



*The Efficiency of Financial Markets and its Impact on Stock Price
Fluctuations during the COVID-19 Pandemic: A Comparative Study of
Some Islamic Countries*

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Abstract

This study aims at investigating the impact of the efficiency of financial markets on stock price fluctuations during the COVID-19 pandemic; through analyzing some Islamic countries' stock indices based on daily data during the peak period of COVID-19—from January 03, 2020, to December 31, 2022. This is achieved by testing the Random Walk Hypothesis using the Augmented Dickey-Fuller Test (ADF) to study the stationary of time series and describe the statistical data of the series.

The study concludes that stock price indices for all the studied markets are weak form efficient, and the fluctuations in these prices increased during that period. Therefore, the efficiency during the COVID-19 period contributed to raising the intensity of stock price fluctuations.

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Keywords: The efficiency of financial markets, Stock price fluctuations, Random walk of stocks, COVID-19, Indices of stock market prices.

1. INTRODUCTION

The field of financial thought has undergone five main theories in the financial markets: the Portfolio Theory or Diversification Theory, the Capital Asset Pricing Model (CAPM) Theory, Corporate Financing Theories, Behavioral Finance Theories, and the Efficient Market Hypothesis. The latter has gained importance as a cornerstone for constructing financial thought theories. Numerous research studies have focused on determining the level of efficiency in a financial market, considering it as the foundation for testing the most suitable approaches for selecting, pricing, and evaluating securities. This is done by studying the relationship between securities' prices in general, and common stocks in particular, on one hand, and data and information on the other hand. Consequently, measuring and evaluating the efficiency of financial markets has been relied upon at the overall market level by utilizing key indicators of those markets. Thus, the nature of index composition influences the measurement process.

In the face of the economic challenges imposed by the COVID-19 pandemic on financial markets, investors have been subjected to immense pressures. The phenomenon of price fluctuations has significantly impacted financial markets, imposing significant challenges to the efficiency of financial markets in dealing with non-stationary and fluctuating trades resulting from health crises.

The efficiency of the financial market depends on the extent of the stock prices' behavior of the listed companies within it. If it is independent, then closing prices are also independent. The independence of prices means the absence of serial or sequential correlation between closing prices from one period to another. In this way, the investor cannot achieve abnormal profits. This is a significant indicator of market efficiency,

indicating that stock prices reflect the information available in financial markets. However, with recent developments and events that have globally impacted every aspect—particularly financial markets; such as the COVID-19—understanding how financial markets respond to pandemic-related information and rapid, exceptional trading becomes vital to ensure the stability of the financial system. Hence, the main question can be formulated as follows:

What is the impact of the efficiency of financial markets on stock price fluctuations during COVID-19 in some Islamic countries?

Which can be divided into the following questions:

1. To what extent do the available information about COVID-19 reflect in some Islamic financial markets?
2. To what extent do information and news related to the developments of COVID-19 impact stock price fluctuations?
3. Did the efficiency of financial markets in the studied stock exchanges during the COVID-19 pandemic contribute to calming price fluctuations, or did it enhance them?

The Objectives of the Study:

This study aims at:

1. Understanding the behavior of stock prices in some Islamic financial markets;
2. Measuring the efficiency of some Islamic financial markets during the COVID-19 pandemic;
3. Obtaining results that help to streamline the decisions of traders in financial

markets by determining the level of efficiency of common stocks;

4. Assessing the efficiency of financial markets in some Islamic economies amidst economic developments and challenges, especially the global health crisis, using statistical and quantitative methods; and
5. Understanding the extent to which the efficiency of financial markets contributes to mitigating stock price fluctuations during the COVID-19 pandemic.

The Hypothesis of the Study:

Based on the statement of the problem and the objectives of the study, hypotheses have been formulated as follows:

1. The prices of the studied Islamic stock market indices exhibit weak-form efficiency;
2. News and information related to the developments of COVID-19 have a significant impact on stock price fluctuations; and
3. The efficiency of the studied Islamic financial markets has contributed to reducing the fluctuations in the prices of these indices.

