"Impact of efficiency indicators and its related aspects on the market return: An applied study on Palestine Stock Exchange"

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BUSINESS PERSPECTIVES

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IMPACT OF EFFICIENCY INDICATORS AND ITS RELATED ASPECTS ON THE MARKET RETURN: AN APPLIED STUDY ON PALESTINE STOCK EXCHANGE

Abstract

The study deals with the efficiency of the Palestine Stock Exchange (PSE) indicators that explain the market return. The data published in the Palestine Exchange and the Palestinian Monetary Authority during 2010–2018 have been analyzed. The multiple regression method has been employed to determine the correlation between efficiency indicators and market return. However, the findings, on the one hand, determined that there was no statistically significant effect of efficiency indicators measured by the stock turnover rate and the market capital ratio. On the other hand, they demonstrated the impact of market concentration on market return, which shows a widespread weakness in the efficiency indicators. Therefore, PSE does not enjoy the required levels of efficiency even at the weak level. The study explored the absence of liquidity indicators required for market depth, speed of market response, and market concentration. Thus, the stock prices at the PSE become randomly moving, volatile, and unstable. Consequently, the outcomes of the aforementioned findings recommended the necessity to take the essential measures that activate the elements of market efficiency to reflect the available returns according to the scientific method. The paper also recommends that there should be incentives that motivate and encourage institutions to raise their capital and put their securities into the stock exchange to enhance their role in achieving economic development. However, it should be mentioned that the increasing number of companies leads to an increase in investments as it contributes to the expansion of the market.

Keywords	financial market, liquidity, dealers, market capital
JEL Classification	E44, G31, G24

INTRODUCTION

There is no doubt that financial markets play a great role in moving the national economy towards growth and development. However, as a result of the financial globalisation and new international financial system, the financial markets are considered by economists as a true mirror that reflects the reality of the economic conditions of any country. They reflect the reality of listed companies where the stock market plays a vital role in mobilising resources and savings and preparing them for investment in an appropriate atmosphere. Thus, various economic sectors will be stimulated, but that depends on the efficiency and depth of the market itself. This appropriate atmosphere enhances the market's ability to attract greater savings and encourages investment in securities especially in stocks (Dakhili, 2017). The theory of market efficiency gains its significance from considering it as the cornerstone of building the rest of the financial thoughts theories. However, there are plentiful studies that are concerned with determining the level of efficiency of the money market that is the base for choosing the most appropriate approaches to choosing, pricing, and evaluating securities (Wadih, 2013).

It is worth mentioning that efficiency in the context of financial markets is a common hypothesis that indicates expectations based on the type of information from all market participants at the prices of financial assets. The financial-economic theory shows that investors cannot earn extraordinary profits through their investment strategies in an efficient market because the share price assimilates all relevant information. Security price reacts promptly and impartially to assimilate all new information. As a result, it does not leave any opportunity for market participants to gain unusual returns (Al-Amir, 2014). The price of the stock issued by a company in the efficient money market reflects all the available information. This information can be represented in the financial statements or in information broadcast by the media, or in the historical price of the paper record in the past days, weeks or years, or in analyses and reports on the effect of the general economic situation on the performance of the facility or other information that affects the market value.

In addition to the necessity of providing several characteristics that reflect the efficiency of the market, the vision for these characteristics was not clear in the Palestine Stock Exchange. Hence, the study comes to identify the effects of efficiency indicators at the Palestine Stock Exchange on the market return. The aforementioned findings show that it is necessary to shed light on the effect of the Palestine Stock Exchange efficiency indicators on the market return where the financial market efficiency relies on the listed companies' shares prices behavior. If it is independent, for instance, the closing prices are also independent and then the prices independence means that there is no sequential link between the closing prices from one period to the next. As a result, extraordinary profits cannot be achieved by the investors, but there are important indicators of the financial market efficiency that is present in the Palestine Stock Exchange because of its special importance in activating the Palestinian market.

1. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The stock market defines efficiency as a market that enjoys a high degree of flexibility that allows achieving a rapid response in the prices of securities and changes in the results of analyzing the market data and information flow. This ultimately leads to the achievement of an equilibrium between the market value and the real value of the security. Thus, the market is efficient if the prices reflect the information system on the company performance when issuing the securities traded in the market (Bin Mahyawy, 2015, p. 53). In fact, the efficiency of the stock market is based on the availability of information for all economic dealers, so that there are no problems of asymmetry of information. Thus, the prices of the financial instrument especially stocks are fair when they reflect their true real value. The functions of the financial markets are the primary goal of allocating financial resources to the most productive projects. Hence, efficiency is considered as a base stone that optimally achieves the market goals, and therefore stock prices must reflect their reality (Rahm, 2018, p. 42).

