Human Factors, Business Management and Society, Vol. 97, 2023, 259–265
https://doi.org/10.54941/ahfe1003902

The Impact of COVID-19 Pandemic on South Asian Stock Markets

Natacha Jesus-Silva[1], Nuno Baptista[2], and Maria José Palma Lampreia Dos-Santos[3]

[1]Universidade Portucalense Infante D. Henrique, Porto, Portugal
[2]Escola Superior De Comunicação Social – Instituto Politécnico de Lisboa, Campus De Benfica do IPL, Lisboa, Portugal
[3]Escola Superior De Comunicação Social – Instituto Politécnico de Lisboa, ISCTE-IUL, DINÂMIA'CET, Campus De Benfica do IPL, Lisboa, Portugal

ABSTRACT

The main aim of this paper is to analyze the impact of the world pandemic COVID-19 on the efficiency of capital markets in countries of South Asia, namely, the market efficiency of these stock markets in the pre and post-COVID-19 global wave. The method includes an econometric model based on time series analysis. Information and data come from the stock indices of Asian countries from July 2018 to July 2021. The results confirm that despite all financial markets presenting efficient results before the global outbreak, after the COVID-19 pandemic, all the financial markets reduced efficiency, as expected. These results benefit the regulators of financial markets and investors to forecast and anticipate adjusted financial measures and policy decision-makers.

Keywords: Covid-19, Asian countries, Stock markets, Efficiency

INTRODUCTION

COVID-19 was first discovered in December 2019 in China Wuhan (WHO, 2020). The virus rapidly spread worldwide and affected millions of people in over 300 countries (WHO, 2020). The COVID-19 global outbreak has reverberated across the financial markets and economies and brought a dramatic lousy influence on the performance of the monetary economies around the globe (Okorie & Lin, 2021). The stock market is an essential part of every country because it can impact the various sectors of the economy. During a global shock, market efficiency in stock markets is essential because it reports to investors about the strategic and trading activities of financial markets regarding the outcome of profitability (Cevik et al., 2022).

In order to control the wave of the outbreak (COVID-19), businesses are moving towards a complete lockdown worldwide. During the period of lockdown, the overall daily operations of businesses are affected, and throughout this spell, people need resources for sustenance (Cevik et al., 2022).

This paper aims to aim to analyze the Asian market efficiency before and after the COVID-19 pandemic in order to provide information to the financial investors and regulators of the global capital markets in Asia.

LITERATURE REVIEW

The global outbreak of COVID-19 has changed the world economy. All the financial economies are responding to this outbreak, which results in excessive loss (Liu et al., 2021). Singh et al. (2020) and Cevik et al. (2022) analyzed the pandemic effect on the 21 leading capital markets. They used panel data analysis and analyzed the impacts on the financial markets of developed economies.

The global outbreak of COVID-19 has shaken the worldwide economy. All the financial economies are responding to this outbreak, which results in excessive loss (Aslam et al., 2020). So, testing the influence of this pandemic globally is a hot topic for all researchers. There is fast-growing literature about the COVID-19 impact on the economies. Liu et al. (2020) analyzed the pandemic effect on the 21 leading capital markets. The authors used panel data analysis, and the study proved that this pandemic badly impacted the financial markets of the leading economies.

The impact of this outbreak has a diverse influence on different capital markets. Numerous studies have found that this pandemic has caused a financial crisis worldwide. During the pandemic, global capital market risks have risen dramatically Zhang et al., (2020). Recently, Waheed et al. (2020) found that the stock exchange of Pakistan gained significantly positive returns due to their timely government interventions during the pandemic that secured shareholders from an absolute disaster for the capital market. Moreover, Baker et al. (2020) compared this outbreak to the previous 1918–1919, 1957–1958, and 1968 and concluded that no previous pandemic disturbed the operation of financial markets as much as COVID-19 did. The study revealed that the main reasons that stock markets have responded more intensely to COVID-19 are the lockdown of businesses and social distancing.

Şenol and Zeren (2020) analyzed that the pandemic of COVID-19 has significantly increased financial risks around the globe. In a shorter period, the prices of the stock markets dropped, and the businesses lost their value. Indeed, during financial crises, it is essential to investigate the efficiency of the capital markets. Dias et al. (2020) studied the efficiency in the economies of China, France, Italy, Portugal, Germany, South Korea, and Spain. The result showed that the random walk hypothesis was not accepted in all market indexes. Topcu and Gulal (2020) discovered that the developing financial markets gradually dropped and started to fall by mid-April.

