The impact of COVID-19 on MENA region stock markets

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Abstract

The short term effect of the coronavirus outbreak on leading MENA stock market indices is assessed in this paper. The effects of infectious disease are important, and they have had a direct impact on financial markets around the world. Using panel data, our findings show that stock markets in major affected countries and areas dropped sharply following the virus outbreak. When compared to other nations, MENA region experienced more negative abnormal returns. Further panel data regression test supports the negative effect of COVID-19 reported death cases on stock indices abnormal returns through an efficient channel by aggregating investors' pessimistic outlook on potential returns and fears of uncertainty.

Keywords: COVID-19, stock market, panel data, MENA region stock markets.
JEL Codes: C33, E44, G15.

1.   Introduction

In late 2019, WHO made a report of the first case relating to a new virus. The origin of the virus was in Wuhan, China (Li, 2020). COVID-19 is a respiratory illness that is communicable from one to the next (Velavan, 2020). By January the following year, the virus had spread to other Chinese provinces with the aid of mass traveling and gatherings. Due to its rapid spread, by March 2020, the World Health Organization declared respiratory disease a pandemic. WHO, therefore, gave out guidelines and protocols that had to be observed (Basile, 2020). These protocols were aiming at minimizing the spread and also creating awareness of the possible signs and symptoms.

The WHO's strict measures to ban international flights and mass gatherings led to a significant influence on the stock market (Zaremba, 2021). The source of COVID-19 is still uncertain, according to the CDC and several other experts, and existing vaccines and treatments are in their early stages. The WHO and public health officials served as intermediaries, communicating the danger of an outbreak to investors and shaping their attitudes toward the disease. The economic decline during the pandemic also influences the stock market. The companies and individuals had trouble selling and buying goods. The liquidity of the business declined (Baker, 2020). The pandemic has resulted in various hurdles that the business industry has to adapt to. There is a high cost of production, lower sales, and poor cash flow. Concerning the stock market, the pandemic has caused a blow to MENA and all the stock markets.

The financial markets are heavily influenced by investor sentiment (Baker and Wurgler, 2007). Investors act more optimistically when the market is trending upward and there is less perceived risk. When the market is trending downward, investors' sentiments become relatively negative, and investors will prefer to wait to enter the market until the

market begins to recover. Such circumstances cause investors to overreact in the short term.

The current circumstances created by the pandemic have a significant influence on MENA. The stiff competitiveness that is known to be with the stock exchange declined and therefore causing an alarm. The volatility of these products becomes a center of concern whether the financial market will get resuscitated (Alber, 2020). Global economic decline as a result of the pandemic destabilized all sectors of finance. The pandemic had high numbers of death rates, and therefore all the operations had to be paused.

Due to restrictions of gatherings, the stock market could not operate thoroughly. It is translating to losses in the broader region of MENA. The MENA region is actively involved more with oil production and exchange (Bouhali, 2020). However, during the pandemic, the exchange rates compared to selling rates were not expected (Nouira, 2019). The downward trend was recorded because the level of oil usage had declined because of the lockdown. Additionally, during the lockdown, there was minimal human concern with the business. Everybody was confined, and all factors were towards health (Price, 2020). The pandemic, therefore, led to cash flow problems. Generally, the public had a smooth flow of cash resulting from stock markets. The stock market region equally experienced dilapidation on its market potential.

MENA needs a boost or stimuli that can effectively boost its stock. The pandemic resulted in a downtrend curve (Hakimi, 2019). With the reduction of crude oil prices, the region felt a blow in its marketing strategy. Stimuli such as pumping more stock buyers should be done to renew the potentiality of the MENA. After a devastating economic impact resulting from the pandemic.

