Impact of COVID-19 on the Sector-Wise Return in Colombo Stock Exchange

Wanigasekara, M.I.* and Wanniarachchige, M.K.

Department of Finance, University of Ruhuna, Sri Lanka

Abstract

Previous studies have shown that the effects of the pandemic vary across countries and sectors, and developing countries often experience stronger economic and financial disruptions because of limited economic protection and lower market resilience. Further, many earlier studies focused either on the overall stock market or on a few selected sectors, making it difficult to apply their findings in to sectoral performance. Therefore, this study examines the impact of COVID-19 on sector-wise stock returns at the Colombo Stock Exchange (CSE) using a panel regression while controlling for inflation and the exchange rate. The data set used for analysis covers 19 sectors of the CSE over the period from 2020 to 2023. The software and services sector was excluded since there are no listed companies under this sector. The results show that several sectors, including Capital Goods, Commercial and Professional Services, Consumer Durables & Apparel, Consumer Services, Diversified financials, Food Beverage & Tobacco, Health Care Equipment & Services, Household & Personal Products, and Transportation, have benefited due to COVID-19, whereas sectors like Automobiles & Components, Materials, and Retailing have suffered due to COVID-19. These findings provide useful insights for investors, policymakers, and other stakeholders in understanding sector-specific responses to major economic shocks such as COVID-19.

Keywords: COVID-19, Colombo Stock Exchange, sector-wise stock return, panel regression

1. Introduction

COVID-19 pandemic is an unexpected global crisis that originated in Wuhan, China, in 2020 (Szczygielski et al., 2023). Sri Lanka was also affected by the COVID-19 pandemic in 2020, and by February 2022, the country had recorded more than 630,000 COVID-19 cases. The COVID-19 pandemic is generally recognized as the sixth global pandemic (P. N. Sandamini & S. Rajeevan, 2021). This pandemic has led to more structural changes in various sectors such as education, healthcare and technology than any other pandemic. Therefore, some studies have recognized this pandemic as the first sustainable crisis (Ahmed et al., 2021). It had a significant negative impact on the world economy and led to an increase in poverty. The worldwide financial markets were also substantially hit by the COVID-19 pandemic (Sansa, 2020).

Nevertheless, the impact of the COVID-19 pandemic was heterogeneous across countries (Kusumahadi & Permana, 2021; Szczygielski et al., 2023). While countries such as France and Italy had relatively lower impacts, China, the UK and Canada were highly affected. Some argue

* Corresponding Author: madhushiimalsha19@gmail.com

Proceedings of the 6th Annual International Conference on Emerging Financial Markets and Policy (EFMP 2026)
© 2026 Sri Lanka Finance Association
ISSN 2792-1220, eISSN 2806-514X

that developing countries had a more severe impact than developed countries because they had weak economic protection against economic shocks (Adikari & Buddhika, 2023). Further, Szczygielski et al. (2023) also argued that the Asia Pacific region had a lower impact than that in the USA. Moreover, the evidence suggest that the sector-wise effect of the COVID-19 pandemic is also different (Dissanayaka & Anuradha, 2021; Rathnayaka & Gunasekara, 2023; Sandamini & Rajeevan, 2021).

This research aims to fill two main research gaps. First, although a considerable number of studies have analyzed the impact of the COVID-19 pandemic on stock market returns, most of them are conducted in countries other than Sri Lanka. Those findings cannot directly apply to Sri Lanka because the impact of the COVID-19 pandemic varies across countries due to economic, social, and geographical differences (Kusumahadi & Permana, 2021). Second, although, few studies have examined the effect of COVID-19 on the CSE at aggregate level of which the findings are conflicting, a sector-wise investigation could not be found. Therefore, this study intends to investigate the effect of COVID-19 pandemic on sectoral returns while controlling for inflation and exchange rate.

Previous studies have investigated the impact of COVID-19 on stock market performance using different observation periods. For example, Adikari and Buddhika (2023) has examined the impact of COVID-19 over approximately 270 days. Kusumahadi and Permana (2021) focused on the period of 2019-2020, and Rathnayaka and Gunasekara (2023) examined the period from 2018 to 2021. Although these studies provide valuable evidence regarding the impact of COVID-19 on the stock market, their observation periods do not cover the entire pandemic period. Moreover, by incorporating the sector interaction term, this study identifies the difference in the relationship across sectors. Therefore, the study extends the existing evidence relating to the effect of COVID-19 pandemic on Sri Lankan stock market by providing important sector-level analysis.

