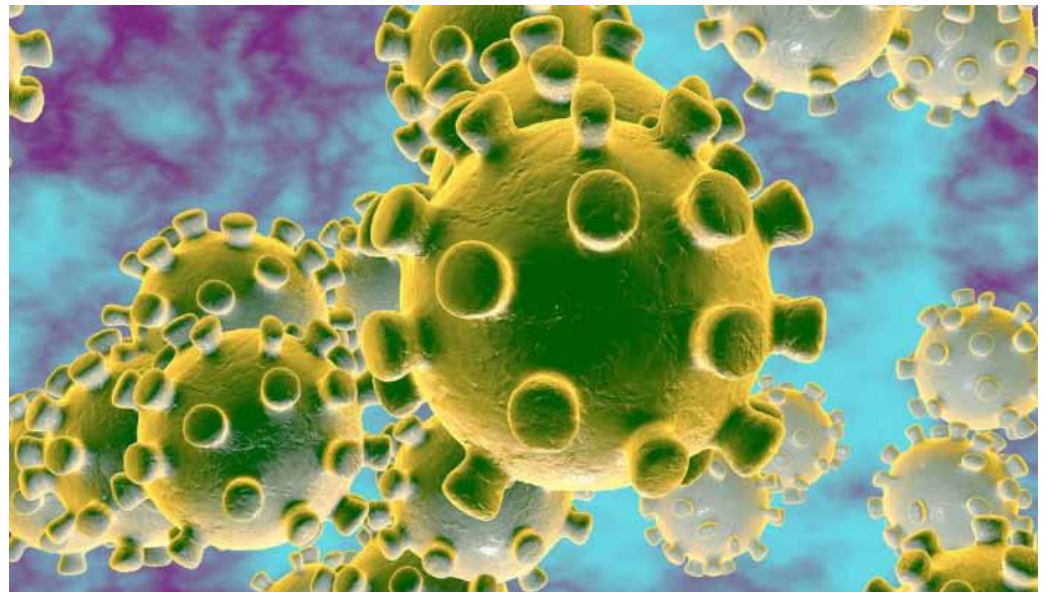
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High Frequency Economics: Where We Stand

HFE's analysis suggests that China's lockdown of Hubei province and large swathes of its industrial sector has already caused **significant and irreparable damage to China's economy**.

The risk is that idling 100 million workers and millions of businesses will lead to a **credit event of unmanageable size** in China.

A **banking crisis** in China may lead to liquidation of foreign currency reserves, and sales of U.S. Treasuries and other sovereigns. This poses a risk to bond market stability worldwide.

Supply chain interruptions are less scary than the financial sector risks, but they cannot be ignored. A leftward shift of the global supply curve would be stagflationary.

Global interest rates are still mostly negative, at least at the short end. Central banks can support bank liquidity, but they have little or no ammo left to support domestic economies.

Euroland's industrial recession cannot end until inventories fall back into line. There is no sign of that happening yet.

CPI-based inflation metrics will stay below target for a long time in advanced economies. The ECB will not be hiking rates or reducing the size of its balance sheet before 2021. The ECB is out of options to support economic growth.

The BoJ is stealthily **tapering JGB purchases** to prevent yields from falling too far below zero. While the population is aging and dying, demand will fall faster than supply and CPI will fall. The BoJ is out of options to support economic growth.

Hubei: Not A Dusty Little Province

Population: Around 60 million people, about the same as Italy

If Hubei were a country, it would be the twenty-fourth most populous in the world
...equal to two Australias or 1-1/2 Canadas; 90% the size of Britain

GDP 2019: \$700 billion estimated, about the same as Switzerland, about 5% of China's total GDP
If Hubei were a country, it would be the twenty-first biggest economy in the world

Auto Production: In 2019, 2.2 million vehicles were produced, or 8.8% of China's total output
...equal to France, more than Canada, twice Italy
If Hubei were a country, it would be the tenth-largest automaking economy in the world

Wuhan: Not A Dusty Little City

Population: Around 11 million people, larger than any North American city.

...about 1-1/2 times the size of New York City, 2-1/2 times Los Angeles, 4 times Chicago
Metropolitan Wuhan is 22 million people, about the same population as metro-Chicago.

