The effect of the COVID-19 announcement on stock returns: evidence from Egypt

Wael Ahmed Elgharib
Department of Finance, The Egyptian Higher Institute for Management and Accounting, Alexandria, Egypt

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Abstract

Purpose – This study aims at testing efficiency of the Egyptian stock market at semi-strong level through exploring the impact of the COVID-19 outbreak on Egyptian stock returns.

Design/methodology/approach – The author applied the "Event Study" method that addresses the impact of a particular event or group of events on stock returns, from 12 September 2019 to 5 April 2020, choosing Egyptian Stock Exchange (EGX) 100 companies which constitute constitutes the highest-level 100 companies in terms of liquidity and activity.

Findings – The study found inefficiency of the Egyptian stock market at the semistrong level, as the declaration of the COVID-19 has a negative insignificant effect on stock returns, whether on the day of the declaration, before or after it, The underlying reasons for these results can be referred to the idea that can be explained that investors are noise trading when making their investment decisions.

Research limitations/implications – There are two limitations to the interface of this paper. The first one is the short-term impact of COVID-19, using 141 days, and then it is not clear in the research the long-term impact of events related to the epidemic. Secondly, because the author deals with a short period term, the author does not test the characteristics of the company or any other major events that may affect the stock returns of the companies under study.

Originality/value – This adds to the finance literature on the impact of the COVID-19 announcement on stock returns in the context of African countries. The explanation of the interconnection of the COVID-19 announcement on stock returns in Egypt.

Keywords COVID-19, Market efficiency, Event study analysis, Average abnormal return, Cumulative average abnormal return

Paper type Research paper

1. Introduction

The novel is that COVID-19 was formally observed first in the city of Wuhan, China, in December2019. The Chinese scientists have related COVID-19 to a family of viruses known as the coronavirus, which includes both Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS) (Al-Qudah and Houcine, 2021). Since then, it has been spread to almost every country in the world and several developments took place on both local and international levels. The spread of the new strain of COVID-19 and the following partial or full lockdowns imposed by almost all governments around the world have inevitably affected the world economies very negatively, as well as the financial markets (Baker *et al.*, 2020; Zhang *et al.*, 2020).

Since the official announcement of the pandemic on March 11 (the official start of the worldwide pandemic) by the World Health Organization, almost all countries of the world started to impose lockdowns for the ten following days after the pandemic, where most stock markets around the world have faced perceptible negative weekly returns for several consecutive weeks in the first quarter of 2020. These negative weekly returns have reached as high as − 10% in some stock markets (WHO, 2020).

Accordingly, the Egyptian government has taken precautionary actions to control the COVID-19 pandemic including: closing all universities, schools, places of worship, monuments, restaurants, all airports suspending international flights, and a curfew

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between 8 p.m. and 6 a.m. Egypt local time canceling touristic trips and providing a fund for 300,000 seasonal workers to encourage them to stay at home (Ahramonline, 2020; OECD, 2020).

The virus's impact on Egypt has been as negative as on the rest of the world, where The Egyptian stock market lost around 123.5 billion pounds of its market capitalization, starting in March at a value of 644.5 billion pounds and reached 521 billion pounds on 5 April 2020. As for the broader index Egyptian Stock Exchange (EGX)100, it lessened 18.68%, or 369.7 points, to record 1,609.07 points (www.egx.com.eg).

This study contributes to financial literature in three ways. Firstly, in contrast to studies that cover many countries (Ashraf, 2020; Bash, 2020; Cepoi, 2020; Erdem, 2020; Zhang *et al.*, 2020) this study tested the effect of COVID-19 outbreaks advertising on stock returns listed in the index EGX100. Secondly, the use of a new methodology analyzes three results, which is the method of the event study based on language R. Finally, prior studies showed that COVID-19 has essential effects on stock returns (Ashraf, 2020; Al-Awadhi *et al.*, 2020; Bash, 2020; Nguyen, 2021). Our research confirmed the inefficiency of the Egyptian market at the semistrong level, as the declaration of COVID-19 has an insignificant negative effect on stock exchange returns, adding to the existing literature.

The remaining article will run as follows: Section two will present the literature review. Section three will explain the research methodology and design. Section four illustrates data analysis and results. Section five concludes the discussion and proposes recommendations.

