American Wire Producers Association Annual Meeting

February 21, 2020

Global Economic & Geopolitical Outlook

What are the Risks and Opportunities Ahead?

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We are at a "Pivotal Moment" in Economic History!

- US economy is well into its record 11th year of growth. How much longer can it last?

- We're in a technology super-cycle: It is transforming the very fabric of our economy and society.

- Be prepared: Exogenous shocks will occur more frequently and be more consequential!

- Bottom line: Time to shed some of the old rules and concepts about how a modern economy functions.

Three most common causes of past recessions

1. High "real" interest rates. It shuts down borrowing and spending; delinquencies surge.
   (1953- 1954, 1957 - 1958, 1969 - 1970, 1981 - 1982)

2. A major geopolitical eruption that causes oil prices to jump. Higher energy costs brings economy to a screeching halt.
   (1973-1975, 1980)

3. Acts of human folly; Self-inflicted economic wounds.
   (2001, 2008- 2009)

Recession Warning Signs: 12 Key Indicators to Monitor Now!

Consumer spending patterns:

- Consumer purchases of durable goods (BEA)
- Consumer delinquency rates (FRB)
- Confidence levels; 3-month moving average (CB & UofM)
- New single family home sales / Pending Homes sales (Census; NAR)

Employment data

- Average weekly OT hours worked; manufacturing (BLS)
- Applications for unemployment benefits (BLS)
- Hiring plans (NFIB)

Business :

- ISM manufacturing – new orders (ISM)
- Ratio of building permits to new starts (Census)
- Chemical Activity Barometer (ACC)

Finance:

- Business access to credit (FRB)

Capital Markets:

- Shape of the yield curve (10-yr. minus 2 yr & 3-M)

BEA-Bureau of Economic Analysis; FRB-Federal Reserve; CB- Conference Board; UofM- U. of Michigan; NAR - National Assoc. of REALTORS, Census Dept;
BLS-Bureau of Labor Statistics; ISM - Institute for Supply Management; ACC American Chemistry Council; NFIB - Nat'l Federation of Independent Business

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Economic impact of the Coronavirus (COVID - 19)

Impact to last through 1st H 2020, with economic rebound in 2nd H 2020.

- **Disrupts domestic and international supply chains**
- **New orders (value) of commodities to plummet in 1Q**
- **Depresses global manufacturing activity**
- **Service industries affected (travel, tourism, health care)**

GDP Revisions

China:
IQ 2020 = 5.9% --> 3.5%
Full year 2020 = 5.8% --> 5.2%

US:
1Q 2020 Coronavirus + 737 Max = 1.9% --> 1.4%
Full year 2020 = 2.3% --> 2.1%

Global:
Full year 2020 = 3% --> 2.7%

Global cost:
SARS (2002 -2003) caused $40 billion in economic losses.
COVID - 19 damages projected to be at least $250 billion.

SITUATION IN NUMBERS
total and new cases in last 24 hours

Globally
46 997 confirmed (1826 new)

China
46 550 confirmed (1820 new)
1368 deaths (254 new)†

Outside of China
447 confirmed (6 new)
24 countries
1 death

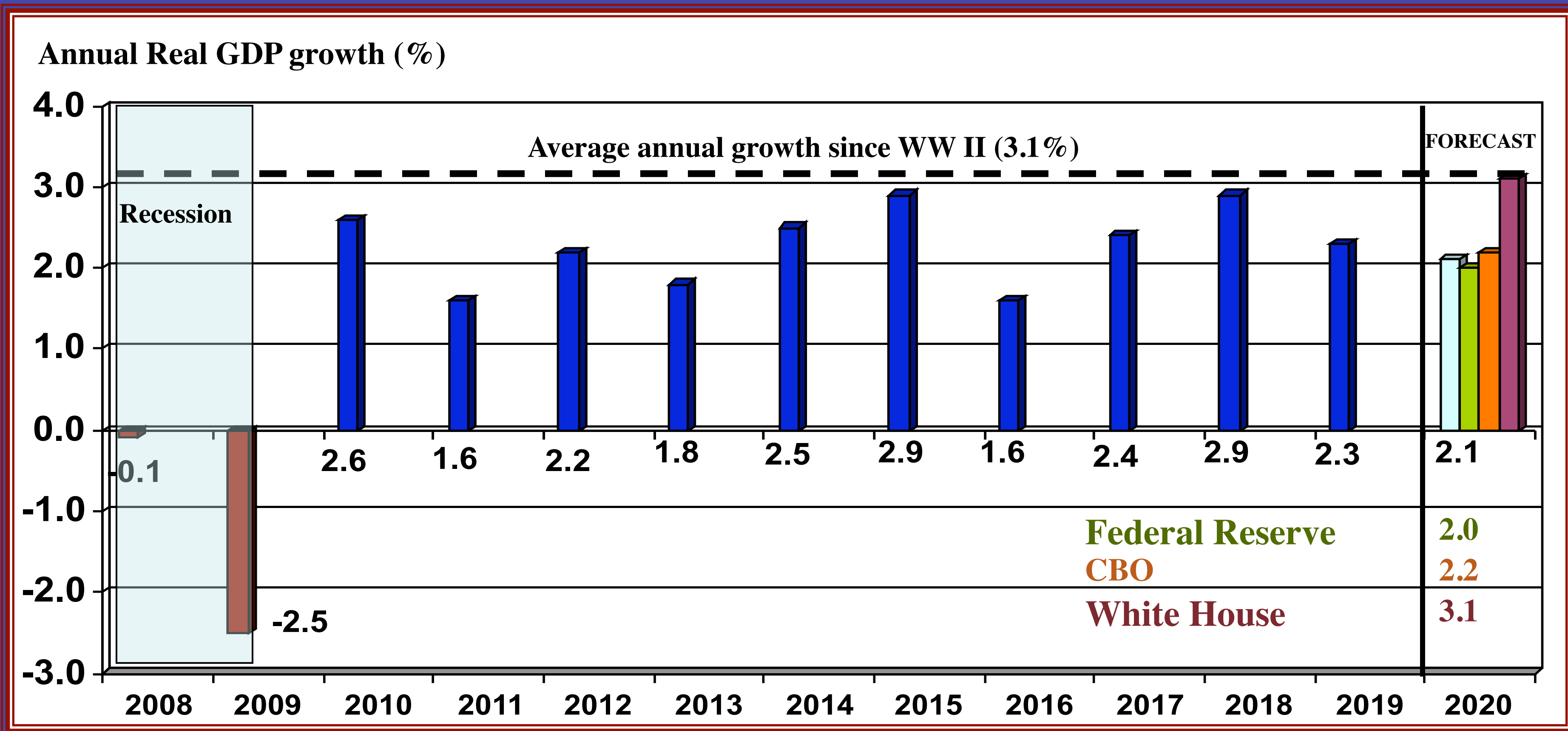
WHO RISK ASSESSMENT

China	Very High
Regional Level	High
Global Level	High

As of Feb. 13, 2020

Sources: The Economic Outlook Group, World Health Organization

Baseline Forecast for U.S. GDP growth 2020



Sources: BEA, Office of Management & Budget (FY 2020); Federal Reserve, The Economic Outlook Group,

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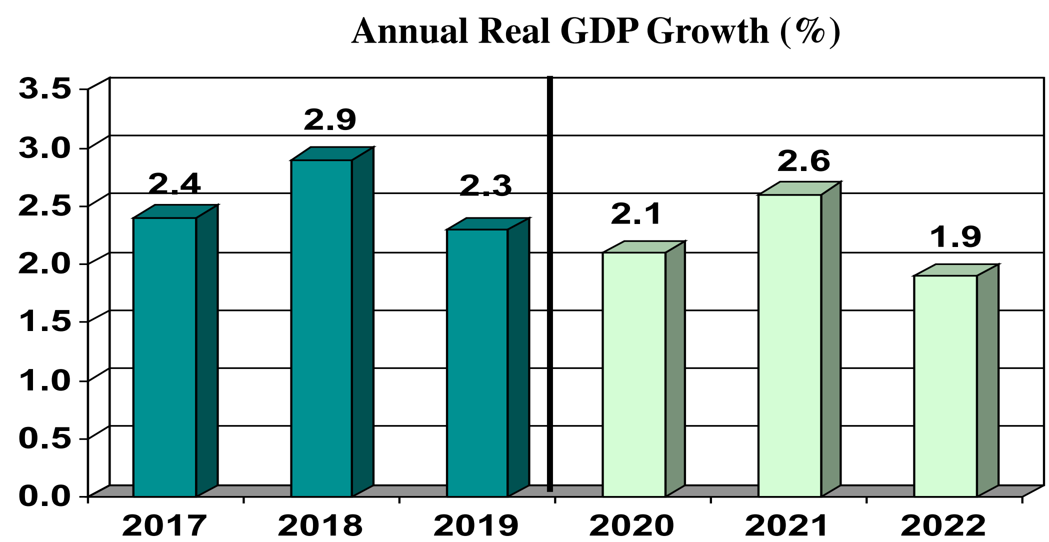
Primary Economic Forecast

<u>Presidential Election Outcome</u>
Democratic Party
---Moderate / Center Left Wing



Changes in Policy & Economic Climate:

