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RESEARCH ARTICLE

Parsing the Performance of Stock Market Indices Amidst COVID-19 and Russia-Ukraine War: A Comparative Study of DSEX, Nifty-50, and KSE-100

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ABSTRACT

The primary objective of this investigation is to assess the performance of the benchmark indices in the stock markets of Bangladesh, India, and Pakistan, denoted by DSEX (Dhaka Stock Exchange Broad Index), Nifty-50 (National Stock Exchange Fifty), and KSE-100 (Karachi Stock Exchange 100 Index), respectively. Data is meticulously gathered across distinct periods, namely the pre-COVID, the COVID-19, and the concurrent COVID-19 era along with the Russia-Ukraine War period, and amid the consequent global ongoing financial crises. The study encompasses information spanning from July 2, 2013 to May 9, 2023, employing descriptive statistics, where both mean returns and risk-adjusted returns were calculated consecutively. The evaluation of diversification among the indices during the specified periods is conducted through descriptive statistics and Ordinary Least Squares (OLS) estimation. The findings of this study indicate that all the indices exhibited negative mean returns during the COVID-19 phase. Furthermore, both mean returns and risk-adjusted returns of the indices witnessed substantial increments amid the inflationary environment concurrent with the COVID-19 and Russia-Ukraine War periods. OLS estimation results suggest an absence of a discernible diversification relationship among the indices. In summary, our results underscore the dynamic nature of index prices across diverse temporal and global crisis scenarios. These implications offer valuable insights for investors and stockholders, enabling them to discern hedging opportunities and identify diversifiable indices within the global stock markets across disparate periods and crises.

Keywords: COVID-19, Global economic crisis, Russia-Ukraine war, Stock market indices.

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1. Introduction

Global economic crises, such as the COVID-19 pandemic and the Russia-Ukraine war, have significantly impacted financial markets worldwide. The International Monetary Fund reported a 3% drop in the global economy due to the COVID-19 crisis (McKibbin & Vines, 2020). The uncertainty caused by these crises has negatively affected investor confidence, with elevated political risk proven to impact the global stock market (Choi, 2022). The interconnectedness of financial markets was evident in the impact of the Russia-Ukraine war on stock market indices (Umar *et al*., 2022). Restrictions on travel and economic activity to control the spread of COVID-19 resulted in significant disruptions in the flow of commodities and services, leading to economic shocks. Moreover, the abundance of information available on social media and media channels has affected stock market dynamics, particularly during periods of political and economic unrest (Tavor & Teitler-Regev, 2019). The ripple effect of the COVID-19 pandemic on stock market performance in Bangladesh, India, and Pakistan has been notable (Sharif *et al*., 2020; Ashraf, 2020a, 2020b). The closure of stock exchange markets and restrictions due

to the Russia-Ukraine war further emphasize the significant impact of political issues on global financial market movements. On the other end, geopolitical events, such as the Russia-Ukraine war, have significantly impacted financial prices, leading to increased geopolitical risk in stock markets (Ullah *et al*., 2023). The war's economic ramifications have affected trade restrictions and repercussions, particularly in the Asia-Pacific region, including Bangladesh, India, and Pakistan. This has resulted in increased turbulence in global financial market indexes (Joshi *et al*., 2023). The study also contrasts the performance of stock market benchmark indices, such as DSEX, Nifty-50, and KSE-100, highlighting the unexpected implications of COVID-19 on Pakistan's stock market and exchange rate (Syed & Fatima, 2021). COVID-19 pandemic has triggered economic turmoil globally, leading to business closures and reduced trade activities, particularly impacting emerging economies with limited resources and subpar economic growth (Yoganandham, 2023). Despite these challenges, Bangladesh has achieved a notable annualized GDP increase amidst the Russia-Ukraine war and the pandemic (Al-Mamun, 2023), although concerns about future growth persist due to various adverse effects on the domestic economy.