2. Literature review

The literature on COVID-19 and its impact on the global economy and financial market is still evolving and more is yet to come but there exists already some published research at this point. In this regard, accordingly Ashraf (2020) has examined the stock markets' response to the COVID-19 pandemic. The results show that the stock market returns responded negatively, as the number of confirmed cases increased as compared to the growth in the number of deaths. Al-Awadhi *et al.* (2020) have examined whether contagious infectious diseases affect the Chinese stock market, using firm-level panel data. Found out that both the daily growth in total confirmed cases and in total cases of death caused by COVID-19 have significant negative effects on stock returns across all companies. Anh and Gan (2020) examined the effects of the COVID-19 outbreak and its following lockdown on daily stock returns in Vietnam. He found that the financial sector was strongly hit on the Vietnam stock market during the COVID-19 outbreak and the prelockdown of COVID-19 had a significant negative impact, while the lockdown period had a significant positive impact on the entire stock market in Vietnam. Bash (2020) examined the effects of the first registered case of COVID-19 on stock market returns for 30 countries using event study analysis. The results show that the stock market returns experience a downwards trend as well as significant negative returns following the COVID-19 outbreak.

Cepoi (2020) examined the impact exerted by COVID-19-related news on stock market return across the top six most affected countries by the pandemic. He found that the stock market presents asymmetric dependencies with COVID-19 related information such as media coverage, fake news and contagion (Erdem, 2020). This study analyzes whether there is a relationship between the freedom of countries and their stock market movements in response to the COVID-19 announcement, using broad stock market indices of 75 countries together with their coronavirus toll numbers. It has been noted that the adverse effects of the coronavirus on the stock markets are less in freer countries. He *et al.* (2020) explored the responses of Chinese firms from different industries to the COVID-19 pandemic by using an event study approach. He found that information technology, education, manufacturing, health care and industries have been more flexible to the pandemic. On the other hand,

transportation, mining, electricity, heating, the environment and industries have been negatively influenced by the pandemic. Mazur *et al.* (2021) examined the United States (US) stock market performance during the crash in March 2020 triggered by COVID-19. He found that equity values in the petroleum, real estate, entertainment and hospitality sectors fall dramatically, whereas healthcare, natural gas, food and software stocks earn high positive returns.

Nguyen (2021) examines impacts of COVID-19 outbreak on stock returns of 11 sectors from 10 countries. The results show that Although China is the origin of the virus, the negative effect on its stock market seems to be the least severe while France, Spain, Germany, the U.K. and Italy suffered the most losses. The energy sector suffered from the greatest abnormal negative returns, among all sectors, in countries including U.S., U.K., Italy and Canada. Okorie and Lin (2021) examined the fractal contagion effect of the COVID-19 pandemic on the stock markets. The results show that there is a confirmation of the fractal contagion effect of the COVID-19 pandemic on the stock markets and this fractal contagion effect fizzles out over time (sooner or later) for both the stock markets return and volatility. Xiong *et al.* (2020) investigated market reaction in China to the coronavirus (COVID-19) pandemic. Found out companies with growth opportunities, better profitability, larger scale, higher combined leverage and less fixed assets negatively influenced by COVID-19 than other companies. Zhang *et al.* (2020) focused on the relationship between stock market risks and the outbreak of COVID-19. The results show that coronavirus causes increased risk in the global financial market for countries on the list of top 10 confirmed cases in March 2020. Zaremba *et al.* (2020) focused on what determines the country's financial immunity to the COVID-19 pandemic. Results indicate that stock markets in countries with low unemployment rates and a large number of with companies with conservative investment policies and low valuations related to the expected profits tend to be more immune to the healthcare crisis.

According to Al-Awadhi *et al.* (2020) a study about the COVID-19 outbreak study on daily stock returns, increasing the method of events and regression of studying, the period from March 1 to August 1, 2020, the results referred to an adverse effect of the daily number of COVID-19 cases on stock returns, as well as the accelerated decline of stock markets in a negative response to the pandemic. It also indicates a negative market reaction signal. According to Bakry *et al.* (2022) a study examines the relationship between daily announcements of COVID-19 cases, government interventions and advanced fluctuations in stock returns, with application to large stocks, and the study found that there are differences between these markets, regarding the investor risk interpretation of daily confirmed new cases, death rates, recovery rates and government interventions to deal with the outbreak. A recent study (Poretti and Heo, 2022) discovered the relationship between COVID-19 and the value of the study for 194 tourism companies, using the methodology of the event study, in light of an international sample of 1,315 observations and the study concluded that the crisis of the epidemic on tourism is negative largely, but this provides an opportunity for the tourism sector to rethink its presentation and business, and to move in a more flexible way financial organizational, and resilience, by finding an alternative means to satisfy investors' expectations in times of the pandemic such as redefining its core business and diversifying its service offerings and target markets. And in a study (Pandey *et al.*, 2022) to find out the effects of corporate advertisements directed towards influencing stock prices on stock returns during the epidemic period. The results indicated that before making such announcements, companies should wait for the market to recover as positively affecting events lead to negative market reactions during epidemic pressure. Hence, corporate advertisements fail to achieve the desired results. And in a study (Harjoto and Rossi, 2021) to examine the market reaction to the World Health Organization's announcement of the novel coronavirus disease 2019 (COVID-19), as a global epidemic in emerging stock markets