The pandemic has caused a significant blow on various sectors, be it agriculture or business. From the scope of the stock market, the most significant impact that the pandemic has caused is the lapse of the trading

index. The hit has shaken many people globally who had engaged in the business. However, other stock markets like New York were not hit such badly. MENA, as a stock market section it should find ways to boost their market. The fall in their stock will signify that member states have to go down to bankruptcy (Hanspal,2020). The influence of the pandemic has been seriously unexpected, and so are the consequences.

The literature indicates that big events always have an effect on the stock market (Haque &Sarwar, 2013; Waheed, Wei, Sarwar, &Lv, 2018). However, when this virus spreads globally, it has an effect on the companies represented in global capital markets. Some studies investigated the effect of COVID-19 on established stock returns (Kowalewski &Piewanowski, 2020), and they found that the Hang Seng index and Shanghai stock exchange were affected, United States and European stock markets reflect negative returns. In March, United States market hit by circuit brake mechanism, four times in 10 days. Similarly, United Kingdom stock market index, FTSE, has a decline of more than

12% worse after 1987 (Al-Awadhi &al., 2020).

One of the key problems in behavioral finance research is explaining why market participants make decisions that contradict reasonable market participants' assumptions. COVID-19 poses significant obstacles to people's personal lives, including lockdowns (or lockdown-like situations) for many. Aside from the extreme incidents of death and illness, many people all over the world are panicking as a result of this quickly spreading contagious disease. Such external and unforeseen disruptions have the potential to derail economic developments and drastically alter market sentiment. According to Kaplanski and Levy, bad mood and anxiety can influence investment decisions, and nervous people can be more cautious about future returns and thus take fewer risks. Anxiety induces a depressive feeling, which may influence investment decisions and eventual asset returns.

The unexpected circumstance created by COVID-19 allows us to measure the pandemic's effect on the financial markets of affected nations as a result of an unexpected and feared epidemic. This paper explores the determinants of stock market volatility in the MENA region during COVID-19, which runs from11 March 2020 to 23 February 2021. After this introduction in section 1, in section 2 we will discusse related theoretical and empirical literature, while section 3 discusses data and methods, In section 4 we discuss empirical proof, and finally section 5 includes a conclusion.

2. Literature Review

The literature on the impact of COVID-19 on various sectors such as health, agriculture, manufacturing, trade, and commerce, is quiet rich but only one important research on its impact on the emerging economy stock market has been conducted. Despite the fact that there is little current literature on the effect of COVID-19 on the financial market, existing empirical studies have yielded an exciting result. In their work on financial markets and banks, Baret et al. (2020) discovered that the COVID-19 pandemic has reduced the global share of oil, equity, and bonds. Companies' competitiveness suffered as a result of social distancing policies, which resulted in lower sales, higher operating costs, and cash flow problems. The literature on the impact of COVID-19 on stock market performance could follow three main streams, namely, (1) The relationship between COVID-19 pandemic, oil prices, stock market, geopolitical risk, and policy uncertainty and (2) The cross-impact between COVID-19 pandemic, and stock market volatility from an industry-level analysis, lastly, (3) the nexus between COVID-19 and stock market volatility from a country-level analysis.

The first group of studies (Sharif, Aloui, &Yarovaya, 2020.) employing a coherence wavelet approach and wavelet-based Granger causality tests on recent regular data from the United States reveal an unparalleled effect of COVID-19 and oil price shocks on geopolitical risk

levels, economic policy instability, and stock market volatility over low frequency bands. According to Mzoughi, Urom, Uddin, and Guesmi, 2020, the current situation caused by COVID-19 appears to have had a greater effect on stock market volatility than on crude oil prices and CO_2 emissions. Furthermore, the forecast error variance in CO_2 emissions levels is less volatile than in the oil and stock markets. The study employed an unregulated VAR, and its findings shed light on the need for economic stimulus to hasten recovery and increase investors' view of long-term growth. Samadi, Owjimehr and Halafi, 2021 used The Segmented Regression model to estimate the effect of sanctions and the COVID-19 pandemic on the co-movements of Iran's financial markets. The findings revealed that the oil price had a low correlation with the other three markets, namely the stock exchange, exchange rate, and gold markets. As a result, for risk-averse investors, the oil market could be a viable option. Bouri, Demirer, Gupta, and Pierdzioch, 2020 investigate the predictive capacity of an oil-market volatility index dependent on a daily newspaper-based index of uncertainty correlated with infectious diseases (EMVID). Using the heterogeneous autoregressive realized volatility (HAR-RV) model, the EMVID index has a positive impact on crude oil price realized volatility at the highest level of statistical significance, within-sample.