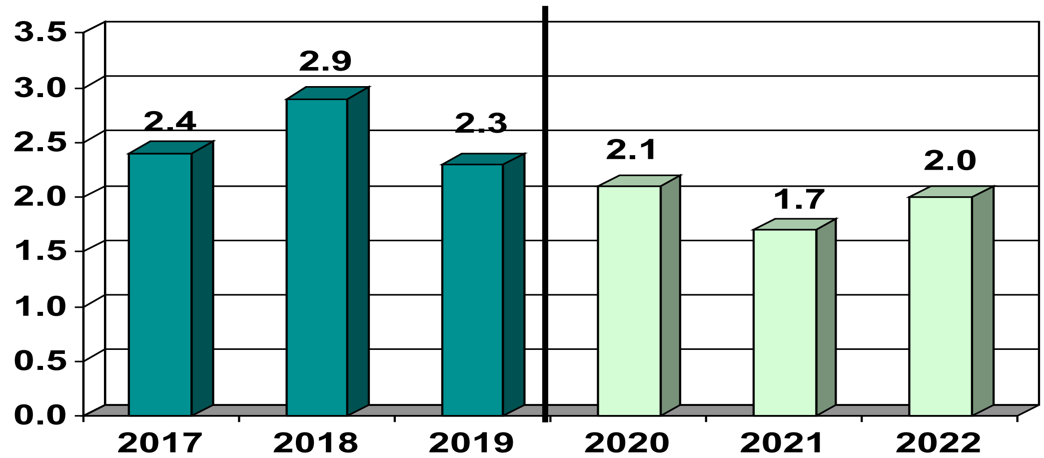
- Increase fiscal spending (education, climate protection, infrastructure investments)
- Household expenditures remain healthy PLUS a rebound in business capital investments
- Partial rollback of 2017 Tax Act; Raise corp. taxes; More tax cuts for middle/low income households.
- Stock market: bull market stalls, but no sharp decline expected.
- More clarity on trade and climate policies. US to rejoin TPP (now called CPTPP) and Paris Climate Accord.
- Post COVID-19: Global economic activity picks up as uncertainty over trade, tariffs, and foreign policies fades.

Alternate Scenario A

<u>Presidential Election Outcome</u>
Democratic Party
-- Liberal / Left Wing

Economic Forecast

Annual Real GDP Growth (%)



Changes in Policy & Economic Climate:

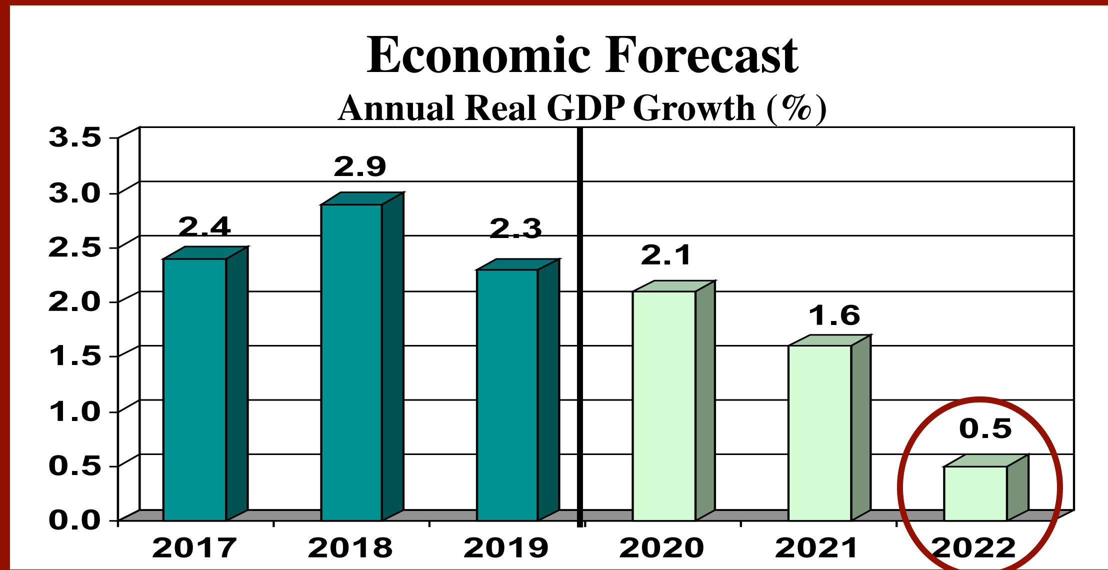
- Policies to be seen less friendly to business.
- Bear stock market likely as outlook for corporate earnings sour.
- Increase in both regulations and corporate taxes; may cool business capital spending and hiring.
- Subsidies to firms that hire low income and minimally skilled workers.
- Major tax cuts on middle/low incomes. Sharply higher rates “high income” households.
- Government outlays surge for health care, education, climate protection, infrastructure investments.
- Greater support for multilateral institutions and organized labor.

Alternate Scenario B

<u>Presidential Election Outcome</u>

Victory - GOP

---Donald Trump re-elected



Changes in Policy & Economic Climate:

- Resumes tough stance on trade with China during second presidential term.
- Imposes higher tariffs on goods from Europe and other countries. More disruptions to supply chains.
- Trump unlikely to re-appoint Jerome Powell as Fed chair in 2022. Change unnerves financial markets.
- Geopolitical tensions worsen with Iran, North Korea, Venezuela and in the South China Sea.
- Faced with another four years of uncertain policymaking, businesses pull back on CAP EX.
- More deregulation likely.
- Slump in global economy continues. Recession threat looms in 2021 or 2022.

Consumer spending to remain healthy in 2020, but below the pace of 2019

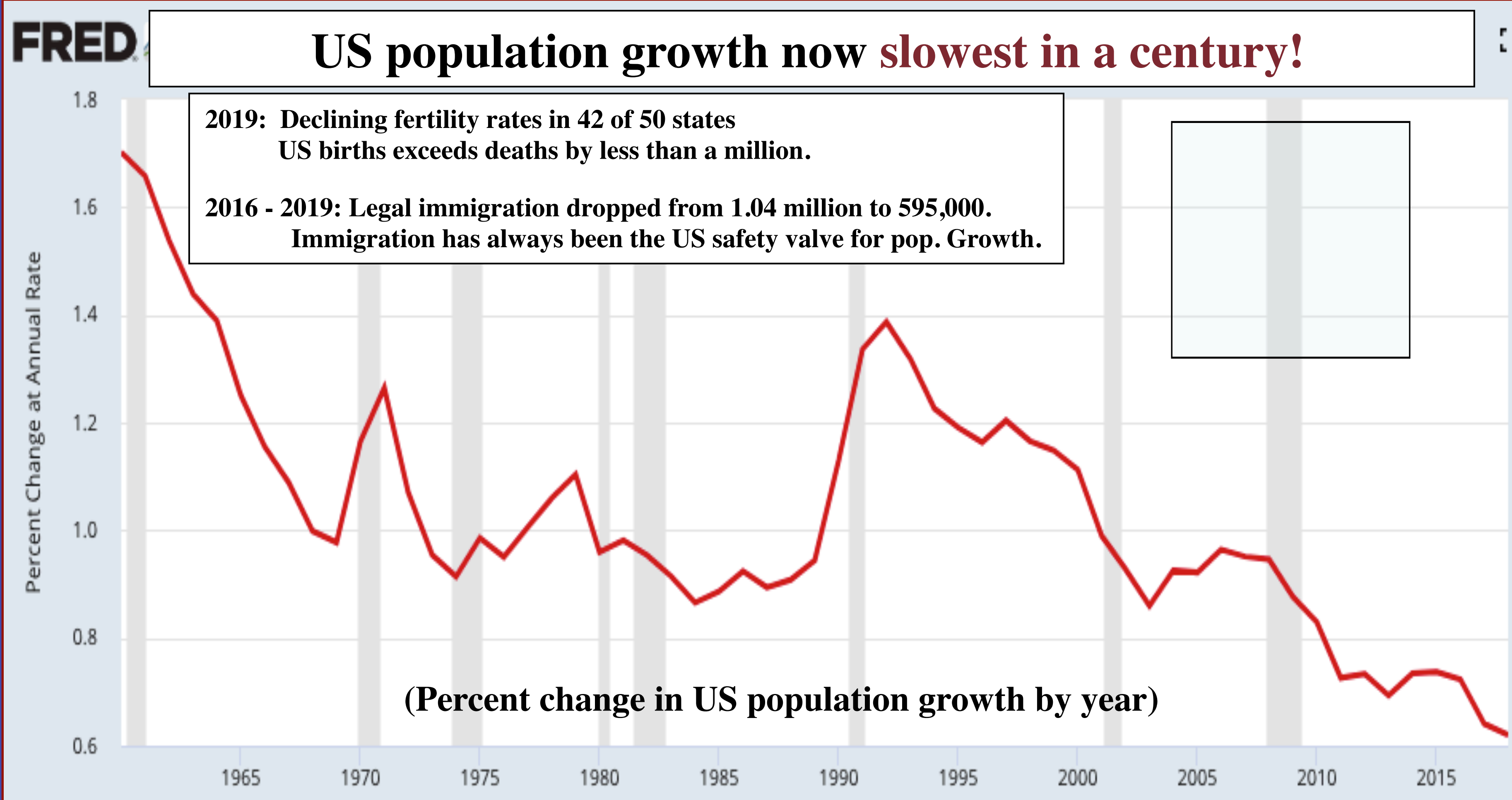
Willingness to spend:

1. Consumer confidence in the economic outlook still firm, if a bit wobbly.
2. Strong sense of job and income security.
3. Some slowdown expected in outlays for durable goods after 10+ yrs. of shopping.
4. Americans to spend more on services. (Eating out, domestic travel, health care.)
5. On watch: Any increase in health concerns of shopping in public (shift to online).

Ability to spend:

1. Wages still rising faster than inflation.
2. Only modest increase in retail prices and low interest rates.
3. Household balance sheets in good shape, but delinquencies are inching up.
4. eCommerce + digital payments + faster deliveries = fuels "impulse buying."

US population growth now slowest in a century!



