THE IMPACT OF COVID-19 PANDEMIC ON FINANCIAL PERFORMANCE: COMPARISON BETWEEN EGYPTIAN SMEs TAMAYOZ AND EGX30 INDEX

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ABSTRACT

Most SMEs experience economic collapse and even insolvency due to a lack of sufficient governmental support, particularly those working in growing nations like Egypt with a heavy focus on SMEs' growth and political and economic instability. As a result, this paper seeks first to measure the consequences of COVID-19 on financial performance (FP) by comparing small and medium enterprises (SMEs) with listed corporations in the Egyptian Stock Exchange (EGX). Second, we examine the impact of governmental interventions on this association. Our sample includes 26 SMEs in the Tamayoz EGX and the highest 30 firms listed in the EGX30. We applied pooled ordinary least square regression, paired sample test, and Barron and Kenny's test. We used daily stock market returns from January 2020 to November 2020. The proliferation of COVID-19 has an influence on stock prices in both the EGX30 and Tamayoz stock indexes. We furthermore find a partial mediation of income support, facial-covering, school closures, and restrictions on international movements on the linkage between COVID-19 and FP for SMEs. The stock prices listed in EGX30 seem more sensitive to governmental interventions than Tamayoz EGX. The findings confirm governmental interventions would have a significant role in the firm's FP during the COVID-19 pandemic.

INTRODUCTION

Lately, the world has been suffering a health crisis due to the COVID-19 pandemic that originated in China in December 2019 and spread rapidly worldwide. It has driven the World Health Organization (WHO) on 11 March 2020 to announce it as a global pandemic (Albulescu, 2020a). Internationally, on 18 April 2021, there have been 140,322,903 confirmed cases and 3,003,794 death cases (WHO, n.d). Astonishingly, exact events or news according to Shehzad and Sohail (2018) may cause stock prices to vary. The original coronavirus has a negative consequence; as pandemic behaviour is unidentified (Shehzad et al., 2020a).

To stop the spread of COVID-19, every country has locked its markets and business, and the public is obligated to stay in their households. Consequently, unemployment has been augmented; the supply side has been scratched, economic development and sale of the traveling segment have been abridged (Leduc & Liu, 2020). The global stock markets confronted an extreme smash in their market values. The market value of the Standard & Poor (S&P) 500 index subsequently dropped by 30% due to the COVID-19 pandemic. The verdicts informed that, throughout March, stock markets of France, Germany, and Italy come across an extreme decline in their values. Furthermore, the United Kingdom (UK), the United States (US), Hong Kong, Spain, and China's stock markets run into a deterioration of 21.4%, 14.9%, 14.7%, 25.1%, and 12.1% in their prices from 8 to 18 March 2020, respectively. Adam (2020) stated that financial markets are close to downfall as they were throughout the Global Financial Crises (GFC). COVID-19 transported the world nearby for the financial crises riskier than GFC. Moreover, the financial instability index based on Leduc and Liu (2020), similarly known as "fear gauge" has stimulated to the highest level, upper than GFC time, whereas the US 10-years treasury return index moved down to the highest low level. The Asian Development Bank appraised the worldwide cost of COVID-19 by $4.1 trillion Alegado (2020). Therefore, this information according to Shehzad et al. (2020b) intimated the significance of sightseeing the impressions of COVID-19 on reputed stock markets globally and bear the consequences of its influence on the GFC.

According to Ozili (2020), COVID-19 affected the stock market in twofold tracks. First, the crisis forced the closing of business activities and corporations, then it affected the financial market. Second, the vagueness about COVID-19 cases correspondingly affected the investment decisions that initiated greater instability

in the stock market, and consequently, several corporations faced liquidity difficulties irrespective of their size. Nevertheless, COVID-19 may not essentially be damaging to the whole businesses and sectors. Most segments are affected and their share value breakdowns, such as air transport and tourism , while other sector such as healthcare may benefitted from this crisis. (Ashraf, 2020a; Mazur et al., 2020). Nonetheless, the small and medium entreprises (SMEs) is still unexplored. It is becoming clear that based on Baldwin and Weder (2020), the financial and social significances of the present crisis will be thoughtful and long-lasting, and still mainly indeterminate. Governments will come out with diverse rules and strategies to ease the liquidity difficulties faced by businesses particularly the SMEs as well as providing financial provision for destitute households.

The outbreak of COVID-19 has strictly affected nationwide as well as global economies. Several enterprises are facing diverse matters with a certain grade of losses. Enterprises are facing with hardships during this crisis such as a reduction in demand, termination of exportation orders, and lack of raw material and supplies, among others. We argue that one of the main victims of the COVID-19 outbreak is the SMEs, as SMEs compared with the large businesses, regularly do not own satisfactory resources, especially financial and managerial resources, and are not ready for such disturbances for a longer period of time (Bartik et al., 2020; Prasad et al., 2015). Furthermore, these businesses according to Williams and Schaefer (2013) are extremely relying on their routine corporate transactions and a small number of clients. Therefore, several SMEs are running out of stock, some scarcely remain to run, and some will be running out of stock soon. SMEs are the backbone for several global economies which provide return and employment generation for a large number of individuals worldwide.

Furthermore, as a result of the shortage of governmental support, many SMEs are facing with economic decline and even become insolvent. SMEs have restricted competence and resources to recuperate from such crisis, particularly those working in emerging countries like Egypt with a high focus on SMEs' growth and political and economic instability. Therefore, this study moved its foundation to examine the impact of the COVID-19 on SMEs in Egypt.

Several early papers focus on the COVID-19 influences on the stock markets returns (e.g. Ashraf, 2020a; Al-Awadhi, 2020; Zhang et al., 2020), and other papers underline the COVID-19 impact on financial volatility (e.g. Albulescu, 2020a; Bakas & Triantafyllou, 2020; Lyócsa, et al., 2020; Zaremba et al., 2020), an exchange rate (Cardona-Arenas & Serna-Gómez, 2020), business bonds (Nozawa & Qiu, 2021) or Eurobonds (Sène et al., 2020), prices of oil (Albulescu, 2020a), and economic strategy uncertainty (Albulescu, 2020b). Combined with employing

several techniques towards measuring the dissemination of the virus (Ahmar & Del Val, 2020; Pavlyshenko, 2020) or evaluating the source of health security (Chang & McAleer, 2020; McAleer, 2020), while only a few papers emphasise the COVID-19 impact on SMEs' financial return in emerging countries. We add to this new strand of the literature. To the best of our knowledge, this is the first study addressing the impact of COVID-19 across Egypt by comparing the result of SMEs with listed corporations for daily information for the year 2020.

We are motivated to conduct this study for several causes. Our study is matching with the wave of the empirical studies that investigated the consequences of COVID-19. The contemporary literature solely focuses on investigating the impact of COVID-19 on major indices across stock markets while neglecting SMEs which are the most affected businesses during the pandemic compared to listed companies. SMEs are the backbone of countless economies worldwide which provide income to a large number of individuals around the globe. We were inspired to explore the impact of the COVID-19 on this segment. COVID-19 has created unprecedented uncertainty about the impact of the pandemic influence on the stock prices and how governments will respond, as well as the consequences of government policy (Wagner, 2020). The global stock market has responded to the COVID-19 with extraordinary volatility and substantial negative returns (e.g., Al-Awadhi et al., 2020; Ramelli & Wagner, 2020). The majority of the literature focuses on developed markets such as the US, the European Union, and China, with less attention paid to developing economies, which are characterised by a weak financial system and government intervention. This discrepancy prompts the authors to investigate this influence by concentrating on a different culture and developmental context, such as Egypt. This study aims to find out to what extent does the pandemic has the same effect on the stock market across different culture and different sector as SMEs. Moreover, the continuing pandemic will harshly hamper the activities of these businesses as SMEs are exceedingly reliant on the cash economy, which has been affected by the pandemic. Consequently, this study is inspired by Shafi et al. (2020) who suggested for further research about the impact of COVID-19 on SMEs across different contexts. As a result, it is possible to predict the situation of SMEs in other developing countries as well as understand how they have been affected by the COVID-19 pandemic.

Why SMEs in Egypt? According to Bary (2019), Egypt's SMEs are a critical engine of the Egyptian economy and one of the fastest expanding areas for increasing economic growth and achieving sustainability objectives. As we focus on SMEs, Egypt was chosen as one of the leading and pioneer countries in the Middle East North Africa (MENA) region that established stock exchange for SMEs; using Egypt's Tamayoz stock market empowering researchers to access for financial

data. Egyptian Stock Exchange (EGX) launched in 2021 is a new index to track the performance of SMEs called Tamayoz Index. Egypt has also been selected since it is a COVID-19 epicenter and one of Africa's most impacted nations (Lone & Ahmad, 2020). With regard to Egypt, none of the previous studies have measured the impact of COVID-19 on SMEs using secondary data and daily stock returns. We are driven by the uniqueness of Egypt as a case study and how it interacts with the pandemic through governmental decisions. Consequently, this justifies the need to explore the influence of the COVID-19 outbreak on SMEs operating in Egypt.

Thus, this study aims to fill in the knowledge and time gap by: (1) investigating the influence of the COVID-19 pandemic on the Egyptian financial market that measured by the daily stock returns across the Egyptian SMEs and the highest 30 corporations that listed in the EGX30, (2) comparing the results of the effects of COVID-19 over these two sectors for the year 2020, and (3) studying the impression of government activities and decisions during the pandemic over the prior relationship. To achieve our objectives, we used data for 26 SMEs listed in the Tamayoz EGX as well as the highest 30 companies listed in the EGX30 index for daily stock market returns from January 2020 to November 2020. The analysis shows a partial mediation of the governmental actions as facial-covering, income support, school closures, and restrictions international movements on the association between COVID-19 and FP for SMEs. Correspondingly, we find that stock prices for listed firms in EGX30 seem to be sensitive to governmental interventions more than Tamayoz EGX.

We found scarcity in the literature, which focus on both of small business and developing countries. Hence, we offer several important contributions to the existing literature. First, we contribute to the previous studies, which measure the stock market reactions surrounding broad catastrophes, severe weather, and flu outbreaks (e.g., Fleming et al., 2006; McTier et al., 2013). Second, we delve into the contemporary and mounting line of literature which examines the consequences of the COVID-19 pandemic on the financial markets (e.g., Alfaro et al., 2020; Al-Awadhi et al., 2020; Ali et al., 2020; Ramelli & Wagner, 2020; Schell et al., 2020; Zhang et al., 2020). Our findings show that stock market returns may decline or increase in reaction to the COVID-19 pandemic, depending on the size of the business. Third, we add to the literature on the reactions of developing markets to crises and recessions (e.g., Dimitriou et al., 2013; Dooley & Hutchison, 2009; Neaime, 2012; Sugimoto et al., 2014). Fourth, our study contributes to previous research that examines the influence of COVID-19 on SMEs sector outcomes (e.g., Bartik et al., 2020; Robinson & Kengatharan, 2020; Shafi et al., 2020). Fifth, this study enriches the academic track which investigates SMEs in Egypt

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(e.g., Abu Hatab et al., 2020; Zaazou & Salman, 2020). We contribute to research like Phan and Narayan (2020) and Ashraf (2020b), which show how government interventions might lessen the negative effects of crises like COVID-19 on stock market returns. It is suffice to say that the stock market's reaction to the pandemic is dependent on the size of the business and the category of government intervention. While all these studies used primary data based on an online survey (questionnaire), we used secondary data which reflects the real situation for these firms during the crisis. Finally, we add to the literature of the consequences of COVID-19 through a comparison between two different indices, which are SMEs and listed corporations.

While the cost of the global economy's lockdown in the aftermath of COVID-19 is estimated by Mandel and Veetil (2020), the influence of the pandemic on FP is measured in this study. While Ashraf (2021) used data for four months (22 January to 17 April 2020), this study period is extent to November 2020. Contrary to the studies by Abu Hatab et al. (2020) and Zaazou and Salman (2020), this study uses secondary data acquired from Tamayoz EGX website.

LITERATURE REVIEW

COVID-19 in Egypt

In Egypt, related to COVID-19, the first case was confirmed on 16 February 2020 and the first death case was recorded on 9 March 2020. Between mid-February until mid-July 2020, the number of confirmed cases has increased rapidly to 82,000 cases, causing around 4,000 deaths which ranked Egypt as the second most affected country in Africa, after South Africa, according to the number of deaths and cases (WHO, n.d). In April 2021, it was ranked as one of the riskiest countries globally based on the level of COVID-19 spread. According to Lone and Ahmad (2020), Egypt is one of the world's COVID-19 hotspots. As shown in Figure 1, from 3 January 2020 until 18 April 2021, there have been 215,484 confirmed cases and 12,694 deaths (WHO, n.d).
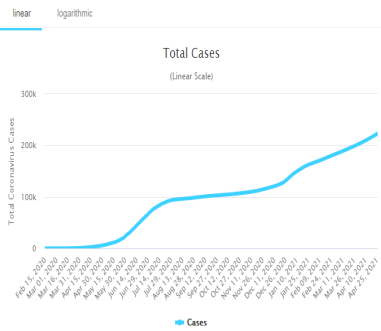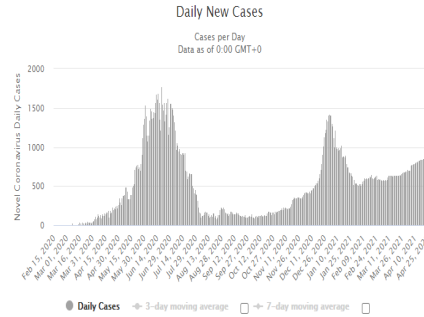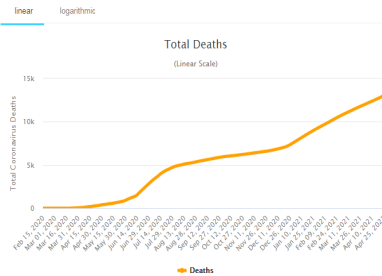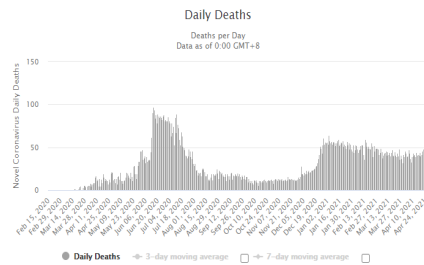
Figure 1. The recorded cases of COVID-19 in Egypt from January 2020 to April 2021

Reactions of EGX30 and Tamayoz for COVID-19

Figure 2 shows the variation rate of EGX30 as well as Tamayoz indicators. EGX30 and Tamayoz stocks create asymmetrically circulated huge negative returns in March 2020 that react to lockdown decisions. The EGX30 has dropped by 38% since the highest on 9 February 2020, and reached 8,756 Egyptian pound (EGP) on 18 March 2020. After Egypt announced the stimulus package on 14 March 2020 and as schools are closed, the EGX30 declined by 9.34% on the next day (EGX, 2021). It reached a minimum point of 8,756.70 on 18 March 2020 with 166 cases and 4 deaths *(Our World in Data* COVID-19 dataset). In contrast, EGX30 gradually return to 10,885.11 on 23 November 2020 with 11,3027 total cases and 6,548 total deaths. From the time when most of the companies are forbidden from continuing operational throughout the compulsory isolation, they adjusted their employment costs through laying off workers. Therefore, this guide addresses the sharp decline in consumption, economic output, and the disruption of the upcoming cash flows.