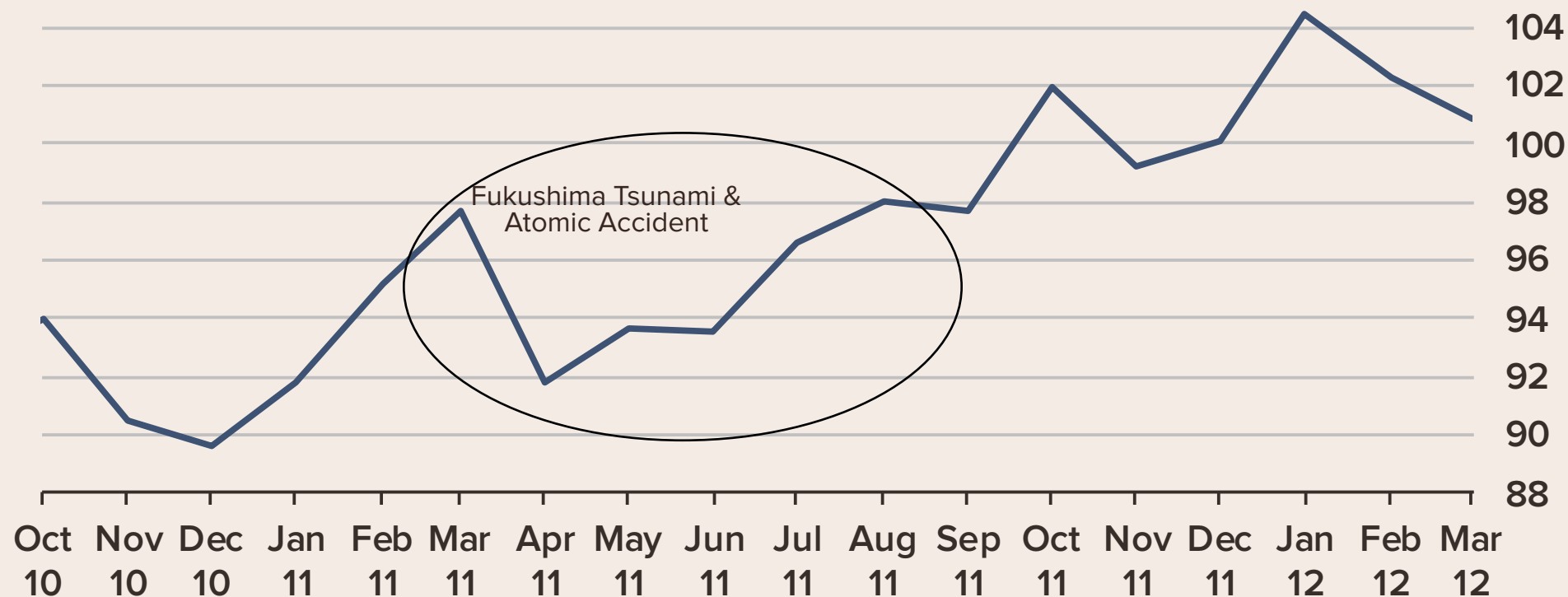
GDP 2019: \$700 billion estimated, about the same as Switzerland

Precedent: Distress Transmitted Abroad

The March 2011 tsunami and atomic accident in northeast Japan idled many makers of auto parts. The supply cut-off was felt almost at once. By April, assembly lines in the United States were starved of bits and kits made in Japan. Auto production dropped 6% that month. Ouch! It did not recover lost ground until August.

