Finance Fridays

The Financial Impact of COVID-19

Past and Current Crisis: The Policy Response

March 27th 2020, Associate Professor Jérôme Taillard

BABSON / STEPHEN D. CUTLER CENTER FOR INVESTMENTS AND FINANCE

20TH ANNIVERSARY / 2000–2020

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- This **session is being recorded** and **will be made available on the Cutler Center webpage** as well as the **Babson Finance Association (BFA) Canvas page**
  - Backup: https://babson.webex.com/meet/jtaillard1

- Please **mute your microphone** during presentation

- Moderator **will collect questions** (**through chat**) during the presentation

- **Q&A will follow presentation**

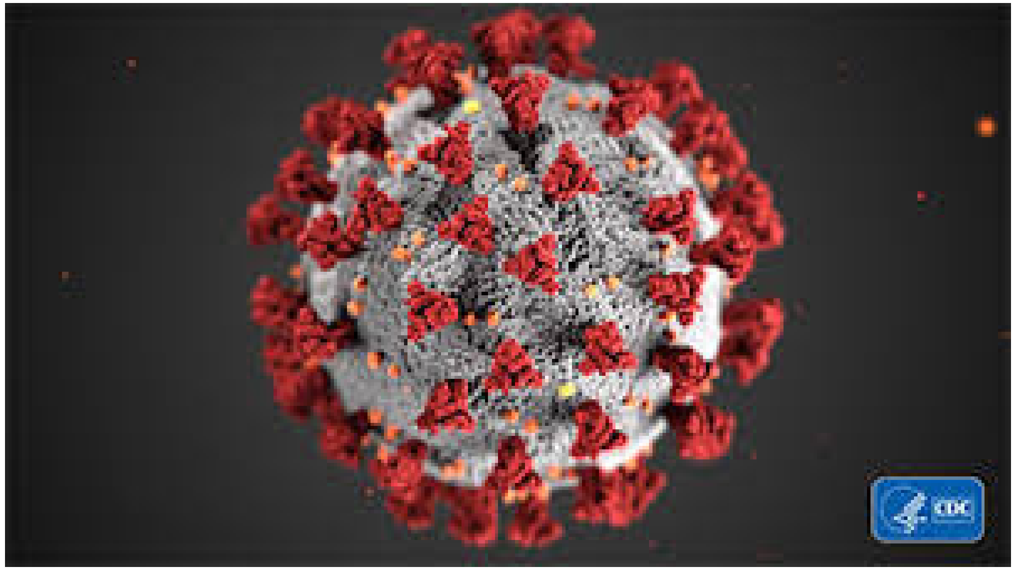
Black Swans

- Nassim Taleb
  1. **Rare event (outlier)**
  2. **Extreme "impact"**
  3. **Retrospective predictability**
     - though not prospective

- Example:
  – Enormous increase in exposure to U.S. real estate market (RMBS) of many banks during credit boom (2005-2007)

Is Covid-19 a Black Swan event?

- Seems like it is:
  1. Global pandemics are rare
     - Novel Coronavirus
  2. Impact is huge
     - Health + economic impact
  3. Retrospective predictability
     - We were warned (e.g. Bill Gates)



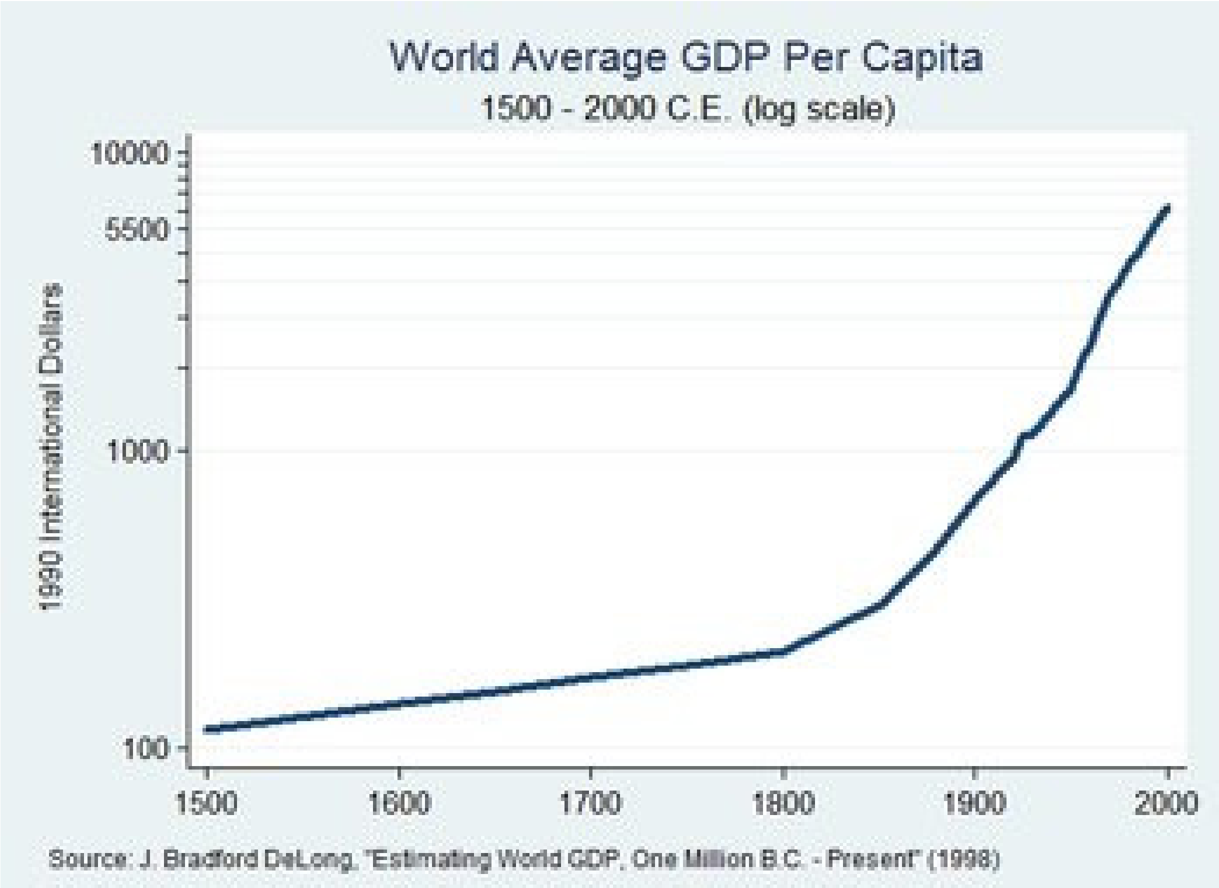
Certainly did not see it coming…
Latest survey data (prior to crisis): 10 highest business risks

1. Regulatory changes
2. Economic policy and conditions
3. Ability to attract talent
4. Digital competition
5. Cultural resistance to change
6. Cyber threats
7. Privacy and information security
8. Organization may not escalate risks
9. Retaining customers
10. Training employees to use digital technology

Went up by 9 places in a year! Macro clouds were on the horizon already…

2019 survey of more than 1,000 corporate risk managers and CFOs
North Carolina State University's Enterprise Risk Management Initiative and consulting firm Protiviti Inc

As much as worldwide economies have grown tremendously…



Downturns occur regularly: business cycles!

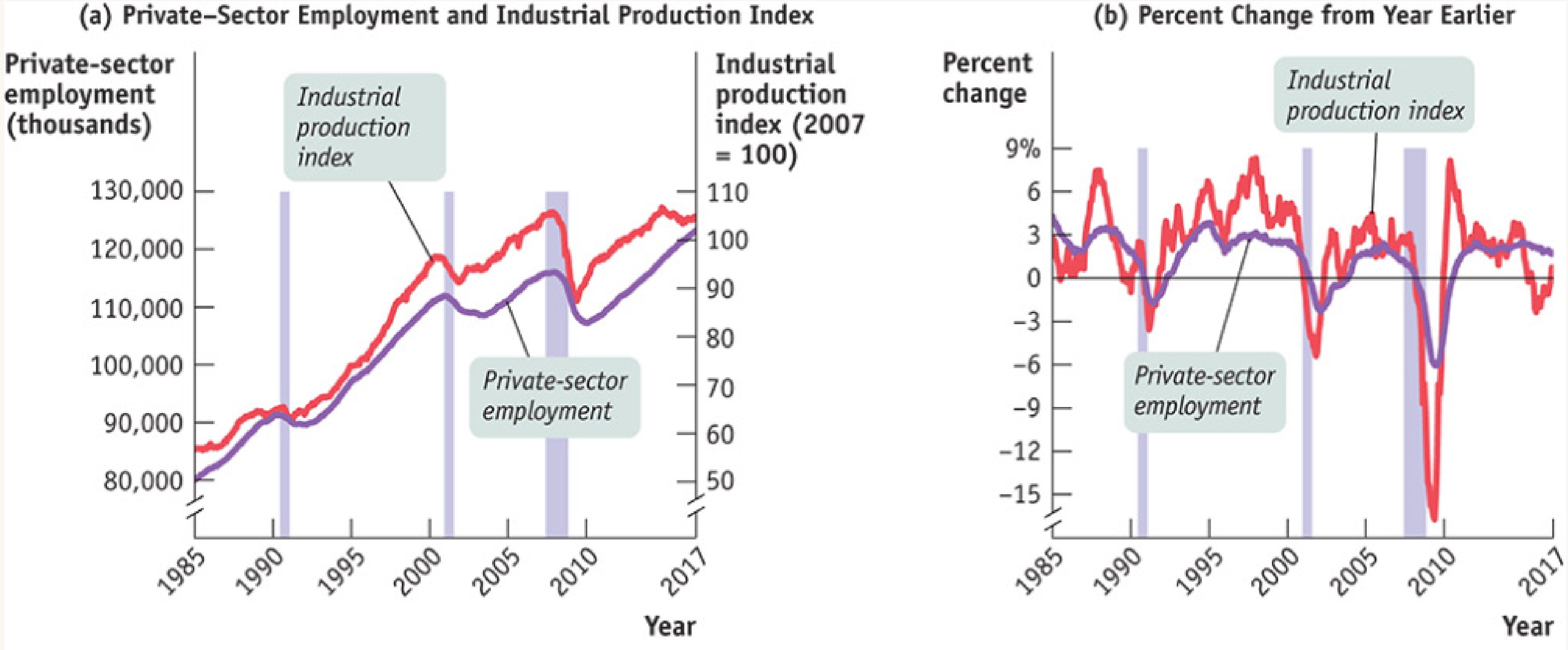


FIGURE 6-2 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: Federal Reserve Bank of St. Louis.

- Recession (contraction): broad-based downturn, in which output and employment fall in many industries

The Great Depression changed economists' views: Keynesian Economics

- Economists realized that the economy was not self-correcting
  - John Maynard Keynes
    - *The General Theory of Employment, Interest, and Money (1936)*
  - ➢ Lack of spending was a key issue

- Solution:
  - Government needed to stimulate the economy
    1. *Fiscal policy*
    2. *Monetary policy*

How do governments impact us?

- **Governments set the rules of engagement** through different **policies**:

    1. **Monetary** (interest rate, inflation, currency)
    2. **Fiscal** (Taxation, government spending, borrowing)
    3. **Regulatory** (FCPA, tariffs, etc.)
    4. **Legal** (rule of law, enforcement)

- Other macro-considerations:
    - Governance
    - Financial development
    - Healthcare
    - Education
    - Infrastructure
    - Energy
    - Etc.

FISCAL POLICIES

1. **Congress and the Senate (legislative arm)**
   - Propose bills + budget resolution/reconciliation/appropriation
   - E.g. American Recovery and Reinvestment Act of 2009

2. **President and Department of Treasury (executive arm)**
   - Signs approved bills into law + President's (initial) budget
   - President can circumvent legislative arm in certain matters
     - Including **trade policies** (e.g., trade war with China)

United States Department of the Treasury

- Formal role:
  - The **Department** of the **Treasury** manages Federal finances by collecting taxes and paying bills and by managing currency, government accounts and public debt
  - The **Department** of the **Treasury** enforces finance and tax laws
- Mission:
  - **Maintain a strong economy**, and create job opportunities by **promoting the conditions that enable prosperity** at home and abroad
- U.S. Treasury Secretary (head):
  - Steve Mnuchin

Fiscal Policy

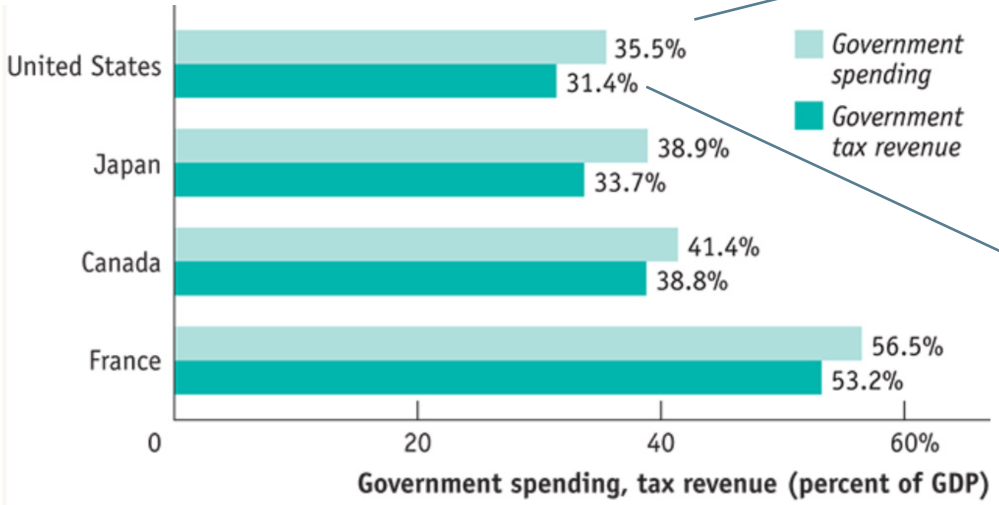


FIGURE 13-1 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: IMF World Economic Outlook.

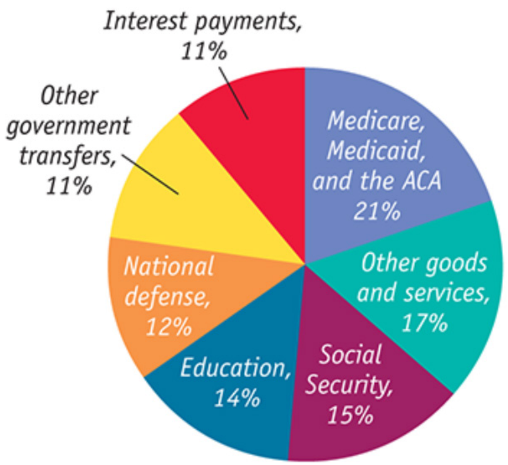


FIGURE 13-3 Krugman/Wells, *Macroeconomics*, 5e,
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Data from: Bureau of Economic Analysis.

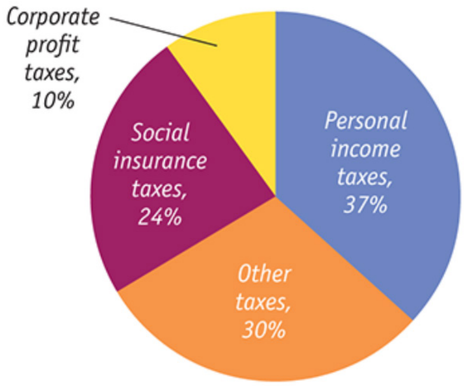

FIGURE 13-2 Krugman/Wells, *Macroeconomics*, 5e,
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Data from: Bureau of Economic Analysis.

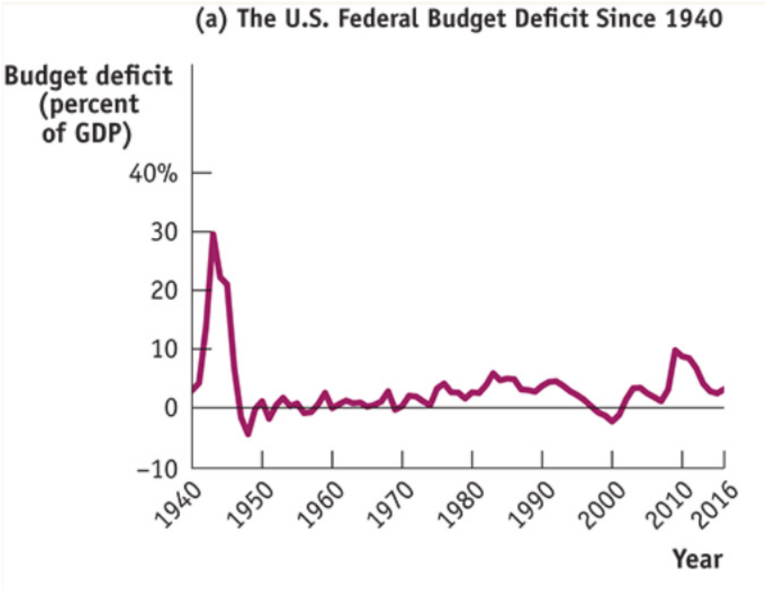
Fiscal stimulus

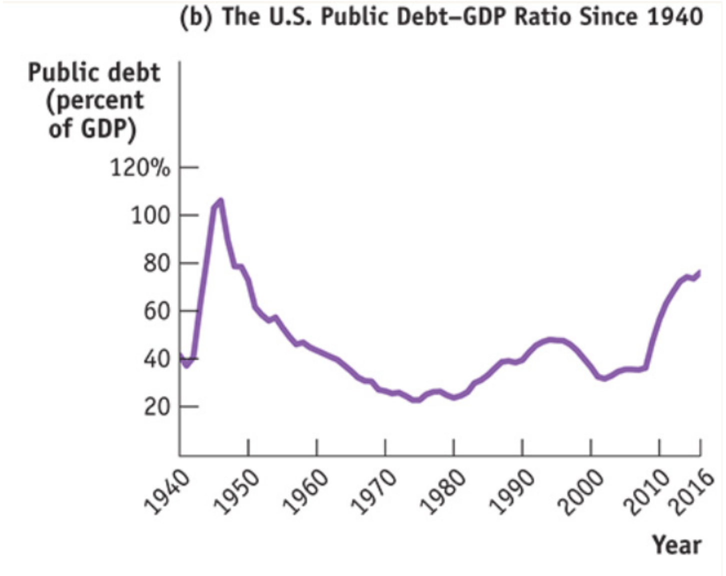
1. **Indirect:** By **reducing taxes**, it can increase consumption (and investments), which increases the demand for goods and services.

2. **Direct**: It can also directly increase the demand for goods and services by **spending more money** on infrastructure, military, etc.

- **One issue** here is potential **time lag**
  – Time it takes between recession detection, passing laws, and implementing stimulus package

- With permanent deficits, debt goes up over time but as long as GDP increases proportionally more, it remains under control (Debt as %GDP)
  – **Deficit have gained broad acceptance in recent years**





08/09 crisis:
Without the fiscal stimulus, the situation would have been worse

FIGURE 3.

Real GDP under Different Policy Scenarios, 2008–15

Without a discretionary fiscal response to the recession, GDP in 2011 would have been half a trillion dollars smaller.

Source: Blinder and Zandi 2015.

Note: Values are seasonally adjusted. Years correspond to the first quarter of each year. Data extend from the first quarter of 2008 to the second quarter of 2015.

THE HAMILTON PROJECT
BROOKINGS

Other unconventional "rescue" packages

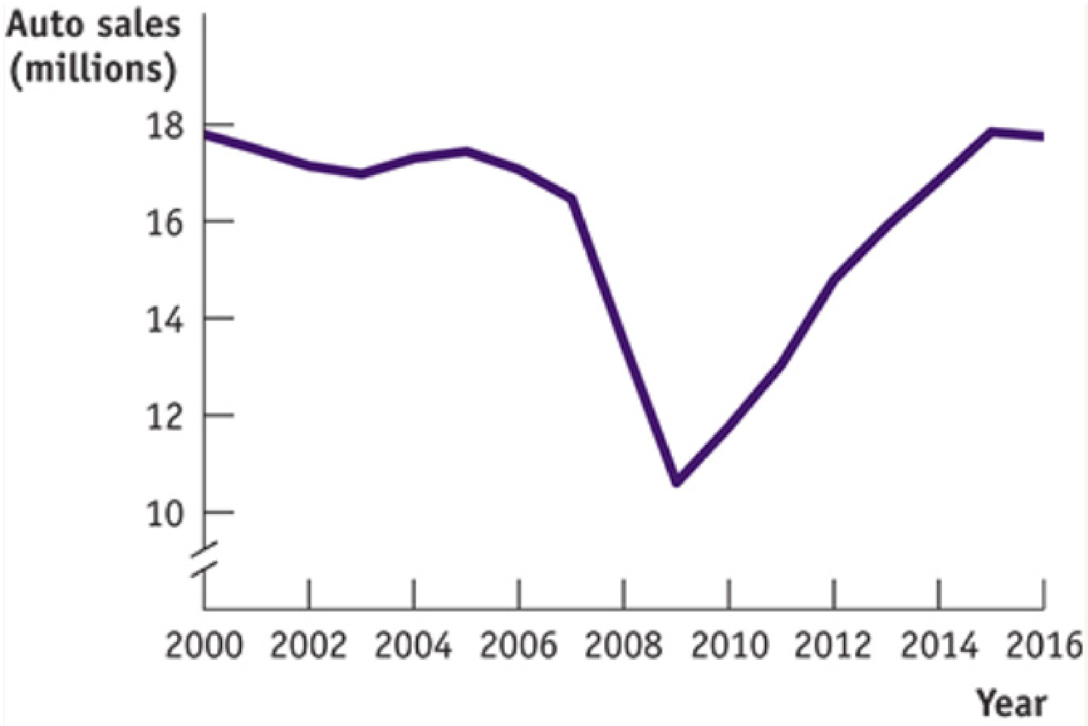


FIGURE 11-13 Krugman/Wells, *Macroeconomics*, 5e,
© 2018 Worth Publishers
Data from: Federal Reserve Bank of St. Louis.