compared to the reaction in developed markets, it can be done by comparing the market's reaction to the global financial crisis of 2008. This study found that the COVID-19 pandemic had a much greater negative impact on stock markets in emerging countries than in developed countries, especially in the energy and financial sectors, and a positive impact on the health care and communication technology sectors. Both emerging and developed countries recovered faster from the COVID-19 pandemic compared to the 2008 global financial crisis. Lastly a study (Aldhamari *et al.*, 2022) aimed to examine the reactions of the stock market of companies and industries in Malaysia to the announcement of COVID-19, and to find out whether the restrictions imposed by the Malaysian government on economic activities affect the reactions of companies in the stock market, and using event study methodology to identify abnormal returns, the study found investors react negatively to the announcement of COVID-19, and the confirmation of human-to-human transmission of the coronavirus through event windows, but the cumulative average of abnormal returns (CAARs) began to recover when stimulus packages were presented, and lockdown measures were eased, that allows businesses companies to reopen.

In general, the prior studies analyzed the effects of the COVID-19 pandemic and stock returns on stock markets worldwide. However, no study estimates the influence of COVID-19 on Egypt as an emerging economy as well as a successful nation in controlling the pandemic, In addition to most studies that use the panel data program, such as a study (Ashraf, 2020; Al-Awadhi *et al.*, 2020; Anh *et al.*, 2020; Cepoi, 2020; Erdem, 2020; Mazur *et al.*, 2021; Zaremba *et al.*, 2020), the study in question relied on the method of studying events using the R program to reach better results. This gap in the literature and the potential development of the Egypt stock market motivated this study.

3. Research methodology

The objective of this part is to highlight the sample used, develop the research hypothesis and explain the model variables.

3.1 The sample

The study sample consists of 57 out of 100 companies listed in the EGX 100 Index are shown in Table 1. Choosing EGX companies that constitute the highest thirty companies in terms of liquidity and activity.

The following are the criteria used in selecting the final applicable sample:

(1) The company must have shares traded on the EGX.

(2) Providing the financial information and the data required for the events and their issuance companies.

(3) The number of days of dealing on the company's shares should not be less than 75 during the estimation period (which represents 75% of the total 100 days), in order to overcome the problem of poor dealing.

3.2 Data

The data set consists of the number of EGX100 index points on each day of the study period and the corresponding daily closing price for each stock. The research covers the period from 12 September 2019 to 5 April 2020. Next, we downloaded daily stock price data from the www.investing.com and www.egx.com.eg website over the same period.

3.3 Research design

3.3.1 Event study. The event study methodology is one of the tools commonly used in financial research. The applied approach in this research depends on using the event study to measure the

N	Company name	ISIN code	Sector
1	Arabia investments holding	AIH	Nonbank financial services
2	International agricultural products	IFAP	Trade and distributors
3	Amer group holding	AMER	Real estate
4	Palm hills development company	PHDC	Real estate
5	Elswedy electric	SWDY	Industrial goods, services and automobiles
6	Abou kir fertilizers	ABUK	Basic resources
7	Egyptian chemical industries (Kima)	EGCH	Basic resources
8	GB AUTO	AUTO	Industrial goods, services and automobiles
9	South valley cement	SVCE	Building materials
10	Faisal Islamic bank of Egypt–In EGP	FAIT	Banks
11	El Shams housing and urbanization	ELSH	Real estate
12	Egyptian kuwaiti holding	EKHO	Nonbank financial services
13	Egyptian transport (EGYTRANS)	ETRS	Shipping and transportation services
14	Canal shipping agencies	CSAG	Shipping and transportation services
15	United Arab shipping	UASG	Shipping and transportation services
16	Porto group	PORT	Real estate
17	Citadel capital–Common shares	CCAP	Nonbank financial services
18	Orascom investment holding	OIH	IT, media and communication services
19	CI capital holding for financial investments	CICH	Nonbank financial services
20	Eastern company	EAST	Food, beverages and tobacco
21	Al bader plastic	EDBM	Basic resources
22	Sidi kerir petrochemicals	SKPC	Basic resources
23	Asek company for mining–Ascom	ASCM	Basic resources
24	T M G holding	TMGH	Real estate
25	Belton financial holding	BTFH	Nonbank financial services
26	Alexandria mineral oils company	AMOC	Energy and support services
27	Cairo oils and soap	COSG	Food, beverages and tobacco
28	Arab cotton ginning	ACGC	Textile and durables
29	Oriental weavers	ORWE	Textile and durables
30	Mena touristic and real estate investment	MENA	Real estate
31	Paint and chemicals industries (Pachin)	PACH	Basic resources
32	Egyptian financial and industrial	EFIC	Basic resources
33	Ezz steel	ESRS	Basic resources
34	AJWA for food industries company Egypt	AJWA	Food, beverages and tobacco
35	Export development bank of Egypt (EDBE)	EXPA	Banks
36	Egyptian financial group-hermes holding company	HRHO	Nonbank financial services
37	Development and engineering consultants	DAPH	Real estate
38	Remco for touristic villages construction	RTVC	Travel and leisure
39	Orascom development Egypt	ORHD	Real estate
40	Egyptian for tourism resorts	EGTS	Travel and leisure
41	Medinet nasr housing	MNHD	Real estate
42	Six of October development and investment (SODIC)	OCDI	Real estate
43	Arab gulf investment	AGIN	Real estate
44	Maridive and oil services	MOIL	Energy and support services
45	Alexandria containers and goods	ALCN	Shipping and transportation services
46	Telecom Egypt	ETEL	IT, media and communication services
47	Emaar misr for development	EMFD	Real estate
48	Orascom construction PLC	ORAS	Contracting and construction engineering

