

The Impact of Covid-19 on Corporates: Evidence from the US and China

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Abstract

In 2020, the coronavirus disease 2019 (COVID-19) significantly impacted global financial markets and macroeconomics, with severe shocks in international capital and commodity markets. As a result, this study analyzes data from nearly 100,000 enterprises in the US and China respectively, including stock index prices, return on assets (ROA), and leverage ratios, to do an Ordinary Least Squares (OLS) linear regression analysis on the latter two. By discussing these empirical findings, this essay concludes that both the US and Chinese economies were in a condition of recession and COVID-19 is adversely linked to the leverage ratio of enterprises in both the US and China, showing that businesses in both countries are reducing their leverage to lessen the epidemic's impact. COVID-19 is also shown to be favourably connected with ROA in the US but negatively correlated with ROA in China, implying that US firms fared better than Chinese firms during the pandemic. The

following three points explain the reasons behind this distinction: (1) cultural differences between nations, (2) differences in company ownership characteristics, and (3) disparities in COVID-19 regulations.

Keywords

COVID-19; Macroeconomics; Enterprises; US and China; Corporate finance; Stock market; OLS regression

Introduction

The sudden outbreak of COVID-19 has created an unprecedented global public health challenge and has devastated the world at the same time. According to the Worldometer (2022), which monitors the latest statistics on outbreaks around the world, the COVID-19 has so far infected more than 482 million people worldwide (e.g., Figure 1), while the death toll has exceeded 6 million. The World Health Organization (WHO) estimates that the total number of deaths could be two to three times

Citation: Yupu Li. (2022) The Impact of Covid-19 on Corporates: Evidence from the US and China. The Journal of Young Researchers 4(32): e20220825

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Received on May 7, 2022; Accepted on May 10, 2022; Published on August 25, 2022

higher, taking into account the problems with surveillance systems on the African continent. Moreover, the continued emergence of new coronavirus variants raises entirely new challenges.

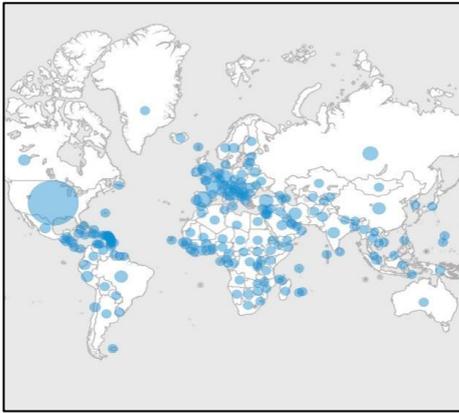


Figure 1. WHO COVID-19 confirmed cases map (Data Source: WHO Official Website) (2022)

COVID-19 has undoubtedly led to a severe global recession and eroded poverty reduction and development outcomes as well. The world economy has experienced a deep downturn as a result of the impact of the epidemic. According to the “*World Economic Outlook*” released by the International Monetary Fund (IMF) in October 2021, the world economy was expected to decline by a deeper 3.1% year on year in 2020. This included a 4.5% decline in developed economies and a 2.1% decline in emerging market and developing economies. In addition, between 119 million and 124 million people worldwide would fall into extreme poverty in 2020 as a result of the pandemic, the first increase in the number of people living in extreme poverty globally since 1998.

In the annual report for 2021, the Bank of America, located in the world’s largest capitalist nation, the United States, documented that investors would experience a painful period in 2022 as an inflation-induced recession would trigger another stock market correction. Inflation continues to rise as the COVID-19

epidemic subsides and consumer demand returns, along with continued supply chain disruptions that have caused commodity prices to soar. House prices are rising at a rate not seen in over 40 years. The report shows that an “inflation shock” would be followed by an “interest rate shock”, which would eventually lead to a “recession shock”. The Bank of America also indicated that a recession would cause the S&P 500 to fall below the critical 4,000 level by the end of 2022, meaning the index could fall 11 per cent from current levels.

China, the world’s largest socialist nation, had an unemployment rate of 5.5% in the first two months of the year, up from 5.1% in December, according to the country’s National Bureau of Statistics. This is the fastest increase in unemployment in a year. China’s unemployment rate, which is only counted for urban residents, is an index of particular concern to the authorities, with recording that the unemployment rate had reached a record high of 6.2% at the height of the epidemic in China in February 2020 by comparison, before falling back down. Retail sales, the main indicator of household spending, recorded an unexpected acceleration in January-February, rising by 6.7% year-on-year, well above the 1.7% growth in December. The Department attributed this increase to the boost in spending from the Lunar New Year, which began on February 1. Online trade growth was particularly rapid in January-February, rising 10.2% year on year.