The literature of finance and the theory of market efficiency illustrate that financial markets must be efficient with stock prices by reflecting all historical information and by making available the data and private information free and without a time interval. Therefore, they show that there are no costs or restrictions on dealing and trading securities in the market. The efficiency theory stipulates that the expectations of dealers (a large number of rational investors) are similar in relation to future market trends as the market efficiency has been classified into three levels (Bin Mahyawy, 2015).

Efficiency at a weak level. It is represented in the inability to achieve extraordinary returns based on historical prices and returns information. They are also reflected on prices, without a time interval, and following the concept of efficiency, which considers the market as a fair game, extraordinary returns cannot be achieved at the expense of others and its prices are randomly generated. However, the relationship is balanced and compensatory between the return and the risk of this return if there is some type of stereotyping, dependence, or a lack of prices independence or returns within their time series. This will be evidence of the possibility of predicting future prices and returns, as well

as achieving extraordinary returns. The historical information has not been fully reflected in stock prices and the financial market is inefficient at the weak level (Bin Mahyawy, 2015).

Efficiency at a semi-strong level. It symbolizes the inability to get extraordinary returns by relying on the publicly available information on the financial reports of companies and institutions, data issued by specialists in the fields of finance and investment, information and reports issued by financial markets, and other information available to the public in newspapers and specialized magazines. However, the theory of the efficiency of financial markets states that it is believed that all this available information whether it is good or bad affects the prices by dealers and is not sufficient in predicting the future prices or achieving extraordinary returns (Bin Mahyaoui, 2015).

Efficiency at a strong level. It is represented in the inability to achieve extraordinary returns by relying on information from internal sources. These sources cannot benefit from the internal information obtained before it is available to the public. That is due to the strong competition between these parties that push prices towards equilibrium.

If the internal sources (insider information) have achieved extraordinary returns by relying on the information before it reaches the public of financial market dealers, this clearly indicates the inefficiency of the market at the strong level. However, it is necessary for the market to have a pricing efficiency known as external efficiency to achieve the efficient allocation of financial resources. It is represented by the access of information to dealers without a time interval, without costs affecting the decisions of buying and selling, and in a manner that makes the prices visible, that reflects all the information. Then the market becomes a fair game in which there is no opportunity to achieve extraordinary profits for some at the expense of other dealers. Then the efficient allocation of financial resources also requires the market to have operational efficiency or what is known as internal efficiency. This is the market's ability to achieve a balance between demand and supply without high costs of brokerage and especially from market makers. Thus, this will allow liquidity of securities, freedom of entry, and exit to the market (Razia et al., 2017; Rahm, 2018).

This means for capital market liquidity that both the buyer and seller of securities can conclude the deal quickly and at a price close to the price and as the last deal was concluded on the same paper. This also means that liquidity requires ease of marketing, price stability, and not being subjected to major changes from one deal to another (Razia et al., 2019). One of the main functions of an efficient capital market is achieving liquidity for the traded securities as this represents an attracting factor to the investor. It also reflects the fact that the Arab stock exchanges have weakened their liquidity. The trading activity shows that this occurs due to a decrease in their liquidity at an average of 59 days per year (Masadawi, 2014; Razia et al., 2019). Dakhili (2017) confirmed that the return of the stock market is influenced by many factors and the most important ones are market liquidity, interest rate, return on other investments, and the political conditions surrounding the market. It was found that at the Amman Stock Exchange the return is mainly determined by market liquidity represented in the trading rate and the interest rate; it is also recommended to use the discount rate. To develop the Arab Stock Markets, one must rely on advanced information technology and activate it. In addition, one must allow information to be provided with transparency and at the lowest costs.

This encourages the formation of a suitable atmosphere for investment in this field. Therefore, Khudair and Al-Rabei (2017) also tested the financial market efficiency hypothesis at the weak level in Iraq and the Kingdom of Saudi Arabia by applying statistical and standard tests. The study included the market value index, volume index, and the number of the listed companies' indexes. The study findings showed that the Iraqi financial market indicators that witnessed a remarkable increase during the study period on the volume of trading reached about 1,145 billion dinars. The market value reached about 2,561 billion dinars. The number of shares reached 126 shares. The study findings recommend that the companies' capital operating in the Iraqi financial markets must be increased.

