

# FACTORS AFFECTING STOCK MARKET INDEX VOLATILITY: EMPIRICAL STUDY

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## Abstract

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How is stock market price volatility affected, and what is the nature of the impact that macroeconomic variables do on the stock market price direction? The main objective of this study is to investigate the impact of some selected macroeconomic variables (inflation rate (INR), interest rate (IR), economic growth rate (EGR), and foreign investment (FI)) on Amman Stock Exchange (ASE) fluctuation for the period 1999–2018. The information is based on the annual data published by industrial companies listed at ASE. The study adopted a descriptive-analytical approach, also simple and multiple linear regression analysis was employed for the mentioned purpose (Nurfadilah & Samidi, 2017). The results revealed that there is no statistically significant impact of INR, IR, EGR, and FI collectively on ASE performance (Niewińska, 2020). Individually, the results indicated that there is a statistically significant impact of all variables (INR, IR, EGR, and FI) on ASE performance. Additionally, the results concluded that foreign investment, portrayed the highest impact factor on ASE performance, followed by a change in average interest rate, then inflation rate, and the least impact attributes to the economic growth rate. Finally, the research recommends that Jordanian banks should reduce the lending interest rate to enhance investment in securities and improve economic growth rate, also Jordanian authorities should encourage foreign direct and indirect investment and make more efforts to attract more foreign investment, either in the form of tax incentives or by extending finance at low-interest rates.

**Keywords:** Inflation, Interest, Economic Growth, Foreign Investment, ASE Performance

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## 1. INTRODUCTION

Investment decision in the stock market involves risk-taking; therefore, the analysis of stock market price behaviour is closely related with the aim of providing investors with the necessary data and information to endorse the right investment decision at the right time and in the right place (Al Qaisi, Tahtamouni, & Al-Qudah, 2016). Financial markets can play an effective and applicable role only if it

owns competent ingredients that contribute to the evaluation of listed companies through an analysis of available information and data to current and potential investors (Salameh & Alzubi, 2018; Sulong, Saleem, & Ahmed, 2018).

The financial market exercises a critical role in collecting financial resources and employing them in various investment projects, as it is the place where all capital transactions are made for the purpose of investment or financing in the form of contributions

or loans for long-term securities (Banerjee, Devereux, & Lombardo, 2016). Hence, for financial markets to play an effective economic role in pooling various savings the stock exchange prices must be intrinsic in their pricing, this does not happen unless companies' relevant information is available and is constantly reflected in their stock price (Sharif, Purohit, & Pillai, 2015). This will enhance companies' and individuals' ability to invest, produce and expand to cover areas of the market with high profitability, therefore, the stock market fulfills its proposed economic role in directing savings and hence in improving economic and social development (Moqbel, Al-Rjoub, & AL-Shwiyat, 2015). Generally speaking, financial markets play an important role in achieving the optimal allocation of society's resources, especially if these markets are characterized by efficiency (Banerjee et al., 2016). Amman Stock Exchange (ASE) performance was examined in-depth, which reflected a sharp fluctuation during the period 1999-2018 during which the financial crisis has erupted and affected the world economy as a whole (Al-Abdallah, Al-Jarayesh, & Ibrahim, 2018).

The study importance stems from the fact that ASE is considered to be a financial indicator of the Jordanian economy health, and due to its crucial role in influencing the state's economy (Aldaas, 2017). Sulong et al. (2018) stated that stock market performance indicators were considered effective in determining the trends of economic activity. The study will enquire into factors that may impose an impact on ASE performance. Thence, it is very essential for various stakeholders to investigate such factors that may impact ASE performance.

Amman Stock Exchange contains three major sectors, namely; financials, services, and industrial, that includes 191 listed companies as of December 2019 according to ASE data. Given the potential profit and loss of these listed companies, it is obvious that there are many factors affecting ASE performance, including interest rate, which is the main driver of capital investment (Al Oshaibat, 2016), an inflation rate that is accompanied by an increase or decrease in investment volume (Daferighe & Sunday, 2012). In addition, economic development is directly affected by the general budget condition and the deficit or surplus that may arise (Sharabati, 2013). Stock exchange is the major place where stocks are deployed and funds are raised. It is the main ground for the development of all economic sectors of the country (Pandya & Marvadi, 2013).