The Significance of the Study:

Stock markets are considered a mirror reflecting the overall economic situation of a country. The efficiency of these markets serves as an indicator of the success of the state's overall economic policy. Hence, attempting to understand the behavior of stock prices and their relationship with the efficiency of financial markets is an important issue that requires scientific research. Such research works towards discovering the factors governing the mutual influences between them, aiming to develop the Islamic economy, especially in the context of the global health crisis that has affected the world.

Its impacts have reached various sectors, particularly financial markets. The significance of this research lies in shedding light on how information integrates with the context of crises to improve the effectiveness of financial markets and reduce fluctuations resulting from unexpected trades.

Study Limits:

The study covers the entire duration of the COVID-19 pandemic, starting from January 2020 and extending until December 2022. It utilizes 1094 daily observations of stock prices from the financial market indices of 14 Islamic countries. These observations were obtained from the trading bulletins published by the selected markets in the study.

Research Methodology:

This study followed a descriptive method when presenting the statistical methods used to test the efficiency of the selected financial markets with the aim of identifying and proposing enhancements for Islamic financial markets and activating them. The study involved examining descriptive statistical methods and applying the Dickey-Fuller model using the Eviews12 software.

Literature Review:

1. Olatundun Janet Adelegan's 2001 study titled "Capital Market Efficiency and the Effects of Dividend Announcements on Share Prices in Nigeria." The aim of the study was to test whether the Nigerian stock market efficiently reacts to dividend announcements in price adjustments. The study utilized daily data from the Nigerian Stock Exchange from 1991 to 1999. To determine short-term reactions to dividend distributions, the researcher calculated modified buy-and-hold returns in the market for the study period, spanning three days from the day before the announcements to the day after. The results indicated that the Nigerian stock market is not highly efficient.

2. Ikenna Nneji's 2013 study titled "Efficiency of the Nigerian Capital Market: An Empirical Analysis." This study examined the efficiency of the Nigerian capital market from 1986 to 2009 using the Random Walk Theory. The focus was on how stock information is reflected in stock prices and its impact on Nigeria's economic development. To achieve the study's objectives, the ADF unit root test, the ARMA Test, the VAR-based Granger causality test, Cointegration analysis, and the Vector Error Correction Test were employed. The results indicated that there is still room for improvement in the efficiency level of the Nigerian Capital Market. Furthermore, the study found a significant relationship between capital market performance and economic development.
3. Fakrul Ahmed's research, 2021 titled "Assessment of Capital Market Efficiency in COVID-19." The study aimed at focusing on the efficiency of the capital market by examining the random return series in the Dhaka Stock Exchange in Bangladesh due to COVID-19. Special focus on Run test, Auto correlation test, predictability of stock return using ARIMA model the weekend effect anomaly and momentum strategy investing. The study found that the hypothesis of randomness of the stock returns are rejected for stock price index changes by using random walk tests, normality of return distributions, runs test and at different lags using ARIMA and the momentum tests which assert Dhaka Stock Exchange is not efficient even in the weak form.

This study, on the other hand, distinguished itself by examining the contribution of financial market efficiency in mitigating stock price fluctuations during the COVID-19 pandemic. This was achieved by analyzing stock indicators for some Islamic countries based on daily data during the peak period of COVID-19. The study employed the ADF Test to investigate the stationarity of time series and provided statistical data descriptions for the series.

2. Theoretical Framework of the Study

A brief overview of the study variables will be provided within this framework.