However, COVID-19 may not essentially be damaging for all businesses and sectors. While most sectors suffer and share prices decreased, others may benefit from the pandemic as SMEs (authors' own calculation with data from https://www.egx.com.eg/ar/Indices.aspx) with 11,3027 cases and 6,548 deaths *(Our World in Data* COVID-19 dataset)*.
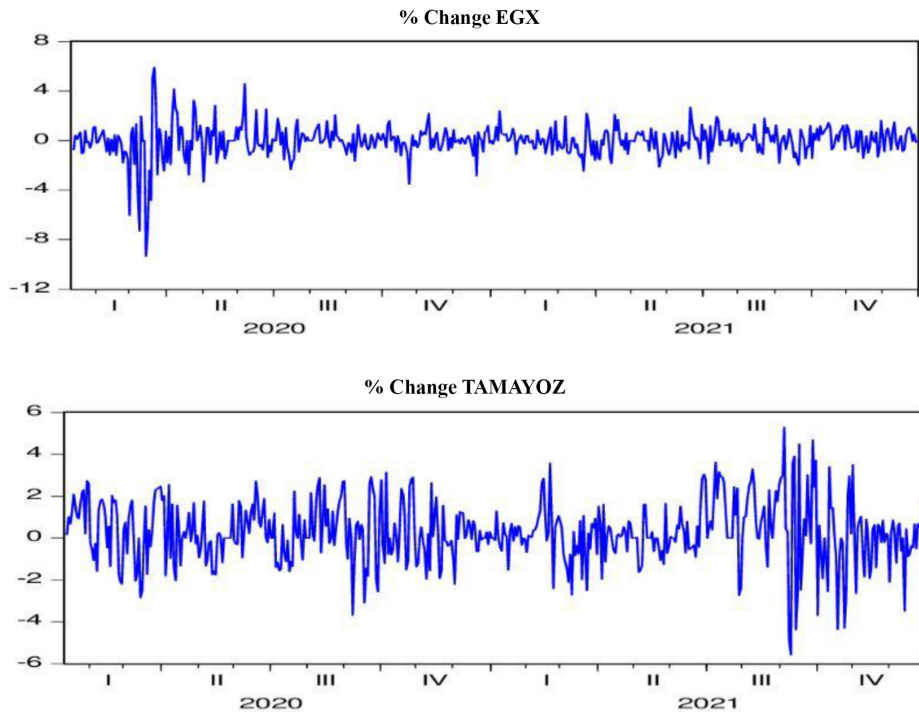
Figure 2. Percentage change of EGX30 and Tamayoz

After the Egyptian government granted authorisation to reopen, several SMEs were having problems and difficulties in resuming operations that resulted in additional significant economic losses and putting others at risk of permanent closure. A contemporary survey on the influences of the pandemic for the 283 Egyptian SMEs showed that 3% of them has ceased their business permanently and 54% stopped provisionally due to the confirmed cases within the firms, government directions, or absence of demand (Global Communities, 2020). Sixty percent of the participating SMEs confronted a lack of labour, with a reduction in income between 25% and 39%.

SMEs in Egypt Market

The Arab markets, such as Egypt's, are marked by a high degree of variety in terms of regulatory systems, trade rules, and import controls, as well as procedural barriers such as regularly changing policy and short implementation periods (International Trade Center, 2016). These features of Arab marketplaces endangered Egyptian SMEs to market and price changes, raised their exposure to risks, and hampered their capacity to swiftly and properly adjust manufacturing processes to satisfy export needs during the COVID-19 pandemic.

SMEs have been one of the most common forms of corporations in Egypt over the last decade. According to Bary (2019), the SMEs sector in Egypt is a crucial driver of the Egyptian economy and is one of the fastest growing sector that contribute to economic development and support the sustainability of the economy. SMEs are one of the main players that creating job opportunities in the Egyptian marketplace, and one of the most significant influences that the government is concentrating on to support the improvement of its economy and accomplish sustainable development objectives.

Based on Egypt's SMEs Law (No. 141, 2004) SMEs are categorised according to the number of staff: a maximum of 50 workers, capital up to EGP5 million, and revenues up to EGP10 million. The Egyptian Central Bank defined SMEs through size as micro (less than 10 workers), SMEs between 10 and 200 workers, and large more than 200 workers (Ayadi et al., 2017). SMEs in Egypt contributed about 75% of the economic progress and 80% of employment. In Egypt, SMEs signify more than 90% of all corporations, nearly 60% of employment, and about 75% of the domestic value-added (African Development Bank, 2016). Nile Exchange (NILEX) which is currently known as Tamayoz is the first market for financing SMEs in the MENA region since 2011. Tamayoz offers financial opportunities for potential companies from several sectors without setbacks, to raise their competitiveness. This is enclosed in a charter between the flexibility of listing the promising businesses and protecting the rights of listed corporations and investors.

The sectorial circulation of SMEs in Egypt according to Elseoud et al. (2019) displays that the concentration in the industrial and trade segments was 51% and 40%, respectively; 4% for tourism; 3% for construction; and 2% for other activities. Ninety one percent of SMEs in Egypt are micro-companies, whereas 8% and 1% belong to SMEs and large-scale firms, respectively (CAPMAS, 2018). The

Central Bank of Egypt specified that SMEs' share of funding represents the lowest rate of financing ranging from 2% to 4% of the total bank funding. According to the Central Bank of Jordan (2017), 8% of SMEs in Egypt have bank loans.

Egyptian Government Policies to Support SMEs during COVID-19

Throughout the last two decades, the Egyptian government and policymakers documented the substantial position and contribution of the SMEs sector to economic development and job creation in Egypt. Consequently, the Egyptian government approved the strategies to support SMEs. According to Mabrouk et al. (2020), it is sensible for Egypt throughout economic crises to approve digital transformation for the whole sectors, including, government, and private sector as well as the society. This transformation is critical to overcome the challenges and struggle caused by the pandemic. The pandemic should be a signal for the Egyptian government to coordinate its efforts with the private sector and civil society to think more aspiringly and creatively, channelling the investment towards infrastructure and improved technology to create more skilled and talented human resources. The financial measures taken by the Egyptian Government during the pandemic were wise and balanced, particularly those measures associated with backup SMEs (El-Khishin, 2020).

The Egyptian government took several measures to address the spread of the pandemic, such as the postponement of commercial global passenger flights, closure of schools on 15 March, closure of sports clubs, closing borders and travel ban on 19 March 2020 (Breisinger et al., 2020). An incentive package of EGP 6.5 billion was introduced to improve crucial financial stresses for corporations and individuals, including SMEs. Several enterprises were provided with preferential interest rates to support the agricultural, industrial, tourism, and real estate sectors, while social protection programmes have been extended to curb the spread of the virus and to eliminate its negative effects.

The activities of the Egyptian government are signified in (1) cumulative expenditure on the healthcare sector, and rising allowances and salaries for medical staff; (2) implementing social distancing and suspending air traffic; and (3) provide support for the social protection, economy, and improve financial presence throughout the crisis to reinforce social protection agendas as well as offering limited protection for the most vulnerable groups affected by the pandemic. This comprised of EGP500 provision for three months for informal workforces, who are about 1.5 million individuals, until the end of 2020.

With a total of 160,000 recipients for Takaful and Karama cash transfer programmes and expanding the coverage for 3.1 million families, the Egyptian Central Bank decreases the interest rates through 350 collective basis points from 16 March 2020 to 24 September 2020. This resulted in the interest rates to decrease to 8.75% and 9.75% on immediate deposit and loaning which are at their lowest levels since 2016. The Egyptian Central Bank also relief the financial settings and the maximum loan limits, particularly for SMEs. A few procedures have been introduced in the form of postponement in of tax repayment and loan refund to relieve the financial pressures on firms and individuals. The Egyptian Central Bank offers targeted support for definite sectors inventiveness by granting soft loans at a discount rate of 8% for manufacturing and private projects. The government has bargained and standardised the rate of gas, and subsidised electricity fees for the entire industries, which is fixed for a five years period.

Conceptual Framework

The Efficient Market Hypothesis is a theory that claims that markets are efficient. According to Fama (1965), every asset's price must represent fundamental information about the asset. It has been the dominant investment theory for more than 30 years (from early 1960s to mid 1990s). However, with the rise of behavioural finance in the early 1990s, the Efficient Market Hypothesis lost favour among academics and financial markets. The theory of the influence of human actions on investment decision-making originated as a conflicting and surrogate solution, not as a supplementary assumption. According to Daniel et al. (1998), Shefrin (2001), Sewell (2005), Subrahmanyam (2007), and Statman (2008), to understand the movement of asset prices, it is essential to take into account the psychology of the market participants. Since psychology studies human judgment and behaviour, it can also provide useful information about how human actions vary from traditional economic assumptions. Barberis (2011) suggests that certain financial effects are likely to be influenced by investors' less rational actions, which are influenced by prejudices and psychological factors (Konstantinidis et al., 2012).

Many factors such as economic processes, institutional and political constraints, information distribution, and accessibility, influence global financial markets. Short term price changes, on the other hand, are often driven by market participants' reactions, which are not necessarily based on logic and are often influenced by mood or received the news. According to Daniel et al. (1998), market participants are likely to respond to information about certain events, but they are overly sensitive to irrelevant information and, at the same time, often respond poorly to major events (Bikas et al., 2013).

De Bondt et al. (2008) and Kourtidis et al. (2011) argue that understanding market participants' psychology is essential for explaining market abnormalities such as crashes and comprehending the efficiency of financial markets. This may appear to imply that it is impossible to completely comprehend and study the global financial market without referring to the actions of the market participants. According to the psychology of humans, because of the dynamics of financial crisis knowledge becomes progressively asymmetrical, with news having a greater effect than fundamentals. As a result, there is substantial evidence that financial markets are governed by market participants' reactions to events, for example, Lee et al. (2002), De Bondt et al. (2008), and Kourtidis et al. (2011). As stated by Kourtidis et al. (2011), while traditionally financial theories examine how people behave for wealth maximisation, behavioural finance is interested in how people "actually" behave in a financial market. This supports the hypothesis of over reaction proposed by Barberis et al. (1998) and Hong and Stein (1999).

Since market participants have differing viewpoints on how to perceive new information, the price can diverge from the fundamental value. A key factor in the over reaction hypothesis, according to Barberis et al. (1998), is that a series of good or bad news will cause market participants to over react if they believe the pattern will continue. According to Daniel et al. (1998), there is a distinction depending on whether the information is public or private. As a result, market participants are overconfident in their private information, resulting in market over reaction. They, on the other hand, tend to under-react to public knowledge in general. The over reaction hypothesis, as proposed by De Bondt (2008), notes that market participants often respond disproportionately to information (fundamentals and news), resulting in a temporary departure from fundamental value. As market participants digest the details, the price usually reverts to the fundamental value within a short period (Fakhry, 2016).

According to the literature that focuses on the effect of SARS pandemics like Gupta et al. (2005), Chen et al. (2007), and Beutels et al. (2009), asset returns are lower during and after pandemics. Following such occurrences, people tend to stop investing and choose to cut their losses by withdrawing their deposits, resulting in a decrease in economic activity and, as a result, a decrease in general growth. In the current situation, with COVID-19 most investment returns are negative because economic activity has almost come to a halt. According to Funk et al. (2009), shifts in investor behaviour are primarily related to the preservation of personal capital, as they are more worried about their safety than the welfare of the entire society (Rababah et al., 2020).

Markets over react to unexpected news, and the market corrects itself as more information becomes accessible and people have a better understanding of the implications. COVID-19 reflects apprehension about the unknown, and it is this apprehension that causes reactions. We are guided in our explanation of the behaviour of stock prices by the investors' under reaction and over reaction hypothesis. Any stakeholder is likely to lose money because of the crisis. When an extraordinary crisis emerges and little or nothing is known about it, governments' initial response tends to be an over reaction driven by the fear associated with the crisis. However, as more information about the crisis becomes accessible – that is, as policymakers become more at ease coping with the crisis and its consequences – they will correct their reactions. As markets are a function of government, they will respond with government decisions (Phan & Narayan, 2020).

