Investment Strategies and Covid-19 Pandemic: A Case of The Egyptian Stock Exchange

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Abstract

Purpose

The current study aims to identify how the Egyptian Stock Exchange (EGX30), responses to the Covid-19 pandemic by focusing on investment strategies followed by its sectors during the crisis in both short- and long-term.

Methodology

Study employs the same logic of (Aravind,2016,2020) concerning winning and losing portfolios. Additionally, applies their mathematical model to express momentum and contrarian effect. Data consists of daily trading prices from 1st February 2019 to 14th June 2022 on 17 sectoral portfolios, it covers 820 trading days * 17 price observations. The study period was classified into before and during pandemic and was divided into short- and long-term. Each period was split into formation and test period.

Findings

The analysis of short-term trends before the crisis showed that 5 sectors were Winners (2 momentums, 3 contrarian), and 12 were Losers (8 momentums, 4 contrarian), while the long-term trend during the crisis showed that a total of 15 sectors were Winners (6 momentums, 9 contrarian) and 2 were Losers (1 momentum, 1 contrarian). Investors, therefore, prefer taking a risk-averse mindset in the short-term, but in the long-term they are referred to be risk-seekers.

Originality

This study is one of the first attempts to examine how the (EGX30) reacts to Covid-19 pandemic by using momentum and contrarian strategies to explain this reaction.

Implications

This study is valuable for investors and policymakers alike, as it provides a better understanding of how market participants respond to crises and how investment strategies may need to adapt to changing market conditions. Moreover, for academics interested in how epidemics influence investment decisions or strategies. Furthermore, it presents a unique perspective on the impact of the pandemic on emerging market, which may differ from the experiences of developed countries’ markets. More researches are needed to assess the determinants of this investment decision.

Keywords: Contrarian, Covid-19, Sectoral Portfolios, Strategies, Momentum.
1. Introduction

Every emergency reaffirms limited understanding of hazard management—prevention, reduction, preparedness, and response; the need for systematic social science research has never been greater, (Fernandez-Perez et al., 2021).

Many researches had been conducted for an essential reason which is to select the best investment strategy through analysing the stocks’ prices and their reaction in specific time horizon (Firoozabadi and Rastegar, 2019). Investment strategies are considered a must during crises, fluctuations, or pandemics like COVID-19—the Black Swan event that was uncontemplated, unprecedented, and resulted in panic among investors which made them directly decide selling their stocks (Gupta et al., 2021).

Since the turn of the century, various pandemics and epidemic-prone diseases such as SARS, H1N1 influenza, MERS, and Ebola have started to occur. For many years, costs and consequences of these diseases have been immense in terms of human health, economy, and even national security. The new Coronavirus (COVID-19) was discovered in Wuhan, China at the end of December 2019. The World Health Organization (WHO) declared COVID-19 as a global pandemic on March 11, 2020 (Chaouachi and Slim, 2020; Baig and Chen, 2022).

COVID-19 continues to wreak devastation around the world (Chaouachi and Slim, 2020; Abay et al., 2020; Naik et al., 2021; Dhall and Singh, 2020; Cheng, 2020) mentioned various socioeconomic impacts that are comparable to those occurred during the 2008 financial economic crisis. Nevertheless, the financial catastrophe brought on by this pandemic is unique because of its extraordinary short-term effects. Unlike the 2008 crisis, which began as a financial crisis and impacted economies around the world, the pandemic-related crisis began as a health crisis and evolved into an economic disaster, affecting financial markets, and joining the history of financial crises (Moussi and Ouazza, 2021; Lata and Chandani, 2021; Talwar et al., 2021; Sahoo, 2021; Sharma et al., 2020; Cheng, 2020).

While drafting this paper, investors and markets were grappling with a high level of uncertainty about the virus's health and financial consequences which cause extraordinary turbulence (Baek et al., 2020); act as a game changer for all countries (Shankar and Dubey, 2021); and trigger a massive increase in vulnerability (Jain and Kesari, 2021). The global economy has been pushed to its knees (Xu et al., 2021; Gondaliya et al., 2021). Those consequences are more powerful and impactful than any other period in the history; in less than a week, more than $7 trillion were sucked out of the
markets. All boats go lower in an outgoing tide. That appears to be the case, there isn't always a safe place to hide (Xu, 2022; Goodell, 2020). (Diaz et al, 2022) supported that in financial markets, anxiety is more contagious than optimism (Lynch et al, 2019; Qamruzzaman et al, 2021; Matos et al, 2021).

Investing money in uncontrollable and unpredictable aspects can be exceedingly risky. Many people have lost their money because of poor investing decisions. This confirms the need for examining the stock market patterns, firms engaged in the investment, and an investment strategy (Pentheny, 2009).

Pressure Price hypothesis suggests that individual investors tend to acquire stocks that catch their attention because of the lack of time or resources to investigate thousands of stocks. Scholars suggest that investment decision can be affected by both good and bad news (Salisu and VO, 2020).

Behaviourally, investors imitate others' actions, especially during volatile periods of fear, uncertainty, and panic (Dhall and Singh, 2020). Psychological factors, rather than rational investors, play a substantial role in market prices rendering the market inefficiency which indicates that price abnormalities and predictable patterns in stock returns in the capital market may arise in short- or long-term (Budiarso et al, 2020).