The second group of studies has focused on the cross-impact between COVID-19 pandemic and stock market volatility from an industry-level analysis. Baek et al. (2020) investigate the regime shift from lower to higher volatility using the Markov Switching AR model. Economic measures are selected to better describe shifts in volatility using machine learning feature selection methods. The findings indicate that volatility is influenced by particular economic indicators and is responsive to COVID-19 news. Both positive and negative COVID-19 information is important, but negative news has a greater effect, indicating a negativity bias. Significant rises in overall and idiosyncratic risk have been reported across all sectors, while improvements in systemic risk differ by sector. Using big data, Lee (2020)

investigates the initial effects of COVID-19 sentiment on the US stock market. Furthermore, she investigates whether changes in DNSI forecast US industry returns differently by estimating a time series regression model with industry excess returns as the dependent variable. The Fama-French three factor model is used to calculate the excess returns. The findings of this study provide a detailed view of the initial effect of COVID-19 sentiment on the US stock market by industry, as well as strategic investment strategy considering time lag perspectives by visualizing shifts in correlation level by time lag differences. Mazur &al (2021) examine the performance of the US stock market during the March 2020 crash caused by COVID-19. Stocks in natural gas, food, healthcare, and software reap high positive returns, while equity prices in the petroleum, real estate, entertainment, and hospitality sectors plummet drastically. Furthermore, losers have high asymmetric uncertainty, which correlates negatively with stock returns. Firms respond to the COVID-19 sales shock in a number of ways. The review of the worst performers' 8K and DEF14A filings shows senior executive exits, remuneration cuts, and (most surprisingly) newly accepted cash bonuses and pay increases.

The third group of studies examines the nexus between COVID-19 and stock market volatility from a country-level analysis. Several studies have also focused on stock market returns; see Baig et al. (2020); Ali et al. (2020), Al-Awadhi et al. (2020), and Zhang et al. (2020), amongst others. In their study Haroon and Rizvi (2020) focus on two aspects of the COVID-19 pandemic: the effect on liquidity in emerging equity markets, the real human costs, and the government response. Based on a study of 23 emerging markets from three regions, indicate that a decreasing (increasing) pattern in the number of reported coronavirus cases is correlated with improved (deteriorating) liquidity in financial markets. They also discover that policy actions in the form of movement and market restrictions are correlated with increased liquidity. The findings indicate that flattening the curve of coronavirus infections aids in reducing investor anxiety. Chen et al. (2020)