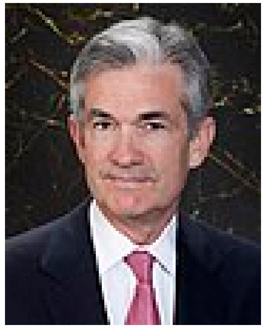
- U.S. government took a large stake in GM
  - $49.5Bn in loans that were then converted into stock, giving the government temporary ownership of 61% of the company
  - Lost about $10Bn in the transaction, but…
  - Unemployment in Michigan went down to 4.5% (below national average) by 2016…

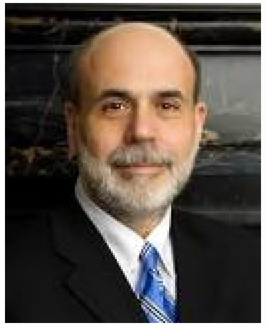
MONETARY POLICY

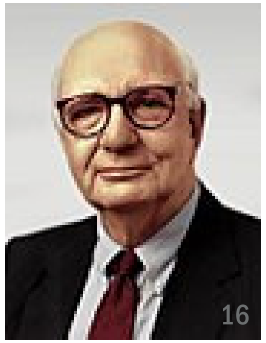
- Central Bank
- In the US: The Federal Reserve or FED
  – Jerome Powell (current Chairman of the FED)
    - Past Chairmen: Yellen, Bernanke, Greenspan, Volker
  – FOMC meetings (8 times a year)
    - **Set short term Fed Fund rate**

- Issues currency, regulates money supply, influence borrowing cost for banks and liquidity of markets

- Dual goal of Central Bank
  1. **Low unemployment and;**
  2. **Price stability (low inflation)**







Monetary stimulus by the FED

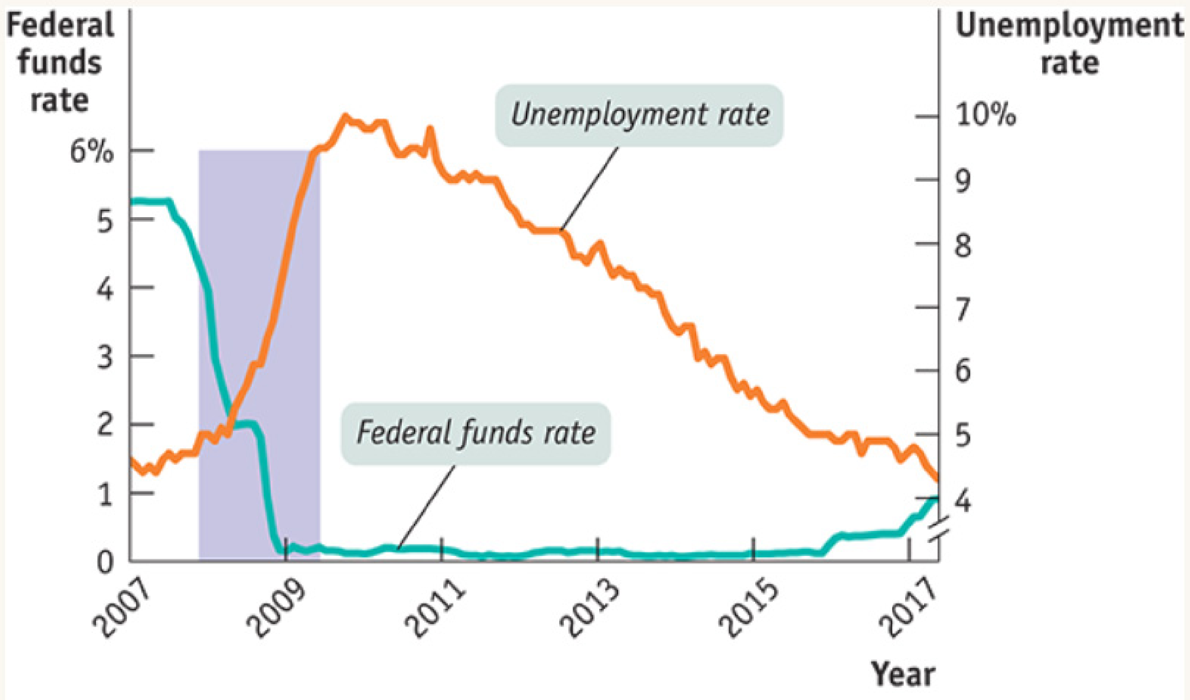


FIGURE 15-6 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: Federal Reserve Bank of St. Louis.

- Lowered short-term interest rates to 0%
  - – Made lending cheaper
  - ➢ Lower cost of capital for firms across the board
  - ➢ Boost to economy
  - ➢ Very powerful tool: **central bank needs** to be removed from politics

Other unconventional stimulus (monetary): QE package

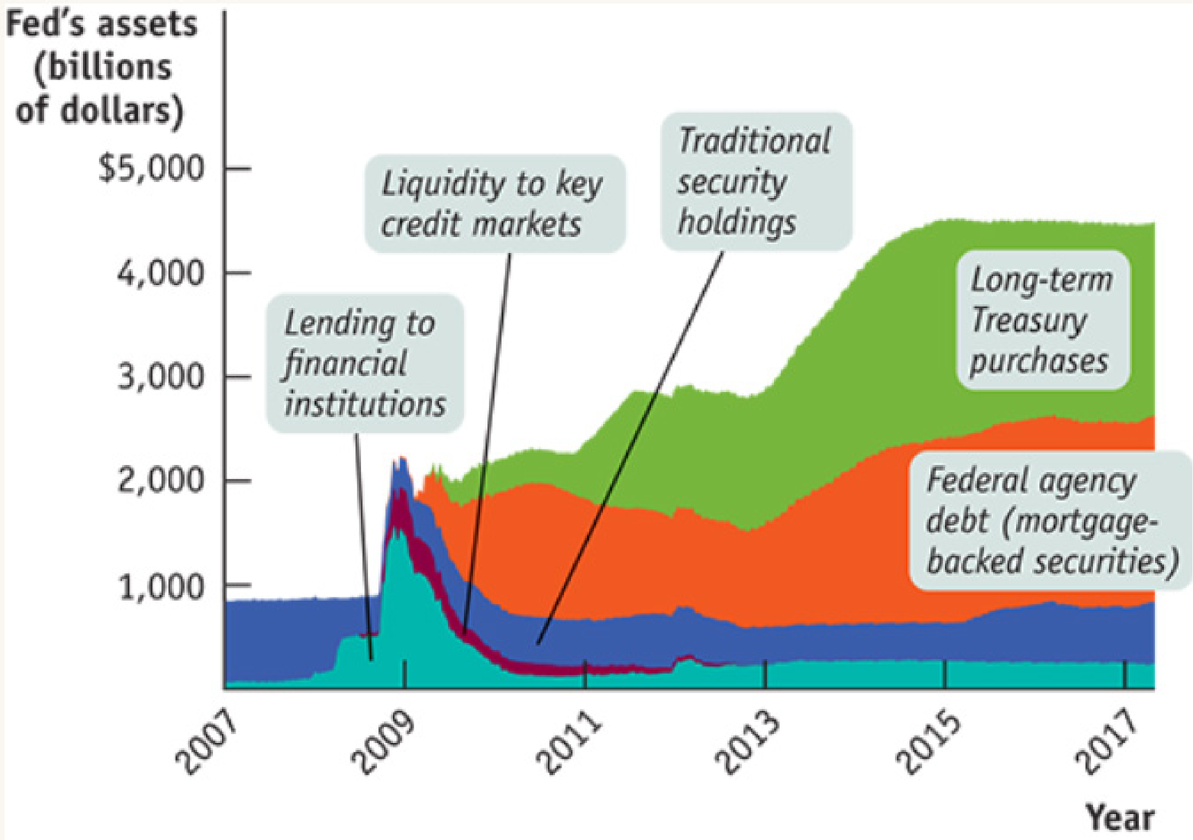


FIGURE 14-9 Krugman/Wells, *Macroeconomics*, 5e
Data from: Federal Reserve Bank of Cleveland.

- **Quantitative Easing (QE)**
  - Lending to financial institutions using a **broader range of acceptable assets as collateral**
    - If outright purchase: "**printing money**" (dollars issued)
    - Provide liquidity to credit markets
    - Also soak up assets that were viewed as more "toxic" at the time of the crisis (e.g., mortgage-backed securities), which could only be sold at a significant loss

Policy response does matter!

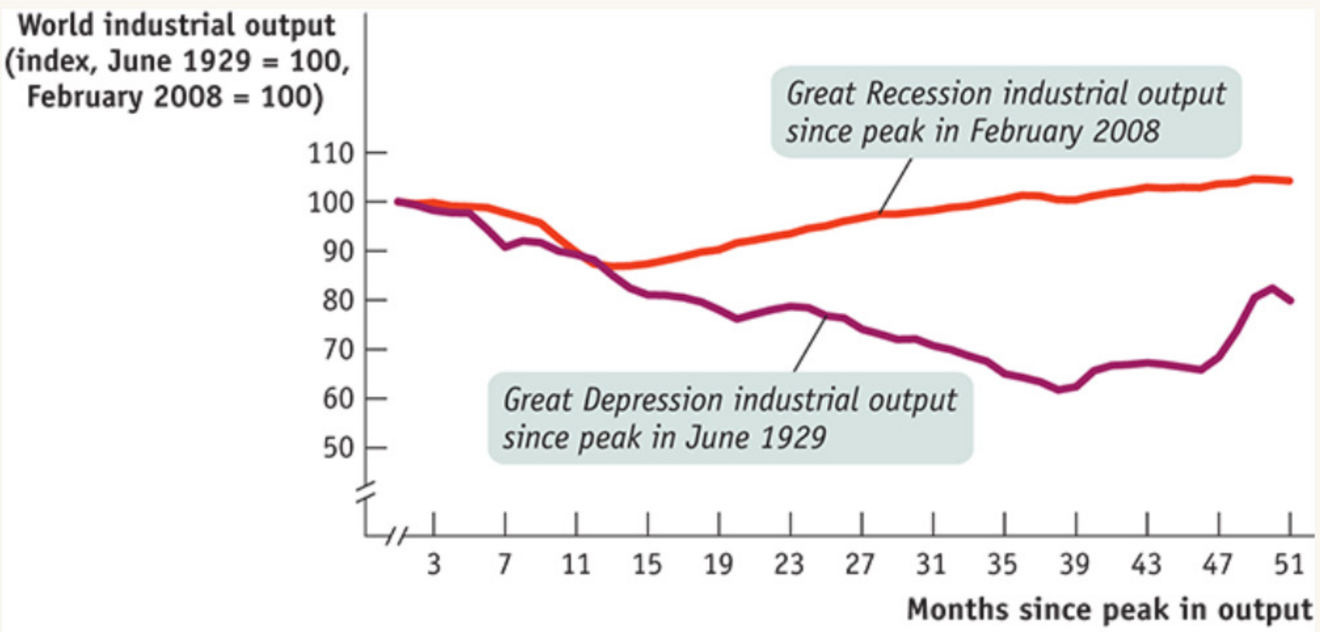


FIGURE 6-1 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: Barry Eichengreen and Kevin O'Rourke (2009), "A Tale of Two Depressions."
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In the aftermath of the 2008 crisis, interest rates were slashed, and a number of countries, the United States included, used temporary increases in spending and reductions in taxes in an attempt to sustain spending. Governments also moved to shore up their banks with loans, aid, and guarantees.

Around the World

- The Federal Reserve (or FED) has counterparts all around the World:
  - E.g., Bank of England, the People's Bank of China, the Bank of Japan, and the European Central Bank, or ECB.

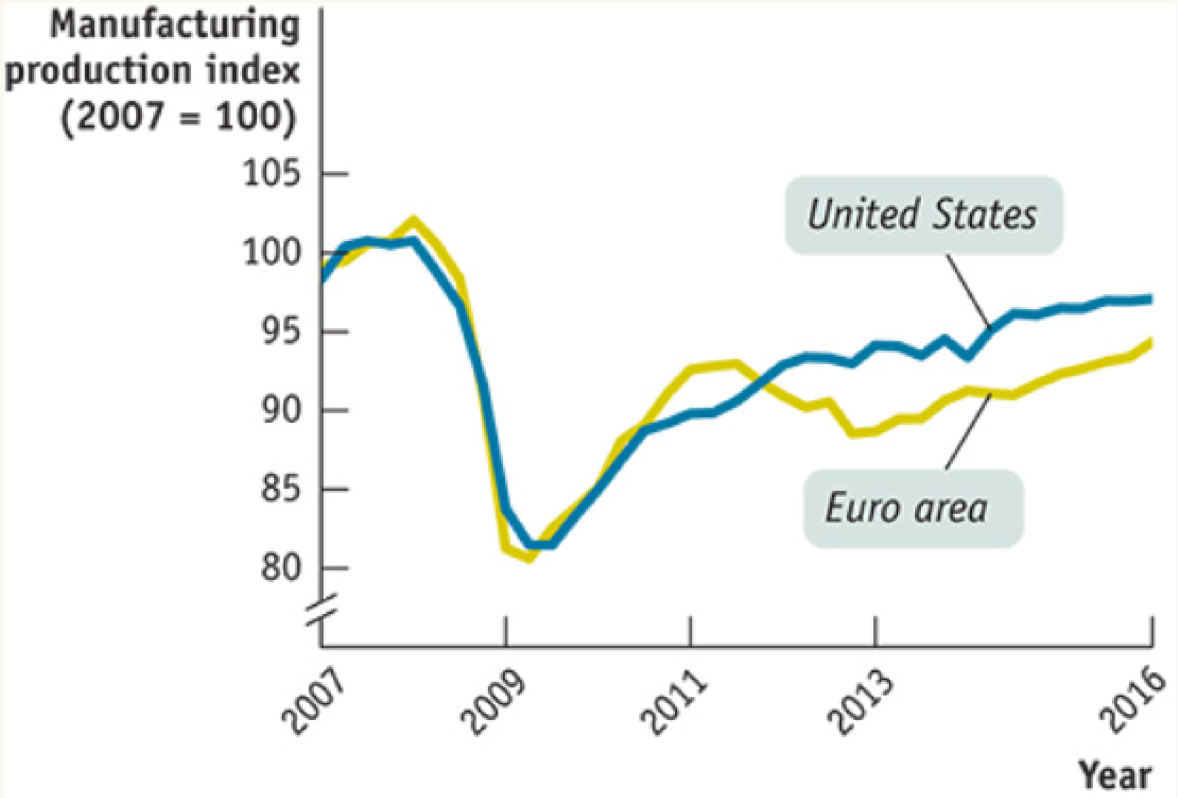
- In the Eurozone
  - The European Central Bank (ECB)
  - ➢ Sets **monetary policy** for Eurozone (for all its members)

- Jean-Claude Trichet
  - 2003-2011

- Mario Draghi
  - 2011-2019

- Christine Lagarde
  - 2019-current

Decoupling…



Data from: Federal Reserve Bank of St. Louis.

- While the U.S. recovered steadily from the 08-09 crisis, the Euro area went into recession again in 2012…what happened?

Reason #1:
Instead of a fiscal stimulus…austerity package!

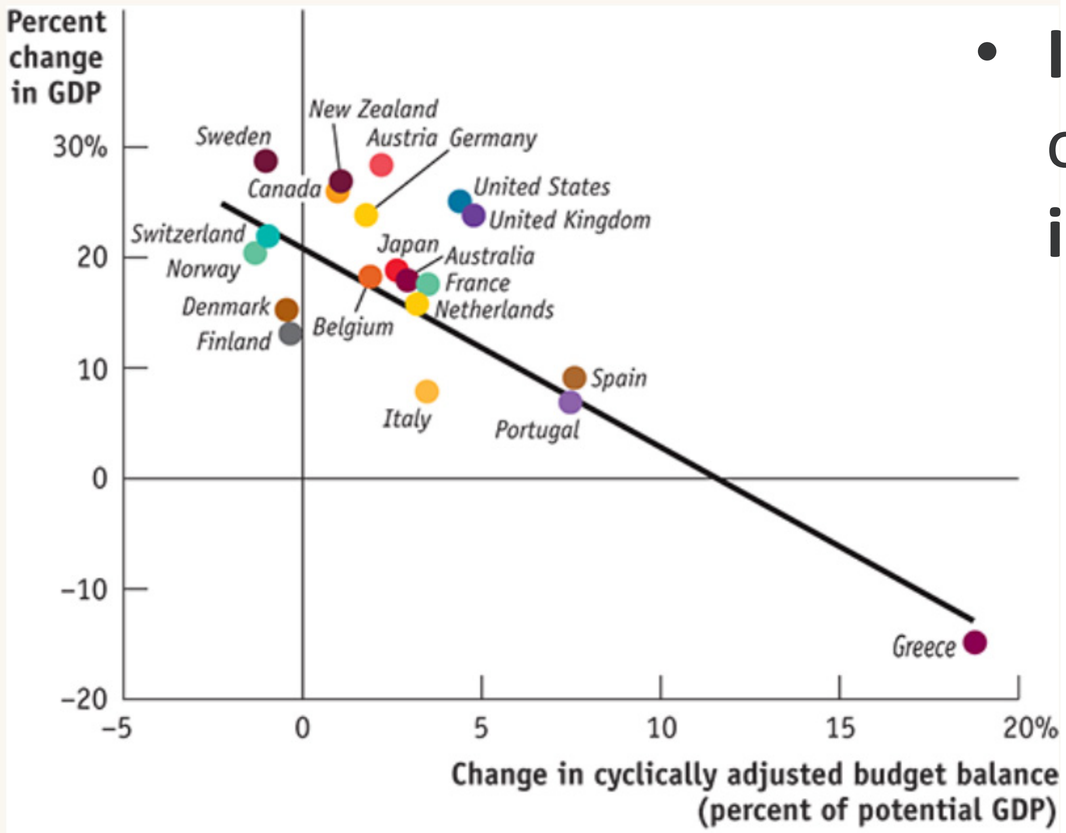


FIGURE 13-7 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: International Monetary Fund.