Businesses are related in several ways in the modern global economy, such as through ownership and international trade. Specific risks associated with international ventures include exchange rate volatility along with social, economic, and political unpredictability. In developing economies, these risks are amplified. The South Asian region was influenced by Russia's invasion of Ukraine and the COVID-19 pandemic's aftereffects. India may emerge as the world's third-largest economy after 2030 Seth and Kelly (2023), per the Centre for Economics, Business, and Research India to become the 3rd largest economy in 2030. The China-Pakistan Economic Corridor is expected to bolster the Pakistani economy through 2030 according to Sandia Report titled The China-Pakistan Economic Corridor: Trade Security and Regional Implications (https://www.investopedia.com/articles/investing/022316/south-asia-new-face-emerging-economies.asp). Effective risk-hedging methods are conspicuously lacking in Bangladesh, where the capital market is centered mainly on long equities. Bangladesh should investigate the implementation of different financial instruments and regulations, such as exchange-traded funds (ETFs), index futures, and short selling, which have been legally permitted but are awaiting the establishment of supporting infrastructure, to close this gap. Numerous stock market investors will likely see a significant reduction in their primary occupational disposable incomes (DPIs) as a result of the employment loss. In normal circumstances, these DPIs may be used for investments. According to a recent Brac study, 51% of Bangladeshis report that their incomes have decreased to zero, and 95% of respondents claim that COVID-19 has caused them to run out of money (Mostafa *et al*., 2021). Around the world, central banks anticipate monetary relaxation in 2024. Unfortunately, its peer market status of Bangladesh is far from the global standard, and there are many challenges to overcome those shortcomings in competing with its contemporaries (Taher & Tsuji, 2022).

While most Asian stock markets performed well this year, the Bangladesh market did poorly, yielding a negative 5.3% from December 30, 2022, to December 14, 2023. The most significant obstacle to the market's expansion has been the floor price, or price movement restriction, which destroyed investor confidence by rendering the market as a whole nearly illiquid. Regardless of the reality that rates of interest have been escalating in Bangladesh since July, quite several publicly traded companies have recovered and have made significant profits in the second half of this year. Bangladesh's earnings should rebound in the upcoming year; the AFC (Asia Frontier Capital) notes that any stock market re-rating in the second half of 2024 would be contingent upon sustained macro changes reaching their apex in the first half of the following year. There are various benefits that short selling provides to the stock market in Bangladesh. Short-Selling Lessons for Bangladesh Capital Market (Chowdhury *et al*., 2019). First of all, it is essential for increasing market liquidity and encouraging more economical stock pricing. It conveys an essential check on upward market manipulations by offering a way to profit from dropping stock prices, preventing the abrupt growth of bad stocks, and correcting irrational overpricing. Bangladesh's revenues will rise sharply in the upcoming year from a low base due to the headwinds she has faced in the past 12–18 months due to Russia's invasion of Ukraine and the COVID-19 pandemic.

The study evaluates mean returns and risk-adjusted returns to address highlighted concerns. Data from www.investing.com is used, and diversification among indices is appraised through correlation analysis and OLS estimation. The analysis concludes with a forecast of a looming global crisis, potentially leading to significant devastation and rising inflation due to the COVID-19 pandemic and the Russia-Ukraine war. The study aims to alert investors to hedge their assets during global crises in the future.

2. Materials and Methods

2.1. Data Collections

In the current study, a group of data regarding the values of investment and profit considering three different circumstances—pre-COVID, during COVID-19, and the ongoing Ukraine-Russia war, have been collected daily. The DSE, Nifty-50, and KSE-100 stock exchanges were considered for a comparative and comprehensive analysis to proceed with the analysis. Established sources such as PubMed (www.pubmed.ncbi.nlm.nih.gov) (Cucinotta & Vanelli, 2020) and the Investing database (www.investing.com) have all the necessary information. The finding of Hassan *et al*. (2022) is related to our paper.

2.2. Data Optimization

In explaining the data collected, a group of variables was considered, such as the exact value of the investment, the profit over the very investment, currencies exchanged, time of the transaction, and geographical and geopolitical significance.

2.3. Sample Sizing

The total sample size was estimated based on the following equation, K. and Morgan's method (Memon *et al.*, 2020):

$$n = \frac{x^2 NP\,(1-P)}{d^2\,(N-1) + x^2 P\,(1-P)}$$

where n is the sample size, N is population size, P is the population portion (if unknown, then 0.5), d^2 is the desired margin of error (expressed as portion), and x^2 is Chi-square for specified confidence lev*el at* 1 degree of freedom.

