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Research Article

The Impact of Covid -19 Pandemic in Development Banks' Stock Performance Evidence from Nepal

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ABSTRACT

Propose: *This study explores the relationship between COVID-19 and the stock market in Nepal from February 15th, 2020, to February 15th, 2023, with a focus on the impact on development banks. Adopting a descriptive research design, the study analyzes the risk and fluctuation in stock prices of development banks during the pandemic. The first half of 2020 witnessed a significant stock market crash due to the global spread of COVID-19 and subsequent economic disruptions caused by lockdowns.*

Methods: *The study examines how different sectors within the stock market reacted to COVID-19, with sectors like natural gas and healthcare showing positive returns, while others like petroleum and entertainment experienced declines. It emphasizes the trade-off between risk and return in financial management, highlighting investors' demand for compensation for bearing risk.*

Findings: *The findings suggest that development banks in Nepal faced increased risk and fluctuation in stock prices during the pandemic. However, the study also reveals opportunities for investors, as economic crises can create investment prospects. Contrary to some literature, the study indicates that the market index in Nepal showed positive correlations with the number of COVID-19 cases, deaths, recoveries, and active cases, suggesting no significant impact of COVID-19 on the stock market index.*

Values: *This study contributes to understanding the dynamics of the stock market during crises like COVID-19 and provides insights for investors and financial analysts.*

Keywords: *COVID-19, Development banks, Stock market, Stock market capitalization, Impact.*

Introduction

The COVID-19 pandemic has significantly disrupted global socio-economic landscapes, compelling many nations to implement stringent quarantine measures and extended lockdowns. These measures, though crucial in combating the pandemic, have led to a substantial downturn in economic activities, triggering a surge in global financial market risk. Investors have grappled with heightened fear and market uncertainty, resulting in considerable losses as stock markets plummeted to unprecedented lows following the pandemic's onset. The impact of increased uncertainty on the required rate of return and subsequent market value fluctuations has been highlighted by Azimili (2020).

Nepal's sole stock exchange, established on January 13, 1994, aims to enhance marketability, liquidity, and corporate securities transactions (NEPSE 2020). With the ongoing COVID-19 pandemic and global efforts toward recovery, limited studies have explored the pandemic's impact on share markets and pre-pandemic market trends. Notably, studies by Baret et al. (2020) and Igwe (2020) have indicated stock market declines and increased volatility, affecting both developed and developing economies worldwide. The pandemic-induced market disruptions were starkly evident in major economies like the US, where the stock market triggered circuit breaker mechanisms multiple times in March 2020 (Zhang et al., 2020), along with substantial impacts on European and Asian markets.

Nepal's economy, positioned among developing nations, experiences significant market performance fluctuations due to the pandemic. The interconnectedness of global markets, as noted by Sun and Hou (2022) and Morales and Andreosso-O'Callaghan (2012), underscores the need to assess COVID-19's impact on Nepal's stock market, particularly its influence on development banks' stock performance. This study bridges a critical research gap by analyzing NEPSE market indices to understand the COVID-19 and stock market dynamics during the pandemic period.

The pandemic's health risks have widespread implications for global economies and financial markets, leading to reduced consumption, declining profits, and negative prospects for various sectors (Vasileiou, 2021). Increased health risks also contribute to heightened risk aversion among investors, influencing market behaviors during pandemics (Decker & Schmitz, 2020). This study delves into the relationship between COVID-19 and Nepal's stock market from February 15th, 2020, to February 15th, 2023, addressing the volatility induced by major events like financial crises, policy shifts, and natural disasters. The COVID-19 pandemic has had a significant impact on various sectors, including the construction industry in Nepal. A study by Mishra, A. K., Pokharel, A., & Aithal, P. S., (2023) analyzed the safety measures implemented at construction sites during the pandemic in the Koshi Province of Nepal. The study found that the construction projects adopted similar measures of precautions to maintain workplace safety during the pandemic. However, the Kisan Chowk- Tandi- Ramite Road Upgrading Project seemed to be less affected by the pandemic as several indicators remained neutral as compared to earlier conditions.