The influence of coronavirus (COVID-19) has been the greatest in the emerging markets of Asia; however, the European emerging markets have faced the lowest impact. The different studies showed diversified results for different stock markets, some markets are influenced mainly, and some are less influenced. In the Asian context, a genuine question about the COVID-19 effect on the efficiency of capital market returns has been raised. Furthermore, the central investigating issue is which country was affected more during the pandemic. The market efficiency in developed markets has been tested by Rounaghi and Zadeh (2016), Sensoy and Tabak (2015), and Shirvani and Delcoure (2016). Sensoy and Tabak (2015) revealed that all European capital markets had been affected by the 2008 financial crisis. These authors

confirm that there was a significant impact on the economies of France, Greece, and Spain during the sovereign debt crises in European. Rounaghi and Zadeh (2016) examined the Stock Exchange of London (LSE) compared to the S&P 500; the result revealed that both economies were financially healthy and efficient throughout the times up and down. Shirvani & Delcoure (2016) investigated the efficiency of the 16 capital markets of the OECD. The hypothesis of market efficiency was accepted, and all markets were efficient. Hamid et al. (2017) studied the hypothesis of an efficient market in developed and emerging markets. He tested the 14 financial markets for the period 2004-2009. The researchers found that the RWH was not accepted in Asia-Pacific.

Malafeyev et al. (2019) investigated the financial markets of India and China; the authors revealed that the prices do not follow RWH, and these markets could be more efficient. Caporale et al. (2020) dealt with the European financial markets (France, Germany, Italy, Spain, and the United Kingdom). The results confirm that all European indices accepted the weak form assumption of market efficiency. Miloş et al. (2020) studied seven financial economies of CEE (Central and Eastern Europe). These researchers confirm a long-term correlation between the rates of return; thus, the result revealed that all the capital markets were inefficient.

In the '90s, the Efficient Market Hypothesis (EMH) gained importance and was developed separately by Professor Paul A. Samuelson and Professor Eugene Fama. Emerging economies became a hot topic at that time. The emerging economies included the South Asian markets after the crises of the currency of Asia. The eminence of these emerging markets revealed that the assumption of an efficient market was not factual for the South Asian capital markets. Therefore, the investment risks were higher. The theory suggests the comprehensive and quick flow of the available information in the market. EMH guarantees efficient performance and procedure in the financial markets, which in turn impacts the operations and procedures of the working economy.

Fama and French (1988) proposed that the market is efficient if the prices of stocks reflect all available data in the capital markets. This information covers not only the information available in the financial reports but also reveals the social and political news, economic affairs, and other financial data. The EMH idea considers how quickly the market reacts to the newly available data and impacts the security prices.

When investors make decisions regarding investment in securities, they use the information they own. Stock market information is disturbed by the environment's condition, whether economic or not (Syifaudin et al., 2020). The stock market efficiency is affected by many events, and every event has different features. The COVID-19 outbreak has crushed all sectors around the globe, whether it is the health sector or the economy. It is an unusual event that drastically disturbs the efficiency of the global capital markets.

The EMH describes the reaction of security prices to the new information. Dias et al. (2020) tested COVID-19's influence on Europe, China, and the US capital markets and found mixed results regarding the hypothesis of an efficient market. The random walk assumption was not accepted in the case

of Belgium, China, France, Germany, Greece, Portugal, and the USA, but it was accepted in the case of Ireland and Spain. The finding also displays that stock prices only reveal some of the data and that the fluctuations in the stock prices are not identically circulated.

So et al. (2021) analyzed that the pandemic of COVID-19 has significantly increased financial risks around the globe. In a shorter period, the prices of the stock markets dropped, and the businesses lost their value. Indeed, during financial crises, it is essential to investigate the efficiency of the capital markets. Dos Santos & Henriques (2019) and Dos Santos (2017) analyzed the efficiency in the Portuguese sectorial economy and concluded a low level of sectorial efficiency. Indeed, Dos Santos & Diz (2018) analyzed the sustainability in the European agricultural sector and obtained similar results.

