



The impact of the covid-19 pandemic on the USA and Chinese economies

By

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Abstract

This thesis investigates the deep economic impact of the novel coronavirus or Covid-19 as popularized by the media on the two leading economies in the world: United States of America and China. As the financial crisis caused by the virus worsens on a day to day basis in most countries, it is crucial to identify and quantify the repercussions of the pandemic in order to set a proper plan to reboot the economy.

This thesis will show in detail the economic impact of the covid-19 pandemic on the US and China and prove based on the data collected and analyzed that China did indeed gain from the worldwide crisis it has produced.

The sole base of my claim is the non-bias data of the stock market and economic indicators for the first quarter of 2020 of both countries gathered from multiple reliable online sources with the two main ones being Money.cnn.com (US) and tradingeconomics.com (China).

The analysis of the data showed an extreme 14.64% decrease in the average US stock price change whilst China has undergone an increase, although little, of 0.591% which supports our claim. The economic indicators have also fluctuated in a way that proves a dangerous blow to the US economy unlike China of which they prove a quite mild economic impact.

Although some countries have went through some epidemics in the 21st century like SARS and EBOLA, a global pandemic is a new challenge for our modern world which we haven't faced as humans since the 1920s. With that being said, such research that shows the impact of a biological virus on economies is necessary, and since mine doesn't describe the full picture of this coronavirus crisis, it is crucial to conduct further research on the matter to update and modify my findings.

CHAPTER I: INTRODUCTION

SARS-CoV-2 or, as popularized by the media, Covid-19 is a type of respiratory disease that belongs to the rich coronavirus family which has been causing problems to humanity for thousands of years; especially after its discovery around 90 years ago back in the 1930s and the discovery of how deadly it can be if it mutates to the right form. Since then, several versions have been known to trigger common colds, but three types have set off outbreaks of deadly illnesses: severe acute respiratory syndrome (Sars), Middle East respiratory syndrome (Mers) and the latest mighty Covid-19.

Due to irresponsible acts of China towards taking measures to contain the virus at its early stages, and a shady way of handling the situation from the World Health Organization, Covid-19 has evolved from what it could have been a regional Chinese virus, to a worldwide pandemic declared by the WHO in the 11th of March 2020 thanks to worldwide travel system that we have..

This declaration have pushed all countries to take extreme containment measures in forms of lockdowns and movement restrictions. It has also shut down all forms of international trade and urged countries to close their borders without a specific deadline. This worldwide lockdown, as we can clearly notice, have a disastrous impact on the world economy that is increasing in gravity as days goes by, and is not seeming to stop any time soon.

This thesis intends to explore the depth of the repercussions of the covid-19 pandemic on the USA and Chinese economies. The results will provide a deeper understanding of the backlash of the pandemic on the economy and maybe provide a solid base to predict, although not precisely, the gravity of the final outcome.

CHAPTER II: REVIEW OF LITERATURE

Since we live in an extremely globalized world, we can firmly consider that the core of the leading economies is the fruits of international trade and services.

International trade is every economic transaction made between two or more countries. The goal is providing a country with the assets and services it lacks in exchange for commodities that are produced in abundance via an international trade system. International trade transactions are facilitated by international means of payments, in which the private banking system and the central banks of the trading nations play important roles. Such transactions, in addition to other economic policies, tend to improve a nation's standard of living.

When an epidemic is declared in a certain region of the world, the safety measures that are taken impact highly the means of production, distribution and delivery of the products and services that the region produces. In some cases, the measures include a full lockdown of the region, meaning the total shutdown of all businesses. In the last two decades, two major epidemics have emerged to the world and damaged various economies along the way: 1) SARS; 2) EBOLA.

2.1) SARS EPIDEMIC

Severe acute respiratory syndrome or SARS has caused the first epidemic of the 21 century. The outbreak started in Guangdong province of southern China as early as 2002. As of May the 5th 2003, SARS has infected more than 6500 people worldwide with a deeper concentration in Asian countries and caused mounting concerns. Multiple Asian economies, including China; Singapore; Hong Kong; Viet Nam and Taipei China have been put under considerable strain. Other economies worldwide have also been affected, although to a lesser extent due to the deep roots of China in worldwide businesses since it is the number one manufacturer and supplier of initial products. (World Health Organization)

Thanks to the development and improved public health measures from the host countries, SARS, although serious, only caused a temporary disturbance to economic growth. Yet temporary doesn't mean a light impact.

With that being said, how did SARS affect the economies of host countries?

Short term wise, SARS mainly affected economic growth by decreasing demand. That is due to several factors that are indubitably related to each other: (ERD policy brief series No.15: ECONOMIC AND RESEARCH DEPARTMENT)

- ◆ Consumer confidence has dramatically declined in a number of economies, resulting in a major decrease in private consumption spending. This reaction is triggered by the great uncertainty and fear generated by SARS amongst consumers. People have chosen to stay at home to reduce the spread of the virus and the probability of infection.
- ◆ Service exports, in particular tourism-related exports, took a hard blow.

- ◆ Overall demand, heightened uncertainties, and increased risks are what control investments. Excess capacity emerged and increased. Furthermore, foreign investment inflow was slowed down and decreased in reaction to the outbreak.

While increasing government spending diminished the impact on the economy, it might not be enough for a far more aggressive virus outbreak since the ability of governments to revive economies facing widespread reductions in private spending is limited.

SARS surely impacted Asian economies through diminishing aggregate demand, but the major setback was due to the decrease in private consumption. Every face-to-face transaction based business shut down, that includes means of public transportation (especially airlines), tourism and every non virtual retail store. Where people avoided restaurants and public leisure shops, incoming and outgoing travelers canceled their trips, which resulted in an extreme decrease in hotel reservations that stagnated at 0% at some point. As visitor arrivals have dropped, hotel occupancy rates have fallen significantly in Hong Kong, China and in Singapore. The reduction of hotel rates has not been able to lure travelers back (Ema Fan 2003). Airlines such as Cathay Pacific have canceled a large number of flights. Tourism accounts for over 9% of GDP in East Asia and about 11% in Southeast Asia. The SARS-induced stress on this industry will be felt by other industries in the two sub regions (Ema Fan 2003). While the East and Southeast Asian sub regions are the foremost affected, the impact of respiratory disease has unfold elsewhere, through the spread of the virus; Reduction in import demand by Asian economies, particularly for tourism-related services; and weakened consumer and capitalist sentiment attributed to enhanced uncertainty.

Although China and Hong Kong were the two most impacted countries, the repercussions of the SARS pandemic were felt worldwide. The table below shows the fluctuation of some leading countries' GDP in 2003:

Table 1: Percentage Change in GDP in 2003 Due to SARS

	Temporary Shock				Persistent Shock over 10 years			
	Total Effects	Demand Shift	Cost Rise	Country Risk	Total Effects	Demand Shift	Cost Rise	Country Risk
United States	-0.07	-0.01	-0.06	0.00	-0.07	-0.01	-0.06	0.00
Japan	-0.07	-0.01	-0.06	0.00	-0.06	-0.01	-0.06	0.01

	Temporary Shock				Persistent Shock over 10 years			
	Total Effects	Demand Shift	Cost Rise	Country Risk	Total Effects	Demand Shift	Cost Rise	Country Risk
Australia	-0.07	0.00	-0.06	0.00	-0.06	0.00	-0.06	0.01
New Zealand	-0.08	0.01	-0.08	0.00	-0.08	0.00	-0.08	0.00
Indonesia	-0.08	0.01	-0.09	0.00	-0.07	0.01	-0.08	0.00
Malaysia	-0.15	0.01	-0.16	0.00	-0.17	0.01	-0.15	-0.02
Philippines	-0.10	0.04	-0.14	0.00	-0.11	0.03	-0.13	-0.02
Singapore	-0.47	-0.02	-0.45	0.00	-0.51	-0.01	-0.44	-0.05
Thailand	-0.15	0.00	-0.15	0.00	-0.15	0.00	-0.15	0.00
China	-1.05	-0.37	-0.34	-0.33	-2.34	-0.53	-0.33	-1.48
India	-0.04	0.00	-0.04	0.00	-0.04	0.00	-0.04	0.00
Taiwan	-0.49	-0.07	-0.41	-0.01	-0.53	-0.07	-0.39	-0.07
Korea	-0.10	-0.02	-0.08	0.00	-0.08	-0.01	-0.08	0.00
Hong Kong	-2.63	-0.06	-2.37	-0.20	-3.21	-0.12	-2.37	-0.71
ROECD	-0.05	0.00	-0.05	0.00	-0.05	0.00	-0.05	0.00

	Temporary Shock				Persistent Shock over 10 years			
	Total Effects	Demand Shift	Cost Rise	Country Risk	Total Effects	Demand Shift	Cost Rise	Country Risk
Non-oil developing countries	-0.05	-0.01	-0.04	0.00	-0.05	0.00	-0.04	0.00
Eastern Europe and Russia	-0.06	-0.01	-0.05	0.00	-0.05	-0.01	-0.05	0.00
OPEC	-0.07	-0.01	-0.05	0.00	-0.09	-0.01	-0.06	-0.02

SOURCE: G-Cubed (Asia Pacific) Model version 50n.