2.4. Statistical Analysis

A group of statistical analyses was accomplished in explaining different factors from the three different share market indices such as two-way ANOVA (Jabin *et al.*, 2023; Rahman *et al.*, 2023), 95% CI, SD, SEM, coefficient-correlation, and R-square tests as the primary determinants (Azad *et al.*, 2022). For secondary analysis of the targeted parameters, Tukey's t-test for multiple comparisons was conducted (Akter *et al.*, 2020; Al Azad *et al.*, 2020; Azad *et al.*, 2019). To ensure the high throughput analysis of all the collected data, sophisticated software tools such as R-programming Script (version R-4.0.2 for Linux) (Dey *et al.*, 2021; Ferdausi *et al.*, 2022; Islam *et al.*, 2021) and GraphPad Prism (Version 8.0.1, MacOS) (Arefin *et al.*, 2021; Mohammad Rashaduzzaman *et al.*, 2019; Nipun *et al.*, 2021; Xie *et al.*, 2024) were preferred in this study. In accomplishing these statistical analyses the following equations have been used:

1. Requirement of logarithmic returns (1)

$$R_t = ln\left(\frac{P_t}{P_{t-1}}\right) \tag{1}$$

where R_t stands for the logarithmic returns of a certain index at period t, ln stands for natural logarithm, and P_t and P_{t-1} are the prices of all the indices on those periods, t and $t-1$, respectively.

2. ANOVA
   The run-of-the-mill Two-Way ANOVA model is given in (2):

$$Y_{ijk} = \mu + A_i + B_j + (AB)_{ij} + \epsilon_{ijk} \tag{2}$$

where Y_{ijk} is the kth observation on the ith level of factor A and the *jth* level of factor B. μ is the overall mean, A_i is the effect of the ith level of factor A, B_j is the effect of the *jth* level of factor B, $(AB)_{ij}$ is the interaction effect between the ith level of factor A and the jth level of factor B, and ϵ is the random error component. Now, we unmask the F-ratios. An F-ratio is the ratio of variation between group means (MSA, MSB, $MSAB$) to the variation within groups (MSE). The F-ratios for the main effects and interaction in a Two Way ANOVA can be expressed as (3)–(5):

$$F_A = \frac{MSA}{MSE} \tag{3}$$

$$F_B = \frac{MSB}{MSE} \tag{4}$$

$$F_{AB} = \frac{MSAB}{MSE} \tag{5}$$

If the computed F-ratios for A, B, or AB are large, it suggests that there is a considerable variation explained by the respective factor or interaction. These F-ratios, once calculated, are compared against a critical F-value in the F-distribution table. P-values are then found, and if they are less than the conventional 0.05 level, it rejects the null hypothesis that there's no difference in means due to the respective factor or interaction.

3. 95% CI (Confidence Interval) Estimation
   The confidence interval formula is given in (6):

$$CI = \bar{x} \pm z\left(\frac{\sigma}{\sqrt{n}}\right) \tag{6}$$

where CI is the confidence interval, $\bar{x}$ is the sample mean, z is the confidence level value, s is the sample standard deviation, and n is the sample size.

4. Standard Deviation Estimation
   Sample Standard Deviation formula is given in (7):

$$\sigma = \sqrt{\sum_{i=1}^{n} \frac{(Xi - \overline{X})^2}{n}} \tag{7}$$

where σ is the standard deviation, xi is the terms given in the data, $\bar{x}$ is the mean, and n is the total number of terms.

5. Standard Error Estimation
   Standard Error formula is given in (8):

$$SE = \frac{\sigma}{\sqrt{n}} \tag{8}$$

where σ is the population of standard deviation, and n is the number of samples.

3. Results

3.1. Pre-COVID Analysis

In the current study, the ratio of investment to profit was found to be comparatively more stable in pre-COVID conditions for all the share markets as compared to the COVID and Ukraine-Russia war situations. Among the markets, maximum pre-COVID investment was observed on a single-day basis in KSE-100 (52876.46 PKR) followed by Nifty-50 (12362.30 INR) and DSEX (6322.51 BDT) (Table I). Despite a daily-basis maximum investment by KSE-100, the highest profit on investment was gained by DSEX (0.089766 BDT) (Fig. 1A), where 0.075315 INR and 0.071997 PKR were recorded for Nifty-50 (Fig. 1B), and KSE-100, respectively (Fig. 1C).