METHODOLOGY

Information and data come from the stock indices of South Asian countries. According to Dos-Santos (2021) and Fonseca et al. (2016), the model includes an econometric autoregression (AR) for each capital market. The model was developed in EVIEWS econometric program, as referred.

The tests used to analyze the efficiency of stock markets include the unit root rank-variance ratio that estimates if stock prices follow a random walk. The stability test was applied through an autoregression (AR) model for each capital market. The hypothesis of an efficient market has been analyzed through these tests and is presented in equation 1.

$$n_i : set\ of\ \ historical\ prices\ on\ all\ asset$$

To analyze the return was used;

$$r\ =\ lnY_t - lnY_{t-1}$$

The Unit Root was applied to analyze the order series of integration. Different methods have been established for this purpose; one widely used method in ADF (Augmented Dickey-Fuller) requires that the unit root (Ho) null hypothesis is not accepted, in benefit of the stationarity alternative hypothesis. The formula of the ADF test shows in the following equation:

$$\Delta y_t = \alpha_o + \alpha_1 y_{t-1} + \sum_{i=1}^{n} \alpha \Delta y_t + e_t$$

Where: Δ = 1st difference operator, y = data time series, t = time period, αo = constant value, n = number of lags, and e = random error. Another method that is also suggested for the test of unit root is PP (Phillips & Perron, 1988), which is shown in the following equation:

$$\Delta y_t = \alpha_o + \alpha_1 y_{t-1} + e_t$$

The variance ratio is applied to test the randomness in the return series, and it is used to assess the autocorrelation between returns.

$$X_t\ =\mu\ +\ X_{t-1}\ +\ \ \in_t$$

Where Xt = logarithm, μ = arbitrary motion parameter, Pt = price of an asset, and $\in$t = random error. The method of variance ratio test is implemented the same as described by Lo and Mackinlay (1988), which is consistent with the estimator heteroscedasticity. For example, nq + 1 = observations, in which q is a numeral higher than 1. The following equation can be defined as:

$$\hat{\mu} \equiv \frac{1}{nq}\sum_{k=1}^{nq}(X_k - X_{k-1}) = \frac{1}{nq}(X_{nq} - X_\circ)$$

$$\sigma_a^2 \equiv \frac{1}{nq}\sum_{k=1}^{nq}(X_k - X_{k-1} - \widehat{\mu})^2$$

$$\overline{\sigma}_c^2(q) \equiv \frac{1}{m}\sum_{k=1}^{n}(X_{qk} - X_{qk-q} - q\widehat{\mu})^2$$

Then:

$$m = q\ (\ nq - q + 1)\ \left(1 - \frac{q}{nq}\right)$$

The following equation gives the variance ratio test:

$$\hat{VR}(q) = \frac{\overline{\sigma}_c^2(q)}{\overline{\sigma}_c^2}.$$

RESULTS AND DISCUSSION

The stock market of India presents a declining trend. The Sri Lanka stock market was down in 2019 due to the country's economic collapse. Pakistan follows the same trend due to the international economic openness with the other southeast Asian countries. The results from all the referred countries also present volatility in the results. The results indeed present that all the capital markets present a low efficiency. Therefore, all the capital markets do not follow the assumption of random during the pre-COVID-19 period. The returns of the four capital markets also present a low-efficiency level. The model's results also prove the absence of serial correlation in the four referred stock markets.

CONCLUSION

The main results conclude that there was a significant decline in all capital markets during the global lockdown in 2020.

That confirms the expected negative attitudes from investors in challenging situations like this. The present paper could give insights to the policy decision-makers and the financial sector investment, not just in future pandemic times but also in challenging times due to climatic change.

REFERENCES

Aslam, F., Aziz, S., Nguyen, D. K., Mughal, K. S., & Khan, M. (2020). On the efficiency of foreign exchange markets in times of the COVID-19 pandemic. *Technological forecasting and social change, 161*, 120261.

Baker, S. R., Bloom, N., Davis, S. J., Kost, K., Sammon, M., & Viratyosin, T. (2020). The unprecedented stock market reaction to COVID-19. *The review of asset pricing studies, 10*(4), 742–758.

Caporale, G. M., Gil-Alana, L. A., & Poza, C. (2020). High and low prices and the range in the European stock markets: a long-memory approach. *Research in International Business and Finance, 52*, 101126.