In addition, Boutalalah and Bouras (2016) explored the performance indicators of the Saudi financial market. The paper shows that both the index number of the listed companies and the mar-

ket value index (market capital) explore the evolution of the market size. It also clarified that both the trading volume index and the stock turnover index investigate the financial market liquidity. The study findings showed that market efficiency plays an effective role in allocating and directing investments and indicating the weakness of the efficiency of the Saudi financial market that were evident despite the Capital Market Authority taking a set of decisions and taking several measures.

The study recommends strengthening the investor protection by improving financial disclosure requirements, raising the level of governance, raising awareness of investment culture for market participants, raising the level of commitment to the financial market system and its implementing regulations by adopting an effective oversight and awareness, and then adopting the required deterrent policies. Monia (2015) illustrated the efficient role of the Malaysian stock market in developing its economy because of the supervisory role exercised by the stock market authority. The study stated that it is important to pursue efforts in the field of deepening the market, increasing its efficiency and liquidity, spreading the culture of investment, and especially developing its website. Moreover, Al-Hussein (2017) showed that the Arab markets are independent and random, suffer from successive price changes, prices cannot be predicted in the future, and therefore Arab markets are efficient at the weak formula. However, Bouslama (2016) stated that there is no efficiency for the Amman Financial Market at the near-strong level. The share prices traded in it do not match the information published in the companies' financial reports, but they are affected by other factors. The information must be provided to dealers at the markets quickly and in a timely manner. That is because delaying it reduces its benefits and pushes dealers to try to get it in other ways. Then, Al-Kour (2015) showed that the Libyan Stock Market is inefficient at a weak level, and the random walk model is not followed by the returns of the market index. In fact, they are characterized by dependency and a lack of independence, but they allow achieving extraordinary returns based on historical prices.

Mynhardt et al. (2014) studied the efficiency behaviour of the financial markets of developing countries. Ukrainian, Russian, Indian, Chinese, and Brazilian markets during the period 2007–2009 were examined by employing several indicators including the trading index, the market value index, in addition to the Hearst foundations index, as it is considered a standard one for market efficiency during the financial crisis period. The paper states that the financial markets of the developed countries are more efficient than the developing countries based on the Ukrainian financial market. Boachie et al. (2016) showed that there is clear evidence that the performance of the Ghanaian Stock Market is strongly affected by the growth of liquidity, exchange rate, and inflation. The effect of the interest rate is minimal despite being positive on the stock market index. Furthermore, Kvietkauskien and Plakys (2017) noted that stock prices tend to fluctuate with positive and negative economic indicators and this is reflected in the market return. Anghel (2017) argued that investors in general are not able to use the dependencies embedded in price movements to gain economic profits when using trading strategies derived from technical analysis indicators. This means despite the high trading, the frequency data is useless in the stock market in Romania.

Simeonov (2017) clarified that the most important financial market indicators that use different technical and statistical methods are usually applied separately in analyzing market trends and suffer from instability regarding the change in information indicators during the market trend. The study also showed that one can find untapped potentials in analytical methods. Akpunonu et al. (2018) examined the indicators of stock market performance and the standard of living in Nigeria for the period from 1986 to 2014. The study findings showed that stock market liquidity had a negligible effect on improving the standard of living. Finally, Khan et al. (2017) sought to identify the validity of technical analysis in the Karachi Stock Exchange verifying that the tools used in the analysis and indicating the results to the predictive ability of the share price behavior in the future and the ability to generate profit from the return are above average. Therefore, the study hypothesis is developed as follows:

H_0:   *There is no statistically significant effect of the PSE efficiency indicators on the market return.*

2. METHODOLOGY

2.1. Study sample

The study population includes all of the listed companies on the Palestine Stock Exchange, which are 48 companies according to the statistics of the Palestine Stock Exchange for 2018. The indicators of the study were measured from the published data of the years 2010–2018.

A remarkable development was noticed in the companies listed on the Palestine Stock Exchange as shown in Table 1.

Table 1. The number of the listed companies on the Palestine Exchange for the years 2010–2018

Source: Palestine Stock Exchange Bulletin (2020).

Year	The number of listed companies
2010	40
2011	46
2012	48
2013	49
2014	48
2015	49
2016	48
2017	48
2018	48

2.2. Model design and definition of variables

The study employs the analysis of the basic market efficiency (the rate of stock turnover in the financial market, market capital ratio, and the degree of financial market concentration) and their impact on market return to achieve its desired objectives.