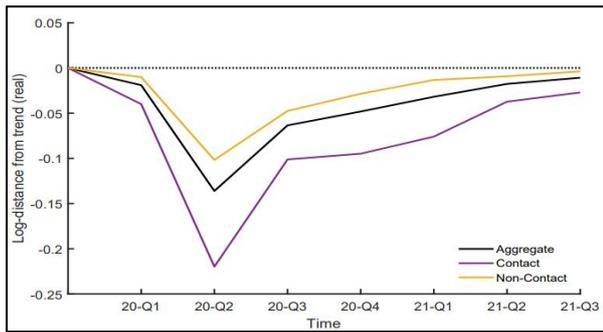


Figure 2. Revenue During Recession: Contact vs Non-Contact Sector (Data Source: Cirelli and Gertler) (2022)

COVID-19 has also triggered enormous and heterogeneous shocks to companies (Ding et al. 2021). For instance, Cirelli and Gertler (2022) find that, on average, the pandemic decreased the revenue of US firms by 13% in 2020Q2. And for contact sectors (e.g., retail), the decline is more than 22% (Figure 2). However, it is still unknown whether the impact differs for different countries, i.e., US and China. And this question is critical as US and China employed distinguished policies to respond to COVID-19 (He et al., 2021).

This paper examines the different corporate reactions in the US and China before and after the COVID-19 outbreak respectively. This study uses data on about one hundred thousand firms for each country, namely stock index prices, ROA and leverage ratios, and makes OLS linear regression analysis on the latter two. By evaluating these empirical results, this essay ultimately concludes that the overall corporate economy in both the US and Chinese were in a state of recession during the beginning of COVID-19. Additionally, COVID-19 is negatively associated with the leverage ratio of businesses in both the US and China, implying that to mitigate the impact of the epidemic, businesses in both countries reduce their leverage. Furthermore, COVID-19 is found to

be positively correlated with ROA in the US, but negatively correlated with ROA in China, which indicates that US companies fared better than Chinese companies during the pandemic. The reasons for this distinction can be summarized in the following three points: (1) cultural gap between nations, (2) disparity in the ownership characteristics of the enterprises and (3) discrepancy in policies towards the COVID-19.

This study has the following contributions. First of all, by analyzing the separate corporate reactions in the two countries to COVID-19, this paper helps researchers to understand the heterogeneity of the COVID-19's impact on firms in the US and China. Secondly, this article also compares the various responses of businesses in the US and China to COVID-19, which shed light on how corporates react to uncertainty. Thirdly, this essay provides sufficient reasons for the different measures and decisions made by companies in the US and China. Last but not least, the analysis explores effective ways for enterprises to respond to future global economic crises caused by similar public health emergencies.

The remainder of the paper is organized as follows. To begin with, Section 2 reviews the academic literature on the shock to the global economy, its impact on the economies of various countries, corporate performance and governance changes separately. Subsequently, Section 3 introduces the datasets used and the methodology. Then Section 4 explores the empirical evidence. After that, Section 5 discusses the potential reasons for the outcome. Ultimately, Section 6 concludes the article.

Shock to The Global Economy

As for the analysis of the economy under the COVID-19, the existing literature available was

first studied from the current circumstances and future trends of the global economy under the overall pandemic situation. For example, according to Ozili and Arun (2020), the reason why a health crisis translates to an economic crisis can be explained and discussed in two ways coronavirus inhibits economic activity. First, the virus's propagation increases social estrangement, resulting in the closure of financial markets, corporate offices, enterprises, and events.

Second, the virus's exponential spread and the enhanced ambiguity about how terrible things can get prompted consumers, investors, and international trade partners to flee to safety in terms of consumption and investment. Besides, their research reveals that the increasing number of lockdown days, monetary policy decisions, and overseas travel restrictions have a significant impact on economic activity and major stock market indexes. The imposition of internal movement restrictions and increased fiscal policy spending, on the other hand, has a beneficial influence on the level of economic activity, even though the rising number of verified coronavirus cases has no substantial effect on the level of economic activity. Simultaneously, Song and Xiang (2020) suggest that, unlike the financial crisis, the public health crisis has mainly hit labour mobility, which in turn has created a series of economic, financial and political problems. Unemployment is bearing the brunt of the problem, especially in the labour-intensive consumer services sector, where unemployment is rising rapidly. While production is likely to recover relatively quickly after the epidemic has stabilized, demand in the consumer services sector is slow to recover, resulting in low capacity utilization across society. In addition, following the closure of some businesses and the curtailment of employment programmes, the return of the

unemployed to employment will require a renewed search for jobs and matches, which will also mean that the economy will take longer to recover, during which time there will be a precautionary contraction in demand. These are the secondary damages to the economy caused by the epidemic.