United States: Industrial Production Index — Automobiles

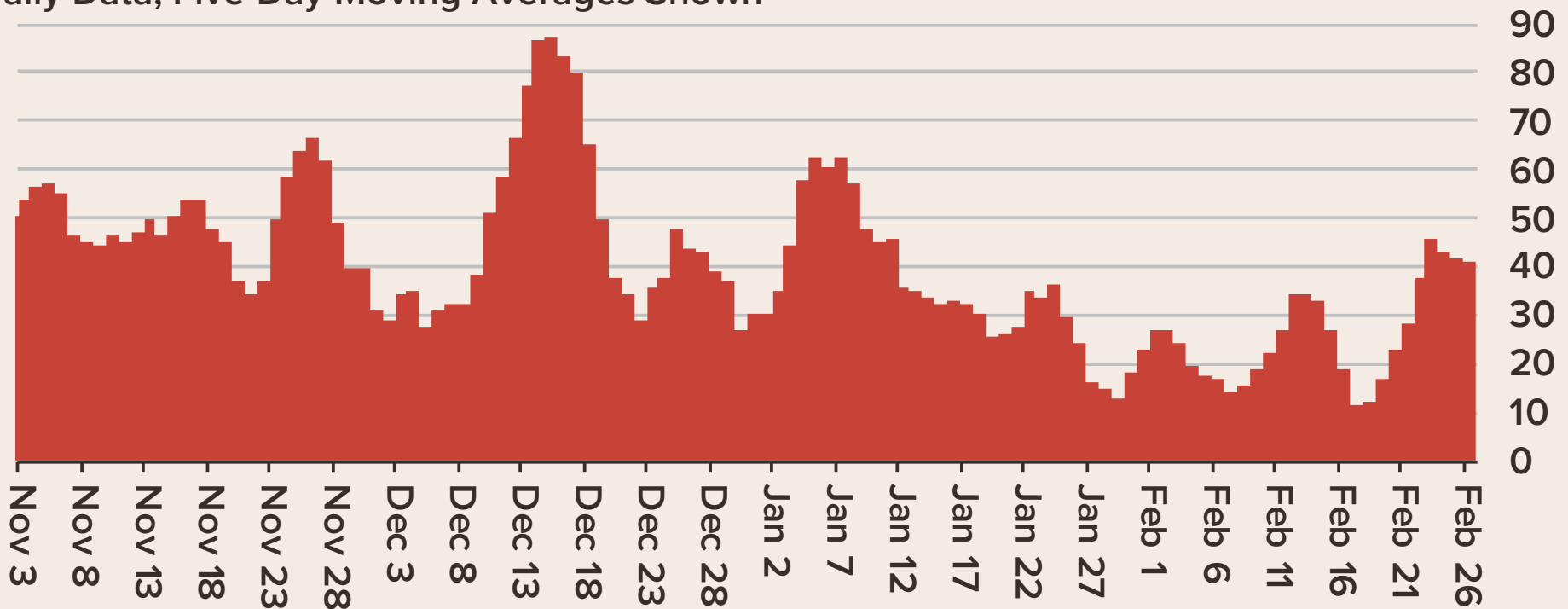
Seasonally Adjusted, 2012 = 100



Industrial Pollutants Levels Suggest Industrial Lockdown Is Severe But Lessening

China: Air Quality Index 2.5 In Guanzhou

Air Quality Index 2.5 Micrometers And Less, Industrial And Vehicle Particulates
Daily Data, Five-Day Moving Averages Shown



Evidence Of Distress Abounds

Daily flights at China's 220 airports are down from 15,000 per day to 2,000 per day.

Auto sales in February were down 92% in the first half of February compared to a year ago.

Banks in Asia are warning of Q1 revenue declines, lending declines and more NPL writeoffs.

Industrial commodity prices are falling worldwide, as China's firms renege and refuse deliveries.

PBOC injects massive liquidity, relaxes NPL requirements, offers loans directly to firms.

Government steps in to stabilize TBTF firms like HNA.