Thus, the basic model is presented as follows:

$$MR_{i,t} = \beta_0 + \beta_1 ROST_{i,t} + \\ + \beta_2 MCR + \beta_3 DMC + \varepsilon_{i,t}. \tag{1}$$

The study variables model is measured as shown in Table 2.

3. RESULTS

Table 3 illustrates that the preliminary descriptive statistics of the study variables are shown based on Al-Quds Index. Figure 1 shows that volatility and instability are found in the market returns. The highest values reached 13.37, 4.1, 8.38 in 2013, 2015, and 2017 respectively. In contrast, the lowest values were –2.59, –5.48, –7.87 in 2011, 2014, and 2016 respectively. The mean reached .9867, and the standard deviation reached 6.67487. These findings indicate the existence of an uncertain environment for investors and the limited attraction of foreign investments. The aforementioned findings also reflect very high risks in the Palestinian financial market. It is believed that the primary explanation for this is the exceptional economic and political conditions in Palestine.

Figure 2 illustrates that the rate of stock turnover is steadily and continuously declining from its highest value in 2010 to 18%; whereas the lowest value in 2018 reached 9.4% with a mean reaching 11.88%. The standard deviation is 2.847%. This finding reflects the weakness of the liquidity and activity index in the Palestine Stock Exchange during the study period. What's more, Figure 3 illustrates an increase in the market capital ratio from

Table 2. Description of study variables

Variable	Definition	Description
MR	Market return	The change in the value of the general stock market index over a specific period (Rahm, 2018). It is measured by the following equation: The value of the general index in points for the year 1/The value of the general index in points for the year 0.
ROST	Rate of stock turnover	It measures the value of traded securities as a ratio to the market capitalization value as a whole. The high rate indicates low transaction costs in the market, which means a high level of efficiency (Dakhili, 2017). It is measured by the following equation: Trade value/Total market capitalization.
MCR	Market capital ratio	It is the ability of financial markets to mobilize savings to direct them to the listed companies on the market that invests their resources (Al-Shabib, 2014). It is measured by the following equation: Total market capitalization/GDP.
DMC	Degree market concentration	The trading volume is concentrated in a specific number of listed companies or distributed over a large number (Al-Amir, 2014). It is measured by the following equation: The share of the top 10 companies in the market/Total market capitalization.

Table 3. Descriptive statistics

| Variables	Descriptive statistics			
	Mean	Std. deviation	Minimum	Maximum
Independent variable				
Market return	.9867	6.67487	−7.87	13.37
Dependent variables				
Rate of stock turnover	.11884817	.028476152	.094641	.184174
Market capital ratio	.23361947	.010592957	.221062	.252254
Degree market concentration	.77340507	.029434487	.722057	.815562

the lowest value in 2010 – 22%, to its highest value in 2017 – 25%, and with an average of 33.3%, and a standard deviation reaching 1%. Thus, this finding indicates that the Palestine Stock Exchange can mobilize savings and direct them to exploit the resources of the listed companies, which constitute 25% of the components of the GDP.

Finally, Figure 4 illustrates the degree of market concentration, which shows the extent to which a limited number of firms dominate the financial market highly and with a mean that reached 77.34%. The standard deviation reached 2.9%, which is considered a negative indicator of general performance in the market, although it decreased during the study period from 81% in 2010 to 72% in 2018.

The General Linear Model (GLM) has been used by the study to test the relationship between indicators of market efficiency and market return. Several tests have been performed to verify whether the study data can meet the conditions of the linear assumptions. Table 4 illustrates that the VIF values of all independent variables are less than

five. This finding explains that the study model does not have any collinearity problems. Next, the study used the Durbin-Watson test (D-W) in order to investigate the autocorrelation problem of the study models. Table 4 illustrates that the values of Durbin-Watson test fall to the range 1.5-2.5.