Researchers in behavioural finance have compiled a large body of evidence suggesting that people do not always act rationally when making an investment decision (Jain and Kesari, 2021; Parveen et al, 2021). Investors may over-weight information because of irrational bias, which is known as over-reaction. Zhang and Zheng mentioned De Bondt and Thaler who concluded that investors are not as rational as they appear to be. They frequently overestimate new information, while ignoring the long-term one. On the other hand, institutional investors are known for being under-reacting, which means they are usually confident about their decisions and don't change their minds easily (Zhang and Zheng, 2015). Two key reasons identify why investors behave in a semi-normal manner, the first is they are humans experiencing a range of emotions, while their costs of investment are fluctuated. The second reason is the human intellectual components or perceptions that evolve swiftly forming successful procedures for dealing with information and speeding their decisions (Jain and Kesari, 2021). In other words, (Pandya, 2017) indicated that investors are merely human beings, and their emotional and psychological responses cannot be isolated from their decisions.
Pandya stated that (De Bondt and Thaler, 1985) empirically established that the market has a significant reversal pattern as portfolios made up of losers tend to outperform winners. Contrary to the expectations of the efficient market hypothesis (EMH), a contrarian approach is employed which shows that today's losers are tomorrow's winners and today's winners are tomorrow's losers. Moving to momentum, the market moves in a predictable manner, so it is possible to get a higher return. In contrast, momentum strategy states that today's winners will be tomorrow's winners, and today's losers will be tomorrow's losers (Pandya, 2017).

There has been a long debate on whether historical stock data is relevant in anticipating stock price changes since the start of modern finance (Assogbavi et al, 2005). Based on the iconic work of (Jegadeesh and Titman, 1993) if stock prices either overreact or underreact to information, then profitable trading strategies that select stocks based on their past returns will exist. It was discovered that momentum tactics were used in the short-term, while contrarian could take place in the long-term on the China Stock Exchange (Imran et al, 2020; Shi and Zhou, 2017; Yu et al, 2019).

The two prominent investment techniques that are actively disputed by investment strategists around the world are contrarian and momentum methods. In contrarian investing method, investors overreact to information; whereas, they slowly react while practicing momentum (Lata and Chandani, 2021). In other words, momentum refers to the continuation of a trend (Singh and Walia ,2020), while contrarian reflects the exact opposite of market movements (Forner and Marhuenda, 2003; Aravind and Manojkrishnan, 2020; Imran et al, 2020; Abdullah et al, 2021; Sim and Kim, 2021; Syammi et al, 2021).

2. Literature Review

Researchers proposed different choices for studying the unprecedented epidemic. Some of them focused on financial market disruptions, others looked at how real-world shocks can stress as well as impact risk premiums, asset prices, and how policy intervention can relieve strain. On the other hand, other researchers established the groundwork for new ideas that aim for integrating epidemiology and economics. All these choices helped us to realize the influence of the crisis on financial markets as it surprised the world (Goldstein et al, 2021).

Some of the studies — focused on lethal pandemic and its impact on financial markets. So, according to (Abouelfarag and Qutb, 2022) aimed to examine the impact of the novel Covid-19 on Egyptian stock market returns and volatility in the period between July 2018 and June 2021, using
(GARCH) model to examine the impact of COVID-19 on two basic stock market indices (EGX30 and EGX100). And the (HCM) model to differentiate between the effects of each subsequent wave of the pandemic. Their results showed that all COVID-19 variables have a significant impact on the daily returns of EGX100, but an insignificant impact on that of EGX30. The mortality rate and transmission speed increased the market volatility of EGX30 daily returns. The results of the HCM confirmed that the Egyptian stock market reacted more nervously to the first wave than to the second, while the impact was not detected in the third wave.

(Elsayed and Abdelrhim, 2020) investigated the effects of COVID-19 spread on Indices Sectoral of The Egyptian Exchange. Results indicated that the return of the stock market sectors was more sensitive to cumulative indicators of mortality than daily deaths from corona virus, and new cases more than cumulative cases of corona virus.

(Allam et al, 2020) aimed to study the effect of coronavirus on the trading behavior of both individual and institutional investors in the Egyptian Stock Exchange, from March 1, 2020, to June 30, 2020. The results indicated that the trading behavior of individual and institutional investors for Egyptians, Arabs, and foreigners appears to be sensitive to the spread of the Coronavirus. Concerning the investors' trading behavior, they found that the expectations of individual and institutional investors fluctuate significantly during the crisis of the spread of the coronavirus as the behavior of Egyptian individual investors continues to actively circulate and do not dilute their investment portfolios during the crisis, unlike both foreign and Arab individual investors respectively.