2.1. The Concept of the Efficiency of Financial Market:

The theory of the efficiency of financial markets was initially simple, but over time and with the evolution in financial markets, especially worldwide, it has become complex. As a result, its concept is non-stationary; it evolves with time and events,

especially crises. Fama is considered the first to define the efficiency of financial markets, referring to the role of information in shaping financial asset prices in 1965. He presented the mathematical formula for efficiency theory in 1970. (Alvarez-Ramirez, Rodriguez, & Alvarez, 2012, p. 64)

The financial market is considered more efficient when it provides more accurate information about future cash flows resulting from traded securities, especially stocks, or offers information that affects the market value of the stock. This includes information related to crises or any circumstances that may impact the market. A high level of efficiency is believed to indicate that the market accurately gathers and processes information, in addition to making good predictions about future cash flows. (Goldstein, 2021, p. 18)

The Efficient Market Hypothesis (EMH) posits that for financial markets to be efficient, the prices of traded securities must reflect all available information. Therefore, the current price of securities should incorporate all available information (Fama, 1970, pp. 391-396). Securities prices should be valued in the market at their true (i.e., fair) value without a time lag between the arrival of information, its analysis, and its reflection in market values. (Frank K & Keith C, 2003, pp. 391-396)

Thus, we find that the overall framework of financial market efficiency implies that market values reflect the fair values of financial assets. However, we observe that this reflection is not permanent, consistent with the theoretical foundation of the EMH considering the random flow of information. Nevertheless, the differences between market values and fair values vary from one stock to another within the same market, indicating a lack of uniform efficiency levels among financial assets in the same market.

Therefore, it can be said that the efficiency of the stock market is a function of its

ability to absorb available information and respond quickly to that information. It can be asserted that for information to have value, it must influence future behaviors. The market is characterized by the following forms of efficiency: (Michèle & Georges, 2010/2011, p. 76)

- a) The Hypothesis of Weak Form Efficiency posits that the information reflected in stock prices is historical information about changes in the stock price and the trading volume it experienced in the past. This implies that any attempt to predict the future price of the stock by studying its changes in the past days, months, or years is futile. Common methods used to test this level of efficiency include the Serial Correlations Test, the Run Test, the Filter Test, and the ADF Test;
- b) The Hypothesis of Semi Strong Form Efficiency states that stock prices at a given moment not only reflect past changes in the prices of those stocks but also incorporate all available information or forecasts based on that information. This includes financial reports, among other reports and analyses, made available to the public; and
- c) The Hypothesis of Strong Form Efficiency posits that the information reflected in the stock price encompasses all available public and private information, in addition to information accessible to specific groups such as the management of the issuing company, key employees, and information that fundamental analysts may obtain through their analytical tools supported by high expertise and skills. In summary, prices reflect everything knowable, making it impossible for any investor to achieve abnormal profits at the expense of other investors, even with the assistance of the best investment advisors in the market.

2.2. Components of Financial Market Efficiency:

Efficiency in the field of financial markets refers to three main types, as outlined by:

(Saad, 2005, pp. 189-190)

- a) Operational Efficiency: This pertains to the trading system and includes transaction costs, settlement periods, price limits, and other features of the trading system;
- b) Allocation Efficiency: This involves the optimal allocation of available resources meaning the direction traders take in directing their financial surpluses towards the best financial assets; and
- c) Informational Efficiency: This concerns the cost, speed, accuracy, and accessibility of information for traders.

Others have presented another classification of market efficiency, including internal and external efficiency. Operational efficiency and allocation efficiency are considered the basis for internal efficiency, while informational efficiency is regarded as the crucial element in external efficiency. (Abd El-Tawab, 2005, p. 113)

2.3. Elements of the Efficiency of Financial Markets:

In the case of the availability of perfect market assumptions, the market is characterized by the following features or conditions: (Olatundun, 2003, p. 221)

- a) Lack of traders or a scarcity of traders with the ability to change market trends;
- b) Traders' prudence and rationality, seeking to maximize the utility derived from the exploitation of their wealth;
- c) Investors harmony;
- d) Independence of information from one another;
- e) The speed of price response to new information;

- f) Freedom of entry and exit from the market, i.e., no restrictions on transactions;
- g) Absence of transaction costs or taxes, and all assets are fully marketable without restrictive regulations; and
- h) Information is costless and is simultaneously known to all traders.