Furthermore, Song and Zhou (2020) emphasize that the widespread lockdowns to prevent the virus from spreading, particularly in the world's main economies, have interrupted economic activity ranging from transport, trade, and manufacturing to services, resulting in a significant decline in both economic activities and employment rates. The policy measures used to deal with the crisis are similar to those used to cope with economic downturns or recessions, such as subsidizing people in financial distress, injecting liquidity into economies through lower interest rates and quantitative easing to reduce the risk to financial system collapse, and providing massive tax cuts for businesses and households, etc. Meanwhile, they argue that structural reform, new technology, and re-integration are the three key elements that may lead to a strong recovery in the post-pandemic age. A new "global social contract" can be established to govern them. These three elements, if backed up by strong public policies at all levels, particularly at the national level, can save the future global economy as it recovers or re-emerges from the pandemic catastrophe.

Impact on The Economies of Various Countries

Some literature studies the multiple impacts of COVID-19 at the national level. On one hand, for western countries, Thorbecke (2020) demonstrates that the US economy has been harmed by the coronavirus crisis with evidence from the stock market. Airlines, aerospace, real

estate, tourism, oil, breweries, retail clothes, and funerals have all been damaged by idiosyncratic circumstances. Thus, vast portions of the economy rely on the pandemic's management rather than the macroeconomic environment for recovery. Production equipment, machinery, and electronic and electrical equipment all suffer losses as a result of macroeconomic reasons. As a result, restoring capital goods spending necessitates both the ending of the pandemic and a macroeconomic recovery. Moreover, as Goniewicz et al. (2020) point out, COVID-19 has proven to be a daunting challenge for many European Union governments to adequately manage.

To deal with developing difficulties, the European Union has devised several strategies. To combat the virus' spread, member states have implemented measures such as border closures and considerable restrictions on people's mobility. The capacity to obtain equipment, personal protective equipment, and other medical supplies have been expedited due to an extraordinary crisis coordination effort across the Member States. There has also been an emphasis on allocating significant funds to research to develop a vaccine and promote successful treatment regimens. To aid in the recovery of a functional economy, financial assistance has been made available to preserve worker salaries and enterprises. The current issue underscores the necessity to think about future pandemics from a population-based management strategy and utilize outside-the-box critical thinking, which has been learned from COVID-19 in the European Union. Because of the complexity, severity, and frequency of complex disasters, global leaders in healthcare, government, and industry will need to shift from compartmentalized decision-making to multidisciplinary and transdisciplinary collaboration. This

cooperation necessitates the bravery and leadership to recognize that changes are required to prevent repeating the same mistakes they have repeatedly avoided. On the other hand, for eastern countries, Liu et al. (2020) show two major discoveries about China's economy. First, before COVID-19, China's short, medium, and long-term business and financial cycles are in or nearing contraction.

Second, since 2015, China's economic and financial cycles have been largely disconnected from the global financial cycle. These findings show that internal causes are likely to be significantly more important than external shocks in combating COVID-19 and reviving China's economy. China may be better positioned than other emerging countries to win the struggle against COVID-19 in this regard. To avoid a pandemic-induced economic catastrophe, however, significant macroeconomic interventions may be required. Additionally, Dev and Sengupta (2020) argue that Covid-19 has presented India with an unparalleled problem. Lockdowns and other social distancing measures are proving to be extremely disruptive, given the population's size, the economy's perilous state, particularly in the financial sector in the pre-Covid-19 period, and the economy's reliance on informal labour. The central and provincial governments have recognized the problem and are taking steps to address it, but this is only the beginning. The economic harm will almost certainly be much greater than the present projections. On the demand side, the government must strike a compromise between the need for income support and the requirement to keep the fiscal situation under control. The current balance appears to be reasonable, but the government needs to develop more ways to boost poor people's earnings. The participation of state and local governments could be critical in the

successful implementation of future fiscal initiatives. Policymakers must be prepared to scale up their response as events develop to reduce the shock's impact on both the formal and informal sectors and pave the path for long-term recovery. Simultaneously, they must guarantee that the answers are enshrined in a rules-based structure and that discretion is limited to avoid long-term economic damage.