(Aravind and Manojkrishnan, 2020) — aimed to find out how the COVID-19 outbreak affected the leading pharmaceutical stocks listed on the National Stock Exchange of India (NSE) and they concluded the effect of momentum as they move according to the general benchmark index. Whereas (Sutrisno et al, 2021) examined the impact of the pandemic on six stock market indices of countries listed on the ASEAN Stock Exchanges and found that all the variables tested had a highly deteriorating long-term relationship due to the impact of the sudden pandemic, and there was an effect of ARCH or GARCH in all stock indices. (Kotishwar, 2020) studied the impact of the spread of the crisis on stock markets, he considered the growth of positive cases in six countries (USA, Spain, France, Italy, China, and India). He concluded that COVID-19 has affected stock market integration and had several consequences on both the human life and the economy.
Based on daily data, (Gupta et al, 2021) concluded that this deadly pandemic impacted the stock markets around the world. They suggested that long-term investors and stock markets around the world have shown resilience in the face of the crisis. However, the presence of investors with high degree of risk-aversion in specific markets gives them the opportunity to reallocate their assets to safer investment options. (Chaouachi and Slim, 2020) employed prediction model to investigate the effect of COVID-19 on stock market in KSA applying (ARDL) cointegration approach, they concluded that there is a negative impact of this crisis on stock market only in the long-run. Causality test revealed a unidirectional causality from pandemic prevalence’s measure to stock market.

(Raifu et al, 2021) found that the stock market returns of Nigerian companies reacted more negatively to global confirmed cases and deaths of COVID-19 than to domestic confirmed cases, deaths, and lockdown policy.

Many studies focused on investor or even the market’s behaviour in general specifically in time of crises. For example, (Qamruzzaman et al, 2021) examined the relationship between stock market remittances and COVID-19 pandemic; they concluded that this crisis negatively affects the stock market in long and short-term. Remittances also positively affect the behaviour of the stock market especially in long-term. Directional causality testing revealed unidirectional causal effects between this pandemic and stock market behaviour. (Kanthavit, 2020) as well, focused on the behaviour of foreign investors specifically in the Stock Exchange of Thailand (SET) to determine whether: trading is abnormal, herding behaviour exists, actions are destabilised, and which strategy is followed. He concluded that the abnormal trading volume of foreign investors is negative although the abnormal trading volume does not destabilise the market, but it causes fluctuations in stock returns with a volume like normal trading.

Some studies have investigated strategies that have been followed during this health/financial crisis. As an example, (Xu et al, 2021) showed that the outbreak and its effect extended reaching not only stock returns but also prices. This reflected that outbreaks hurt not only stock returns but also stock price efficiency by slowing the incorporation of new information into the stock price. Hence, momentum has been found to be the dominant strategy.
(Lata and Chandani, 2021) focused on the IT sector and examined how COVID-19 has affected major IT stocks listed on the National Stock Exchange of India. They concluded that the effect of momentum continued with IT stocks which move according to the overall benchmark.

(Jegadeesh and Titman, 1993) kicked off the academic literature on conventional momentum in a study of continuation patterns in U.S. stocks, and they discovered that zero-cost relative momentum strategies based on buying recent winners and selling recent losers produced significant payoffs in the U.S market.

(Yu et al, 2019) had examined short-term momentum reversal patterns in Chinese stock markets since 2010. They concluded that there is a significant short-term reversal effect indicating that investors highly overreact to market information. However, for longer horizons, weekly returns for loser minus winner strategies become remarkably positive.

(Pandya, 2017) has attempted to document market behaviour and the psychology of individual decision making by analysing 26 NSE stocks indicated that the market showed evidence of the complete use of contrarian investment strategy for a long-term portfolio and partial use of the same strategy for a medium-term portfolio. On the other hand, the momentum investment strategy is used in the short-term horizon. This result was also reached in a study of the Chinese stock market by (Shi and Zhou, 2017) which indicated that there is a short-term momentum effect, while in the long-term, the contrarian effect takes place.

(Syamni et al, 2021) focused on the foreigners’ behaviour to analyse the existence of momentum strategy of foreign investors in Indonesian Stock Market to decide whether they use momentum strategy or not. This study showed that momentum strategy could be used by small foreign investors in the short-term, and they can also implement a reversal strategy which is noticed by the significant difference in the abnormal returns in government companies.

(Assogbavi et al, 2005) investigated several tactics based on the Canadian stock market using the Toronto Stock Exchange (TSE) 100. They found that the Canadian market could be described by momentum effect from 1990 to 2000.

(Abdullah et al, 2021) examined opportunities and investment strategies (contrarian/momentum) in three different monetary systems for trading currencies in the forex markets. They concluded that investors who use the momentum strategy could be presented in bitcoin and gold markets, while contrarian investment is more pronounced at the market of the fiat money during crisis period.
In the Spanish stock market, (Forner and Marhuenda, 2003) concluded that when considering short-term timeframes, there is considerable international evidence that the momentum strategy produces positive anomalous returns, whereas the contrarian strategy is effective for long-term durations.

(Imran et al, 2020) looked at the profitability of momentum and contrarian strategies from 2008 to 2014 in three South Asian markets, namely Bangladesh, India, and Pakistan; they investigated whether credit risk affects both strategies’ return in these markets. They found that momentum and contrarian returns are considerable for medium and high credit risk portfolios in all three markets, but there is no existence for these returns for low credit risk portfolios.

This study contributes to the enrichment of previous literatures by studying investment strategies (momentum/contrarian) prior to and during pandemic in the Egyptian Stock Market Exchange. It also tries to assess whether the investment strategies during this health/financial crisis can determine the type of investors who should be in each sector depending on their investment strategy. And it depends on an analytical hypothesis formulated as follows:

“The investment strategies, and consequently, the opportunities could be predicted in various sectors based on the fluctuations in return of indices prior to and during COVID-19 crisis”.