A number of aspects make financial markets' valuation essential. First and most important, these markets are considered as the main mover of the country's economy. Second, they play a major role as one of the main sources of finance for large corporations. Third, its stability and growth will attract more investors leading to the infusion of large liquidity to the market. The securities market plays a major role in the mobilization of capital in developed and emerging countries, leading to the country's industry and commerce growth (Al-Naimi, Al-Eitan, & Alshouha, 2021), as a result of liberalized policies adopted by most developed and emerging countries. The securities market is one of the most indispensable components of a free market, as it helps to manage capital for the corporations

from shareholders in exchange for stocks in ownership to the investors (Gilson & Black, 1998).

In view of the prominent importance of the financial market in maximizing wealth, many investors are inclined to trade in the financial market, do study, and determine the factors that affect and determine stock prices (Salameh & Alzubi, 2018). These factors can be divided into external factors, where the company has no control over its occurrences such as inflation rate, interest rate, the public budget deficit, the balance of payments, and economic growth rate; and internal factors that are related to the internal environment of the company such as the number of the company's employees and the company's capital (Islam, Salam, & Hasan, 2015). Investors in securities are generally exposed to several types of risks, the degree and strength of which vary according to the type of investment, its time, the form of the investment instrument, and the investor's contentedness in taking the risk resulting from a desire to achieve an expected return of the investment process in the securities (Almahadin, 2019). According to Shkolnyk, Bondarenko, and Balatskyi (2019), there are many types of risks, such as market risks, interest rate risks, liquidity risks, inflation risks. Additionally, financial markets play a major role in implementing the nation's monetary policy, whereby the central bank can play an effective role in changing interest rates and controlling the reserves of commercial banks, thus achieving the monetary policy goals it desires (Ali, Shahzad, Raza, & Al-Yahyaee, 2018).

The rest of the paper is structured as follows. Section 2 reviews literature related to this study domain. Section 3 demonstrates the research methodology adopted to perform empirical analysis. Section 4 attributes to analysis results, followed by Sections 5 and 6, which introduce discussion and conclusion respectively.

## 2. LITERATURE REVIEW

There is an extensive literature in the finance domain that investigates factors that determine and impact stock market performance. Gertler and Grinols (1982) investigated the relationship between unemployment, inflation, and common stock returns. The results showed that there was a statistical correlation between expected security returns and the macroeconomic variables. Regarding unemployment and inflation the explanatory power of the regression analysis enhanced significantly. Flannery and James (1984) investigated the impact of interest rates in the United States. They concluded empirical evidence that there is a significant relationship between the stock returns sensitivity and interest rate changes. Fang and Miller (2002) studied the impact of daily currency decrease on the stock market returns for five newly emerging East Asian stock markets. The results revealed that the conditional variances of stock market return and decrease in rates exhibited time-varying characteristics for all markets. Joseph (2002) studied the impact of foreign exchange rate and interest rate changes on UK corporations in the chemical, electrical, engineering, and pharmaceutical industries. The results exposed that industry returns were more negatively affected by changes in interest

rate than by the changes in the foreign exchange rate. Tchereni and Mpini (2020) investigated the impact of monetary policy decisions on security markets in emerging economies in South Africa and concluded that 5.2% of stock market volatility is due to monetary policy and there was a negative relationship between stock market volatility and M2. Alanazi and Alhoqail (2019) examined the relationship between corporate governance and stock market returns and inclined that, regression analysis could not prove any association between corporate governance and stock market returns in Saudi Arabia.

Mayasami and Koh (2000) examined the correlation between the Singapore stock index and some selected macroeconomic elements for the period 1988-1995, and they disclosed that there exists a positive correlation between stock index and changes in money supply but a negative correlation between stock index with exchange rates and interest rates. Aldass (2017) concluded that interest rate plays a major role in directing financial market performance, as the central bank seeks to reduce the interest rate on loans to reduce the cost of borrowing and increase the volume of credit and purchase. Kotha and Sahu (2016) investigated the short-run and long-term nexus between the Indian stock market index and selected macroeconomic variables employing Granger causality tests and Johansen's cointegration analysis, the study revealed that three out of four factors viz., money supply, WPI, and T-bill rate were more significant in a long-run relation. Turning to short-run relations, the study reported that the inflation rate and money supply rate reflected a positive and significant relationship with the stock index, while interest rate displayed a negative and insignificant correlation. While Winarso (2018) pointed out that, the price earnings ratio has a significant impact on stock price direction. These results were consistent with the research results performed by Kumar (2017) that concluded price-earnings ratio has no impact on share prices.