examine the role of COVID-19 on Bitcoin returns. The paper examines the impact of the Chinese Economic Policy Uncertainty (CEPU) index on Bitcoin regular returns between December 31, 2019 to May 20, 2020. The paper shows that the new CEPU has a positive effect on Bitcoin returns using the Ordinary Least Squares (OLS) and Generalized Quantile Regression (GQR) estimation techniques. However, only at the higher quantiles of the current CEPU is the positive effect statistically important. Based on this, Bitcoin can be used to hedge against China's policy uncertainties because large increases in uncertainty result in a higher return in Bitcoin. Corbet et al. 2021 set out to monitor for the presence of volatility spillovers from Chinese financial markets on a wide range of conventional financial assets during the outbreak of the COVID-19 pandemic. When compared to the conventional and long-standing influenza index, the findings show that the coronavirus pandemic has had an unusually pronounced and enduring effect on Chinese financial markets. Furthermore, COVID-19 is found to have had a significant impact on lateral spillovers on the Bitcoin market, which is a novel finding to date. Cryptocurrency-based optimism seems to have been instilled across government-developed education systems, which is one potential explanation for our findings, which are found to be robust in both data-frequency and methodological variance. Albulescu 2021 empirically investigate the impact of official announcements about the COVID-19 new cases of infection and fatality ratio on the volatility of the US financial markets (US). The results are robust to various model requirements and indicate that the continuation of the coronavirus pandemic is a significant source of financial uncertainty, posing a risk management challenge. Topcu and Gulal, 2020 examine the effect of COVID-19 on emerging stock markets from March 10 to April 30, 2020. According to the findings, the negative effect of the pandemic on emerging stock markets has steadily decreased and has started to taper off by mid-April. In terms of regional classification, the outbreak's impact has been greatest in Asian emerging markets, while it has had the least impact in

European emerging markets. We also discovered that the scale of the stimulus package delivered by governments matters in mitigating the impact of the pandemic.

From these groups' findings, the negative effects brought to the emerging stock markets due to the COVID-19 pandemic have increased since it started. In terms of outbreak impacts in different regions, the result has been greatly felt in the MENA developing markets; however, in European emerging markets, the impact has not been greatly felt (Sabri, 2021). The study also identified that the stimulus package, which the government released, played a great role in reviving the stock markets, which greatly affected and mitigated the pandemic effect.

COVID-19 has undoubtedly reshaped almost all aspects of the financial and economic structures studied to date, according to the literature. Our contribution to the literature is made specifically by examining whether contagious infectious diseases influence stock market outcomes based on lockdown measures implemented in 12 MENA region stock markets from 11 March 2020 to 23 February 2021, which is a large sample in terms of the number of countries and covered period. Other researches took place only during the first three months of the pandemic, and looked at less countries. In addition, unlike earlier research, our study took into account the impact of two major economic variables: gold and oil prices.

3.   Variables, data and methodology

3.1. Data Collection and Market Classification

The study is used secondary sources of data. The Daily closing prices of indices have been collected from Bloomberg terminal on the stock market indices of the MENA region, which include: Bahrain (BHSEASI Index), Egypt (EGX 30), Israel (TA 90), Jordan (ASE Index), Kingdom of Saudi

Arabia (SASEIDX Index), Lebanon (BLOM Index), Morocco (MCSINDEX Index), Oman (MSM30 Index),Qatar (DSM Index), Tunisia, (TUSISE Index) , Turkey (XU100 Index), UAE (ADSMI Index). The research was conducted between March 11 2020 to February 23 2021. This timeframe was chosen based on the beginning of the pandemic within the region. This study's time frame shall provide a better understanding of stock market activity. The closing price was used in this paper to analyze the volatility of the stock market. Data on COVID-19 cases was gathered from each country's Ministry of Health website.

3.1 Estimation Techniques

In order to study the impact of changes in COVID-19 confirmed cases and deaths on the stock market returns in MENA region the analysis will be carried out through various statistical techniques such as Panel Data and the Augmented Dicky Fuller (ADF) test. Due to the fact that we use cross sectional and time series data , we well use panel data. Baltagi (2008) and Hsiao (2014) suggest that panel data regression reduces estimation bias and multicollinearity, controls for individual heterogeneity, and identifies the time-varying relationship between dependent and independent variables. We therefore apply panel testing to examine the relative performances of stocks in relation to COVID-19.