Even though, the COVID-19 pandemic and its effects on the economy has been largely dissipated, the findings of this study will be instrumental in understanding how different sectors respond to externally induced shocks like COVID-19 pandemic. This will enable policymakers to formulate appropriate policies while paying attention to sectoral differences in ensuring resilience in the Sri Lankan capital market.

2. Literature Review

The theoretical link between COVID-19 pandemic and sector returns can be explained using Arbitrage Pricing Theory developed by Ross (1979) and Prospect Theory developed by Kahneman and Tversky (2013). For example, as an alternative to the Capital Assets Price Model, the Arbitrage Pricing Theory provides a framework for understanding asset returns through exposure to multiple systematic factors (Nguyen, 2013). In other words, Arbitrage Pricing Theory assumes that security returns are a linear function of a set of common factors (Iqbal & Haider, 2005). Even though, COVID-19 pandemic is not prolonged, it can also be considered as a systematic source of risk affecting entire market like other usual macroeconomic factors.

Similarly, behavioral finance argues that investors' decisions can be influenced by uncertainty, feelings and their reaction to situations. In particular, the Prospect theory states that people may react differently to gains and losses when they face risk (Kahneman & Tversky, 2013). Accordingly, uncertainty emerged about the market, demand, and future earnings together with the negative news spread during the COVID-19 pandemic may have altered investors' decisions and induced different reactions across sectors. Previous studies such as (Jayamaha, 2023) also found that investors' feelings and attention influenced their investment behavior during the pandemic. Mollaahmetoğlu and Altay (2023) also argue that prospect theory can explain the changes in stock returns in the Turkish stock market, particularly among smaller companies. Concurrently, Rathnasekara and Nanayakkara (2022) argued that initial negative sentiment was followed by a positive sentiment response in several sectors, such as telecommunications, healthcare, and insurance, after the lifting of the island-wide lockdown curfew on 11th May 2020. This finding shows that the CSE response was not uniformly negative over the pandemic and market reactions changed as conditions and investor expectations developed. Although these studies examine different markets and used different measures, they provide empirical support for the relevance of investor sentiment and behavioral considerations in financial market analysis. Investors may interpret the same pandemic-related information differently depending on the expected gains and losses associated with a particular industry. Therefore, the prospect theory provides a basis for hypothesizing a heterogeneous effect of COVID-19 pandemic on sector-wise stock returns even though this study does not include variables like investor sentiment and psychological preferences or loss aversion.

During the COVID-19 pandemic, the government implemented protective actions such as lockdowns, and travel restrictions to control the spread of the COVID-19 virus. This intervention slowed economic activities and, in turn, reduced corporate earnings (Adikari & Buddhika, 2023). Concurrently, the COVID-19 pandemic increased the uncertainty of the market and economy. This uncertainty puzzled investors, induced market anomalies (Kusumahadi & Permana, 2021), increased the selling pressure and reduced share prices (Atems & Yimga, 2021). The poor performance in listed firms and downward trend of the stock prices further deteriorated investor confidence. As a result, market capitalization and GDP also decreased.

For example, Sansa (2020) shows that the COVID-19 pandemic had a significant negative impact on the Shanghai and New York stock exchanges, while Kusumahadi and Permana (2021) show the same in Singapore. Pathiraja and Kumari (2022) revealed that the Sri Lankan stock market had a more significant negative impact than India. Interestingly, however, according to Adikari and Buddhika (2023), broad-based indices such as S&P SL20 and ASPI have increased during the pandemic.

