



ECONOMIC IMPACT OF CORONAVIRUS

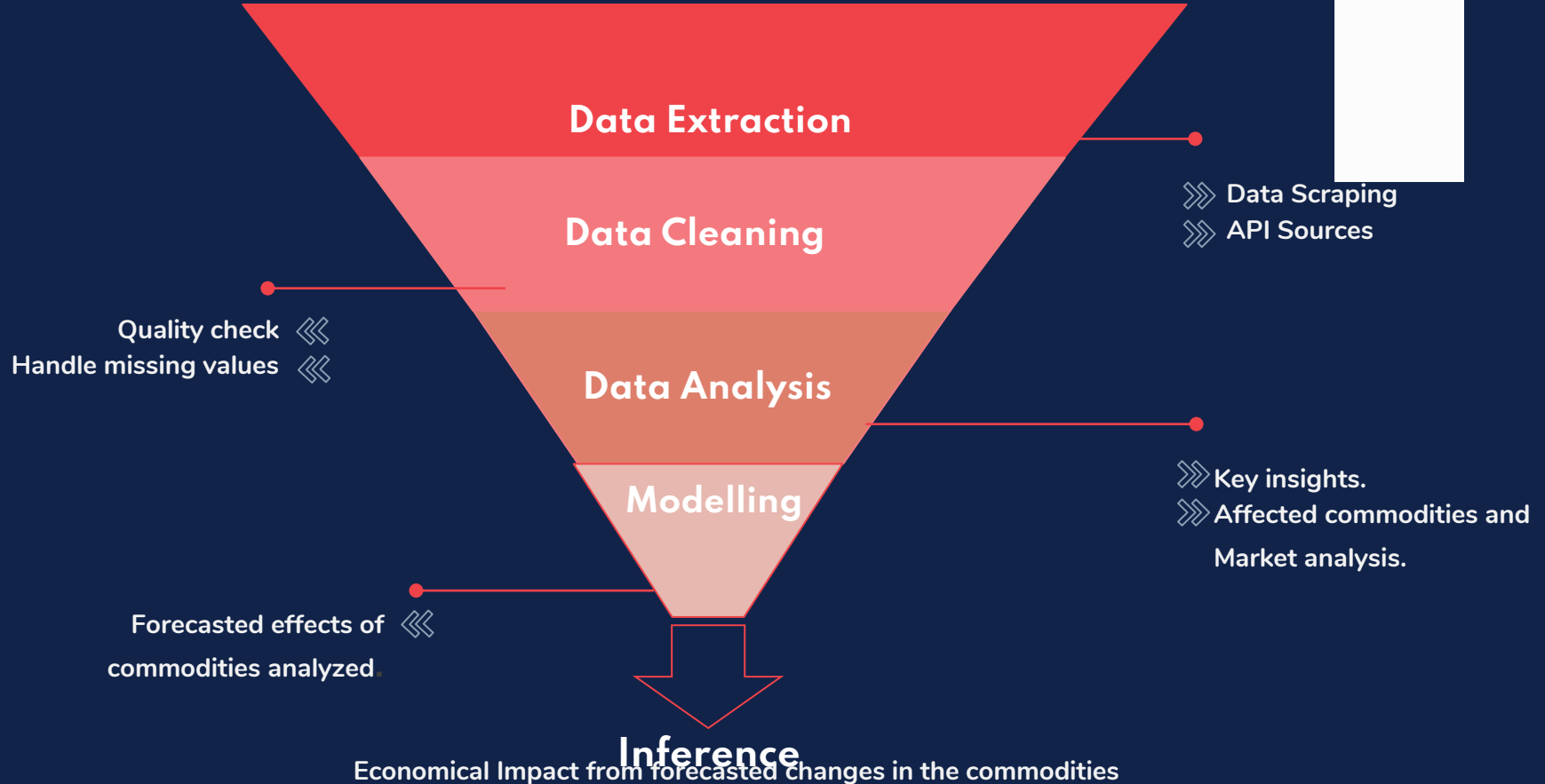
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Zixin Zhou



ABOUT THE TOPIC

The quick spread of the coronavirus, the latest pandemic, is wreaking havoc on financial markets, causing capital flight, currency devaluation and threatening a global economic recession

DATA ENGINEERING STEPS

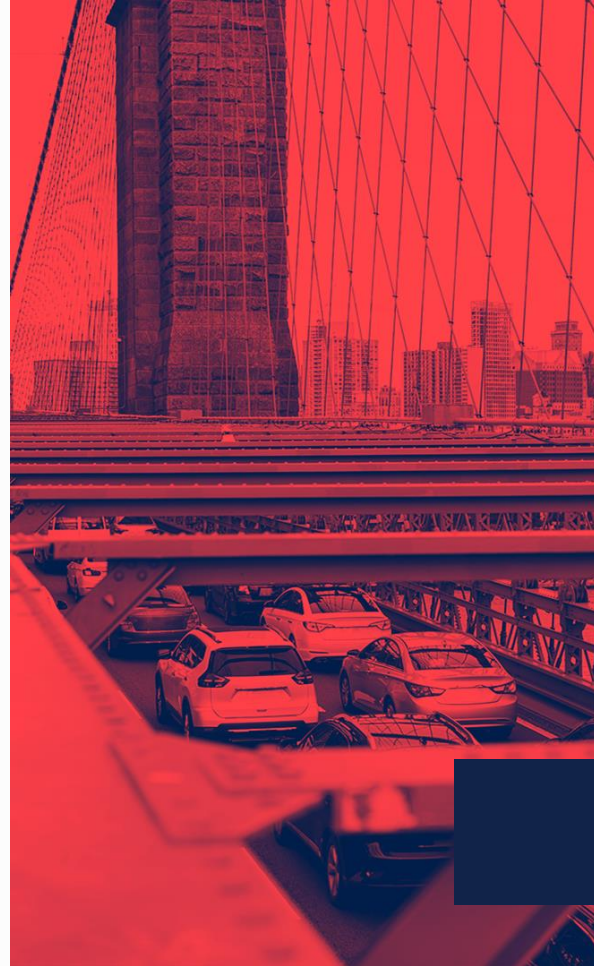


DATA SOURCES

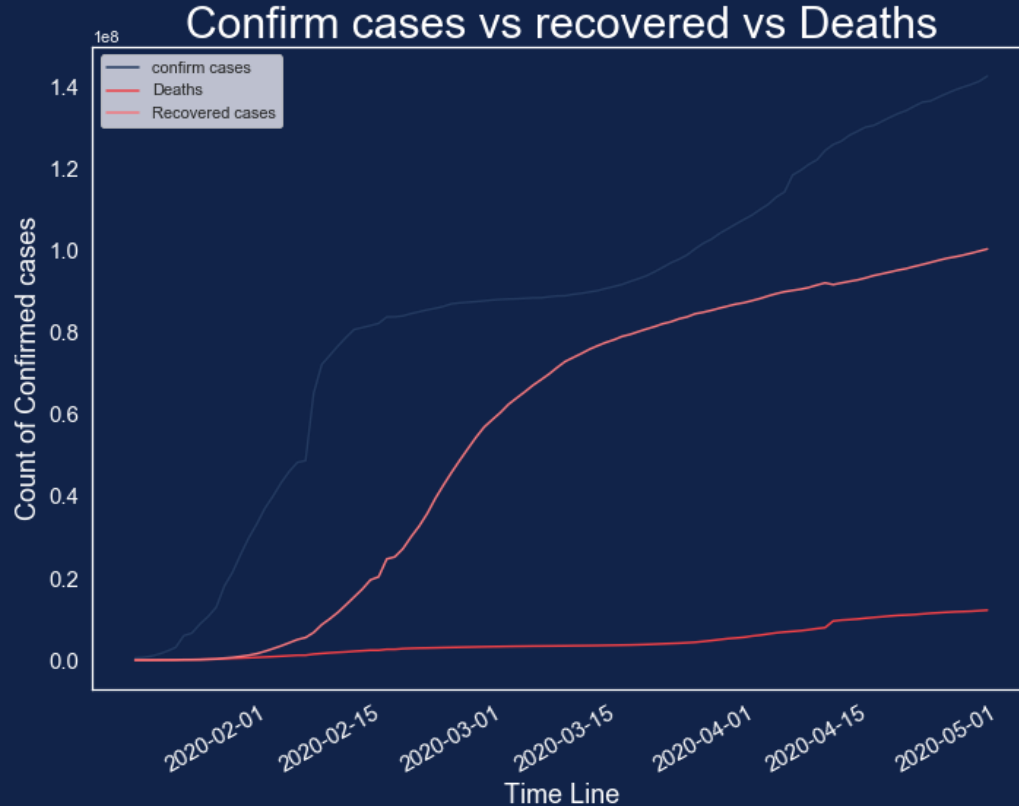


01.