The table shows clearly some interesting differences among the multiple components of the overall shock as well as between the permanent and temporary shock. We notice that the temporary shocks has the most values on china and Hong Kong. Although china is extremely larger than Hong Kong, the loss to Hong Kong of 2.63% of GDP is superior to the 1.05 of GDP loss to China. This vast difference shows the importance of the service sector in Hong Kong, as well as the bigger reliance on trade. The next most impacted area is Taiwan, with a 0.49% of GDP loss in 2003, followed closely by Singapore, with a loss of 0.47 percent of GDP.

When it comes to Hong Kong, the major factor contributing to its loss of 2.63% GDP is the increase in cost in the service sector. On the other hand, in the rest of mainland China it is evenly spread across three factors. The temporary increase in the country risk premium of 200 basis points is estimated to lower GDP by 0.33 percent for China and by 0.20 percent for Hong Kong. fascinatingly, the risk premium shock has an extremely small impact of less than 0.01 percent of GDP on Taiwan and Singapore, which adopt floating exchange rate regimes, even though they are also subject to a substantial rise in the country risk premium by 150 and 100 basis points, respectively. The reason behind that is that the exchange rate depreciation helps Taiwan and Singapore to avoid an increase in real charge per unit and resulting output decline.

From a non-economist eye, the losses when expressed as a percentages of each countries' GDP seem fairly low. Nevertheless, when expressed in an absolute dollar amount, we can deduct from these figures that the worldwide economic loss from SARS was near 40 billion US dollar in

2003. This number is substantially larger than any calculations of the medical costs of treating SARS patients.

Although the economic impact of the SARS outbreak has been tough in the 6 to 12 months after the outbreak, it is undeniable that the unfolding of increased private consumption after the containment of the virus and the initial reboot of the economies has been a positive outcome of the epidemic. Consumers with extra accumulated cash and bonds and an extreme urge for consumption have refreshed the economy in a significant way.

“GENEVA, 5 JULY 2003 - Today, the World Health Organization is removing Taiwan, China, from the list of areas with recent local transmission of severe acute respiratory syndrome (SARS). Taiwan is the last area to be removed from the list. It has been 20 days, or two consecutive 10-day incubation periods, since the last case on June 15. Based on country surveillance reports, the human chains of SARS virus transmission appear to have been broken everywhere in the world.” (World health organization: SARS epidemic). In the 5th of July 2003, the SARS epidemic was finally contained, no more cases were registered since then. With that ended a horrible yet quick chapter of economic shrinkage of China, Hong Kong and other Asian countries.

The lessons that the world have learned from Hong Kong, being the most affected country economically by the SARS outbreak, can be summarized in the following :

- ◆ SARS differed from previous epidemic infectious diseases in its explosive spread, which caught the health and hospital authorities by surprise and ill-prepared.
- ◆ Inadequate epidemiological information about the disease hampered the prompt application of effective control measures. Insufficient communication with the public led to panic and thus weakened public cooperation and support.
- ◆ Because there were no specified infectious disease hospitals, there were difficulties in designating hospitals for the isolation and treatment of SARS patients.
- ◆ The SARS epidemic in Hong Kong not only affected the health of the people but also had social, economic, and humanitarian repercussions. It unveiled deficiencies in the public health arena and in coordination between the Department of Health and the Hospital Authority—reflected in lack of action between 22 February, when the index patient was admitted to Kwong Wah Hospital, and 4 March when the local contact arrived at the Prince of Wales Hospital. In that interval, the alarm could have been raised and front-line staff could have prepared themselves.
- ◆ There was also deficient communication between the Secretary (Ministry) level responsible for health policy and the management level responsible for operation of the hospitals. Management inertia at various levels hampered decision-making and delayed implementation of effective measures.
- ◆ The SARS epidemic also shed light on basic failings of the existing healthcare system in Hong Kong—overcrowded wards; poor ventilation in some hospitals; lack of isolation facilities; inadequate intensive care facilities; staff already working under heavy pressure;

difficulty in isolating and cohosting patients with suspected or possible SARS, particularly at the point of admission and immediately thereafter.

- ◆ The effect of the outbreak on intensive care and nursing personnel was disproportionately high. This worsened the pressures on other branches, particularly during the recovery phase when normal services had to be resumed.
- ◆ Healthcare workers were put at special risk by certain procedures including use of nebulizers, endotracheal suction and intubation, cardiopulmonary resuscitation, nasogastric feeding, and the use of high flow rates of oxygen.⁹ The high risk presented by these procedures has implications for medical practice and organization of hospital care in the future.
- ◆ There is a need to strengthen the exchange of epidemiological information on infectious diseases, especially the emergence of new infections, between the health authorities in Mainland China and Hong Kong. The establishment of a Centre for Disease Control and Prevention in Hong Kong should meet this need.

(SARS: experience at Prince of Whales Hospital, Hong Kong. {Lancet 2003})

2.2) EBOLA

The Ebola virus causes a severe illness in form of high fevers which is often fatal if untreated. First appeared in 1976 in 2 simultaneous outbreaks, one in what is now Nzara, south Sudan and the other in Yambuku (WHO, 2016). The last one that caused the Ebola pandemic appeared in a small village in guinea. The first reported case was an 18 month old boy in December 2013 believed to have been infected by bats. After 5 other similar cases, an official medical alert was issued on January 24th 2014. Continuing spreading to the capital Conakry and other cities, the ministry of health in guinea declared that they have a problem in March 13th 2014, an unknown disease causing fatal fever and diarrhea. Later in march 23d, after confirming the illness as EVD caused by Zaire ebolavirus by Pasteur institute in France, the WHO officially declared an outbreak of EVD. (WHO: EBOLA epidemic)

Ebola virus disease or EVD is a moderately infectious disease. Transmitted only by people in their final stages through body fluids and blood, it was quite easy to be protected from the virus as a citizen. On the other hand, EVD is a highly deadly disease. 11,300 of the 28,000 infected cases died. Case fatality differed from region to region, it ranged from 25% to 90% and averaged at a whopping 50% (WHO, 2016). At that rate, although considered as a mildly contagious disease, it is undeniably one of the worst outbreaks of the modern world. With that being said, how did Ebola impact the economy of host countries?

The three most devastated countries by the Ebola epidemic were Guinea, Liberia, and Sierra Leone with an economic impact of \$600 million, \$300 million, and \$1.9 billion respectively with an estimated total of \$2.8 billion. This includes the shocks in 2014, 2015 and 2016. The shock

has been worsened by the big decline within the world worth of ore and alternative commodities, and specifically for Sierra Leone, corporate governance problems in mining.

The economic and monetary impact has outlasted the epidemiological impact because of severe shocks to investment, production, and consumption throughout the region, plus trade goods worth shocks. The mortality from the pandemic of infected people has been 60%. The mortality per capita has been five per ten thousand, and also the GDP impact per capita has been reduced by a median of \$125 per person within the 3 countries.

The decline within the international value of commodities has affected the 3 EVD countries. Costs of minerals, iron ore, and gold have declined by thirty to sixty percent compared to their peak values in recent years, aggravating the Ebola fever impact. The management of volatility has been difficult for the 3 countries, particularly when it comes to the adverse effects on financial revenue from the commodity value decrease.

Mobile phone surveys conducted throughout the pandemic conveyed a pernicious impact on households and labor markets including extremely higher unemployment, lost incomes, lower schooling, and fewer food consumption, which triggered substantial challenges. In Liberia, there was a 40% decrease in those working since the outbreak (particularly high for women who were working pre-crisis). Around to 10% of Guinean households have withdrawn their children from school, considering Ebola as the main cause behind their action In Sierra Leone, 9,000 wage workers and 170,000 self-employed workers outside of agriculture went jobless, while the recovery process began.

Economic recovery was slow due to a remarkable diminution in GDP during the crisis, and was aggravated by the global shortfall in commodities prices. Real GDP growth for 2015 was 0.3% for Liberia, 0.1% in Guinea, and -21.5% t for Sierra Leone. (IMF estimates)

The overall economic shock of the pandemic has been high, which led to a decline in revenues, an increase in Ebola-related and health spendings, and an exacerbation of financial shortage. The deficits in 2015 were at 8.5% of GDP in Liberia, 9.4 % in Guinea, and 4.8% in Sierra Leone (World Bank 2020).

Substantial and well timed aid inflows have been successful in diminishing the fiscal impact of the pandemic in 2015 amounting to 8.7% in Liberia, 1.3% in Guinea, and 5.4% in Sierra Leone.

Despite the disturbance to logistics networks as a result of the Ebola crisis, inflation was contained in high single digits within the three economies due to monetary management, flexibility in the agricultural sector, and modest international prices for fuel and food.

The Ebola crisis repercussions are best seen in the GDP growth of the 3 host countries, Guinea, LIBERIA, and Sierra Leone during the 2014-2016 time frame.