3. Methodology

3.1 Data Description

Data consists of daily trading prices from 1st February 2019 to 14th June 2022, on 17 sectoral portfolios in the Egyptian Stock Exchange, and covers a total of 820 trading days * 17 daily price observations for sectoral indices. The return of the general index of the Egyptian Stock Exchange (EGX30) for the mentioned period was calculated as an indicator for measuring market returns to make appropriate comparisons. Sectoral indices were chosen based on an idea that portfolios of these indices are made up of high-quality stocks from the relevant sector.

The time horizon for calculating the short- and long-term performance of the sectoral portfolio along with the formation and test periods is given in the table below.
This study was conducted in two time periods, a short- and long-term, before and during pandemic. It was divided into formation and test periods. Daily returns for 17 sectors were calculated for (273 days) reflects short-term, while long-term period (547 days) in formation and test periods. Beta coefficients of all sector index portfolios were calculated separately using regression. Sectoral indices that outperformed returns of the EGX30 market index were classified as winning portfolios (Winners), while others that were not able to beat returns of the market index were classified as losing portfolios (Losers). This is during formation period. Then winning and losing portfolios were tested in test period during the short- and long-term periods, before and during COVID-19 crisis. When the difference between the average abnormal returns of the winning and losing portfolios is a positive number, this indicates the presence of momentum effect. On the other hand, if this difference is presented as a negative number, contrarian effect is pronounced during the test period. This study will take place by following the same logic of (Aravind, 2016, 2020).

### 3.2 Calculation of Returns

Daily return data for the EGX30 index, in addition to all the Egyptian Stock Exchange’s index portfolios consisting of 17 sectors, was calculated using the following equation:

\[ R_p = \frac{(P_1 - P_0)}{P_0} \times 100 \]  

(1)

where \( P_1 \) refers to the index’s daily closing price and \( P_0 \) refers to the previous day’s closing price. \( R_p \) stands for the return during the period.

Daily returns of 17 sectors were calculated for the short- (273 days) and long-term (547 days) in the formation and test periods using the previous equation. Results were as follows:

<table>
<thead>
<tr>
<th>Time Horizon</th>
<th>Formation Period</th>
<th>Trading days</th>
<th>Test Period</th>
<th>Trading days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Term (273 days)</td>
<td>01/02/2019 to 31/07/2019</td>
<td>120 days</td>
<td>01/08/2019 to 11/03/2020</td>
<td>153 days</td>
</tr>
<tr>
<td>Long Term (547 days)</td>
<td>15/03/2020 to 31/01/2021</td>
<td>213 days</td>
<td>01/02/2021 to 14/06/2022</td>
<td>334 days</td>
</tr>
</tbody>
</table>

**Table (1):** Division of the study period.
According to the data analysis, it was found that in the short-term, the sector of Education Services achieved the highest return in both formation and test periods as it achieved (14.52%) during formation phase which is 120 days, and (18.32%) in the test period which is 153 days.

In the long-term, it was found that Paper and Packaging sector achieved the highest return in the formation period (143.44%) during a period of 213 days, while Basic Resources sector also achieved the highest return in the test period by (15.09%) during a period of 334 days.

3.3 Calculation of Beta

Beta is an effective method used to measure the sensitivity of returns to market returns. Beta coefficients of all sectors portfolios were calculated in different time periods using regression for all sectors of the Egyptian Stock Exchange using the following equation:

$$\beta = \frac{\{(n\sum xy) - (\sum x \cdot \sum y)\}/(n\sum x - (\sum x)^2)}{… \text{(2)}}$$
where \( n \) denotes the number of observations for trading days; \( x \) denotes the independent value, which is the returns of the EGX30 index; \( y \) denotes the dependent variables, which are the returns of the sectors indices in the Egyptian Stock Exchange.

Values of beta for short- and long-term time-series data were calculated in the formation and test periods.

**Table (3): Beta Values for sector portfolio during formation and test periods.**

<table>
<thead>
<tr>
<th>N</th>
<th>Sector Portfolio</th>
<th>Short Term (273 days)</th>
<th>Long Term (547 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>120 Days Form.</td>
<td>120 Days Test.</td>
</tr>
<tr>
<td>1</td>
<td>IT, Media &amp; Communication Services</td>
<td>0.761</td>
<td>0.598</td>
</tr>
<tr>
<td>2</td>
<td>Food, Beverages and Tobacco</td>
<td>0.475</td>
<td>0.641</td>
</tr>
<tr>
<td>3</td>
<td>Banks</td>
<td>0.587</td>
<td>0.613</td>
</tr>
<tr>
<td>4</td>
<td>Trade &amp; Distributors</td>
<td>0.556</td>
<td>0.565</td>
</tr>
<tr>
<td>5</td>
<td>Shipping &amp; Transportation Services</td>
<td>0.836</td>
<td>1.109</td>
</tr>
<tr>
<td>6</td>
<td>Education Services</td>
<td>0.021</td>
<td>0.209</td>
</tr>
<tr>
<td>7</td>
<td>Non-bank financial services</td>
<td>0.713</td>
<td>1.046</td>
</tr>
<tr>
<td>8</td>
<td>Industrial Goods, Services and Automobiles</td>
<td>1.208</td>
<td>1.016</td>
</tr>
<tr>
<td>9</td>
<td>Health Care &amp; Pharmaceuticals</td>
<td>0.301</td>
<td>0.597</td>
</tr>
<tr>
<td>10</td>
<td>Travel &amp; Leisure</td>
<td>0.636</td>
<td>0.761</td>
</tr>
<tr>
<td>11</td>
<td>Energy &amp; Support Services</td>
<td>0.824</td>
<td>0.819</td>
</tr>
<tr>
<td>12</td>
<td>Real Estate</td>
<td>1.194</td>
<td>1.215</td>
</tr>
<tr>
<td>13</td>
<td>Contracting &amp; Construction Engineering</td>
<td>0.431</td>
<td>0.805</td>
</tr>
<tr>
<td>14</td>
<td>Textile &amp; Durables</td>
<td>0.880</td>
<td>0.809</td>
</tr>
<tr>
<td>15</td>
<td>Building Materials</td>
<td>0.625</td>
<td>0.615</td>
</tr>
<tr>
<td>16</td>
<td>Basic Resources</td>
<td>0.899</td>
<td>1.067</td>
</tr>
<tr>
<td>17</td>
<td>Paper &amp; Packaging</td>
<td>1.073</td>
<td>0.983</td>
</tr>
</tbody>
</table>