- **In exchange for funds** (loans), the EU and other governmental agencies (e.g., IMF) **imposed austerity** as a requirement
  - – Disastrous effects: Opposite of what a fiscal stimulus would have done
    - Made worse due to multiplier effect: for every euro “cut”, the economy suffered a drop of Euro 1.8

Reason #2: Central Bankers had two very different reactions when facing a similar situation

- U.S.:
  - Unemployment 9%
  - Inflation spike at 4%
- Euro zone:
  - Unemployment 10%
  - Inflation spike at 3%

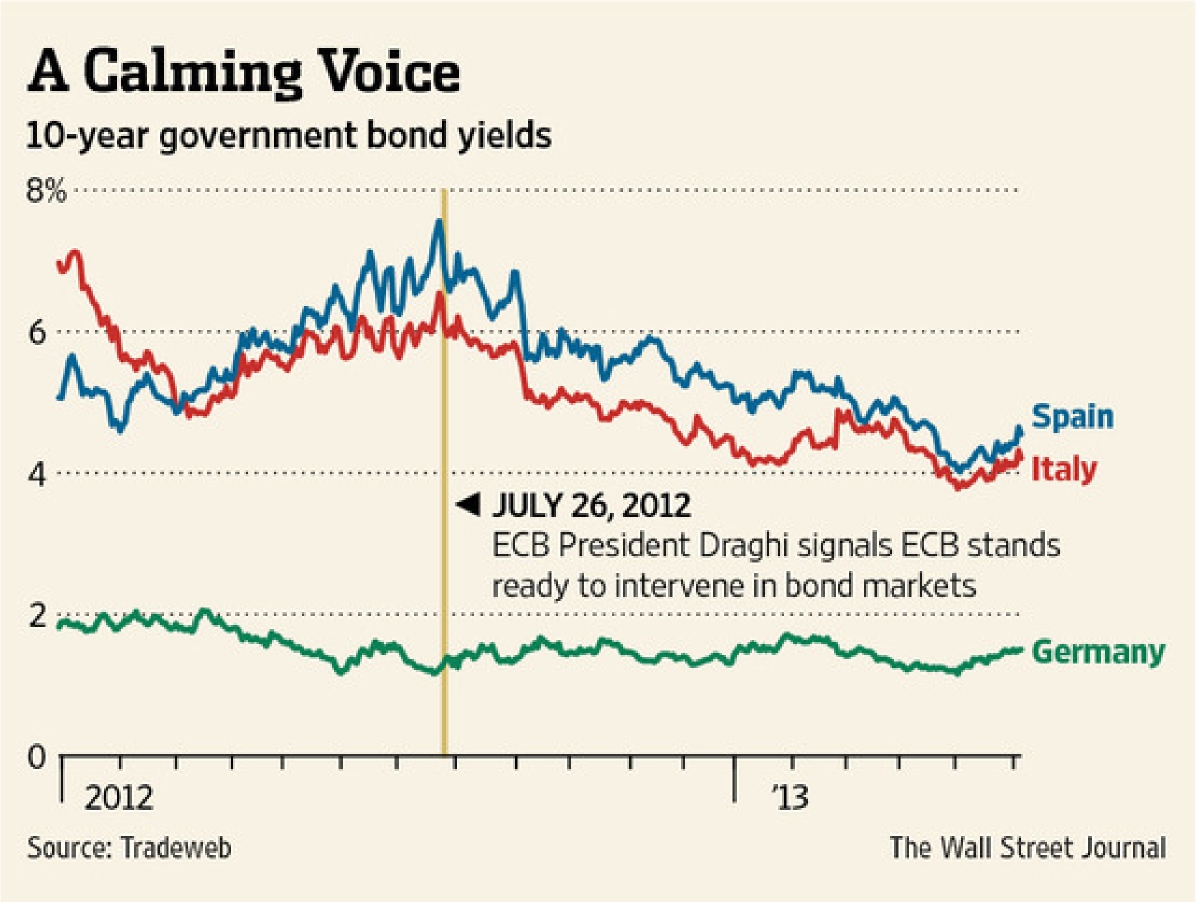
- Opposite Central Bank reactions:
  - Ben Bernanke lowered interest rates
  - Jean-Claude Trichet raised interest rates

The Key Role of Central Bankers: The Case of Mario Draghi

- Draghi replaced Trichet and rectified the situation as the situation was worsening

- Europe was in a credit crisis in 2012 and found some peace after the famous Draghi speech: "**whatever it takes**"

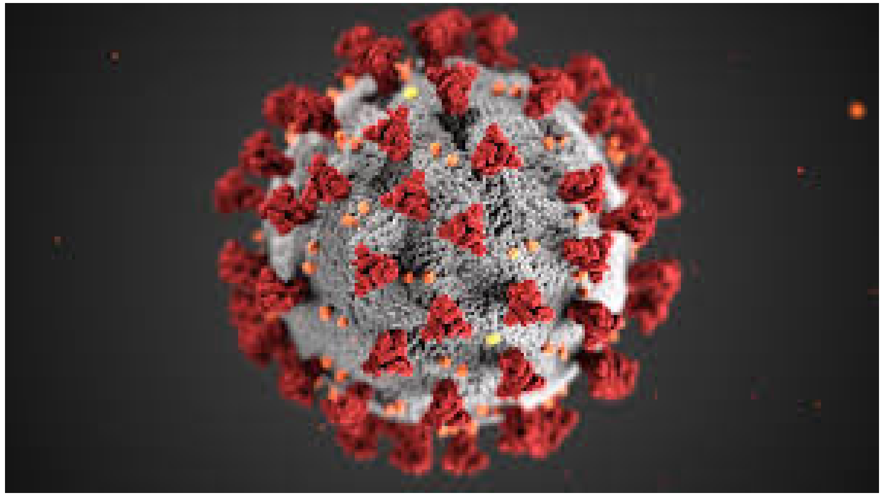
  - ➢ Massive bond buying program initiated by the ECB (similar to QE in the US)



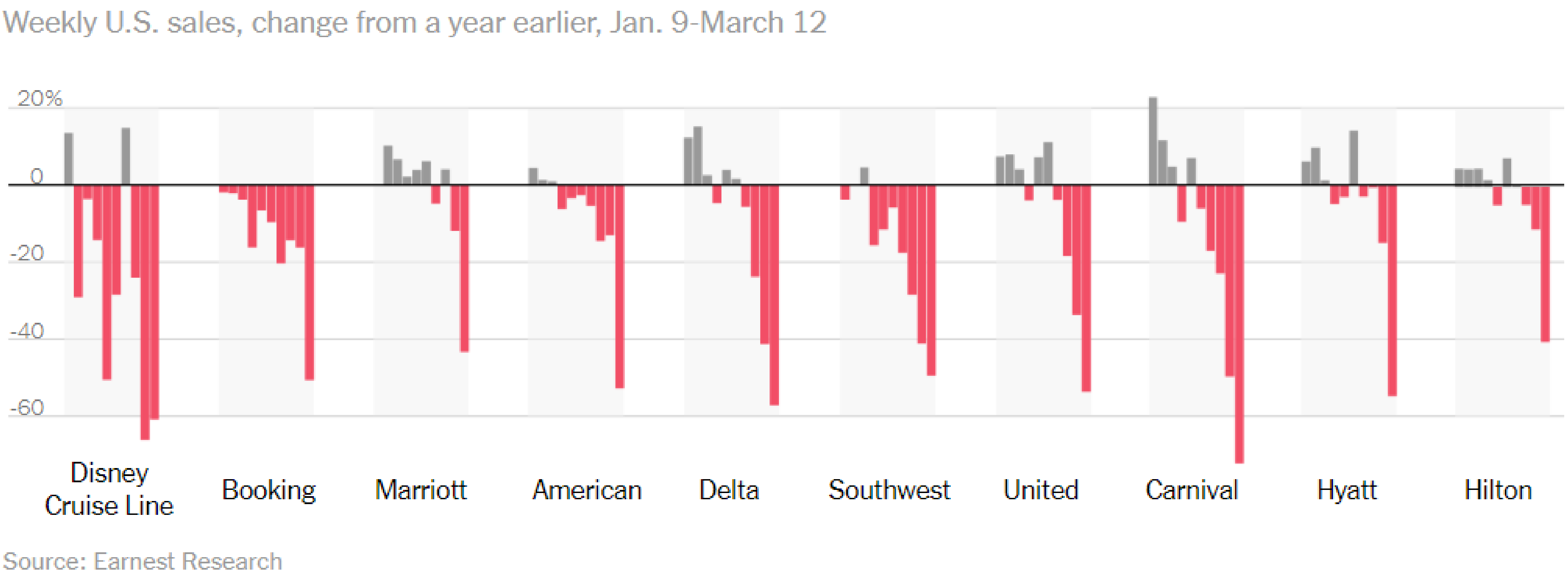
Current crisis

BABSON EXECUTIVE EDUCATION

Coronavirus (Covid-19) has literally shut down the global economy



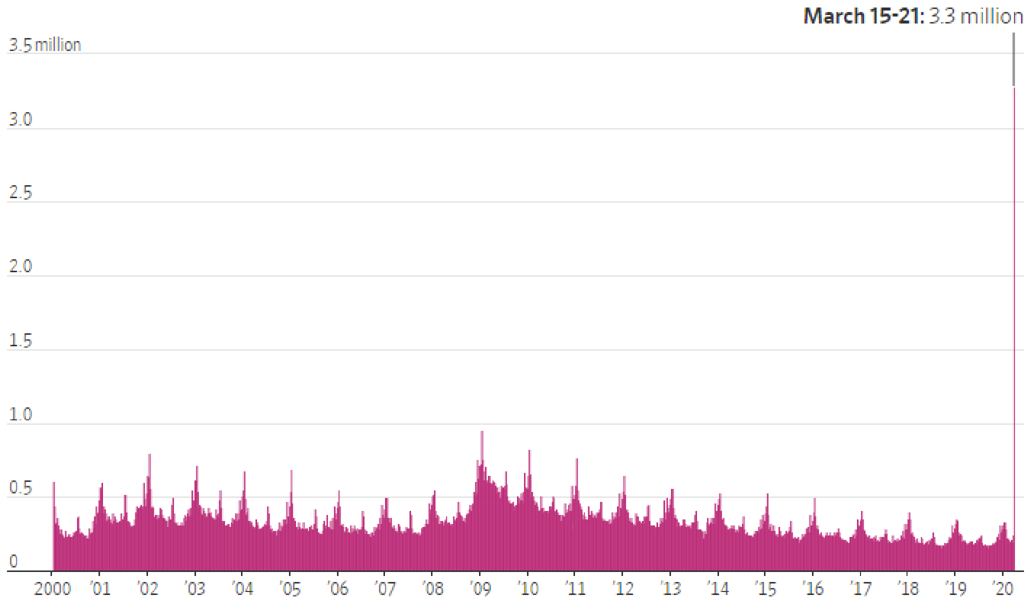
Recession is going to be deep



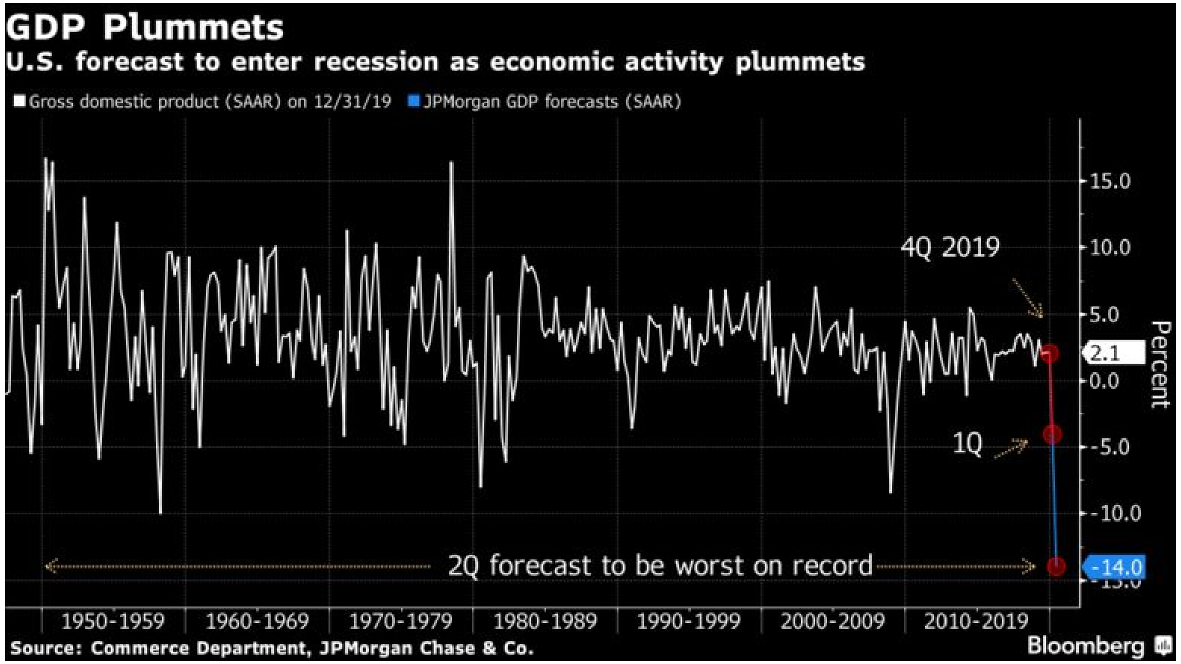
Recession is going to be deep

How deep depends a lot on public health, monetary, and fiscal policies, i.e. the government's response!

Initial jobless claims

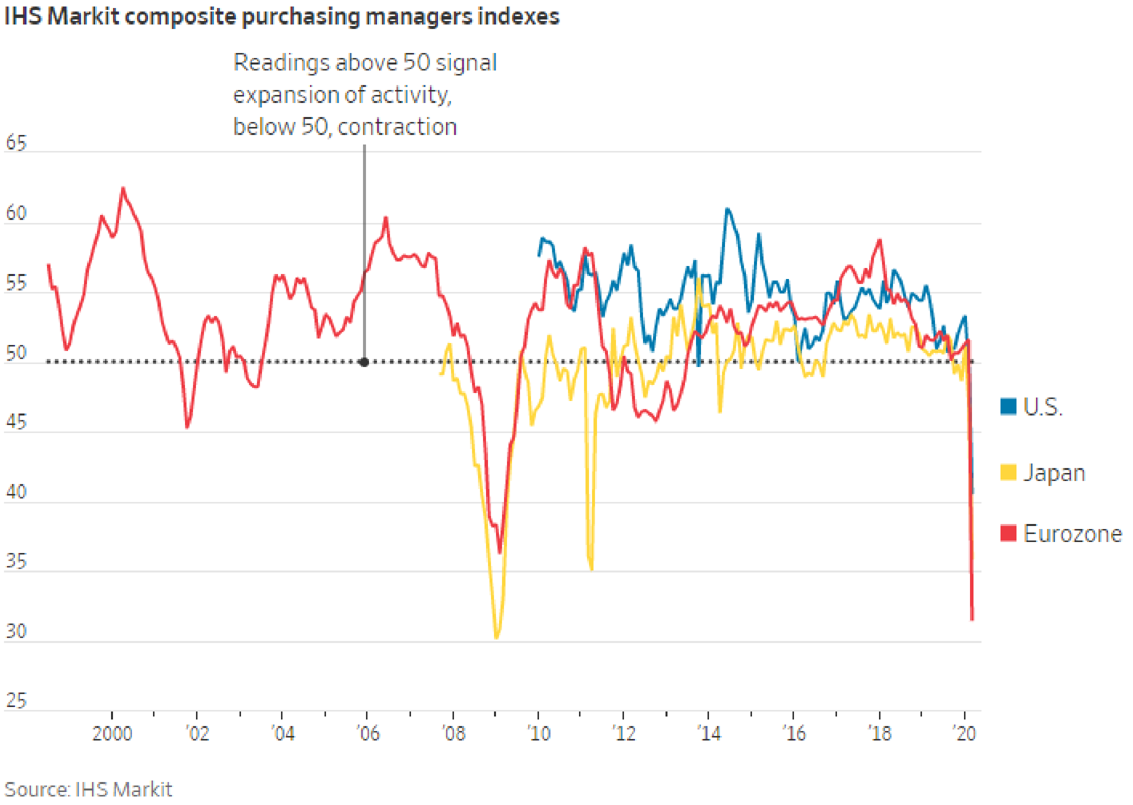


Note: Seasonally adjusted, latest figure is preliminary
Source: Labor Department



How deep? Some perspective

- For now, **as deep as 08/09 crisis**
  - "The outlook for global growth for 2020 is negative, **a recession at least as bad as during the global financial crisis or worse,**" said Kristalina Georgieva, the IMF's managing director.
  - In the **eurozone**, they **cut jobs at the fastest pace since July 2009**, with service providers taking the lead. In **the U.S., companies cut workforces in March at the fastest pace since December 2009**, as customers put orders on hold.



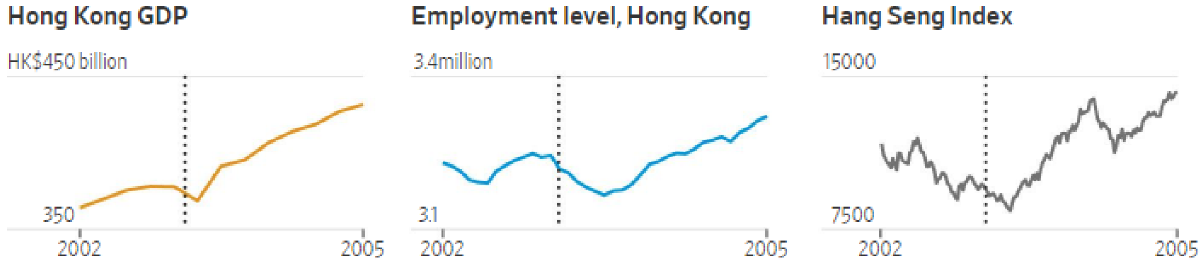
How deep? Some perspective

- **SARS was bad for Hong Kong**
  - Flights dropped massively for a month
  - Hotel occupancy dropped to 20%
  - Retails sales dropped
  - Unemployment jumped
  - GDP dipped

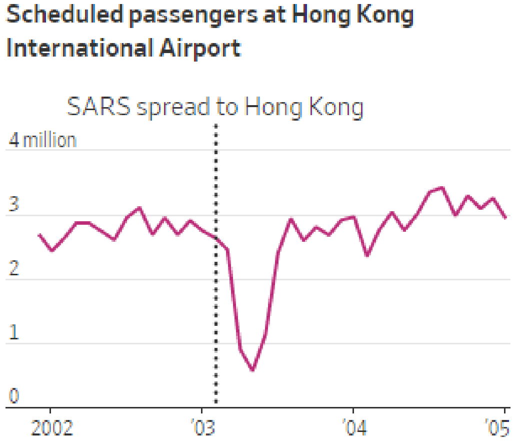
- But ultimately, like SARS itself, it was **contained quite quickly**
  - No global contagion

SARS

Severe Acute Respiratory Syndrome spread from China to Hong Kong in early 2003.



Note: GDP is in constant 2017 Hong Kong dollars
Sources: CEIC Data (GDP and employment), FactSet (stock indexes)