CURRENT STATE OF COVID 19



CURRENT STATE OF COVID 19 VIRUS:



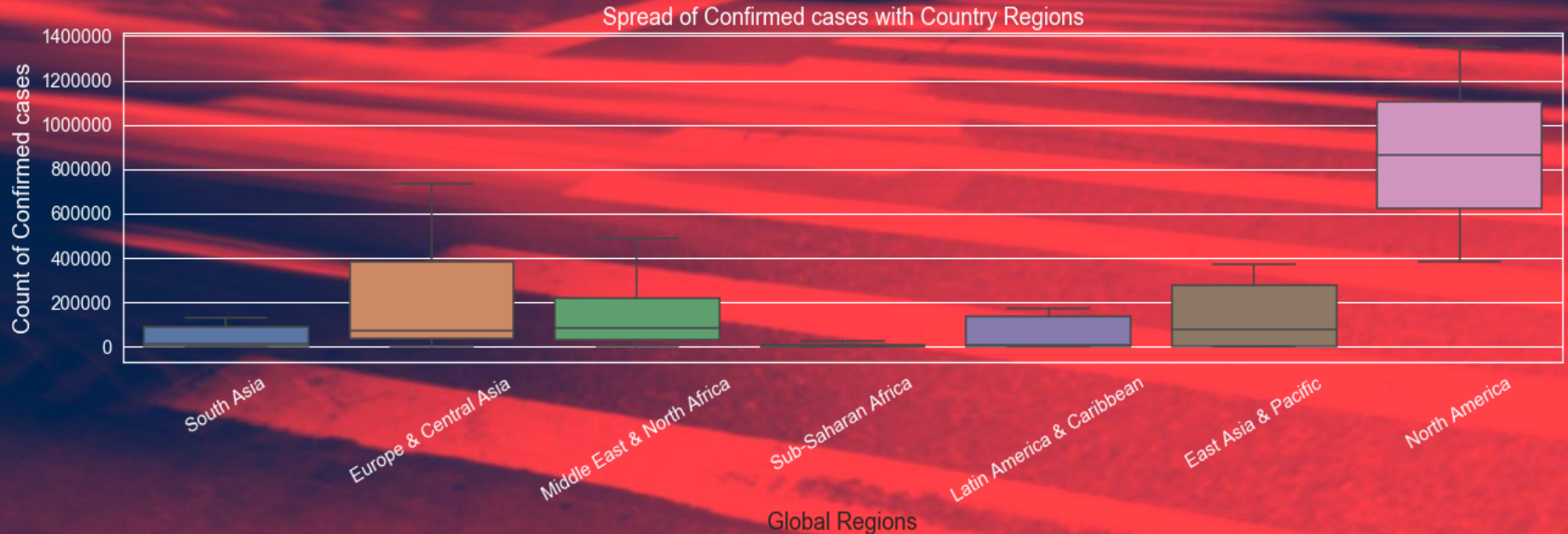
CASES: 3,911,933

DEATHS: 270,357

RECOVERED: 1,340,265

SPREAD OF COVID 19 VIRUS BY GLOBAL REGIONS :

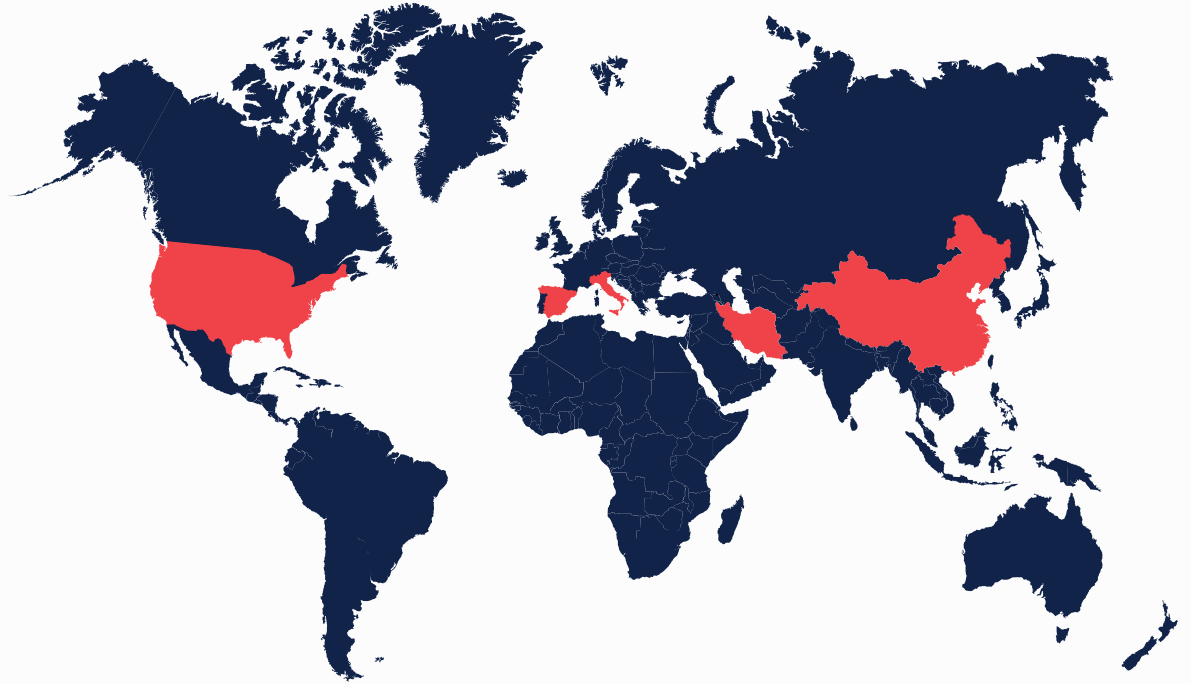
NORTH AMERICA HAS MAXIMUM NUMBER OF COVID CASES - 1.7M, ALMOST 100K DEATHS AND 600K RECOVERED.