Beta coefficients were calculated from the relevant time series data using formula (2). If the beta of the sector portfolio equals (1), risk must be equal to the market risk; if it is greater than (1), risk will be greater than the market risk; but if it is less than (1), risk must be less than the market risk.

Education services sector's beta results were least valuable in the short- and long-term, before and during COVID-19 respectively, in both formation and test period.

The highest value of beta was achieved in (Industrial Goods, Services and Automobiles, and Real Estate) sector in both short- term before COVID-19 and in long- term during the pandemic, in both formation and test period.
3.4 Calculation of Abnormal Returns

Abnormal return is a term used to describe returns generated by a particular security or portfolio over a period of time, it is different from the expected rate of return. Usually, a broad-based index is used as a criterion for determining expected return. In other words, abnormal returns are the risk-adjusted performance of a security or portfolio when compared to the market as a whole. Abnormal gains or losses for all sectors of the stock exchange compared to the returns of the EGX30 index were calculated using the following equation:

\[ \alpha_p = R_p(\beta * R_m). \]  

where \( \alpha \) denotes abnormal gains or losses, \( R_p \) denotes sector returns and \( R_m \) denotes market return.

Sectoral indices that provided abnormal returns on returns of the EGX30 index during formation period were classified as (Winners), while others that provided losses were classified as (Losers).

3.5 Data Analysis and Discussion

The general assumption is that the past trend will repeat in the future. If so, momentum strategies are ideal during the crisis period as sectoral indices with a low average return of the EGX30 benchmark during formation period were classified as (Losers), and others with the highest average return also during formation period were classified as (Winners). This model is like the one proposed by (Jagadeesh and Titman, 1993).

After this classification, the abnormal returns of these portfolios were evaluated for the test period. If the winning portfolio has a positive return and the losing portfolio has a negative return, momentum strategy will be considered more effective. In contrast, if the winning portfolio has a negative return and the losing portfolio has a positive return, contrarian strategy will generate maximum return for investors.

3.5.1 Short-Term Trend Analysis before the COVID-19 Crisis

The short-term period before the crisis is divided into (273) days to analyse investor's response to short-term trend. The formation period covers the span from 1st February 2019 to 31st July 2019 or a period of (120) days, while the test period covers the span from 1st August 2019 to 11th March 2020 or (153) days.
Initially, returns of the sectoral indices were evaluated separately and compared with the benchmark EGX30 to determine the trend of abnormal return. The sectoral indices that gave abnormal positive returns to the benchmark index were classified as (Winners) and the rest as (Losers); and then, the abnormal returns were calculated for the winning and losing sectoral index portfolios in formation and test period. If the winning index portfolios continued to achieve a positive return in the testing period and the losing index portfolios continued to achieve a negative return in test period, momentum strategy will be observed. However, if the winning index portfolios have a negative return in test period and the losing index portfolios have a positive return in the test period, contrarian strategy will be observed.

The table below provides a representation of the short-term return trend of sectoral indices prior to the COVID-19 period.