We will examine the impact of changes COVID-19 confirmed cases and deaths on the stock market returns in MENA region. stock market indices are given as a function of gold prices, oil price shocks, and COVID-19 cases as follows:

$SRit = a_0 + \sum_{i=1}^{p} a_1\, GPit + \sum_{i=1}^{p} a_2\, OPit + \sum_{i=1}^{p} a_3\, NCit + \sum_{i=1}^{p} a_4\, NDit + e_{it}$
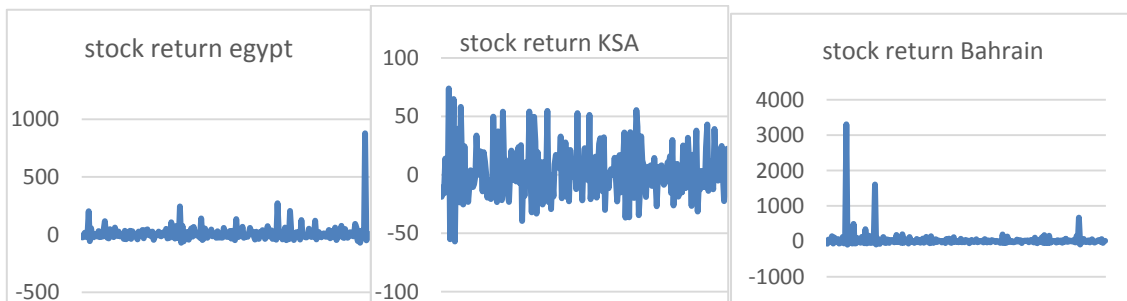
Where