2.4. Benefits of an Efficient Market:

The greater the efficiency of a financial market is, the more benefits it brings. The main three of them are: (Saad, 2005, p. 191)

- a) Encouraging trading in securities;
- b) Providing clear indicators of corporate managers' performance; and
- c) Optimal allocation of societal resources.

2.5. Stock Price Fluctuations:

Stocks are defined as securities issued by companies for the purpose of obtaining financing. They represent ownership in the company, their owners are known as shareholders, and have various rights. Stocks can be traded, bought, and sold on the stock exchange. (Al-Sayrafi, 2008, p. 18)

Certainly, investing in stocks involves various risks, including those related to the nature of investment itself. The risk is inherent wherever there is investment, and with stocks, there are specific risks due to their susceptibility to fluctuations influenced by the investment environment, economic, political, and social conditions. Stock prices fluctuate due to these factors. Additionally, investing in stocks requires trust between investors and management. When investing in a company, the investor entrusts their capital to the competence and performance of that company's management. However, this trust is not always justified, whether intentionally or unintentionally. (Al-

Huweimani, 2006, p. 32)

In finance, fluctuation is defined as a measure of the change in the price of a financial instrument over time. Consequently, stock price fluctuation can be defined as the dispersion of daily prices, indicating that stock prices fluctuate both up and down. Generally, one of the methods used to measure stock risk is through the fluctuation of its price. This is because stock price fluctuation reflects the uncertainty regarding stock returns. Therefore, it represents all risks, as it always captures the movements of the stock price, not just those associated with the overall market movements. (Bani Hani, 2002, pp. 191-205)

3. Practical Framework of the Study

Through the applied framework of the study, the population and the sample of the study will be presented, along with the analysis of the collected data from the studied sample. Also, this framework includes testing the validity or invalidity of the study hypothesis considering statistical analysis processes.

3.1. Population and Sampling:

The population of the study represents the stock market indices of Islamic countries. As for the sample of the study, it included the daily prices of financial market indices for 14 Islamic countries selected based on the availability of complete data for the study period from January 03, 2020, to December 31, 2022. This period covered the duration of the COVID-19 pandemic, with a total of 1094 observations or trading sessions for these indices. The data was obtained from the website <https://sa.investing.com>. The sample of the study can be illustrated in the table below:

Table 1. The Sample of the Study.

NO	Country	Index	Symbol
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1	Bahrain	Bahrain All Sh	BAS
2	Egypt	EGX 30	E30
3	Indonesia	IDX Comp	IDXC
4	Jordan	Am SE Ge	ASEG
5	Kuwait	Main M 50	MM50
6	Lebanon	BLOM Stock	BLOMS
7	Malaysia	FTSE M KLCI	FTSEKLCI
8	Morocco	M All Shares	MAS
9	Palestinian T	Al-Quds	AQ
10	Oman	MSM 30	MSM30
11	Qatar	QE General	QEG
12	Saudi Arabia	Tadawul All Share	TAS
13	Tunisia	Tunindex	TDEX
14	Turkey	BIST 100	BT100

Source: Prepared by the Researchers based on Information about the Stock Exchanges of the Study Sample.

3.2. The Used Statistical Methods:

To test the efficiency of financial markets at the weak form, which relies on the Random Walk Hypothesis for the stock prices of selected Islamic financial markets, the study employs the Unit Root Test using the ADF statistic. The ADF Test assesses the statistical significance of the estimates generated by Ordinary Least Squares (OLS) methods, which, in turn, are based on three hypotheses formulated as follows:

1. The hypothesis assumes the Autoregressive model AR(p) at the first order, indicating no trend and no constant term:

$$\text{Dickey Fuller DF} \Delta Y_t = \delta_1 Y_{t-1} + u_t$$

2. The Autoregressive model AR(p) with a constant term:

$$\Delta Y_t = \delta_0 + \delta_1 Y_{t-1} + u_t$$

3. The Autoregressive model AR(p) with a constant term and a trend:

$$\Delta Y_t = \delta_0 + \delta_1 Y_{t-1} + \delta_2 T + u_t.$$

Considering that the confidence level adopted in the study is 95%, the hypotheses of the study will be tested by either accepting or rejecting the null hypothesis and accepting the alternative hypothesis based on the following:

Accepting the null hypothesis H0: If the level of statistical significance is greater than 0.05, we accept the null hypothesis. This means that the series is non-significant, indicating it has a unit root, implying instability. Therefore, prices follow the random walk theory, suggesting market efficiency.