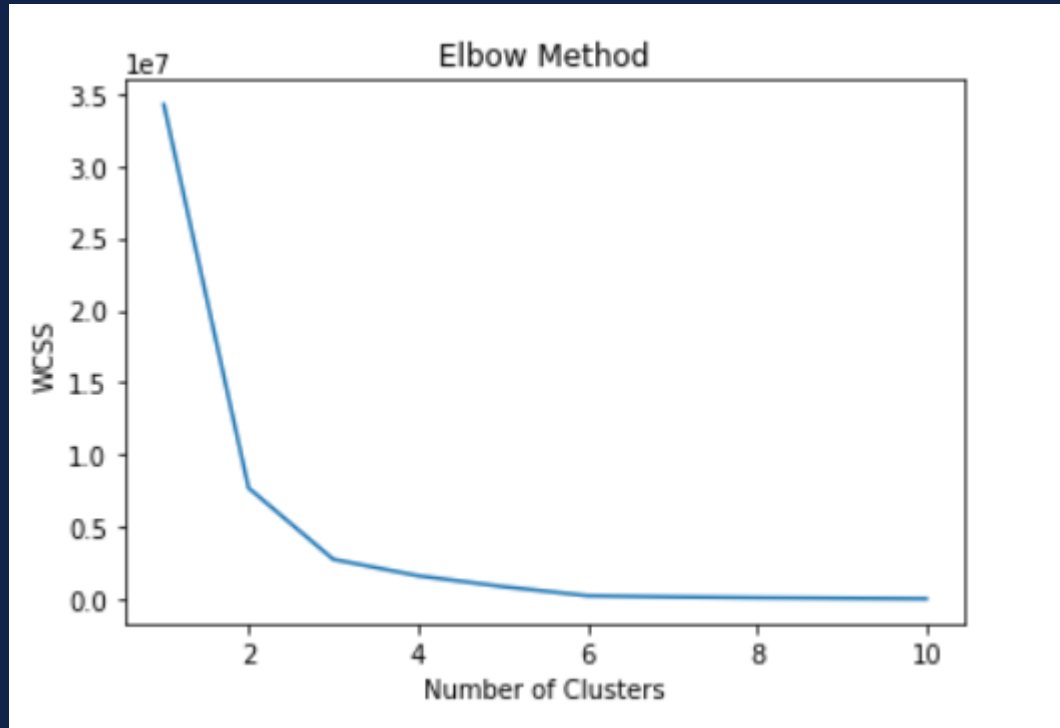
COUNTRIES WITH THE HIGHEST RECESSION CAUSED BY COVID-19

Predictions may vary depending on the spread of the virus

- China
- USA
- Iran
- Italy
- Spain



IMPACT OF VIRUS ON THE COUNTRIES



Implemented Elbow Method to find optimal value of k in KMeans. Implemented on total cases, deaths, tests and bed capacity

COVID-19 RESPONSE CLUSTERS HEAT MAP FOR THE PAST 6 WEEKS

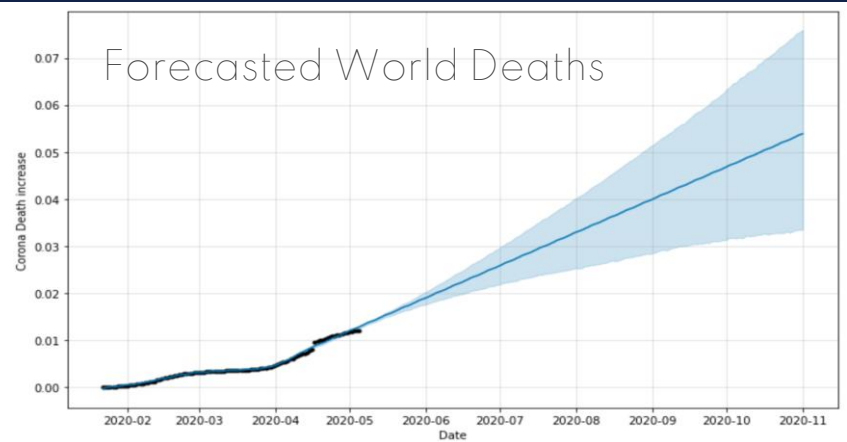
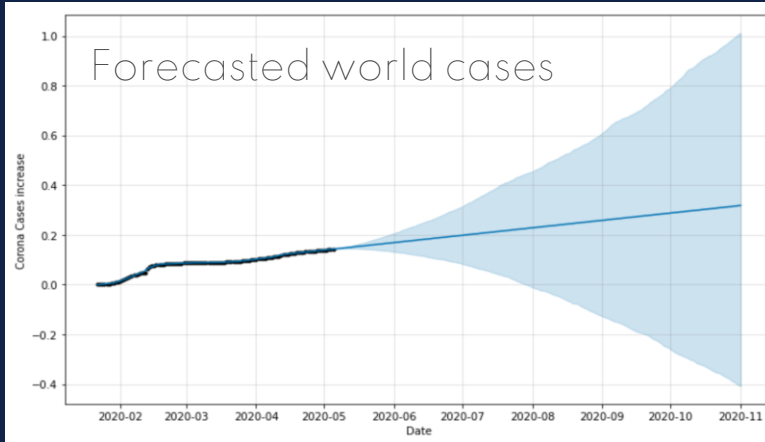
Country	3/22/2020	3/29/2020	4/5/2020	4/12/2020	4/19/2020	4/26/2020	5/3/2020
Australia	3	0	3	2	1	3	1
Austria	0	0	3	2	1	1	2
Belgium	3	3	0	0	0	0	0
Switzerland	3	0	3	2	1	1	2
Germany	3	0	3	2	1	1	2
United Kingdom	3	3	0	0	0	0	0
Israel	3	3	3	2	1	3	1
Italy	0	0	0	0	0	0	0
Japan	1	1	1	1	2	2	3
South Korea	0	0	3	2	3	3	1
Mexico	2	2	3	0	0	0	0
Netherlands	3	0	0	0	0	0	0
Russia	1	1	2	3	3	3	1
Sweden	0	0	0	0	0	0	0
Turkey	3	3	3	2	1	1	2
United States	3	3	3	2	1	1	2

FORECASTING THE TREND OF COVID 19:

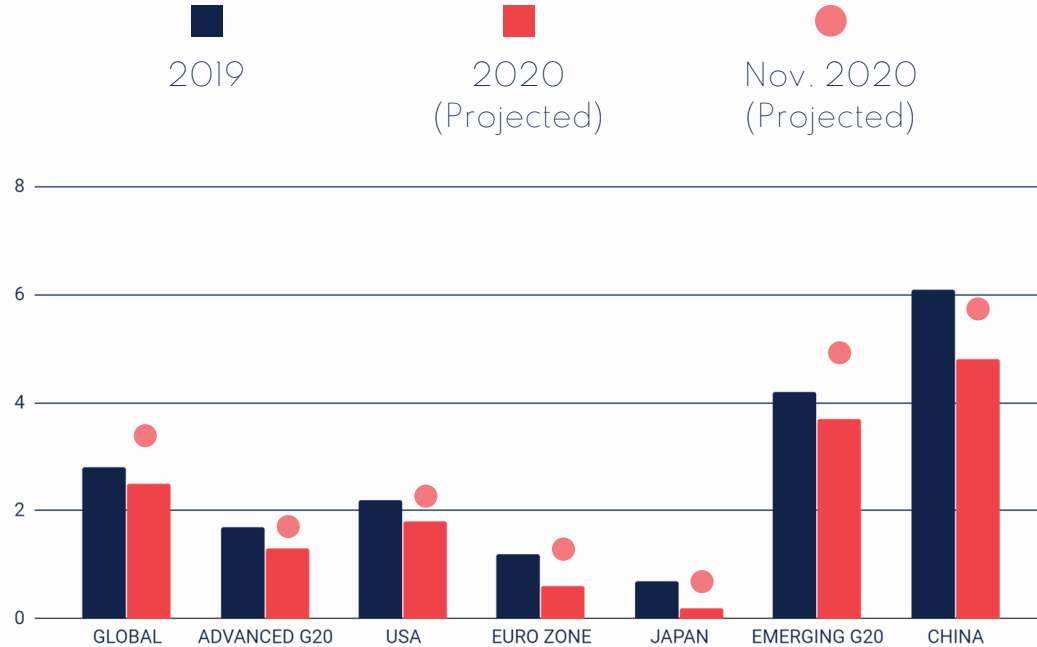
■ Method 1_Simple Linear Regression:

- Predicting the world cases with new confirmed cases:
 - $y_{\text{positive}} = (-60916) + 27 \text{new_cases}$
 - R_{squared} is 70.4%
- Predicting the world deaths with new confirmed cases:
 - $y_{\text{deaths}} = (-6609.67) + 1.87 \text{new_cases}$
 - R_{squared} is 63.16%

■ Method2_Time Series



OECD'S FORECAST OF COVID-19



FACTORS COVERED AHEAD IN PRESENTATION



IMPACT ON STOCK MKT.