SR is the stock return , GP is the gold price , OP is the oil price , NC is the new cases of COVID-19, ND is the new deaths of COVID-19. e is the random error term
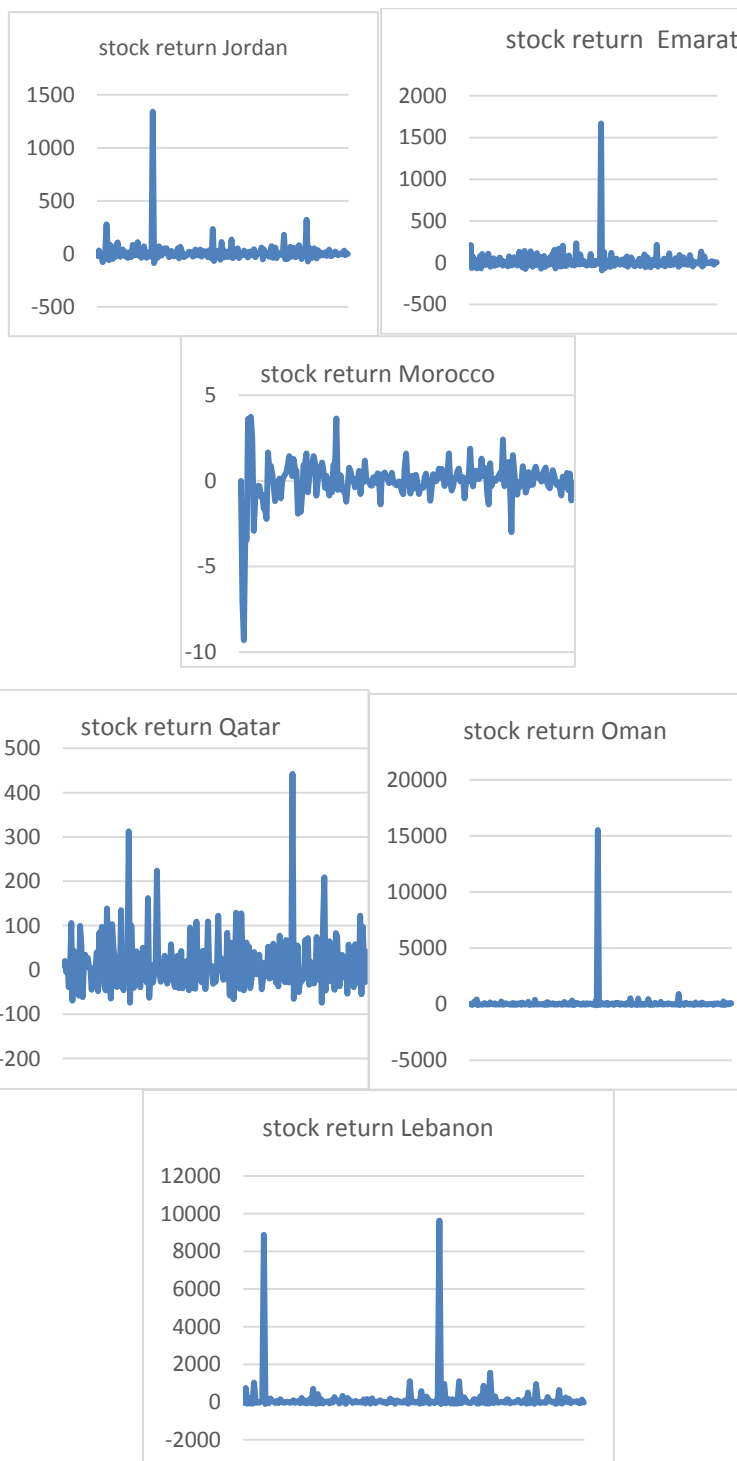
The time period is denoted by t (t=1,…………T), Countries are represented by the subscript i (i=1 ……………N)
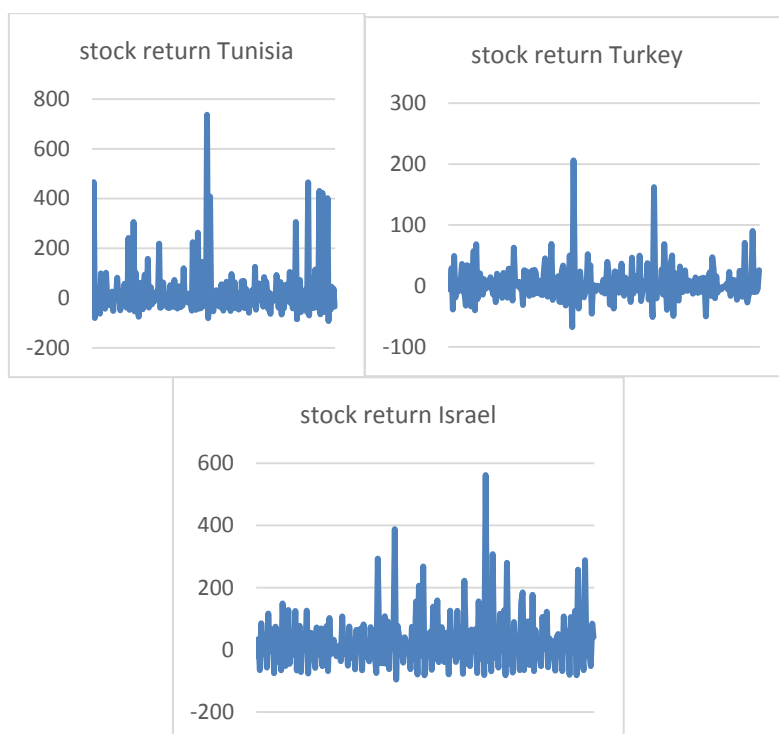
The countries of our sample include 12 country of MENA region which are: Egypt, Tunisia, Morocco, Jordan, Lebanon, Saudi Arabia, United Arab Emarat, Oman, Qatar, Bahrain, Turkey, and Israel. We have chosen these 12 countries because of the availability of the data for all of variables used in the equation.

The data of stock market return is the percentage change in stock market volume of the main stock market index of the 12 MENA counties region. The sample data ranges from 11March 2020 to 23 February 2021 with 2774 observation.