IMPACT OF CRISIS AND COVID-19 ON BUSINESS AND FP

Historically, markets were affected through a pandemic, resulting in significant loss of life and economic impact on financial markets. A definite illustration would be based on Fernandes (2020) study on the feast of Ebola disease in 2013–2016 that caused USD53 billion loss in the US. Gupta et al. (2005) investigated the economic impacts of isolation in Toronto. He supports the negative impression. SARS is the most examined pandemic in the literature. For instance, Zhang et al. (2020) measure the influence of SARS on China's stock market. In the same way, Nippani and Washer (2006) investigate the effect of SARS on the stock markets across eight markets. They concluded SARS had negative impacts. Several papers support the negative impact of SARS including Chen et al. (2007) for Taiwan.

According to Ichev and Marinc (2016), the geographical proximity of the Ebola endemic in 2014 had a harmful influence on the US market. Similarly, Del Giudice and Paltrinieri (2017) support the same negative effect of the Ebola epidemic on the market return. Wang et al. (2013), found that the occurrence of infectious diseases led to substantial fluctuations in the returns of Taiwan biotechnology shares. Macciocchi et al. (2016) measured the economic influence of the Zika virus in Brazil, Argentina, and Mexico. The average return rate on the day after the shock became –0.90%.

The literature that measured the impact of COVID-19 on the instability of the market provides mixed results. Yilmazkuday (2022) examines the effect of COVID-19 on the performance of the S&P 500 market index. He indicates that having a 1% increase in the collective daily-definite number of COVID-19 is related to a concession of 0.01% in the next day, as well as a 0.03% reduction in

the subsequent month. Correspondingly, Corbet et al. (2020) found that the firms with "corona" word in their names experienced robust negative hourly returns and a remarkably large growth in hourly instability when COVID-19 was publicised. Several papers supported the significant downtrend in the stock market after the pandemic (e.g., Nia, 2020) across Indonesia. Whereas Onali (2020) claims that, there has not been a major consequence on the US stock market returns. Albulescu (2021) studied the influences of COVID-19 on the financial instability of the stock market in China for 40 days after the global monitoring of COVID-19 was activated. He displayed that; the number of reported cases had a negative association with financial instability. Liu et al. (2020) shown that the abnormal return of Asian stock indices declines more than other indices through the COVID-19.

In the end, any crisis as COVID-19 pandemic shaped, constructed, reflected, and delivered for the society, markets and individuals through the disclosure and information channels. Understating the impact of disclosure over the stock market return is important as a basis for the impact of COVID-19 over the stock return. The literature explores the impact of narrative disclosure and information about the stock market returns. For example, Hassanein and Hussainey (2015) examine to what extent forward looking financial disclosure (FLFD) is diverse in response to variations in FP. It finds a link between variation in FLFD and variation in earnings performance. Hassanein et al. (2019) study the influence of forward looking disclosures on the values of UK FTSE all stocks. It finds that forward looking disclosures have no influence on the values of high performing companies, though they positively improve investors' assessment of low performing corporations. Azrak et al. (2021) find that the prominence of disclosure on stock price volatility is economically insignificant; signifying that inoculating more information into markets would increase stock price volatility only slightly.

Based on the previous literature, to what extent COVID-19 can affect the stock return. Alfaro et al. (2020) use data from the US market and found a drop in the market value as a reaction for COVID-19. Similarly, for Al-Awadhi et al. (2020), COVID-19 negatively affects returns of the stock market across the Shanghai Stock Exchange and Hang Seng. Ashraf (2020a) tested data across 64 countries and found that the whole stock markets responded negatively to COVID-19. Similarly, the literature supports the negative effect of the COVID-19 on the daily stock market returns (e.g., Gherghina et al., 2020) for the US, Italy, Spain, Germany, France, China, UK, and Romania; Shehzad et al. (2020a) for US and Europe; Lee et al. (2020) for Malaysia; Mishra et al. (2020) for India. In addition, Erdem (2020) examined the stock market across 75 nations and sustained the negative influence. Rababah et al. (2020) specify that growing of COVID-19 harmfully affected the income of firms that in turn led to a dropping of FP of Chinese firms. Nevertheless,

Zeren and Hizarci (2020) found that there was no link between COVID-19 and the performance of the stock markets across Germany, France, and Italy.

Related to the developing markets, Beck et al. (2020) examined 10 developing markets and found that, most businesses were damagingly influenced through COVID-19. While Haroon and Rizvi (2020) reconnoitered 23 emergent markets and show an indication that dropping (rising) of corona cases is associated with improving (deteriorating) liquidity in the financial markets. While most of the previous studies apply this association through focusing on during the pandemic, Machmuddah et al. (2020) detect the stock prices before and after COVID-19 across 56 Indonesia listed firms. They specify a significant variance between the closing stock price and volume of stock trade before and after the pandemic. The results support the hypothesis of an efficient market, which states that the more efficient market achieved through the more comprehensive delivered information.

For the association between COVID-19 cases and return of the stock market, Zeren and Hizarci (2020) found that the aggregate number of COVID-19 cases have an integration association with stock markets. Several papers support the same negative association (e.g., Albulescu, 2020a; Ashraf, 2020a; Yilmazkuday, 2022). For the linkage between COVID-19 death and return of the stock market, several papers support the same negative association (e.g., Alber, 2020; Yilmazkuday, 2022). For Albulescu, (2020a), a greater death percentage, lean towards rising the financial market instability. Furthermore, Alber (2020) concluded that the return of the stock market appears to be more sensitive for COVID-19 cases than deaths and also in the cumulative cases than in new or daily numbers. He approves the negative influence of the spread of COVID-19 on the stock market returns. According to Ashraf (2020a), the negative response was only substantial for the growth in cases' number but not to the progress in deaths' number. While, Al-Omoush et al. (2020) indicate that social capital and cooperative knowledge production have a key impact in attaining e-business proactiveness in reacting to the pandemic, based on an online poll of 198 managers. The analysis moreover demonstrate that collaborative knowledge production and e-business innovativeness have a favorable effect on corporate agility throughout a crisis. López-Cabarcos et al. (2020) investigate the association between financial (VIX, S&P GSCI Gold Index) and social (global daily variation in total fatalities from COVID-19) factors and the performance of the video game and eSports financial market fund. They reveal that social factors have a smaller effect than financial indicators.

Related to the impact of macroeconomic factor as culture on the association between COVID-19 and stock market, Ashraf (2021) measures to what extent the stock market's response to the pandemic is moderated by national level uncertainty

avoidance across 43 countries. The analysis shows that the reduction in stock returns in reaction to a 1% rise in cases reported is bigger for nations with higher national level uncertainty aversion.

Impact of COVID-19 on SMEs

Since SMEs are economically fragile and smaller size, they are more susceptible to disaster than larger businesses (Bartik et al., 2020). The effect on the SMEs by the crisis may be directly or indirectly (Eggers, 2020). The direct influence comprises supply chain troubles, fatalities, property destruction, as well as loss of inventories. The indirect consequence for crisis comprises damage for public infrastructure as communication, electricity, and transport system, roads leading for the rise in production cost and corporate discontinuity. According to the International Trade Center (2020), SMEs have been on the front lines, as clients are remaining at homes, supply chains blackout and the small scale businesses that deliver 70% of work chances in markets have been put under plain pressure.

Several studies have reported the shocking influence of such occasions on SMEs. For example, the 1999 earthquake in Turkey based on Asgary et al. (2020) strictly affected SMEs with costs estimated at USD 1.1–USD 4.5 billion. Likewise, the 2011 flooding in Thailand according to Auzzir et al. (2018) affected no less than 557,637 firms, with 2.5 million job fatalities, and 90% of these companies were SMEs. More than 13,000 SMEs were affected in Malaysia, because of flooding in 2014 (Auzzir et al., 2018). Samantha (2018) informed that, in 2016, a humid storm strictly hit western parts of Sri Lanka that causes massive destruction for society generally and over SMEs particularly. Several developed countries have experienced comparable calamitous effects on SMEs. SMEs in the UK based on Bennett and Phillipson (2004) through the 2001 foot and mouth disease, agonised from gigantic losses, mainly, the non-farming losses were valued to be GBP 5 billion.

Related to the impact of the COVID-19 pandemic on the SMEs, according to Rababah et al. (2020), SMEs are the greatest affected by this crisis. Shafi et al. (2020) based on the online questionnaire for 184 Pakistani SMEs, found that over 83% of firms were neither prepared nor have any strategy for handle such a situation that led to a lessening in their incomes. Further, more than 2/3 of participating firms could not continue if the lockdown remain for more than two months. Bartik et al. (2020) investigated how COVID-19 affects small companies by a survey of 5,800 SMEs in the US. The 43% are locked since January 2020. They found also that SMEs are delicate on financially astute. Beraha and Duricin (2020) measure the effect of a pandemic on SMEs in Serbia via an online survey. They indicated

that the crisis has negatively pretentious the regular activities of SMEs. Twenty percent of firms have moved to work online. About 10% faced further difficulties as a decrease in insufficiency of resources, working hours, payment of salaries, and incompetent production. Robinson and Kengatharan (2020) based on 14 SMEs in Sri Lanka through interviews; found that strategies adopted to overcome the negative impression of COVID-19 have arisen at great economic and human costs.

Evidence from Egypt

Comparably, Egypt has also experienced such a shocking crisis instigated through environmental disasters. For example, Mazur et al. (2020) study businesses' direct reactions to COVID-19 and examine the single day risky events EGX30 on 15 March 2020. They find that corporations from diverse sectors as transportation, shipping, automobiles, and real estate are hit hardest and drop over 8% of their market values in that day. Nevertheless, from 18 March to 26 November 2020, the stock market gains positive earnings. Abdelrhim and Elsayed (2020) examine the impact of COVID-19 on EGX30 over the time from 1 March, until 10 May 2020. They specify that the stock market return looks to be more sensitive for aggregate death than daily deaths from the virus, as well as new cases more than aggregate cases of the virus.

Based on a survey of 166 Egyptian agri-food SMEs, Abu Hatab et al. (2020) found that risk appraisal was substantially asymmetric among geographical regions. Longer cash flow coverage periods and larger overall asset values were associated with reduced risk perceptions, as cash and assets served as a cushion against the influence of COVID-19. Likewise, Zaazou and Salman (2020) examine the influence of COVID-19 on SMEs in Egypt based on a semi-structured interview, in addition to the quantitative method. The impresarios agree that firms should be elastic and seek investments in innovation. Hence, we propose that:

> H1: COVID-19 has a negative effect on the stock returns for EGX-SMEs index.

> H2: COVID-19 has a negative influence on the stock returns for EGX30 index.

Impact of governmental intervention on the FP during the COVID-19

In reaction to COVID-19, governments scrambled with emergency activities, as travel limitations, lockdowns, testing and quarantining, and financial packages. The core object of these activities was to safeguard social distancing for containing

the feast of disease on one hand, whereas for diminishing the opposing economic influence on the other hand. Here, we examine the stock markets' reaction to the Egyptian government' intervention during the pandemic. Phan and Narayan (2020) measure the government responses for COVID-19 across the top-25 countries affected by this crisis. Throughout the initial stages of the pandemic, stock prices reacted negatively. Conversely, the response in 50% of markets was positive, signifying a promising market improvement. Ashraf (2020b) measures the predictable economic influence of government intervention on stock market returns. Across 77 countries, he finds that social distancing has a straight negative influence on the stock returns, whereas an indirect positive impression through sinking the progress rate of novel definite cases. Income support packages and containment and health strategies have a straight positive influence on the stock returns. We claim that, if strict Egyptian government intervention reduces the intensity of local outbreaks, then they weaken the negative market reaction to the growth of COVID-19.

H3: Interventions for the Egyptian government against the COVID-19 pandemic has a positive effect on the stock returns for the EGX-SMEs index.

H4: Interventions for the Egyptian government against the COVID-19 pandemic has a positive effect on the stock returns for the EGX30 index.

RESEARCH DESIGN

Data and Methodology

Our sample includes two groups of businesses across Egypt. The 26 SMEs listed in the EGX SME Market index and the highest 30 firms listed in the EGX 30 stock market index. We adopt an Ordinary Least Squares (OLS) regression for investigating the new coronavirus impact on the FP. We also used paired sample test for measuring the impact before and after COVID-19 became a global pandemic. We used also Baron and Kenny's test for measuring the impact of government interventions as a mediator between daily stock return and COVID-19. We used the daily data for stock market returns from January 2020 to November 2020. Furthermore, we primarily gathering data from three key sources: The Egypt stock market website, our world in data COVID-19 website, and website of the University of Oxford website.

Furthermore, we selected the sample period from 2 January 2020 to 21 November 2020. Because the highest response to the closure emerged during this period, as the indicators (EGX30, Tamayoz) were influenced by a negative impact as a result of the pandemic, but these indicators began to rise after this period, as shown in Figures 3. Hence, we begin with an examination of the daily stock returns, the results reveal that all variables fluctuate throughout this period, showing the impact of the COVID-19 crisis' beginning and continuing. While the EGX30 index began to indicate relative stability by the end of 2020, with returns appearing to range close to zero, the Tamayoz index for medium and small businesses is unstable.

Figures 4 and 5 present the total of deaths and cases during our selected period. We chose this sample period because the early COVID-19 confirmed cases and government reactions globally principally happened throughout this period. Ramelli and Wagner (2020) claim that the most significant period concerning market response for this pandemic was from 20 January to 20 March 2020. Similarly, for Hale et al. (2021), the average international government replies curves compressed, and even started decreasing, from mid-April forward. Most of the literature focuses on the period from January until April. We extended this period until November 2020 to see to what extent our results will differ compared with the previous studies.

Why Egypt? For a variety of reasons, Egypt was chosen for this research. First, SMEs have access to data about EGX30 and Tamayoz. Second, Egypt is a developing country with a high COVID-19 risk rating and a large contribution from SMEs. Third, Egypt was classified in Level 4 in April 2020, indicating that COVID-19 had a very high impact on the country (Centers for Disease Control and Prevention, 2021). Fourth; Egypt is the only nation in the MENA region to have a favorable short term prognosis, with real GDP growth of 2.2% in COVID-19 in 2020. Since 2010, Egypt has been one of the first developing nations in the Middle East to establish a stock exchange for SMEs. Fifth, Egypt has 2.5 million small and medium-sized businesses, accounting for more than 90% of the country's businesses and 75% of its employment. Moreover, Egypt was one of the main nations in the MENA area to assist SMEs during COVID-19, announcing a EGP100 billion fund for industrial SMEs in 2019, which was expanded to all industrial sectors after the epidemic, demonstrating the government's understanding of SMEs throughout the pandemic. The prior information regarding Egypt and SMEs, as well as how they interact with COVID-19, distinguishes Egypt from other nations in terms of COVID-19's repercussions, which make for a unique sampling for our article.