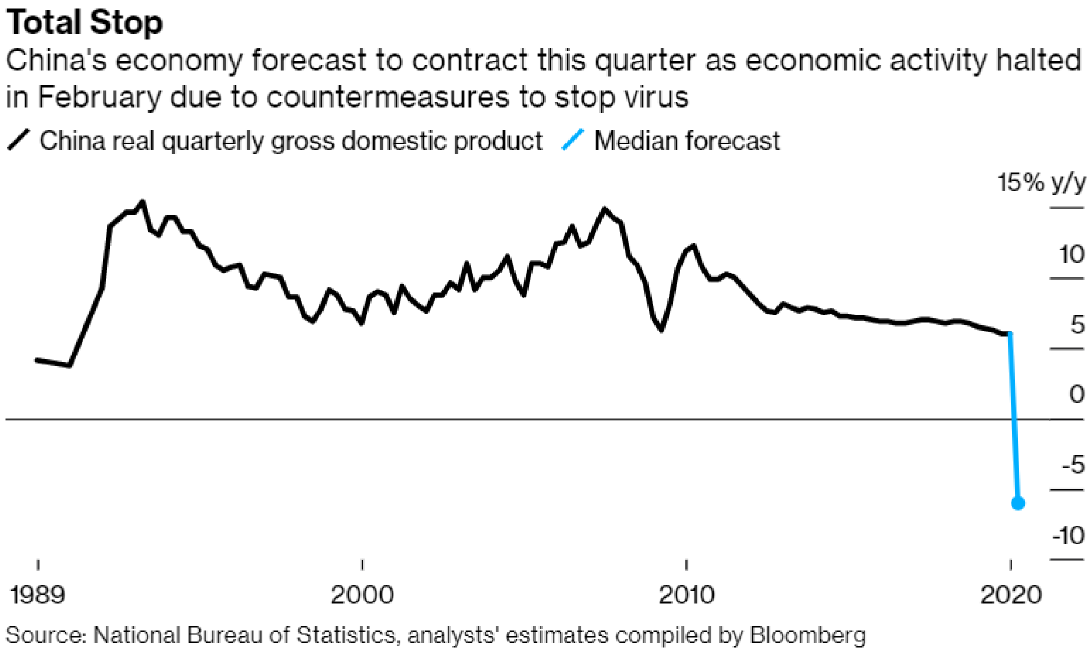


Source: CEIC Data

Source: Goldman Sachs

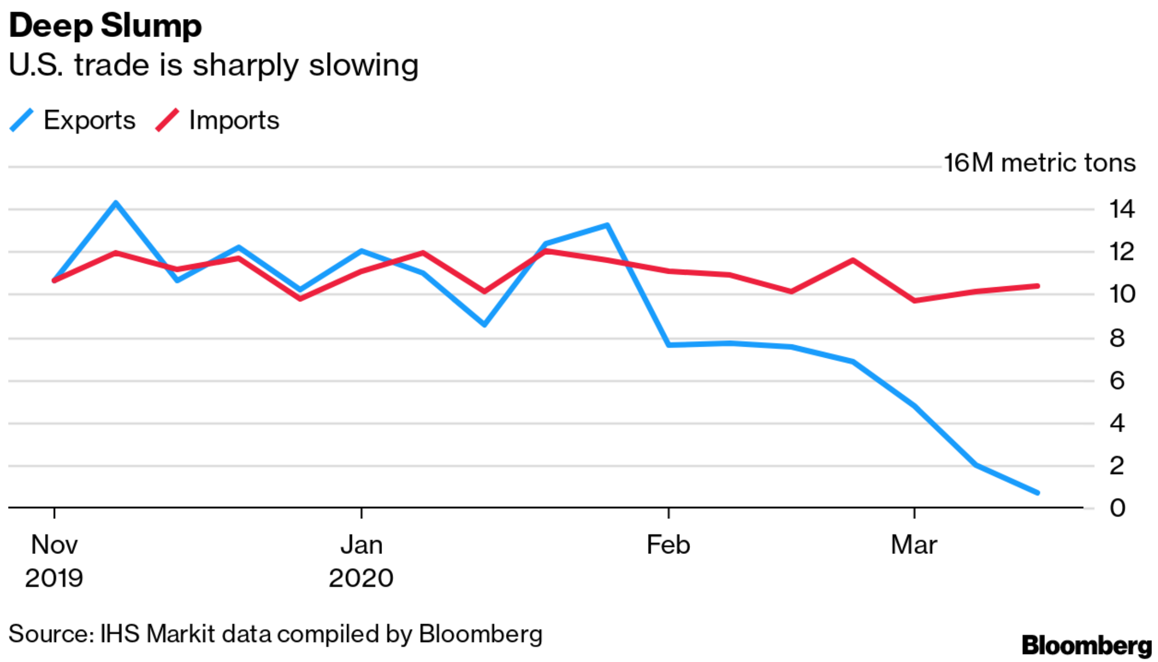
Recession is global

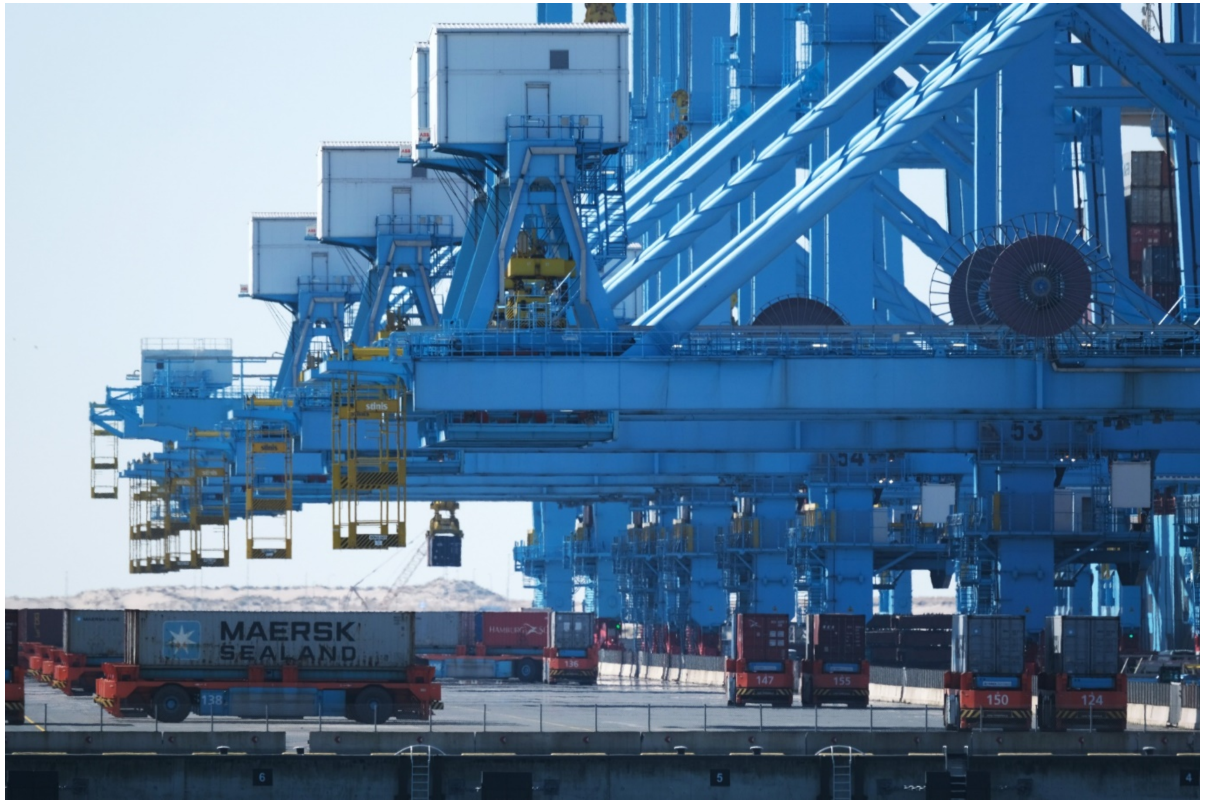
In China



In Europe

Global Trade is slowing down massively

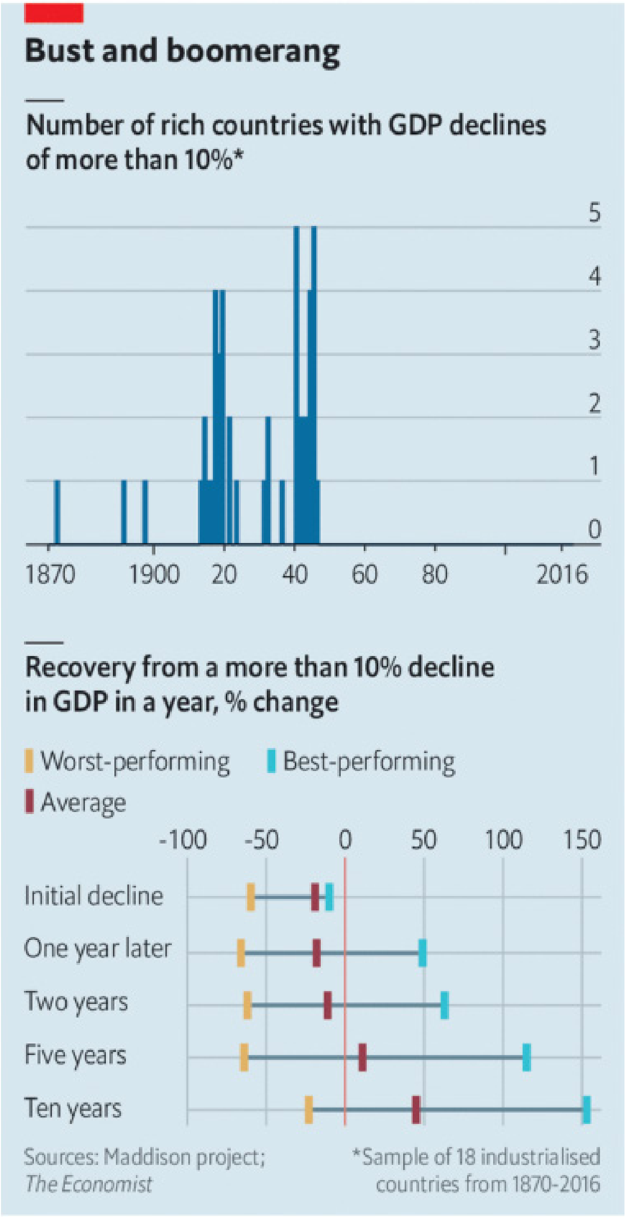




How quickly can we recover?

- For 10% GDP drops (rare events but one we are currently contemplating), the recovery takes on average 4 years
  - Large variance around that number

- Key determinants of length:
  1. Level of damage from **initial shock** (factors of production)
  2. Potential fracture of **global trade**
  3. Getting **macro policy response** right

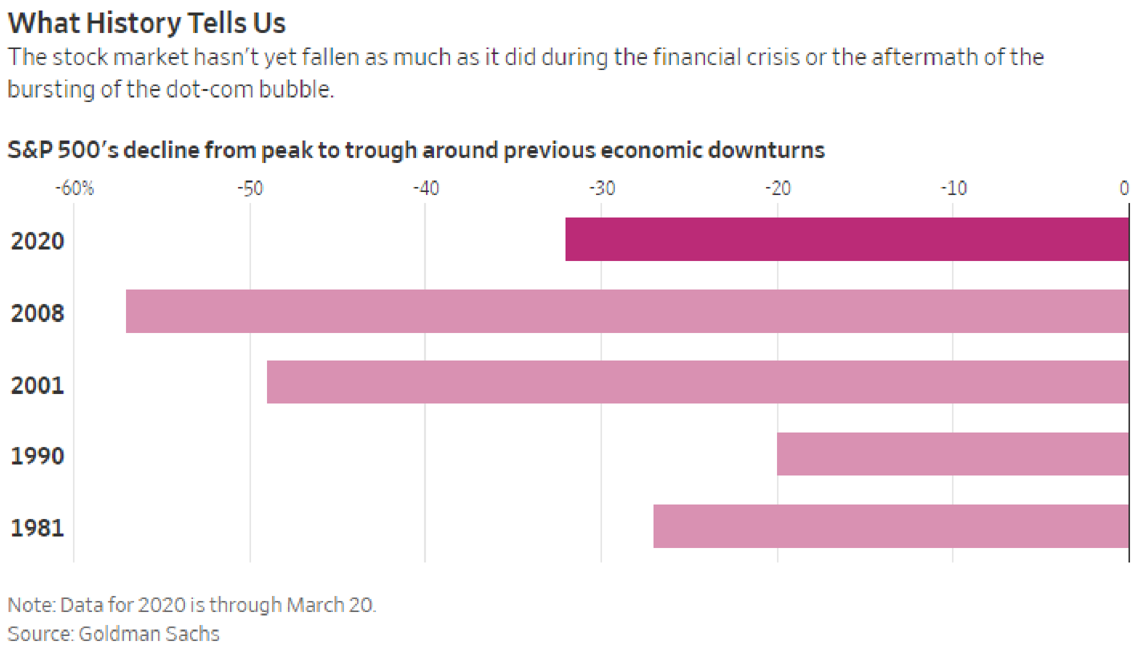


The Economist

Recession: Stock markets typically go into “bear” territory

- Bear market definition:
  - A drop of at least 20%

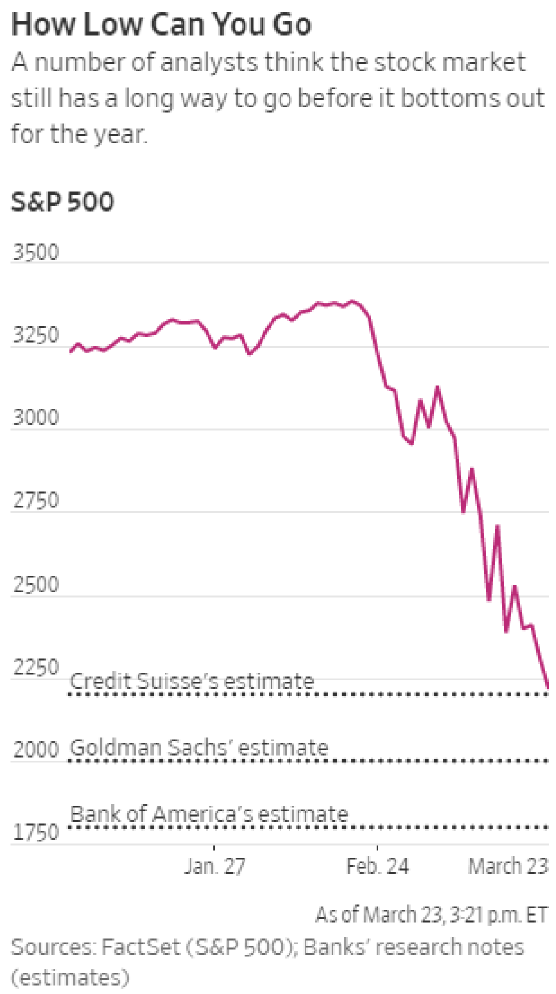
- Historically, it can get much worse than current 30% drop
  - Median drop is actually higher (from peak to bottom) and takes longer



How low can you go?

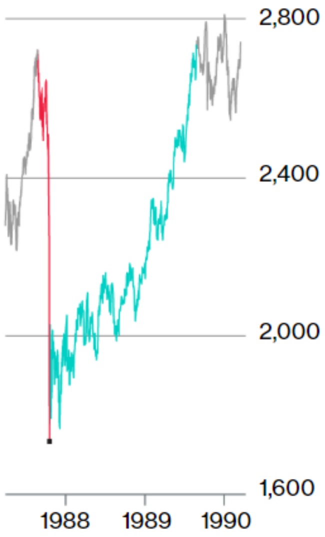
- We all wish we knew!
  - It depends on a range of factors

- Historically:
  - Since 1929, the S&P 500 has suffered 14 bear markets
  - **Mildest** bear market:
    - 20% drop that lasted less than three months in late 1990.
  - **Worst** bear market:
    - 86.2% collapse from September 1929 to June 1932
  - **Average** bear market:
    - Lasted 19 months with a 39% loss



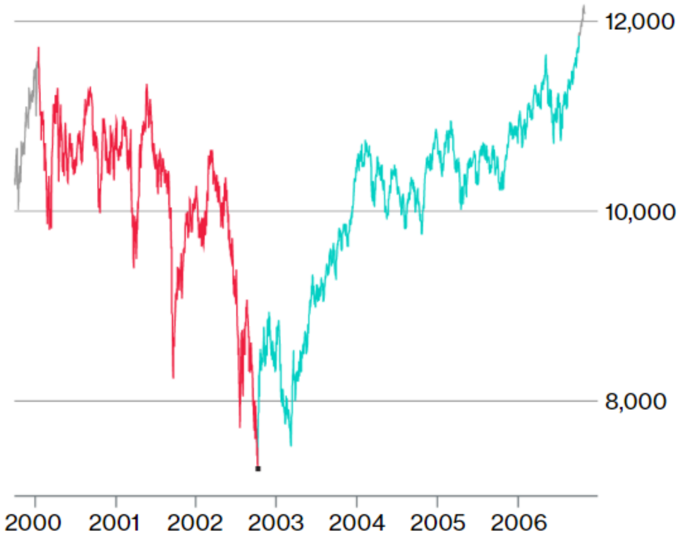
Past crises differ in many ways, as does their recovery time

1987
"Black Monday"
–36%
2-month decline



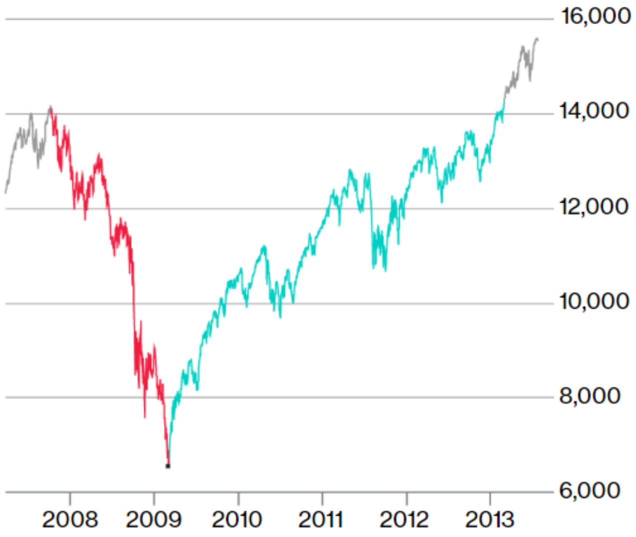
Months to recover from bottom
22

2001–2002
Downturn following 9/11 attacks
–38%
33-month decline



Months to recover from bottom
48

2007–2008
Financial crisis
–54%
17-month decline



Months to recover from bottom
48

Source: Bloomberg Data

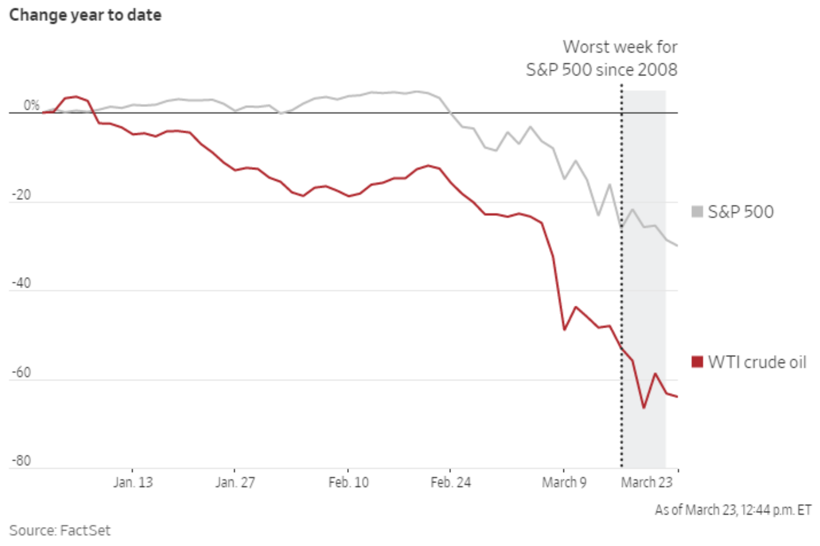
Different sectors affected differently

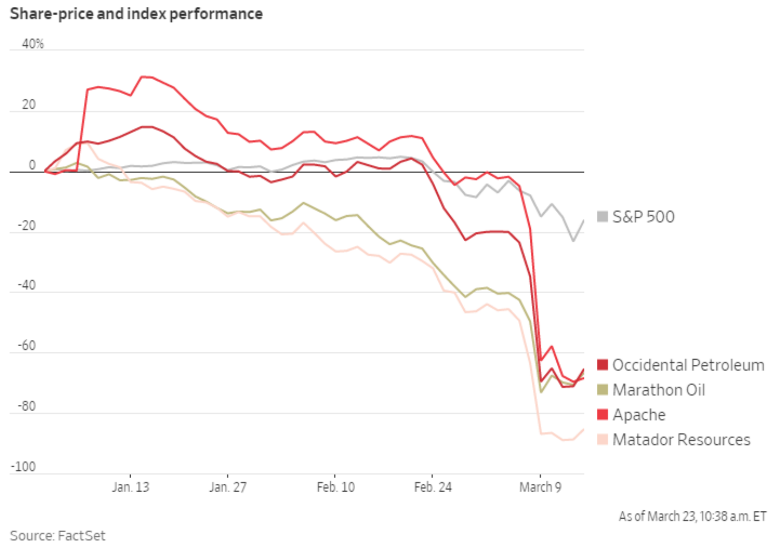
- Although stock market is **extremely volatile in times of crisis**, it remains a critical place for "**information aggregation**"
  - ➢Stock prices ultimately reflect the views of market participants as a whole

- So we can **look at the stock market to gain insights from investors' outlook** on potential winners and losers of this pandemic
  - – Many losers obviously given the overall drop;
  - – But there are relatively safe harbors…and some ravaged sectors!