Analyzed S&P Index overall and sector wise



IMPACT ON EMPLOYMENT

Unemployment rate arises



GLOBAL EXPENSES

GDP per capita affected



IMPACT ON OIL PRICES

How Oil prices is being impacted

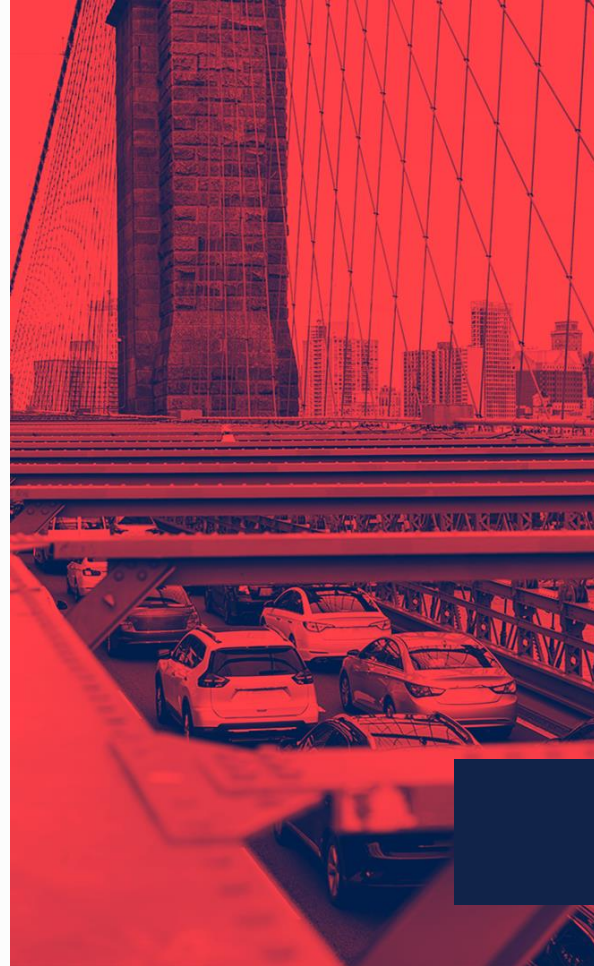


ADDITIONAL FACTS

Here you could describe the topic of the section

02.

THE IMPACT OF COVID ON STOCK MARKETS SINCE THE START OF THE OUTBREAK



WHAT IS S&P INDEX?

S&P is a stock market index that measures the stock performance of 500 large companies listed on stock exchanges in the United States.

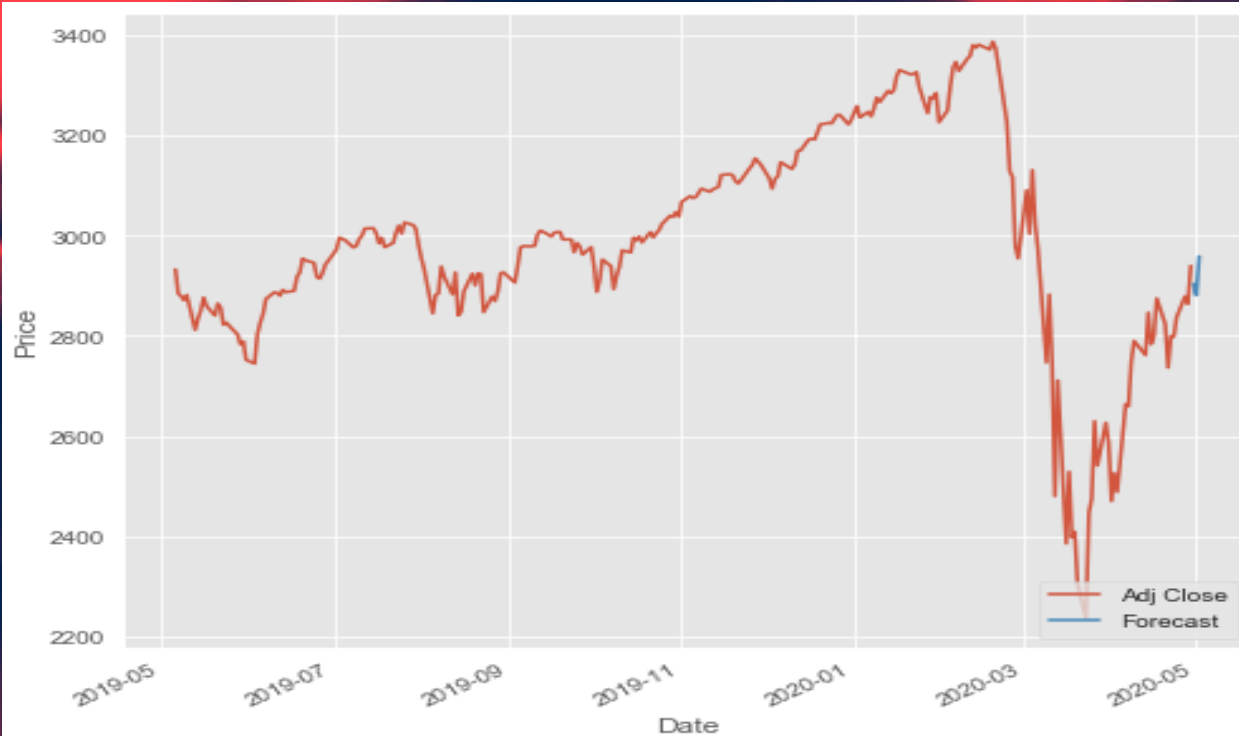
IMPACT OF COVID-19 ON THE STOCK MARKET: S&P500

A HUGE DROP IN STOCK MARKET CAN BE OBSERVED IN THE MONTH OF MARCH. ON THIS DAY S&P DROPPED BY 13% BUT AS THE NUMBER OF CASES DECREASE STOCK IS EXPECTED TO RISE UP.

CALCULATED CLOSING PRICE AND MOVING AVERAGE OF S&P INDEX.
`CLOSE_PX = DF['ADJ CLOSE']`
`MAVG =`
`CLOSE_PX.ROLLING(WINDOW=100).`
`MEAN()`



FORECASTING S&P INDEX

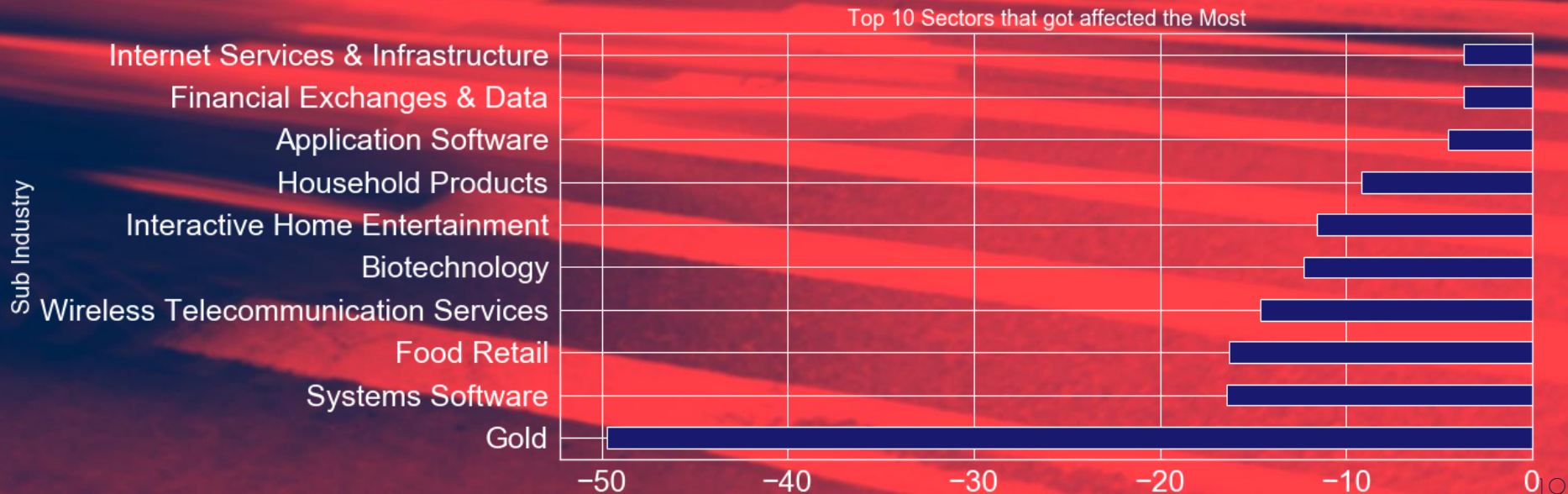


IMPLEMENTED LINEAR
REGRESSION,
KNEIGHBORSREGRESSOR,
RIDGE, PIPELINE.