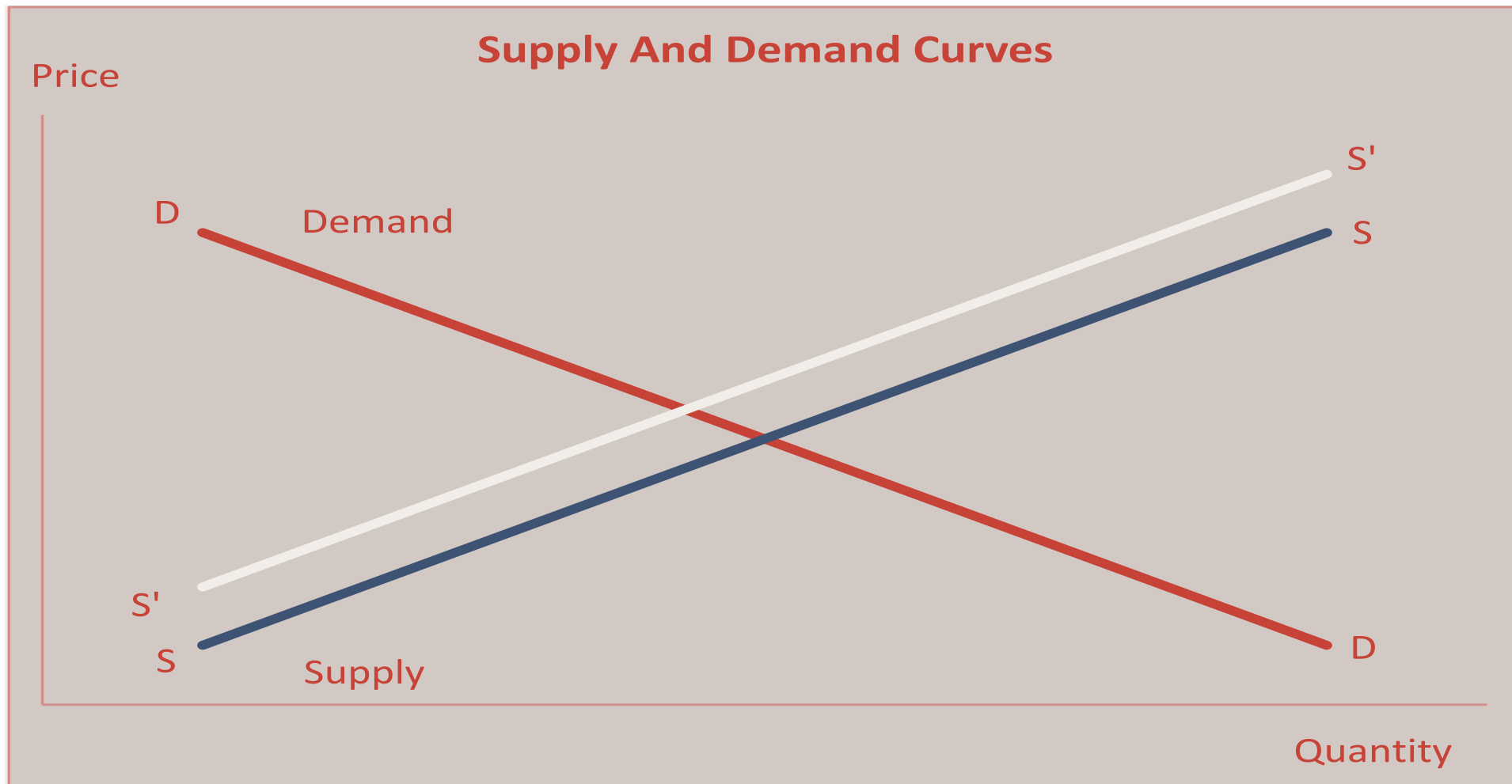
U.S. Chamber of Commerce in China reports 80% of its members are not staffed for full production. 70% say they cannot operate at all.

Anecdotal reports from industrial sources report shipping traffic, rail traffic, bus travel, coal usage and electricity use has declined nationwide.

Watch China's official CFLS PMI tomorrow February 28 at 20:00 EST for indication of the state of industry in February, nationwide.