Different sectors affected differently

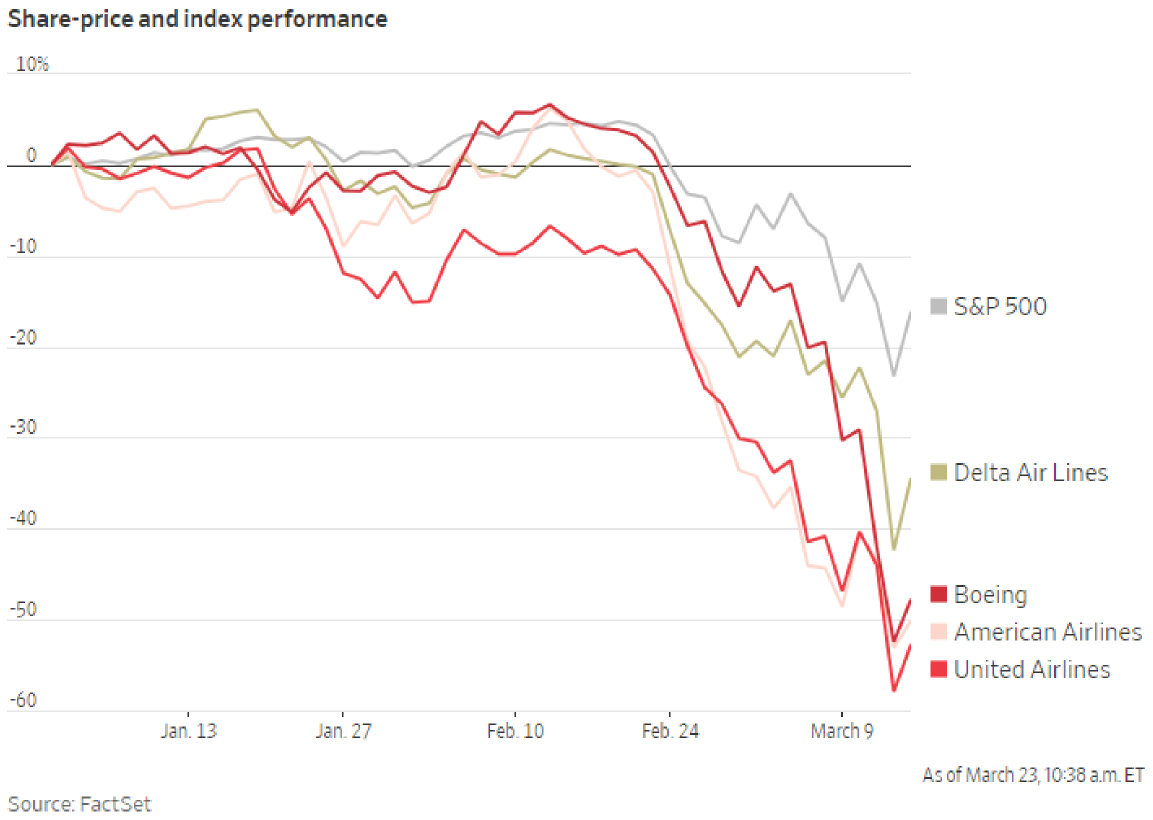
- **Oil and gas stocks** have been hit really hard
- Other factor in play:
  - OPEC falling in disarray and not agreeing on production cuts
  - Saudis actually increasing production flooding the market
    - ➢ Large imbalance, oil price crashed and U.S. producers (shale) have a lot to lose…
    - ➢ WTI prices have crashed more than 60% since beginning of year





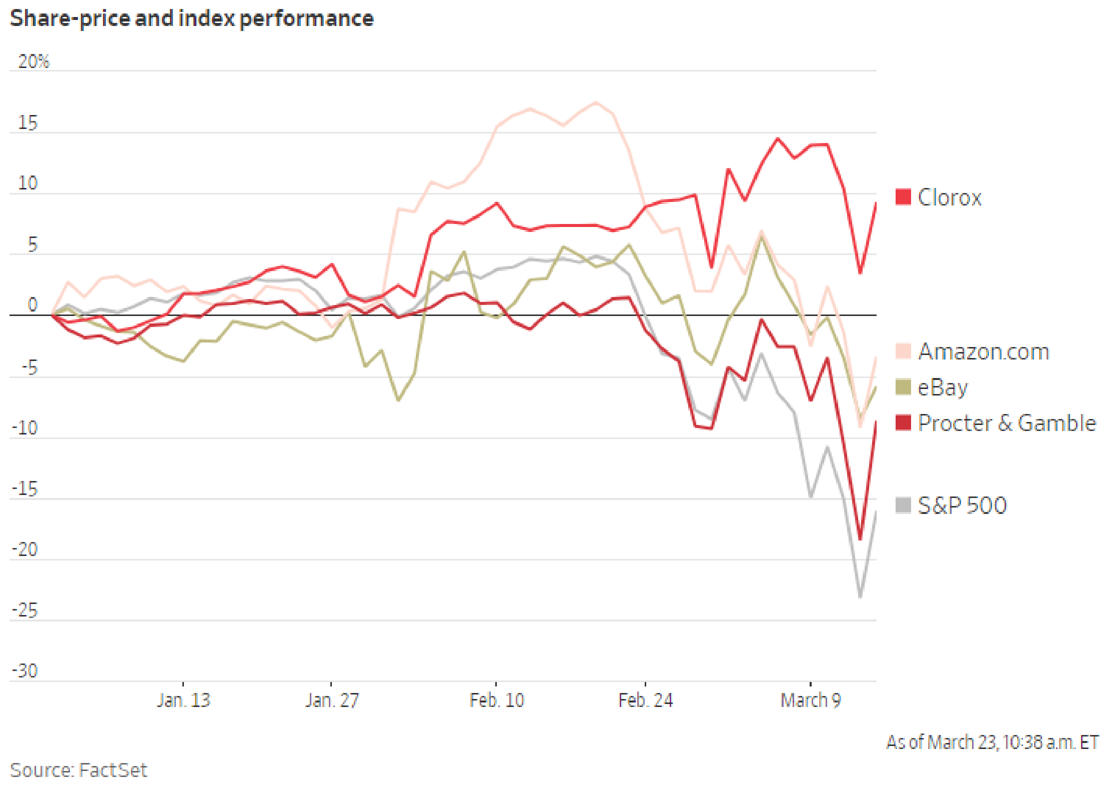
Different sectors affected differently

- **Airlines and other transportation sector** have been among the hardest hit
  - Extreme drop in business activity almost overnight
  - Hope for bailout but underlying business will remain weak for weeks/months to come



Different sectors affected differently

- **Consumer goods and large retailers**
  - Relatively solid sector as "essentials" remain essentials for the time being
  - Seen as potentially benefiting from this crisis
    - For how long?



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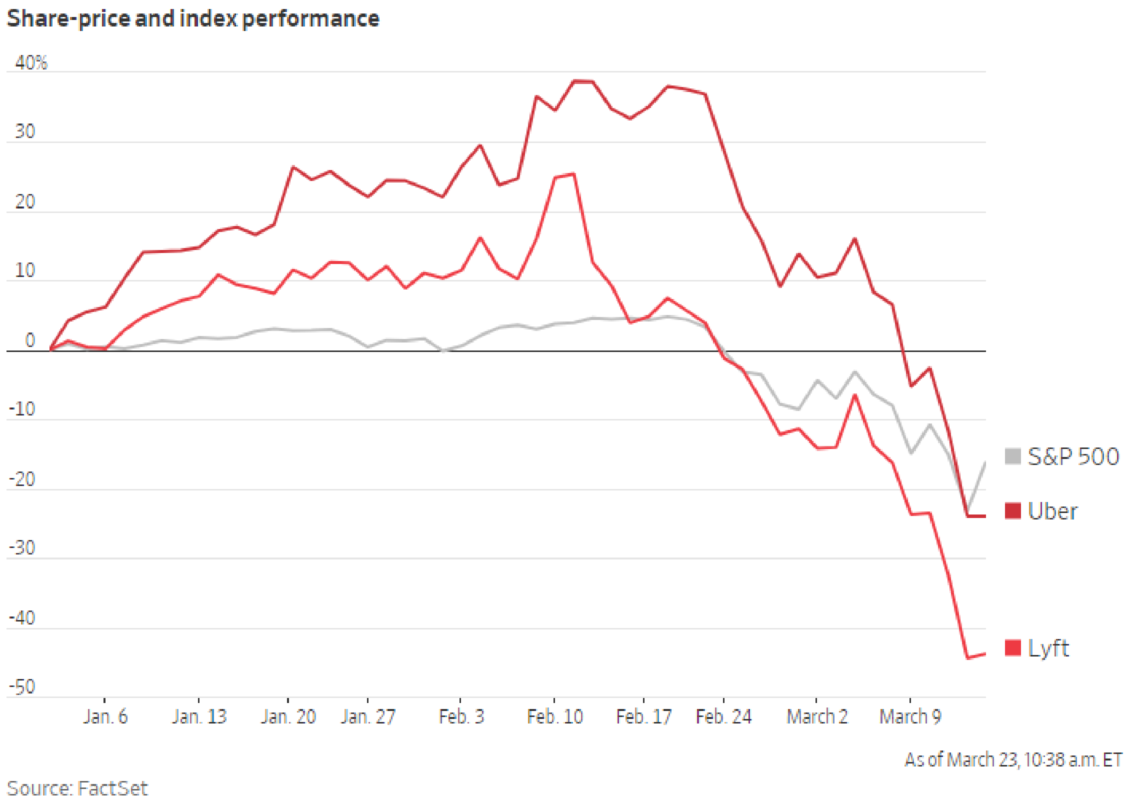
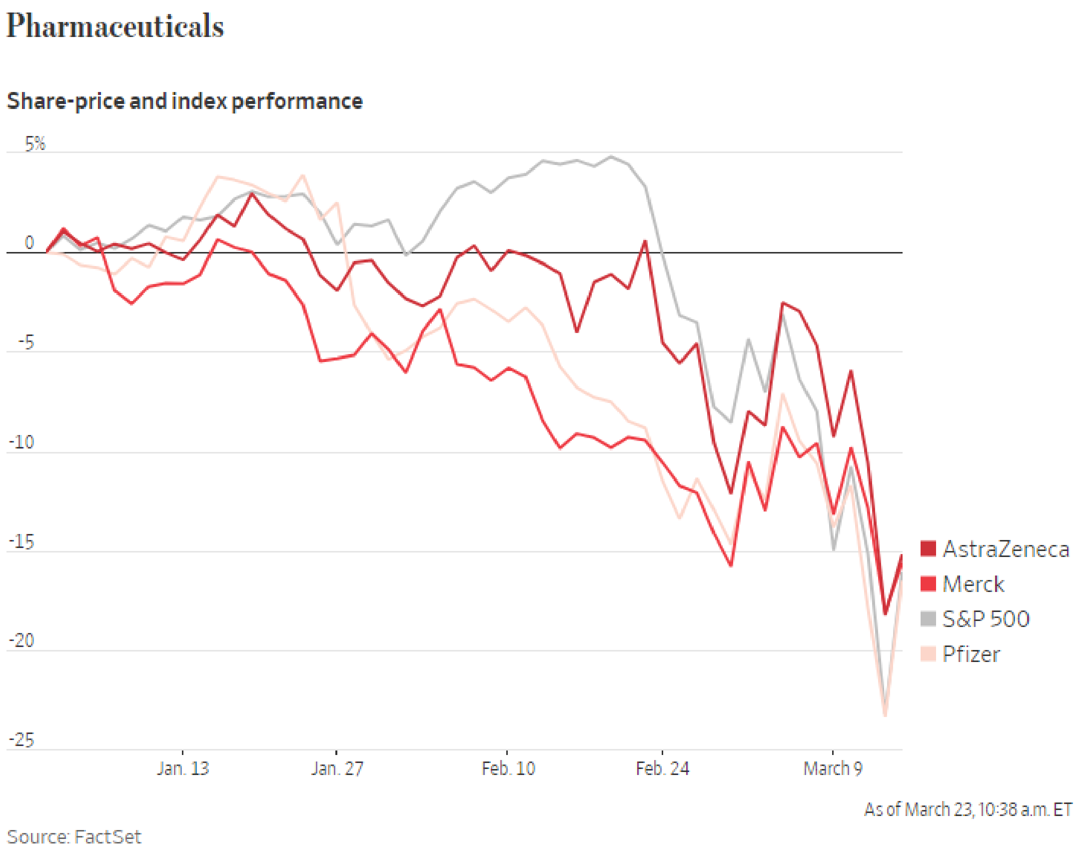
Different sectors affected differently

- **Want a ride?**
  - Not many people right now…
  - The **gig economy** is taking a big hit
  - Employees get sick and customers are scared of sharing "semi-public" spaces…



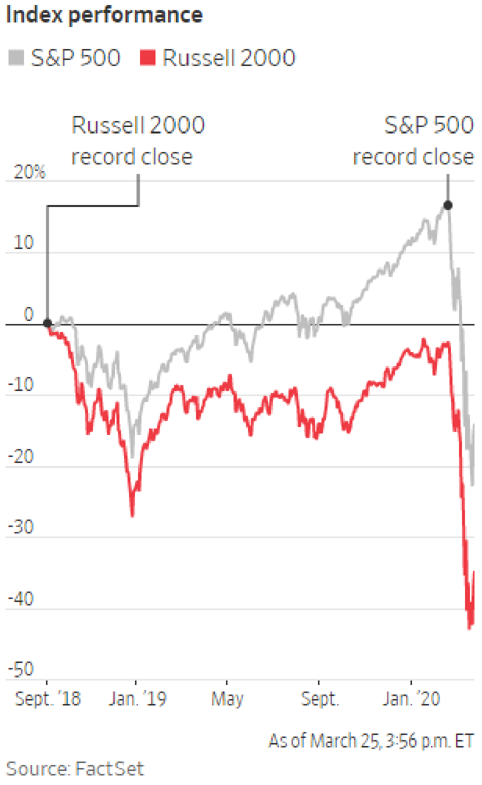
Different sectors affected differently

- **Pharma and biotech**
  - Although some "winners" have been touted (e.g. Moderna)
  - Many will not directly benefit from this virus pandemic…
    - Many ingredients necessary for the fabrication of drugs are part of a complex supply chain being disrupted right now…
  - Relief package will benefit them

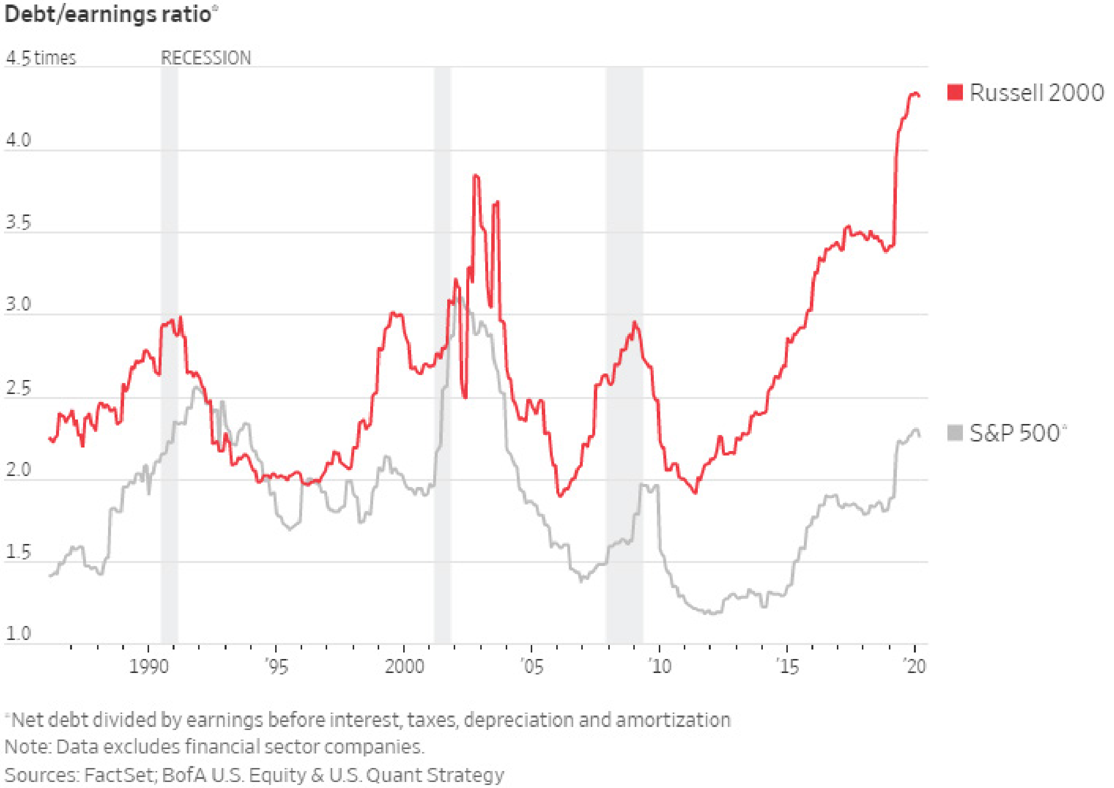


Small caps hit hardest

Russell 2000 (small caps) much harder hit than S&P500

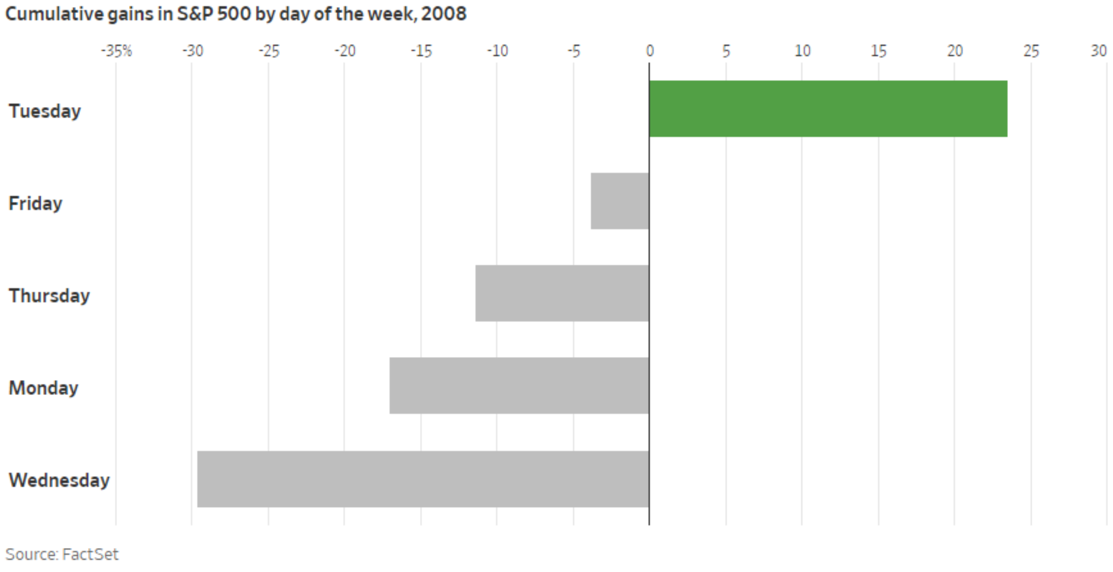


Russell 2000 firms have much more leverage

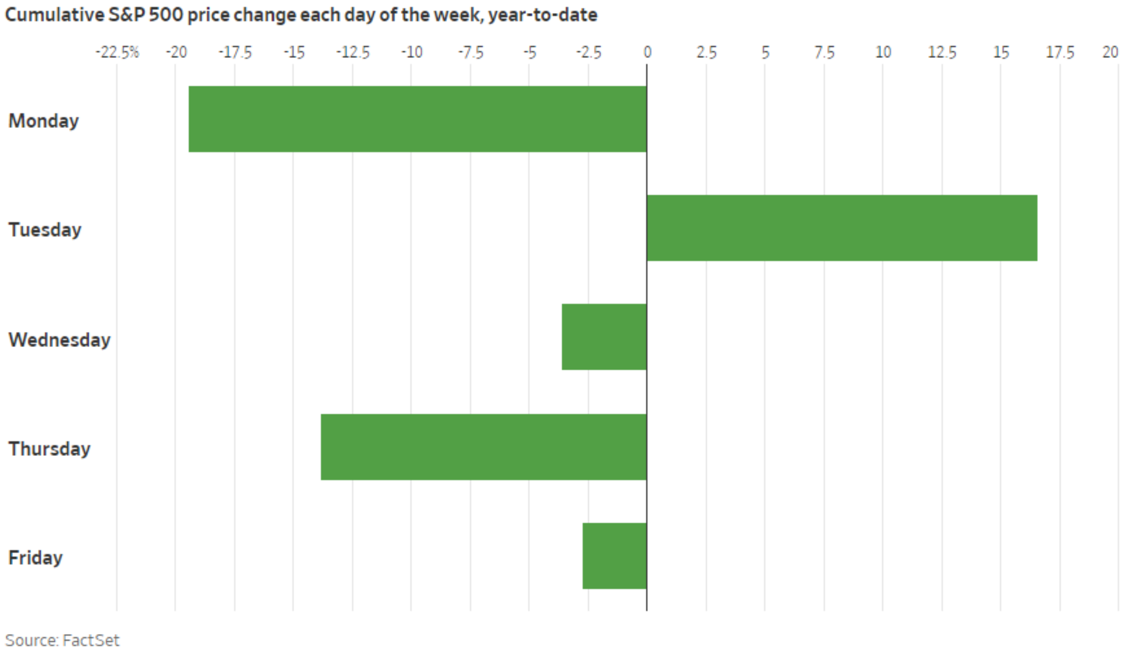


Whatever you do, make sure you are invested on Tuesdays!

In 2008, you would be up if you held stocks only on Tuesdays…



In 2020, you would be up if you held stocks only on Tuesdays…



Government response to the crisis

BABSON EXECUTIVE EDUCATION

Government's response on the financial front: As usual both Fiscal and Monetary stimulus

- **All hands on deck** approach

- **Monetary policies** can be adjusted **almost overnight** and they already have, big time!
  - However: **limited direct impact**, especially when the underlying cause is not financial (e.g., displaced workers do not benefit directly from 0% FED fund rate offered to commercial banks)

- **Fiscal policies** are **more protracted** (need approval by Congress/Senate/President)
  - However: offer a **stronger and more direct safety net** for the economy (e.g. displaced workers do benefit directly from a check sent in the mail)

Monetary policy

- **Two key tools**:
  1. Lower the Fed Fund rates → Check!
  2. Provide liquidity to banks and bond markets (credit easing)→ Check!