Shabbir and Muhammad (2019) in their study on stock market returns in Pakistan indicate that foreign investment constitutes a positive effect on stocks returns, but there was no significant difference between the average number of stocks traded before and after the ingress of foreign investment. Chen, Roll, and Ross (1986) investigated whether macroeconomic variables development is reflected in the stock market. The results confirmed that inflation rate and interest rates affect the stock market. Adjasi and Biekpe (2009) argue that the stock market's volatility is highly affected by investments which ultimately affect stock prices. Foreign investments also affect the stock market investments widely (Shi, Bilson, Powell, & Wigg, 2010). Schwert (1989) proclaims that some macroeconomic variables impact the stock market performance volatility. The researcher employs the regression model and concluded that the average level of stock market volatility is much higher in the Great Depression period (1929-1939) and that the effect of financial leverage is lower compared to other variables such as inflation rates, money growth, and industrial production volatility, which portrayed a positive impact on stock volatility. Bulmash and Trivoli (1991) investigated the relationship between

national economic indicators and share prices in the US. They conclude that share price is positively correlated with the money supply, and negatively correlated with the Treasury bill rate.

### 3. RESEARCH METHODOLOGY

Macroeconomic variables are interconnected; as the change in one variable affects other variables these variables have an impact on stock market performance working of the equity market. The main objective of the study is to examine the impact of inflation rate (INF), interest rate (IR), GDP, and foreign investment (FI) on the changes that occur to the ASE index. For this purpose, the study employed yearly secondary data (Time Series — Balanced Data). The study period extends for 20 consecutive years (1999-2018). The reason behind choosing such a long period is due to the local or global events and changes, that may have an impact on ASE index fluctuation. Additionally, and in order to provide a comprehensive point of view, the study population includes all (191) listed companies at ASE in all sectors namely; financials, services, and industrial. The study adopted the descriptive-analytical approach of the study variables, as it is considered one of the most used approaches that are symmetrical to the subject of the study. Moreover, the descriptive-analytical approach completely fits as it is realistic and precise in the description, and it is essential to clarify the examination of the research subject (Creswell & Poth, 2017). Ahmad and Ramzan (2016), and Haider Hashmi, and Ahmed (2017) adopted the equity market GARCH model. Vikaliana (2017) employed a correlation matrix. In this study and for the purpose of testing the research hypotheses, regression analysis was employed to extract the coefficient of determination  $R^2$  and beta coefficients ( $\beta$ ) in order to figure out how the independent variable (INF, IR, GDP, and FI) impact the dependent variables (ASE index yearly fluctuation).

#### 3.1. Research hypotheses

The main hypothesis of this research is below:

*H1: There is a statistically significant impact of INR, IR, EGR, and FI all together on ASE performance.*

Based on the main hypothesis (H1), the following sub-hypotheses have been raised:

*H1-1: There is a statistically significant impact of the inflation rate (INR) on ASE performance.*

*H1-2: There is a statistically significant impact of change in average interest rate (IR) on ASE performance.*

*H1-3: There is a statistically significant impact of economic growth rate (EGR) on ASE performance.*

*H1-4: There is no statistically significant impact of foreign investment (FI) on ASE performance.*

Where ASE is the stock market index, and INR, IR, EGR, and FI represent inflation rate, interest rate, economic growth rate, and foreign investment respectively. After specifying the stock market index performance function in linear form with the addition of error term, we can write it in the following way:

$$ASE = \alpha + \beta_1 INR + \beta_2 IR + \beta_3 EGR + \beta_4 FI + \varepsilon \quad (1)$$

### 3.2. Collinearity statistics

To ensure the reliability of the variables to the model being studied and to ensure that the variables are free of linear and multiple correlation phenomenon, collinearity was used as shown in Table 1 below.

**Table 1.** Collinearity statistics for research variables

Variables	Tolerance	VIF
Inflation rate (INR)	0.768	1.302
Interest rate (IR)	0.628	1.591
Economic growth rate (EGR)	0.425	2.352
Foreign investment (FI)	0.336	2.977
ASE performance	0.265	3.115

From Table 1, it was found that all the parameters (VIF) are greater than 1 and less than 10, which indicates the reliability of the designed model

and the chosen variables, it also indicates the absence of the phenomenon of linear and multiple correlations, as the correlations between the variables are all positive (Salmerón, García, García, & Martín, 2017). In addition, Table 1 shows that the values of tolerance are higher than 0.2, meaning that the non-existence of multicollinearity problem (Kim, 2019).