Nevertheless, the sector-wise impact of the COVID-19 pandemic is different. For example, according to Sandamini and Rajeevan (2021), energy, food and beverage, tobacco, insurance, and real estate sectors have responded negatively. According to Dissanayaka and Anuradha (2021), the food, beverage and tobacco, insurance, real estate, commercial and professional services, consumer durables and apparel, and energy sectors have been hit by the COVID-19 pandemic. Further, the tourism and hospitality sector in Sri Lanka experienced setbacks due to

reduced demand resulting mainly from domestic and international travel restrictions. Similarly, the apparel sector also suffered due to declining demand. Similarly, the agriculture sector has experienced a negative impact due to labour shortages (Dissanayaka & Anuradha, 2021). In the international context, Atems and Yimga (2021) state that the US airline sector also experienced a reduction in earnings and share prices, especially due to the reduction of air travel resulting from the travel restrictions implemented during the COVID-19 period. Similarly, in China, the energy sector suffered because of the reduced demand for coal and other energy resources due mainly to lockdowns (Dissanayaka & Anuradha, 2021). Moreover, telecommunications, healthcare, financial and energy sectors in China have experienced considerable negative effects (Zhang, Hou, & Qu, 2022).

Further, the risk in the banking sector increased due to higher defaults (Dissanayaka & Anuradha, 2021). Simultaneously, the debt moratorium may have exacerbated the negative impact on the banking sector (Adikari & Buddhika, 2023). In Vietnam, the increased non-performing loans and unusual cash withdrawals have increased the risk in the banking sector during the pandemic.

In contrast, the Indian insurance industry has positively responded to the pandemic (Dissanayaka & Anuradha, 2021). Sandamini and Rajeevan (2021) also state that sectors such as automobile, materials, healthcare and banks in Sri Lanka have responded positively. Dissanayaka and Anuradha (2021), sectors such as automobile, banks, materials, healthcare equipment and service, household and personal products experienced a positive impact in the pre-COVID-19 period. Moreover, sectors such as energy and real estate have become more profitable in the post-COVID-19 period. Rathnayaka and Gunasekara (2023) also document a positive response of the material sector in Sri Lanka. Moreover, the Chinese manufacturing and technological companies were not significantly impacted because they were able to adapt to the COVID-19 challenge. The literature reviewed here suggests that the impact of COVID-19 was significantly different across countries and across sectors. This requires further studies to address how each sector has responded to the COVID-19 pandemic across different countries.

3. Methods

This study examines the impact of COVID-19 on the sectoral performance of the CSE. The dataset covers all 20 sectors as classified by the Global Industry Classification Standard (GICS). However, since the Software and Services sector currently has no listed companies, the effective number of sectors included in this study is 19.

As shown in Table 1, the spread of COVID-19 is quantified using the daily number of new cases reported as published by the National Epidemiology Unit of Sri Lanka. The majority of research uses the number of new COVID-19 cases reported as a metric to measure the spread of COVID-19 (Jayamaha, 2023). Pathiraja and Kumari (2022) emphasize that the number of COVID-19 cases had a significant effect on stock returns, whereas the number of COVID-19-related deaths did not appear to have a considerable influence on stock market returns. The first confirmed case of COVID-19 infection in Sri Lanka was reported on late January 2020, involving a Chinese national who arrived in the country. The first locally reported case was

identified on March 2020 (Wickramaarachchi, Perera, & Jayasinghe, 2020). The National Epidemiology Unit of Sri Lanka has published statistics relating to COVID-19 cases during 2020- 2023 period. Therefore, this study utilizes the daily number of COVID-19 cases reported from 11st March 2020 to 6th December 2023. As a result, the final dataset consists of 27,029 daily observations for the nineteen sectors during 01st January 2020 and 31st December 2023.

Table 1: Variables and Measurements

Variable	Symbol	Measurements	Citation	Data Source
Spread of COVID-19	COVID	Number of daily cases reported	Atems and Yimga (2021)	National Epidemiology Unit of Sri Lanka.
Daily Sector Return	SR	$\frac{SectorIndex_{i,t} - SectorIndex_{i,t-1}}{Sector\ Index_{i,t-1}}$	Dissanayaka and Anuradha (2021)	CSE data library.
Inflation Rate	INF	Daily inflation rate.	Pathiraja and Kumari (2022)	Department of Census and Statistics
Exchange Rate	EX	LKR/USD exchange rate	Pathiraja and Kumari (2022)	Central Bank of Sri Lanka