- Traditional dual role of Central Bank (monetary policy):
  1. **Steady growth**
  2. **Steady inflation**

- In a crisis:
  1. **Ensure a stable market for government debt**
  2. **Prevent liquidity crunch**

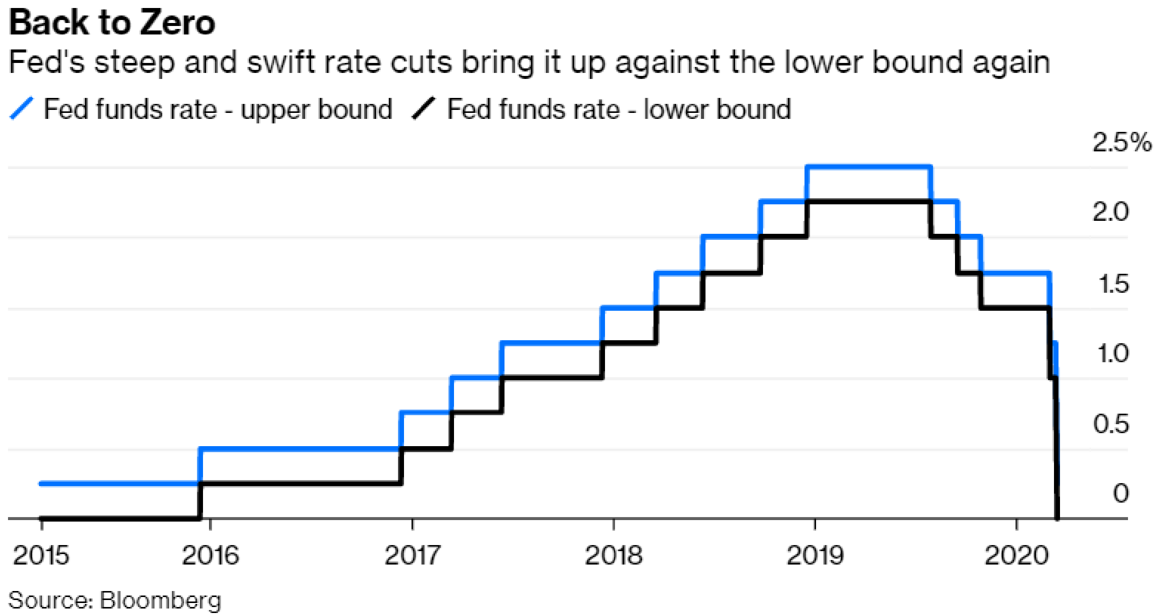
➢ **Avoid a global financial meltdown by acting swiftly to reassure markets**

Lowering interest rates

- The “other Jerome” did it!
- Step 1 (March 1st):
  - “The fundamentals of the U.S. economy remain strong. However, the **coronavirus poses evolving risks to economic activity**. In light of these risks and in support of achieving its maximum employment and price stability goals, the Federal Open Market Committee decided today to lower the target range for the federal funds rate by 1/2 percentage point, to 1 to 1-1/4 percent. The Committee is closely monitoring developments and their implications for the economic outlook and will use its tools and act as appropriate to support the economy.”

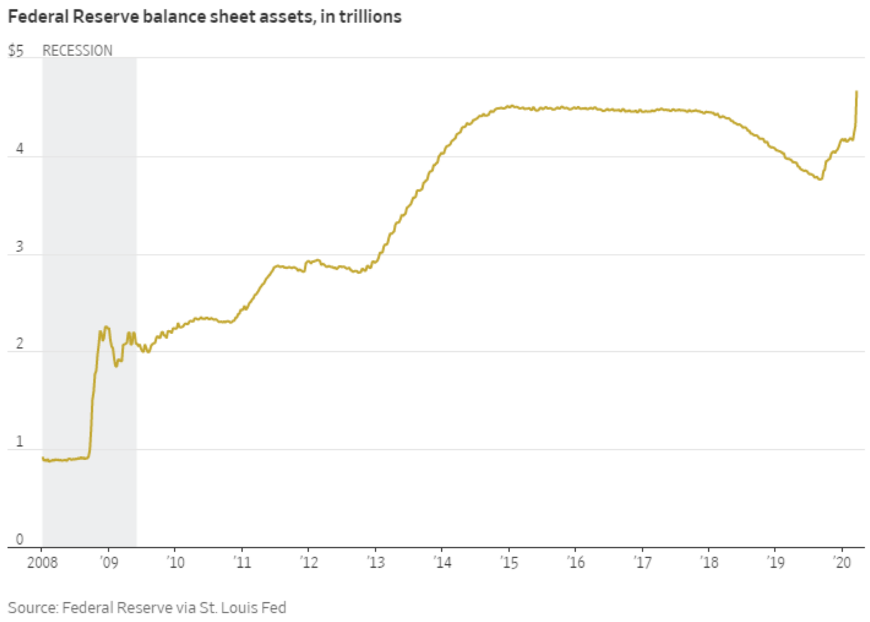
Lowering interest rates Part II

- The "other Jerome" did it…again!
- Step 2 (March 15th):
  - "**The effects of the coronavirus will weigh on economic activity in the near term and pose risks to the economic outlook**. In light of these developments, the Committee decided to lower the target range for the federal funds rate to 0 to 1/4 percent. The Committee expects to maintain this target range until it is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals."



The FED and providing liquidity: Quantitative Easing (QE) program relaunched!

- Quantitative Easing (QE):
  - Buying assets such as Treasury securities and agency mortgage-backed securities
    - Allows to provide liquidity in these markets and, more importantly, become a **lender-of-last resort**:
    - Banks in essence can borrow from the central bank with qualifying assets as collateral
      - Banks can, in turn, use those funds to lend money



The FED and providing liquidity: Quantitative Easing (QE) programs

- Taking the usual very safe assets (e.g. Treasury bonds held by banks) but also…

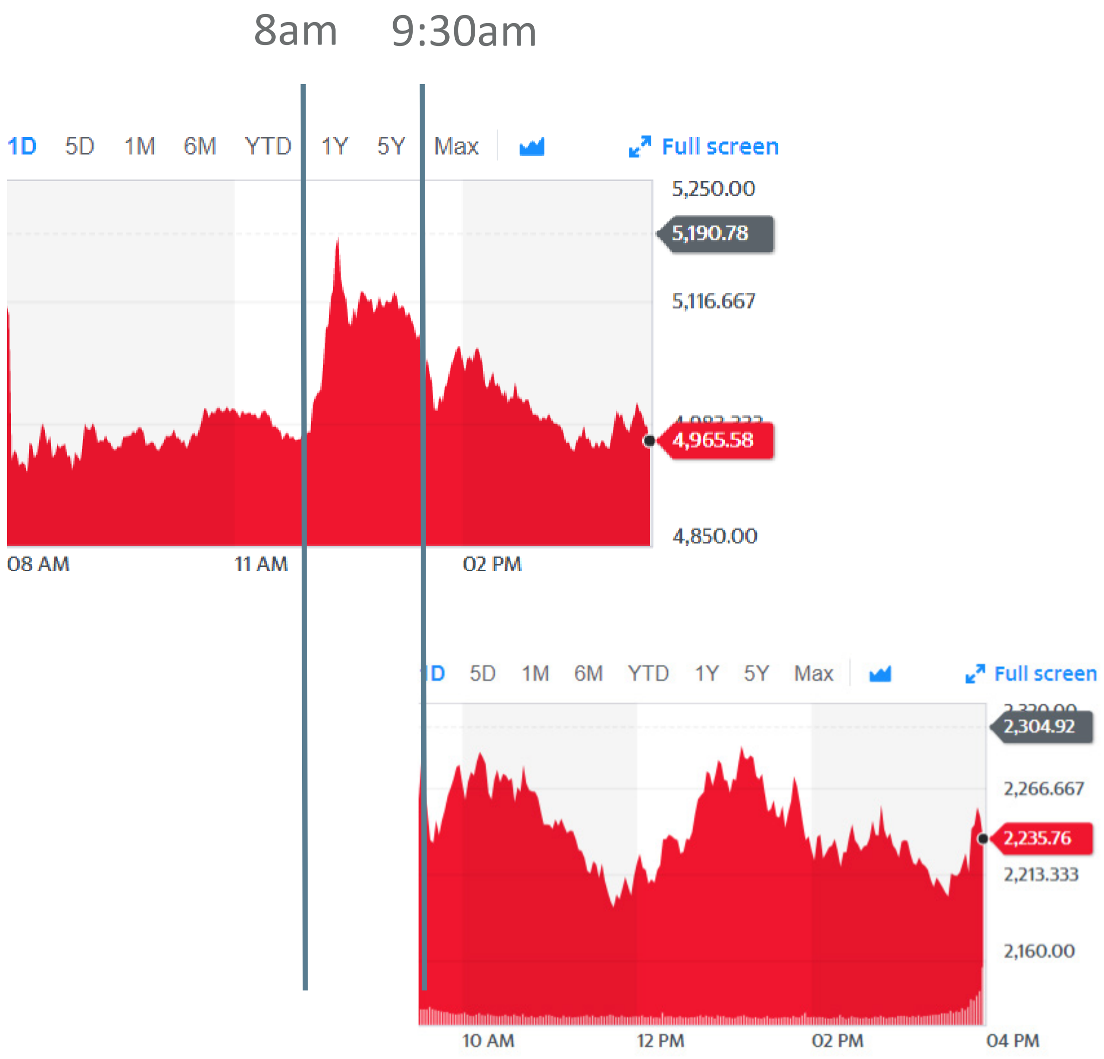
- New twists (13(3) authority):
  - **Expanded lending facilities:**
    1. Term Asset-Backed Securities Loan Facility (TALF) to allow lending for investors in asset backed securities (asset: credit card, student loans, etc.)
    2. Money Market Mutual Fund Liquidity Facility to include a wider range of securities, including municipal variable-rate demand note
    3. Commercial Paper Funding Facility to also include high-quality municipal debt, another move to help cash-strapped states and cities
  - **New lending facilities**:
    1. Primary Market Corporate Credit Facility for new bond and loan issuance
    2. Secondary Market Corporate Credit Facility to provide liquidity for outstanding corporate bonds
    3. And more to come!

The FED and providing liquidity: Quantitative Easing (QE) programs

- **Why these new twists?**
  1. **Lending has become more disintermediated**
     - Many banks do not lend out dollar for dollar new funds (due to liquidity provisions, etc.)
     - Large corporations issue commercial paper, bonds and other types of debt bought directly by bond mutual funds, pension funds, ETFs, etc.
     - ➢ So it **cannot stop at the traditional "bank lending"** and need to offer other venues for funding, including direct channels to companies and also to those who do provide financing to companies (e.g., Bond mutual funds!!)
  2. **Asset-backed securities could cause trouble**
     - At the heart of the financial crisis in 08/09, now much smaller but not zero
     - Still many assets backed by student loans, mortgages, credit cards, etc. and if those who service these obligations do it out of their paychecks, we have a problem!

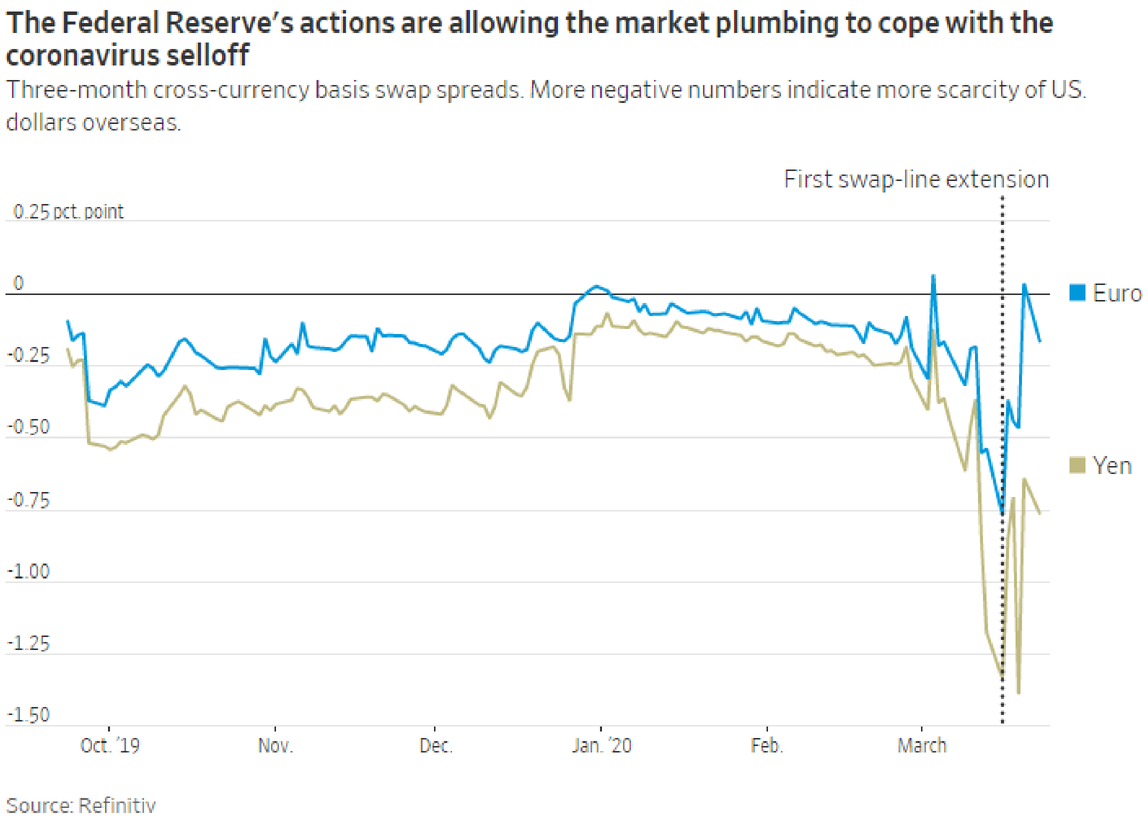
The FED and providing liquidity: Quantitative Easing (QE) programs

- March 23rd:
  - Announcement of “unlimited QE” at 8am
  - Jerome Powell’s “**whatever it takes**” moment…
    - Strong reaction of FTSE 100 in UK (top chart) at announcement
    - But by the time U.S. markets (bottom chart) opened, the enthusiasm had dampened…fiscal stimulus was what the markets really wanted…and it was not happening…



The FED and providing liquidity: Quantitative Easing (QE) programs

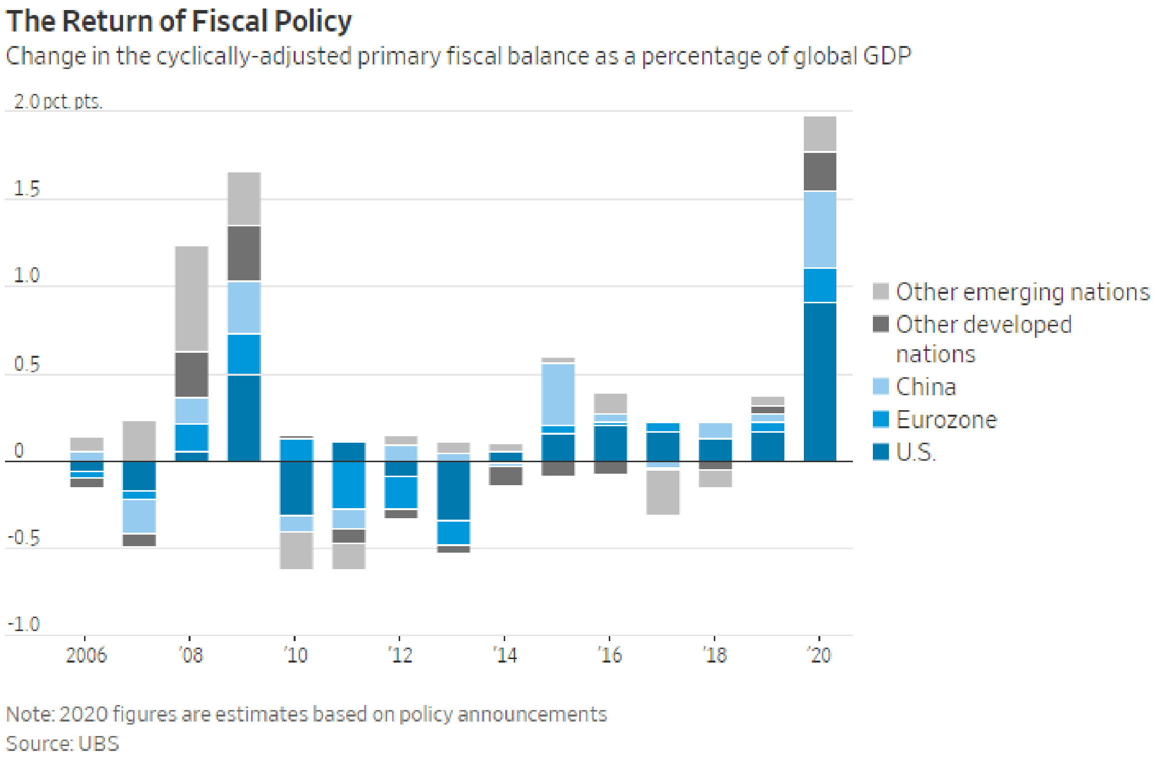
- Is it working?
  - It seems the answer is yes, given that different markets out there are showing signs of stabilization



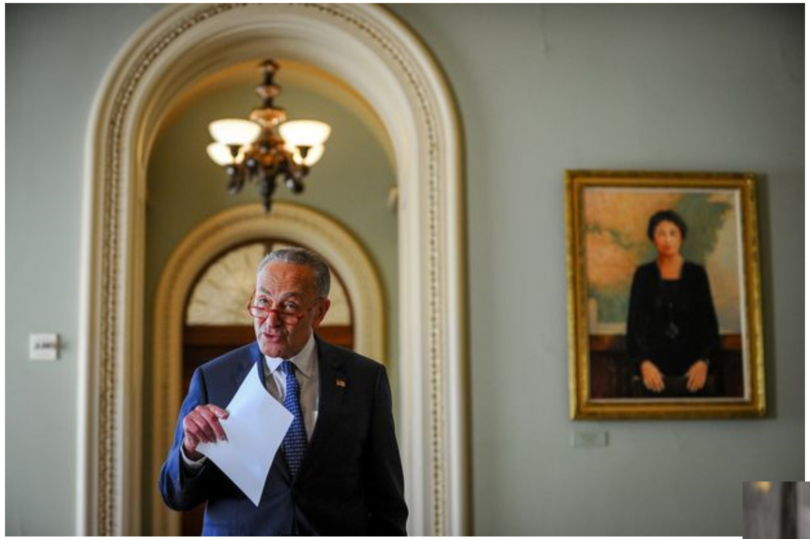
The Fiscal Response

- The Fiscal Response has been strong around the Globe
  - Revival since 08/09 crisis
  - No backlash (lack of inflation or debt crisis)

- Austerity is like hitting the economy when it is already down on its knees!
  - Lesson learned in Europe in 2012
  - Giant stimulus packages (so called "helicopter money") explain the spike in 2020 (still need to be approved)



The Fiscal Response: Not Easy to Agree



But that is what the market wants

Dow Climbs in Best Day Since 1933 on Stimulus Hopes

Index performance

Source: FactSet

U.S. stocks rallied, with the Dow industrials surging more than 11%, on signs that lawmakers and the Trump administration were nearing a deal on a giant stimulus package aimed at limiting the economic fallout of the coronavirus pandemic.

MORE COVERAGE

- Negotiators Look to Clear Hurdles on $2 Trillion Package
- Coronavirus Triggers Record Drops in U.S., European Business Activity
- Bond Downgrades Begin Amid Coronavirus Slowdown
- Unemployment Checks Delayed
- Coronavirus, Market Mayhem a Tough Combination for Wall Street Traders
- The Intelligent Investor: A Simple Investing Playbook for the 'Great Cessation'

Stocks Keep Rising After Dow's Best Day in 87 Years

Dow industrials soar as Boeing, energy sector lead stocks higher

Index performance, past two days

Source: FactSet

What should the fiscal response look like?

- **From the IMF:**
- Low-income countries urgently need **grants or zero-interest loans to finance the health spending** they might not otherwise be able to afford. Experience with past epidemics, such as Ebola, shows that speed in deploying concessional finance is essential to contain the spread of the disease.

- Developing an **effective vaccine also requires public money**.

- Next up, they argue that **governments should cut taxes and hike transfers for people and businesses that are particularly hard hit**. Those **forced to stay at home should, along with their employers, be offered subsidies**.