Corporate Performance and Governance Changes

There is still much literature devoted to investigating corporate finance and business management in the context of COVID-19, which is supposed to be much more specific. For instance, Meyer et al. (2022) document and analyze how firms are responding to the COVID-19 problem through August 2020. To begin with, companies have typically seen the shock as a demand rather than a supply shock. Sales activity is reported to be disrupted by a larger percentage of businesses than supply chains. They compare these disruption metrics to predicted changes in selling prices and find that, on average, even enterprises reporting supply chain interruptions expect lower near-term selling prices. They also demonstrate that businesses are cutting pay and anticipate decreasing wages even more by the end of 2020. These layoffs are coming from companies that have been disproportionately harmed by the outbreak. Second, corporations (such as professional forecasters) have reduced their one-year inflation estimates in response to the COVID-19 epidemic. These answers differ sharply from household inflation forecasts (as measured by the University of Michigan or the New York Fed). Indeed, following the outbreak of the pandemic, companies' one-year inflation predictions plummeted (to a series low), but household inflation expectations skyrocketed.

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Third, despite the sharp drop in near-term inflation predictions, companies' longer-term inflation expectations have remained reasonably constant. In addition, Ding et al. (2021) hold the view that firms with stronger pre-2020 finances (more cash and undrawn credit, less total and short-term debt, and larger profits), less exposure to COVID-19 through global supply chains and customer locations, more corporate social responsibility activities, and less entrenched executives experience a milder pandemic-induced drop in stock returns. Moreover, the stock returns of businesses managed by families (particularly through direct holdings and with non-family managers), major corporations, and governments outperform those controlled by hedge funds and other asset management organizations. During the pandemic, stock markets value small amounts of managerial ownership positively but negatively value large ones. On top of that, Fahlenbrach et al. (2021) investigate the importance of financial flexibility in the unusual case of a sudden and unforeseen revenue shortage caused by demand and supply shocks connected to the rise in the requirement for social distancing caused by the COVID-19 shock. They find that firms with more financial flexibility are better equipped to handle a revenue shortfall caused by the COVID-19 shock, and government interventions will benefit them less. They also discover that within an industry, enterprises with high financial flexibility incur a lesser stock price decline than those with poor financial flexibility and cash holdings benefit firms that are more vulnerable to the COVID-19 shock. Meanwhile, Halling et al. (2020) focus on the effect of COVID-19 on a firm's access to the Public Capital Markets. They suggest the following:

“We find that corporate bond issues have substantially increased since the onset of

the pandemic crisis in calendar week 12 (March 16–20). This is the case both for bonds rated A or higher and for bonds rated BBB or lower. (p. 529)”

Given all together, it is not difficult to discover that there are few types of research on corporate finance at the national level, especially for those countries whose huge variations can be highlighted easily to make multifaceted comparisons. As a result, there is no doubt that it is necessary to discuss and evaluate the separate reactions of enterprises in the United States and China, two of the world’s largest capitalist and socialist countries, to the great public health emergency, COVID-19. It is not only to fill in the gaps of previous studies, but also to further analyze and compare the influence of COVID-19 as a brand new unstable variable on this diverse world based on predecessors’ research, and consider how firms can respond to future global economic crises triggered by similar public health issues.

Data and Sample

This essay uses financial and accounting data of listed companies in the US and China. The sample period of this study is 2018-2022. The US firms’ data is obtained from the WRDS Compustat database (via. Wharton Research Data Services), which is an award-winning data research platform that serves more than 75,000 researchers at no less than 500 universities in 37 countries. It is the world gold standard in data management, innovative tools, analytics, and research services, all of which are backed by the Wharton School’s credibility and leadership. And Chinese firms’ data is downloaded from the CSMAR database (China Stock Market & Accounting Research Database), which is an economic and financial research database developed by Shenzhen CSMAR Data Technology Corporation. It is a

research-oriented and accurate database in the field of finance. After 21 years of continuous accumulation and improvement, CSMAR database has covered 18 series including factor research, character traits, green economy, stock, company, overseas, information, fund, bond, industry, economy, commodity futures, etc., containing more than 160 databases, no less than 4000 tables and 50,000 fields.