(*continued*)

Table 1.
Companies' names

N	Company name	ISIN code	Sector
49	Misr fretilizers production company–mopco	MFPC	Basic resources
50	Commercial international bank (Egypt)	COMI	Banks
51	Abu Dhabi Islamic bank–Egypt	ADIB	Banks
52	Egypt aluminum	EGAL	Basic resources
53	El Wadi for international and investment development	ELWA	Travel and leisure
54	Golden coast company	GOCO	Travel and leisure
55	Arabian cement company	ARCC	Building materials
56	Cleopatra hospital company	CLHO	Health care and pharmaceuticals
57	Ibnsina pharma	ISPH	Health care and pharmaceuticals

Source(s): Egyptian Stock Exchange (EGX)

Table 1.

impact of COVID-19 outbreaks Advertising on stock returns through calculating (abnormal return (AR), average abnormal return (AAR) and CAARs) which cover all selected events.

One of the most frequently used methods to determine whether market sentiment related to a certain event gets effectively incorporated into stock prices is the event study method. Event studies are most suitable for analyzing the sentiment effect of a single event or a series of rare events on a stock's price or a sector's returns. One must define the event, estimate windows and then calculate the stock's abnormal return.

3.3.2 Event study structure. In this part, I will describe the five main steps in conducting an event study.

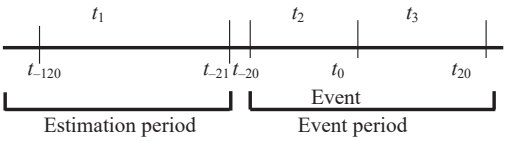
Step 1. Identifying the event of interest and selecting sample firms:

For conducting an event study, the initial task is to define the event of interest. In the current study, advertising on COVID-19 is chosen as the event of interest, which took place on 5 March 2020 as the event day (day 0). The number of companies under study reached 57 companies.

Step 2. Identifying the timeline of an event study:

The event period or window has reached 41 days as shown in Figure 1, represented in the day of the event, which is the day of the announcement of the coronavirus ($t = 0$), and the number of 20 days before this announcement to determine the extent of information leakage (t_{-20}), and the number of 20 days after this announcement to determine the extent to which the market can absorb the new information completely and quickly (t_{+20}).

There is a period before the event period called the estimation period, and this period is used to determine the parameters of the market model, which is used to determine the natural return or the expected return. Studies have differed in determining the estimation period, so the number of 239 days was used as in the study (Brown and Warner, 1985), 150 days as in a study (Lummer and McConnell, 1989) and 225 days in (Small *et al.*, 2007). The researcher used



Source(s): Author's own work

Figure 1.
Timeline of an event study

100 days as an estimated period before the beginning of the event period [t_{-21} to t_{-120}, which is illustrated by Figure No. (1)].