Rejecting the null hypothesis H0 and accepting the alternative hypothesis H1: If the level of significance is less than or equal to 0.05, we reject the null hypothesis and accept the alternative hypothesis. This means that the series is significant, indicating it does not have a unit root and is stationary. This implies that prices do not move randomly or follow a specific pattern, indicating that the financial markets in the study sample are inefficient at the weak form efficiency level.

3.3. The Inflation of the Indices of the Studied Stock:

The inflations of the indices' prices for each stock exchange in the study sample can be presented as follows:

Figure 1. The Inflation of the Bahrain All Sh Index for the Bahrain Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The figure 1. shows the prices inflation in the Bahrain Financial Market Index, significant fluctuations are evident. This reflects the instability and strong volatility in prices during the COVID-19 pandemic.

Figure 2. The Inflation of the EGX 30 Index for the Egyptian Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The line graph 2. illustrates the prices inflation of the Egyptian stock market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

Figure 3. The Inflation of the IDX Comp Index for the Indonesian Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The line graph 3. shows the prices inflation of the Indonesian financial market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

Figure 4. The Inflation of the Am SE Ge Index for the Jordanian Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The line graph 4. illustrates the prices inflation of the Jordanian financial market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

Figure 5. The Inflation of the Main M 50 Index for the Kuwaiti Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The line graph 5. demonstrates the prices inflation of the Kuwaiti financial market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

Figure 6. The Inflation of the BLOM Stock Index for the Lebanese Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The figure 6. indicates the prices inflation of the Lebanese financial market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

Figure 7. The Inflation of the FTSE M KLCI Index for the Malaysian Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The figure 7. illustrates the prices inflation of the Malaysian financial market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

Figure 8. The Inflation of the M All Shares Index for the Moroccan Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The line graph 8. demonstrates the prices inflation of the Moroccan financial market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

Figure 9. The Inflation of the Al-Quds Index for the Palestinian T Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The figure 9. shows the prices inflation of the Palestinian financial market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

Figure 10. The Inflation of the MSM 30 Index for the Omani Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The line graph 10. illustrates the prices inflation of the Omani financial market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

Figure 11. The Inflation of the QE General Index for the Qatari Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The figure 11. Shows the prices inflation of the Qatari financial market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

Figure 12. The Inflation of the Tadawul All Share Index for the Saudi Arabian Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The line graph 12. illustrates the prices inflation of the Saudi Arabian financial market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

Figure 13. The Inflation of the Tunindex Index for the Tunisian Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The figure 13. shows the prices inflation of the Tunisian financial market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

Figure 14. The Inflation of the BIST 100 Index for the Turkish Stock Market



Source: Prepared by the Researchers Using Eviews12 Software.

The figure 14. shows the prices inflation of the Turkish financial market index, severe fluctuations are evident during the COVID-19 pandemic, reflecting instability and strong price volatility.

3.4. Statistical Test Results of each Studied Market:

The table below summarizes the statistical tests for the prices of the study's sample

indices.

Table 2. Statistical Descriptive Analysis of Time Series for the Prices of the Studied Stock Market Indices.