Ordinary Least Squares Linear Regression

This study uses OLS linear regression to estimate the impact of Covid-19 on US and China firms. Among them, Regression analysis is a set of statistical processes used in statistical modelling to estimate the quantitative relationships of interdependence between a dependent variable (often referred to as the outcome or response variable) and one or more independent variables (often referred to as predictors, covariates, explanatory variables, or features). Linear regression is the most frequent type of regression analysis, in which one finds the line (or a more sophisticated linear combination) that best fits the data according to a set of mathematical criteria. OLS method is mainly used for parameter estimation in linear regression. It is based on the simple idea of finding some value that minimizes the sum of squares of the difference between the actual value and the model valuation and using this as the parameter estimate (Figure 2). That is, finding the best functional match for the data by minimizing the sum of squares of the errors. Using the OLS method it is easy to find unknown data and to minimize the sum of squares of the errors between these found data and the actual data.

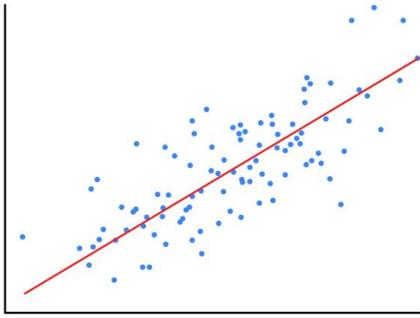


Figure 3. Ordinary Least Squares Linear Regression
(Data Source: Dougherty, C.) (2011)

Variables

This article focuses on some of the primary factors of listed firms in the US and China. To be more specific, this study uses stock index prices, ROA, and leverage ratios to measure the impact of Covid-19. A stock index (or stock market index, stock index price) contains a wide range of stocks and is a figure that reflects the value of the stocks that make up the market. It is often used to show common characteristics of constituent stocks, such as being traded on the same stock exchange, belonging to the same industry, or having the same market capitalization. Many indices are compiled by newspapers or financial journals as a benchmark for evaluating the performance of a portfolio (e.g., an investment fund).

The ROA reveals what percentage of a company's assets are lucrative in terms of generating revenue. The following formula can be used to calculate ROA:

$$ROA = \frac{\text{Net Income}}{\text{Average Total Assets}}$$

This figure indicates what the company can do with what it has, i.e., how many dollars of earnings are generated for every dollar of assets under its control. It's a good metric to utilize when comparing organizations in the same

industry. The figure will differ greatly depending on the industry. Return on assets is a measure of a company's capital intensity, which varies depending on the industry; companies that demand big upfront investments will have a lower return on assets. ROAs of over 5% is generally regarded as excellent.

In finance, leverage (or gearing in the United Kingdom and Australia) is any technique that involves using debt (borrowed funds) rather than fresh equity (value of owned assets minus liabilities) in the purchase of an asset, with the expectation that the after-tax profit to equity holders from the transaction will exceed the borrowing cost, frequently by several multiples — hence the word's origins in physics from the effect of a lever, a simple machine that amplifies forces. Typically, the lender will put a limit on the amount of risk it is willing to assume, as well as the amount of leverage it will allow and will demand the acquired item to be used as collateral security for the loan. Gains can be multiplied by using leverage. Losses, on the other hand, are compounded, and there is a possibility that leverage will result in a loss if financing expenses exceed the asset's income, or the asset's value declines.

Empirical Results

Covid-19 and Stock Market Response

The line graphs below illustrate the changes and distinctions in the macroeconomic trends of corporate economy, reflected by the stock price index, in the two separate nations, namely the US and China throughout the 3 years from September 2019 to April 2022.

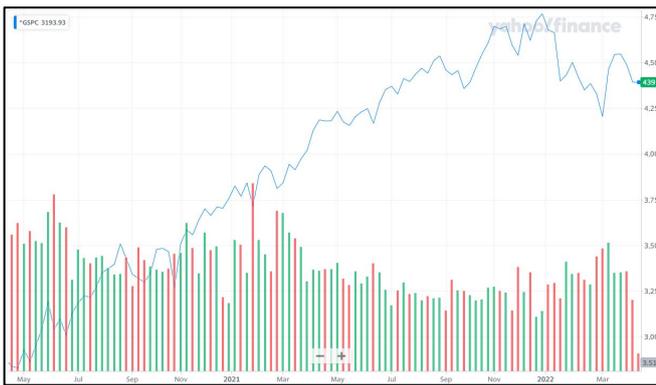


Figure 4. S&P 500 Index (2019-2022)
(Data Source: Yahoo Finance)