Source: Bureau of Census; Federal Reserve

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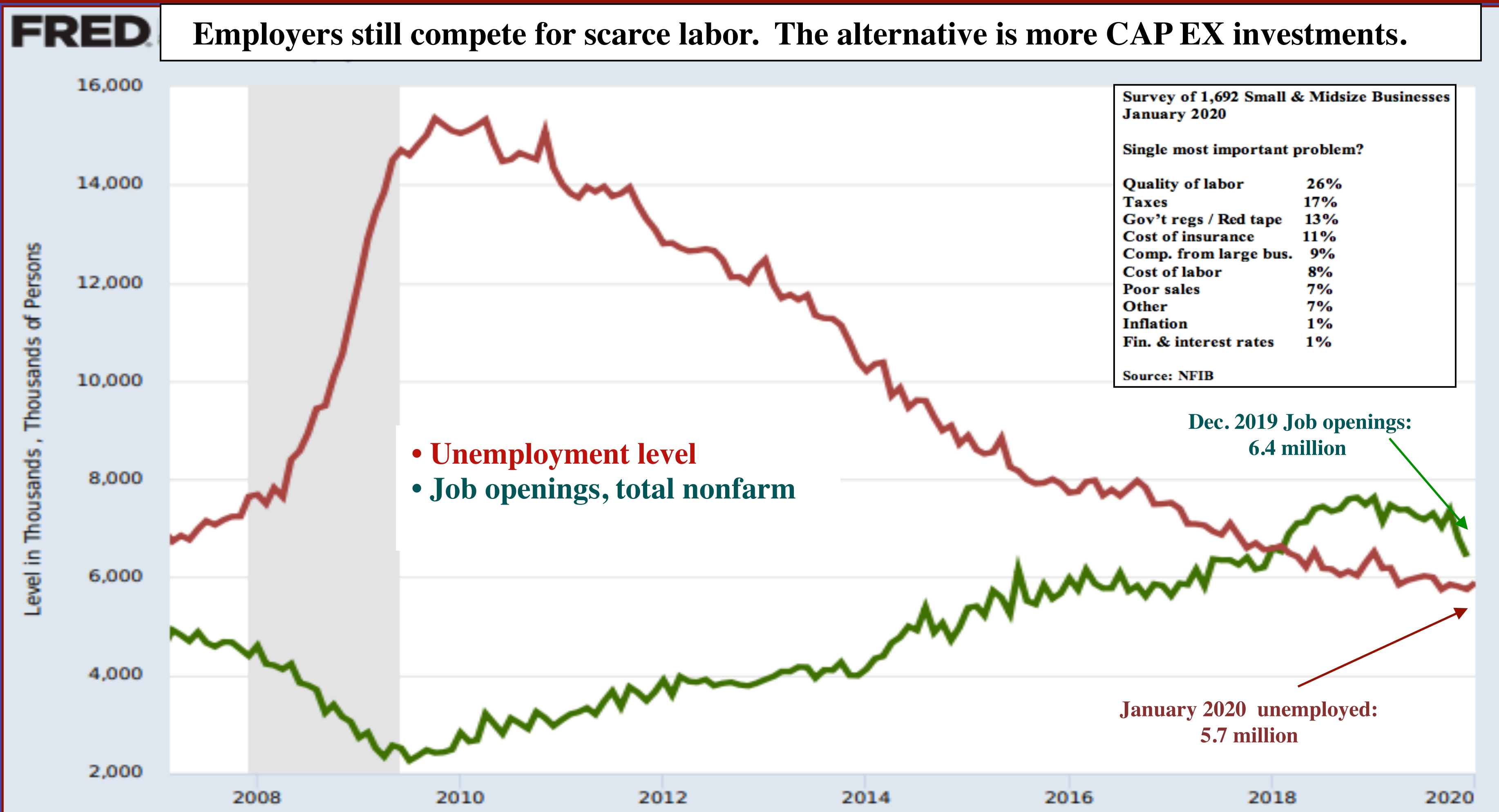
Employers still compete for scarce labor. The alternative is more CAP EX investments.

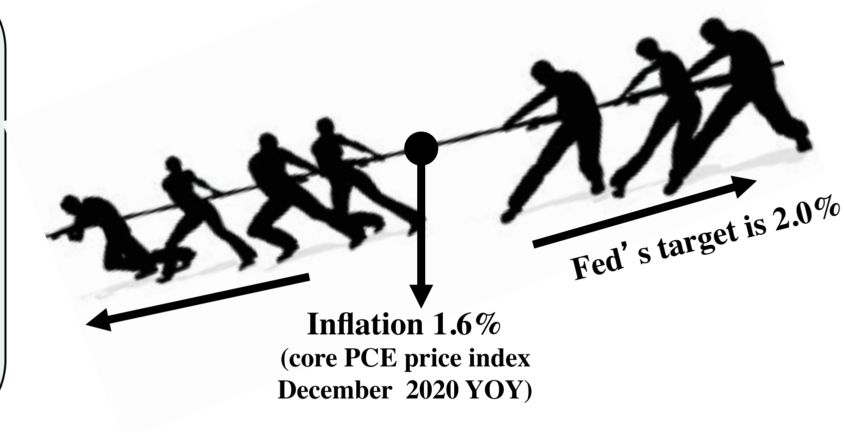


Source: Bureau of Labor Statistics

Historic tug-of-war over inflation:
eCommerce is the greatest deflationary force in modern economic history

Factors pushing inflation higher
- Rising wages
- Tariffs
- Firms testing pricing power

Factors depressing inflation
- eCommerce
- Globalization
- Stronger dollar
- Improved productivity
- Changing demographics
- Low interest rates
- Moderate energy prices
- Decline in union membership



Trade tensions, coronavirus and Nov. elections still make the outlook murky.
But after years of neglect, pressure is building to boost capital expenditures.

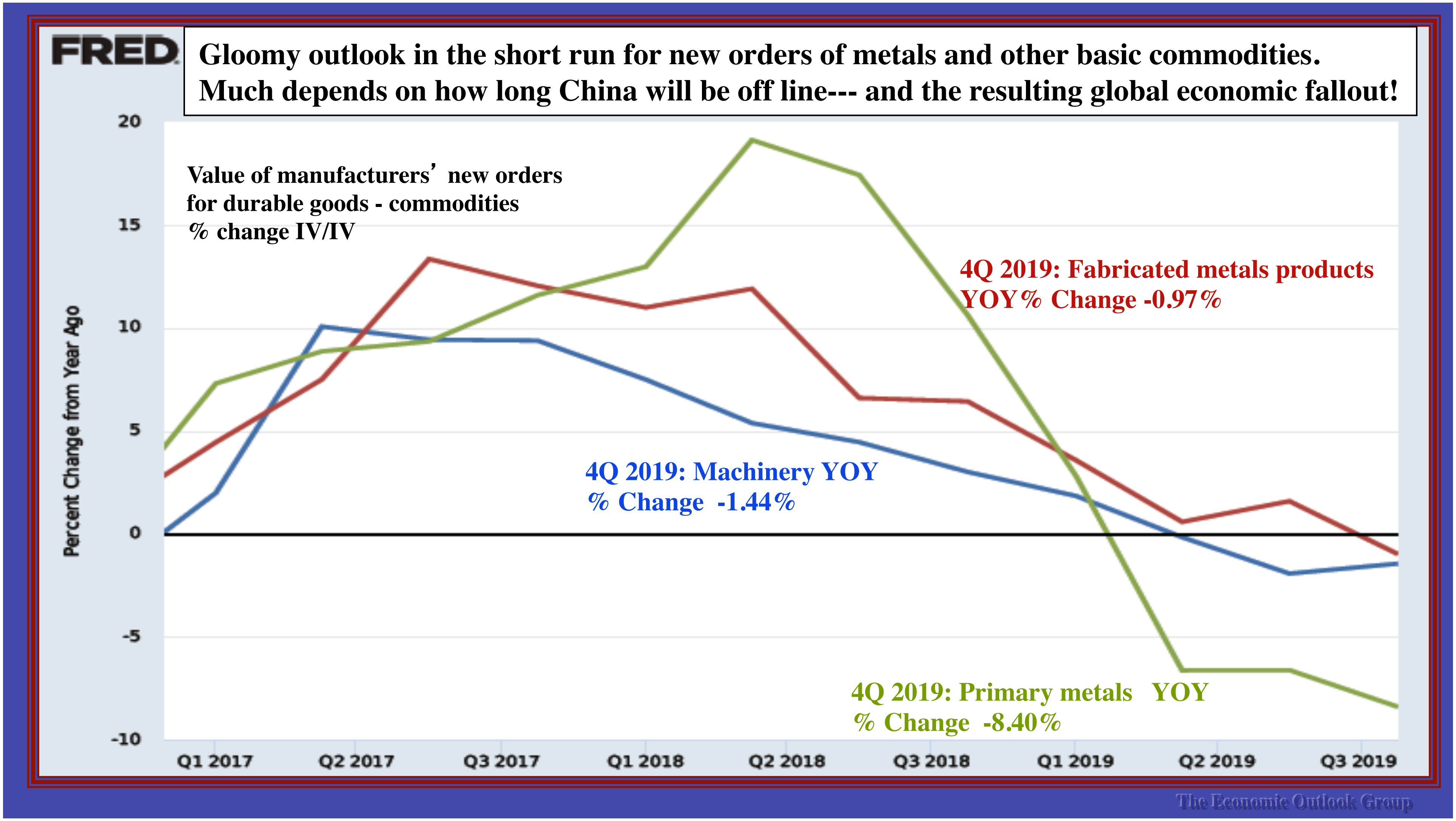
-- Need to offset labor scarcity and rising wages, firms will invest more on raising productivity.

-- Trade tensions with China have eased (for now) with the signing of a "phase one" accord.

-- Passage of USMCA is certain, though ratification by Canada may be weeks away.

-- Brexit: UK officially out of EU. But talks on new relationship will be testy and last into 2021.

-- Shareholders and consumers are demanding companies spend more on sustainability.