In addition to the construction industry, the pandemic has also affected labor management in the reconstruction works of private houses for earthquake victims in Bharatpur Metropolitan City, Nepal. A study by Neupane, B.R., Mishra, A.K., (2020) found that the COVID-19 pandemic and lockdown had a significant impact on labor management for the reconstruction of private houses of earthquake victims in Bharatpur Metropolitan City.The study found that the capacity of A-class contractors was satisfactory, but the pandemic further added stress to labor resources.

The pandemic has also had an impact on the budget implementation at Gaindakot Municipality, Nepal. A study by Aryal R, Paudel S, Mishra, A.K., (2020) analyzed the impact of COVID-19 on budget implementation at Gaindakot Municipality, Nepal.

Rational of the Study

The study found that the pandemic had a significant impact on the budget implementation process, leading to delays and disruptions in the implementation of various development projects.The COVID-19 pandemic has had a significant impact on various sectors in Nepal, including the construction industry, labor management, and budget implementation and remittance(Chaudhary and Mishra,2023). This study has tried to understand the pandemic impact on common stock of Nepalese development banks. Therefore, this study can be regarded as the

preliminary steps in investigating the investment on common stock of Nepalese development banks. In this study, only development banks' annual report was taken as sample, where further studies can include other financial institutions like development banks and finance companies to grab wider view of investment on common stocks. This study has taken only secondary data as sample. Academicians are suggested to take primary data as sample as well for more convenient result. The study is based on the annual report of development banks' and NEPSE index over the period of five years. The sampled size of the study is too small and the data for the study is used from annual report and website which may not be sufficient so it is suggested that for further researchers will recommended including sufficient sampled size. Further analysis might be made using new variables based on new findings from latest literatures.

Research Objective

The major objective of this study to know the impact of COVID 19 during pandemic on the development bank.

Literature Review

The COVID-19 pandemic has not only posed significant challenges to global health systems but has also sparked a multifaceted crisis impacting economic and social realms worldwide. This unprecedented health crisis swiftly morphed into a financial upheaval, causing distress among retail investors who faced substantial losses (Zhang, Hu, & Ji, 2020). Scholars and researchers have closely examined the surge in market volatility, which reached unprecedented levels (Baker et al., 2020), affecting liquidity and market value as never seen before (Baig et al., 2020).

The Efficient Market Hypothesis (EMH) serves as a foundational concept in understanding market behaviors during crises. Stemming from the assumption of rational behavior and efficient information processing, EMH posits that stock prices reflect all available information accurately (Shiller, 1998). Fama (1965) defines an efficient market as one where prices represent intrinsic values accurately, facilitated by numerous rational investors competing to predict future market values based on freely available information (Fama, 1965). This theory underscores the swift incorporation of new information into stock prices, challenging the notion of consistently outperforming the market through technical or fundamental analysis.

Numerous studies have explored various facets of the COVID-19 pandemic, including its environmental and economic ramifications. Scholars like Magazzino, Mele, and Schneider (2020) have delved into the correlation between COVID-19 spread and air pollution, highlighting how pre-existing pollution levels may exacerbate susceptibility to the virus. Other researchers, such as Mele and Magazzino (2020), have explored pollution's role in fostering COVID-19 by making respiratory systems more vulnerable.

The stock market's response to COVID-19 announcements has been a focal point for researchers worldwide. Alber (2020a) studied European markets' reactions, finding sensitivity to COVID-19 cases over deaths and cumulative indicators over new ones. Similar investigations were conducted by Alber (2020b) in highly affected countries, Peterson and Ozili (2020) regarding economic policies' impact on stock indices, and Alber and Saleh (2020) concerning GCC stock markets. These studies collectively showcase how different regions and sectors respond uniquely to pandemic-related developments.

The pandemic's ripple effects extended to emerging markets, with researchers like Topcu and Gulal (2020) highlighting varying impacts across regions. Credit crunches, heightened risk aversion, and disruptions in trade and investments were observed (Ahmed et al., 2020; Goldberg & Reed, 2020; Frankel, 2020). Domestic stock markets, such as India's, experienced significant turbulence, reflecting global market trends (Raja Ram, 2020; Rakshit & Basistha, 2020).

The impact of COVID-19 on investor behavior and market dynamics has been a subject of extensive research employing diverse

methodologies, including quantile regression (Azimili, 2020), GARCH models (Osagie et al., 2020), and comparative analyses of pre- and post-pandemic market conditions (Ravi, 2020; Mandal, 2020). These studies collectively contribute to a nuanced understanding of how the pandemic has reshaped financial landscapes globally.