CALCULATED THE
CONFIDENCE SCORE OF
EACH. BEST PERFORMING
ALGORITHM WA
QUADRATIC REGRESSION
2 (PIPELINE)

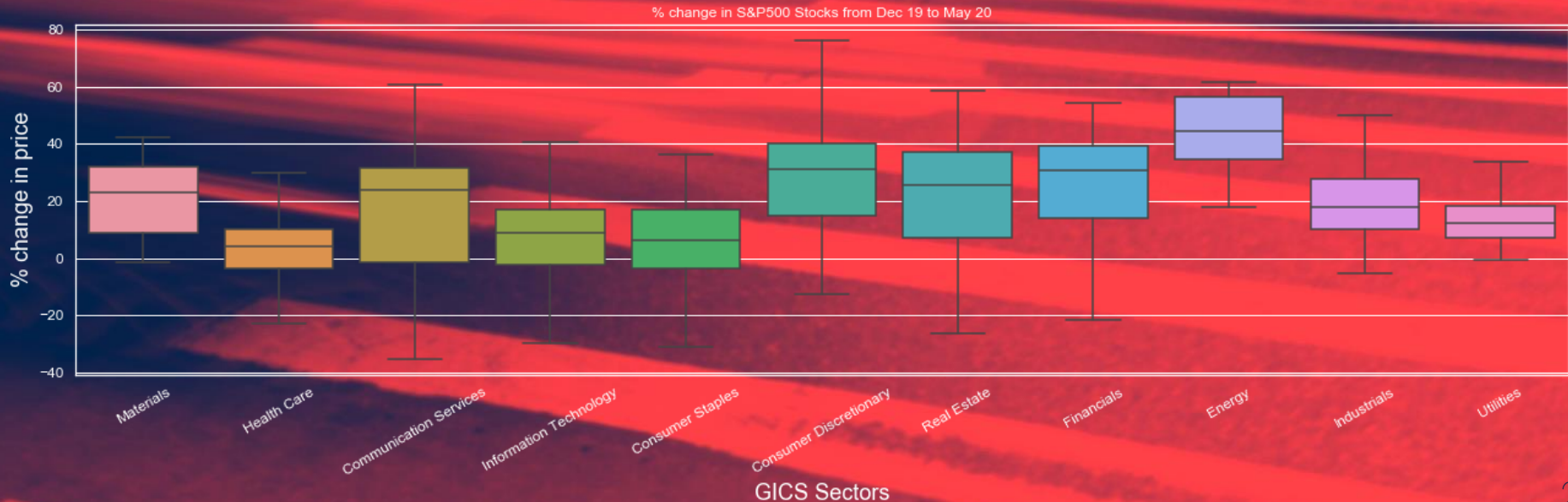
TOP 10 AFFECTED SUB-INDUSTRY

INDUSTRIES LIKE GOLD, SOFTWARE AND RETAIL ARE IMPACTED THE MOST BY COVID



AFFECTED SECTORS

ACCORDING TO GLOBAL INDUSTRY STANDARDS ENERGY AND CONSUMER DISCRETIONARY HAVE MAXIMUM CHANGE IN PRICE DURING THE COVID PERIOD.



IMPACT OF CORONAVIRUS ON THE STOCK MARKET



IBEX 35

Spain's main stock exchange dropped from 10,000 points to just under 7,000 points

DOW JONES

As for the Dow market index, Boeing suffered the highest plunge, losing 18% of its value

NIKKEI 225

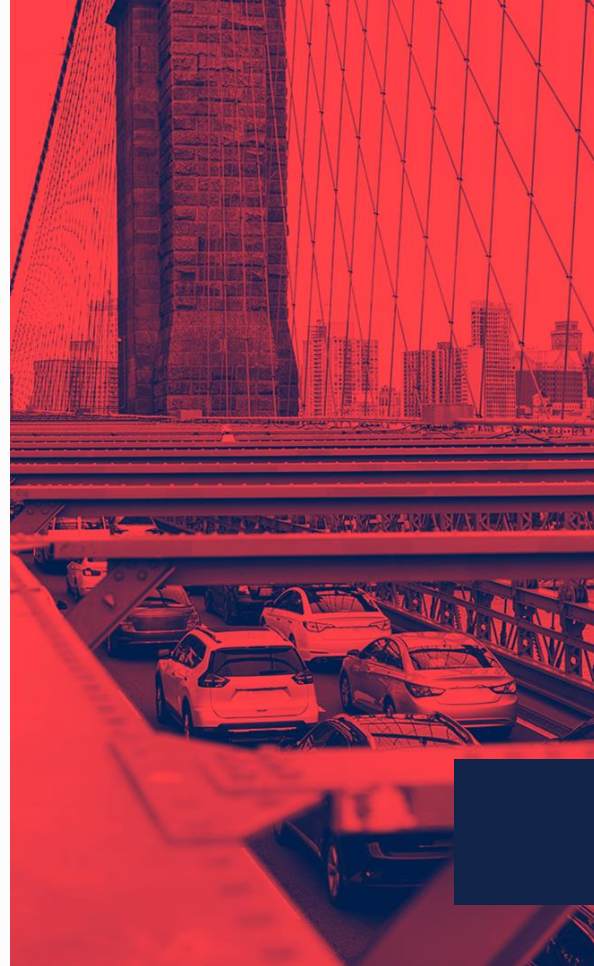
Japan's main stock index saw its lowest mark since its previous iteration in November 2016

IMPACT OF CORONAVIRUS ON THE STOCK MARKET

NAME	POINTS	VAR.(%)	VAR.(€)	PREVIOUS
IBEX 35	6,260.00	-2.84%	-183.30	6,443.30
DAX	8,611.99	-3.57%	-318.36	8,928.95
DOW JONES	19,173.98	-4.55%	-913.21	20,087.19
S&P 500	2,304.92	-4.34%	-104.47	2,398.10
NIKKEI 225	16,887.78	+2.02%	+334.95	16,552.83

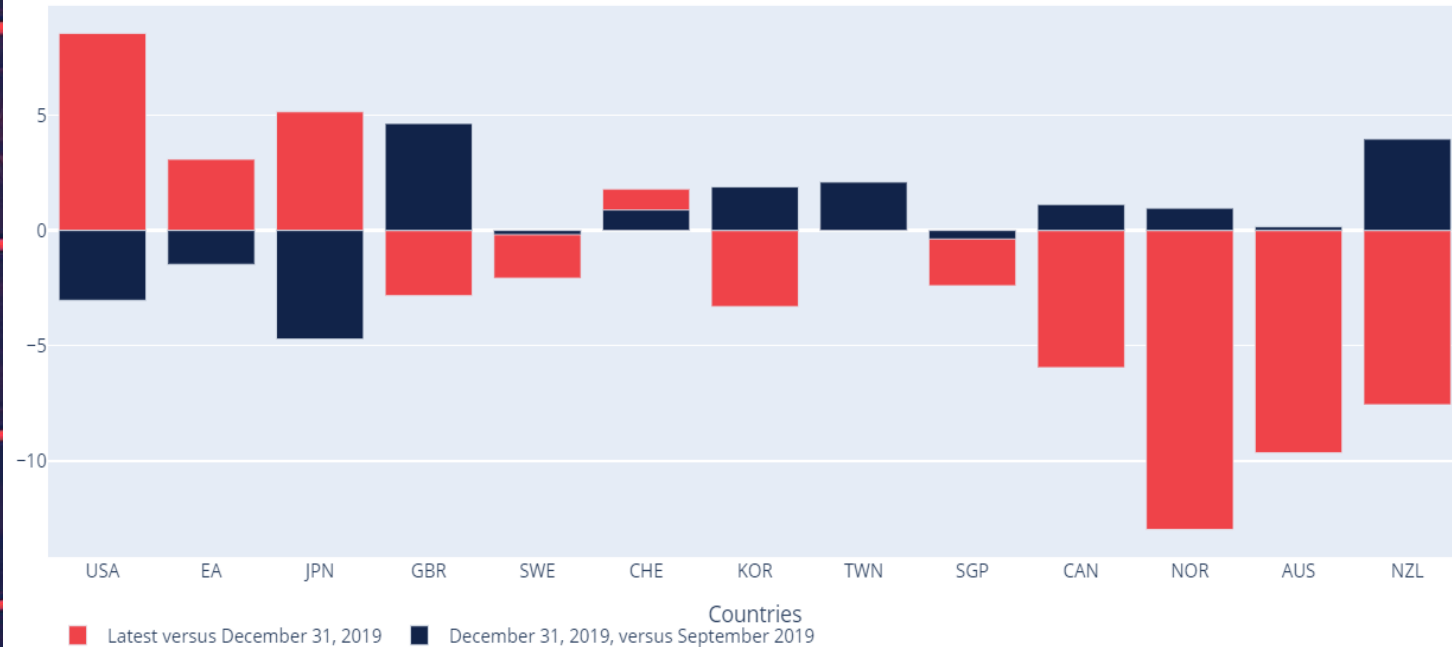
03.