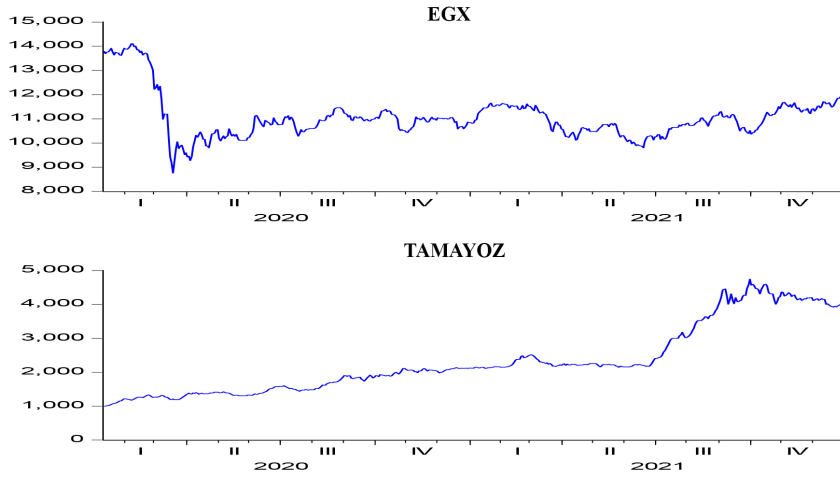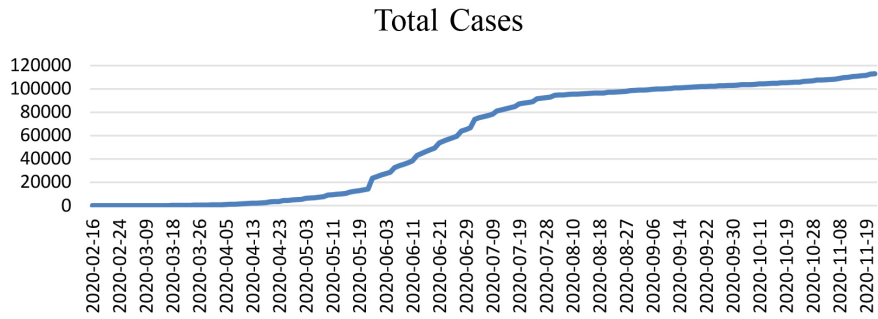*Figure 3*. EGX30 and Tamayoz returns from 1 January 2020 to 30 December 2021

Total Cases

Figure 4. The total cases in Egypt from 16 February 2020 to 19 November 2020
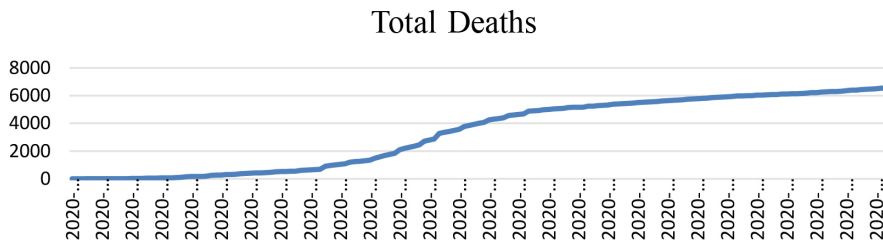
Total Deaths

Figure 5. The total deaths in Egypt from 16 February 2020 to 19 November 2020

Research Models

Model (1): Impact of COVID-19 on the FP for EGX30 index

$$DSR - EGX30_{it} = \beta0 + \beta1\ TC_{it} + \beta2\ NC_{it} + \beta3\ TD_{it} + \beta4\ ND_{it} + \varepsilon_{it} \tag{1}$$

Model (2): Impact of COVID-19 on the FP for the Tamayoz EGX-SMEs index

$$DSR - Tamayoz_{it} = \beta0 + \beta1\ TC_{it} + \beta2\ NC_{it} + \beta3\ TD_{it} + \beta4\ ND_{it} + \varepsilon_{it} \tag{2}$$

Model (3): Impact of COVID-19 on the FP after controlling the governmental interventions for EGX30 index

$$DSR - EGX30_{it} = \beta0 + \beta1\ TC_{it} + \beta2\ NC_{it} + \beta3\ TD_{it} + \beta4\ ND_{it} + \beta5\ IS_{it} + \beta6\ DR_{it} +$$
$$\beta7\ SI_{it} + \beta8\ CI_{it} + \beta9\ FC_{it} + \beta10\ WPC_{it} + \beta11\ SC_{it} + \beta12\ CPT_{it} +$$
$$\beta13\ ITC_{it} + \beta14\ RIM_{it} + \varepsilon_{it} \tag{3}$$

Model (4): Impact of COVID-19 on the FP after controlling the governmental interventions for Tamayoz EGX-SMEs index

$$DSR - Tamayoz_{it} = \beta0 + \beta1\ TC_{it} + \beta2\ NC_{it} + \beta3\ TD_{it} + \beta4\ ND_{it} + \beta5\ IS_{it} + \beta6\ DR_{it}$$
$$+ \beta7\ SI_{it} + \beta8\ CI_{it} + \beta9\ FC_{it} + \beta10\ WPC_{it} + \beta11\ SC_{it} + \beta12\ CPT_{it}$$
$$+ \beta13\ ITC_{it} + \beta14\ RIM_{it} + \varepsilon_{it} \tag{4}$$

Model variables

The FP for our selected companies is measured based on daily data for stock market returns from January 2020 to November 2020. These data were collected from (EGX, 2021). To measure governments' reaction to COVID-19 led crisis, we use Oxford COVID-19 Government Response Tracker (Ox-CGRT) database use this URL: https://ourworldindata.org/coronavirus/country/egypt as suggested and adopted by Hale et al. (2021) and Ashraf (2020b). OX-CGRT has measured the responses of governments based on three indexes: containment index, stringency index, and economic support index. The economic support index comprises two indicators, which are debt/contract relief for families' programs and government income support for residents during the crisis. The containment index includes three indicators, which are testing policy, public awareness campaigns, and contact tracing. This index signifies government policies concerning health schemes as the COVID-19 testing regime. Stringency index records information on social

distancing measures and comprises eight indicators: workplace closing, school closes, boundaries on meeting size, stop public events, stay at home requirements, close public transport, restrictions on international travel and restrictions on internal movement. All of these indexes are a simple preservative score of the fundamental indicators and scaled from zero to 100. Some indicators are excluded according to availability of data or because the Egyptian government does not apply well these policies or as the data is incomplete such as cancels public events, restrictions on gathering size, and stay at home requirements. The variable of COVID-19 is measured based on four factors, which are total cases, new cases, total deaths, and new deaths. This data is collected from the Our World in Data COVID-19 dataset, https://ourworldindata.org/coronavirus/country/egypt. Table 1 presents the variables for this study.

Table 1
Variables and definition

Symbol	Variables	Definition
Financial performance		
DSR	Daily stock return	It measured as daily change in EGX30, Tamayoz index, value and measured through Egyptian currency.
COVID-19 pandemic outbreak		
TC	Total cases	Total confirmed COVID-19 cases per million people.
NC	New cases	Daily new confirmed COVID-19 cases per million people.
TD	Total deaths	Total confirmed COVID-19 cases per million people.
ND	New deaths	Daily new confirmed COVID-19 deaths per million people.
Governmental Interventions		
IS	Income support	It captures if the government is casing salaries or any direct cash payments, of people who miss their jobs or cannot work. Takes value 0 with no income support, 1 government is support less than 50% of lost salary, 2 government is support 50% or more of lost salary.
DR	Debt relief	It captures if the government is subzero financial duties through COVID-19 pandemic, like preventing repayments of loans, stopping services as water from stopping. Takes value 0 with no debt relief, 1 narrow relief, and 2 broad debt relief.
SI	Stringency index	It archives information on social distancing rules, it a merged measure based on 9 reply indicators counting school closures, workplace closures, and travel bans. It scaled to a value from 0 to 100 (100 = strictest).
CI	Containment index	It a merged measure according to 13 policy indicators counting school closures, work place closures, travel bans, testing policy, contact tracing, face coverings, and vaccine policy. It scaled a value from 0 to100 (100 = strictest).

Table 1 (*Continued*)

Symbol	Variables	Definition
FC	Facial coverings	Measure government rules on the use of face casings outside-of-home. Takes value 0 with no policy, 1 recommended, 2 required in some specified public spaces, 3 required in all public spaces, 4 required outside the home at all times.
WPC	Workplace closures	Workplace closures through the COVID-19 pandemic. Takes value 0 with no measures, 1 recommend closing, 2 require closing for some sectors or categories of workers, 3 require closing (or work from home) all but essential workplaces.
SC	School closures	Measure government strategies on school closures. Takes value 0 with no measures, 1 recommend closing, 2 require closing only some levels or categories, 3 require closing all levels.
CPT	Close public transport	Measure government procedures on public transport closures. Takes value 0 with no measures, 1 recommend closing, 2 require closing.
ITC	International travel controls	Government rules on limitations on international travel controls. Takes value 0 with no measures, 1 screening, 2 quarantine arrivals from high-risk regions, 3 ban on high-risk regions, and 4 total border closure.
RIM	Restrictions internal movements	Government rules on restrictions on internal movement/travel between cities. Takes value 0 with no measures, 1 recommend movement restriction, 2 restrict movement.

Empirical Analysis

This section provides a brief description of the variables as reported in Table 2 based upon the reported data from 4 January 2020 to 15 November 2020. The 11,277.878 mean value of stock return in EGX30 and 763.771 for Tamayoz stock market. For EGX30, the minimum and maximum values are 8,756.7 and 14,108.24, respectively. Tamayoz has a minimum and maximum value of 468.78 and 1,200.93. This is indicates of an increase in average stock prices listed on EGX30 compared to average stock prices listed on the Tamayoz Stock Exchange, suggesting daily market returns witnessed wide fluctuations .The mean values of total cases, new cases, total deaths, and new deaths are 50,533.01, 333.84, 3,379.24, and 20.02 cases, respectively. For governmental interventions indicators, we observed that all indicators existed in the Egypt context.

Table 2
Descriptive statistics

	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis
Price EGX30	8,756.7	14,108.24	11,277.878	1,290.836	1.000	–0.021
Tamayoz	468.78	1,200.93	763.771	189.051	0.641	–0.682
Total cases	0	113,027	50,533.01	46,693.31	0.064	–1.843
New cases	0	1,691	333.84	456.83	1.693	1.617
Total deaths	1	6,548	3,379.24	2,512.44	–0.197	–1.705
New deaths	0	97	20.02	24.491	1.692	1.976
Income support	0	1	0.55	0.499	–0.198	–1.979
Debt relief	0	2	1.50	0.869	–1.156	–0.671
Stringency index	0	84.26	52.6579	31.0156	–0.890	–0.785
Containment index	0	81.25	53.4760	28.3011	–1.082	–0.564
Facial coverings	0	3	1.39	1.083	–0.316	–1.444
Workplace closures	0	2	1.53	0.847	–1.275	–0.378
School closures	0	3	1.79	1.058	–0.743	–0.675
Close public transport	0	2	0.92	0.769	0.144	–1.291
International travel controls	0	4	1.65	1.664	0.543	–1.427
Restrictions internal movements	0	2	1.47	0.885	–1.072	–0.859

Table 3 reports the correlation matrix between main variables. We revealed a negative and significant relationship between containment index, facial coverings, workplace closures, school closures, close public transport, international travel controls, and international travel controls with stock returns for firms listed in EGX30. On the other hand, government interventions have a positive and significant link with stock returns for Tamayoz listed firms. Suggesting when the government implements a new policy, stock prices increase. Regarding to the number of daily COVID-19 infections and deaths show a positive and significant correlation with stock for EGX index. While, the number of new infections and the number of new deaths has a negative and significant impact on stock prices listed in Tamayoz index. A Pearson correlation matrix is used also to confirm the multicollinearity of the explanatory variables. Multicollinearity occurs when two or more explanatory/ independent variables are highly correlated. If the Pearson correlation coefficient exceeds 0.7, we conclude that multicollinearity exists. The results are shown in

Table 3
Correlation matrix

	EGX30	Tamayoz	T-C	N-C	T-D	N-D	I-S	D-R	S-I
Price EGX30	1	−0.384**	−0.275**	−0.298**	0.695**	−0.304**	−0.305**	−0.777**	−0.835**
Tamayoz		1	0.653**	−0.047	0.857**	0.053	0.710**	0.621**	0.505**
Total cases (T-C)			1	0.112	0.989**	0.303**	0.921**	0.604**	0.396**
New cases (N-C)				1	−0.228**	0.881**	0.436**	0.405**	0.407**
Total deaths (T-D)					1	−0.024	0.825**	0.300**	−0.197*
New deaths (N-D)						1	0.550**	0.454**	0.392**
Income support (I-S)							1	0.639**	0.455**
Debt relief (D-R)								1	0.952**
Stringency index (S-I)									1
Containment index (C-I)									
Facial coverings (F-C)									
Workplace closures (W-C)									
School closures (S-C)									
Close public transport (C-P-T)									
International travel controls (I-T-C)									
Restrictions internal movements (R-I-M)									

	C-I	F-C	W-C	S-C	C-P-T	I-T-C	R-I-M
Price EGX30	−0.844**	−0.447**	−0.870**	−0.928**	−0.649**	−0.620**	−0.728**

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Table 3 (*Continued*)

	EGX30	Tamayoz	T-C	N-C	T-D	N-D	I-S	D-R	S-I
Tamayoz			0.580**	0.761**	0.596**	0.359**	0.220**	-0.001	0.640**
Total cases (T-C)			0.497**	0.820**	0.573**	0.216**	0.045	-0.249**	0.628**
New cases (N-C)			0.427**	0.400**	0.386**	0.291**	0.254**	0.425**	0.419**
Total deaths (T-D)			0.002	0.714**	0.210**	-0.604**	-0.413**	-0.715**	0.355**
New deaths (N-D)			0.429**	0.437**	0.432**	0.262**	0.209**	0.229**	0.469**
Income support (I-S)			0.549**	0.821**	0.607**	0.263**	0.108	-0.089	0.662**
Debt relief (D-R)			0.968**	0.745**	0.951**	0.830**	0.692**	0.550**	0.964**
Stringency index (S-I)			0.988**	0.635**	0.933**	0.910**	0.844**	0.720**	0.944**
Containment index (C-I)			1	0.712**	0.953**	0.891**	0.789**	0.653**	0.961**
Facial coverings (F-C)				1	0.708**	0.459**	0.303**	0.141*	0.773**
Workplace closures (W-C)					1	0.903**	0.658**	0.547**	0.917**
School closures (S-C)						1	0.754**	0.717**	0.779**
Close public transport (C-P-T)							1	0.722**	0.718**
International travel controls (I-T-C)								1	0.496**
Restrictions internal movements (R-I-M)									1

Note: **correlation is significant at the 0.01 level (2-tailed); *correlation is significant at the 0.05 level (2-tailed)

Table 3, where the correlation coefficients are low (0.7), indicating that there is no serious problem with multicollinearity among these variables. The above stated models of analysis are estimated using panel data regression. Many problems related to cross sectional specification, such as unobserved heterogeneity, degrees of freedom, dynamics, and collinearity among the explanatory variables, can be solved using panel data. It incorporates firm characteristic effects to account for unobserved firm heterogeneit.