The interconnectedness of health risks, investor sentiment, and market performance underscores the need for comprehensive analyses to navigate the evolving dynamics of the post-pandemic financial world. Through empirical investigations and theoretical frameworks, researchers continue to unravel the complex interactions shaping market behaviors amid unprecedented challenges.

Research Methodology

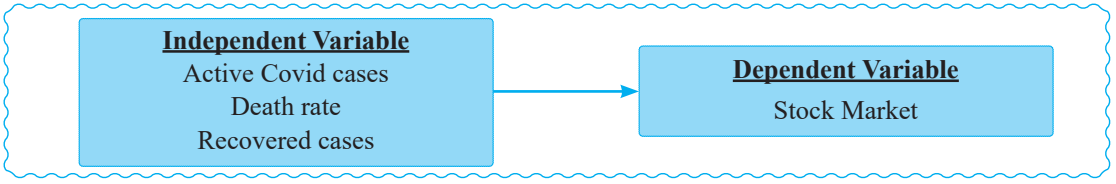
The descriptive research design has been adopting for fact-finding and operation searching for adequate information of firm characteristics in Nepalese banks. Furthermore, casual comparative research design has been use to know the relationship between dependent and independent an effort has also been made to describe the nature of pooled data of the development banks by using descriptive statistics with respect to bank specific variables such as which have impact on the market share price of the Nepalese development banks.

The population of this study are the development banks of Nepal. The sample includes 5 development banks out of total 17 development banks. This study used the annual report of the development banks. The banks which are in operation for longer period of time can provide reliable data and more accurate assessment. The convenient and judgmental sampling method was be used. This study was based on the secondary data. Data are collected from Annual Report of companies, Banks, NEPSE, security Board of Nepal and website of the companies.

Research Framework and Definition of Variables

To examine the impact of covid-19 during the nationwide lockdown to the BFI sector of Nepal, this paper follows the (AI –Awadhi et al., 2020), (Anh &Gan, 2020) and (Ashraf, 2020) methods of data regression analysis to investigate the direction of monthly stock returns. To test the impact of COVID-19 empirically, this paper sets the dependent variable as a stock market index and independent variable as monthly increased number of covid-19 positive cases, active cases, death rate and recovered cases.

Figure 1: *Theoretical Framework of Research*



Descriptive Analysis : It includes Mean, Standard Deviation and ratio analysis. It also includes frequency analysis, Bar Diagram and etc.

Inferential Analysis : The models employed in this study intend to analyze the relationship between MPS, DPS, Monthly Market-to book ratio, Covid-19 positive Cases and Monthly Market Capitalization. The following regression model is used in this study in an attempt to examine the empirical direction of Monthly stock returns. During the nationwide lockdown to the banking sector in Nepal, this paper follows the (Al-Awadhi et al., 2020) period covid 19 in Nepal. Therefore, the following model equation is designed to test the hypothesis. From the conceptual framework the function of dependent variables (i.e.) takes the following form:

Stock market Capitalization = f (CASE, MRK, MTB, ROE, ROA)

Data Presentation and Analysis

The study is focused on analyzing the common stock of listed development banks separately as the scope of the study concentrated only on listed development banks of Nepal. There are currently 17 development banks in operation in Nepal and all are listed in NEPSE. Among them 5 development banks are taken as a sample for the study. They are Jyoti Bikash Bank Ltd (JBBL), Garima Bikash Bank Ltd. (GBBL) and Muktinath Bikash Bank Ltd. (MBBL), Shangrila Development Bank Limited (SDBL) and Mahalaxmi Bikash Bank Limited (MBBL). Common stock of each listed development banks, their risk and return analyses are included in this study.