AFFECTED CURRENCY RATES



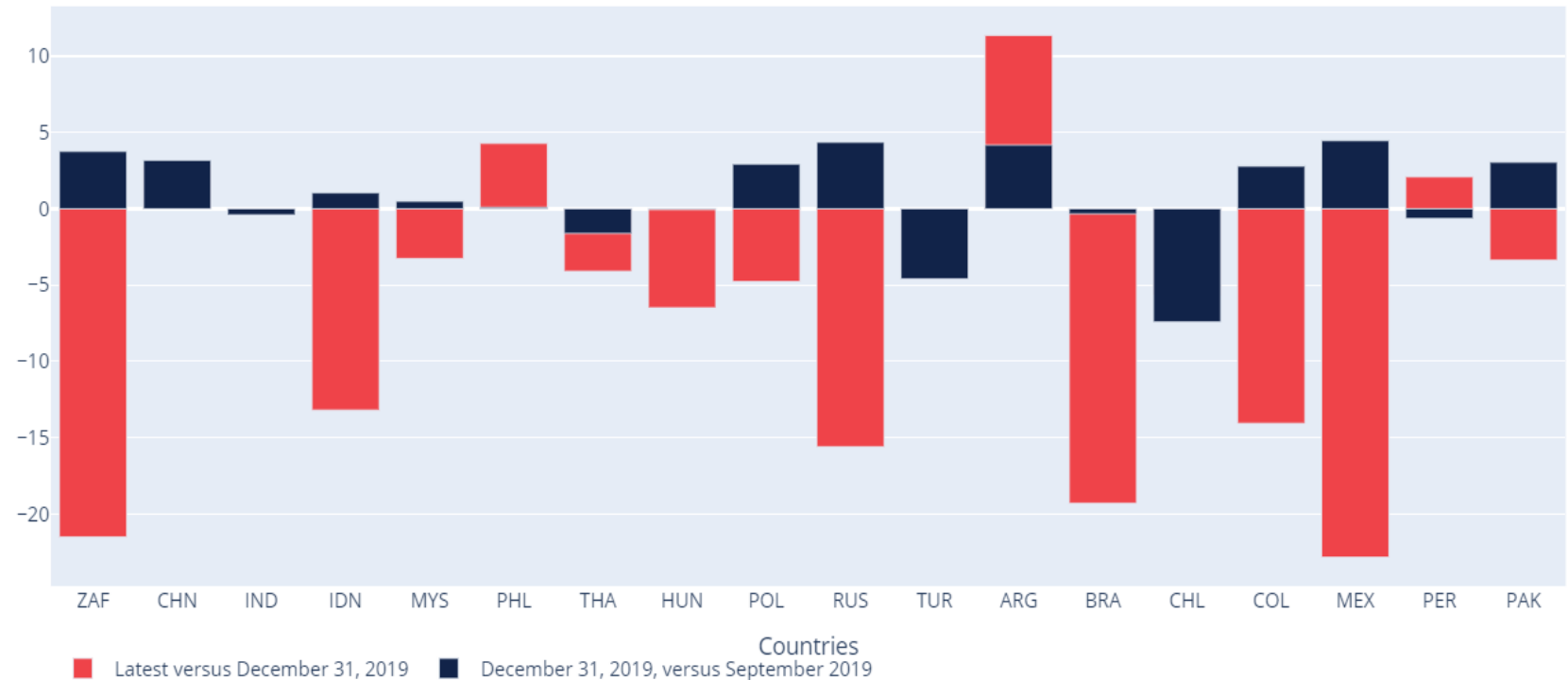
US DOLLAR EMERGING STRONG

Advanced Economies: Real Effective Exchange Rate Changes: September 2019 - April 2020



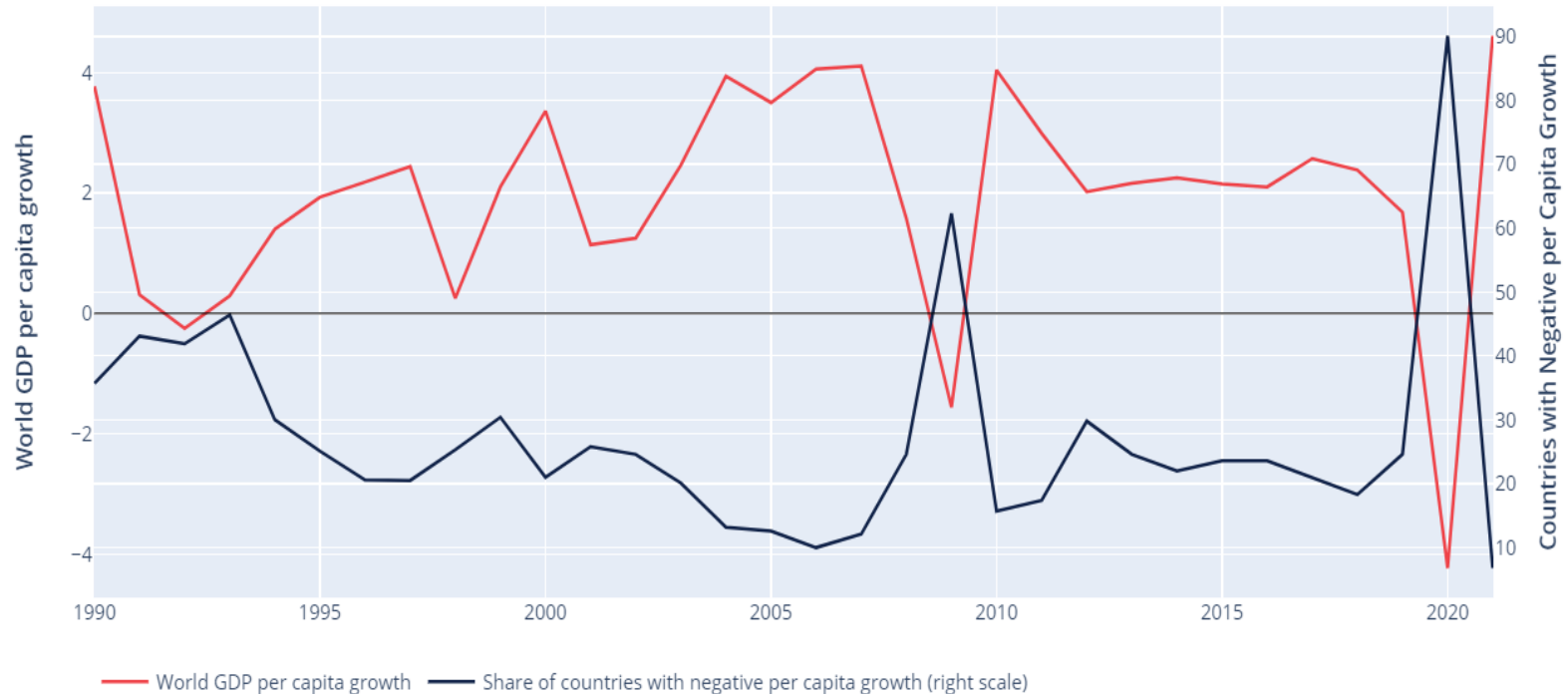
DRASTIC DROP IN EXCHANGE RATE

Emerging Economies: Real Effective Exchange Rate Changes: September 2019 - April 2020