To test our hypotheses developed in this paper, several statistical models are performed. We conduct a multivariate analysis as presented in Table 4 related to Models 1 and 2. At first, we checked the effect of COVID-19 on the stock prices of Egyptian listed companies in two panels of data; Panel (A) reports the results for the EGX30 and Panel B for the Tamayoz index. In both panels, the results for total cases, new cases, total deaths and new deaths suggest that those variables affect stock market returns. The results suggest that there is a positive correlation between total cases and new cases with stock price in Panel (A) at a significant level 5% the value of the coefficient for the above-mentioned period is less than 0.5, which is statistically significant, whereas total cases with stock price in Panel (B) has a negatively correlated at 5% as a significant level. Consistent with previous literature which examined the relationship between COVID-19 on stock prices, we reveal that the difference in results in the two indexes come from the differences in size and structure of these indices. Furthermore, our findings indicate that the spread of COVID-19 has an effect on stock prices in both the EGX30 and Tamayoz stock indices. Besides that, a one-unit increase in new deaths and total deaths resulted in a decrease in stock market performance of EGX30 from 4 January 2020 to 15 November 2020. Otherwise, a one-unit increase in new deaths and total deaths had a significant positive impact on the movement of stock prices in the Tamayoz index at a significant level of 5%; the value of the coefficient for the above-mentioned period is less than 0.5, which is statistically significant during the pandemic period, which has a significant impact on emerging stock markets.

Moreover, we suggest investigating the main reasons for these contradictory results by examining the impact of the outbreak on each index classified by the level of activity sectors of the entities composing these two sub-samples. The results in a Table 5 show the significance of our model in both EGX 30 and Tamayoz index by adding the activity level by sectors to our model. The impact of COVID-19 on the stock return for Tamayoz stock classified by sectors seems to be relatively negative when compared to EGX30 sectors. Our findings shed light on both the financial fragility of many small businesses, as well as the significant impact COVID-19 had on these businesses in the periods of COVID-19 compared to firms listed in the EGX30 index.

Table 4
Regression analysis for the Impact of COVID-19 on EGX30 and Tamayoz index

Model	Model (1): Impact on EGX30					Model (2): Impact on Tamayoz				
	Unstandardised coefficients		Standardised coefficients	T	Sig.	Unstandardised coefficients		Standardised coefficients	T	Sig.
	B	Std. Error	Beta			B	Std. Error	Beta		
(Constant)	10,028.90	57.778		173.577	0.000	620.44	7.364		84.259	0.000
Total cases	0.023	0.010	1.884	2.322	0.021*	−0.022	0.001	−5.729	−17.846	0.000***
New cases	0.316	0.124	0.285	2.556	0.011*	0.142	0.016	0.397	8.976	0.000***
Total deaths	−0.233	0.171	−1.111	−1.368	0.173	0.455	0.022	6.613	20.627	0.000***
New deaths	−5.400	2.923	−0.256	−1.848	0.066*	1.138	0.371	0.167	3.063	0.003**
Model Summary	Sig 0.000	Durbin–Watson 0.275	Adjusted R Square 0.565 F	55.55		Sig 0.000	Durbin–Watson 0.360	Adjusted R Square 0.934 F	579.037	

Table 5
Regression analysis for the Impact of COVID-19 and the level of activity sectors on EGX30 and Tamayoz index

Model	Model (3): Impact on EGX30					Model (4): Impact on Tamayoz Index				
	Unstandardised coefficients		Standardised coefficients	T	Sig.	Unstandardised coefficients		Standardised coefficients	T	Sig.
	B	Std. Error	Beta			B	Std. Error	Beta		
(Constant)	27.455	5.263		5.217	0.000	620.44	7.364		70.341	0.000
COVID-19	−3.392	5.077	−0.037	668	0.030	−0.022	0.001	−5.729	−17.846	0.000
Level of activity	1.466	0.541	−0.150	2.709	0.007*	1.138	0.371	0.167	−3.901	0.005*
Model Summary	Sig 0.021	Durbin–Watson 0.275	Adjusted R Square 0.625 F	3.894		Sig 0.035	Durbin–Watson 0.430	Adjusted R Square 0.944 F	459.037	

For the control variables, the result related to the impact of governmental interventions during the pandemic is presented in Models 5 and 6. As shown in Table 6, our findings confirm the positive association between debt relief, facial-coverings, close public transport, international travel controls, restrictions internal-movements and stock prices in Panel (A) at a significant level of 5%, whereas our findings affirming the adverse effects of stringency index on stock prices in the companies listed in EGX30. On the other hand, our analysis in Panel (B) shows that debt relief, facial-coverings, close public transport and school closures have a negative relationship with stock prices for SMEs which are listed in Tamayoz Stock Exchange at 5% as a significant level, whereas stringency index led to increasing stock prices of SMEs. Our results reveal that governmental interventions during pandemics have a high impact as explanatory power on stock prices listed in EGX30 as a consequence of a change in adjusted R-square from 56% in the Model 1 to 76% in the Model 5 which reflects that government interventions during pandemic explain 20% of the variation in EGX stock prices, whereas our findings show that the governmental intervention doesn't provide the same effect on stock prices which is listed in Tamayoz stock market as a result that the adjusted R-square changes by 1.9% which contradicts with our hypothesis. In consistent with previous literature which investigated the correlation between governmental interventions through the pandemic in two market exchanges; EGX30 and Tamayoz stock market. Also, we provide evidence that stock prices listed in EGX30 seem to be sensitive to governmental intervention more than stock prices in the Tamayoz Stock Exchange. Our result also supports the role of government intervention to regulate the movement of stock prices particularly which is listed in EGX30.

Table 6

Regression analysis for the Impact of COVID-19 on EGX30 and Tamayoz index after controlling the Governmental interventions and its decisions during the pandemic

Model	Model (5): Impact on EGX30					Model (6): Impact on Tamayoz				
	Unstandardised coefficients		Standardised coefficients	T	Sig.	Unstandardised coefficients		Standardised coefficients	T	Sig.
	B	Std. Error	Beta			B	Std. Error	Beta		
(Constant)	11,143.09	144.868		76.919	0.000	661.42	21.959		30.120	0.000
Total cases	−0.013	0.012	−1.073	−1.044	0.298	−0.020	0.002	−5.205	−10.88	0.000***
New cases	0.097	0.183	0.087	0.529	0.598	0.092	0.028	0.257	3.319	0.001**
Total deaths	0.249	0.184	1.185	1.351	0.179	0.421	0.028	6.126	15.072	0.000***
New deaths	−1.992	2.530	−0.094	−0.787	0.432	1.285	0.384	0.188	3.350	0.001**
Income support	217.654	248.301	0.190	0.877	0.382	26.223	37.639	0.071	0.697	0.487
Debt relief	1,030.965	169.002	0.832	6.100	0.000***	−77.73	25.861	−0.195	−3.006	0.003**
Stringency index	−96.292	17.596	−2.937	−5.47	0.000***	5.885	2.707	0.557	2.174	0.031*
Facial coverings	132.157	49.788	0.227	2.654	0.009**	−15.67	7.561	−0.082	−2.073	0.040*
Workplace closures	−129.638	148.933	−0.075	−0.870	0.385	−12.97	22.631	−0.023	−0.573	0.567
School closures	7.706	115.543	0.008	0.067	0.947	−59.88	17.626	−0.195	−3.398	0.001**
Close public transport	642.563	124.992	0.826	5.141	0.000***	−44.49	19.563	−0.172	−2.274	0.024*
International travel controls	292.611	58.632	0.890	4.991	0.000***	5.435	8.969	0.051	0.606	0.545
Restrictions internal movements	1,325.095	248.405	1.242	5.334	0.000***	−39.81	38.136	−0.116	−1.044	0.298
Model Summary	Sig	0.000	Adjusted R Square	0.764		Sig	0.000	Adjusted R Square	0.949	
	Durbin-Watson	0.438	F	42.825		Durbin-Watson	0.438	F	235.045	

Robustness Analysis

Comparison between prior and post the announcement of COVID-19 as a global pandemic over the price EGX30 and Tamayoz index

Paired samples test in Tables 7 and 8 shows to what extent there is a significant difference between two groups; group (A) which compares stock prices in the light of EGX30 prior and post announcement of COVID-19 pandemic. As predicted, these results reveal that there was no significant average difference between stock prices before and after the post-COVID-19 announcement in the EGX30 context. On contrary, our findings support that there was a significant average variation between stock prices prior and post COVID-19 announcement for SMEs in the Tamayoz context. Our findings reported that the average of stock prices listed in EGX30 after the announcement of the COVID-19 pandemic is less than stock prices before the announcement of the COVID-19 pandemic. These results validate our data since there is no illogicality with theoretical arguments and fit with previous studies.

Table 7
Paired samples correlations

		Correlation	Sig.
Pair 1	Price EGX30 (prior) & Price EGX30 (post)	−0.237	0.102
Pair 2	Tamayoz (prior) & Tamayoz (post)	0.591	0.000

Table 8
Paired samples test

	Paired Differences					T	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
				Lower	Upper		
Price EGX30 (prior) - Price EGX30 (post)	3,363.06	984.0290	140.575	3,080.420	3,645.713294	23.924	0.000
Tamayoz (prior) – Tamayoz (post)	−115.66	46.2641	6.6091654	−128.949	−102.37260	−17.500	0.000

Table 9
Mediation of income support and debt relief

Model	Mediation of Income support								Mediation of Debt relief							
	Income support not considered as a mediator between X and Y in case of EGX30				Income support is considered as a partially mediator between X and Y in case of Tamayoz				Debt relief is not considered as a mediator between X and Y in case of EGX30				Debt relief is not considered as a mediator between X and Y in case of Tamayoz			
	Unstandardised Coefficients		T	Sig.	Unstandardised Coefficients		T	Sig.	Unstandardised Coefficients		T	Sig.	Unstandardised Coefficients		T	Sig.
	B	Std. Error			B	Std. Error			B	Std. Error			B	Std. Error		
(Constant)	10,034.3	59.60	168.3	0.000	623.882	7.519	82.969	0.000	10,010.62	123.5	81.05	0.000	609.7	15.658	38.89	0.000
Total cases	0.019	0.013	1.514	0.132	-0.024	0.002	-15.065	0.000	0.023	0.010	2.317	0.022	-0.022	0.001	-17.54	0.000
New cases	0.268	0.175	1.536	0.126	0.112	0.022	5.075	0.000	0.313	0.126	2.483	0.014	0.140	0.016	8.690	0.000
Total deaths	-0.197	0.195	-1.008	0.315	0.477	0.025	19.243	0.000	-0.238	0.173	-1.374	0.171	0.452	0.022	20.20	0.000
New deaths	-4.817	3.291	-1.464	0.145	1.499	0.414	3.622	0.000	-5.43	2.940	-1.849	0.066	1.114	0.373	2.988	0.003
Income support	114.340	294.0	0.389	0.698	70.926	37.011	1.916	0.057								
Debt relief									11.66	69.62	0.168	0.867	7.275	8.835	0.823	0.411

The role of governmental intervention in mediating the link between COVID-19 and FP

We use Baron and Kenny's (1986) regression approach to investigate whether income support, debt relief mediate, stringency, containment, facial covering, workplace closures, school closures, close public transport, travel control, and restrictions international movements, the relationship between COVID-19 and FP, thus taking into account the recent criticism and modifications proposed by Hsu et al. (2012). Testing for mediation effect, according to Baron and Kenny (1986), can be accomplished in three steps:

1. Regressing the mediator against the independent variables;

2. Regressing the dependent variable against the independent variables; and

3. Regressing the dependent variable against both the independent variables and the mediator. Three alternatives were proposed by Baron and Kenny (1986). First, if the independent variables' impact on the dependent variable becomes negligible in the presence of the mediator, the independent variables' influences are entirely mediated by the mediator. Second, if the independent variables' impact is significant in the presence of the mediator, the consequences of the independent variable are partially mediated. Finally, there is no mediation effect if all of the above conditions are not met.