**Table (4):** The short-term return trends of sector portfolio before COVID-19 pandemic.

<table>
<thead>
<tr>
<th>N</th>
<th>Sector Portfolio</th>
<th>Short Term Return Trend (273 days)</th>
<th>Investment Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Formation</td>
<td>Abnormal Return</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Test</td>
<td>Formation</td>
</tr>
<tr>
<td><strong>Winner Portfolio</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Education Services</td>
<td>14.52%</td>
<td>18.33%</td>
</tr>
<tr>
<td>2</td>
<td>Banks</td>
<td>1.80%</td>
<td>-2.37%</td>
</tr>
<tr>
<td>3</td>
<td>Health Care &amp; Pharmaceuticals</td>
<td>7.58%</td>
<td>-19.86%</td>
</tr>
<tr>
<td>4</td>
<td>Trade &amp; Distributors</td>
<td>5.39%</td>
<td>-21.09%</td>
</tr>
<tr>
<td>5</td>
<td>IT, Media &amp; Communication Services</td>
<td>1.28%</td>
<td>-26.61%</td>
</tr>
<tr>
<td><strong>Loser Portfolio</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Basic Resources</td>
<td>-36.28%</td>
<td>-26.51%</td>
</tr>
<tr>
<td>2</td>
<td>Paper &amp; Packaging</td>
<td>-30.90%</td>
<td>-26.53%</td>
</tr>
<tr>
<td>3</td>
<td>Contracting &amp; Construction Engineering</td>
<td>-22.14%</td>
<td>-16.57%</td>
</tr>
<tr>
<td>4</td>
<td>Industrial Goods, Services and Automobiles</td>
<td>-17.16%</td>
<td>-27.13%</td>
</tr>
<tr>
<td>5</td>
<td>Energy &amp; Support Services</td>
<td>-14.39%</td>
<td>-17.31%</td>
</tr>
<tr>
<td>6</td>
<td>Real Estate</td>
<td>-12.06%</td>
<td>-34.13%</td>
</tr>
<tr>
<td>7</td>
<td>Food, Beverages and Tobacco</td>
<td>-8.37%</td>
<td>-26.18%</td>
</tr>
<tr>
<td>8</td>
<td>Non-bank financial services</td>
<td>-7.96%</td>
<td>-27.40%</td>
</tr>
<tr>
<td>9</td>
<td>Building Materials</td>
<td>-15.16%</td>
<td>-9.53%</td>
</tr>
<tr>
<td>10</td>
<td>Shipping &amp; Transportation Services</td>
<td>-24.69%</td>
<td>-17.65%</td>
</tr>
<tr>
<td>11</td>
<td>Travel &amp; Leisure</td>
<td>-18.19%</td>
<td>4.97%</td>
</tr>
<tr>
<td>12</td>
<td>Textile &amp; Durables</td>
<td>-15.68%</td>
<td>-7.68%</td>
</tr>
</tbody>
</table>

**Note:** The short-term return of the EGX 30 index: during the formation period (-4.89%), and during the test period (-17.34%).
The analysis of short-term trends before the COVID-19 crisis period was put into consideration. After calculating the abnormal returns on the market index in the formation period, it was found that a total of 5 sectors were Winners and 12 were Losers.

Regarding the short-term investment strategy of the winning sectors, 2 sectors showed momentum effect, while the other 3 sectors showed contrarian effect. The influence of momentum strategy is clearly visible in Education Services sector as it achieved abnormal positive returns on the market index before the period of the crisis in the formation period by (14.62%). On the other hand, contrarian effect was clearly visible in the Healthcare and Pharmaceutical sector as it achieved abnormal positive returns on the market index before the period of the pandemic — during formation period — with (9.06%).

Regarding the short-term investment strategy for the losing sectors, 8 sectors were presented by momentum effect, whereas 4 sectors showed contrarian effect. The effect of momentum appeared clearly in Basic Resources sector, as it achieved abnormal negative losses on the market index before COVID-19 in the formation period by (-31.89%), while contrarian effect obviously appeared in Building Materials sector, as it achieved abnormal negative losses on the market index before the pandemic in the formation period by (-33.10%).

3.5.2 Long-Term Trend Analysis during the COVID-19 Crisis

The long-term period during the COVID-19 crisis was divided into 547 days to analyse the investor's response to the long-term trend, covering the formation period from 15th March 2020 to 31st January 2021 or a period of 213 days; the test covers the period from 1st February 2021 to 14th June 2022 or 334 days. Steps indicated for the short-term period were followed to identify Winners and Losers. The table below provides a representation of the long-term return trend of sectoral indices during the COVID-19 period.
Table (5): The long-term return trends of sector portfolio during COVID-19 Pandemic.

<table>
<thead>
<tr>
<th>N</th>
<th>Sector Portfolio</th>
<th>Long Term Return Trend (547 days)</th>
<th>Investment Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Portfolio Return</td>
<td>Abnormal Return</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Formation</td>
<td>Test</td>
</tr>
<tr>
<td>1</td>
<td>Shipping &amp; Transportation Services</td>
<td>53.55%</td>
<td>-7.02%</td>
</tr>
<tr>
<td>2</td>
<td>Basic Resources</td>
<td>48.74%</td>
<td>15.09%</td>
</tr>
<tr>
<td>3</td>
<td>Education Services</td>
<td>25.63%</td>
<td>0.25%</td>
</tr>
<tr>
<td>4</td>
<td>Non-bank financial services</td>
<td>35.03%</td>
<td>7.43%</td>
</tr>
<tr>
<td>5</td>
<td>Building Materials</td>
<td>28.32%</td>
<td>-4.21%</td>
</tr>
<tr>
<td>6</td>
<td>Travel &amp; Leisure</td>
<td>29.53%</td>
<td>-4.49%</td>
</tr>
</tbody>
</table>

**Winner Portfolio**

1. Paper & Packaging: 143.44% -17.10% 132.05% -8.90% Contrarian
2. Contracting & Construction Engineering: 96.55% -30.03% 83.51% -19.82% Contrarian
3. IT, Media & Communication Services: 83.43% -22.78% 76.80% -11.49% Contrarian
4. Textile & Durables: 64.13% -48.83% 51.36% -39.00% Contrarian
5. Industrial Goods, Services and Automobiles: 87.53% -19.19% 49.32% -3.65% Contrarian
6. Trade & Distributors: 40.42% -25.17% 34.92% -13.77% Contrarian
7. Real Estate: 46.78% -17.38% 28.24% -3.44% Contrarian
8. Food, Beverages and Tobacco: 19.08% -26.93% 10.54% -20.39% Contrarian

**Loser Portfolio**

1. Banks: -2.23% 0.12% -10.90% 10.06% Contrarian
2. Health Care & Pharmaceuticals: -2.94% -23.35% -9.76% -15.30% Momentum

**Note:** The Long-Term return of the EGX 30 index: during the formation period (15.08%), and (-13.07%) during the test period.