Figure 1 depicts the regular returns of all indices from March 2020 to February 2021. The graphs in Figure 1 show the high volatility during the current coronavirus cycle, taking into account all twelve countries' market indices. Furthermore, all of the graphs seem to show volatility clustering.

stock return Jordan

stock return Emarat

stock return Morocco

stock return Qatar

stock return Oman

stock return Lebanon

The rate of return on the stock exchange in most of the countries under study (Egypt, Bahrain, the United Arab f Emirates, Oman, Lebanon, Jordan, Morocco, Tunisia) is characterized by the stability of the rate at low values with very low periods that witnessed a rise in the rate of return, such as Egypt, where the return increased February 2021, and most countries witnessed this increase for a very low period, not exceeding one day, and then a return to decline.

Even the rest of the countries (Saudi Arabia, Turkey, Israel, Qatar) which witnessed a fluctuation in the rate of return in the stock exchange, this fluctuation was a fluctuation between low values and did not witness a significant increase during the study period

4. Empirical Results

First of all, we have to test stationarity for the variables, the following is the results of Augmented Dicky Fuller (ADF) for the level and first difference

Table 1 ADF test results

	P value Data in level	P value Data in first difference
Stock return	0.00000	0.00000
Gold price	0.8221	0.00000
oil price	1.0000	0.00000
new cases of COVID-19	0.997	0.00000
new deaths of COVID-19	0.814	0.00000

As shown in table 1, the Stock return variable is the only variable station in its normal level. Otherwise, all the variables are station in their first difference.

Using the cross section random effect of panel method by the EVIEWS we had the following results:

Dependent Variable: SR

Method: Panel EGLS (Cross-section random effects)

Periods included: 297

Cross-sections included: 12

Total panel (unbalanced) observations: 2774

Swamy and Arora estimator of component variances

White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficiet	Std. Erro	t-Statistic	Prob.
C	35.92783	163.4252	0.219843	0.8260
NC	0.000229	0.000811	0.282388	0.7777
ND	-0.306013	0.139816	-2.188682	0.0287
GP	0.005705	0.086819	-0.065710	0.9476
OP	0.277457	0.522498	0.531020	0.5954

The results show, by referring to the level of probability and the T-test, we find that the variables of gold price, oil price and number of cases do not have a significant effect on the stock market return in the countries under study, as the T test is less than 2 and the level of significance is greater than 0.05.

The only variable that had a significant impact on the returns of the stock market return is the new deaths variable , its effect was significant and negative, that is, with the increase in the number of deaths resulting from COVID-19 the stock market return decreases in MENA region countries, which is consistent with previous studies.

As for the changes in the price of gold and the price of oil, the reason for the insignificance of these variables in affecting the returns of the stock market may be due to what many countries in this region have witnessed partial closures, and therefore it is not expected that there will be interest in the price of gold and consequently its impact on the stock exchange decreases, and the same situation applies. On the price of oil, as it is expected that individuals' interest in oil prices will decrease during the closing periods, as is the case with gold.

As for the variable of the number new cases and its insignificance, it may be due to the decrease in the number of swabs that were made in many countries in this region compared to developed countries, so the interest of individuals in official announcements about the number of new cases decreases and the focus remains on the number of declared deaths, which is the factor with the greatest impact, as it has been reached the equation.

5.   Discussion and Conclusions

The current study attempts to analyze the impact of Covid 19 pandemic on stock market returns in a number of MENA region countries, using daily data on this pandemic from March 2020 to February 2021. The

study included most countries in the MENA region except Algeria, for which data of the Algerian money market were not available.

First, we reviewed literature review dealt with the impact of the pandemic on stock market returns in a number of countries.

In order to try to know the impact of this pandemic on the selected countries, daily data were collected on both the number of cases of Covid 19 as well as the number of deaths due to this disease in these countries in the period from March 11, 2020 to February 23, 2021

In addition, daily data were collected for the same period on the return of the stock exchange in all these countries

In order to try to formulate a standard model that shows the impact of this pandemic, some controlling variables had to be used. We chose the gold price variable as gold is one of the safe alternative variables for dealing in stock exchange. and the price of oil was also chosen as another controlling variable based on previous studies that used this variable.