- Liberia GDP growth: Compared to 8.7% in 2013, Liberia’s GDP growth decline to a dangerous 0.7% in 2014, reflecting the double impact of EVD and the decrease in commodity prices. The economy has been sluggish to reboot itself and recover, with stagnation in the mining and services sectors. Growth was projected at even scarier 0.3% in 2016. The boom in the services sector, in addition to the restart of investments in infrastructure, has helped tremendously in a faster growth in the future years.
- Guinea GDP growth: Real GDP growth slowed to 0.1% in 2015 compared to a forecast of 4% before the Ebola crisis. Services had terribly low growth, where mining shrunk, and only agriculture displayed some resilience. In 2016, growth was projected to accelerate to 4%. Agricultural production continued to grow at the same rapid pace as the previous years. Manufacturing and services benefited from the restart of international and domestic travel and trade and the upgraded electricity supply in Conakry. But there has been some risks to be considered due to uncertain policy in the mining sector, low international mineral prices, and investor disinclination.
- Sierra Leone GDP growth: Thanks to the expansion of iron ore production, Sierra Leone’s GDP growth in 2014 was 4.6%. But the non-iron ore GDP growth in 2014 decrease sharply to 0.8% from 5.3% in 2013 due to the Ebola outbreak. Real GDP was estimated to be contracted by -21.5% in 2015. This is mainly due to the shutdown of iron ore extraction, production and distribution, and a nascent recovery led by agriculture and supported by a partial renewal in services especially construction, including the resumption of investment financed capital projects. There was hope for recovery, but at a very slow rate of 0.1% growth in 2016.
(IMF estimates and World Bank)

The following table shows the key fiscal indicators 2012-2016 (% of GDP):

Table 2: key fiscal indicators of Liberia, Guinea and SIERRA LEONE

	2012	2013	2014	2015	2016
			Prel.	Est.	Proj.
LIBERIA					
Total Revenue	26.4	27.7	22.4	22.5	23.1
Grants	1.7	2.4	10.0	8.7	7.5
Expenditure	31.4	31.7	40.4	39.7	35.7
<i>Fiscal balance</i>	-3.3	-1.6	-8.0	-8.5	-5.1
GUINEA					

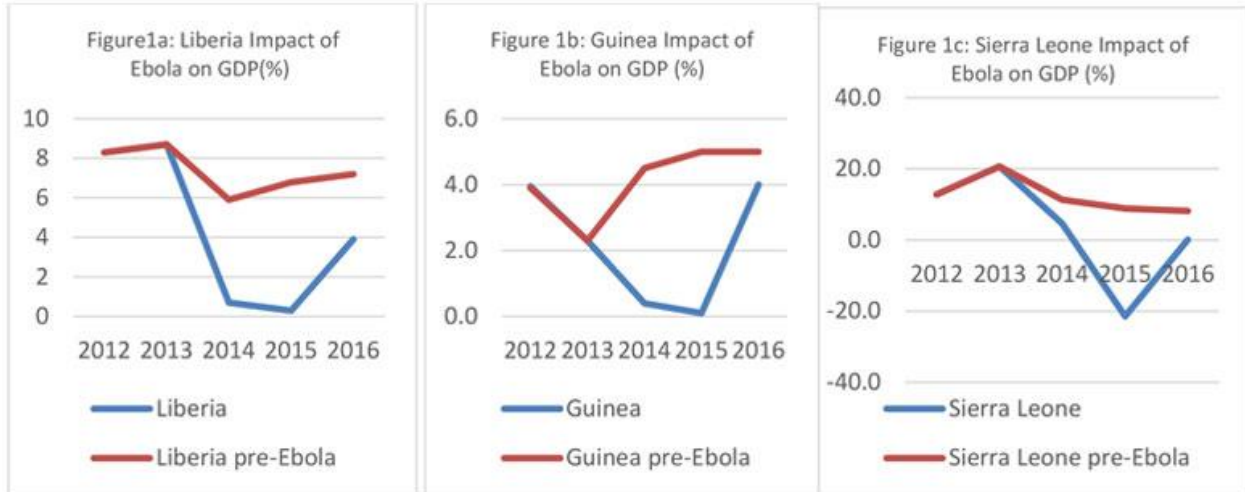
Total Revenue	20.2	18.3	17.9	17.7	20.4
Grants	2.7	1.5	4.0	1.3	4.0
Expenditure	26.1	25.1	26.1	28.3	25.7
<i>Fiscal balance</i>	-3.3	-5.2	-4.2	-9.3	-1.3
SIERRA LEONE					
Total Revenue	12.2	12.7	11.1	9.8	10.4
Grants	4.1	3	4.8	5.4	3.2
Expenditure	21.9	17.6	20.1	20	19
<i>Fiscal balance</i>	-5.6	-1.9	-4.2	-4.8	-5.4

(World Bank)

The Ebola outbreak and the decrease in commodity prices have had a disadvantageous economical effect on the three countries, which have led to falling revenues, enlarged Ebola-related spending and increased deficits. The deficits in 2015 have been estimated at 8.5%, 9.4% and 4.8% of GDP in LIBERIA, guinea and Sierra Leone respectively. Government revenues decreased across the board in all three countries, including VAT tax, direct and indirect taxes, which reflects the overall lower levels of economic activity and lower levels of compliance.

The decrease in both foreign and private investments pushed governments to take immediate action. Contemporary transfers surged, specifically to finance health workers and recurrent spending. Investor's confidence have declined tremendously due to Ebola crisis which has put pressure on scarce budgets in all three affected countries. Financing gaps for all three countries reached over \$600 million over the 2 years.

The following graphs illustrate the fluctuation of the countries' GDP between 2012 and 2016:



(World Bank)

Thanks to large international aid flows, a huge chunk of the impact of the pandemic and lower commodity prices was softened. In Liberia, grants reached close to 19% of GDP for 2014-2015, while a grant of almost 10% in Sierra Leone and 5% in guinea.

In summary, both epidemics (SARS and Ebola) had extreme social and economic repercussions on the countries hosts to the diseases. When it comes to SARS it had decreased the GDP of china and Hong Kong, the most affected countries, by 1.05% and 2.63% respectively. For the Ebola epidemic, it has decreased the GDP of Liberia by 8%, that of Guinea by 3.9% and that of Sierra Leone by 4.5% for non-iron ore GDP.

It is undeniable that disease outbreaks trigger extremely adverse social and economic repercussions that the world can be far better off without. These two examples of epidemics are nothing compared to the new Novel Covid-19, a way more infectious disease that has triggered deep fear in countries around the world and has yet to show the final form of its impact the economies around the world.

CHAPTER III: DATA AND METHODOLOGY

The novel coronavirus, or Covid-19 is the first virus with a combination of high fatality and high infectiousness since the Spanish flu in 1920. Starting in city of Wuhan, Covid-19 first cases are not on record but the Chinese government have declared that they have registered their first cases in December 2019, while other sources speculate that it has been recorded as early as November 2019. The Chinese government, due to their instilled pride and high political communist power, have tried their best to keep the outbreak from the rest of the world and only declared that they have a problem to the WHO when it was too late. As a result of their shady initial containment measures, the coronavirus, which could've been a local Chinese epidemic, have spread to 212 countries, infected 3,597,987 people and took 249,717 lives worldwide and the count is still going. The Chinese data concerning the fatality of the virus, which have been appraised by the China-financed WHO's president Tedros Adhanom Ghebreyesus, have been multiplied by 7 in most impacted countries. From an initial fatality rate of 2% to a whopping 14%. This vast difference between the official Chinese data and the worldwide collected data have led countries to ask and investigate why china's fatality rate is low in order to copy their safety measures and save as much lives as possible; Turns out that the Chinese government have made public false information and covered more than 58% coronavirus cases while fighting the virus in Wuhan alone. This shadiness and misinformation from the Chinese government have led multiple countries including USA and Germany to cut their WHO annual fund and pursue law suits against China which seems nothing but justice.

Now, as horrible as the social repercussions of the novel Coronavirus might seem, the real hard bone to bite is the harsh impact on the economies, especially the leading ones: USA and China. China being accused of global treason and misinformation and the US being the most impacted country by the virus so far with a whopping 1/3 of the global cases and deaths (1,370,460 and 82,461 respectively) as of May the 13th 2020.

3.1) Hypothesis:

Chinese and American news outlets are in a constant dispute about the origin of the virus. China claims that the US army have launched the disease as a biological weapon while the US speculates but based on some classified sources that the virus was a lab mistake in the Wuhan Institute of Virology. Both claims are yet to be proven right, but the motive behind such ideas is the huge economic gain for the country that have intentionally launched the virus. But, as humanity have always did for the last 3 centuries, when conspiracy theories are put on the table, we go back to the most non bias and factual ground: Science.

Multiple Chinese and American virologists have confirmed that Covid-19 is not a fabricated disease since nobody on earth have the technology to mutate coronaviruses or the time to go through a natural selection process with the virus. These scientific facts eliminate the possibility of a US army bioterrorist attack on China. On the other hand, scientists from the WIV have stated that they have been studying a dozen of coronaviruses found in bats since the SARS outbreak in 2003, and that the current coronavirus is one of them. This information is a huge

push to continue investigation on whether this global pandemic, although not intentionally, is in fact China's fault.

No matter what the source of the virus is, it is on paper that china has launched their industries as soon as Wuhan was on the clear on the 8th of April of this year, and with every other country in shutdown to combat the disease and its spread, China has now an incredible market advantage. So the question that pops out, which is the core of the hypothesis, is: Did China gain from the Covid-19 pandemic up to this date?