FRED
Gloomy outlook in the short run for new orders of metals and other basic commodities.
Much depends on how long China will be off line--- and the resulting global economic fallout!
Value of manufacturers' new orders
for durable goods - commodities
% change IV/IV
4Q 2019: Fabricated metals products
YOY% Change -0.97%
4Q 2019: Machinery YOY
% Change -1.44%
4Q 2019: Primary metals YOY
% Change -8.40%
Percent Change from Year Ago
20
15
10
5
0
-5
-10
Q1 2017
Q2 2017
Q3 2017
Q1 2018
Q2 2018
Q3 2018
Q1 2019
Q2 2019
Q3 2019
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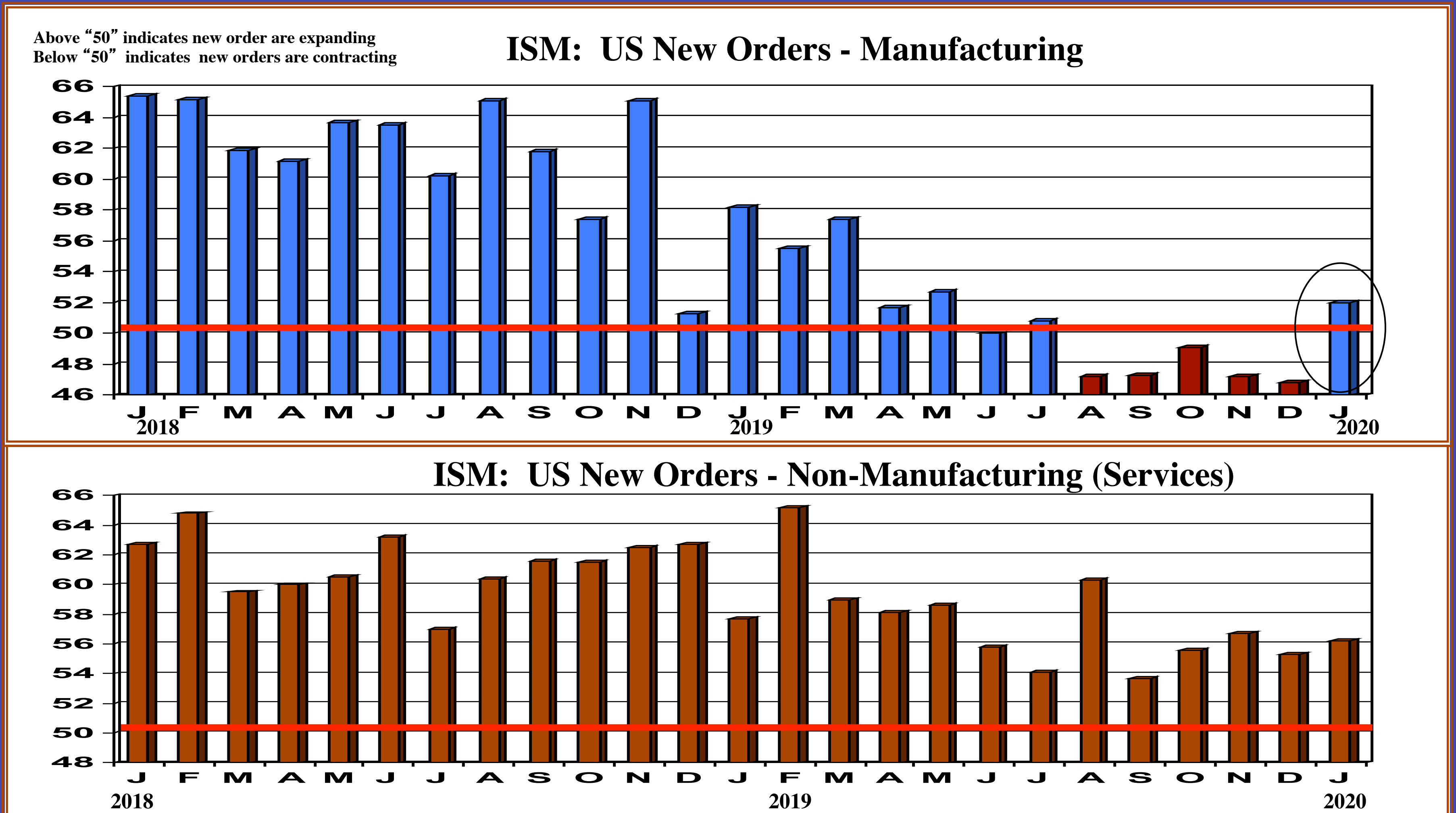

Source: Institute for Supply Management

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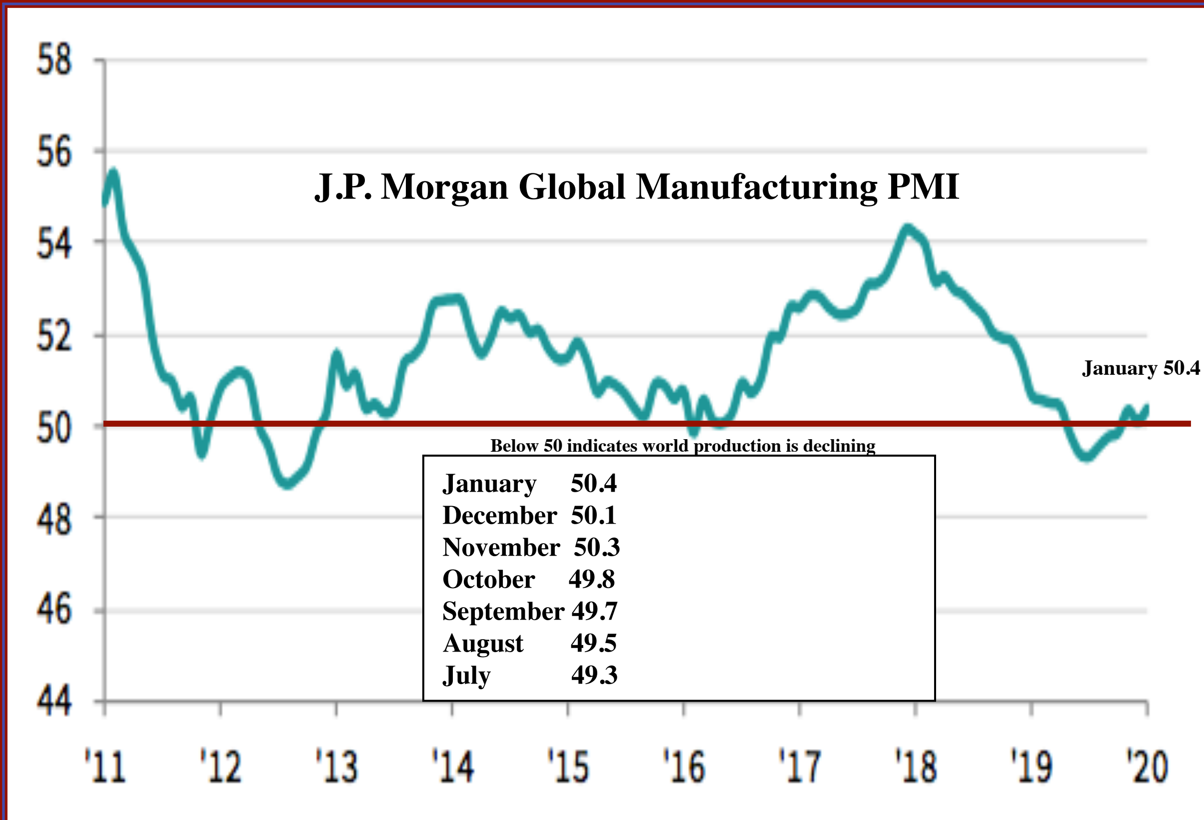
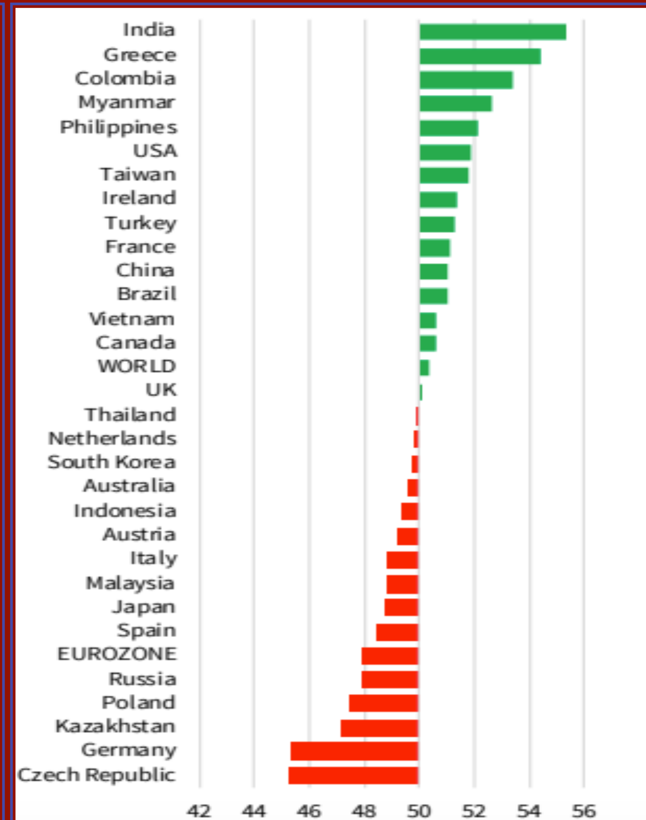
Global manufacturing has begun to recover--but expect a temporary setback in 1Q due to the coronavirus. Larger rebound in output by midyear.