Based on the average investment, KSE-100 (36511.44 PKR) invested much more than the other two indices,

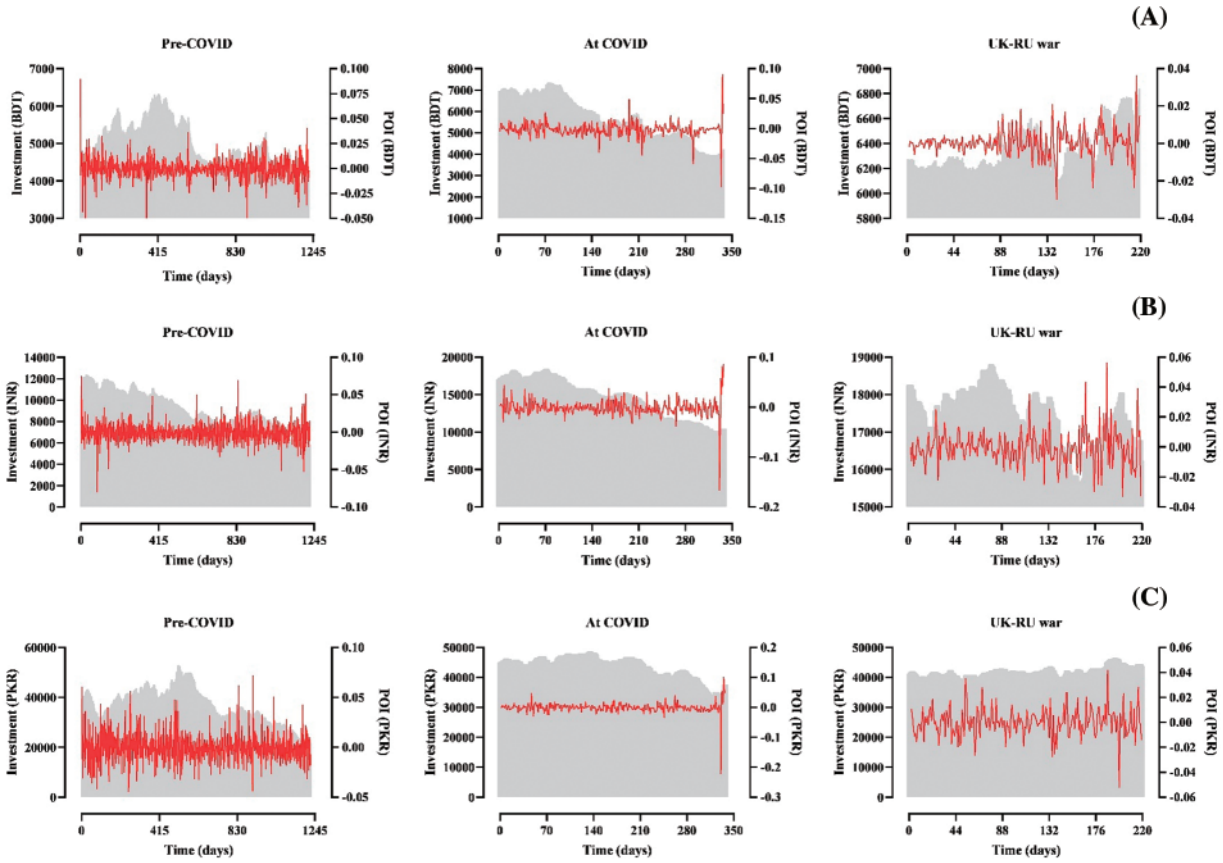

Fig. 1. Scenario of the investment and profit ratio of DSEX (Dhaka Stock Exchange Broad Index) (A), the Nifty-50 (National Stock Exchange Fifty) (B), and KSE-100 (Karachi Stock Exchange 100 Index) during various periods (C).