3.2) Data collection:

This study will draw up to date data from multiple reliable sources in order to decrease the rate of bias information. The data collected will be classified based on regions (USA or china) and on the main market sectors. The two data spectrums that we will analyze in order to specify the impact of the coronavirus on the Chinese and US economies is the stock market and The main economy indicators. The findings of the analysis of the data will lead us to either confirm or exclude our hypothesis.

3.2.1) USA stock values: first 2020 quarter

Table 3: USA stock values in the first quarter of 2020

Stock Sectors	3 Month % Change
Communications	-8.45%
Consumer Durables	-10.89%
Consumer Non-Durables	-11.30%
Commercial Services	-17.53%
Electronic Technology	-15.23%
Energy Minerals	-39.54%
Finance	-22.47%
Health Services	-10.25%
Retail Trade	-0.95%
Technology Services	-9.28%
Transportation	-20.71%
Utilities	-9.13%

All the following data is from Money.cnn.com.

We notice an overall huge decrease in stocks, but we will take to most devastated sectors as detailed examples:

- Energy Minerals: Gas and oil

Energy Minerals **S&P 500**
 3 month change **-39.46%** 3 month change **-13.49%**



Table 4: Gas and oil companies' stocks fluctuations

Company	Market cap	P/E	Price	Change	% Change	YTD change
<u>BROE</u> Baron Energy Inc	\$307.4K	--	0.0041	0.00	0.00%	-25.45%
<u>BATL</u> Battalion Oil Corp	\$76.2M	NM	4.70	-0.0049	-0.10%	-65.06%
<u>BYIN</u> Baying Ecological Holding Group Inc	\$1.1M	--	4.10	0.00	0.00%	0.00%
<u>BYSD</u> Bayside Corp	\$49.1K	--	0.16	0.00	0.00%	-36.00%
<u>BRY</u> Berry Corporation (Bry)	\$253.1M	6.0	3.17	-0.10	-3.20%	-66.33%
<u>BLMC</u> Biloxi Marsh Lands Corp	\$6.0M	--	2.18	-0.06	-2.68%	-33.94%
<u>BDGR</u> Black Dragon Resource Companies Inc	\$1.1M	--	0.0001	0.00	0.00%	-50.00%
<u>BSM</u> Black Stone Minerals LP	\$1.1B	5.5	5.53	-0.19	-3.32%	-56.60%
<u>BNKPF</u> Bnk Petroleum Inc	\$9.3M	--	0.04	+0.0017	+4.44%	-50.06%

<u>BCEI</u> Bonanza Creek Energy Inc	\$345.7M	5.1	16.88	-0.01	-0.06%	-28.45%
<u>BPIGF</u> BPI Energy Holdings Inc	\$29.4K	--	0.0004	0.00	0.00%	-42.86%
<u>BNXR</u> Brinx Resources Ltd	\$206.9K	--	0.0084	0.00	0.00%	-15.15%
<u>BMIN</u> Britannia Mining Inc	\$479.6K	--	0.0016	0.00	0.00%	+6.67%
<u>CRC</u> California Resources Corp	\$108.1M	NM	2.19	-0.10	-4.37%	-75.75%
<u>CPE</u> Callon Petroleum Co	\$330.6M	3.5	0.84	+0.01	+1.55%	-82.76%

- Finance :

Finance **S&P 500**
 3 month change **-22.47%** 3 month change **-13.26%**



Table 5: Leasing companies stocks fluctuations

Company	Market cap	P/E	Price	Change	% Change	YTD change
<u>CAR</u> Avis Budget Group Inc	\$970.8M	3.5	13.96	+0.06	+0.43%	-56.70%
<u>HOPS</u> Between Dandelions Inc	\$1.8M	--	0.2256	+0.0555	+32.60%	-5.98%
<u>PFH</u> Cabco Trust for JC Penney Debentures	--	--	0.9791	-0.0953	-8.87%	-84.41%

<u>CAI</u> CAI International Inc	\$264.0M	6.5	15.08	-0.04	-0.26%	-47.96%
<u>CAIB</u> CAI International Inc	\$39.5M	--	20.20	-0.68	-3.26%	-22.75%
<u>CALA</u> CAI International Inc	\$37.5M	--	21.16	-0.34	-1.58%	-18.85%
<u>C,N</u> Citigroup Capital XIII	\$9.7B	NM	26.88	+0.02	+0.07%	-3.31%
<u>CFSU</u> Complete Financial Solutions Inc	\$121.6K	--	0.002	0.00	0.00%	-64.29%
<u>CCGN</u> Consumer Capital Group Inc	\$43.0M	--	1.58	0.00	0.00%	-41.04%
<u>CPSS</u> Consumer Portfolio Services Inc	\$65.4M	13.2	2.90	-0.07	-2.36%	-13.95%
<u>KTP</u> Corts Trust for JC Penney Debentures	--	--	1.03	-0.06	-5.50%	-83.68%
<u>KTBA</u> Corts Trust for Bellsouth Debentures	\$57.0M	--	28.50	-0.63	-2.16%	-4.14%
<u>CCYPQ</u> Lehman Abs Corp	\$4.7K	--	0.0036	0.00	0.00%	+28.57%
<u>JBK</u> Goldman Sachs Capital I Securities- Backed Series 2004-6 Trust	--	--	29.82	+0.05	+0.17%	+1.08%
<u>PMTS</u> CPI Card Group Inc	\$7.3M	--	0.65	+0.02	+3.17%	-27.78%
<u>CACC</u> Credit Acceptance Corp	\$5.5B	8.8	305.74	+3.08	+1.02%	-30.88%
<u>CRSS</u> Crossroads Systems Inc	\$52.3M	--	8.75	0.00	0.00%	-19.65%
<u>CURO</u> CURO Group Holdings Corp	\$282.6M	3.1	6.93	-0.92	-11.72%	-43.10%
<u>FMCKO</u> Federal Home Loan Mortgage Corp	\$98.0M	--	4.90	-0.30	5.77%	-51.00%

- Transportation: Airlines

Transportation **S&P 500**

3 month change **-20.80%**

3 month change **-13.30%**



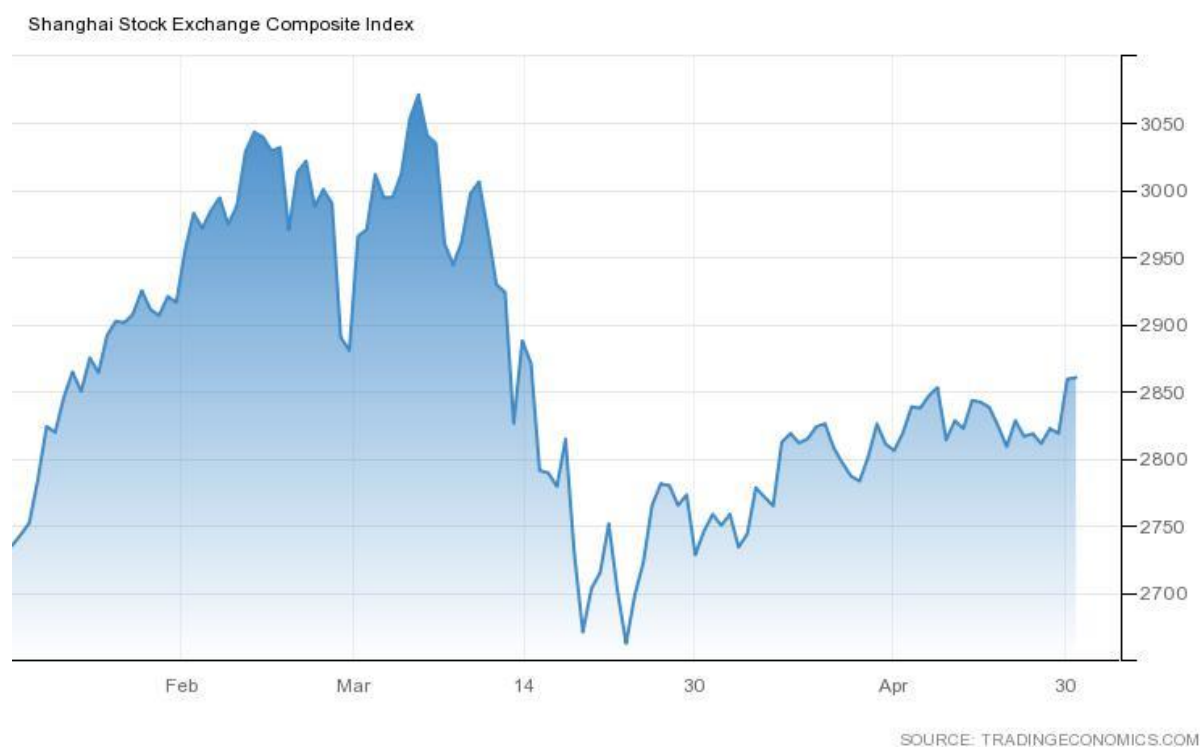
Table 6: Airline companies stocks fluctuations