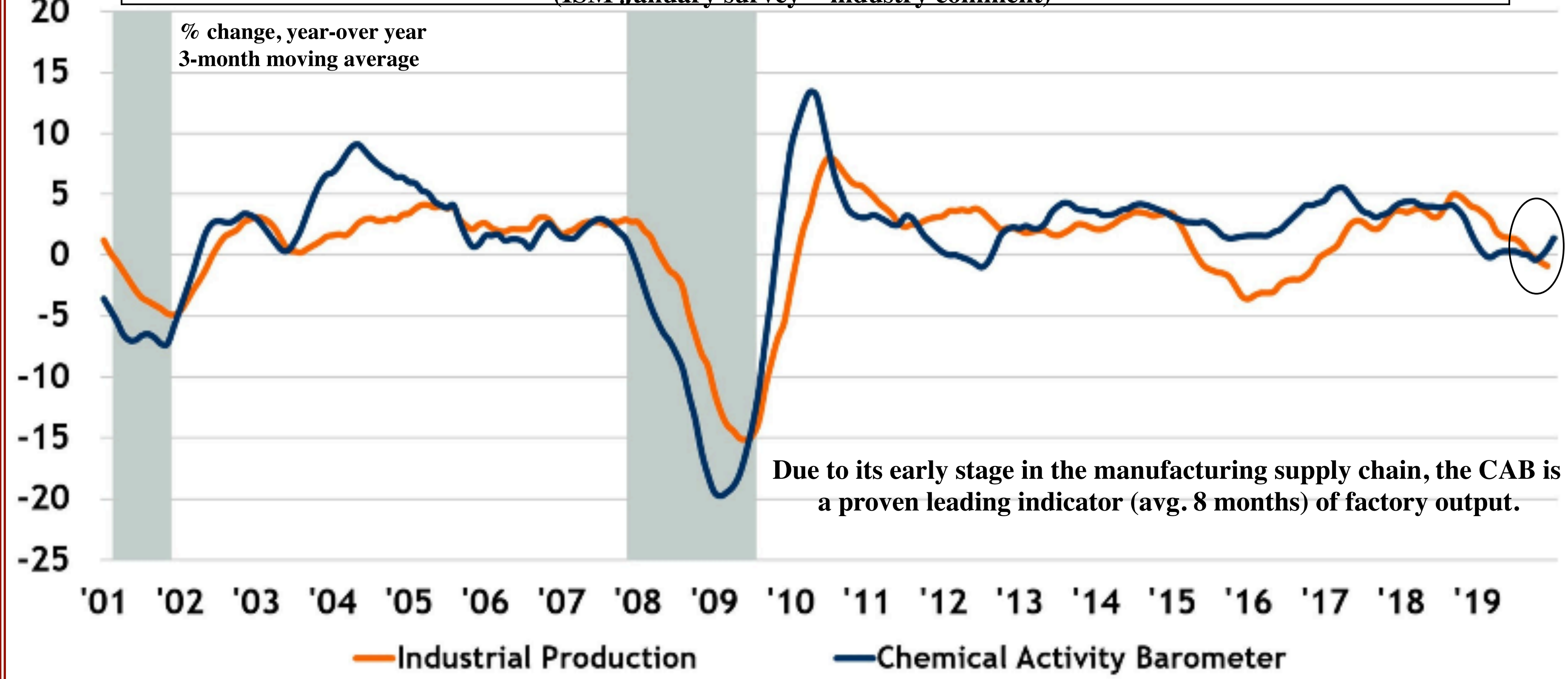


Source: J.P. Morgan, IHS Markit, ISM, IFPSM

Chemical Activity Barometer turned up in January

"Small signs of increased global demand in the chemical segment."

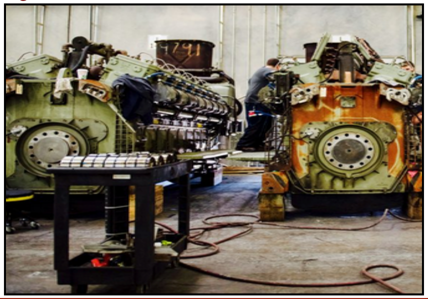
(ISM January survey - industry comment)



Source: American Chemistry Council

Avg. Age of America’s Capital Stock Oldest on Records (to 1925)!

Age of private fixed capital: **Average age is 23 years, oldest in 63 years.**



- **Manufacturing structures - 23.0 years old, near its 1946 peak (23.2 yrs)!**
- **Industrial equipment - 9.8 years old. Nearly oldest since 1939**
- **Healthcare facilities - 21.6 years, oldest ever.**
- **Power & communication structures - 23.6 years old.**
- **Housing - 35 years, oldest since 1947.**

Age of government fixed assets: **Average. age is 24.8 years, oldest in 93 years!**

- **Highways and streets (Federal) - 37.9 years, oldest ever.**
- **Highways and streets (State & local) - 28.8 years, oldest ever!**
- **Sewer systems (State & local) - 28.3 years, oldest ever!**
- **Water systems (State & local) - 28.4 years, oldest ever!**
- **Public transportation (airports & seaports) - 20.1 years, oldest ever!**

Source: US Bureau of Economic Analysis (Current-Cost Average Age yr. end 2018)

Decrepit infrastructure holds back economic growth:

But money and politics often gets in the way of much-needed repairs.

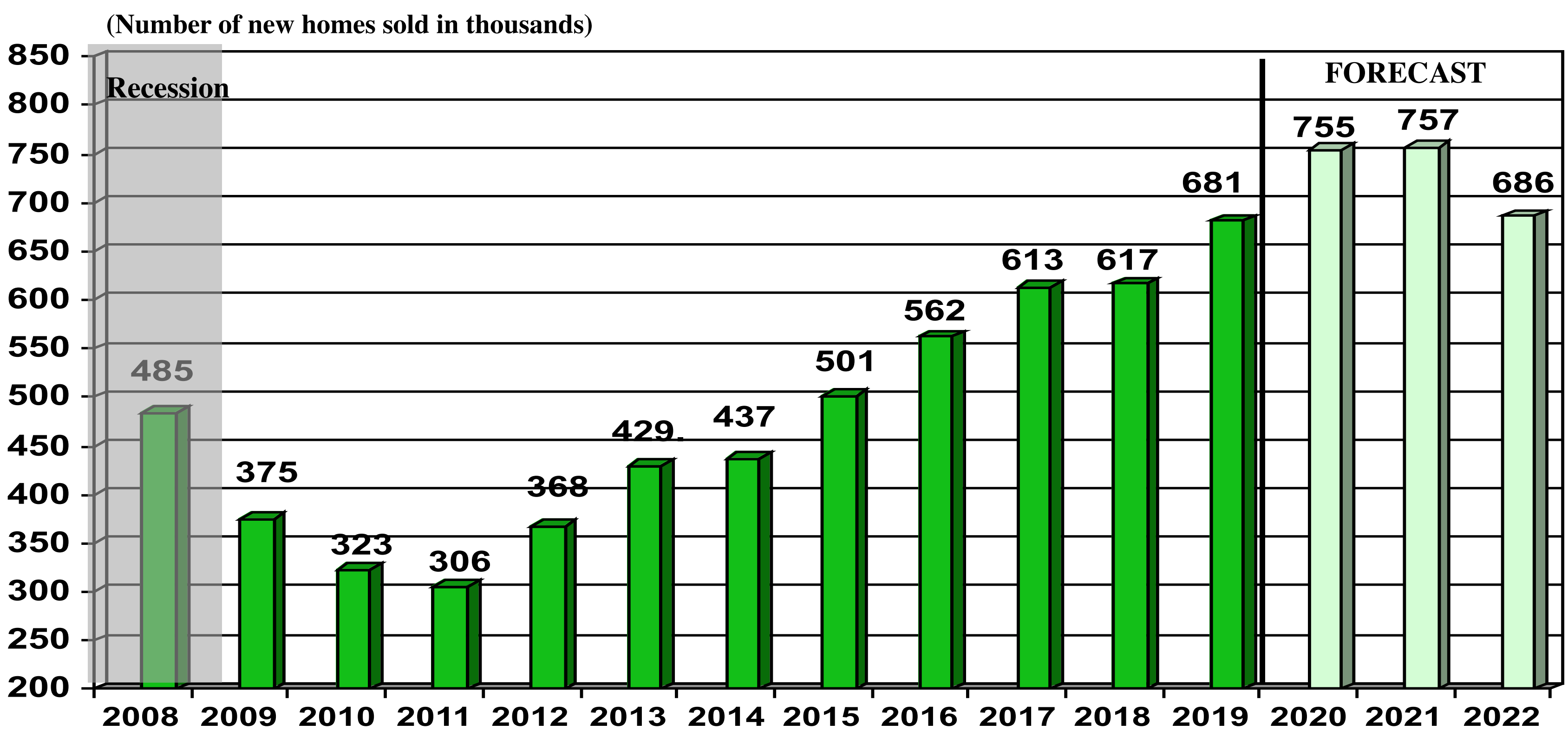
EXAMPLES:

- **Philadelphia still relies on underground pipes installed *before* the Civil War.**
- **84,000 bridges considered functionally obsolete.**
- **58,000 bridges deemed "structurally deficient," yet still carry 180 million cars a day!**

- **There are more than 650 water main breaks a day on average in the US; 240,000 a year.**
- **Leakages and spills waste an average of 5.8 billion gallons of water *each day!***

Sources: American Society of Civil Engineers, American Water Works Association, Center for Neighborhood Technology

New single-family home sales to climb in 2020 as more millenials transition out of rental apartments and baby boomers seek out smaller houses.