TABLE I: Investment and Profit Ratio Parameters of DSEX, Nifty-50 and KSE-100 during Various Periods

	DSEX			Nifty-50			KSE-100		
Parameters considered	Pre- COVID	During COVID-19	Russia-Ukraine War	Pre- COVID	During COVID-19	Russia-Ukraine War	Pre- COVID	During COVID-19	Russia-Ukraine war
Investment (Max.)	6322.51	7351.04	6839.44	12362.30	18477.05	18812.50	52876.46	48726.08	46539.59
Profit (Max.)	0.089766	0.090517	0.0364499	0.075315	0.086669	0.056247	0.071997	0.102080	0.041888
Investment (Min.)	3763.88	3603.95	5980.51	5287.45	7801.05	15350.15	21644.17	27228.8	38342.21
Profit (Min.)	−0.06687	−0.09798	−0.03022	−0.08033	−0.16664	−0.03315	−0.04494	−0.22273	−0.05245
Investment (Average)	4989.67	5737.19	6364.22	9094.54	14528.09	17334.35	36511.44	43427.9	41900.02
Profit (Average)	0.00004	−0.00148	0.0004	−0.00047	−0.00146	−0.00054	−0.00044	−0.00054	0.00026

Note: DSEX (Dhaka Stock Exchange Broad Index), Nifty-50 (National Stock Exchange Fifty), and KSE-100 (Karachi Stock Exchange 100 Index).

but the profit of DSEX (0.00004) was the highest among the three indices (Table I). Though DSEX had invested less (4989.67 BDT) than KSE-100 and Nifty-50 (9094.54 INR), it had a profitable return compared to KSE-100 (−0.00040), and Nifty-50 (−0.00047) (Table I). At that period, the rates of the dollar were 82.68 BDT, 76.30 INR, and 154.25 PKR, respectively, for DSEX, Nifty-50, and KSE-100.

3.2. *During COVID Analysis*

Utilizing the analytical parameters of the present research paper, the investment surged in DSEX (Fig. 1A) and Nifty-50 (Fig. 1B) while experiencing a decline in KSE-100 (Fig. 1C). Notably, the performance, gauged by the profit investment ratio, exhibited superior results for KSE-100 amidst the COVID-19 era compared to both DSEX and Nifty-50. Daily investment statistics disclosed that KSE-100 led with the highest investment amount (48726.08 PKR). In contrast, DSEX peaked at 7351.04 BDT, and Nifty-50 at 18477.05 INR (Table I). Despite KSE-100's comparatively lower investment during the COVID period, it yielded substantially higher profits (0.102080 PKR), surpassing the returns of DSEX (0.090517 BDT), and Nifty-50 (0.086669 INR) (Fig. 1 and Table II).

Emphasizing average investment, during COVID-19, KSE-100 (43427.90PKR) (Fig. 1C) had invested less than before. During that time, DSEX (5737.19 BDT) and Nifty-50 (14528.09 INR) had invested less than compared to the previous period (Table I). KSE-100

TABLE II: Analytical Parameters Estimation

	DSEX			Nifty 50			KSE 100		
Analytical parameters	Pre- COVID	During COVID-19	Russia-Ukraine war	Pre- COVID	During COVID-19	Russia-Ukraine War	Pre- COVID	During COVID-19	Russia-Ukraine war
SD	600.1	1051	178.6	1781	2661	817.2	7014	3984	1570
SEM	17.18	57.33	12.10	50.99	145.1	55.35	200.8	217.4	106.6
95% CI	−5024 to −4957	5846 to −5621	−6388 to −6341	9193to −8993	−14806 to −14235	−17439 to −17221	−36905 to −36117	−7559 to −6704	−42113 to −41693
r	0.03157	0.05884	0.1886	0.05512	0.07047	0.1298	0.07198	0.3398	0.1942
R-squared	0.9858	0.9676	0.9992	0.9631	0.9676	0.9978	0.9644	0.7627	0.9986
p - value	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	p-value	<0.0001	<0.0001

Note: *r*–Correlation coefficient, SD–Standard Deviation, SEM–Standard Error of the Mean, CI–Confidence Interval.

(−0.00054) experienced the highest average return during that period, whereas the Nifty-50 (−0.00146 INR) and DSEX (−0.00148 BDT) (Figs. 1A and 1B respectively). The rate of the dollar during that period was 83.44 BDT, 73.25 INR, and 154.33 PKR.

3.3. *Ukraine-Russia War Period Analysis*

In the context of the Ukraine-Russia war, this study reveals that the Indian stock index Nifty-50 garnered significantly more positive responses compared to KSE-100 and DSEX (Figs. 1A and 1B, respectively). Respondents in all respective indices witnessed an upswing in contrast to the COVID-19 period. Nifty-50 led with the highest single-day investment (18812.50 INR), followed by KSE-100 (46539.59 PKR) and DSEX (6839.44 BDT) (Table I). The profit ratio derived from investments demonstrated a substantial advantage for Nifty-50 (0.056247 INR), surpassing both DSEX (0.0364499 BDT) and KSE-100 (0.041888 PKR) (Figs. 1A–1C; Table I).