Company	Market cap	P/E	Price	Change	% Change	YTD change
<u>ATSG</u> Air Transport Services Group Inc	\$1.2B	24.7	19.32	-0.87	-4.31%	-17.73%
<u>ALK</u> Alaska Air Group Inc	\$3.5B	4.5	28.10	-2.00	-6.64%	-58.41%
<u>ALGT</u> Allegiant Travel Co	\$1.1B	4.9	69.56	-4.27	-5.78%	-59.96%
<u>AAL</u> American Airlines	\$4.0B	2.5	9.52	-1.11	-10.48%	-66.67%
<u>CHHCF</u> CHC Group LLC	\$54.4K	--	0.02	0.00	0.00%	0.00%
<u>DAL</u> Delta Air Lines	\$14.0B	4.1	21.94	-2.18	-9.04%	-62.37%
<u>GLUX</u> Great Lakes Aviation Ltd	\$1.2M	--	0.129	+0.049	+61.25%	+84.55%
<u>HA</u> Hawaiian Holdings Inc	\$582.9M	2.7	12.72	-0.24	-1.85%	-56.69%
<u>JBLU</u> JetBlue Airways Corp	\$2.3B	4.4	8.44	-0.57	-6.33%	-54.86%
<u>MESA</u> Mesa Air Group Inc	\$130.2M	3.5	3.93	-0.23	-5.53%	-55.93%
<u>SKYW</u> SkyWest Inc	\$1.3B	3.9	25.78	-1.43	-5.26%	-60.22%
<u>LUV</u> Southwest Airlines	\$13.8B	8.0	27.09	-2.14	-7.32%	-49.74%
<u>SAVE</u> Spirit Airlines Inc	\$854.7M	2.5	12.47	-0.70	-5.32%	-69.06%
<u>UAL</u> United Continental Holdings	\$6.1B	2.1	24.60	-2.02	-7.59%	-71.99%

3.2.2) China stock values: first 2020 quarter

Unfortunately when it comes to china, there's no local Chinese source to extract data from since they use their own online web that's separated from all servers across the world. The best source I could find is tradingeconomics.com of which my data is derived. Unfortunately the data is not as organized as that of the US.

The SHANGHAI decreased 225 points or 7.30% since the beginning of 2020, according to trading on a contract for difference (CFD) that tracks this benchmark index from China.



The following table shows the stock fluctuation in the Chinese sectors and industries as of the 30th of april 2020.

Table 7: Main Chinese stock values as of May 13th 2020

Components		Price		Day	Year	
600518	Kangmei Pharma	2.67	-0.03	-1.11%	-53.40%	May/13
600018	Shanghai International Port	4.09	-0.01	-0.24%	-45.47%	May/13
600733	Cd Qianfeng Electrc	5.50	-0.01	-0.18%	-43.47%	May/13
601857	Petrochina	4.41	-0.02	-0.45%	-38.92%	May/13
601991	Datang Intl	2.11	-0.02	-0.94%	-33.23%	May/13
600011	Huaneng	4.39	0.10	2.33%	-32.87%	May/13
600115	China Eastern Airlin	4.19	-0.03	-0.71%	-30.97%	May/13
600010	Inner Mongolia BaoTou Steel	1.11	-0.01	-0.89%	-30.63%	May/13
601018	Ningbo Port Co	3.38	-0.01	-0.30%	-30.31%	May/13
600029	China Southern Air	5.14	-0.03	-0.58%	-28.71%	May/13
601800	China Communications Construction Co Ltd	8.12	-0.04	-0.49%	-28.27%	May/13
600271	Aisino Co., Ltd.	17.01	-0.13	-0.76%	-27.62%	May/13
601669	Power Con	3.63	0	0%	-27.54%	May/13
600019	Baosteel	4.88	-0.01	-0.20%	-26.84%	May/13
601600	Aluminum Corporation of China	2.80	0.01	0.36%	-26.12%	May/13
600332	Guangzhou Baiy	31.33	0.18	0.58%	-24.80%	May/13
600023	Zhejiang Zheneng	3.50	0.02	0.57%	-23.91%	May/13
600340	China Fortune	22.83	-0.21	-0.91%	-23.85%	May/13
600297	China Grand Auto	3.45	-0.09	-2.54%	-23.67%	May/13
601766	Crrc Corp	6.13	-0.03	-0.49%	-23.66%	May/13
600795	GD Power Development	1.94	-0.02	-1.02%	-23.32%	May/13
600104	SAIC Motor	19.57	-0.22	-1.11%	-22.53%	May/13
601898	China Coal	3.76	-0.02	-0.53%	-22.15%	May/13

Components		Price		Day	Year	
601111	Air China	6.81	-0.04	-0.58%	-21.54%	May/13
600688	Shanghai Petrochemical	3.93	-0.02	-0.51%	-21.24%	May/13
600606	Jinfeng Investment	5.65	0	0%	-19.40%	May/13
601989	China Shipbuilding	4.17	-0.05	-1.18%	-18.87%	May/13
601225	Shaanxi Coal	7.22	-0.19	-2.56%	-18.14%	May/13
600028	Sinopec	4.39	-0.01	-0.23%	-18.10%	May/13
601169	Bank Of Beijing	4.90	-0.01	-0.20%	-17.23%	May/13
601390	China Railway Group	5.64	-0.03	-0.53%	-15.06%	May/13
601006	Daqin Railway	6.96	0	0%	-14.81%	May/13
601328	Bank of Communications	5.12	-0.01	-0.19%	-14.24%	May/13
600015	Hua Xia Bank	6.43	-0.03	-0.46%	-13.92%	May/13
601088	China Shenhua Engy	15.85	-0.12	-0.75%	-13.91%	May/13
600050	China United Network	5.16	-0.04	-0.77%	-13.86%	May/13
601618	Metallurgical	2.62	0.01	0.38%	-13.53%	May/13
601727	Shanghai Electric	4.63	0	0%	-13.13%	May/13
601998	China CITIC Bank	5.12	0.02	0.39%	-12.18%	May/13
601238	Guangzhou Automobile	10.30	-0.14	-1.34%	-12.12%	May/13
600660	Fuyao Glass Indu	20.49	-0.26	-1.25%	-10.95%	May/13
601336	New China Life	45.39	-0.21	-0.46%	-10.76%	May/13
601166	Industrial Bank	16.25	0.01	0.06%	-10.52%	May/13
601601	China Pacific Insu	29.29	-0.19	-0.64%	-10.43%	May/13
601668	China State	5.15	-0.02	-0.39%	-8.53%	May/13
603993	China Molybdenum	3.56	0.02	0.57%	-8.48%	May/13

Components		Price		Day	Year	
601939	China Construction Bank	6.34	-0.01	-0.16%	-8.38%	May/13
601009	Bank Of Nanjing	7.61	-0.05	-0.65%	-8.31%	May/13
600000	Shanghai Pudong	10.30	-0.04	-0.39%	-8.12%	May/13
601398	ICBC	5.12	-0.01	-0.19%	-7.25%	May/13
601318	Ping An Insurance	73.28	-0.65	-0.88%	-6.41%	May/13
601988	Bank Of China	3.46	0.02	0.58%	-5.98%	May/13
601818	China Everbright	3.66	-0.04	-1.08%	-5.67%	May/13
600016	China Minsheng Bank	5.79	0	0%	-5.24%	May/13
601288	Agricultural Bank of China	3.41	0	0%	-4.75%	May/13
600690	Qingdao Haier	15.19	-0.31	-2.00%	-3.80%	May/13
601607	Sh Pharmaceutical	18.19	0.03	0.17%	-3.60%	May/13
601186	China Railway Cons	9.58	-0.11	-1.14%	-3.13%	May/13
600887	Yili Group	29.48	0.35	1.20%	-1.80%	May/13
601688	Huatai Securities	17.95	-0.07	-0.39%	-1.21%	May/13
600009	Shanghai Airport	68.91	1.01	1.49%	0.60%	May/13
600741	Huayu Automotive	21.84	-0.38	-1.71%	1.02%	May/13
600886	Sdic Power	7.59	-0.03	-0.39%	1.20%	May/13
601633	Great Wall Motor Co Ltd	8.66	0.05	0.58%	2.49%	May/13
600837	Haitong Secur	12.68	-0.06	-0.47%	2.92%	May/13
600893	Avic Aviation Engine	24.28	-0.18	-0.74%	3.76%	May/13
600900	China Yangtze Power	17.20	-0.02	-0.12%	4.88%	May/13
601933	Yonghui Superstore	10.10	-0.05	-0.49%	5.21%	May/13
600036	China Merchants Bank	34.54	-0.05	-0.14%	6.08%	May/13

Components		Price		Day	Year	
601628	China Life Insurance	27.56	-0.23	-0.83%	7.11%	May/13
600406	Nari Tech Develop	19.94	0.18	0.91%	8.37%	May/13
600999	China Merchants Securities	17.69	-0.16	-0.90%	10.49%	May/13
600346	Dalian Rubber	13.53	-0.22	-1.60%	12.08%	May/13
600760	Zhonghang Heibao	34.72	-0.03	-0.09%	15.08%	May/13
600309	Wanhua Chemical	46.86	0.33	0.71%	16.60%	May/13
601899	Zijin Mining Group	3.86	-0.02	-0.52%	18.89%	May/13
600030	CITIC Securities	23.74	0.11	0.47%	19.42%	May/13
601888	China International	89.99	-0.45	-0.50%	19.75%	May/13
600048	Poly Real Estate	15.69	-0.05	-0.32%	22.20%	May/13
603288	Foshan Haitian	112.17	-0.30	-0.27%	24.38%	May/13
600196	Sh Fosun Pharma	33.75	-0.34	-1.00%	31.27%	May/13
601012	Xian Longi	31.82	-0.18	-0.56%	35.98%	May/13
600276	Jiangsu Hengrui Me.	94.81	-0.63	-0.66%	50.42%	May/13
600519	Kweichow Moutai	1,335.95	2.95	0.22%	50.69%	May/13
600585	Anhui Conch Cement	61.12	-0.30	-0.49%	60.25%	May/13
600031	Sany Heavy Industry	20.16	-0.40	-1.95%	68.56%	May/13
600588	Yonyou Soft	46.99	0.29	0.62%	99.11%	May/13
600703	Sanan Optoelectron	23.73	-0.44	-1.82%	102.99%	May/13

For a more general look on the Chinese stock market behavior, we will use the following table to enable us to calculate the average percentage change of stocks in all sectors. The table data is derived from tradingview.com.