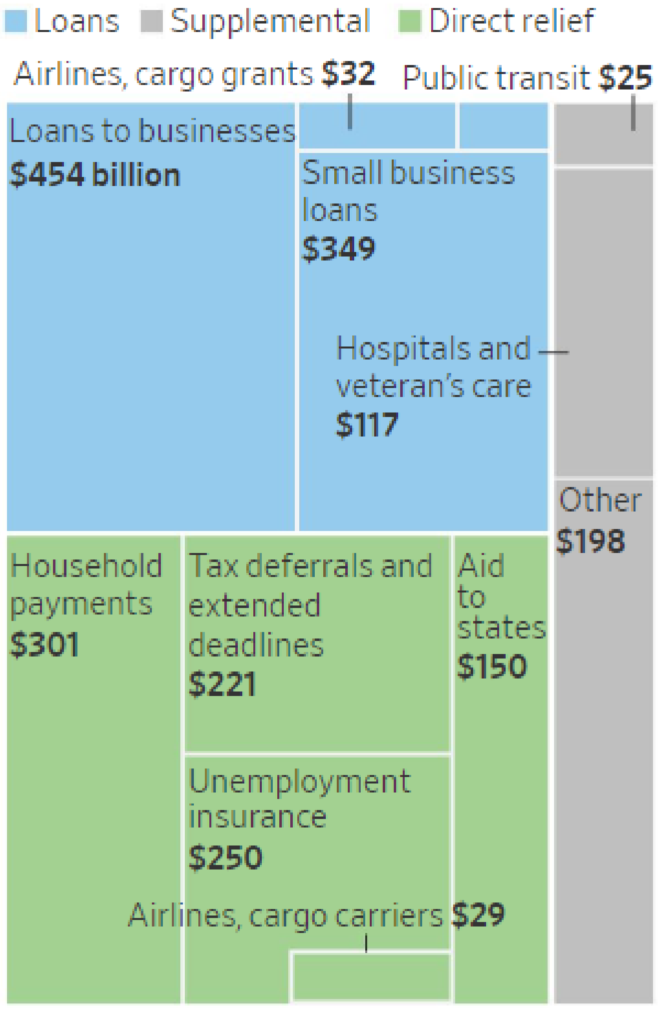
- **Expansion of the social safety net**: **accelerate the payment of unemployment insurance** he Fund also backs China's decision to **ease the tax burden on firms in the tourism and transportation sectors.**

What did the Senate pass?

- Rescue Bill worth $2 trillion (=$2,000Bn = $2,000,000,000,000)
  - "*This is a wartime level of investment into our nation*" (Sen McConnell)

- Key elements:
  1. **Business**: $500Bn (loans and assistance) + $221Bn (tax deferrals, etc.)
  2. **Small business**: $350Bn (loans, must retain workers)
  3. **Individuals**: $300Bn (direct checks) + $250Bn (unemployment insurance)
  4. **State + Local governments**: $150Bn
  5. **Hospitals, FEMA, CDC, Pharma research, etc.** : $340Bn

What's in the Senate's $2.1 Trillion Emergency Aid Bill



Sources: Preliminary legislative text; estimates by aides, lawmakers and outside groups.

Airlines and Boeing Get a Special Treatment

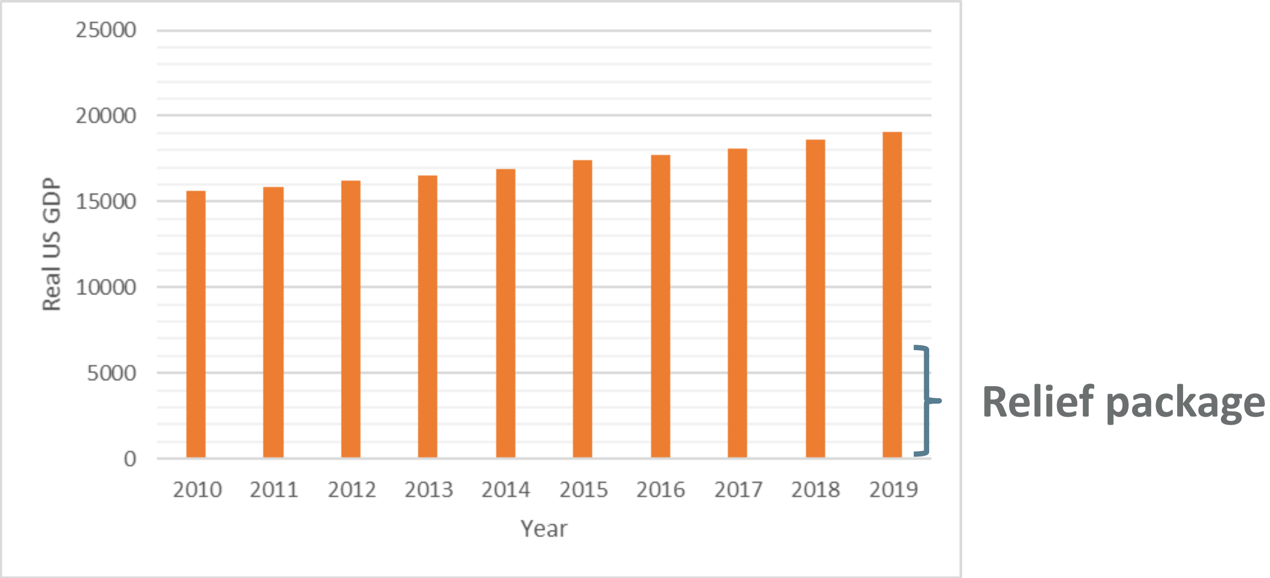
- $50Bn for airline industry
  - $25Bn in loans
  - $25Bn in grants
  - $3Bn+$4Bn for ground and cargo

- $17Bn earmarked for “companies deemed critical for the U.S. economy” (i.e. Boeing)

- AAL and BA up 60% since stimulus detailed passed…

How big is the response? Some perspective

- $6Tn (=$4Tn from FED + $2Tn from Emergency Relief package)
  1. 08/09 Financial Crisis: $800Bn ($.8Tn) Obama stimulus (five months in)
  2. Corresponds to ~30% of U.S. GDP…it's HUGE!



In Europe: Actions are taken as well

	Fiscal policy					Monetary policy
	Germany	France	Italy	Spain		ECB
Fiscal measures	€123bn (3.6% of GDP)	€45bn (1.9% of GDP)	€25bn (1.4% of GDP)	€17bn (1.4% of GDP)	Provide fiscal space	€870bn (7.3% of GDP)
	€10bn in reduced thresholds for companies to apply for short-term labour ("Kurzarbeit") €50bn in help for small companies up to 10 employees and self-employed €7bn of additional funding for the health system	€32bn for a month of deferred corporate tax and social security charges €8.5bn for two months of state payments to workers temporarily laid off by their employers ("chômage partiel") €2.0bn solidarity fund to support small companies €2.5bn additional small measures	€3.5bn of additional funding for the health system Around €10bn for wage, families and self-employed Help for the cargo and freight sectors that have been directly affected by the crisis; the government provisioned €600mn for Alitalia Suspension of taxes and contributions for companies invoicing up to 2mn	Access to the temporary collective layoffs ("ERTEs") eased SMEs exempted from paying social security contributions if they preserve their workforce Moratorium on mortgage payments for affected workers and the self-employed		Expansion of APP: **+ EUR120bn** by the end of the year New purchase programme (PEPP): **EUR750bn** by the end of the year, conducted on a flexible manner
State backed guarantees	"unlimited backstop"	€300bn (12.4% of GDP)	up tp €350bn (19.6% of GDP)	€100bn (8.0% of GDP)	Support bank lending/liquidity	
	€600bn special fund (WSF) up to €822bn for guarantees via KfW Companies with up to €2bn in revenue: 80% guarantee for credits for operating loans of up to €200mn For companies with a turnover between €2-5bn: 70% guarantee for credits. For companies with a turnover of more than €5bn, the request will be studied individually	Companies with a maximum of €2mn in revenue: 90% guarantee for credits of a maximum amount of €300'000 Companies with a maximum of €50mn in revenue: 90% guarantee for credits of a maximum amount of €5mn No details yet for the conditions for large companies	Free government guarantees on SME loans, and moratorium on some loan repayments	Guarantees on private loans via the state-owned ICO (details are still scarce)		Easing of conditions and **reduction on interest rates (25bp cut) of TLTRO III** Inclusion of all commercial paper in the CSPP Additional LTROs + Easing of collateral standards Banks can fully use capital and liquidity buffers

Source: Pictet WM - AA&MR

In Conclusion

- **Coronavirus Pandemic** + “**Great Cessation**” = **Black Swan** of this generation

- **Massive value destruction** in less than two months…
  1. **Uncertainty**
  2. **Global Recession**
  3. **Threat to global stability**

- **Governments have responded in kind**
  – Lesson learned from previous crises: “**Whatever it takes**”
    - Central Banks (Monetary policies) + Governments (Fiscal policies)

What next?

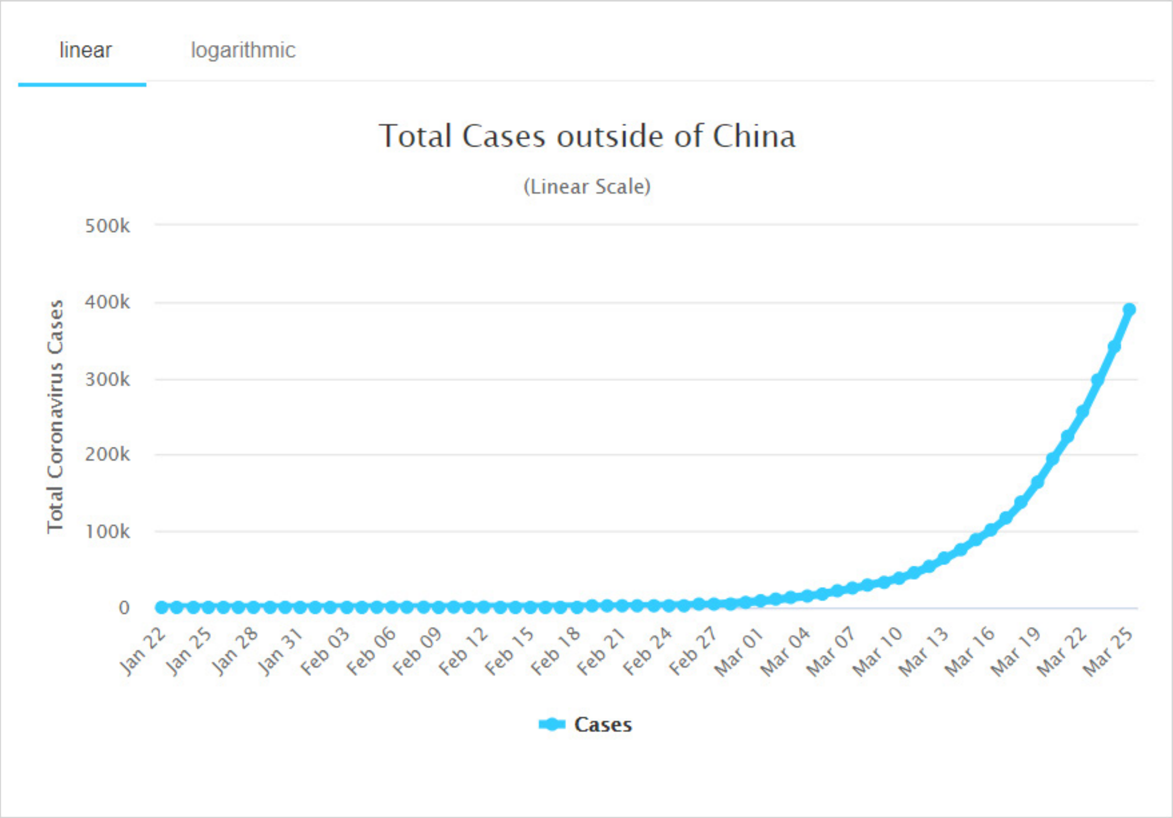
"I think Easter Sunday -- you'll have packed churches all over our country," President Trump

- **Massive stimulus + strong actions in U.S. and around the World**
  - Provides for guarded optimism

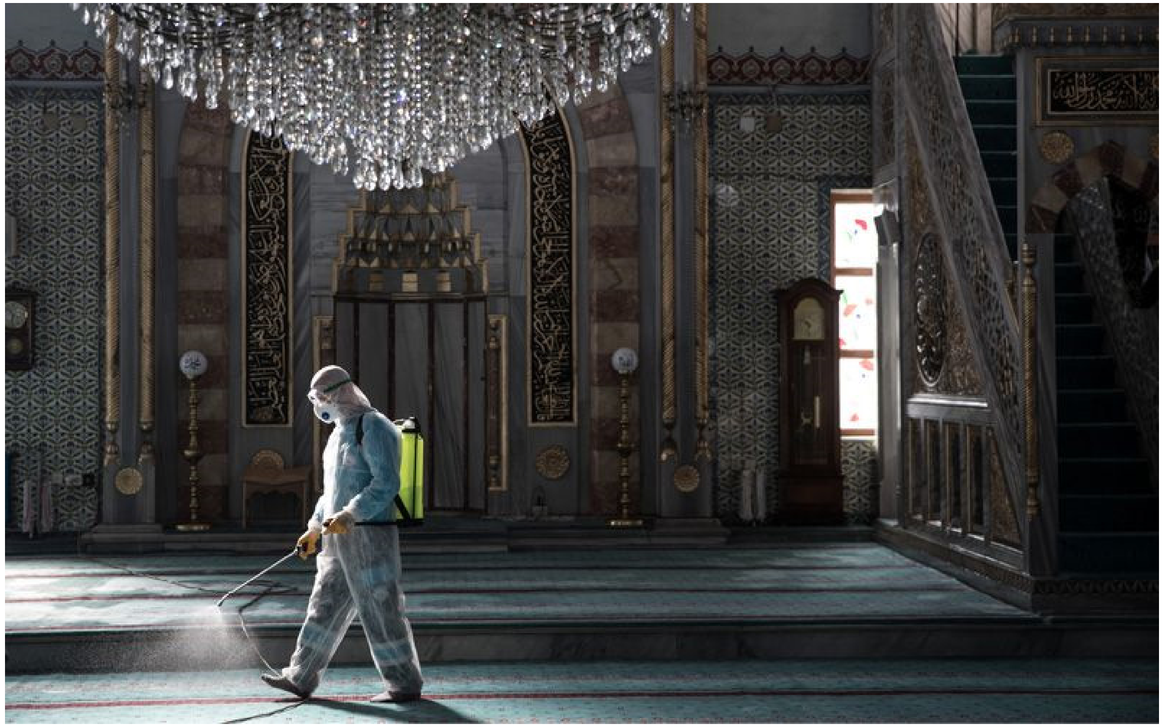
- The cracks are still showing
  1. **Pandemic needs to be put under control**
  2. **More stimulus needed + Liquidity trap**
  3. **Credit market issues**
  4. **Global trade and logistics issues**

- **Expect some setbacks**
  - Even if things are going faster in this crisis, it always takes more time to recover than people want to believe…

1. Pandemic needs to get under control

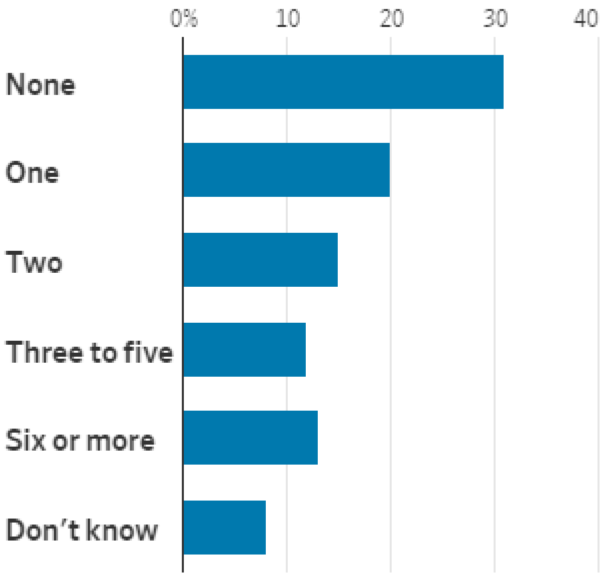


Source: **Worldometer** - www.worldometers.info



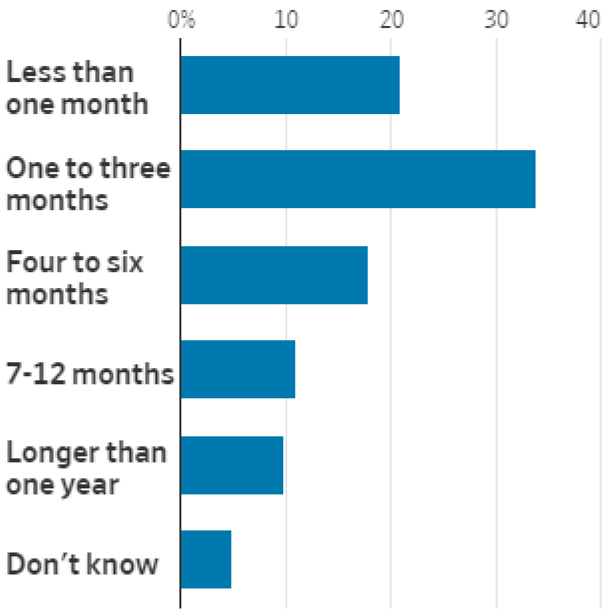
2. More stimulus? It depends on shutdown duration

Number of paychecks workers can miss before dipping into savings



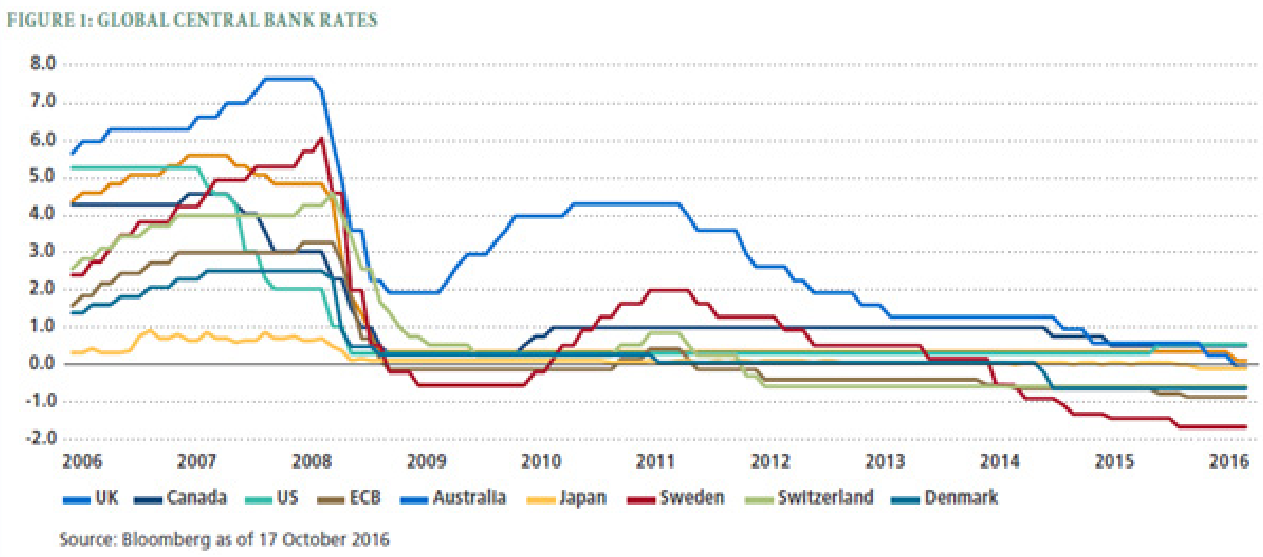
Note: Figures don't add to 100% due to missing responses
Source: NORC at the University of Chicago

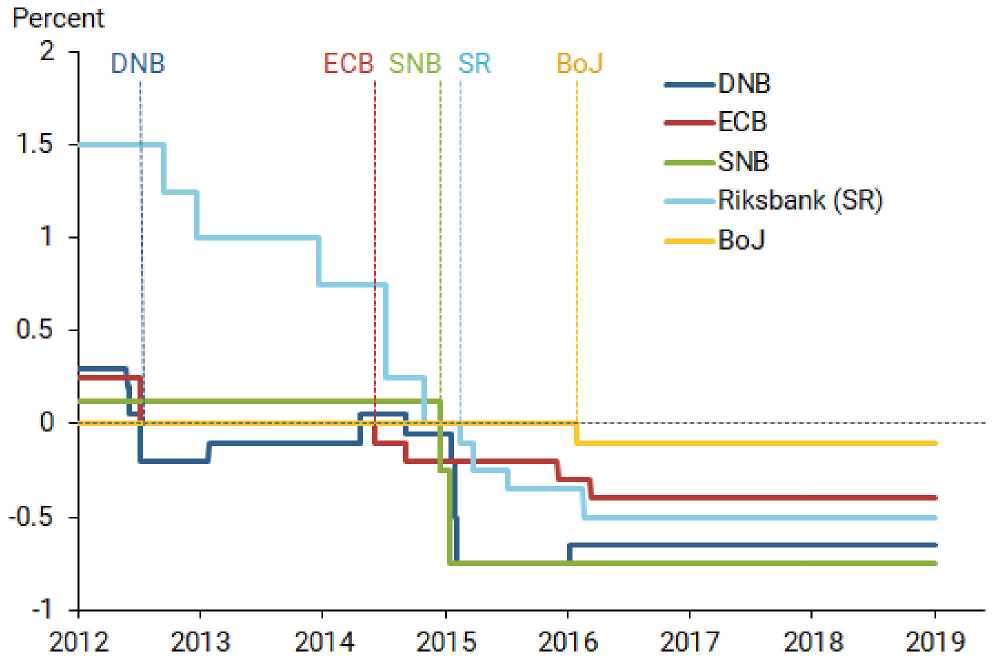
How long small businesses say they would survive if sales stopped completely



Note: Figures don't add to 100% due to rounding
Source: Womply

2. Limits to the "firepower" of central banks





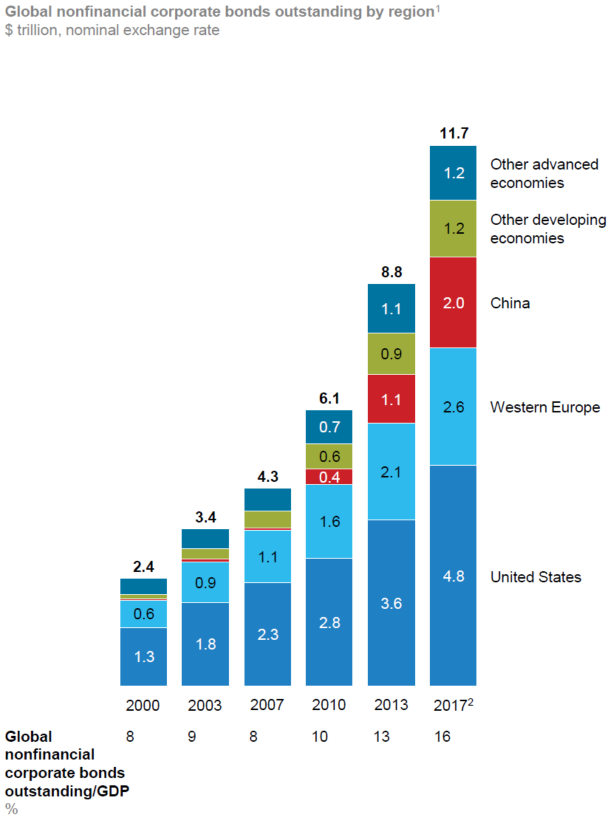
Central banks around the World have lowered interest rates to zero…and even negative…prior to this crisis!