Table 9 examines the direct effect of income support, debt relief for the association between COVID-19 and FP for the two sub-samples: Panel (A) and Panel (B) firms. As can be seen from these results, when we split our sample into Panel (A) and Panel (B) firms, we observe insignificant effects of total cases, new cases, total deaths, and new deaths with FP in the Panel (A) and we reveal insignificant effect of total cases, new cases, total deaths, new deaths and Income support in Panel (B). We also examine the direct effect of Income-support for the association between COVID-19 and FP for the two sub-samples: Panel (A) and Panel (B) firms. As can be seen from these results, when we split our sample into Panel (A) and Panel (B) firms, we observe in significant effects of total cases, new cases, total deaths, and new deaths with FP in Panel (A) and we reveal a significant effect of total cases, new cases, total deaths, new deaths and Income support in Panel (B). Indeed, these findings confirm that, in the case of EGX 30, income support is not considered as a mediating factor between COVID-19 and FP. Although our results show that income support help acts as a mediator between COVID-19 and FP. Furthermore, we examine the mediating effect of debt relief on the relationship between COVID-19 and FP. Controlling for the

effect of the mediator variable (debt relief), the results reported in Table 9 reveal a positive and insignificant (at 95% level) relationship between debt relief and FP. Hence, debt relief is not considered as a mediator between COVID-19 and FP.

Mediation of stringency and containment

Table 10 related to our regression examines the direct effect of stringency, containment for the association between COVID-19 and FP for the two sub-samples: Panel (A) and Panel (B) firms. As can be seen from these findings, when we divide our sample into Panel (A) and Panel (B), we find that stringency and containment are not viewed as mediators between COVID-19 and FP in the case of EGX 30 and Tamayoz stock exchanges, as the *p*-value is greater than 0.05. Furthermore, we examine the mediating effect of debt relief on the relationship between COVID-19 and FP. Controlling for the effect of the mediator variables stringency and containment, the results reported in Table 10 reveal an insignificant (at 95%) correlation with FP. As a result, stringency and containment are not viewed as a mediator between COVID-19 and FP.

Mediation of facial covering and workplace closures

Table 11 of our regression examines the direct effect of facial covering and workplace closures for the association between COVID-19 and FP for the two sub-samples: Panel (A) and Panel (B) firms. As can be seen from these findings, when we divide our sample into Panel (A) and Panel (B), we find that facial covering can be treated as a mediator between COVID-19 and FP in the case of Tamayoz Stock Exchange, as the *p*-value is lower than 0.05. Whereas we notice that work place closures to stock prices in EGX30 are significant. Consequently, regarding the previous results, we find a partial mediation effect for both facial covering and workplace closures on the relationship between COVID-19 and FP in EGX30 and Tamayoz stock market respectively.

Mediation of school closures and close public transport

Table 12 examines the direct effect of school closures and close public transport for the association between COVID-19 and FP for the two sub-samples: Panel (A) and Panel (B) firms. We find that School closures can be treated as a complete mediator between COVID-19 and FP in the EGX30 exchange, as the *p*-value is lower than 0.05. Furthermore, we notice that school closures to stock prices in Tamayoz stock are significant. Consequently, regarding the previous results, we find a partial mediation effect for school closures between COVID-19 and FP in the Tamayoz stock market. While close public transport cannot be regarded as a mediator between two markets.

Table 10
Mediation of stringency and containment

Model	Mediation of Stringency								Mediation of Containment							
	Stringency is not considered as a mediator between X and Y in case of EGX30				Stringency is not considered as a mediator between X and Y in case of Tamayoz				Containment is not considered as a mediator between X and Y in case of EGX30				Containment is not considered as a mediator between X and Y in case of Tamayoz			
	Unstandardised coefficients		T	Sig.	Unstandardised coefficients		T	Sig.	Unstandardised coefficients		T	Sig.	Unstandardised coefficients		T	Sig.
	B	Std. Error			B	Std. Error			B	Std. Error			B	Std. Error		
(Constant)	10,125.48	132.4	76.44	0.000	596.594	16.766	35.583	0.000	10,132.87	155.51	65.15	0.000	594.2	19.713	30.14	0.000
Total cases	0.020	0.010	1.984	0.049	-0.022-	0.001	-16.65	0.000	0.020	0.010	2.002	0.047	-0.022	0.001	-16.64	0.000
New cases	0.342	0.128	2.675	0.008	0.135	0.016	8.298	0.000	0.347	0.131	2.648	0.009	0.134	0.017	8.030	0.000
Total deaths	-0.193	0.178	-1.082	0.281	0.444	0.023	19.378	0.000	-0.194	0.179	-1.085	0.279	0.445	0.023	19.25	0.000
New deaths	-5.209	2.935	-1.774	0.078	1.090	0.371	2.939	0.004	-5.267	2.933	-1.796	0.074	1.104	0.371	2.976	0.003
Stringency index	-1.475	1.819	-0.811	0.419	0.365	0.231	1.582	0.116								
Containment index									-1.710	2.373	-.720	0.472	0.432	0.301	1.432	0.154

Table 11
Mediation of facial covering and workplace closures

Model	Mediation of Facial covering								Mediation of Workplace closures							
	Facial covering is not considered as a mediator between X and Y in case of EGX30				Facial covering is considered a partially mediator between X and Y in case of Tamayoz				Workplace closures is considered as a mediator between X and Y in case of EGX30				Workplace closures is not considered as a mediator between X and Y in case of Tamayoz			
	Unstandardised coefficients		T	Sig.	Unstandardised coefficients		T	Sig.	Unstandardised coefficients		T	Sig.	Unstandardised coefficients		T	Sig.
	B	Std. Error			B	Std. Error			B	Std. Error			B	Std. Error		
(Constant)	10,014.09	61.267	163.4	0.000	625.261	7.753	80.649	0.000	10,877.35	159.8	68.05	0.000	632.4	22.167	28.52	0.000
Total cases	0.025	0.010	2.431	0.016	-0.023	0.001	-17.562	0.000	0.018	0.009	1.997	0.048	-0.023	0.001	-17.78	0.000
New cases	0.246	0.156	1.576	0.117	0.164	0.020	8.336	0.000	0.390	0.114	3.413	0.001	0.143	0.016	8.962	0.000
Total deaths	-0.294	0.190	-1.552	0.123	0.474	0.024	19.652	0.000	-0.137	0.158	-0.868	0.387	0.456	0.022	20.51	0.000
New deaths	-5.289	2.931	-1.805	0.073	1.101	0.369	2.982	0.003	-4.596	2.687	-1.711	0.089	1.149	0.373	3.083	0.002
Facial coverings	43.318	58.617	0.739	0.461	-13.768	7.407	-1.859	0.065								
Workplace closures									-476.228	84.62	-5.627	0.000	-6.721	11.742	-0.572	0.568

Table 12
Mediation of school- closures and close public transport

Model	Mediation of School closures								Mediation of Close public transport							
	School- closures is not considered as a mediator between X and Y in case of EGX30				School closures is considered as a partial mediator between X and Y in case of Tamayoz				Close public transport is not considered as a mediator between X and Y in case of EGX30				Close public transport is not considered as a mediator between X and Y in case of Tamayoz			
	Unstandardised coefficients		T	Sig.	Unstandardised coefficients		T	Sig.	Unstandardised coefficients		T	Sig.	Unstandardised coefficients		T	Sig.
	B	Std. Error			B	Std. Error			B	Std. Error			B	Std. Error		
(Constant)	11,139.267	171.48	64.95	0.000	674.76	24.255	27.820	00.000	9,987.537	89.032	112.17	0.000	610.13	11.432	53.37	0.000
Total cases	0.006	0.009	0.662	0.509	−.023	0.001	−18.045	0.000	.024	0.010	2.384	0.018	−0.022	0.001	−17.36	0.000
New cases	0.347	0.110	3.168	0.002	0.144	0.016	9.197	0.000	0.313	0.124	2.527	0.012	0.141	0.016	8.900	0.000
Total deaths	0.004	0.155	0.026	0.979	0.467	0.022	20.903	0.000	−0.247	0.172	−1.432	0.154	0.451	0.022	20.22	0.000
New deaths	−4.149	2.595	−1.599	0.112	1.200	0.367	3.266	0.001	−5.519	2.935	−1.881	0.062	1.107	0.372	2.978	0.003
School closures	−396.527	58.45	−6.784	0.000	−19.411	8.270	−2.347	0.020								
Close public transport									27.032	44.206	0.611	0.542	6.819	5.784	1.179	0.240

Table 13
Mediation of International travel control and restrictions international movements

Model	Mediation of International travel control								Mediation of Restrictions international movements							
	International travel control is not considered as a mediator between X and Y in EGX30				International travel control is considered as a partial mediator between X and Y in Tamayoz				Restrictions international movements is not considered as a mediator between X and Y in EGX30				Restrictions international movements is considered as a mediator between X and Y in Tamayoz			
	Unstandardised Coefficients		T	Sig.	Unstandardised Coefficients		T	Sig.	Unstandardised Coefficients		T	Sig.	Unstandardised Coefficients		T	Sig.
	B	Std. Error			B	Std. Error			B	Std. Error			B	Std. Error		
(Constant)	10,007.4	105.9	94.44	0.000	577.71	12.869	44.892	0.000	9,969.135	105.20	94.76	0.000	602.8	13.269	45.37	0.000
Total cases	0.024	0.011	2.205	0.029	−0.020	0.001	−15.281	0.000	0.024	0.010	2.396	0.018	−0.022	0.001	−17.43	0.000
New cases	0.300	0.141	2.126	0.035	0.109	0.017	6.331	0.000	0.298	0.127	2.348	0.020	0.136	0.016	8.447	0.000
Total deaths	−0.250	0.184	−1.358	0.176	0.422	0.023	18.581	0.000	−0.255	0.174	−1.469	0.144	0.448	0.022	20.04	0.000
New deaths	−5.390	2.932	−1.839	0.068	1.158	0.355	3.259	0.001	−5.561	2.937	−1.893	0.060	1.088	0.371	2.934	0.004
International travel-controls	6.917	28.67	0.241	0.810	13.845	3.489	3.968	0.000								
Restrictions internal movements									42.494	62.464	0.680	0.497	13.091	7.889	1.659	0.059

The mediating role of international travel control and restrictions movement

Table 13 investigates the direct effect of travel control and restrictions on international movements on the association between COVID-19 and FP for the two sub-samples: Panel (A) and Panel (B) firms. We find that travel control and restrictions on international movements can be treated as partial mediator between COVID-19 and FP only in the Tamayoz exchange, as the *p*-value is lower than 0.05. Our findings are consistent with Chen et al. (2020), who show that international travel control and restrictions international movements have a negative impact on SMEs' stock returns even after controlling for the pandemic itself. Furthermore, our result argues that strict international travel and restrictions for international movements reduces the intensity of local outbreaks, and then they weaken the negative market reaction to the growth of COVID-19 in the light of SMEs. We also argue that the International travel control and restrictions on international movements after the pandemic will provide a sign of a promising market improvement.

CONCLUSION

This study examined the impact of COVID-19 announcements about the cases and deaths (new and cummulative) on the FP of 26 SMEs and 30 listed corporations in EGX30. To this extent, we have utilised the daily data for stock market returns from January 2020 to November 2020 as a proxy for Egypt's FP. The findings of our empirical study emphasised the following: (i) stock prices listed in EGX30 are more sensitive to governmental interventions during the pandemic more than the stock prices in Tamayoz Stock Exchange, (ii) we find a partial mediation of governmental actions during the pandemic such as income support, facial-covering, school closures, and restrictions on international movements on the association between COVID-19 and FP for SMEs listed in Tamayoz Stock Exchange more than EGX30, (iii) the effect of COVID-19 data reported that, governmental activities play a substantial role in the firms' FP throughout COVID-19 pandemic.

Our findings led to a number of policy proposals aimed at easing the burden on SMEs and publicly traded enterprises in emerging nations. Our findings and policy recommendations can be used by policymakers who want to help SMEs through challenging periods like COVID-19. Our proposed strategy may assist the government in determining the most effective measures for supporting businesses in various industries during difficult times. Across the two indices

(EGX30 and Tamayoz), our findings reveal the varied implications of government measures during the pandemic. As a result, every government move or activity in response to a crisis should assess all predicted implications across all sectors or indices before being implemented. Our findings illustrate how successful a specific government measure in reducing the negative impacts of COVID-19 and boosting company FP compared to other government initiatives. This can assist governments in prioritising their policies and activities while dealing with crises.

Regardless of the fact, this study offers perceptive theoretical and practical implications about the influence of COVID-19; yet some limitations remain in the investigation, which provides room for future research. First, our empirical findings are based on a sample of Egyptian businesses, thus they may be country-specific. To validate and extend this study, future research might incorporate samples from different nations. Second, while our paper measures the impact of COVID-19 on microeconomic level based on daily stock return for firms listed in the stock market, future research may consider the impact of this pandemic on the macroeconomic level such as strength and trust of the financial sector for countries and foreign direct investments (FDI). Third, our sample size was not sufficient to represent the respective market and industries. Therefore, future research may consider increasing the sample size such as EGX100. While our study period is constrained by the COVID-19 timeframe i.e., January to November 2020, further study should look beyond 2021 to examine how the stock market returns are affected and to what extent. While this study only focuses on the sample as two groups (SMEs and listed corporations), future research might divide the sample into sub-groups based on the amount of capital, number of workers, branches, or sectors to determine if the impact of COVID-19 varies and assess the effectiveness of government interventions. Quantifying the influence of corporate governance as a mediator would enrich the conclusive findings in this research track, depending on the availability of internal data for SMEs. Because the COVID-19 pandemic is a global threat, there is no documented scale to use in the study. Hence, the door is open for future investigations.