Jyoti Bikash Bank Limited

Figure 2: *Positive No. of Covid 19- Cases, Death Rate, Active Cases, Recovery Cases*

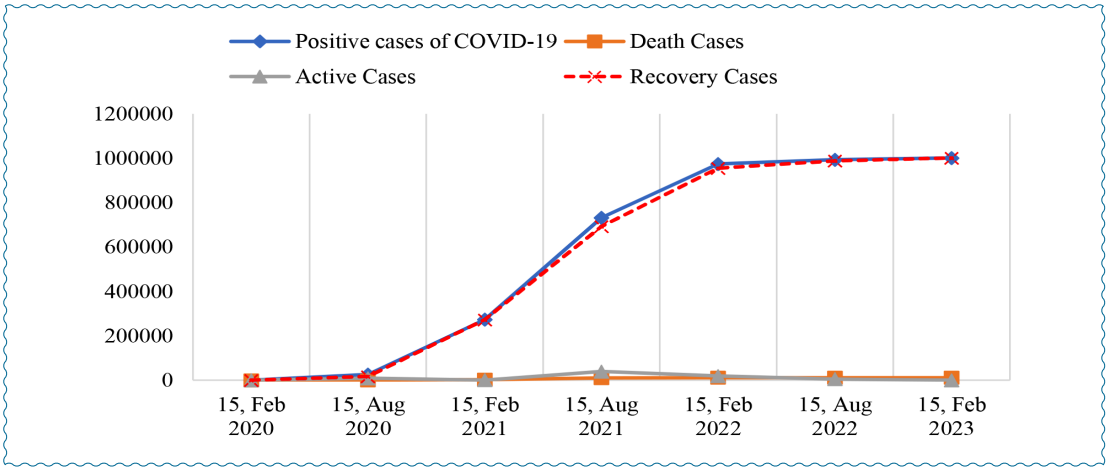
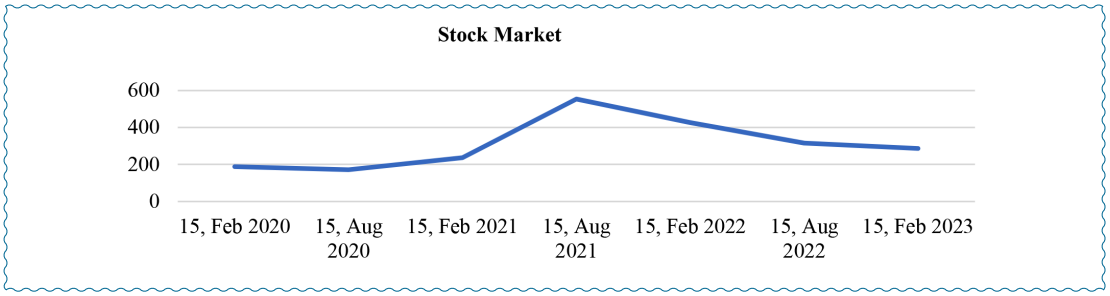


Figure 2 shows the trend line of positive no. of Covid -19 cases, death cases, active cases and recovery cases in 3 years during Covid-19. It can be seen that there is a fluctuation of cases from year 2020 to till 2023, and the trend line shows no change in death cases and active cases though positive cases and recovery cases line are little change at the beginning of 2020. The trend line of positive case and recovery cases rapid upwards from August, 2020 to beginning of 2022 and then after it seen that similar line to beginning of 2023. Death cases and active cases are almost similar from beginning of 2020 to beginning of 2021 then after active no of cases increased in August 2021after that line is seen decreasing trend and from beginning of 2022 to beginning of 2023.

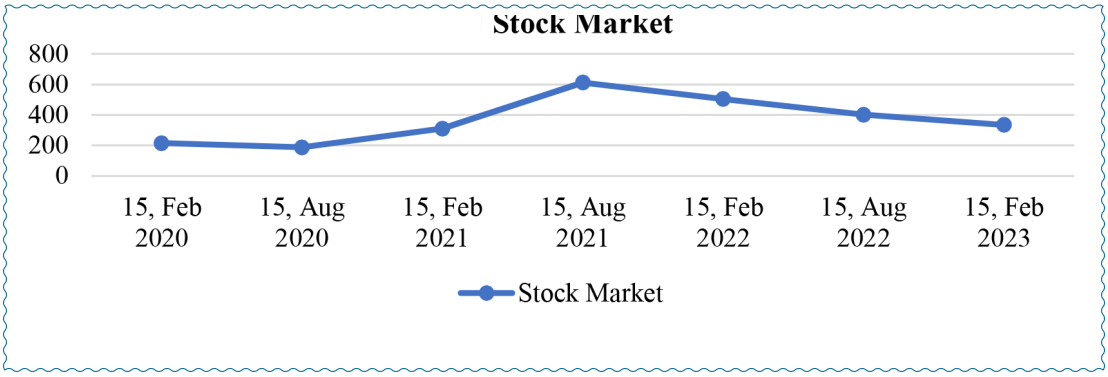
Figure 3: *Shows That Stock Price Of Jyoti Bikash Bank Limited In The 3 Year Period On Covid -19 Pandemic 2020 To 2023.*