Countries	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera
BAHRAIN	1640.778	1638.09	2122.51	1232.4	231.5858	0.080751	1.871822	59.20671
EGYPT	11039.21	10890.88	15378.28	8657.5	1132.668	1.322932	5.389411	579.3588
INDONESIA	6141.358	6197.605	7318.02	3937.63	796.2358	-0.551599	2.30094	77.75281
JORDAN	2004.224	2057.34	2607.1	1533.35	339.3974	0.233309	1.690122	88.13595
KUWAIT	5347.24	5563.29	6779.78	3879.72	854.5795	-0.190047	1.700368	80.67462
LEBANON	909.3888	912.245	1493.15	567.95	277.5701	0.501778	2.106982	82.25991
MALAYSIA	1528.042	1533.355	1684.58	1219.72	72.33483	-0.850863	3.754991	157.9865
MOROCCO	11725.81	11858.86	13991.47	8987.89	1203.649	-0.276045	2.17467	44.94397
OMAN	3966.189	4000.64	4898.86	3383.54	351.6007	0.412325	2.435187	45.54051
PALESTINIAN_T	549.2201	542.04	670.02	432.86	71.26453	-0.049799	1.479378	105.8541
QATAR	11106.12	10843.05	14494.35	8160.23	1457.167	0.178607	2.190939	35.65441
SAUDI_ARABIA	10099.63	10698.3	13820.35	5959.69	1992.09	-0.209465	1.842158	69.10895
TUNISIA	7127.994	7089.675	8351.17	6116.16	496.1479	0.594143	2.910316	64.73133
TURKIYE	1875.47	1452.425	5509.16	842.46	994.1568	1.800736	5.913752	978.2433

Source: Derived from a Stationary Study of the Studied Stock Markets Using Eviews12 Software.

From the table above, we observe that the average prices of stocks for carefully studied financial market indices were as follows for each of the following countries, in order: Bahrain, Egypt, Indonesia, Jordan, Kuwait, Lebanon, Malaysia, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Tunisia, and Turkey. The averages are 1640.778, 11039.21, 6141.358, 2004.224, 5347.24, 909.3888, 1528.042, 11725.81, 3966.189, 549.2201, 11106.12, 10099.63, 7127.994, and 1875.47, respectively. As for the maximum values, they reached 2122.51, 15378.28, 7318.02, 2607.1, 6779.78, 1493.15, 1684.58, 13991.47, 4898.86, 670.02, 14494.35, 13820.35, 8351.17, and 5509.16, respectively, in the same order. The minimum values, on the other hand, were 1232.4, 8657.5, 3937.63, 1533.35, 3879.72, 567.95, 1219.72, 8987.89, 3383.54, 432.86, 8160.23, 5959.69, 6116.16, and 842.46, respectively.

As for the standard deviation—which is considered an indicator of the deviation of data values from the overall average, in the case of the carefully studied stock market indices—the standard deviation shows an increase to 231.5858, 1132.668, 796.2358, 339.3974, 854.5795, 277.5701, 72.33483, 1203.649, 351.6007, 71.26453, 1457.167, 1992.09, 496.1479, and 994.1568 for the respective countries in order. This indicates that the prices of the indices vary or disperse widely around the average. It confirms the presence of significant fluctuations in the prices of the carefully studied stock market indices during the COVID-19 pandemic, reinforcing the trend of the inflation of index prices, which, in turn, reflects intense volatility in the prices of these indices.

Table 3. Results of ADF Test for the Time Series of Prices of the Studied Stock Market Indices.

Countries	Stationarity		
	Intercept	Trend and Intercept	Nothing
BAHRAIN	0.8804	0.3594	0.8623
EGYPT	0.4199	0.8314	0.6729
INDONESIA	0.7749	0.0523	0.7368
JORDAN	0.963	0.266	0.9674
KUWAIT	0.831	0.8618	0.8158
LEBANON	0.9341	0.0837	0.9229
MALAYSIA	0.0769	0.2479	0.5248
MOROCCO	0.6403	0.8885	0.4734
OMAN	0.9595	0.3771	0.9223
PALESTINIAN_T	0.9505	0.5028	0.9474
QATAR	0.7109	0.8897	0.6515
SAUDI_ARABIA	0.7475	0.9623	0.8082
TUNISIA	0.8747	0.2698	0.8952
TURKIYE	1	1	1

Source: Derived from a Stationary Study of the Studied Stock Markets Using Eviews12 Software.