REFERENCES

Abu Hatab, A., Lagerkvist, C. -J., & Esmat, A. (2020). Risk perception and determinants in small- and medium-sized agri-food enterprises amidst the COVID-19 pandemic: Evidence from Egypt. *Agribusiness*, *37*(1), 187–212. https://doi.org/10.1002/agr.21676212

Abdelrhim M., & Elsayed A. (2020). The effect of COVID-19 spread on Egyptian stock market sectors. *SSRN Electronic Journal*. http://dx.doi.org/10.2139/ssrn.3608734

Adam, T. (2020). How coronavirus almost brought down the global financial system. *https://www.theguardian.com/business/2020/apr/14/how-coronavirus-almost-brought-down-the-global-financial-system*

Alegado. S. (2020). Global cost of coronavirus may reach $4.1 Trillion, ADB says. Bloomberg. https://www.bloomberg.com/news/articles/2020-04-03/global-cost-of-coronavirus-could-reach-4-1-trillion-adb-says?srnd=premium-europe)

African Development Bank. (2016). *Addressing informality in Egypt [Working paper - North Africa policy series].* https://www.afdb.org/en/news-and-events/addressing-afdinformality-in-egypt-15567

Ahmar, S., & Del Val, B. (2020). Sutte ARIMA: Short term forecasting method, a case: COVID-19 and stock market in Spain. *Science of the Total Environment*, *729*, 138883. https://doi.org/10.1016/j.scitotenv.2020.138883

Al-Awadhi, A. M., Alsaifi, K., Al-Awadhi, A., & Alhamadi, S. (2020). Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market return. *Journal of Behavioral and Experimental Finance*, *27*, 100326. https://doi.org/10.1016/j.jbef.2020.100326

Alber, N. (2020). The effect of coronavirus spread on stock markets: The case of the worst 6 countries. *SSRN Electronic Journal.* http://dx.doi.org/10.2139/ssrn.3578080

Albulescu, C. (2020a). Coronavirus and oil price crash. *SSRN.* https://doi.org/10.48550/arXiv.2003.06184

Albulescu, C. (2020b). Do COVID-19, and crude oil prices drive the US economic policy uncertainty. *SSRN*. http://dx.doi.org/10.2139/ssrn.3555192

Albulescu, C. (2020c). Coronavirus and financial volatility: 40 days of fasting and fear, 10.2139/ssrn.3550630

Albulescu, C. T. (2021). COVID-19 and the United States financial markets' volatility. *Finance Research Letters*, *38*, 101699. https://doi.org/10.1016/j.frl.2020.101699

Alfaro, L., Chari, A., Greenland A., & Schott, K. (2020). *Aggregate and firm level stock returns during pandemics in real time, working paper, national bureau of economic research* (Working paper 26950). https://doi.org/10.3386/w26950

Al-Omoush, K. S., Simón-Moya, V., & Sendra-García, J. (2020). The impact of social capital and collaborative knowledge creation on e-business proactiveness and organizational agility in responding to the COVID-19 crisis. *Journal of Innovation & Knowledge*, *5*(4), 279–288. https://doi.org/10.1016/j.jik.2020.10.002

Ali, M., Alam, N., & Rizvi, R. (2020). Coronavirus (COVID-19) - an epidemic or pandemic for financial markets. *Journal of Behavioral and Experimental Finance*, *27*, 100341 https://doi.org/10.1016/j.jbef.2020.100341

Asgary A., Ozdemir A., & Ozyurek H. (2020). Small and medium enterprises and global risks: evidence from manufacturing SMEs in Turkey. *International Journal of Disaster Risk Science*, *11*(1), 59–73. https://doi.org/10.1007/s13753-020-00247-0

Ashraf, B. N. (2021). Stock markets' reaction to Covid-19: Moderating role of national culture. *Finance Research Letters*, *41*, 101857. https://doi.org/10.1016/j.frl.2020.101857

Ashraf, B. N. (2020a). Stock markets' reaction to COVID-19: cases or fatalities? *Research in International Business and Finance*, *54*, 101249. https://doi.org/10.1016/j.ribaf.2020.101249

Ashraf, B. N. (2020b). Economic impact of government interventions during the COVID-19 pandemic: International evidence from financial markets. *Journal of Behavioral and Experimental Finance*, *27*, 100371. https://doi.org/10.1016/j.jbef.2020.100371

Auzzir, Z., Haigh, R., & Amaratunga, D. (2018). Impacts of disaster to SMEs in Malaysia. *Procedia Engineering*, *212*, 1131–1138. https://doi.org/10.1016/j.proeng.2018.01.146

Ayadi, R., Sessa, E., El Said, H., Ahmed, R.H., Alshyab, N., Sandri, S., & Ferchichi, M. (2017). Micro, small and medium sized enterprises development in Egypt, Jordan, Morocco and Tunisia: Structure obstacles and policies. *Euro-Mediterranean Network for Economic Studies*, *3*, 1–88. https://euromed-economists.org/?wpdmdl=2398

Azrak, T., Saiti, B., Kutan, A., & Engku Ali, E. R. A. (2021). Does information disclosure reduce stock price volatility? A comparison of Islamic and conventional banks in Gulf countries. *International Journal of Emerging Markets*, *16*(8), 1769–1792. https://doi.org/10.1108/IJOEM-06-2019-0466

Bakas, D., & Triantafyllou, A. (2020). Commodity price volatility and the economic uncertainty of pandemics. *Economics Letters*, *193*, 109283. https://doi.org/10.1016/j.econlet.2020.109283

Baldwin, R., & Weder B. (2020). *Economics in the time of COVID-19.* CEPR Press. https://cepr.org/system/files/publication-files/60120-economics_in_the_time_of_covid_19.pdf

Barberis, N. (2011). Psychology and the Financial Crisis of 2007-2008. *SRRN*. Available at https://ssrn.com/abstract=1742463 or http://dx.doi.org/10.2139/ssrn.1742463

Barberis, N., Shleifer, A., & Vishny, R. (1998). A model of investor sentiment. *Journal of Financial Economics*, *49*(3), 307–343. https://doi.org/10.1016/S0304-405X(98)00027-0

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182. https://doi.org/10.1037//0022-3514.51.6.1173

Bartik, A., Bertrand M., Cullen Z., Glaeser E., Luca M., & Stanton C. (2020). *How are small businesses adjusting to COVID-19? Early evidence from a survey* (Working Paper 26989). https://doi.org/10.3386/w26989

Bary, A. (2019). SMEs sector: A key driver to the Egyptian economic development. *SSRN Electronic Journal.* http://dx.doi.org/10.2139/ssrn.3334845

Beck, T., Flynn B., & Homanen, M. (2020). *COVID-19 in emerging markets: firms-survey evidence*. https://voxeu.org/article/covid-19-emerging-markets-firm-survey-evidence

Bennett, K., & Phillipson J. (2004). A plague upon their houses: Revelations of the foot and mouth disease epidemic for business households. *Sociologia Ruralis*, *44*(3), 261–284. https://doi.org/10.1111/j.1467-9523.2004.00275.x

Beraha, I., & Duricin S. (2020). The impact of COVID-19 crisis on medium sized enterprises in Serbia. *Economic Analysis*, *53*(1), 14–27. https://doi.org/10.28934/ea.20.53.1.pp14-27

Beutels, P., Jia, N., Zhou, Q. –Y., Smith, R., Cao, W. –C., & de Vlas, S. J. (2009). The economic impact of SARS in Beijing, China. *Tropical Medicine and International Health*, *14*(1), 85–91. https://doi.org/10.1111/j.1365-3156.2008.02210.x

Bikas, E., Jureviciene, D., Dubinskas P., & Novickyte, L. (2013). Behavioral finance: The emergence and development trends. *Procedia - Social and Behavioral Science*, *82*, 870–876. https://doi.org/10.1016/j.sbspro.2013.06.363

Breisinger, C., Abdelatif, A., Raouf, M., Wiebelt, M. (2020). COVID-19 and the Egyptian economy: Estimating the impacts of expected reductions in tourism, Suez Canal revenues and remittances, international food policy research institute London. *MENA Policy Note.* https://doi.org/10.2499/p15738coll2.133663

Central Agency For Public Mobilization and Statistics (CAPMAS). (2018). Statistical yearbook, Egypt. www.capmas.gov.eg/Pages/Static_Pages.aspx?page_id=5034

Cardona-Arenas, C. D., & Serna-Gomez, H. M. (2020). COVID-19 and oil prices: Effects on the Colombian peso exchange rate. *SSRN Electronic Journal.* https://dx.doi.org/10.2139/ssrn.3567942

Central Bank of Jordan. (2017). *Annual reports.* www.bankofjordan.com/page/annualreport

Centers for Disease Control and Prevention. (2021). https://wwwnc.cdc.gov/travel/notices/covid-4/coronavirus-egypt

Chang, C. -L., & McAleer, M. (2020). Alternative global health security indexes for risk analysis of COVID-19. *International Journal of Environmental Research and Public Health*, *17*(9), 3161. https://doi.org/10.3390/ijerph17093161

Chen, M. -H., Jang, S. C., & Kim, W. G. (2007). The impact of the SARS outbreak on Taiwanese hotel stock performance: An event study approach. *International Journal of Hospitality Management*, *26*, 200–212. https://doi.org/10.1016%2Fj.ijhm.2005.11.004

Chen, M. H., Demir, E., García-Gómez, C. D., & Zaremba, A. (2020). The impact of policy responses to COVID-19 on US travel and leisure companies. *Annals of Tourism Research Empirical Insights*, *1*(1), 100003. https://doi.org/10.1016/j.annale.2020.100003

Global Communities. (2020). *COVID-19 impact on performance of micro and small business in Egypt.* https://www.globalcommunities.org/covid-19-egypt

Corbet, S., Hou, Y., Hu, Y., Lucey, B., & Oxley L. (2020). Aye corona! The contagion effects of being named corona during the COVID-19 pandemic. *Finance Research Letters*, *38*, 101591. https://doi.org/10.1016/j.frl.2020.101591

Daniel, K., Hirshleifer, D., & Subrahmanyam, A. (1998). Investor psychology and security market under and over reaction. *Journal of Finance*, *53*(6), 1839–1885. https://www.jstor.org/stable/117455

De Bondt, W., Muradoglu, G., Shefrin, H., & Staikouras, K. (2008). Behavioral finance: Quo Vadis? *Journal of Applied Finance*, *18*(2), 7–21. https://ssrn.com/abstract=2698614

Del Giudice, A., & Paltrinieri, A. (2017). The impact of the Arab spring and the Ebola outbreak on African equity mutual fund investor decisions. *Research in International Business & Finance*, *41*, 600–612. https://doi.org/10.1016/j.ribaf.2017.05.004

Dimitriou, D., Kenourgios, D., & Simos, T. (2013). Global financial crisis and emerging stock market contagion: A multivariate FIAPARCH-DCC approach. *International Review of Financial Analysis*, *30*, 46–56. https://doi.org/10.1016/j.irfa.2013.05.008

Dooley, M., & Hutchison, M. (2009). Transmission of the US subprime crisis to emerging markets: Evidence on the decoupling-recoupling hypothesis. *Journal of International Money and Finance*, *28*(8), 1331–1349. https://doi.org/10.1016/j.jimonfin.2009.08.004

Eggers, F. (2020). Masters of disasters? Challenges and opportunities for SMEs in times of crisis. *Journal of Business Research*, *116*, 199–208. https://doi.org/10.1016/j.jbusres.2020.05.025

Egyptian Stock Exchange (EGX) (2021). *The Egyptian exchange*. https://www.egx.com.eg/ar/Indices.aspx

El-Khishin, S. (2020). *Countermeasures for the COVID-19 outbreak in Egypt.* ERF Policy Brief No. 51. https://erf.org.eg/app/uploads/2020/08/1598691267_437_382248_pb51_sarakhishin.pdf

Elseoud, A., Sayed, M., Kreishan, M., & Ali, M. (2019). The reality of SMEs in Arab nations: Experience of Egypt, Jordan, and Bahrain. *Journal of Islamic Financial Studies*, *5*(2), 110–126. https://journal.uob.edu.bh/handle/123456789/3747

Erdem, O. (2020). Freedom and stock market performance during COVID-19 outbreak. *Finance Research Letters*, *36*, 101671. https://doi.org/10.1016%2Fj.frl.2020.101671

Fakhry, B. (2016). A literature review of behavioral finance. *Journal of Economics Library*, *3*(3), 1–9. http://www.kspjournals.org/index.php/JEL/article/view/929

Fama, E. F. (1965). The behavior of stock-market prices. *Journal of Business*, *38*(1), 35–105. https://www.jstor.org/stable/2350752

Fernandes, N. (2020). *Economic effects of coronavirus outbreak (COVID-19) on the world economy* (Working Paper No. WP-1240-E). http://dx.doi.org/10.2139/ssrn.3557504

Fleming, J., Kirby, C., Ostdiek B. (2006). Information, trading, and volatility: Evidence from weather sensitive markets. *Journal of Finance*, *61*, 2899–2929. https://doi.org/10.1111/j.1540-6261.2006.01007.x

Funk, S., Gilad, E., Watkins, C., & Jansen, V. A. A. (2009). The spread of awareness and its impact on epidemic outbreaks. *Proceedings of the National Academy of Sciences of The United States of America*, *106*(16), 687–6877. https://doi.org/10.1073/pnas.0810762106

Gupta, G., Moyera, C. A., & Stern, D. T. (2005). The economic impact of quarantine: SARS in Toronto as a case study. *Journal of Infection*, *50*, 386–393. https://doi.org/10.1016%2Fj.jinf.2004.08.006

Hale, T., Angrist, N., Goldszmidt, R., Kira, B., Petherick, A., Philips, T.,…Tatlow, H. (2021). A global panel database of pandemic policies (Oxford COVID-19 Government Response Tracker). *Nature Human Behaviour*, *5*, 529–538. https://doi.org/10.1038/s41562-021-01079-8

Haroon, O., & Rizvi R. (2020). COVID-19: Media coverage and financial markets behavior - A sectoral inquiry. *Journal of Behavioral and Experimental Finance*, *27*, 100343. https://doi.org/10.1016/j.jbef.2020.100343