Step 3. Estimating normal return (expected return) for each sample stock exchange market

The natural return or the expected return refers to the return that would be achieved if the event (coronavirus advertising) did not occur. There are four models for estimating the expected return:

1. Mean-adjusted return

The first method is called the mean adjusted return (Brown and Warner, 1985). The expected return is the average return over the estimation period. It can be calculated as follows:

$$E(R_{i,t}) = \overline{R}_i \tag{1}$$

2. Market-adjusted return

The second method is called the market-adjusted return (Ritter, 1991; Bruner, 1999; Weber *et al.*, 2008). The expected return is the market return and does not require an estimation period. It can be calculated as follows:

$$E(R_{i,t}) = R_{m,t} \tag{2}$$

3. Market Model

The third method is called the market model. The expected return is computed based on a single-factor market model (Bonnier and Bruner, 1989; Lummer and McConnell, 1989; Homan, 2006; Small *et al.*, 2007). It can be calculated as follows:

$$E(R_{i,t}) = \widehat{\alpha}_i + \widehat{\beta}_i R_{m,t} \tag{3}$$

Where,

$\widehat{\alpha}$ and $\widehat{\beta}$ (The parameters of the market model) are estimated using ordinary least square (OLS) regression over the estimation period. It is the model used by the researcher in calculating the expected return

4. (Fama-French) three-factor model

The fourth method is called a three-factor model (Fama and French, 1993). This method is an extension of the capital asset pricing model (CAPM) model, combining more risk factors. The expected return is shown as follows:

$$E(R_{i,t}) = R_{f,t} + \widehat{\beta}_i (R_{m,t} - R_{f,t}) + \widehat{S}_i \, SMB_t + \widehat{H}_i \, HML_t \tag{4}$$

Where,

$(R_{m,t} - R_{f,t})$ is the market excess return factor

SMB = a factor for size is the difference between average returns of small stock portfolios and those of big stock portfolios.

HML = a factor for book-to-market is the difference in average returns between high and low book-to-market stock portfolios.

Step 4. Computing abnormal return

The abnormal is called by many names, including excess return, the estimation error and residuals of the regression model, which is the difference between the actual return on time (t) in the event window and the expected return of an individual stock. Can be calculated as follows:

$$AR_{i,t\_}R_{i,t} - E(R_{i,t}) \tag{5}$$

Step 6. Computing average abnormal return (AAR)

The AAR for all sample stocks on time (t) can be calculated as follows:

$$\overline{AR}_t = \frac{1}{N}\sum_{i=1}^{N} \mathrm{AR_{i,t}} \tag{6}$$

If the AAR is a negative number, this means that there is a negative impact of the announcement of the COVID-19 on stock prices, and if the number is zero, this means that there is no information content on stock prices, and if the value is positive, this means that there is a positive effect of the announcement of the COVID-19 on stock prices.

Step 7. Testing the significance of abnormal returns

To test the significance of the impact of COVID-19 advertising on stock prices, use a parametric test of t-statistics (e.g. Brown and Warner, 1985). It is outside of dividing the average of the abnormal return by the standard error. It can be calculated as follows:

$$\mathrm{T}(AR_t) = \frac{\overline{\mathrm{AR}}_{\mathrm{i,t}}}{\sigma(\mathrm{AR_{i,t}})} \tag{7}$$

Step 8. Testing the significance of the cumulative abnormal return (CAR)

The cumulative average of the abnormal return is calculated, then the significance of the cumulative effect is tested using the *t*-test, of each stock is aggregated over the event window (t_{-20} to t_{+20}).

The last step is to calculate the cumulative average of the abnormal return of each stock aggregated over the event window (t_{-20} to t_{+20}), and then test the significance of the cumulative effect using a *t*-test, as follows:

$$\mathrm{C\overline{AR}_{i,t}} = \sum_{t=-20}^{20} \overline{\mathrm{AR}}_{\mathrm{i,t}} \tag{8}$$

$$\mathrm{T}\left(\mathrm{C\overline{AR}}\right)_{\mathrm{t}} = \frac{\mathrm{C\overline{AR}_t}}{\sigma(\mathrm{CAR_t})} \tag{9}$$

3.4 Development of research hypotheses

The main hypothesis of the study is in the form of the null hypothesis, and using the average of the abnormal on the day of the announcement of the coronavirus, the hypothesis takes the following form:

H0. $\overline{AR}_{t=0} = zero$

If the null hypothesis is not accepted, the alternative hypothesis is as follows:

H1. $\overline{AR}_{t=0} \neq zero$

The market will be efficient if the change in stock prices on the day of the announcement of the coronavirus is large and significant, and not significant before the day of the announcement,

because stock prices absorb information completely and quickly, and not significant after the day of the announcement, which indicates that there is no leakage of information.

4. Results and discussions

By applying to the daily stock closing prices of the 57 companies in the study sample, a set of results were reached, which include the average abnormal return (AAR), the CAR, and the *t*-test for each day of the event period.