A long-term trend analysis was considered during the crisis. After calculating the abnormal returns on the market index in the formation period, it was found that 15 sectors were Winners and only 2 were Losers.

Regarding the long-term investment strategy of the winning sectors, 6 sectors showed momentum strategy, while 9 sectors showed contrarian strategy. The influence of the momentum strategy is clearly visible in Shipping and Transportation services sector as it achieved abnormal positive returns on the market index during the COVID-19 crisis in the formation period at a rate of (38.40%), while contrarian effect appeared clearly in Paper and Packaging sector as it achieved abnormal positive returns of (132.05%) on the market index during the pandemic especially during formation period.
Regarding the long-term investment strategy for the losing sectors, the Healthcare and Pharmaceutical sector reflected momentum effect as it achieved negative losses by (-9.76%), while the Banking sector showed a contrarian effect as it achieved abnormal negative losses on the market index before COVID-19 crisis during the formation period by (-10.90%).

3.5.3 Test for Variation in Returns before and During the COVID-19 Crisis

There are a few sectors where there is no clear indication regarding using a particular investment strategy. Therefore, T test was conducted for the average abnormal returns for short- and long-term periods during the test period for Winners and Losers to illustrate the investment strategy before and during the pandemic. Table (6) shows the results of the T test as follows:

<table>
<thead>
<tr>
<th>Results</th>
<th>Short Term Prior to Crisis</th>
<th>Long Term Crisis Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of sectors</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Avg. Abnormal Returns (Test period)</td>
<td>-1.37%</td>
<td>-5.24%</td>
</tr>
<tr>
<td>T statistic</td>
<td>-0.191</td>
<td>-1.663</td>
</tr>
<tr>
<td>Probability</td>
<td>0.858</td>
<td>0.125</td>
</tr>
</tbody>
</table>

*At 5% level of significance.

If the difference between the average abnormal returns of Winners and Losers is a positive number, this indicates the presence of momentum effect; and if the difference is a negative number, this indicates the presence of contrarian effect (Forner and Marhuenda, 2003). This can be expressed mathematically as follows:

\[
W[R_{tp} - (\beta \ast R_{mt})] - L[R_{tp} - (\beta \ast R_{mt})] > 0 \quad (4)
\]

(Signals momentum effect)

\[
W[R_{tp} - (\beta \ast R_{mt})] - L[R_{tp} - (\beta \ast R_{mt})] < 0 \quad (5)
\]

(Signals contrarian effect)

where (W) symbolizes Winners, while (L) symbolizes Losers.
From this analysis, the difference between the average abnormal returns of short-term Winners and Losers before the COVID-19 crisis resulted that positive values were obtained at a rate of (3.88%); this indicates the presence of momentum effect. On the other hand, the difference between the average abnormal returns of Winners and Losers for long-term during the lethal pandemic resulted that negative values were obtained at a rate of (-0.418%); this indicates the presence of contrarian effect.

The t-test results showed that there is no significant difference between the average abnormal returns of the various sectors in the two test periods for the winning and losing sectors portfolios where the probabilities of the test statistics are much higher than the critical value of the 5% level of significance.

4. Conclusion

The study tests short- and long-term trends in sectoral indices before and during the COVID-19 crisis depending on an analytical hypothesis. Data consists of daily trading prices from 1st February 2019 to 14th June 2022 on 17 sectoral portfolios —listed on the Egyptian Stock Exchange— covers a total of 820 trading days * 17 price observations. The study period was classified into before and during pandemic, then into short- and long-term periods. Each period was split into formation and test period.

The results reveal the presence of both momentum and contrarian effects in different sectors. In the short term, certain sectors exhibited the momentum effect, while others displayed the contrarian effect. During the pandemic, the majority of sectors demonstrated the contrarian effect, indicating a preference for safe investments among long-term investors.

In short-term trends, before the COVID-19 crisis, specifically in the formation period after calculating the abnormal returns on the EGX30 market index, it revealed that out of the total sectors analyzed, 5 were winners and 12 were losers. Among the winning sectors, 2 showed the momentum effect, while 3 exhibited the contrarian effect. While losers divided into 8 momentum, 4 contrarian. The education services sector demonstrated a clear momentum effect, achieving abnormal positive returns before the COVID-19 crisis. On the other hand, the healthcare and pharmaceuticals sector displayed a strong contrarian effect during the formation period. Regarding to Long-Term Trend Analysis - During the COVID-19 crisis - 15 sectors were identified as winners, while only 2 sectors were losers. Among the winning
sectors, 6 exhibited the momentum effect, and 9 showed the contrarian effect. While losers in long-term periods can be described as 1 momentum, 1 contrarian. Notably, the shipping and transportation services sector displayed a clear momentum effect, achieving abnormal positive returns during the crisis. Conversely, the paper and packaging sector demonstrated a significant contrarian effect. The T-test was conducted to compare the average abnormal returns of the winning and losing portfolios before and during the COVID-19 pandemic. The results showed a positive difference between the short-term winners and losers, indicating the presence of the momentum effect. However, during the long-term period, the difference was negative, suggesting the presence of the contrarian effect. Therefore, it can be concluded that Investors prefer taking a risk-averse mindset in the short-term, but in the long-term they are referred to be risk-seekers.