The data of this paper have been analyzed by employing multiple regression analysis to test the basic hypothesis regarding the impact of PSE efficiency indicators on the market return. The values of R Square and the R-values of the study models reached 41% and 64%, which are acceptable values. This finding thus indicates a strong representation of PSE efficiency indicators that were measured by the rate of stock turnover in the financial market, market capital ratio, the degree of financial market concentration in the market return. The regression analysis also showed that there was no statistically significant impact of the PSE efficiency indicators on the market return. Therefore, the paper accepted H_0, which states that PSE efficiency indicators do not have an impact on the market return. This finding indicates that the Palestine Stock Exchange suffers from a lack of a sufficient
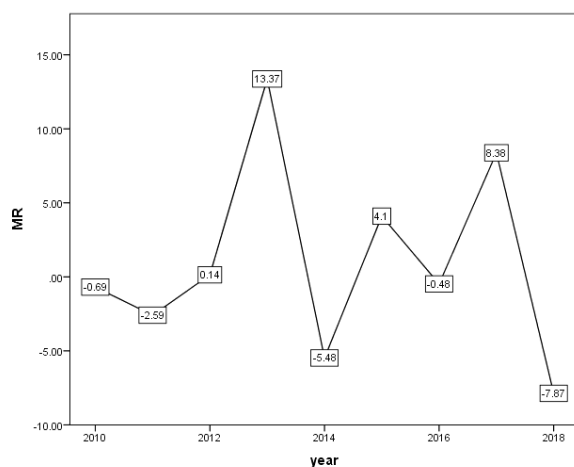
Figure 1. Market return
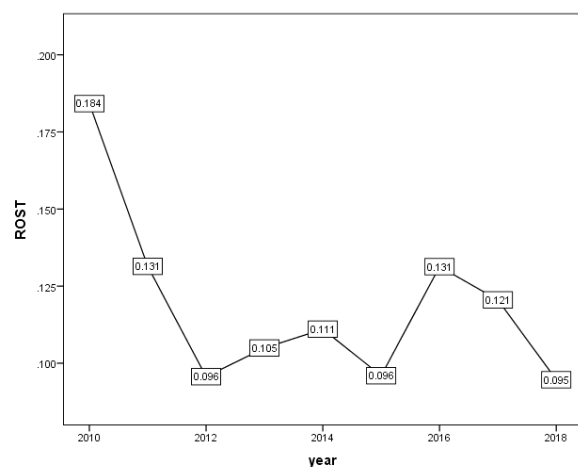
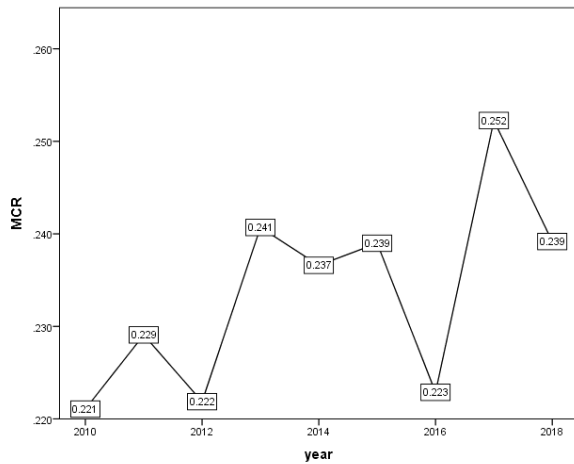
Figure 2. Rate of stock turnover
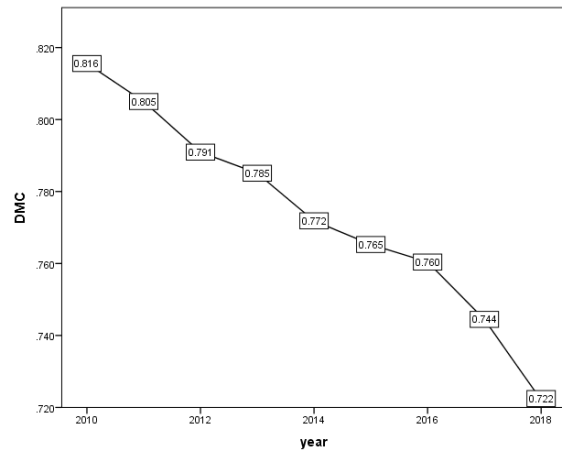
Figure 3. Market capital ratio

Figure 4. Degree of market concentration

Table 4. Regression results

Variables	VIF	Market return models		
		Market return		
		β	t-Statistic	p-value
A	–	−224.443	−1.771	0.137
Efficiency indicators				
Rate of stock turnover	1.514	−23.903	−0.241	0.819
Market capital ratio	1.642	486.902	1.756	0.139
Degree market concentration	1.935	148.073	1.367	0.230
R Square	–		0.410	
R	–		0.641	
F-Statistic	–		1.160	
p-value (F-statistic)	–		0.411	
Durbin-Watson test	–		2.370	

degree of efficiency even at the lowest level. The study also showed a lack of the required liquidity indicators from the depth of the market. This means that the movement of transactions is active and the orders of sale and purchase are continuous. There is also a speed of market response in the sense of addressing the imbalances in the required and displayed quantity of securities on time. It is worth mentioning that the high concentration rate, which reaches 72%, reflects a monopoly of the market by a limited number of listed companies, even though the market capital represents 25% of the GDP. However, the results of this study are consistent with many previous studies especially the ones that are related to the developing markets.