Table8: Chinese stock %change per sector in the first quarter of 2020

SECTOR 20 matches	MKT CAP	DIV YIELD	CHG %	VOL	INDUSTRIES	STOCKS
Commercial Services	1056.264B	—	0.61%	31.119M	5	90
Communications	434.503B	—	-0.37%	34.145M	3	30
Consumer Durables	2812.456B	—	-0.20%	19.598M	8	196
Consumer Non-Durables	4568.133B	—	1.73%	10.717M	8	163
Consumer Services	919.027B	—	0.17%	9.905M	9	93
Distribution Services	541.433B	—	1.53%	13.893M	4	63
Electronic Technology	7166.529B	—	-0.03%	38.199M	9	467
Energy Minerals	2209.745B	—	-0.05%	37.019M	4	47
Finance	18559.203B	—	0.01%	34.931M	11	259
Health Services	293.007B	—	2.87%	14.367M	3	7
Health Technology	4786.453B	—	1.64%	13.283M	5	290
Industrial Services	2246.728B	—	0.15%	33.224M	5	150
Miscellaneous	13.759B	—	0.64%	20.041M	1	2
Non-Energy Minerals	2435.12B	—	0.06%	22.289M	6	191
Process Industries	4915.617B	—	0.57%	21.929M	8	563
Producer Manufacturing	6779.19B	—	0.12%	21.446M	9	810
Retail Trade	1079.203B	—	1.62%	17.999M	9	94

SECTOR 20 matches	MKT CAP	DIV YIELD	CHG %	VOL	INDUSTRIES	STOCKS
Technology Services	2293.378B	—	0.53%	15.789M	4	173
Transportation	1979.568B	—	0.08%	14.66M	6	116
Utilities	1608.933B	—	0.14%	13.98M	4	101

The stock market fluctuations do enable us to give a pretty solid description of the state of the economy in the US and china, but it certainly can be more in depth and more detailed. For that matter, we will be using the data of the economic indicators for both countries.

3.3.1) USA economic indicators:

Table 9: USA's economic indicators 2020

Overview	Last	Reference	Previous	Range	Frequency
GDP Growth Rate (%)	-4.8	Mar/20	2.1	-10 : 16.7	Quarterly
GDP Annual Growth Rate (%)	0.3	Mar/20	2.3	-3.9 : 13.4	Quarterly
Unemployment Rate (%)	14.7	Apr/20	4.4	2.5 : 14.7	Monthly
Non Farm Payrolls (Thousand)	-20500	Apr/20	-870	-20500 : 1118	Monthly
Inflation Rate (%)	1.5	Mar/20	2.3	-15.8 : 23.7	Monthly
Inflation Rate Mom (%)	-0.4	Mar/20	0.1	-1.8 : 1.8	Monthly
Interest Rate (%)	0.25	Apr/20	0.25	0.25 : 20	Daily
Balance of Trade (USD Million)	-44415	Mar/20	-39810	-67823 : 1946	Monthly
Current Account (USD Million)	-109800	Dec/19	-125400	-215769 : 9957	Quarterly
Current Account to GDP (%)	-2.3	Dec/19	-2.4	-6 : 0.2	Yearly
Government Debt to GDP (%)	107	Dec/19	106	31.8 : 119	Yearly
Government Budget (% of GDP)	-4.6	Dec/19	-3.8	-9.8 : 4.5	Yearly
Business Confidence (points)	41.5	Apr/20	49.1	29.4 : 77.5	Monthly

Manufacturing PMI (points)	36.1	Apr/20	48.5	36.1 : 57.9	Monthly
Non-Manufacturing PMI (points)	41.8	Apr/20	52.5	37.8 : 62	Monthly
Services PMI (points)	26.7	Apr/20	39.8	26.7 : 61	Monthly
Consumer Confidence (points)	71.8	Apr/20	89.1	51.7 : 111	Monthly
Retail Sales MoM (%)	-8.4	Mar/20	-0.4	-8.4 : 6.7	Monthly
Building Permits (Thousand)	1350	Mar/20	1452	513 : 2419	Monthly
Corporate Tax Rate (%)	21	Dec/20	21	1 : 52.8	Yearly
Personal Income Tax Rate (%)	37	Dec/20	37	35 : 39.6	Yearly
Coronavirus Cases (Persons)	1292879	May/20	1263092	1 : 1292879	Daily
Coronavirus Deaths (Persons)	76928	May/20	74799	1 : 76928	Daily
Coronavirus Recovered (Persons)	217251	May/20	213109	2 : 217251	Daily
Hospital Beds (per 1000 people)	2.77	Dec/16	2.8	2.77 : 9.18	Yearly
Hospitals (per one million people)	17.11	Dec/16	17.33	17.11 : 30.65	Yearly
Medical Doctors (per 1000 people)	2.74	Dec/17	2.72	2.27 : 2.74	Yearly
Nurses (per 1000 people)	11.74	Dec/17	11.61	10.1 : 11.74	Yearly

3.3.2) China economic indicators:

Table 10: China's economic indicators 2020

Overview	Last	Reference	Previous	Range	Frequency
GDP Growth Rate (%)	-9.8	Mar/20	1.5	-9.8 : 2.6	Quarterly
GDP Annual Growth Rate (%)	-6.8	Mar/20	6	-6.8 : 15.3	Quarterly
Unemployment Rate (%)	5.9	Mar/20	6.2	3.9 : 6.2	Monthly
Inflation Rate (%)	4.3	Mar/20	5.2	-2.2 : 28.4	Monthly
Inflation Rate Mom (%)	-1.2	Mar/20	0.8	-1.8 : 2.6	Monthly

Overview	Last	Reference	Previous	Range	Frequency
Interest Rate (%)	3.85	May/20	3.85	3.85 : 5.77	Daily
Cash Reserve Ratio (%)	12.5	May/20	12.5	6 : 21.5	Monthly
Balance of Trade (USD HML)	453	Apr/20	199	-320 : 613	Monthly
Current Account (USD HML)	-297	Mar/20	405	-403 : 1331	Quarterly
Current Account to GDP (%)	1	Dec/19	0.4	-3.7 : 10.1	Yearly
Government Debt to GDP (%)	50.5	Dec/18	46.8	20.4 : 50.5	Yearly
Government Budget (% of GDP)	-2.8	Dec/19	-4.2	-4.2 : 0.58	Yearly
Business Confidence (points)	50.8	Apr/20	52	35.7 : 59.2	Monthly
Manufacturing PMI (points)	49.4	Apr/20	50.1	40.3 : 52.3	Monthly
Non-Manufacturing PMI (points)	53.2	Apr/20	52.3	29.6 : 62.2	Monthly
Services PMI (points)	44.4	Apr/20	43	26.5 : 54.7	Monthly
Consumer Confidence (points)	122	Mar/20	119	97 : 127	Monthly
Retail Sales MoM (%)	0.24	Mar/20	-3.64	-13.21 : 1.57	Monthly
Corporate Tax Rate (%)	25	Dec/20	25	25 : 33	Yearly
Personal Income Tax Rate (%)	45	Dec/19	45	45 : 45	Yearly
Coronavirus Cases (Persons)	82886	May/20	82885	41 : 82886	Daily
Coronavirus Deaths (Persons)	4633	May/20	4633	1 : 4633	Daily
Coronavirus Recovered (Persons)	77993	May/20	77957	62890 : 77993	Daily

The data gathered is as detailed and chronologically accurate as it can be, derived from a local source (cnn.money.com) for the US and a non-local source (tradingeconomics.com) for China solely due to their privacy of Chinese online data centers. With that being said, we shall move to the most important step necessary to describe the economic impact of the Covid-19 pandemic on both countries: The data analysis.

CHAPTER IV: FINDINGS

At first glance of the data, any untrained eye would agree that the covid-19 pandemic has had a horrible impact on both US and Chinese economies. The majority of stocks are going down in price, YTDs –Year to date- are negative at incredibly high percentages and economic indicators are looking incompatible with previous years.