These findings highlight the dynamic nature of investor behavior and the importance of considering risk tolerance when choosing investment strategies. Short-term investors should be risk-averse, while long-term investors may be more inclined to take risks. The study contributes to our understanding of market dynamics and can assist investors and policymakers in formulating strategies to manage market risks during crises. As responses to this pandemic were not only observed in the healthcare market but also in the financial markets.

Finally, it can be said that: The COVID-19 pandemic has significantly impacted investor returns, leading to increased concerns about market volatility and the need to find safe investment options to mitigate risks and uncertainties. As a result, research in this field has become crucial for understanding the role of epidemics in finance and developing effective investment strategies.
References


جائحة كورونا والاستراتيجيات الاستثمارية: حالة السوق المصري لتداول الأوراق المالية

د. سميرة محمود علام

المتخصصة

الهدف

تهدف الدراسة الحالية إلى التعرف على كيفية استجابة السوق المصري لتداول الأوراق المالية (إنجاز COV) لجائحة كورونا، من خلال التركيز على الاستراتيجيات الاستثمارية المتّبعة بقطاعات البورصة المصرية خلال تلك الأزمة في كل من الأجل القصير والطويل.

المنهجية

قامت الدراسة الحالية بإتباع نفس المنطق الخاص ب(Aravind, 2016, 2020) فيما يخص المحافظ الرابحة والخاسرة، بالإضافة إلى استخدام نفس النموذج الاقتصادي الخاص بهم من التعّبر عن استراتيجيات الزخم والاستراتيجية العكسية أو ما يُطلق عليه تأثير الزخم، والتأثير العكسي أو الضدي. تكُونت بيانات الدراسة من أسعار التداول اليومية في الفترة الواقعة من 1 فبراير 2019، وحتى 14 يونيو 2022 لساعة عشر محفزة قطاعية، وهي تغطي (16) يومًا تتواجد مساهمة مالية. تم تقسيم فترة الدراسة إلى قبل وخلال الجائحة حيث تم التقسيم إلى قصير وطويل الأجل وتبع ذلك تقسيم كل من تلك الفترات إلى فترة تكوين، وفترة اختبار.

النتائج

تحليل النتائج الخاصة بالأجل القصير – قبل الجائحة - وضح أن هناك (5) محافظ رابحة (اثنان منها تتبع استراتيجية الزخم، في حين أن الثلاثة الباقية تتبع تأثير الرسم، والإرباع) محافظ أخرى تتبّع التأثير العكسي، بينما في الأجل الطويل - خلال الأزمة - فقد أظهر النتائج أن هناك (5) محافظ رابحة منها ستة محاكاة تتبّع تأثير الزخم، في حين أن السبعة الأخرى تتبّع الفائبة ذا تأثير عكسي. و(2) محافظ خاسرة (واحدة تتبّع تأثير الزخم والأخرى تتطابق الفائبة). ونحو هنا يمكن القول بأن المستثمرون وفوقاً للنتائج المحصل عليها و من خلال الاستراتيجيات المتّبعة يمكن وصفهم بأنهم كارهين للمخاطرة في الأجل القصير، بينما يوصفون بأنهم محبي للمخاطرة في الأجل الطويل.

الأصالة

تعد الدراسة الحالية هي واحدة من أولى المحاولات لفحص كيفية استجابة مؤشر EGX30 لجائحة كورونا من خلال استخدام الاستراتيجيات الاستثمارية (الزخم، والعكسية) في تسخير تلك الاستراتيجية.
التطبيق / التنفيذ

تعد الدراسة الحالية ذات قيمة لكل من واضعي السياسات والمستثمرين على حد سواء، كونها تعده بمزيد من الفهم لكيفية إسثجابة المشاركين أو المستثمرين في الأسواق لتلك الأزمة وكيف تحتاج استراتيجيات الاستثمار إلى التكيف مع الظروف المتغيرة للسوق. بالإضافة إلى امتداد أهمية الدراسة الحالية لتشمل الأكاديميين المتهمين بتغير الأزمة على الاستراتيجيات والقرارات الاستثمارية. علاوةً على ذلك فهي تقدم منظوراً فريداً حول تأثير الوباء على الأسواق الناشئة، والذي قد يختلف في تأثيره عن تجارب أسواق الدول المتقدمة. إلا أنه مازال هناك احتياج إلى مزيد من الأبحاث لتقييم محددات القرار الاستثماري.

الكلمات الدالة
الاستراتيجية العكسية أو الضدية، كوفيد-19، المحافظ القطاعية، الاستراتيجيات، إستراتيجية الزخم.