The overall trends of corporate economy in the US and China were both in the decline during the outbreak of COVID-19 in the first quarter of 2020. More specifically, the US stock index began to decline from approximately 3300 and eventually hit a low of 2304.92 on March 16, while the Chinese equity index started to diminish from roughly 3100 and finally reached a minimum of 2745.62 on March 15. Noticeably, both countries then coincidentally experienced an economic recovery from April 2020 to July 2020 and have since risen to the present day. In particular, the growth of the Chinese economy is more volatile than that of the US economy. At last, the economies of both countries kept stable at a relatively high level in the following period.

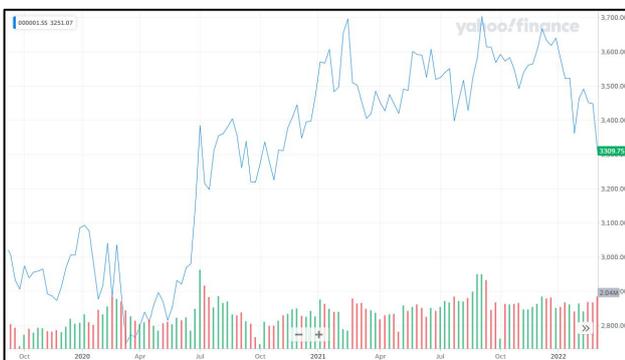


Figure 5. Shanghai Composite Index (2019-2022)
(Data Source: Yahoo Finance)

ROA and Leverage of US Firms

Tables 1 and 2 below summarize the ROA and leverage regression results for US businesses. The ROA and leverage of US enterprises from 2018 to 2022 are the dependent variables in the regression. To measure COVID-19, the independent variables are the other of the ROA and leverage corresponding to the previous choice, time quarter, and a dummy variable. To be more specific, the dummy variable is an indicator that is equal to one of the time point of observation is after December 2019, and zero otherwise.

For the ROA regression in Table 1, there are 97,573 observations. The R square of the regression, a statistical metric that measures the proportion of the variance explained by an independent variable or variables in a regression model, is 0.384, which means this model can explain 38.4% of the variation. The regression's overall sum of squares is 21098.789, and the regression sum of squares is 8104.417. The model's F-value is 20284.161.

The regression's intercept is -0.0159, while the coefficient of the time indicator variable (X Variable 2) is 0.0261. The positive coefficient indicates a favorable association between COVID-19 and companies' ROA in the United States. Eventually, in the case of statistical significance, the regression's T-value is 11.073 and its P-value is 1.760E-28.

Table 1. Regression result: COVID-19 and ROA of US firms

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.619772236							
R Square	0.384117625							
Adjusted R Square	0.384098688							
Standard Error	0.364940219							
Observations	97573							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	8104.416808	2701.472269	20284.1614	0			
Residual	97569	12994.37244	0.133181363					
Total	97572	21098.78925						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.015869522	0.003185176	-4.982306141	6.29381E-07	-0.02211243	-0.009626614	-0.02211243	-0.009626614
X Variable 1	-0.002959759	0.001022826	-3.38683917	0.000707707	-0.005679746	-0.001515772	-0.005679746	-0.001515772
X Variable 2	0.02605885	0.00235333	11.0731796	1.76038E-28	0.02144635	0.03067135	0.02144635	0.03067135
X Variable 3	-0.202690266	0.000828862	-246.3235836	0	-0.204303065	-0.201077466	-0.204303065	-0.201077466

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.619257775							
R Square	0.383460161							
Adjusted R Square	0.383461205							
Standard Error	1.114886821							
Observations	97573							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	75434.36908	25144.78969	20229.56035	0			
Residual	97569	121275.5959	1.242972623					
Total	97572	196709.965						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.270812027	0.009693207	27.93833221	4.3344E-171	0.251813456	0.289810599	0.251813456	0.289810599
X Variable 1	-1.891694991	0.007679713	-246.3235836	0	-1.90674684	-1.876642343	-1.90674684	-1.876642343
X Variable 2	-0.01544678	0.001243277	-12.5278842	0.000174752	-0.017905383	-0.005183974	-0.017905383	-0.005183974
X Variable 3	0.036004666	0.007192981	5.00527588	5.5806E-07	0.021906507	0.050102824	0.021906507	0.050102824

The regression shown in Table 2 has 97,573 observations either. The regression’s R square is 0.383, implying that this model can account for 38.3% of the variation. The overall sum of squares for the regression is 196,709.965, and the regression sum of squares is 75434.369. And the F-value of the model is 20229.560.