Sources: US Commerce Department, The Economic Outlook Group

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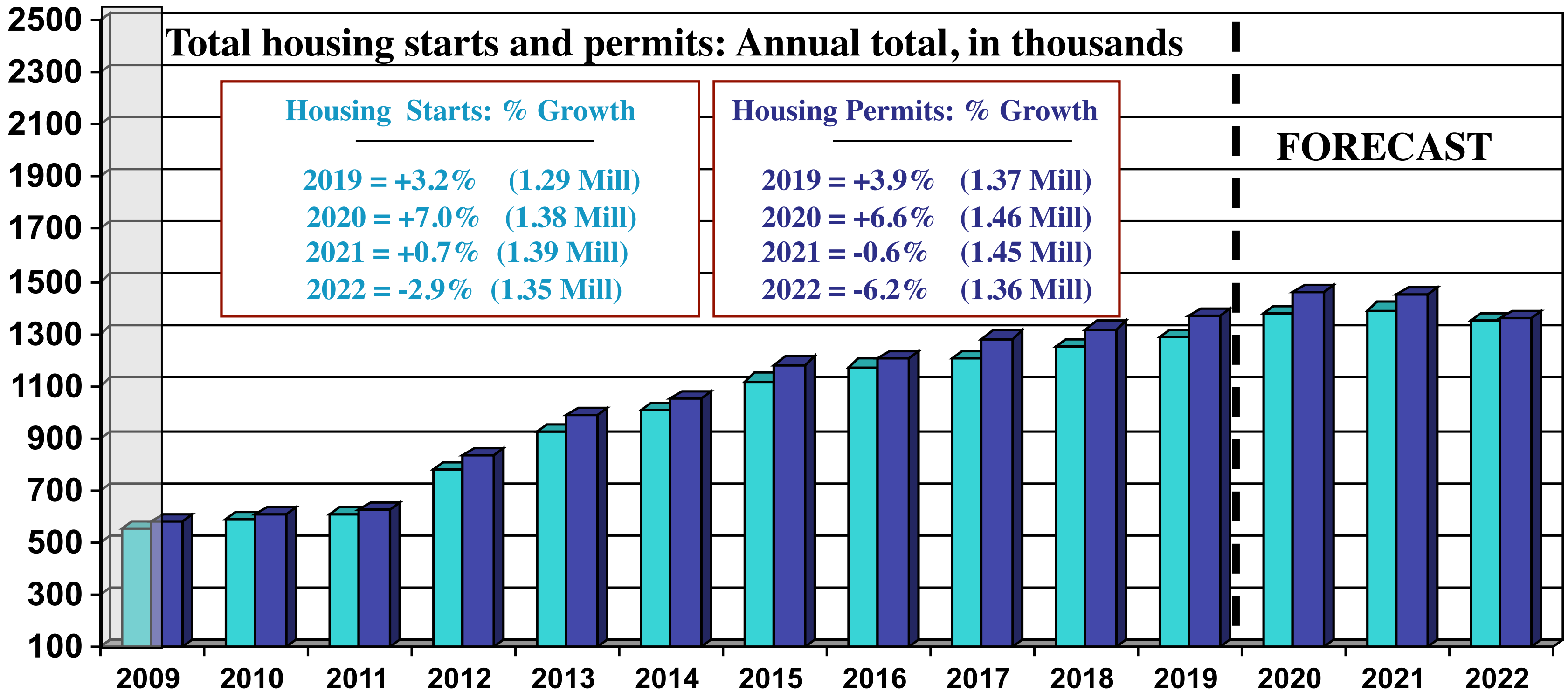
Moderate economic growth, low mortgage rates and high demand for homes will spur more construction the next 24 months



Sources: The Department of Commerce, The Economic Outlook Group

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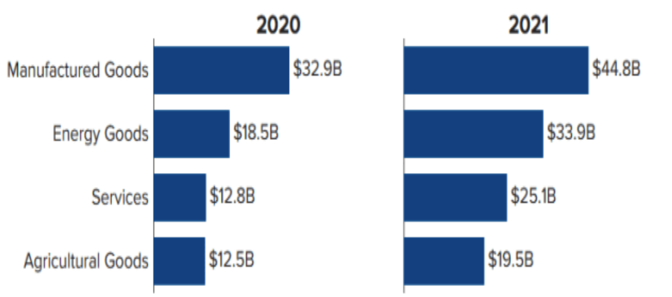
US - China Phase 1 Trade Deal: But the agreement is more transactional than structural!

China agrees to buy $200 billion more (off 2017 baseline) from the US over two years



Goods and services China said it will purchase from the US

Agricultural	Energy	Manufacturing	Services
Soybeans	LNG	Steam turbines	Education travel
Bovine meat	Petroleum oil	Nuclear reactors	Financial Services
Swine meat	Methanol	Refrigerators	Reinsurance
Wheat	Coal	Hair clippers	Insurance
Fruit, jams, jellies	Liquified Butane	Electric lighting	Mgmt consulting
Corn	Liquified Propane	Radar parts	Telecom services
Flour	Uncalcined petrol. Coke	Insulated wire	Data hosting
Cotton	Calcined petrol. Coke	Medical supplies	Cloud computing
Honey		Iron & steel products	Charges for use of IP
Horses			

Source: USTR

BOTH SIDES WANTED TO REACH PHASE 1 DEAL

US:

<u>President Trump</u>: Achieves a trade victory as the pres. campaign gets underway.

1. **It will boost US sales to China to record levels. Reduces US trade deficit.**
2. **Can now hold the sword of tariffs over EU and other trading partners.**

CHINA:

<u>President Xi Jinping:</u> Can now focus on other urgent issues facing the country.

1. **End the coronavirus outbreak**
2. **Revive economic growth**
3. **Deal with Hong Kong protests**
4. **Reduce reliance on Middle East oil**
5. **Respond to international criticism over treatment of Uihgur Muslims**
6. **Gives China a full year to prepare its economy for tougher talks if Trump is re-elected.**

Coping with rising tariffs: Options for US manufacturers and importers

1. **Negotiate with existing suppliers in China to reduce prices.**

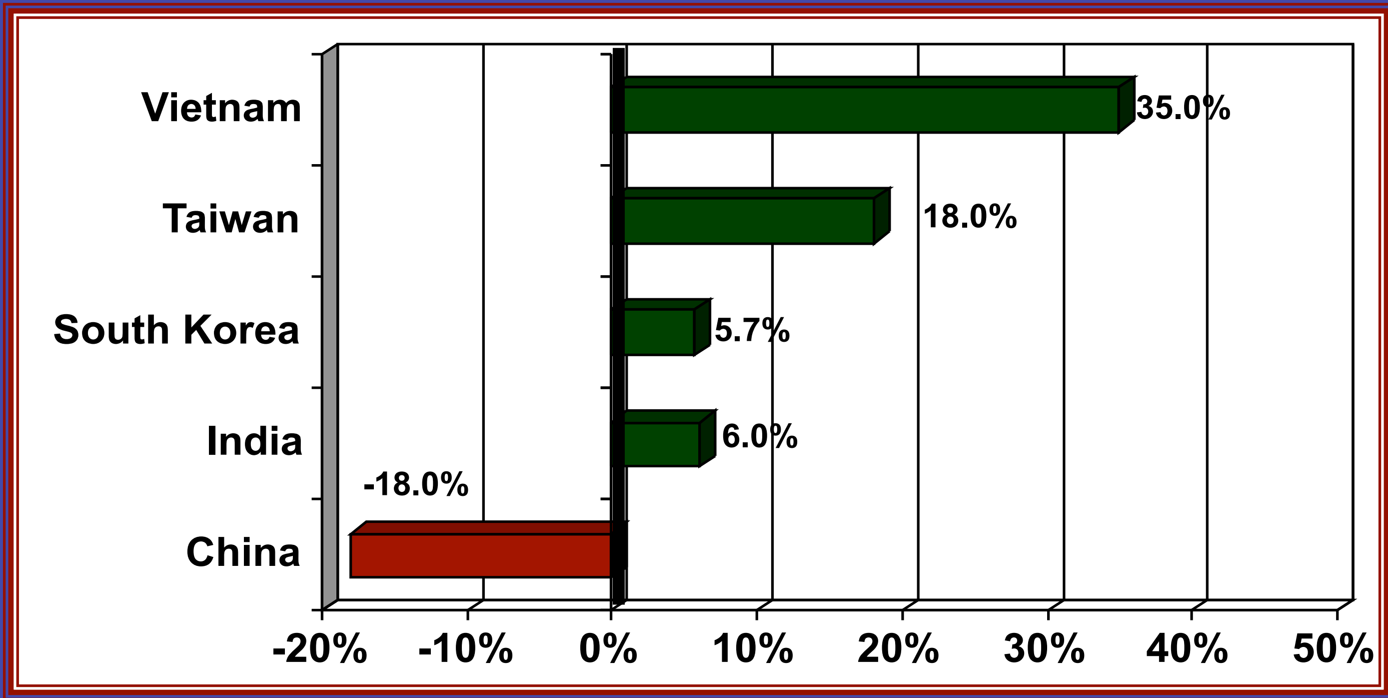
2. **Seek out other suppliers or relocate plants elsewhere in Asia, but…**
   --- do other countries have enough skilled workers? Machine tools? Adequate quality control?
   --- does that country have sufficient infrastructure: modern roads, rails and ports?
   --- how likely is it the US will also boost tariffs on those countries**?**

3. **Bring back plants to the US? Rethinking domesticating supply chains.**
   - **Trans-ocean shipping costs to increase:**
     --- Cargo shipping industry has consolidated. Cost to transport goods will rise.
     --- New IMO caps on sulfur emissions for ocean going vessels will drive up freight rates.

   - **Reassessing the economics of domestic production and local suppliers.**
     --- Lessons learned from the coronavirus; Is reliance on supplies from China excessive?
     --- Technology & productivity: AI, robotics, 3-D printing can help produce more at lower costs.
     --- A US supplier/manufacturer could improve just-in-time inventory management.
     --- Question: Will your customers accept higher prices if the product was made in the US?