Cevik, E., Kirci Altinkeski, B., Cevik, E. I., & Dibooglu, S. (2022). Investor sentiments and stock markets during the COVID-19 pandemic. *Financial Innovation*, *8*(1), 1–34.

Dias, R., Teixeira, N., Machova, V., Pardal, P., Horak, J., & Vochozka, M. (2020). Random walks and market efficiency tests: evidence on US, Chinese and European capital markets within the context of the global Covid-19 pandemic. *Oeconomia Copernicana, 11*(4), 585–608.

Dos Santos, M. J. P. L., & Henriques, P. D. D. S. (2019). Melhoramento da eficiência e gestão das explorações de bovinos de carne em Portugal. *Revista em Agronegócio e Meio Ambiente*, 921–934.

Dos Santos, M. J. P. L. (2017). As principais tipologias de explorações agrícolas na União Europeia. RAMA: Revista Agronegócio e Meio Ambiente, 10(2), 273–290.

Fama, E., & French, K. (1988). Dividend Yields and Expected Stocks Returns. Journal of Financial Economics.

Fonseca, A. M., Diz, H., & Dos Santos, M. J. P. L. (2016). O crowdfunding as a way to finance investigative journalism in Portugal. Palabra Clave, 19, 893–918.

Hamid, K., Suleman, M. T., Ali Shah, S. Z., & Imdad Akash, R. S. (2017). Testing the weak form of efficient market hypothesis: Empirical evidence from Asia-Pacific markets. *Available at SSRN 2912908*.

Liu, H., Manzoor, A., Wang, C., Zhang, L., & Manzoor, Z. (2020). The COVID-19 outbreak and affected countries stock markets response. *International Journal of Environmental Research and Public Health*, *17*(8), 2800.

Malafeyev, O., Awasthi, A., Kambekar, K., & Kupinskaya, A. (2019). Random Walks and Market Efficiency in Chinese and Indian Equity Markets. Statistics, Optimization &. *Information and Computation*.

Miloş, L., Haţiegan, C., Miloş, M., Barna, F., & Boţoc, C. (2020). Multifractal Detrended Fluctuation Analysis (MF-DFA) of Stock Market Indexes. Empirical Evidence from Seven Central and Eastern European Markets. Sustainability, 12 (2), 535.

Rounaghi, M. M., & Zadeh, F. N. (2016). Investigation of market efficiency and financial stability between S&P 500 and London stock exchange: monthly and yearly forecasting of time series stock returns using ARMA model. *Physica A: Statistical Mechanics and its Applications, 456*, 10–21.

Şenol, Z., & ZEREN, F. (2020). Coronavirus (COVID-19) and stock markets: The effects of the pandemic on the global economy. *Avrasya Sosyal ve Ekonomi Araştırmaları Dergisi, 7*(4), 1–16.

Sensoy, A., & Tabak, B. M. (2015). Time-varying long term memory in the European Union stock markets. *Physica A: Statistical Mechanics and its Applications, 436*, 147–158.

Shirvani, H., & Delcoure, N. V. (2016). The random walk in the stock prices of 18 OECD countries: Some robust panel-based integration and cointegration tests. *Journal of Economic Studies*.

Singh, B., Dhall, R., Narang, S., & Rawat, S. (2020). The outbreak of COVID-19 and stock market responses: An event study and panel data analysis for G-20 countries. *Global Business Review*, 0972150920957274.

So, M. K., Chu, A. M., & Chan, T. W. (2021). Impacts of the COVID-19 pandemic on financial market connectedness. *Finance Research Letters*, *38*, 101864.

Syifaudin, A., Yusuf, Y., Mulyatno, R., & Dhevyanto, B. (2020). *Fundamental Financial Information as a Signal of Company Value*. Paper presented at the 1st International Conference on Accounting, Management and Entrepreneurship (ICAMER 2019). Adv. Econ. Bus. Manag. Res.

Topcu, M., & Gulal, O. S. (2020). The impact of COVID-19 on emerging stock markets. *Finance Research Letters, 36*, 101691.

Waheed, R., Sarwar, S., Sarwar, S., & Khan, M. K. (2020). The impact of COVID-19 on Karachi stock exchange: Quantile-on-quantile approach using secondary and predicted data. *Journal of public affairs, 20*(4), e2290.

Zhang, D., Hu, M., & Ji, Q. (2020). Financial markets under the global pandemic of COVID-19. *Finance Research Letters, 36*, 101528.