The coefficient of time indicator (X Variable 2) is -0.0115, whereas the regression’s intercept is 0.271. Therefore, the COVID-19 and corporate leverage in the United States have a negative association, as indicated by the negative coefficient number. Moreover, the regression’s T-value is -3.557, and its P-value is 0.000375 in terms of statistical significance.

To sum up, COVID-19 is found to be adversely connected with US corporate leverage and positively correlated with ROA in general. This result suggests that, to counteract COVID-19’s influence, US businesses have lessened their leverage. By contrast, corporate performance in the United States generally improved; after all, ROA is one of the most often utilized performance indicators.

Table 2. Regression result: COVID-19 and Leverage of US firms

ROA and Leverage of Chinese Firms

Tables 3 and 4 below summarize the regression results of ROA and leverage of Chinese enterprises. The dependent variable of the regression is the ROA and leverage of Chinese firms from 2018 to 2022. The time quarter, the other of the ROA and leverage corresponding to the prior option, and a dummy variable are used as independent variables to measure COVID-19. To be more explicit, the dummy variable is an indicator that is one of the time point of measurement is after December 2019, and zero if the time point of observation is before December 2019.

In Table 3, the number of observations for this regression is 54,730. The R square of the regression, which is a statistical measure that represents the proportion of the variance for a dependent variable that’s explained by an independent variable or variables in a regression model, is around zero. Now that R square indicates how much the variance of one variable explains the variance of the other, this model’s explanatory power to actual data is relatively weak. The total sum of squares of the regression is 317.125 and the regression sum of squares is 0.486. The F-value of the model is 28.019.

The intercept of the regression is 6.019 while the coefficient of the dummy (X Variable 2) is -0.00296. The negative coefficient shows that there is a negative relationship between COVID-19 and firms’ ROA in China. At last, in the case of statistical significance, the T-value

of the regression is -4.547 and the P-value of the regression is 5.463E-06.

Table 3. Regression result: COVID-19 and ROA of Chinese firms

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.039160943							
R Square	0.001533579							
Adjusted R Square	0.001478845							
Standard Error	0.076060597							
Observations	54730							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	0.486337073	0.162112358	28.01852532	4.2711E-18			
Residual	54726	316.6391089	0.005785899					
Total	54729	317.125446						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.019430213	1.315039542	4.577375929	4.71879E-06	3.441943067	-3.486917359	8.596917359	-8.596917359
X Variable 1	-0.000254404	3.92336E-05	-6.484334494	8.98808E-11	-0.000331302	-0.000177506	-0.000331302	-0.000177506
X Variable 2	-0.002962085	0.000651491	-4.546621768	5.46305E-06	-0.004239013	-0.001685157	-0.004239013	-0.001685157
X Variable 3	0.002771173	0.001427881	1.940759151	0.052292626	-2.74841E-05	0.005569829	-2.74841E-05	0.005569829

In Table 4, the number of observations is 54,730 observations. The R square of the regression is close to zero as well, demonstrating that the model’s explanatory capacity for actual data is limited. The regression’s total sum of squares is 3.759E+06, and the regression sum of squares is 2928.671. The model’s F-value is 14.224.

The regression’s constant is 109.407, whereas the coefficient of the time indicator (X Variable 1) is -0.0534. This result indicates that COVID-19 and corporate leverage in China have a negative relationship, as evidenced by the negative coefficient. Finally, in the case of statistical significance, the regression’s T-value is -0.753 and its P-value is 0.452.

Table 4. Regression Result: COVID-19 and Leverage of Chinese Firms

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.027912956							
R Square	0.000779133							
Adjusted R Square	0.000724257							
Standard Error	8.284443707							
Observations	54730							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	2928.670948	976.2236495	14.22402877	2.91189E-09			
Residual	54726	3755955.244	68.63200753					
Total	54729	3758881.915						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	109.4065783	143.2509614	0.763740622	0.445025121	-171.3663565	390.1795132	-171.3663565	390.1795132
X Variable 1	-0.053411445	0.070968632	-0.75260637	0.451689726	-0.192510484	0.085687595	-0.192510484	0.085687595
X Variable 2	0.129235341	0.155518499	0.830996579	0.405979188	-0.175582058	0.434052739	-0.175582058	0.434052739
X Variable 3	-3.01772535	0.465380757	-6.484334494	8.98808E-11	-3.929887396	-2.105563304	-3.929887396	-2.105563304

Overall, the empirical results show that

COVID-19 is negatively associated with both ROA and the leverage of businesses in China. This means the performance of Chinese companies has generally declined since ROA is one of the most common variables used to measure performance. Moreover, to overcome the impact of the COVID-19 pandemic, firms in China reduce their leverage.