US companies have already restructured their supply chains to avoid paying tariffs on goods from China

Below: Country exports to the US: % change 2019 versus. 2018



Source: US Commerce Department (Trade on C.I.F. Basis)

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United States

Baseline Forecast: 2019 - 2022

	I 2019	II 2019	III 2019	IV 2019	I 2020	II 2020	III 2020	IV 2020	I 2021	II 2021	III 2021	IV 2021	I 2022	II 2022	III 2022	IV 2022
Real Gross Domestic Product (GDP):																
%	3.1	2.0	2.1	2.1	1.4	2.0	3.2	2.1	2.4	3.3	2.4	2.5	1.5	2.2	2.0	2.1
Personal Consumption Expenditures:																
PCE %	1.1	4.6	3.2	1.8	1.9	2.6	3.0	2.2	1.9	4.1	3.0	2.7	1.1	2.3	1.5	1.7
Inflation, end of period, year-over-year:																
CPI %	1.9	1.6	1.7	2.3	2.4	2.4	2.5	2.6	2.6	2.5	2.6	2.4	2.4	2.5	2.3	2.2
Unemployment Rate (end of period):																
%	3.8	3.7	3.5	3.5	3.5	3.4	3.3	3.3	3.5	3.5	3.6	3.7	3.7	3.9	4.0	4.2
Non-farm Payrolls, monthly avg. thousand:																
	174	152	188	197	180	165	155	150	140	155	155	140	135	120	110	115
Treasury 10-yr Note Yield % (end of period):																
	2.42	2.00	1.65	1.88	1.65	1.85	2.30	2.70	3.10	3.20	3.45	3.50	3.75	3.75	3.85	4.10
Federal funds rate % (end of period):																
	2.38	2.38	1.88	1.63	1.63	1.63	1.63	1.63	1.88	2.13	2.38	2.38	2.38	2.38	2.38	2.13

GDP Growth - Global Economy

Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
US	2.6	1.6	2.2	1.8	2.5	2.9	1.6	2.4	2.9	2.3	2.1	2.7	1.9
Eurozone	1.7	1.4	-0.9	-0.3	1.2	1.6	1.7	2.5	1.9	1.1	0.8	1.4	1.2
United Kingdom	1.7	0.7	0.3	1.8	2.9	2.2	1.9	1.9	1.3	1.4	0.5	1.7	1.3
Japan	4.6	-0.4	1.6	1.5	-0.1	1.1	1.0	1.9	0.8	1.1	0.7	1.4	0.8
Canada	3.1	3.1	1.7	2.2	2.5	0.9	1.4	3.0	1.9	1.3	0.8	2.3	1.5
India	8.4	8.6	6.7	4.9	7.4	8.0	8.1	7.2	6.8	4.9	5.3	6.1	6.2
China	10.5	9.5	7.8	7.7	7.3	6.9	6.7	6.8	6.6	6.1	5.2	5.8	5.6
Brazil	7.5	2.7	0.9	2.3	0.1	-3.5	-3.5	1.1	1.1	1.5	1.3	1.8	1.7
Mexico	5.2	4.0	3.9	1.4	2.3	2.7	2.7	2.4	2.1	-0.1	0.8	1.7	1.2
Australia	2.8	2.6	3.6	2.4	2.6	2.5	2.4	2.4	2.7	1.7	1.6	2.6	2.3
Russia	4.0	4.3	3.4	1.3	0.6	-2.8	-0.2	1.6	2.5	1.3	1.5	1.7	0.9
World	4.2	3.1	2.5	2.6	2.8	2.8	2.6	3.4	3.2	2.8	2.7	3.2	3.0

Growth Leaders
India
China*
Vietnam
Panama
Israel
Guyana

Moderate Growth
Australia
US
Canada

Sluggish Growth
UK
Eurozone
Russia
Japan
Brazil

In or Near Recession
Argentina
Mexico
Venezuela
Turkey
Iran

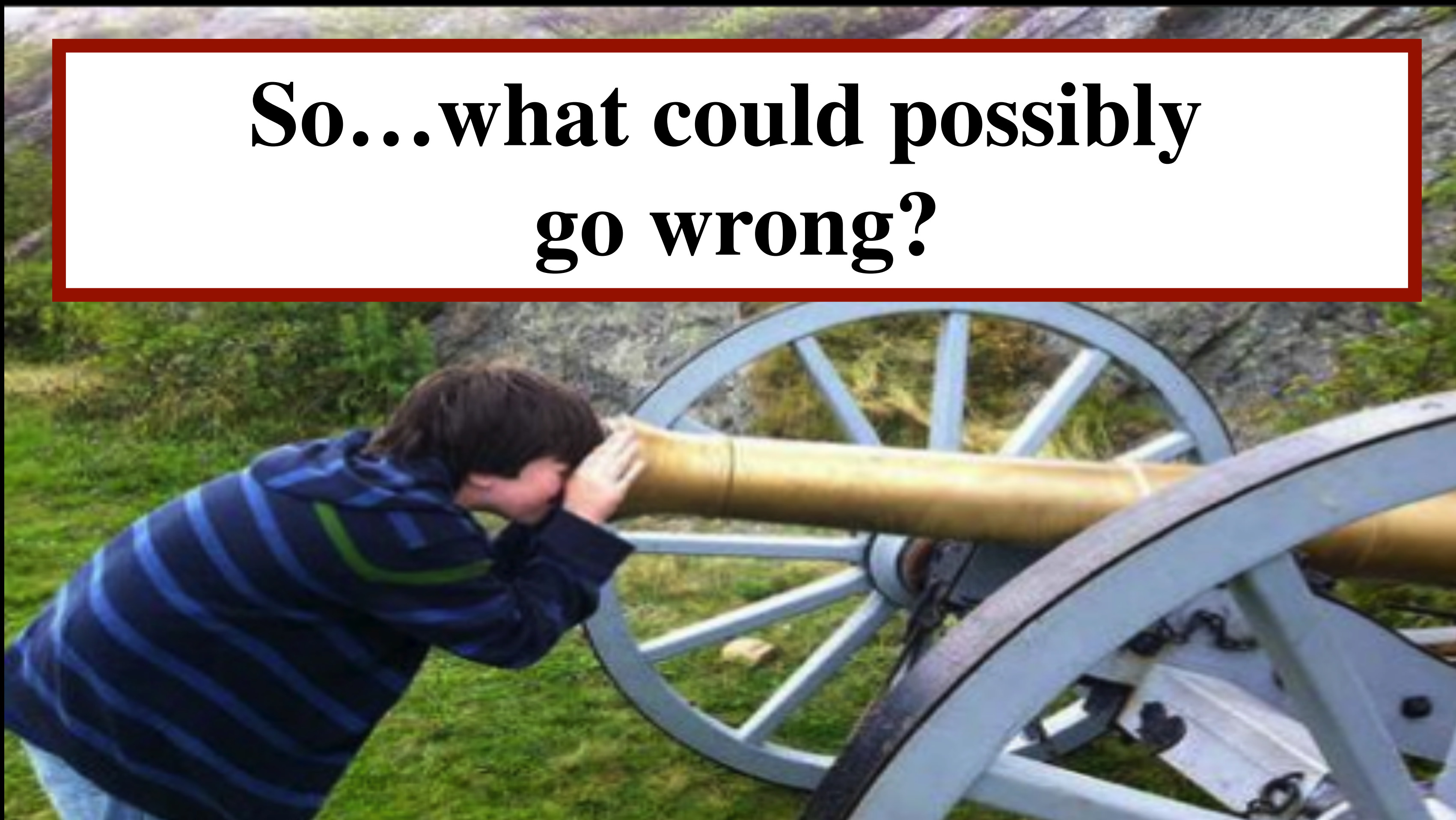
US dollar to strengthen modestly in 2020 but then weaken next two years

(per U.S. dollar, year-end level)

US Dollar strengthens | US Dollar weakens

	2017	2018	2019	2020	2021	2022
Euro (in US dollars)	1.20	1.15	1.12	1.10	1.18	1.20
Japanese yen	113	111	109	111	114	112
UK pound (in US dollars)	1.35	1.27	1.32	1.30	1.40	1.42
Canadian dollar	1.25	1.36	1.30	1.31	1.28	1.28
Chinese yuan	6.51	6.88	6.96	7.00	7.09	7.12
Brazil's real	3.31	3.87	4.02	4.20	4.30	4.28
Mexican pesos	19.79	19.68	18.93	20.10	19.85	19.80

So…what could possibly go wrong?



Biggest hazards on the radar screen

United States

- US sleep walks into a national debt crisis. Budget deficits locked into $1 trillion+ per yr. Who will finance it? And at what cost (interest rate) in 2021, 2022…….?
- Trade deal w/China collapses; US also slaps more tariffs on Europe, India, Vietnam.

International

- Cyber world war: Foreign state launches cyber attack on US and paralyzes the economy.
- North Korea resumes long-range ballistic missile tests over the Pacific.
- Iran enriches uranium above 20%. Prompts US or Israel to strike back militarily.
- US and Chinese military confrontation: South China Sea, Hong Kong, Taiwan.
- Coronavirus becomes a pandemic and brings on global recession.
- India and Pakistan edge closer to nuclear war as tensions soar over Kashmir.
- Venezuela: a major flashpoint between the U.S. and Russia.

Exogenous shocks will become more common…and more consequential! How to prepare for such scenarios?

1. **Companies should undertake "rigorous" stress tests to determine their greatest vulnerabilities.**
   - Conduct "what if" scenarios: Introduce adverse hypothetical scenarios (e.g. systemic power failure or events that can disrupt operations, revenue flow, access to the internet & intranet and block credit lines.)
   - How to cope under such dire circumstances and remain both operational and profitable?

2. **Consider cyber theft insurance, upgrade software, and finally hire firms to hack into your system.**
   - Average time it takes a U.S. firm to <u>identify</u> a breach = 201 days
   - Average time it takes to <u>contain</u> the breach = 70 days
   - Average cost of a <u>single</u> data breach = more than $4 million (Source: IBM)

3. **Geopolitical threat anticipation:**
   - Dedicate a risk management team to engage in geopolitical forecasting, especially where one has foreign exposure (e.g., customers, supply chain sources, key investors, real estate, banking relationships.)