Since this research is academic at its core, we shall proceed to give a detailed analysis of the data in order to describe the true economic impact of the coronavirus pandemic on the USA and China.

In our analysis we will be:

- Describing companies stock fluctuations in different sectors and industries in each country.
- Calculating the average stock change rate in each country.
- Describing the economic indicators of each country.
- Comparing the countries.

4.1) USA data analysis:

The United States of America, being the hardest hit country by the corona virus with a whopping 1/3 of the global infected cases, was forced like every other country in the world to shutdown although not completely their industries to fight this pandemic. The effect of this shutdown is visible in their stock market data. Stock prices of multiple companies in various sectors have dropped due to a decrease in customer confidence thus the increase of sale of stocks by shareholders resulting in a stock price decrease. The top 10 most impacted companies include:

In the finance sector:

1. Cabco Trust for JC Penney Debentures stock price has dropped by 0.0953\$ or a decrease of 8.87% in the first quarter of 2020, in addition to a whopping 84.41% decrease in the YTD meaning a huge investment loss to the shareholders.
2. Complete Financial Solutions Inc stock price has been stable throughout the first quarter of 2020 (0% change), yet the YTD had a great decrease of 64.29% also resulting an investment loss to the shareholders.
3. Corts Trust for JC Penney Debentures stock price has dropped from 1.09\$ to 1.03\$ in the first quarter of 2020 resulting in a 5.5% decrease in price. YTD is at a dangerously high figure as well: 83.68% ensuing a huge investment loss to the shareholders as well.

In the energy minerals sector:

4. Battalion Oil Corp stock price has dropped by a fraction of the price in 0.0049\$ or a decrease of 0.1% in the first quarter of 2020, in addition to a whopping 65.06% decrease in the YTD meaning a huge investment loss to the shareholders.

5. Berry Corporation (Bry) stock price has dropped from 3.27\$ to 3.17\$ in the first quarter of 2020 resulting in a 3.2% decrease in price. YTD is also at a staggering high figure as well: 66.33% ensuing a huge investment loss to the shareholders.
6. Callon Petroleum Co is a kind of a special case in a sense whom stock price has increased although by little by 0.01\$ or a 1.55% stock price increase. Yet the YTD decrease is still remarkably high at 82.76% also leading to a huge investment loss to shareholders.

In the transportation sector (Airlines):

7. American Airlines, one of the leading Arline companies in the US, stock price has dropped from 10.63\$ to 9.52\$ in the first quarter of 2020 resulting in an all-time high 10.48% decrease in price. YTD is at a dangerously high figure as well: 66.67% ensuing a huge investment loss to the shareholders as well.
8. Spirit Airlines Inc is also a leading airline company in the US although controversially since it is well known for its cheap flights Its stock price has dropped by 1.43\$ or a price change of -5.26%. YTD as of that of the other examples is also exceedingly high at 60.22% also ensuing big investment losses to shareholders.
9. SkyWest stock price stock price has dropped from 13.17\$ to 12.47\$ in the first quarter of 2020 resulting in a 5.32% decrease in price. YTD is at a dangerously high figure as well: 69.06% resulting in a huge investment loss to the shareholders as well.
10. Great Lakes Aviation Ltd is a rare example of the positive impact of the covid-19 pandemic on airline companies. Its stock price have increased by 0.049\$ which might seem minimal but is really put into perspective when using the price change percentage of +61.25%. YTD is also at an all-time high at +84.55% meaning that investors are pretty happy with their quarterly ROI.

Thanks to the pretty detailed yet summarized stock rate data of each sector in the United States of America (Table3), we can calculate the overall average stock price change rate in the US economy using the simple equation: $M = \sum Cr/n$ where “Cr” is the change rate and “n” the number of sectors. The calculations result is $M^1 = -14.64\%$

The stock market is undeniably a great tool to identify the state of an economy at a certain period of time. In addition to the economic indicators, we should be able to deduce a pretty accurate statement of the state of the US economy as of late march 2020.

We could discuss every single one of the indicators, but certain ones are far more crucial in describing the economic state of the USA than others, and they unfold as follow:

- GDP growth rate had significantly dropped from the 2.1% to a scary -4.8% in the first quarter of 2020 alone.
- GDP annual growth rate on the hand have also dropped, although not as substantially as the GDPGR, from 2.3% to 0.3% in the first quarter of 2020.
- Unemployment rate has remarkably increased by a whopping 10.3% as of April the 20th 2020 (From 4.4% to 14.7%) due to the shutdown of the industries and the release of employees by highly impacted companies.

- Somehow inflation rate has dropped from 2.3% to 1.5% as of April the 20th which usually results in a decrease in interest rates as well. It is not the case though.
- Interest rate has been stagnant at 0.25% throughout the entire time frame of the pandemic.
- Business confidence on the other hand has decreased from 49.1 points to 41.5 points as of April the 20th resulting in a decrease in public and private investments.
- Manufacturing PMI, non-manufacturing PMI and services PMI have all decreased from 48.5 to 36.1 points, 52.5 to 41.8 points and 39.8 to 26.7 points consecutively as of the 20th of April.
- Last but not least, Retail sales MoM has drastically dropped from what was already considered bad at -0.4% to a significantly worse rate of -8.4% which means a decrease in consumer confidence and spending.

We can conclude, from the significant decrease in stock prices and YTDs of the majority of businesses across all sectors of which overall change percentage averaged at a significantly low -14.64%, and from the decrease in the economic indicators' figures, that the SARS-CoV-2 pandemic had and still has a devastating impact the US economy.

4.2) China data analysis:

China is the source of the coronavirus, and has dealt with its economic challenges prior to any other country. With such information we would assume that China should be the worst case of the covid-19 repercussions both socially and economically, but that is definitely not what the data suggest. That doesn't mean that certain industries have not faced their hardest times since the 2008 financial crisis, various leading companies have suffered from the pandemic that includes:

1. - with a price decrease of 0.03\$ as of May 13th and yearly percentage change of -53%
2. Shanghai International Port with a price decrease of 0.01\$ or -0.24% as of May the 13th and a yearly percentage change of -45.47%.
3. Cd Qianfeng Electric with a price decrease of 0.01\$ or -0.18% as of May the 13th and a yearly percentage change of -43.47%.
4. Petrochina with a price decrease of 0.02\$ or -0.45% as of May the 13th and a yearly percentage change of -38.92%.
5. Datang Intl with a price decrease of 0.02\$ or -0.94% as of May the 13th and a yearly percentage change of -33.23%.
6. Huaneng with a price increase of 0.10\$ or +2.33% as of May the 13th yet a yearly percentage change of -32.87%.
7. China Eastern Airline with a price decrease of 0.03\$ or -0.71% as of May the 13th and a yearly percentage change of -30.97%.
8. Inner Mongolia BaoTou Steel with a price decrease of 0.01\$ or -0.89% as of May the 13th and a yearly percentage change of -30.63%.
9. Ningbo Port Co with a price decrease of 0.01\$ or -0.30% as of May the 13th and a yearly percentage change of -30.31%.

10. China Southern Air with a price decrease of 0.03\$ or -0.58% as of May the 13th and a yearly percentage change of -28.71%.

All of the Yearly percentage changes are negative at relatively low figures (-28.71% -53.40%) meaning that shareholders will suffer extreme investment losses.

Unlike the United States of America, with the entertainment industry excluded, various Chinese stocks in different industries and sectors (pharmaceuticals, electronics, energy...) have skyrocketed since the beginning of 2020, which includes:

1. Poly Real Estate with a yearly percentage change of +22.20%.
2. Foshan Haitian with a yearly percentage change of +24.38%.
3. Sh Fosun Pharma with a yearly percentage change of +31.27%.
4. Xian Longi with a yearly percentage change of +35.98%.
5. Jiangsu Hengrui Me. with a yearly percentage change of +50.42%.
6. Kweichow Moutai with a yearly percentage change of +50.69%.
7. Anhui Conch Cement with a yearly percentage change of +60.25%.
8. Sany Heavy Industry with a yearly percentage change of +68.56%.
9. Yonyou Soft with a yearly percentage change of +99.11%.
10. Sanan Optoelectron with a yearly percentage change of +102.99%.

Now let's calculate the average percentage change in the Chinese stock market of all sectors using the data from table 8 and inserting them into the formula $M = \sum Cr/n$ where "Cr" is the change rate and "n" the number of sectors. The calculations result is **M² = +0.591%**

To complete the analysis, we will discuss the same crucial economic indicators used in the US data analysis, and they unfold as follow:

- GDP growth rate had significantly dropped from the 1.5% to a dangerously low -9.8% in the first quarter of 2020 alone since China economic core is international trade and the coronavirus pandemic has caused borders of all countries to close.
- GDP annual growth rate on the hand have also dropped, as substantially as the GDPGR, from 6% to -6.8% in the first quarter of 2020.
- Unemployment rate decreased by a relatively small 0.3% as of April the 20th 2020 (From 6.2% to 5.9%) solely due China opening up their industries in all their provinces as soon as the covid-19 virus was "contained".
- Somehow inflation rate has dropped from 5.2% to 4.3% as of April the 20th which usually results in a decrease in interest rates as well. It is not the case though.
- Interest rate has been stagnant at 3.85% throughout the entire time frame of the pandemic.
- Business confidence on the other hand has slightly decreased from 52 points to 50.8 points as of April the 20th resulting in a small decrease in public and private investments.
- Manufacturing PMI have decreased from 50.1 to 49.4 points, while non-manufacturing PMI and services PMI have increased from 52.3% to 53.2% and 43 points to 44.4 points respectively as of the 20th of April.