However, still some firepower: relaxing regulatory guidance, encourage the use of discount window lending to banks, activate currency swap lines with global central banks to counter global shortage of dollars. Then can still implement "yield curve control" and guarantee lending access…

3. Low interest rates have consequences: Massive corporate debt issuances around the World

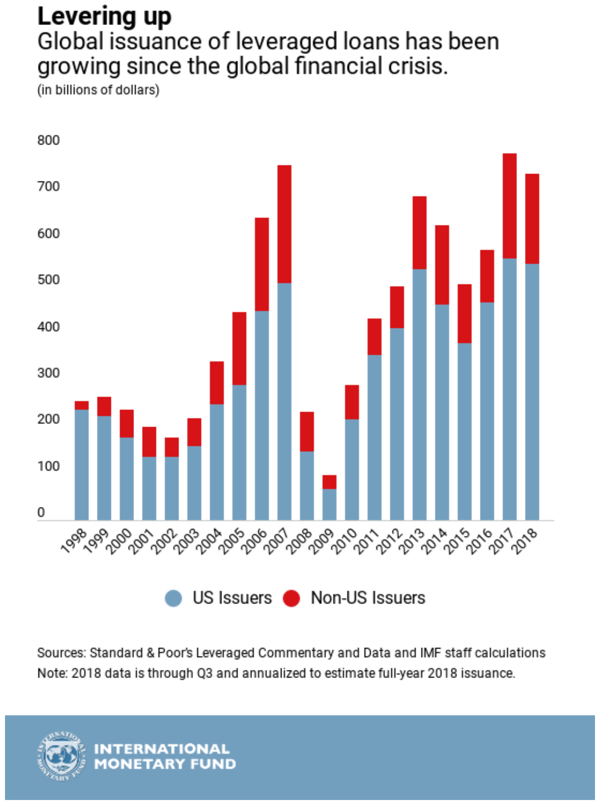
Global phenomenon

Banking has slowed down since crisis (substitution effect)



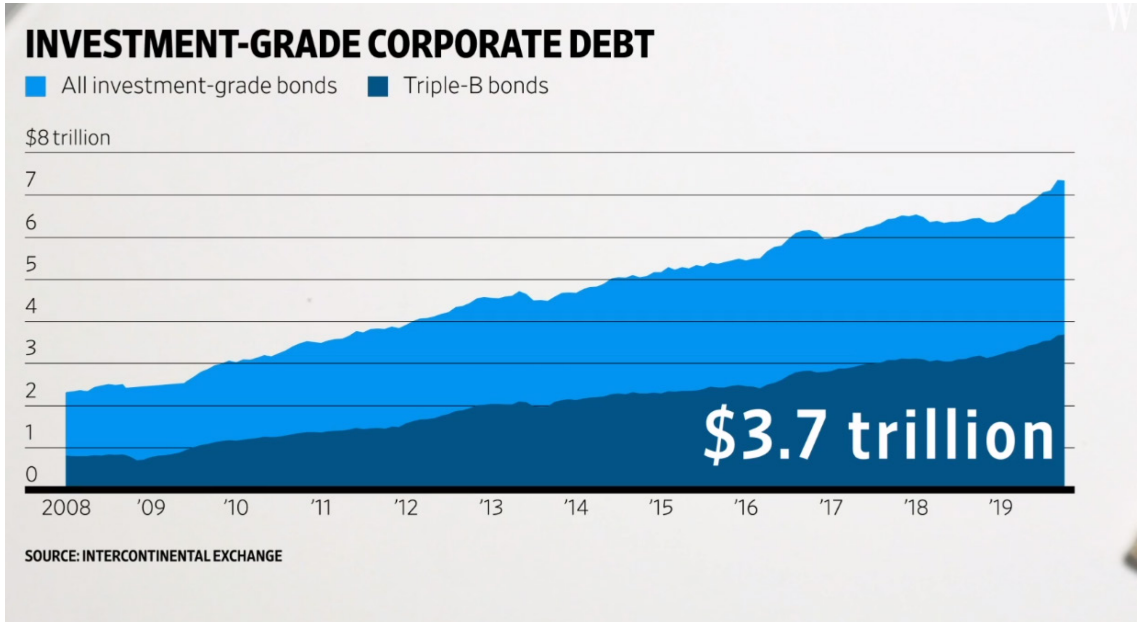
Source: McKinsey

Including the riskiest type (leveraged loans: where loan amounts far exceed typical earning metrics (Debt > 5xEBIT))



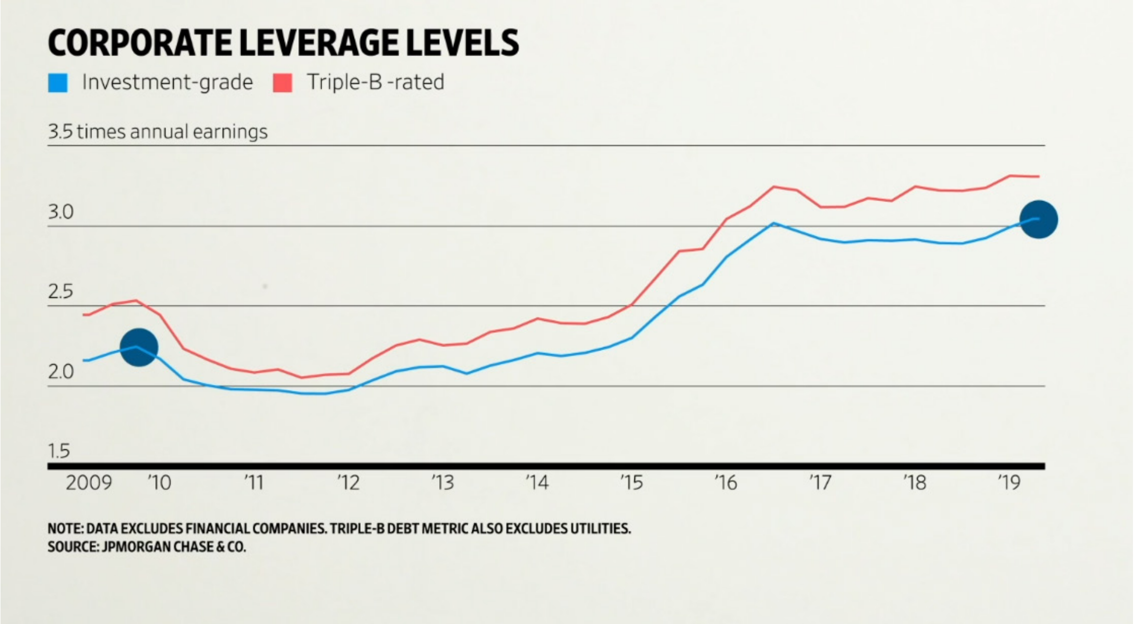
3. High levels of low quality corporate debt…

Huge growth in BBB-rated bonds (just above investment grade)



The credit "quality" of investment grade bonds (including BBB) has gone down:

On average: BBB corporations had leverage at 2.5x earnings 10 years ago, now it is closer to 3.5x earnings



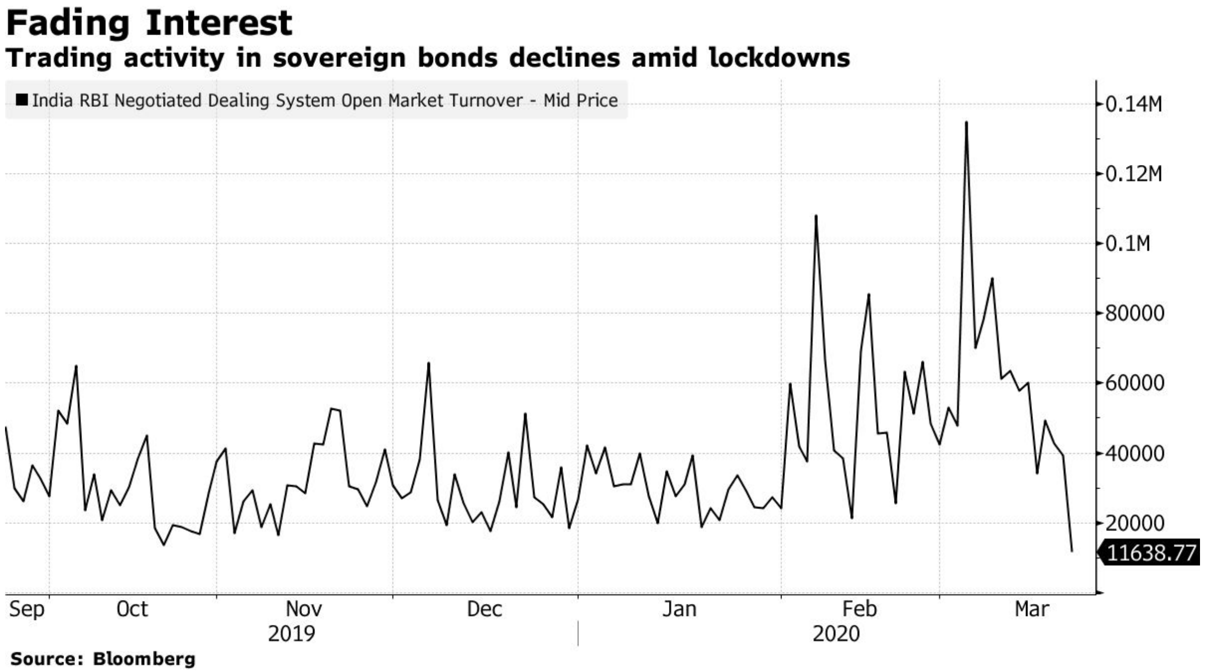
Most of the FEDs actions is targeted to investment grade bonds. Many holders of BBB bonds cannot hold junk bonds. What if we have a wave of downgrades to junk? Could that spark a liquidity crunch?

3. What about "going concern" considerations and SEC filings?

- SEC just gave public firms 45 additional days to file
  - ➢ Important reprieve
    - ➢ Just like a credit downgrade can trigger default, "going concern" and delayed filings can also trigger defaults

3. Credit Market Worries Around the World: The Indian Case

- Credit markets are freezing up
  - Traders at home cannot trade
    - Very little trading volume
  - Little new debt issues
    - Yields are rising
  - ➢ The turmoil comes at a bad time for Indian companies facing a record 1.73 trillion rupees in bonds due next quarter and foreign investors have fled to U.S. dollars (flight to safety)

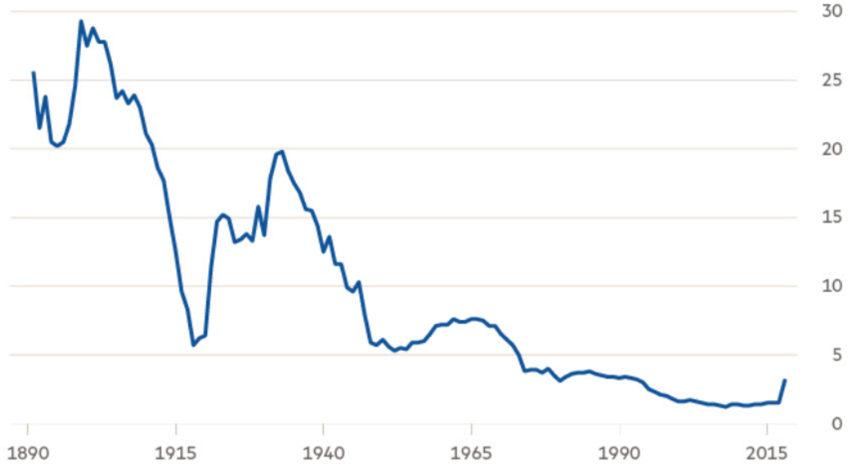


4. Global Trade and Supply Chain: Potential cracks
U.S. Protectionism

- Protectionist tools have been rediscovered. Hard to remove in troubled times:
    1. National Security
    2. Job Creation
    3. Infant Industry

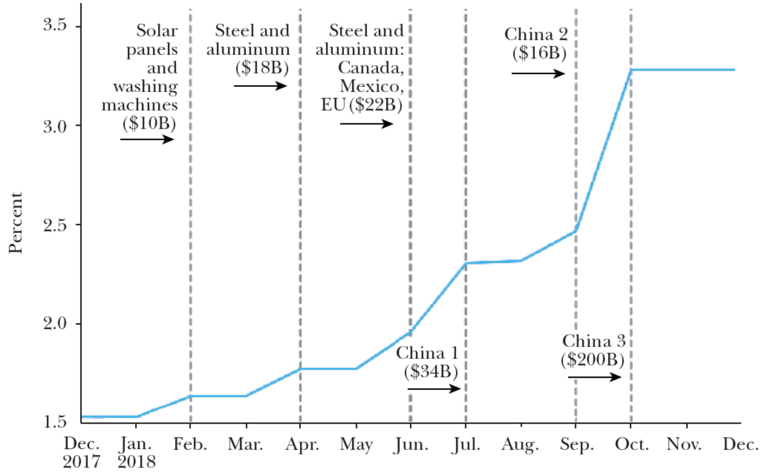
Modest tightening of protection, so far

US effective tariff rate (gross customs duties as share of total imports), %



Source: Goldman Sachs
© FT

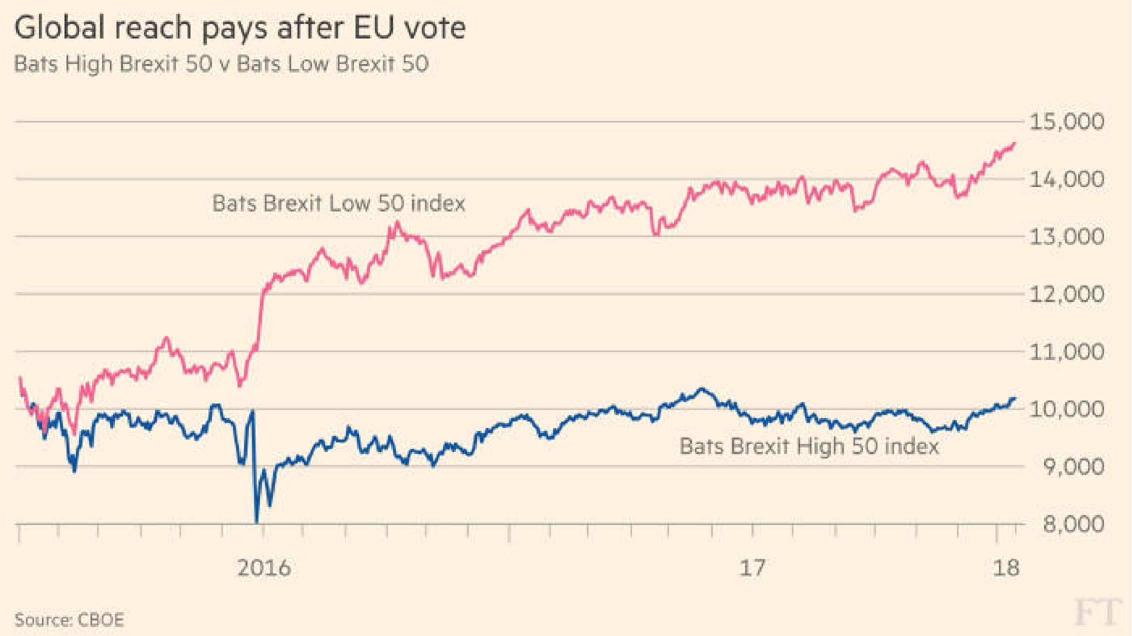
Average Tariff Rates



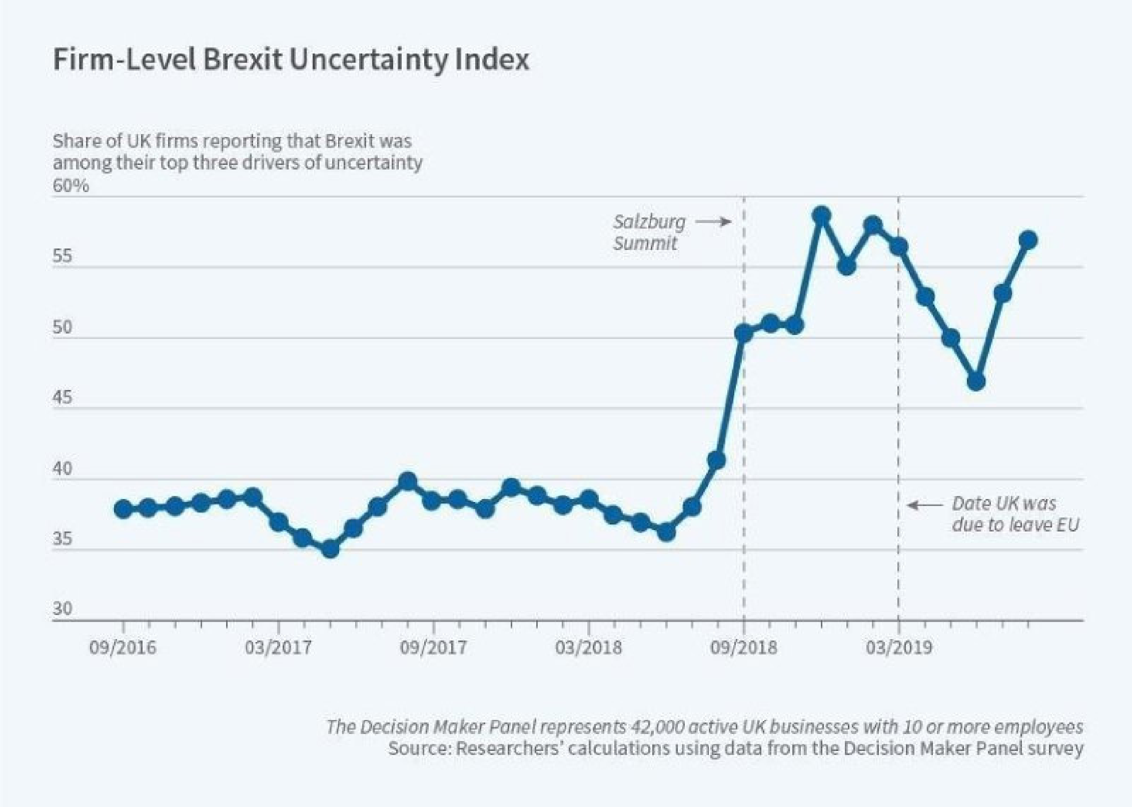
Source: US Census Bureau; US Trade Representative (USTR); US International Trade Commission (USITC); authors' calculations.

4. Global Trade and Supply Chain: Potential cracks
Brexit

Global players more immune, actually benefited from cheap currency…



Brexit: New Research shows how it impacts uncertainty



4. Global Trade and Supply Chain: Potential cracks
New signs of protectionism

- Food hoarding
  - Examples of recent export bans:
    - Kazakhstan (wheat flour)
    - Vietnam (rice)
    - Serbia (sunflower oil)