The daily sector-wise return for each sector was measured using relevant daily sector indices published by the CSE. Further, following the multifactor perspective introduced by the Arbitrage Pricing Theory, this study includes inflation and the exchange rate as control variables. The inflation rate was calculated using the National Consumer Price Index published by the Department of Census and Statistics. Since there were significant changes in inflation during the selected time period (Pathiraja & Kumari, 2022), this inclusion enables separate assessment of inflation effect on sector returns. Nevertheless, since only the monthly inflation rate data were available, the daily inflation rates were estimated using interpolation to pair with daily COVID-19 cases and returns. Similarly, the exchange rate measured using the daily LKR/USD exchange rate published by the Central Bank of Sri Lanka was also used as a control variable since this could also have a significant impact on the stock return (Jayamaha, 2023; Pathiraja & Kumari, 2022). These control variables enable the isolation of the effect of COVID-19 from other macroeconomic factors. This study used a random effects panel regression model as specified in equation 1 with heteroskedasticity-robust standard errors to examine the effect of COVID-19 on sector returns. The random effects model was selected to capture both cross-sectional as well as time series effects, and the use of heteroskedasticity-robust standard errors accounts for minor deviations in regression assumptions.

$$SR_{it} = \alpha + \beta_1 \beta COVID_t + \gamma' Sector_i + \delta'(COVID_t \times Sector_i) + \beta_2 INF_t + \beta_3 EX_t + \mu_i + \epsilon_{it} \text{ ----------(1)}$$

In the regression model, α denotes the intercept of the regression line. *SR* denotes the sector-specific return. *INF* denotes the daily inflation rate, while *EX* denotes the exchange rate. Moreover, *i* denotes the sector, and *t* denotes time. Finally, β, γ, and δ denote regression coefficients, while *u* and ε represent the error terms. The interaction term ($COVID_t \times Sector_i$) was included to allow the effect of COVID-19 on sector-specific returns to vary across sectors. Following the estimation, marginal effects of COVID-19 cases, representing the estimated

change in daily sector-specific returns associated with a one-unit change in COVID-19 cases, were calculated separately for each sector using the coefficients of the interaction term (δ′).

4. Results and Findings

The descriptive statistics presented in Table 2 indicate that during the COVID-19 period, there was a significant decrease in investor confidence, resulting in heightened market volatility contributing to negative returns. Following the month of April 2021, there was a marked increase in the number of COVID-19 cases, attributed to the celebratory activities surrounding the Sinhala and Tamil New Year, coinciding with the relaxation of COVID-19 restrictions. Sri Lanka initiated its vaccination program in January 2021, which has contributed to a normalization of the economy. Notably, the years 2022 and 2023 recorded the highest inflation rates, a period during which Sri Lanka experienced an economic crisis. Factors such as extensive money printing and subsequent monetary policy decisions contributed to the increase in inflation. The higher exchange rates observed during the COVID-19 pandemic can be attributed to a reduction in remittances, export and tourism earnings, and lockdowns.

Table 2: Descriptive Statistics

Variable	Description	Mean	SD	Min.	Max.
SR	Daily sector-specific return	0.038	2.110	-90.183	60.215
COVID	Number of daily COVID-19 cases	424.358	1085.098	0.000	29556.000
INF	Daily inflation rate	0.006	0.006	0.000	0.019
EX	LKR/USD exchange rate	0.004	0.001	0.003	0.006

Table 3: Average Marginal Effects Estimated using Interaction Term

Sector	Avg. Marginal Effects	*z*-value	*p*-value
Automobiles & Components	-0.000018*	-2.53	0.011
Banks	0.000011	1.54	0.123
Capital Goods	0.000043*	5.99	0.000
Commercial and Professional Service	0.000117*	16.25	0.000
Consumer Durables & Apparel	0.140030*	5.41	0.000
Consumer Services	0.000055*	7.61	0.000
Diversified financials	0.000160*	22.22	0.000
Energy	0.000010	1.37	0.172
Food & Staples Retailing	-0.000012	-1.68	0.092
Food Beverage & Tobacco	0.000021*	2.89	0.004
Health Care Equipment & Services	0.000076*	10.61	0.000
Household & Personal Products	0.000089*	12.39	0.000
Insurance	0.000002	0.30	0.765
Materials	-0.000027*	-3.69	0.000
Real Estate Management & Development	-0.000012	-1.33	0.184
Retailing	-0.000035*	-4.92	0.000
Telecommunication Services	-0.000003	-0.37	0.712
Transportation	0.000384*	53.30	0.000
Utilities	-0.000004	-0.51	0.613