MANY ADVANCED ECONOMIES ARE EXPECTED TO ENTER RECESSION THIS YEAR

World Growth in GDP Per Capita and Recessions



GLOBAL EXPENSES DUE TO CORONAVIRUS

£91 MILLION

Amount of money committed by the UK to combat coronavirus

€23.3 MILLION

Madrid's latest investment in sanitary supplies from China

\$8.3 BILLION

USA's emergency coronavirus spending bill

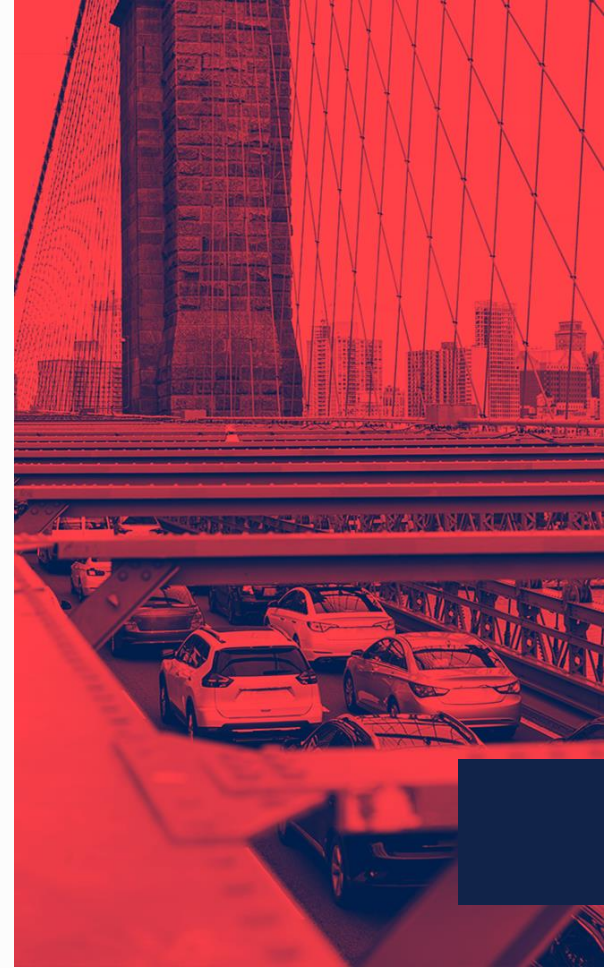
€25 BILLION

Italy's fiscal rescue package due to coronavirus pandemic

04.

AFFECTED CRUDE OIL RATES

Oil prices at 21 year low, US Oil prices turned negative for the first time



WTI CRUDE OIL PRICES DROP CHECKMARKS

\$63.27



JAN 06, 2020

\$58.37



JAN 21, 2020

\$49.61



FEB 04, 2020

\$44.76



FEB 28, 2020

\$31.13



MAR 09, 2020

\$20.55



MAR 18, 2020

COMMODITY PRICES



\$48.6 PER GRAM

With concerns of a global recession,
the price of gold is being affected too

\$26.22

The price of oil has fallen to its
lowest mark since June 2001

-92%

Chinese car sales fell this much
during the first half of February



PROBLEM

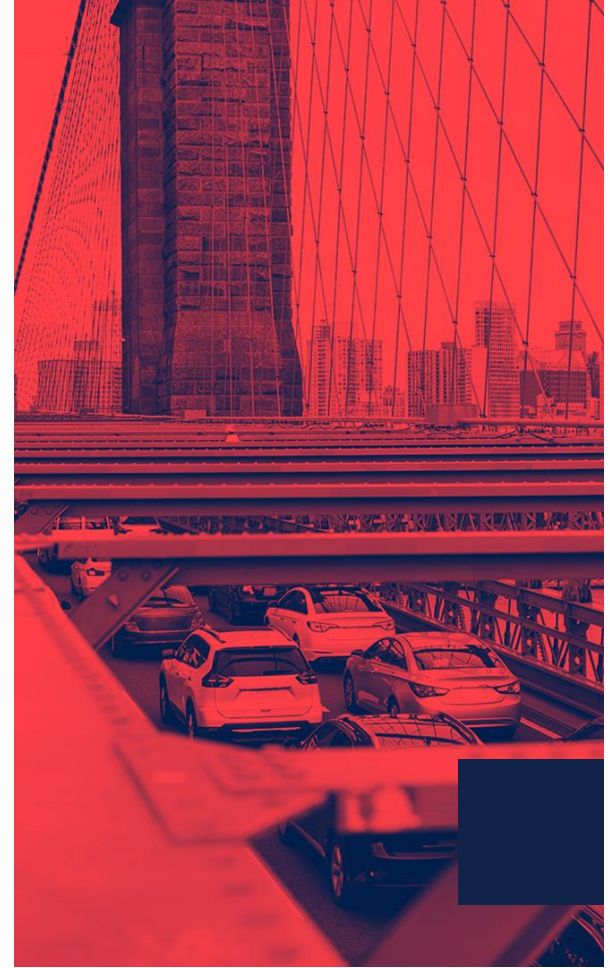
Due to forced home isolation, people spend less money and exports are limited or halted

SOLUTION

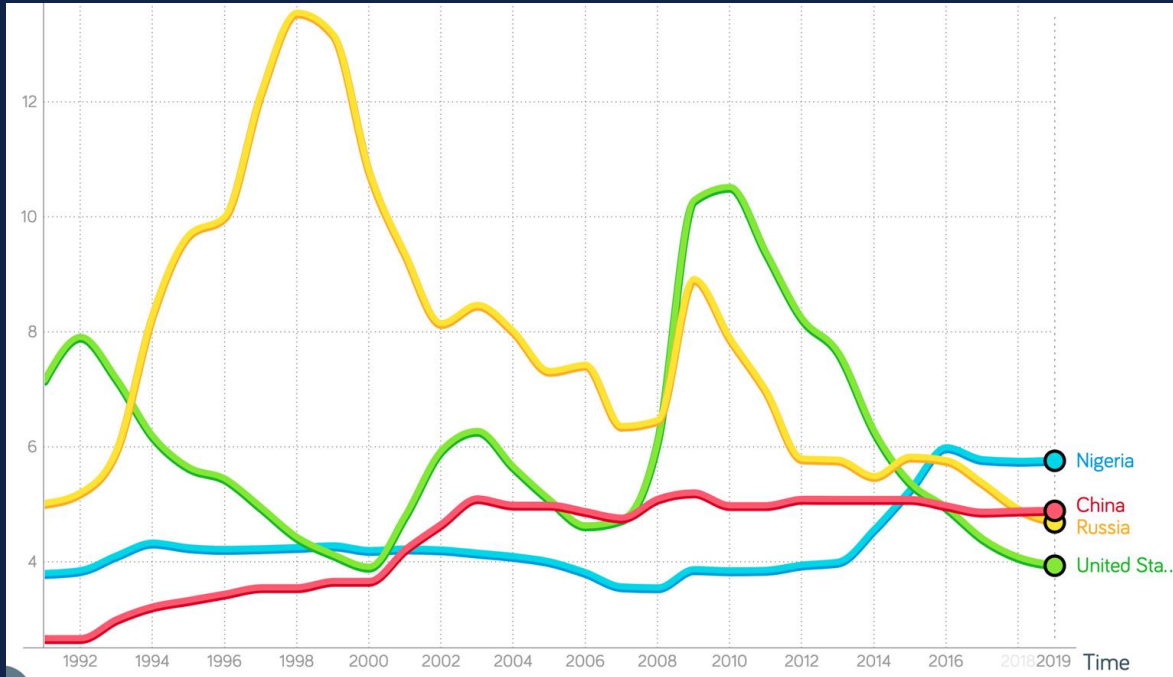
Introducing measures such as fiscal stimuli could help alleviate an economic recession