The Figure 3 shows the trend line of stock price, where stock price of JBBL is fluctuation. In the beginning of 2020, stock price of the bank is 188 and in August 2020 it is decreased to 177 after that it is seen increasing trend. where, it seems to be touch highest pick which is 555 in the August 2021. After that it has seen downward sloping and price of stock is 287.

Muktinath Bikash Bank Limited

Figure 4: *Positive No. of Covid 19- Cases, Death Rate, Active Cases, Recovery Cases*

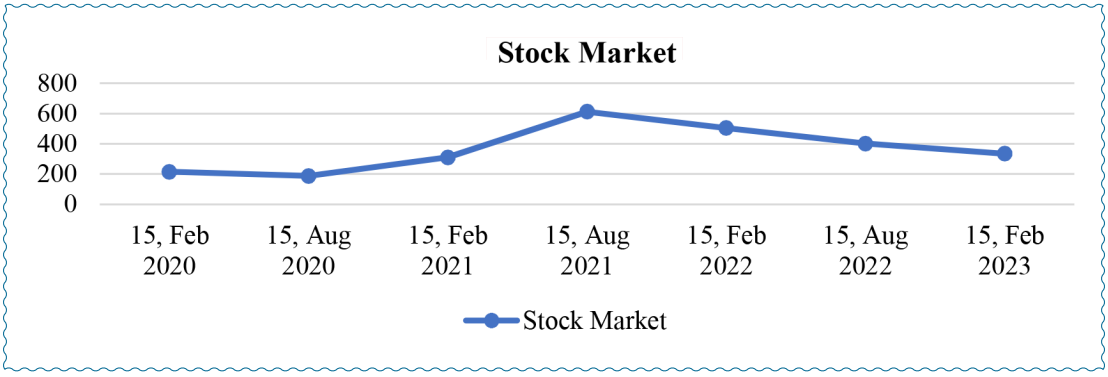


Source: AGM Report of MBBL

Figure 4 shows the trend line of market price in half yearly data. It can be seen that there is fluctuation of market price from year 2020 to till 2023, In the beginning the trend line of the stock is straight to august 2020, after that it has taken upward slop. In August 2020, the line is touch pick point, which data is 761. this is the highest price in the period time. Then after, in the beginning of 2023, it has decreased to 405.

Mahalaxmi Bank Limited

Figure 5: *Trend Line of Market Price of MBBL.*



Source: AGM Report of MBBL

Figure 5 shows the trend line of market price of MBBL. It can be seen that there is fluctuation of market price from year 2020 to till 2023, In the beginning the trend line of the stock is downward slopping where minimum stock price in the period is 188 then after is has taken upward slopping from Aug 2020 In August 2021, the trend line of stock is Pick level i.e. 612, and after that we can see trend line was decreasing.