The above table shows the results of the ADF Test on the index series of the studied

stock markets, revealing the following:

- Firstly, at the level or at the first difference (i.e., no constant and no trend), the critical probabilities obtained for the price indices of the studied stock markets are significantly more than 0.05. Therefore, we accept the null hypothesis (H0) that the series is non-stationary and contains a unit root. Consequently, prices of some Islamic stock markets follow or exhibit random behavior. This confirms that these stock markets are weak form efficient.
- Secondly, in the presence of a constant term, the critical probabilities obtained for the price indices are significantly larger than 0.05. Therefore, we accept the null hypothesis (H0) that the series is non-stationary and contains a unit root. Consequently, prices of the studied Islamic stock markets follow or exhibit random behavior. This confirms that these stock markets are weak form efficient.
- Thirdly, in the case of the presence of a constant term and a trend, the critical probabilities obtained for the indices are also significantly larger than 0.05. Therefore, we also accept the null hypothesis (H0).
- This confirms that the stock markets are weak form efficient. Therefore, it can be said that the efficiency of financial markets during the COVID-19 pandemic in these stock markets has had a significant impact on the fluctuations in their index prices and has contributed to enhancing these fluctuations.

4. The Results of the Study:

The study has achieved the following results:

- Through the developed ADF model, we reject the stability hypothesis of the series of studied stock market indices. Consequently, the series are not

stationary, and thus, prices fluctuate randomly. This indicates a reflection of information related to the COVID-19 pandemic on the financial index prices in the short term. Therefore, it can be concluded that the studied Islamic markets are efficient at their weak level throughout the COVID-19 pandemic.

- During the COVID-19 pandemic, we observed that index prices exhibited significant fluctuation. Thus, it can be said that the efficiency of these markets during this period did not contribute to reducing stock price fluctuations; rather, it increased and intensified them. This means that it had a significant impact on the fluctuation of these index prices. These factors enhance the complexity of the financial situation and highlight the challenges of risk management and investment decision-making in the face of unstable economic conditions.
- COVID-19 has caused significant changes in economic conditions, creating an environment filled with rapid changes. In addition to the economic and financial measures taken by governments to confront the pandemic, it has had a major impact on investor expectations and corporate performance.

5. CONCLUSION

The financial markets have currently become one of the most important areas of investment. This necessitates providing sufficient information about the traded securities within these markets. If the prices of traded securities in the market reflect information, then this market is described as an efficient market. Therefore, this study aims to investigate the relationship between efficiency and the random movement of stock prices during the health crisis that hit the global economy, namely COVID-19. This will be done by applying standard tests for studying the stability of time series on price index data for some Islamic countries from January 03, 2020, to December 31, 2022, covering the period of the COVID-19 pandemic, which was characterized by significant importance and high value of available information about this crisis.

In conclusion, the results of the Dickey-Fuller Test showed that the price series of stock indices in some Islamic markets are not stationary and follow the random walk theory. Thus, it can be concluded that these markets are efficient at the weak level, indicating the difficulty of predicting price movements according to traditional models. Additionally, the study revealed that COVID-19 intensified the fluctuation of stock prices with economic and psychological effects pushing investors towards more non-stationary trading. Therefore, the study recommends:

- Taking into account the diversity of approaches used in making investment decisions in a single stock market considering the varying levels of efficiency of the stocks belonging to these markets;
- Reviewing and updating investment strategies based on the analysis of economic conditions, market expectations, and global health developments;
- Giving more attention to academic and research studies in Islamic countries on the topic of market efficiency and the effectiveness of financial markets, using more advanced quantitative methods, especially since these markets have acquired an international character, impacted the economies of the world and transferred crises globally; and
- Preparing subsequent studies to verify the efficiency of financial markets according to weak and strong-form models.

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