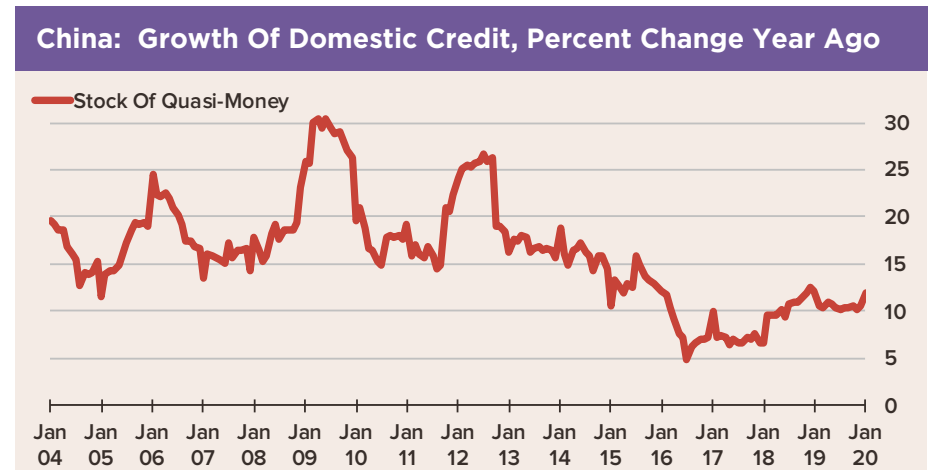
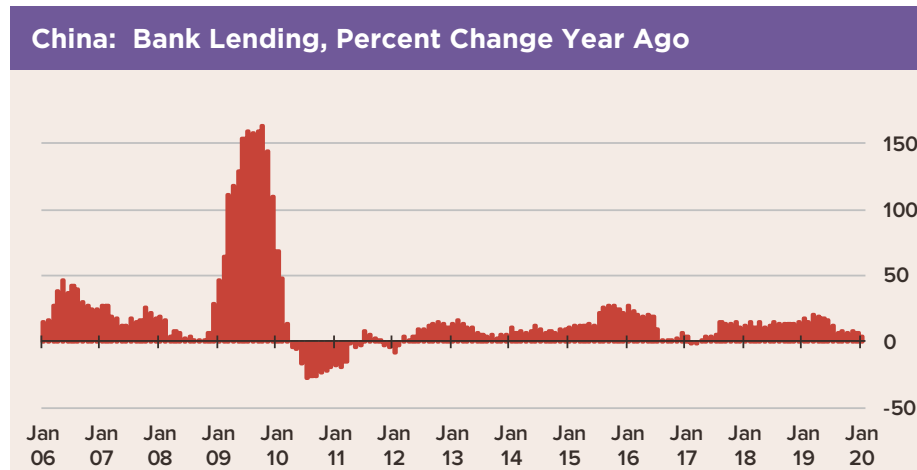
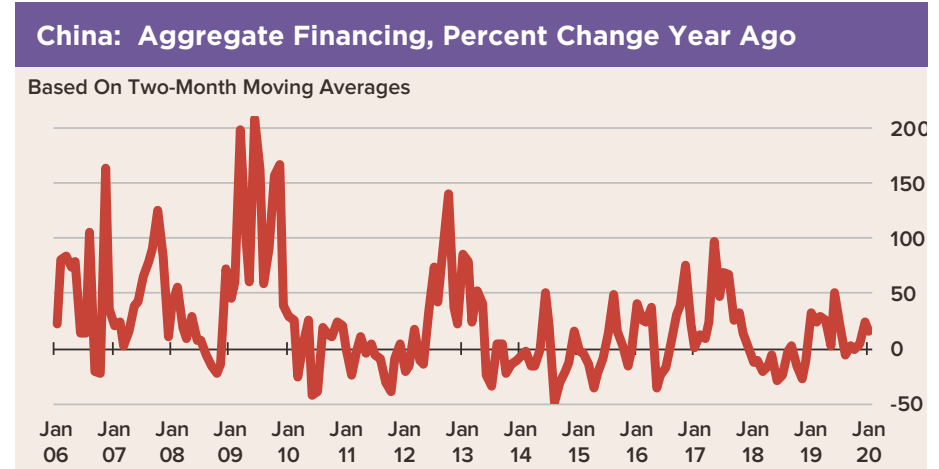
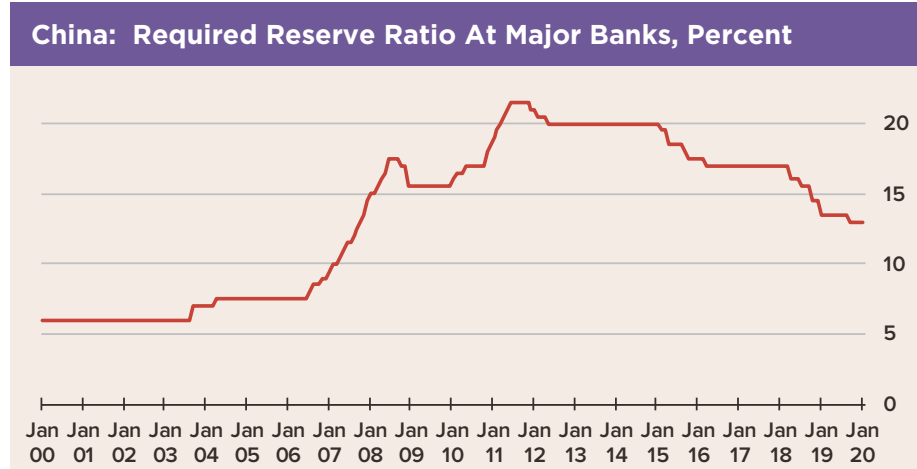
China Shock In A Single Chart

A reduction in China's industrial output leads to a drop in aggregate supply for the global economy. Lower output and higher prices—a stagflation—should result.