05. AFFECTED UNEMPLOYMENT RATES

Unemployment rates flies as confirmed cases increases



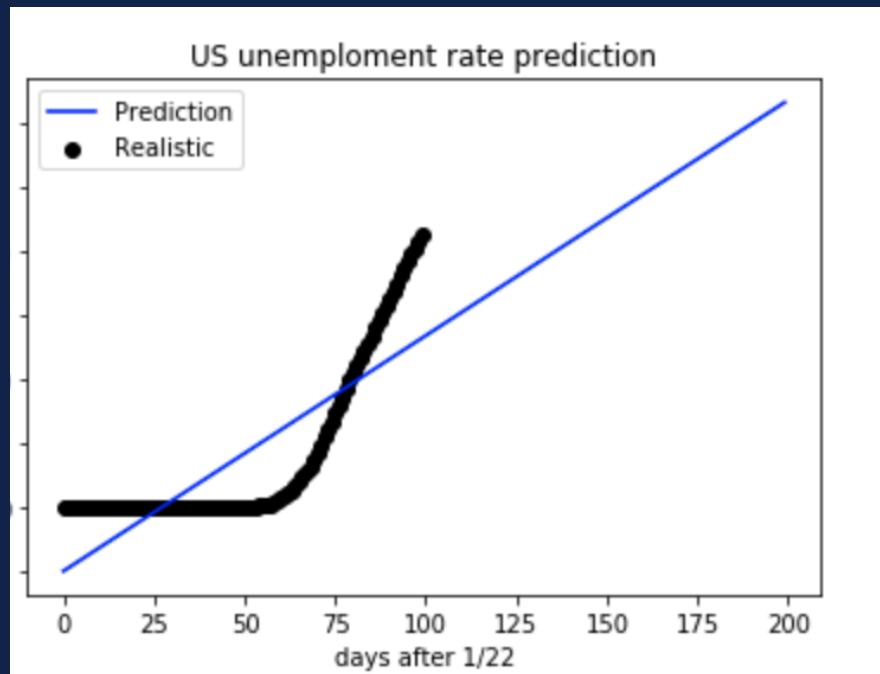
UNEMPLOYMENT RATES BEFORE COVID-19



Unemployment rate reaches a stable point for many countries. In US, the unemployment rate decrease significantly since 2008.

More than 30M people have filed for unemployment benefits in last 6 months

UNEMPLOYMENT RATES PREDICTION



The unemployment rate increased significantly as confirmed cases rises in actual (especially since 50 days after 1/22).

In our prediction (using linear regression), the unemployment rate will keep rising.

HOW UNEMPLOYMENT RATE IN US CHANGES

3.5%



JAN, 2020

3.5%



FEB, 2020

4.4%



MAR, 2020

6.1%



APR, 2020

7.8%



MAY, 2020

10.9%



JUN, 2020



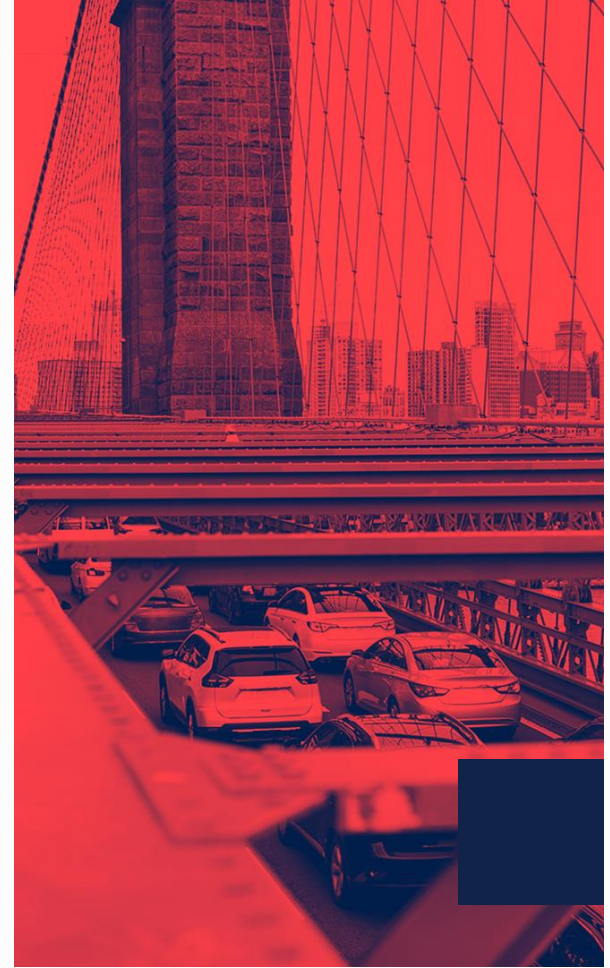
PROBLEM

Affected by COVID-19, Many business (restaurants, merchants, and etc.) are forced to shut down and thus caused a huge increase in unemployment rate.

SOLUTION

Shift the business models to online for enterprises and merchants. Tutoring, giving lessons online via video.

06. OTHER AFFECTED GENERAL COMMODITIES



FLIGHTS FROM USA TO OTHER REGIONS





\$11.3B

Estimated loss of income for airlines this year

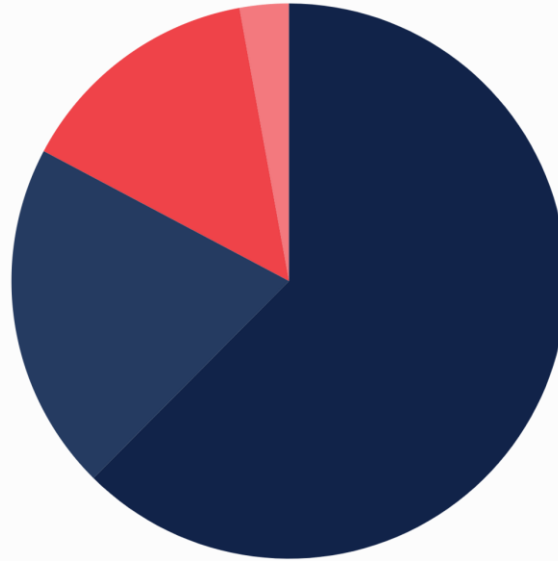
FLIGHTS FROM USA TO OTHER REGIONS

-14.5%

The Americas

-22.6%

Africa/Middle East



-98.1%

Asia-Pacific

-31.9%

Europe

IMPACT OF COVID-19 ON THE TECH INDUSTRY

-160%

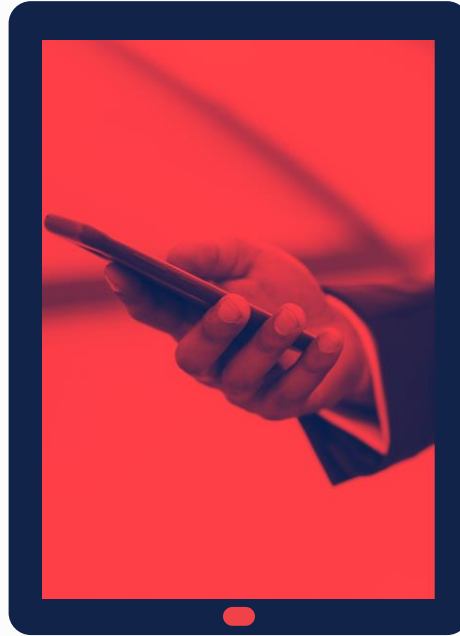
Smartwatches

-104%

Smartphones

-121%

Smart speakers



-123%

Computers

-101%

Consoles

-45%

TV sets



**WE ARE VERY CLOSE TO A NEW
GLOBAL DEPRESSION**



THANKS!