Discussion

In this section, the essay discusses why the ROA of the US and Chinese firms have opposed outcomes in the face of the COVID-19, i.e., ROA in the US has risen while that in China has fallen.

First, this gap can be attributed to the cultural differences between the US and China. According to Liu (2003), in social connection and interpersonal communication, Westerners are thought to have strong values of individuality, equality, and assertiveness. Easterners, on the other hand, revere collectivism, hierarchy, and interpersonal harmony in society owing to their history and culture. Thus, the Chinese are significantly more conservative than the Americans when it comes to dealing with the COVID-19. This has led directly to a decline in the performance of Chinese companies.

Secondly, whereas US businesses are generally very decentralized in terms of ownership, China has a large number of state-owned enterprises and a large number of private enterprises with concentrated shareholdings. Therefore, the upheavals of the overall national economy and policies on firms will have a greater impact in China than in the US since most Chinese companies lack flexibility. This point of view is also consistent with the one found in Shleifer (1998), who suggests that when significant incentives to innovate and save costs are

required, private ownership should be chosen over state ownership. In essence, this is the case for capitalism over socialism, elucidating free enterprise's "dynamic vitality".

Thirdly, the different policies of the US and China towards the COVID-19 play a crucial role in the influence of corporate finance. More specifically, Jamison and Wu (2021) point out that much of the difference between East and West in the fight against the COVID-19 epidemic is due to the failure of Western countries to implement basic public health policies early on, while many Eastern countries have adopted coping strategies to act quickly and isolate infected people effectively. Early vaccination is one way to respond effectively to the pandemic, by which Europe and the United States can bridge the gap with Eastern countries in terms of new cases and deaths. As a direct result of this, the US has become the biggest failure in the fight against the COVID-19, even though it has stabilized the corporate economy. China, on the other hand, has chosen to fight the pandemic aggressively, with some impact on the corporate economy, but with great protection for the quality of life of its people. This is in line with one of the ten principles of economics mentioned by the American economist N. Gregory Mankiw in his book "*Principles of Economics*" that "people are faced with trade-offs". The government has to make trade-offs between economic growth for businesses and living standards for citizens.

Conclusion

This paper studies how companies reacted before and after the COVID-19 epidemic in the United States and China, respectively. To conduct the research, this paper analyzed data from more than 50,000 corporates in each country, including stock index prices, ROA, and leverage ratios, using OLS linear regression

analysis on the latter two. By analyzing these empirical findings, this study concludes that the overall corporate economy in both the US and Chinese experienced some degree of recession during the outbreak of COVID-19. Furthermore, COVID-19 is negatively associated with the leverage ratio of enterprises in both the United States and China, meaning that businesses in both nations reduce their leverage to limit the pandemic's impact. COVID-19 is also found to be positively connected with ROA in the United States but negatively correlated with ROA in China, implying that US companies fared better than Chinese companies during the epidemic. The three points below explain the reasons behind this distinction: (1) cultural differences between nations, (2) differences in company ownership characteristics, and (3) disparities in COVID-19 regulations.

This study has made three important contributions. First, it helps business managers to understand the different impacts of COVID-19 on their enterprises. Moreover, this study illustrates the reasons why firms in the two countries, i.e., US and China, make different decisions during the pandemic. Finally, the study looks at how businesses might respond effectively to future global economic crises induced by comparable public health problems.

Nevertheless, the limitation of the study is that as this essay still does a linear regression analysis, there is only one independent variable and one dependent variable. But this is a very rare type of regression analysis. The main endogenous problem within this type of regression analysis is that many factors may all affect the dependent variable. So even though my study focuses mainly on one independent variable, it is important to include in the regression, as far as possible, those other

variables that may affect the dependent variable, i.e. control variables. Consequently, it is the failure to include appropriate control variables that have led to the poorer explanatory power of the model, especially for Chinese corporate data.

Conflict of Interests: the author has claimed that no conflict of interests exists.

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