On the performance of average investment, DSEX had gained much return of about 0.00040 whereas Nifty-50 had achieved a −0.00054 return and KSE-100 had experienced a return of 0.00026 (Table I). The investments of the respective three indices were DSEX (6364.22 BDT), Nifty-50 (17334.35 INR), and KSE-100(41900.02 PKR) (Table I). During the Russia-Ukraine war, the trading rate of the dollar was 105.75 BDT, 82.91 INR, and 277.81 PKR.

The study's revelations indicate a notably progressive performance of DSEX in the pre-COVID period. Contrarily, the KSE-100 index recorded substantial profits during the COVID-19 period, diverging from both pre-COVID and Russia-Ukraine war periods. In the latter conflict, Nifty-50 outperformed both DSEX and KSE-100 in terms of profitability. The repercussions of the global pandemic introduced volatility to the otherwise stable performance of stock market indices. Remarkably, the geopolitical invasion left a discernible impact on the investment-to-profit ratio, with the three required indices showcasing distinct performances compared to the preceding two periods.

4. Discussion

Our research suggests the performance of stock market indices in Bangladesh, India, and Pakistan. These markets displayed significant investment volatility across the pre-COVID, COVID-19, and Russia-Ukraine war periods. Corresponding to these investments, the profit values of the three indices also experienced fluctuations during specific time frames. A relevant discovery akin to ours pertains to emerging market debt and the impact of the COVID-19 pandemic: an analysis of spreads and total return dynamics through a time-frequency lens (Gubareva & Umar, 2023). During a worldwide pandemic, it is typical for pandemics to potentially influence global stock markets, economic sectors, and the regular activities of diverse financial industries.

Geopolitical invasions can significantly affect financial markets globally. Due to interconnected situations, the stock markets worldwide are interlinked. Our discovery aligns with existing research: the influence of the Russia-Ukraine war on stock markets in Asia-Pacific, the United States, and Europe (Joshi *et al*., 2023). This study distinctly emphasizes the fluctuation rate of investments during the Russia-Ukraine conflict (Table I). Moreover, a notable high volatility in profit rates was observed during this period of conflict (Table I).

4.1. *Pre-COVID Condition*

In this investigation, DSEX exhibited a notably higher investment-to-profit ratio during the pre-COVID period (Fig. 1A; Table I) compared to the other two stock markets, both on a daily and average basis. The investment rate of DSEX was lower in comparison to the subsequent periods (during COVID-19 and the Russia-Ukraine conflict) (Fig. 1A). A relevant study previously published was "Macroeconomic Factors and Stock Exchange Return: A Statistical Analysis" by Billah and Khan (2023). During the pre-COVID era, the Nifty-50 index displayed the lowest investment rate when contrasted with the COVID-19 and Russia-Ukraine conflict periods (Fig. 1B). Another prior publication also suggests a similar trend: "Market Efficiency of ESG and Traditional Indices: Pre- and Post-COVID Analysis of NSE Indices" by Vadithala and Tadoori (2021). Conversely, an alternate scenario unfolded during the pre-COVID epoch in KSE-100. The investment rate of KSE-100 was at its peak during the pre-COVID period compared to the subsequent periods (during COVID-19 and the Russia-Ukraine conflict) of the KSE-100 index (Fig. 1C). A similar situation was observed in the study of Qadri *et al*. (2023).

4.2. *During COVID-19*

This study indicates that the profit ratio was notably stronger for the KSE-100 during the daily and average basis of COVID-19 compared to the other two indices (DSEX and Nifty-50) (Fig. 1C; Table I). A relevant research paper to consider is "Pakistan's Leading Stock Exchange and COVID-19 Nexus: Evidence from Quantile Regression Analysis" by Munir *et al*. (2023). The profit ratio at DSEX showed an increase in comparison to the preceding period (Fig. 1A). In connection with a specific study on the impact of COVID-19 on the volatility of the Bangladeshi stock market: Evidence from the GJR-GARCH Model (Golder *et al*., 2022). However, when examining DSEX, Nifty-50, and KSE-100, the profit ratio of DSEX ranked lower than KSE-100 (Table I). While the profit ratio of the Nifty-50 index increased compared to the previous period, a related study is "Impact of COVID-19 on the Stock Market" by Choudhuri (2020). In comparison to DSEX and KSE-100, the Nifty-50 index occupied the last position (Table I).