Panel data was used as a model through which we can combine time-series data with cross section data to reach a general perception of the impact of this pandemic on stock market returns in the countries of the region

The stationarity of the variables test was tested using ADF test. We concluded that all the variables are stable in the first difference except the return of the stock exchange, which was stable at its first level

The initial shape of the stock market return variable showed that it was characterized in most countries by the stability of the rate at low values with very low periods that witnessed a rise in the rate of return. Even the rest of the countries) which witnessed a fluctuation in the rate of return in the stock exchange, this fluctuation was a fluctuation between low values and did not witness a significant increase during the study period.

The results show gold price, oil price and number of cases do not have a significant effect on the stock market return in the countries under study.

The only variable that had a significant impact on the returns of the stock market return is the new deaths variable, its effect was significant and negative, that is, with the increase in the number of deaths resulting from COVID-19 the stock market return decreases in MENA region countries, which is consistent with previous studies.

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In summary, the findings indicate that the Coronavirus outbreak has influenced stock prices and increased volatility in stock markets, as well as affecting the financial system. As a result, using the stock market as a case study, this paper attempts to provide a very basic yet original statistical analysis of the COVID-19 pandemic.

No doubt, COVID-19 has brought the stock market's backbone to a halt. To stimulate the stock market, the government must implement appropriate policy steps. The crisis would have been much worse if exceptional policy support had not been given. As a result, liquidity injection steps must be implemented.

Despite the fact that this pandemic has brought the whole planet to a halt, the fatality rate is extremely low. Many investors believe that this is a short-term phenomenon, and that when the economy recovers, it would be difficult for them to purchase stocks at current prices. According to George (2020), during this time of recovery, liquidity would drive up stock prices. Long-term investors should profit from the current uncertainties.

Finally, this paper provides an initial analysis of the pandemic issue; further research into investor trust within and between foreign markets is needed. The study on investor sentiment and uncertainty may be used as a basis in future studies. Because of the short event window time and the changing nature of the virus transmission, our study has many drawbacks, one of which is that we only analyzed the immediate and short-term impact of COVID-19 on major affected countries' stock markets. Another disadvantage is that we did not research demographic variables such as age, gender, education level, stock market experience, investor type, and so on due to a lack of data.

The ramifications of these findings are policy-related. The rapid spread of the new COVID-19 pandemic resulted in a high level of dynamic interconnectedness across international financial markets, an unprecedented freeze in stock market returns, and increased economic instability globally. As a result, government, central banks, and investment banks must establish effective economic plans and policies in order to manage the COVID-19 situation without causing uncertainty. Similarly, government actions should aim to calm the financial stock markets and boost investors' confidence in future revenues and market recovery. Furthermore, given the global expansion of COVID-19, market participants and investors should learn to manage stock market risk and panic.

Furthermore, our findings can help risk regulators strengthen risk early warning systems by establishing a daily monitoring mechanism for the international transmission of financial risks. They should put in place

management processes that demonstrate the use of advantages, cautious prevention, and risk management. Countries should also build a comprehensive evaluation index system with rapid data updates and great transparency that covers a wide range of markets and industries (Zhang et al. 2020a, b, c).

Finally, it is critical to increase international coordination among financial regulators all around the world. Stock markets are a complex economic ecosystem in the context of economic globalization, so it is vital to strengthen international sharing of management information related to financial risk contagion. Given that preventing international financial risk contagion is a long-term process, it is critical to put in place a long-term risk governance framework that works in tandem with global forces to manage early risk warning and recovery (Zhang et al. 2020a, b, c).

Our research, like many studies, has some limitations. We could only analyze the immediate and short-term effects of the COVID-19 outbreak on the dynamic interconnectivity of the major impacted countries' stock markets due to the short event time and the virus's shifting nature. Future study should explore the pandemic's long-term implications on the interconnectedness of stock markets, investor confidence within and between international stock markets, and investor sentiment and uncertainty.

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