Further, in Table 2, the AAR on the day of the announcement of COVID-19 ($t = 0$) magnitude was 0.91529, which indicates a negative effect of the announcement of COVID-19

Day (*t*)	AR	T(AR)	CAR	T(CAR)
−20	−0.0143	−0.06298	−0.01433	−0.06298
−19	−0.22716	−1.13582	−0.24149	−0.79507
−18	0.44641	2.02529	0.20492	0.54923
−17	−0.57283	−2.89703	−0.36791	−0.90820
−16	0.47124	2.21047	0.10333	0.20494
−15	−0.80473	−4.10283	−0.70140	−1.21363
−14	−0.14079	−0.56932	−0.84220	−1.18279
−13	0.04076	0.18621	−0.80143	−1.12569
−12	0.13653	0.50490	−0.66490	−0.79398
−11	0.13643	0.54245	−0.52847	−0.59219
−10	0.22107	0.78546	−0.30739	−0.30656
−9	−0.81896	−2.76410	−1.12635	−0.96899
−8	0.58868	1.93502	−0.53767	−0.39704
−7	0.63406	2.45349	0.09639	0.07137
−6	−0.43410	−1.18246	−0.33771	−0.22987
−5	−1.47657	−4.49627	−1.81428	−1.16131
−4	0.69303	1.84215	−1.12125	−0.62767
−3	−3.83484	−7.58315	−4.95610	−2.62486
−2	3.82649	7.29148	−1.12961	−0.59794
−1	0.34211	0.90314	−0.78749	−0.40252
0	−0.91529	−2.73155	−1.70279	−0.82153
1	0.00676	0.01651	−1.69602	−0.75337
2	−1.22536	−2.99328	−2.92139	−1.21276
3	2.14159	4.83381	−0.77979	−0.31158
4	−1.42902	−3.16118	−2.20882	−0.86696
5	−0.56661	−1.17772	−2.77544	−1.03647
6	0.03587	0.07995	−2.73957	−0.95840
7	−1.06583	−1.96784	−3.80540	−1.25997
8	−1.55225	−4.07327	−5.35765	−1.74994
9	6.00952	7.19144	0.65186	0.21075
10	−3.76376	−5.89524	−3.11189	−1.00854
11	0.05308	0.10585	−3.05881	−1.03727
12	0.49598	0.90188	−2.56282	−0.84676
13	2.12903	6.22562	−0.43378	−0.14735
14	−0.00877	−0.02296	−0.44256	−0.15046
15	−0.73400	−1.89603	−1.17656	−0.38518
16	−0.42088	−0.86869	−1.59744	−0.52083
17	0.66511	1.68038	−0.93232	−0.31008
18	−0.03381	−0.10914	−0.96614	−0.31706
19	0.01834	0.05173	−0.30431	−0.30431
20	−0.07806	−0.20261	−1.02586	−0.32318

Source(s): Author computation

Table 2.
Event study results

on the stock returns, and it is also significant as the *t*-test of the AAR (−2.73155), however, it does not agree with the results of CAR, which shows a nonsignificant negative impact of COVID-19 on stock returns.

There is a nonsignificant effect of the announcement of COVID-19 on stock returns in the period before the announcement of magnitude and significant on some days, such as ($t = -1,-4,-6,-8,-10,-11,-12,-13,-14,-19$ and -20, and there is no to explain a nonsignificant in the market efficiency (there is no leakage of information for some investors without others) with evidence of a significant effect on other days before the day of the announcement, such as $t = -2,-3,-5,-7,-9,-15,-16,-17,-18$ and -19, and also the presence of the greatest effect in the days prior to the day of the announcement, where the AAR magnitude on the second and third day consecutively was ($t_{-2} = 3.82649$; $t_{-3} = -3.83484$), as well as CAR magnitude on the second and third day consecutively was ($t_{-2} = -1.12961$; $t_{-3} = -4.95610$), and this is also confirmed by the AAR fluctuation between increase and decrease.

There is a nonsignificant effect of the announcement of COVID-19 on stock returns in the period after the announcement of magnitude. Yet, it's significant on some days, such as $t = 1,5,6,11,12,14,15,16,17,18,19$ and 20, and there is nothing to explain a nonsignificant in the market efficiency (there is no leakage of information for some investors apart from others) with evidence of a significant effect on other days after the day of the announcement, such as $t = 2,3,4,8,9,10$ and 13, This indicates the inability of stock prices to absorb new information quickly and completely. This is due to the lack of informational content on the day of the announcement of COVID-19, where the largest AAR magnitude on the nine-day ($t_{-9} = 6.00952$), as well as CAR magnitude on the nine-day, was $t_9 = 0.65186$, and this is also confirmed by the AAR fluctuation between increase and decrease.