- Last but not least, Retail sales MOM has increased from what was considered bad at -3.64% to positive rate of 0.24% which means a remarkable increase in consumer confidence and spending.

We can conclude, from the vast contrast of the negative and positive companies' stocks, the positive percentage change average of **+0.591%** and from the increase in multiple economic indicators despite the massive decrease in GDPGR and annual GDPGR that the impact of the Covid-19 pandemic on china has been extremely mild.

4.3) Comparison of the two countries:

In our comparison we will keep it simple, we will use the percentage change average and the key economic indicators:

Indicators (last recorded)	USA	China
Percentage change average M (%)	-14.64	+0.591
GDP Growth Rate (%)	↓ -4.8	↓ -9.8
GDP Annual Growth Rate (%)	↓ 0.3	↓ -6.8
Unemployment Rate (%)	↑ 14.7	↑ 5.9
Inflation Rate (%)	↓ 1.5	↑ 4.3
Interest Rate (%)	0.25	3.85
Business Confidence (points)	↓ 41.5	↓ 50.8
Manufacturing PMI (points)	↓ 36.1	↓ 49.4
Non-Manufacturing PMI (%)	↓ 41.8	↑ 53.2
Services PMI (points)	↓ 26.7	↑ 44.4
Retail Sales MoM (%)	↓ -8.4	↑ 0.24

Not only is the %change average positive is the case of china, but it is 14.049% bigger than that of the USA (+0.591% > -14.64%). We can fairly say that the corona virus impact on the stock market in the US is extremely negative compared to the mild impact on china.

When it comes to GDPGR and the annual GDPGR, both countries' rates have significantly dropped. China is the most impacted by the virus in this case since its GDP is fairly dependent on their international trade which is impossible at the moment since all countries have closed their borders and focusing on the importation of medical and hygiene equipment only. We can state that the impact of the covid-19 pandemic has been devastating to both countries' GDPs.

Unemployment rate, a rate of which country presidents make a priority in the administration strategy, and a rate of which Donald Trump specifically has been so proud of, have extremely sunk down since the outbreak of the disease. The latest recorded unemployment rate in the US was a whopping 14.7%. To put that into perspective, from 1948 to December 2019, the unemployment rate in the US have averaged at 5.74%. It has gone up by 9% in the first quarter of 2020 alone, mainly due to companies across all industries letting go of employees to limit capital losses after their shutdown. The Chinese unemployment rate on the other hand has decreased to 5.9% as of April 2020 thanks to their need of manpower since their reopening of industries in March. With that being said we can fairly say that the USA is the most impacted country of the two by far when it comes to the unemployment rate.

Both countries have experienced a decrease in their inflation rate, the US from 2.3% to 1.3% and China from 5.2% to 4.3%. Which is a positive impact of the crisis caused by the virus, meaning that that money is losing its value slower than 2020. We can say that both countries are similarly impacted.

Despite the decrease in the inflation, the interest rates stayed the same in both countries (0.25% in the US and 3.85% in China).

Business confidence have decreased in both countries, more severely in the US with a decrease of 7.6 points while China's decreased by 1.2 points. This decrease illustrates future investor behavior, specifically a decrease in investments. The US is definitely more impacted by the pandemic in this area.

Manufacturing PMI, which is an index of the prevailing direction of economic trends that provides information about current and future business conditions to company decision makers, analysts, and investors, have decreased in both countries while non-manufacturing PMI and services PMI in China, contrary to the US, have increased. This really shows a positive effect of the coronavirus crisis in China, and a negative one in the US.

Last but not least, retail sales MoM have increased in china to 0.24% while it has significantly decreased in the US to -8.4%. This shows that consumer confidence and spending have been negatively impacted in the US unlike China where it has flourished. In other words consumers are extremely less confident and are less likely to make purchases in the United States than in China.

With all that being said, it is obvious without fear or favor, that the United States of America is the more devastated country economically by the covid-19 pandemic. But what is more important is that China, despite some of its setbacks, is fairly gaining from this crisis, and is continuing to explore and capitalize on this pandemic that is destroying economies worldwide. And with that we **confirm our hypothesis** which states that China, unlike any other country, have had a very mild economic setback considering that it is the source of the virus and is gaining from the covid-19 pandemic.

**CHAPTER V: PREVENTION OF FUTURE PANDEMICS AND ITS ECONOMIC
IMPACT**

“If anything kills over 10 million people in the next few decades, it’s most likely to be a highly infectious virus, not a war...And the reason for this is that we’ve invested very little in a system to stop an epidemic, we’re not ready for the next epidemic.” – Bill Gates Apr 3 2015.

War has been humanities biggest fear since the development of nuclear weapons in July 16th 1945 during the last episode of World War II, a weapon capable of mass extinction of the human species. In fact nuclear weapons were the main mean of overpowering Nazi Germany at that time. Personally I find it quite extravagant that the unprecedented imagination of Albert Einstein have led to such weapon development through his theoretical physics based papers of his famous special theory of relativity as early as the 27th of December 1905. Unfortunately this thesis is business oriented so we won’t be able to discuss that part.

Thanks to the settlement of power across nations after the World War 2 and the cold war, nuclear mass extinction has become a very unlikely event to happen since in the case of conflicts, countries can discuss and compromise for the best of the human race. Yet countries are still allocating huge military development funds, a whopping 686.1 billion USD in the case of the US. Viruses on the hand are a threat which can’t be dealt with via democracy. A threat that we will only survive through extreme preparation and collaboration. Despite Bill Gates’s popular warning, countries still didn’t pay much attention to such epidemiological threats. In fact no epidemic prevention system was ever built after the Ebola virus outbreak. A huge mistake whose consequences are lived today because of the new novel coronavirus. So what is the best way to minimize the economic impact of pandemics we all ask? The answer is simple, since we are not scientifically nor technologically developed enough to forecast and eliminate new virus outbreaks, countries should collaborate and build a system that prevents the spread of viruses. But what does this system consists of?

Every single country around the world should gather, via representatives of course, and create a new global health organization that, unlike the WHO, will act based on the prevention of epidemics not monitoring them. This new organization will play many roles to maximize its results. The organization, funded by all countries, will itself fund various projects, in a similar way to the military, which includes:

- ✓ A team of knowledgeable and well trained epidemiologists that are ready to go in similar style to military forces. They will be trained, examined and tested to assure their efficiency.
- ✓ A virus radar or in other words a system that links news outlets that belong to this new organization in every country which is constantly scanning local health systems’ data to identify new and dangerous viruses.
- ✓ A global and regional transportation shutdown mechanism by a press of a button that will allow the organization to drastically limit the spread of the virus way sooner than the current response to the covid-19 situation.
- ✓ Complete transparency in the diffusion of information.
- ✓ And most importantly, funding towards vaccine research and its development which will allow the development and creation of vaccines at a faster rate than we are currently capable of.

The creation of such system will only be possible if all countries put their financially based conflicts aside and collaborate. This would have seemed quite impossible a year ago. But now, due to the crisis that the world is living caused by the coronavirus, I believe that such measures will definitely take place when covid-19 is contained and is under control.

CHAPTER VI: CONCLUSION

The economic crisis caused by the novel covid-19 disease is causing the worst financial crisis since 2008, especially in the United States of America. The extreme overall decrease in stock prices and the decrease in the majority of the economic indicators prove that claim. “The reality is that if we don’t open this economy back up, we are not going to have an economy.” –Pete Navarro white house trade advisor.

With an average stock price decrease of -14.64% it is fairly apparent that the US will go through an extreme recession when this crisis is over. China on the other hand, with an average increase in stock prices of +0.591 is not undergoing such economic strain from the virus mainly due to the quick launch of its industries after a self-claimed containment of the virus. That shows two different outcomes of two mega economies undergoing a fight against the same disease. That difference provokes a simple question yet a difficult one to answer: Why is the impact of the pandemic mild in China? Well, since such information is not public by the Chinese news outlets, we can deduct from using our rationality and common sense that two factors came in to play. First, China has been through a similar outbreak in SARS, so their response system had some sort of experience. Second, it has lifted the lockdown and launched their industrial activities as soon as they have “contained” the virus.

The analysis in this thesis not only shows quite accurately the impact of the coronavirus on both economies (USA and China), but it also shows the vast contrast of the impact on them, being an extreme one in the US that is increasing in gravity by the day compared to a quite mild impact on China that is now steps ahead in overcoming its recession.

We are still in the early stages of this pandemic, and its financial impact is already major. Such virus is impossible to contain on a global scale, and the only way societies can ever go back to normal is if a vaccine is created and distributed worldwide. So quite frankly, we’re only undergoing the first chapter of a more dangerous series of chapters of which the world is not prepared for. With that being said, when this pandemic comes to an end, further research is necessary to identify the real and final impact of the Wuhan virus on the US and Chinese economies and also on the global economy since such data will be available at that time.

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