Note: n = 27,029; R^2 = .0028. * denotes p < .05

To investigate the effect of COVID-19 cases on sector returns, a panel regression as indicated on Equation 1 was estimated. Subsequently, the marginal effects were estimated using the coefficients of interaction term (δ′). Table 3 presents these average marginal effects of COVID-19 cases on sector returns. The results show that different sectors have responded

differently to the COVID-19 cases. For example, COVID-19 had a positive association with returns in nine sectors. In contrast, COVID-19 cases had a negative association with three sectors. The remaining seven sectors did not show a statistically significant association with COVID-19.

For example, according to the marginal effects estimated using regression coefficients presented in Table 3, stock returns of sectors, namely Capital Goods, Commercial and Professional Service, Consumer Durables & Apparel, Consumer Services, Diversified financials, Food Beverage & Tobacco, Health Care Equipment & Services, Household & Personal Products, and Transportation, have increased along with the COVID-19 cases. In contrast, the stock returns of sectors, namely Automobiles & Components, Materials, and Retailing, have decreased when the COVID-19 cases rise. Nevertheless, returns of sectors like Banks, Energy, Food & Staples Retailing, Insurance, Real Estate Management & Development, Telecommunication Services, and Utilities did not show a statistically significant response to COVID-19. Moreover, the results suggest that neither the LKR/USD exchange rate ($\beta = 5.945$, $p = .718$) nor the daily inflation rate ($\beta = 3.256$, $p = .279$) showed any statistically significant effect on the sector-specific returns. This indicates that the adverse effects on stock returns have stemmed mainly from government interventions such as import controls, lockdowns, travel restrictions, restrictions on social gatherings, and closure of schools and universities. However, despite the harsh economic conditions, there are a number of sectors that have reported increasing stock returns. This might be an indication of the effectiveness of the relief measures introduced by the government, such as interest rate reductions and debt moratoriums.

5. Conclusion

The impact of COVID-19 is heterogeneous on sector-wise returns in CSE. While several sectors, including Capital Goods, Commercial and Professional Services, Consumer Durables & Apparel, Consumer Services, Diversified financials, Food Beverage & Tobacco, Health Care Equipment & Services, Household & Personal Products, and Transportation, have benefited due to COVID-19, sectors like Automobiles & Components, Materials, and Retailing have suffered due to COVID-19. Further investigations are required to inquire what specific factors contributed to the increase or decrease in stock return in each sector. Nevertheless, the resilience of some sectors to the COVID-19 pandemic implies the effectiveness of the relief measures introduced by the government, such as interest rate reductions and debt moratoriums. Moreover, the speculation among investors might also have played a substantial role in creating unexpected patterns in stock returns, especially because none of the investors had prior experience with a similar event.

The findings of this study have two main implications. First, it allows for identifying more risky sectors in a crisis period like COVID-19. This helps create a safe portfolio by managing the risk through effective diversification. Second, government and other regulatory authorities can make policy decisions and implement other controlling strategies to mitigate potential negative effects on the identified sectors. Nevertheless, this study can be extended by including firm-level data, controlling for more microeconomic factors and by including cross-country evidence.

References

Adikari, A. A. V. S., & Buddhika, H. J. R. (2023). Impact of Covid-19 on Stock Market Indices: Evidence from Colombo Stock Exchange. *South Asian Journal of Finance*, *3*(1), 38-53. https://doi.org/10.4038/sajf.v3i1.52

Ahmed, F., Syed, A. A., Kamal, M. A., de las Nieves López-García, M., Ramos-Requena, J. P., & Gupta, S. (2021). Assessing the Impact of COVID-19 Pandemic on the Stock and Commodity Markets Performance and Sustainability: A Comparative Analysis of South Asian Countries. *Sustainability*, *13*, 5669. https://doi.org/10.3390/su13105669

Atems, B., & Yimga, J. (2021). Quantifying the impact of the COVID-19 pandemic on US airline stock prices. *Journal of Air Transport Management*, *97*, 102141. https://doi.org/https://doi.org/10.1016/j.jairtraman.2021.102141

Dissanayaka, & Anuradha. (2021). Covid-19 Outbreak and Industry Reactions: Evidence from Colombo Stock Exchange. *Journal of Accountimg and Business Education*, *7*(1), 25-34. https://doi.org/10.26675/jabe.v7i1.21668

Iqbal, J., & Haider, A. (2005). Arbitrage pricing theory: evidence from an emerging stock market. *The Lahore Journal of Economics, 10*(1), 123–139.