5. Conclusions

This study examines the influence of COVID-19 on stock returns of 100 listed firms on Egypt's stock market from 12 September 2019 to 05 April 2020. The study is limited by the relatively short study period order by the nature of the unexpected pandemic.

Overall, the results indicate the inefficiency of the Egyptian market at the semistrong level, as the declaration of COVID-19 has an insignificant negative effect on stock returns, whether on the day of the declaration, before or after it, and this is consistent with previous research (Abdelzaher, 2021; El Ansary and El-Azab, 2017), and the underlying reasons for these results can be referred to the idea that investors are noise trading when making their investment decisions.

In other words, the bad news emanating from the outbreak of COVID-19 besides anxiety and uncertainty, as well as the fear of death and closures to control the transmission of the virus led to the global economic downturn. The increase in the number of confirmed cases of COVID-19 has also sent investors into a panic which made them more worried about future returns. As a result, investors started to sell their shares before the situation got worse. We also deduce from the previous results the inefficiency of the Egyptian market at the half-power level, which is matching with the previous studies, which tested the market efficiency with a level weak and found its inefficiency.

However, there are two limitations to the interface of our paper, the first is the short-term impact of COVID-19, using 141 days, and then it is not clear in the research the long-term impact of events related to the epidemic, second, because we deal with a short period term, we do not test the characteristics of the company or any other major events that may affect the stock returns of the companies under study.

Since COVID-19 vaccines are used in many countries, the researcher recommends conducting future research studies on the impact of the announcement of the use of the COVID-19 vaccine on the volatility of stock returns in both developed and developing

countries and also studying the long-term impact of COVID-19 on the Middle East countries. In addition to knowing the impact of distribution policy on stock returns according to global epidemics, it may also be useful in future studiesto highlight the impact of the spread of different vaccines in developed and emerging markets on stock market volatility.

References

Abdelzaher, M.A. (2021), "Study the efficiency hypothesis in the Egyptian stock market", *International Journal of Economics and Financial Issues*, Vol. 11 No 1, p. 18.

Ahramonline (2020), "How is Egypt supporting seasonal workers amid the coronavirus crisis?", available at: https://english.ahram.org.eg/NewsContent/3/12/365997/Business/Economy/How-is%20Egypt-supporting-seasonal-workers-amid-the-.aspx (accessed 25 March 2020).

Al-Awadhi, A.M., Alsaifi, K., Al-Awadhi, A. and Alhammadi, S. (2020), "Death and contagious infectious diseases: impact of the COVID-19 virus on stock market returns", *Journal of Behavioral and Experimental Finance*, Vol. 27, 100326.

Aldhamari, R., Ismail, K.N.I.K., Al-Sabri, H.M.H. and Saleh, M.S.A.H. (2022), "Stock market reactions of Malaysian firms and industries towards events surrounding COVID-19 announcements and number of confirmed cases", *Pacific Accounting Review*, ahead-of-print.

Al-Qudah, A.A. and Houcine, A. (2021), "Stock markets' reaction to COVID-19: evidence from the six WHO regions", *Journal of Economic Studies*, Vol. 49 No. 2, pp. 274-289, doi: 10.1108/JES-09-2020-0477.

Anh, D.L.T. and Gan, C. (2020), "The impact of the COVID-19 lockdown on stock market performance: evidence from Vietnam", *Journal of Economic Studies*.

Ashraf, B.N. (2020), "Stock markets' reaction to COVID-19: cases or fatalities?", *Research in International Business and Finance*, Vol. 54, 101249.

Baker, S.R., Bloom, N., Davis, S.J., Kost, K., Sammon, M. and Viratyosin, T. (2020), "The unprecedented stock market reaction to COVID-19", *The Review of Asset Pricing Studies*, Vol. 10 No. 4, pp. 742-758.

Bakry, W., Kavalmthara, P.J., Saverimuttu, V., Liu, Y. and Cyril, S. (2022), "Response of stock market volatility to COVID-19 announcements and stringency measures: a comparison of developed and emerging markets", *Finance Research Letters*, Vol. 46, 102350.

Bash, A. (2020), "International evidence of COVID-19 and stock market returns: an event study analysis", *International Journal of Economics and Financial Issues*, Vol. 10 No. 4, p. 34.

Bonnier, K.A. and Bruner, R.F. (1989), "An analysis of stock price reaction to management change in distressed firms", *Journal of Accounting and Economics*, Vol. 11 No. 1, pp. 95-106.

Brown, S.J. and Warner, J.B. (1985), "Using daily stock returns: the case of event studies", *Journal of Financial Economics*, Vol. 14 No. 1, pp. 3-31.

Bruner, R.F. (1999), "An analysis of value destruction and recovery in the alliance and proposed merger of volvo and renault", *Journal of Financial Economics*, Vol. 51 No. 1, pp. 125-166.