Hassanein, A., & Hussainey, K. (2015). Is forward looking financial disclosure really informative? Evidence from UK narrative statements. *International Review of Financial Analysis*, *41*, 52–61. https://doi.org/10.1016/j.irfa.2015.05.025

Hassanein, A., Zalata, A., & Hussainey, K. (2019). Do forward looking narratives affect investors' valuation of UK FTSE all-shares firms? *Review of Quantitative Finance and Accounting*, *52*(2), 493–519. https://doi.org/10.1007/s11156-018-0717-6

Hong, H., & Stein, C. (1999). A unified theory of under reaction, momentum trading, and over reaction in asset markets. *Journal of Finance*, *45*(6), 2143–2184. https://www.jstor.org/stable/797990

Hsu, H. H. (2012). The acceptance of Moodle: An empirical study based on UTAUT. *Creative Education*, *3*, 44–46. https://doi.org/10.4236/ce.2012.38b010

Ichev, R., & Marinč, M. (2018). Stock prices and geographic proximity of information: evidence from the Ebola outbreak. *International Review of Financial Analysis*, *56*, 153–166. https://doi.org/10.1016/j.irfa.2017.12.004

International Trade Centre. (2016). *Egypt: Company perspectives – An ITC series on non-tariff measures*. https://intracen.org/resources/publications/egypt-company-perspectives-an-itc-series-on-non-tariff-measures

International Trade Centre. (2020). *Annual report 2020 pivoting with purpose*. Geneva. https://intracen.org/file/annualreport2020enpdf-1

Konstantinidis, A., Katarachia, A., Borovas, G., & Voutsa M. (2012). From efficient market hypothesis to behavioural finance: Can behavioural finance be the new dominant model for investing. *Scientific Bulletin - Economic Sciences*, *11*(2), 16–26. http://economic.upit.ro/repec/pdf/2012_2_2.pdf

Kourtidies, D., Sevic, Z., & Chatzoglou, P. (2011). Investors' trading Activity: A behavioral perspective and empirical results. *Journal of Socio-Economics*, *40*(5), 548–557. https://doi.org/10.1016/j.socec.2011.04.008

Leduc, S., & Liu, Z. (2020). The uncertainty channel of the coronavirus. *FRBSF Economic Letters*, *7*(5), 1–5.

Lee, Y. M. K., Jais, M., & Chan, C. –W. (2020). Impact of Covid-19: Evidence from Malaysian stock market. *International Journal of Bussiness & Society*, *21*(2), 607–628. http://dx.doi.org/10.33736/ijbs.3274.2020

Lee, W. Y., Jang, C. X., & Indro, D. C. (2002). Stock market volatility, excess returns and the role of investor sentiment. *Journal of Banking & Finance*, *26*(12), 2277–2299. https://doi.org/10.1016/S0378-4266(01)00202-3

Liu, Y., Manzoor, A., Wang, C. Y., Zhang, L., & Manzoor, Z. (2020). The COVID-19 outbreak and affected countries stock market response. *International Journal of Environmental Research & Public Health*, *17*(8), 2800. https://doi.org/10.3390/ijerph17082800

Lone, S. A., & Ahmad, A. (2020). COVID-19 pandemic, an African perspective. *Emerging Microbes & Infections*, *9*(1), 1372–1378. https://doi.org/10.1080/22221751.2020.1775132

López-Cabarcos, M. Á, Ribeiro-Soriano, D., & Piñeiro-Chousa, J. (2020). All that glitters is not gold. The rise of gaming in the COVID-19 pandemic. *Journal of Innovation & Knowledge*, *5*(4), 289–296. https://doi.org/10.1016/j.jik.2020.10.004

Lyócsa, S., Baumohl, E., Výrost, T., & Molnár, P. (2020). Fear of the coronavirus and the stock markets. *Finance Research Letters*, *36*, 101735. https://doi.org/10.1016/j.frl.2020.101735

Mandel, A., & Veetil, V. (2020). The economic cost of COVID lockdowns: An out-of-equilibrium analysis. *Economics of Disasters and Climate Change*, *4*, 431–451. https://doi.org/10.1007/s41885-020-00066-z

Mabrouk, M., Atallah, S., Kamel, S., El Battouty, S., Lehr, D., Elnaggar, Y., & Abdel-Latif, A. (2020). *Rethinking Egypt's economy policy.* https://www.mei.edu/publications/rethinking-egypts-economy

Macciocchi, D., Lanini, S., Vairo, F., Zumla, A., Figueiredo, L. T. M., Lauria, F. N.,… Ippolito, G. (2016). Short term economic impact of the Zika virus outbreak. *New Microbiologica*, *39*(4), 287–289.

Machmuddah, Z., Utomo, S. D., Suhartono, E., Ali, S., & Ghulam, W. A. (2020). Stock market reaction to COVID-19: Evidence in customer goods sector with the implication for open innovation*. Journal of Open Innovation: Technology, Market, and Complexity*, *6*(4), 99. https://doi.org/10.3390/joitmc6040099

Mazur, M., Dang, M., & Vega, M. (2020). COVID-19 and the March 2020 stock market crash. Evidence from S&P 1500. *Finance Research Letters*, *38*, 101690. https://doi.org/10.1016/j.frl.2020.101690

McAleer, M. (2020). Prevention is better than the cure: risk management of COVID-19. *Journal of Risk and Financial Management*, *13*(3/46), 1–5. http://dx.doi.org/10.3390/jrfm13030046

McTier, B., Tse, Y., & Wald, K. (2013). Do stock markets catch the flu? *The Journal of Financial and Quantitative Analysis*, *48*(3), 979–1000. https://www.jstor.org/stable/43303828

Mishra, A. K., Rath, B. N., & Dash, A. K. (2020). Does the Indian financial market Nosedive because of the COVID-19 outbreak, in comparison to after demonetization and GST? *Emerging Markets Finance and Trade*, *56*(10), 2162–2180. https://doi.org/10.1080/1540496X.2020.1785425

Neaime, S. (2012). The global financial crisis, financial linkages and correlations in returns and volatilities in emerging MENA stock markets. *Emerging Markets Review*, *13*(3), 268–282. https://doi.org/10.1016/j.ememar.2012.01.006

Nia, M. (2020). The effect of corona outbreak on the Indonesian stock market. *American Journal of Humanities and Social Sciences Research*, *4*(3), 358–370. https://www.ajhssr.com/wp-content/uploads/2020/03/ZU2043358370.pdf

Nippani, S., & Washer, K. M. (2004). SARS: A non-event for affected countries' stock markets? *Applied Financial Economics*, *14*(15), 1105–1110. https://doi.org/10.1080/0960310042000310579

Nozawa, Y., & Qiu, Y. (2021). Corporate bond market reactions to quantitative easing during the COVID-19 pandemic. *Journal of Banking & Finance*, *133*, 106153. https://doi.org/10.1016/j.jbankfin.2021.106153

Onali, E. (2020). COVID-19 and stock market volatility. *SSRN*. http://dx.doi.org/10.2139/ssrn.3571453

Ozili, P. K. (2020). COVID-19 pandemic and economic crisis: The Nigerian experience and structural causes. *Journal of Economic and Administrative Sciences*, *37*(4), 401–418. https://doi.org/10.1108/JEAS-05-2020-0074

Pavlyshenko, B. M. (2020). Regression approach for modeling COVID-19 spread and its impact on stock market. *SSRN*. https://doi.org/10.48550/arXiv.2004.01489

Phan, D., & Narayan, P. (2020). Country responses and the reaction of the stock market to COVID-19, a preliminary exposition. *Emerging Markets Finance and Trade*, *56*(10), 2138–2150. https://doi.org/10.1080/1540496X.2020.1784719

Prasad, S., Su, H., Altay, N., & Tata, J. (2015). Building disaster-resilient micro enterprises in the developing world. *Disasters*, *39*(3), 447–466. https://doi.org/10.1111/disa.12117

Rababah, A., Al-Haddad, L., Sial, M. S., Chunmei, Z., & Cherian, J. (2020). Analyzing the effects of COVID-19 pandemic on the financial performance of Chinese listed companies. *Journal of Public Affairs*, *20*(4), e2440. https://doi.org/10.1002/pa.2440

Ramelli, S., & Wagner, F. (2020). Feverish stock price reaction to COVID-19. *The Review of Corporate Finance Studies*, *9*(3), 622–655. https://doi.org/10.1093/rcfs/cfaa012

Robinson, J., & Kengatharan, N. (2020). Exploring the effect of COVID-19 on small and medium enterprises: Early evidence from Sri Lanka. *Journal of Applied Economics and Business Research*, *10*(2), 115–124. http://www.aebrjournal.org/uploads/6/6/2/2/6622240/joaebrjune2020_115_125.pdf

Samantha, G. (2018). The impact of natural disasters on micro, small, and medium enterprises (MSMEs): A case study on 2016 flood event in western Sri Lanka. *Procedia Engineering*, *212*, 744–751. https://doi.org/10.1016/j.proeng.2018.01.096

Schell, D., Wang, M., & Huynh, T. L. D. (2020). This time is indeed different: A study on global market reactions to public health crisis. *Journal of Behavioral and Experimental Finance*, *27*, 100349. https://doi.org/10.1016/j.jbef.2020.100349

Sène, B., Mbengue, M., & Allaya, M. (2020). Overshooting of sovereign emerging eurobond yields in the context of COVID-19. *Finance Research Letters*, *38*, 101746. https://doi.org/10.1016/j.frl.2020.101746

Sewell, W. (2005). *Logics of history: Social theory and social transformation*. University of Chicago Press.

Shafi, M., Liu, J., & Ren, W. (2020). Impact of COVID-19 pandemic om micro, small and medium sized enterprises operating in Pakistan. *Research in Globalization*, *2*, 100018. https://doi.org/10.1016/j.resglo.2020.100018

Shefrin, H. (2001). Behavioral corporate finance. *Journal of Applied Corporate Finance*, *14*(3), 113–124. https://doi.org/10.1111/j.1745-6622.2001.tb00443.x

Shehzad, K., & Sohail, N. (2018). An evidence of calendar effects on the stock market of Pakistan: a case study of KSE-100 index. *NFC IEFR Journal of Engineering and Scientific Research*, *6*, 46–56. http://nijesr.com/ojs/index.php/archive/article/view/147

Shehzad, K., Xiaoxing, L., Arif, M., Rehman, K., & Ilyas M. (2020a). Investigating the psychology of financial markets during COVID-19 Era: A case study of the US and European markets. *Frontiers in Psychology*, *11*, 1924. https://doi.org/10.3389/fpsyg.2020.01924

Shehzad, K., Xiaoxinga, L., & Kazouzb, H. (2020b). COVID-19's disasters are perilous than global financial crisis: A rumor or fact? *Finance Research Letters*, *36*, 101669. https://doi.org/10.1016/j.frl.2020.101669

Small and medium enterprises. (2020). SMEs new horizons for growth. EGX. https://egyptsmes.com.eg/en/

Statman, M. (2008). What is behavioral finance? In F. J. Fabozzi (Ed.), *The Handbook of Finance II* (pp. 79–84). John Wiley & Sons.

Gherghina, S. C., Armeanu, D. S., & Joldes, C. C. (2020). Stock market reaction to COVID-19 pandemic outbreak: Quantitative evidence from ARDL Bounds tests and granger causality analysis. *International Journal of Environmental Research & Public Health*, *17*, 6729. https://doi.org/10.3390/ijerph17186729

Subrahmanyam, A. (2007). Behavioral finance: A review and synthesis. *European Financial Management*, *14*(1), 12–29. https://doi.org/10.1111/j.1468-036X.2007.00415.x

Sugimoto, K., Matsuki, T., & Yoshida, Y. (2014). The global financial crisis: An analysis of the spillover effects on African stock markets. *Emerging Markets Review*, *21*, 201–233. https://doi.org/10.1016/j.ememar.2014.09.004

Wagner, A. F. (2020). What the stock market tells us about the post-COVID-19 world. *Nature Human Behavior*, *4*, 440. https://doi.org/10.1038/s41562-020-0869-y

Wang, Y. –H., Yang, F. -J., & Chen, L. –J. (2013). An investor's perspective on infectious diseases and their influence on market behavior. *Journal of Business Economics & Management*, *14*, 1611–1699. https://doi.org/10.3846/16111699.2012.711360

World Health Organization (WHO). (n.d). *WHO Coronavirus (COVID-19) Dashboard.* https://covid19.who.int/

Williams, S., & Schaefer, A. (2013). Small and medium sized enterprises and sustainability: Managers' values and engagement with environmental and climate change issues. *Business Strategy and the Environment*, *22*(3), 173–186. http://dx.doi.org/10.1002/bse.1740

Yilmazkuday, H. (2022). Coronavirus disease 2019 and the global economy. *Transport Policy*, *120*, 40–46. https://doi.org/10.1016/j.tranpol.2022.03.003

Zaazou, Z. A., & Salman, A. D. (2020). Egyptian small and medium sized enterprises' battle against COVID-19 pandemic. *Journal of Humanities and Applied Social Sciences*, *4*(2), 94–112. https://doi.org/10.1108/JHASS-09-2020-0161

Zaremba, A., Kizys, R., Aharon, D., & Demir, E. (2020). Infected markets: Novel coronavirus, government interventions and stock return volatility around the globe. *Finance Research Letters*, *35*, 101597. https://doi.org/10.1016/j.frl.2020.101597

Zeren, F., & Hizarci, A. (2020). The impact of COVID-19 Coronavirus on stock markets: Evidence from selected countries. *Bulletin of Accounting and Finance Review*, *3*(1), 78–84. https://doi.org/10.32951/mufider.706159

Zhang, D., Hu, M., & Ji, Q. (2020). Financial markets under the global pandemic of COVID-19. *Finance Research Letters*, *36*, 101528. https://doi.org/10.1016/j.frl.2020.101528