4. **Customers demand reliability of service --- or they'll walk! Be proactive. Focus on being agile.**
   - Prepare in advance a governance plan that can be implemented quickly to mitigate any harmful fallout from an external shock. *Your firm's reputation is always at risk.*

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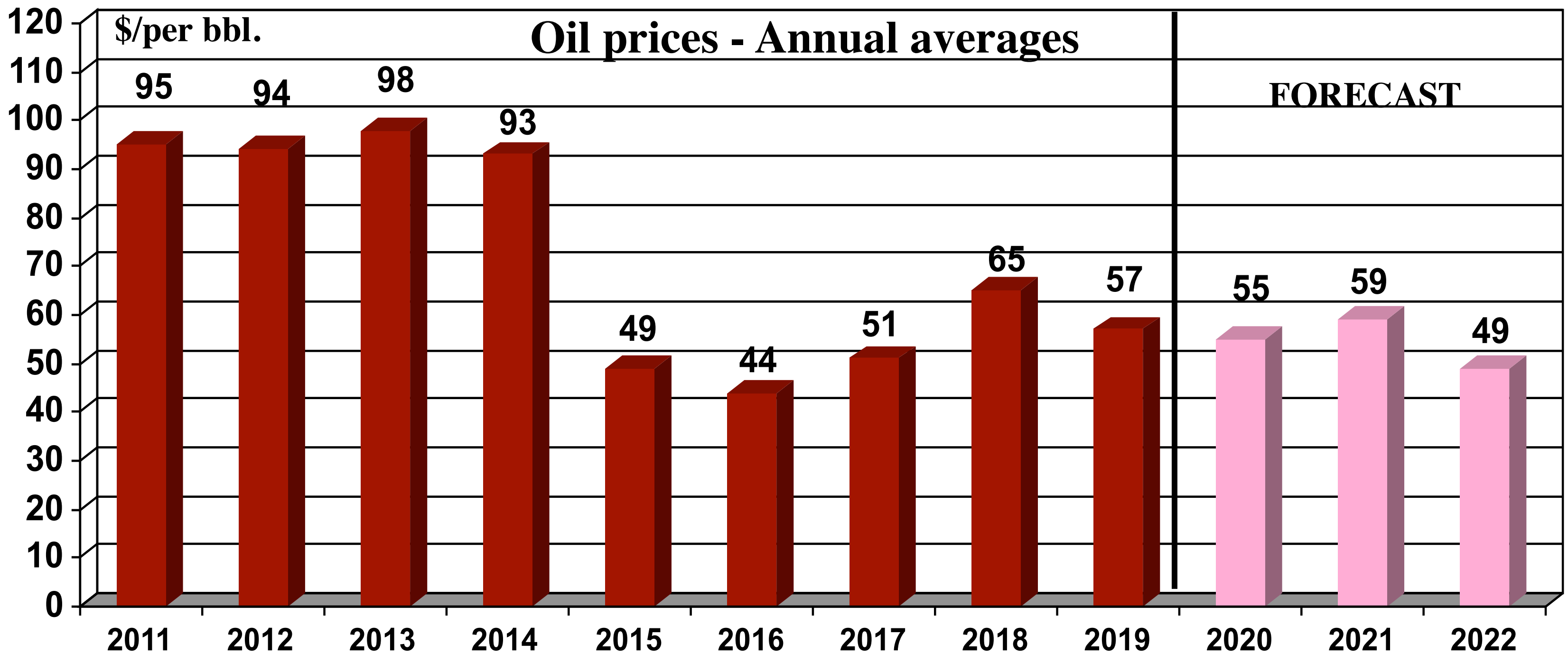
Outlook for WTI oil: $50 - $65 bbl next two years

However add another $5 to $15 premium if there's a geopolitical blow-up in the Middle East



Sources: US Energy Information Administration, The Economic Outlook Group

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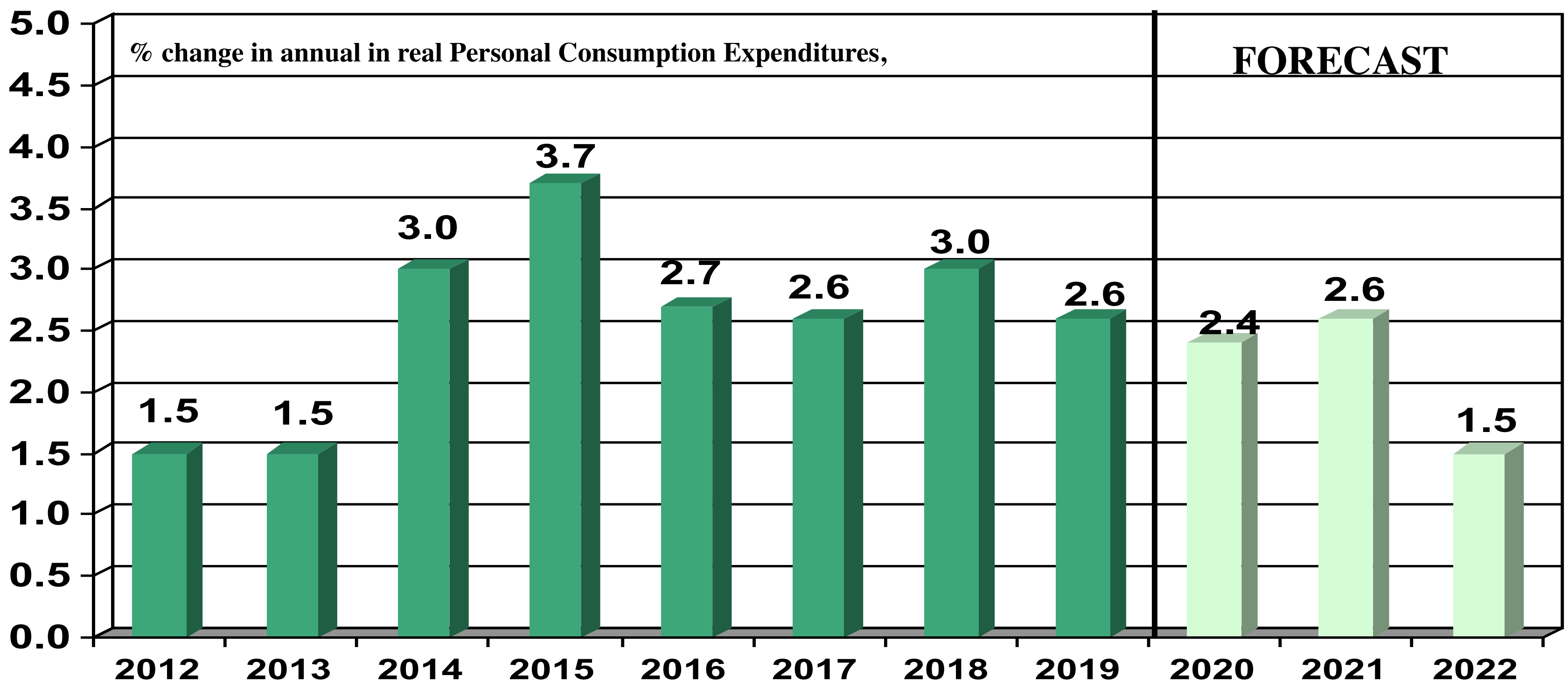
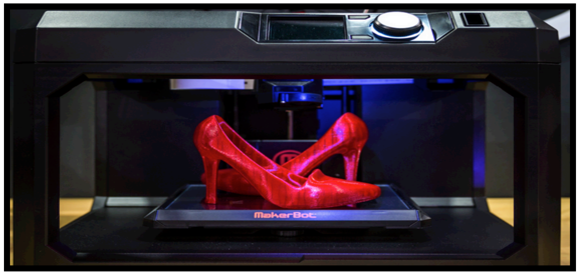
Consumers spending to weaken slightly as pent up demand diminishes, immigration growth sinks and interest rates (in 2022) edge higher.



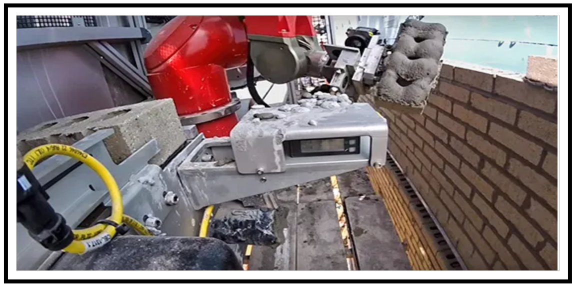
We are in a technology super-cycle!

In a fiercely competitive marketplace, pressure builds on companies to innovate and modernize!

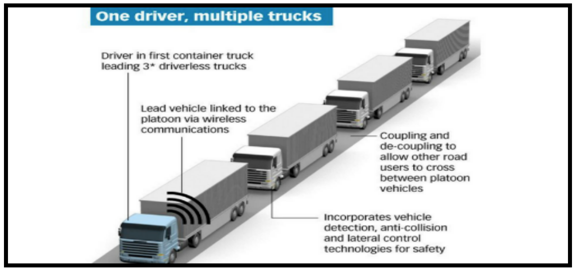
NEED SOME FANCY SHOES FAST?
Purchase the proprietary codes and your 3-D printer at home will manufacture a pair!



CAN'T FIND ENOUGH WORKERS FOR CONSTRUCTION:
Have robots lay bricks on location and save time and labor costs.



HOW CAN TRUCKING FIRMS SAVE ON FUEL, LABOR COSTS AND REDUCE EMISSIONS?
Wireless communications now allows for "platooning," one driver followed by multiple trucks or trailers.



Sources: MakerBot, Hadrian, PSA Ministry of Transport