Jayamaha, K. (2023). Effects of the COVID-19 pandemic on investor sentiment and stock market volatility. . https://doi.org/10.13140/RG.2.2.22858.17607

Kahneman, D., & Tversky, A. (2013). Prospect theory: An analysis of decision under risk. In *Handbook of the fundamentals of financial decision making: Part I* (pp. 99-127). World Scientific.

Kusumahadi, T. A., & Permana, F. C. (2021). Impact of COVID-19 on Global Stock Market Volatility. *Journal of Economic Integration*, *36*(1), 20-45. https://doi.org/10.11130/jei.2021.36.1.20

Mollaahmetoğlu, E., & Altay, E. (2023). The effect of prospect theory value on asset returns on the Borsa Istanbul. *Borsa Istanbul Review*, *23*(5), 1058-1066. https://doi.org/https://doi.org/10.1016/j.bir.2023.05.005

Nguyen, D. T. (2013). Arbitrage pricing theory: Evidence from an emerging stock market. *Journal of International Economics and Management*(56), 3-20. https://jiem.ftu.edu.vn/index.php/jiem/article/view/82

Pathiraja, P. M. D. S., & Kumari, J. S. (2022). Financial shocks of stock markets and COVID-19 pandemic: an empirical study on Asian countries. *International Journal of Accounting and Business Finance*, *8*(1), 91-101. https://doi.org/10.4038/ijabf.v8i1.120

Rathnasekara, R. D., & Nanayakkara, N. S. (2022). Pandemic outbreak, investor sentiment and stock market reaction: Evidence from the frontier market, Sri Lanka. *Journal of Economic Research (JER)*, *27*(2), 119-148.

Rathnayaka, R. M. U. R., & Gunasekara, A. L. (2023). The Impact of Covid-19 Global Crisis on the Firm’s Performance: Evidence from Listed Material Sector Companies

in Sri Lanka. *Journal of Business and Technology*, *7*(2). https://doi.org/10.4038/jbt.v7i2.93

Sandamini, P. N., & Rajeevan, S. (2021). The Impact of COVID – 19 Pandemic over Colombo Stock Exchange. 10th International Conference on Management and Economics, Matara.

Sandamini, P. N., & Rajeevan, S. (2021). The Impact of COVID – 19 Pandemic over Colombo Stock Exchange. *The Impact of COVID -19 Pandemic over Colombo Stock Exchange*, 114-124. https://doi.org/https://www.researchgate.net/publication/353907397

Sansa, N. A. (2020). The Impact of the COVID - 19 on the Financial Markets: Evidence from China and USA. *Electronic Research Journal of Social Sciences and Humanities*, *2*(2), 29-39. www.eresearchjournal.com

Szczygielski, J. J., Charteris, A., Bwanya, P. R., & Brzeszczyński, J. (2023). Which COVID-19 information really impacts stock markets? *Journal of International Financial Markets, Institutions and Money*, *84*, 101592. https://doi.org/10.1016/j.intfin.2022.101592

Wickramaarachchi, W. P. T. M., Perera, S. S. N., & Jayasinghe, S. (2020). COVID-19 Epidemic in Sri Lanka: A Mathematical and Computational Modelling Approach to Control. *Computational and Mathematical Methods in Medicine*, *2020*(1), 4045064. https://doi.org/https://doi.org/10.1155/2020/4045064

Zhang, W., Hou, W., & Qu, C. (2022). A sectoral-level analysis of the short- and long-term impacts of the COVID-19 pandemic on China's stock market volatility. *Heliyon*, *8*(10), e11175. https://doi.org/10.1016/j.heliyon.2022.e11175