Garima Bikash Bank

Figure 6: *Trend Line of Market Price of GBBL*

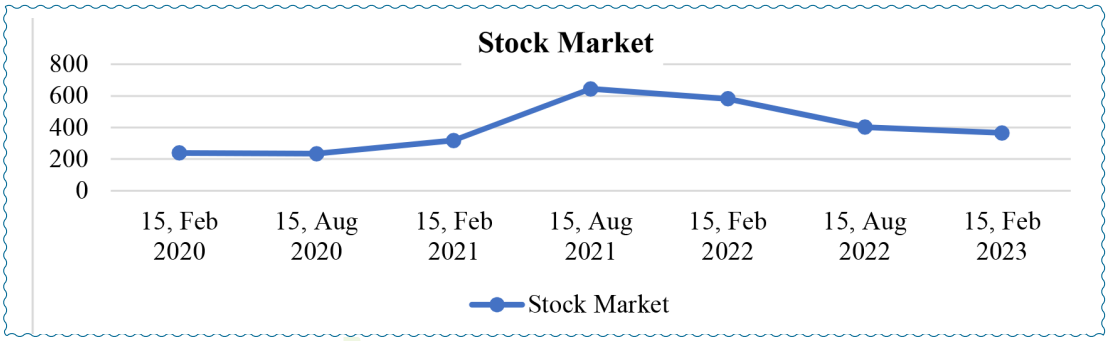


Figure 6 shows the trend line of market price of GBBL. It can be seen that there is fluctuation of market price from year 2020 to till 2023, In the beginning the trend line of the stock is downward slopping where minimum stock price in the period is 334 then after is has taken upward slopping from Aug. 2020 In August 2021, the trend line of stock is Pick level i.e. 644, and after that we can see trend line was decreasing.

Shangrila Development Bank

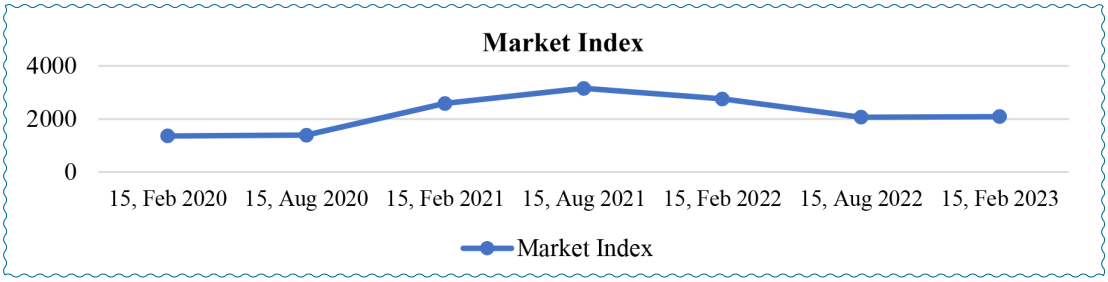
Figure 7: *Trend Line of market price of SBBL*

Figure 7 shows the trend line of market price of SBBL. It can be seen that there is fluctuation of market price from year 2020 to till 2023, In the beginning the trend line of the stock is downward slopping where minimum stock price in the period is 142 then after is has taken upward slopping from Aug.2020 In August 2021, the trend line of stock is Pick level i.e. 518, and after that we can see trend line was decreasing though in the starting of 2023, trend line shows move to upward slopping.

It shows the fluctuation of positive no. of cases, death cases, active cases, recovery cases of Covid -19 and price of market index. In the beginning of 2020, positive no of cases was 1, death cases was 0, active cases was also 0, recovery cases was 1, at the same time market stock price was 1363.98. Which lowest stock market price in the price in the period. At the same year, positive no. of cases increased to 26019, death cases also increased to 130, active no. of cases 9192 as well as recovery cases also increased to 16827 and little increase in stock market price, i.e.1391.46. The table reflects all the variable increased till 2021, where the stock market price was high i.e. 3154 on period. After that it has decreased. Change rate of all variables

also decreasing trend. In the beginning of 2023, stock market price has to 2091.56. It shows the relationship between dependent variable and independent variable.

Figure 8: *Relationship between Dependent Variable and Independent Variable*



The given figure shows the trend line of stock market price from 15 Feb, 2020 to 15 Feb, 2023. In the beginning of 2020, trend line of stock market price is lowest point in the period. In the beginning of 2020 to middle in same year, there is small correction on the stock price, where the trend line almost straight. After that it has seen rapid growth on stock market price. where we can see, the trend line is upward slopping. In Aug 2021, the trend line is peak in the history. As well as after that it is downward slopping though in the beginning of 2023, again it has small correction on stock market price.

Table 1: *Correlation Analysis*

	Positive cases of COVID-19	Death Cases	Active Cases	Recovery Cases	Stock Market
Positive cases of COVID-19	1				
Death Cases	0.99505426	1			
Active Cases	0.28166257	0.36666274	1		
Recovery Cases	0.99953575	0.99184902	0.25229746	1	
Stock Market	0.64970335	0.71660184	0.87942529	0.62728771	1

The correlation data required to respond to the research study's initial hypothesis is presented in this table. Here, $p < .05$. At a 1% level, it demonstrates a substantial association between share market index and covid cases. Market index is dependent variable and covid cases are independent variables. The correlation results shows that there is no any significant relationship between market index and the covid cases. Though there is high positive relationship between increasing number of covid cases and recovery cases with the market index.