Monetary Policy To China's Rescue?

The financial system has been reformed toward a more market-based system of credit allocation and pricing. Shadow banking has been mostly eliminated, NPLs have been recognized and written down, state-owned banks have been supplanted by private lenders. Yet the system has never been tested in a crisis of this magnitude. If banks fail, the economy will fail. **The most important thing the PBOC can do is ensure adequate liquidity to the banking system.** Monetary policy cannot fix the decline in output caused by the lockdown of industry.

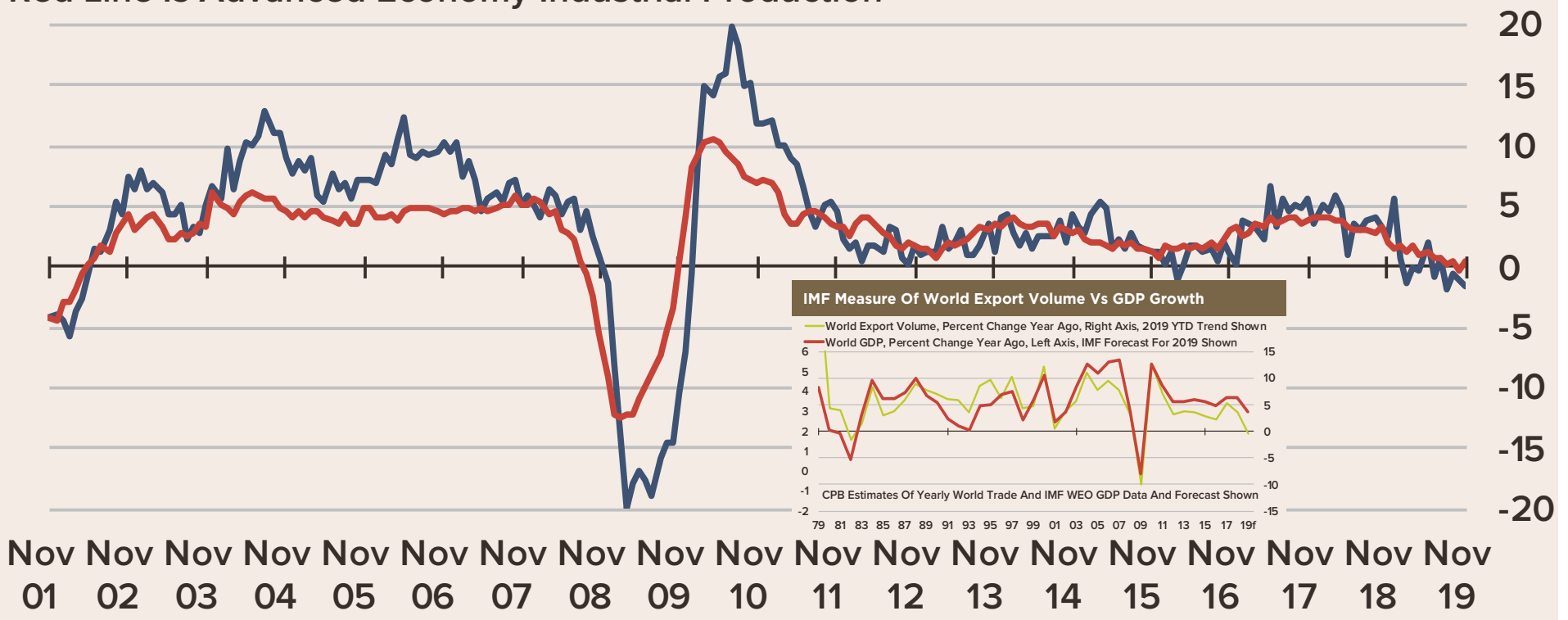


World Trade Volumes Are Declining Outright: Nothing Good Can Come From This

The latest figures from the CPB show world trade contracting as of October. Every time world trade has turned down in the postwar period, world GDP has turned down—slowed, if not contracted—in parallel. We have no plausible comprehensive explanation for the dip in global exports, so we cannot be sure that it will extend or stop right here. Unless current trends reverse, we will see the fourth yearly dip in global exports since the data began in the 1970s!