Cepoi, C.O. (2020), "Asymmetric dependence between stock market returns and news during COVID-19 financial turmoil", *Finance Research Letters*, Vol. 36, 101658.

El Ansary, O. and El-Azab, M.H. (2017), "The impact of stock dividends and stock splits on shares' prices: evidence from Egypt", *Accounting and Finance Research*, Vol. 6 No. 4, pp. 84-96.

Erdem, O. (2020), "Freedom and stock market performance during COVID-19 outbreak", *Finance Research Letters*, Vol. 36, 101671.

Fama, E.F. and Kenneth, R. (1993), "French, 1993, common risk factors in the returns on stocks and bonds", *Journal of Financial Economics*, Vol. 33 No. 1, pp. 3-56.

Harjoto, M.A. and Rossi, F. (2021), "Market reaction to the COVID-19 pandemic: evidence from emerging markets", *International Journal of Emerging Markets* (ahead-of-print).

He, P., Sun, Y., Zhang, Y. and Li, T. (2020), "COVID–19's impact on stock prices across different sectors—an event study based on the Chinese stock market", *Emerging Markets Finance and Trade*, Vol. 56 No. 10, pp. 2198-2212.

Homan, A.C. (2006), "The impact of 9/11 on financial risk, volatility and returns of marine firms", *Maritime Economics and Logistics*, Vol. 8 No. 4, pp. 387-401.

Lummer, S.L. and McConnell, J.J. (1989), "Further evidence on the bank lending process and the capital-market response to bank loan agreements", *Journal of Financial Economics*, Vol. 25 No. 1, pp. 99-122.

Mazur, M., Dang, M. and Vega, M. (2021), "COVID-19 and the March 2020 stock market crash. evidence from S&P1500", *Finance Research Letters*, Vol. 38, 101690.

Nguyen, K.H. (2021), "A coronavirus outbreak and sector stock returns: a tale from the first ten weeks of 2020", *Applied Economics Letters*, pp. 1-11.

OECD (2020), "Tackling coronavirus (COVID-19) contributing to a global effort: the Covid-19 crisis in Egypt", available at: https://www.oecd.org/mena/competitiveness/The-Covid-19-Crisis-in Egypt.pdf (accessed 28 April 2020).

Okorie, D.I. and Lin, B. (2021), "Stock markets and the COVID-19 fractal contagion effects", *Finance Research Letters*, Vol. 38, 101640.

Pandey, D.K., Kumari, V. and Tiwari, B.K. (2022), "Impacts of corporate announcements on stock returns during the global pandemic: evidence from the Indian stock market", *Asian Journal of Accounting Research*.

Poretti, C. and Heo, C.Y. (2022), "COVID-19 and firm value drivers in the tourism industry", *Annals of Tourism Research*, Vol. 95, pp. 1-14, 103433, doi: 10.1016/j.annals.2022.103433.

Ritter, J.R. (1991), "The long-run performance of initial public offerings", *The Journal of Finance*, Vol. 46 No. 1, pp. 3-27.

Small, K., Ionici, O. and Zhu, H. (2007), "Size does matter: an examination of the economic impact of Sarbanes-Oxley", *Review of Business*, Vol. 27 No. 3, p. 47.

Weber, J., Willenborg, M. and Zhang, J. (2008), "Does auditor reputation matter? The case of KPMG Germany and ComROAD AG", *Journal of Accounting Research*, Vol. 46 No. 4, pp. 941-972.

WHO (2020), *COVID-19 Significantly Impacts Health Services for Noncommunicable Diseases*, World Health Organization, Geneva.

Xiong, H., Wu, Z., Hou, F. and Zhang, J. (2020), "Which firm-specific characteristics affect the market reaction of Chinese listed companies to the COVID-19 pandemic?", *Emerging Markets Finance and Trade*, Vol. 56 No. 10, pp. 2231-2242.

Zaremba, A., Kizys, R., Aharon, D.Y. and Demir, E. (2020), "Infected markets: novel coronavirus, government interventions, and stock return volatility around the globe", *Finance Research Letters*, Vol. 35, 101597.

Zhang, D., Hu, M. and Ji, Q. (2020), *Financial Markets under the Global Pandemic of COVID-19*, Finance Research Letters, 101528, doi: 10.1016/j.frl.2020.101528 and PMID: 32837360.

Further reading

Egyptian Stock Exchange (n.d), "Egyptian Stock Exchange", available at: https://www.egx.com.eg/ar/ListedStocks.aspx

Corresponding author

Wael Ahmed Elgharib can be contacted at: wael.elgharib@eia.edu.eg