4.3. *The Russia-Ukraine War*

In this study, during the Russia-Ukraine war period, Nifty-50 exhibited superior performance daily in terms of profit ratio compared to the previous COVID-19 and Russia-Ukraine war periods (Fig. 1B and Table I). A relevant research paper to consider is "Impact of the Russia-Ukraine War on the Indian and US Stock Markets" by Kumar *et al*. (2022). However, on an average basis, DSEX's profit ratio ranked highest compared to the other two indices (Table I). "Impact of the Russia-Ukraine War Price Shocks on the Bangladesh Economy: A General Equilibrium Analysis" by Chowdhury *et al*. (2023) is a related piece of literature pertinent to our findings. KSE-100's performance is not as robust, with both investment and profit rates at their lowest compared to the preceding two periods (Fig. 1C). This presents a concern for the KSE-100 index as the stock market indices of the neighboring countries, DSEX and Nifty-50, are in a more favorable position (Fig. 1; Table I). Our findings align closely with those in several other experiments, including Nadia *et al*. (2024). Notably, the investment and profit ratio exhibited significant fluctuations during that period (Fig. 1).

In this paper, the performance of the Bangladesh stock exchange, DSEX, was significantly impacted by COVID-19 on an average basis (Table I). Consequently, the profit ratios during the COVID-19 period were lower than the pre-COVID period, but the index made higher investments on average compared to the pre-COVID period (Table I). Subsequently, during the Russia-Ukraine war period, DSEX reduced its investments compared to previous periods but achieved impressive profits on average (Table I). The investment rate and profit ratio exhibited fluctuations across different periods (Fig. 1A).

Nifty-50's performance in investment could be described as upward sloping during the pre-COVID, COVID-19, and Russia-Ukraine war periods (Fig. 1B). However, the profit ratio reflected a different scenario (Fig. 1B). Despite making substantial investments during the Russia-Ukraine war, they did not achieve the desired level of profit (Table I). Related research papers that are already available in the literature of Kumar *et al*. (2022). On an average basis, during the specified periods, all the returns of Nifty-50 contained negative values (Table I).

While the investment rate during the pre-COVID, COVID-19, and Russia-Ukraine war periods of KSE-100 showed a downward trend (Fig. 1C), the profit ratio during COVID-19 was higher than in the pre-COVID period, despite investing less than before (Fig. 1C). Our findings are supported by the literature of Syed *et al*. (2022). An alternate scenario emerged during the Russia-Ukraine war period (Fig. 1C). Despite investing less than in previous periods during the Russia-Ukraine war period, KSE-100's profit ratio was lower than in previous periods (Table I).

Your results demonstrate that despite DSEX, Nifty-50, and KSE-100 being broad indices of neighboring countries' stock markets, they exhibited varying scenarios during the pre-COVID, COVID-19, and Russia-Ukraine war periods. Daily, DSEX performed the best during the pre-COVID period. In contrast, KSE-100 showed the highest profit performance on a specific day during the COVID-19 period. Lastly, Nifty-50 had the greatest profit daily during the Russia-Ukraine war period.

5. Conclusion

DSEX performed well pre-COVID, KSE-100 thrived during COVID-19, and Nifty-50 outshone both during the Russia-Ukraine war. The global pandemic introduced volatility, and the geopolitical invasion notably influenced investment-to-profit ratios across the three indices.

6. Limitations

The authors are expecting to increase the sample size of the study next time. Besides, the performance of these stock markets can frequently fluctuate over each other in the coming fiscal year if any natural and/or, geopolitical uncertainty takes place. Thus, continuous surveillance and real-time updating of the data will be required.

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Author Contribution

Kaniz Fatema: Conceptualization, methodology, data curation, validation, formal data analysis, and draft preparation. Sutap Kumar Ghosh: Formal data analysis, data curation, validation. Mst. Umme Habiba: Formal data analysis, draft preparation, editing, and reviewing. Mithun Bairagi: Supervision, validation, draft writing, reviewing, and corresponding.

Conflict of Interest

The authors have no competing interests with the others at all.

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