World Export Volume, Percent Change Year Ago

Blue Line Is CPB Monthly World Export Index
 Red Line Is Advanced Economy Industrial Production

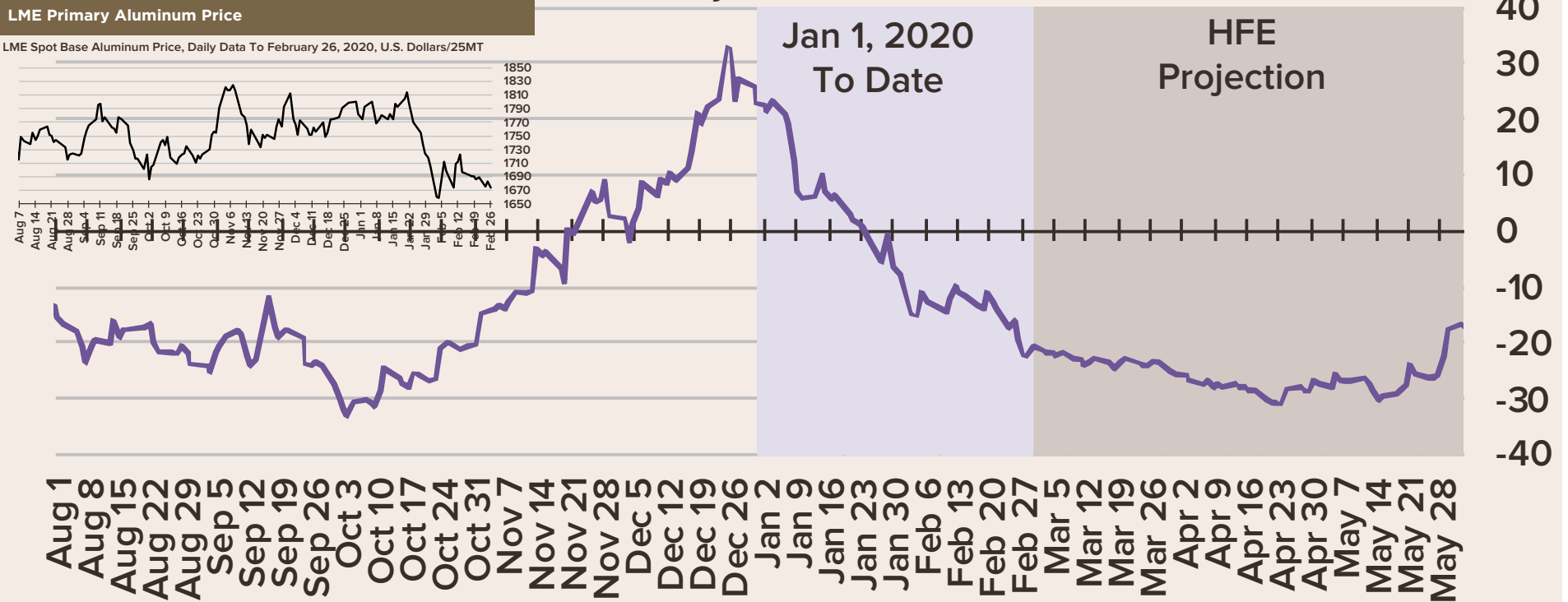


Brent Prices At \$51 A Barrel Should Scare No One

Brent crude oil prices at \$51 per barrel, if sustained, would leave them 30% higher than a year ago by spring. That is what matters to inflation metrics based on year-over-year changes in CPI. DoE data and IEA forecasts show inventories were ample and rising before the lockdown of China’s industrial sector and the grounding of most of its aviation activity.

Brent Crude Oil Price Base Scenario, Percent Change Year Ago

Daily Data To February 27, 2020, U.S. Dollars/Barrel
Constant Price At \$51 Extrapolation To May 2020





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