Table 2: *Correlation Analysis*

Regression Statistics	
Multiple R	0.98071204
R Square	0.96179611
Adjusted R Square	0.59025889
Standard Error	38.0459041
Stock Market	0.64970335

Anova				
	df	**SS**	**MS**	**F**
Regression	4	109323.242	27330.8105	25.1753449
Residual	3	4342.47246	1447.49082	
Total	7	113665.714		
	Coefficients	**Standard Error**	**t Stat**	**P-value**
Intercept	177.653809	30.0815476	5.90574034	0.0096949
Positive cases of COVID	0.0006547	0.00078205	0.8370936	0.46397857
Death Cases	0.06492241	0.06456509	1.00553422	0.38872016
Active Cases	0.00478672	0.0026519	1.80501931	0.16882955
Recovery Cases	0.00378172	0.0016549	1.81501030	0.16582452

The result indicates that the beta coefficients for sensitive of stock price are positive with covid cases except increasing positive cases. It reveals that there insignificant changes in the market index due to of the covid cases. This result is contradictory with the results of Ashraf (2020) where stock markets responded negatively to the growth in COVID-19 confirmed cases. Nepalese stock market growth tremendously during the covid 19 pandemic.

The result indicates that the beta coefficients for Number of Covid cases are positive with market index. It reveals that higher the covid cases higher is market index. This finding is opposite to the findings of Devkota (2008). The result indicates that the beta coefficients for death cases, recovered cases and active cases are also positive with market index. The p value of variables is greater than .05, it shows there is no significant relation between covid cases and stock market index.

After making the entire analysis of the data, the first hypothesis (H1) that deals with no relationship between stock price with positive no. of cases of Covid -19 is accepted. The study shows that there is no significant relation between covid cases and stock price. Similarly, the second hypothesis (H2) that deals with no relationship between stock price with death cases of Covid-19 is accepted. Similarly, hypothesis third (H3) that deals with no relationship between active cases and stock price is accepted. The fourth hypothesis (H4) is accepted as no relationship with recovery cases and stock price.

Conclusion

The tumultuous events of 2020, especially the COVID-19 pandemic, brought unprecedented challenges to global financial markets. The swift and severe market crash in March 2020 underscored the profound impact of black swan events like pandemics on stock markets. The initial disbelief regarding the virus's severity quickly gave way to widespread fear as it spread worldwide, prompting governments to implement strict lockdowns and halt economic activities. This resulted in a sharp decline in stock prices across various sectors, highlighting the intricate relationship between external shocks and market behavior.

The central tenet of finance, the risk-return trade-off, garnered significant attention amid these disruptions. Investors' perceptions of risk and their demand for commensurate returns played a pivotal role in shaping investment decisions. The study's findings shed light on the risk profiles of development banks, emphasizing their volatility and fluctuating stock prices. This volatility underscores the need for investors to carefully assess risk and align their investment strategies with their risk appetites.

One noteworthy observation from the study is the market's resilience during crises like the COVID-19 pandemic, which presented opportunities for robust returns. Such periods of economic turmoil often create investment opportunities for those willing to capitalize on market downturns. However, the study also highlights the negative impact witnessed by stock markets, reflecting the broader economic challenges posed by the pandemic.

Interestingly, the study's findings regarding the relationship between COVID-19 cases and stock market performance yielded nuanced results. While beta coefficients showed a positive correlation between COVID-19 cases and market indices in certain scenarios, the lack of significance in other cases indicates a complex and multifaceted relationship. These findings contrast with some prior studies, highlighting the dynamic nature of market responses to external events.

In the study underscores the importance of understanding risk-return dynamics in navigating volatile markets, especially during unprecedented crises. The resilience exhibited by markets amid adversity, coupled with the opportunities for strategic investments, underscores the importance of informed decision-making and adaptive strategies in financial management. As markets continue to evolve in response to global events, ongoing research and analysis will be crucial in guiding investors and stakeholders through uncertain times.

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