The findings also showed instability and fluctuation in the financial market returns with a 6.674 standard deviation. This finding confirms that prices in the market move randomly, which reflects a high degree of risk and uncertainty for dealers at the market whether they are speculators or investors. In contrast, there is also a possibility of achieving high and extraordinary returns, based on the previous efficiency indicators. There is also a slope negative coefficient between the market return and the stock turnover rate. This means that the more companies traded in comparison to the total value of the listed share, the lower the market return. This makes sure that the investors' dealings in the stock exchange are not based on any information and analysis without taking a fixed position to buy or sell, just speculating for a quick profit. Table 4 illustrates the results of the correlation matrix, which shows that there is no statistically significant relationship between efficiency and market return indicators.

CONCLUSION

There is no doubt that exploring the efficiency of the financial markets is remarkably a fertile field of interest to economists and financiers due to its role in mobilising savings and redistributing them to different sectors. Financial markets are the basis of economic growth in addition to their role in attracting foreign investment, especially in emerging economies. Consequently, this paper comes to provide additional evidence on the relationship between the efficiency indicators and the market returns in Palestine, which is an emerging market.

This study, on the one hand, seeks to provide insights to increase interest in the efficiency of PSE efficiency indicators. Thus, it was decided to take the stock turnover rate, the market capital ratio, and the concentration rate as indicators of efficiency and link them to the market return during the period 2010–2018.

On the second hand, it explores the most widespread weakness of the efficiency indicators. However, the Palestine Stock Exchange does not enjoy the required levels of efficiency even at the lowest level. The absence of liquidity indicators required from market depth, speed of market response, and market concentration is noted. The study showed that stock prices in the Palestine Stock Exchange are randomly moving, volatile, and unstable. The results of regression analysis did not show the effect of efficiency indicators on market returns. The study stressed the urgent need for more future studies that provide more indicators of efficiency and link them to the operational and financial results of the financial market. There is also an urgent need to take the necessary measures that activate the elements of the market efficiency to reflect the available returns according to the scientific method and in addition to assure the diversity of the types of dealers in the stock exchange. There is also a need to search for practical mechanisms to ensure greater effectiveness and efficiency for the Palestine Stock Exchange. All investors in the Palestine Stock Exchange should also benefit from the experience and knowledge of specialists to rationalize their investment decisions and take the best one. Finally, there should be a move towards placing incentives that encourage institutions to open their capital and put their securities on the stock exchange to enhance their role in achieving economic development. However, the increase in the number of companies leads to an increase in investments as it contributes to the expansion of the market.

AUTHOR CONTRIBUTIONS

Conceptualization: Bahaa Awwad.
Data curation: Bahaa Razia.
Formal analysis: Bahaa Awwad.
Funding acquisition: Bahaa Awwad.
Investigation: Bahaa Razia.
Methodology: Bahaa Awwad.
Project administration: Bahaa Awwad.
Resources: Bahaa Razia.
Software: Bahaa Awwad.
Supervision: Bahaa Awwad.
Validation: Bahaa Razia.
Visualisation: Bahaa Razia.
Writing – original draft: Bahaa Awwad.
Writing – review & editing: Bahaa Razia.

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APPENDIX A

Table A1. Summary of the study variables

Years	Descriptive statistics			Dependent variables
	ROST	DMC	MCR	MR According to Al-Quds Index
2010	0.184174148	0.815561956	0.221062364	−0.69
2011	0.131411382	0.805005164	0.229077743	−2.59
2012	0.095637291	0.790940654	0.221864093	0.14
2013	0.104935038	0.785080325	0.240689454	13.37
2014	0.111041197	0.771856262	0.236599804	−5.48
2015	0.0959477	0.765274151	0.238985169	4.10
2016	0.131308644	0.760401011	0.222873074	−0.48
2017	0.120537263	0.74446918	0.25225389	8.38
2018	0.094640828	0.722056913	0.239169646	−7.87