### 3.3. Descriptive analysis

The research sample includes all listed companies that compose the ASE index (ASE performance) and are covered under the three main sectors. Based on that, this section will demonstrate the descriptive analysis outcomes (mean, median, maximum, minimum, and standard deviations) of all variables, including INR, IR, EGR, FI, and ASE performance as shown in Table 2.

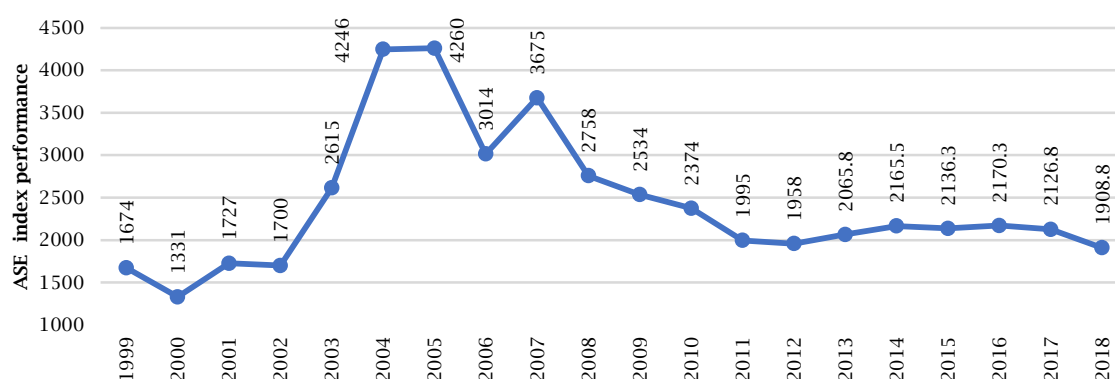
**Table 2.** Descriptive analysis of research variables

Variables	Minimum	Maximum	Median	Mean	Standard deviations
Inflation rate — INR (%)	-0.88	13.97	3.34	3.25	3.28
Change in interest rate — IR (%)	-27.00	7.00	-10.00	-4.00	10.00
Economic growth rate — EGR (%)	1.90	7.20	3.15	4.06	1.86
Foreign investment — FI (%)	1.91	23.00	5.50	7.56	5.48
ASE index — Performance (point)	1331	4260	2150.90	2421.75	815.32

It is clear that there are great discrepancies between the minimum values and the maximum values pertaining to all variables, and this is mainly attributed to the subprime financial crisis (2007–2008), and the political conditions in countries surrounding Jordan which imposed a major adverse effect on the Jordanian economy as well as ASE performance. The accumulated non-Jordanian investment (foreign investment) stake in ASE constitute almost 49% of the ownership of the total stock, so preserving the stability of ASE performance is considered essential to attract such investment, but we can notice that there is a large variability in

such investment which dropped down to 1.91% during the financial crisis comparing to 23% during 2006. Also, one of the major factors that can expel investment in securities is the inflation rate, and we can figure out that the inflation rate in Jordan reached 13.97%, which is very high and requires large returns to compensate for such a decrease in currency purchasing power. ASE has witnessed a large drop in its index, especially after the financial crisis that erupted during 2007–2008, and this can be visualized from the following Figure 1.

**Figure 1.** ASE index performance for the period 1999–2018



Source: Based on ASE annual reports.

## 4. RESULTS

### 4.1. Multiple regression

Multiple regression analysis was adopted in order to test the research hypothesis, which will demonstrate

the impact of INR, IR, EGR, and FI as independent variables on ASE performance as a dependent variable for the period 1999–2018.

The main hypothesis of this research (H1): *There is a statistically significant impact of INR, IR, EGR, and FI all together on ASE performance.*

**Table 3.** Results of multiple regression analysis

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	979.095	340.802		2.873	0.006
Inflation rate	48.015	46.359	0.122	1.036	0.305
Interest rate	332.953	197.511	0.187	1.686	0.098
Economic growth rate	46.406	105.825	0.067	0.439	0.663
Foreign investment	100.332	37.055	0.426	2.708	0.009
R = 0.662					
R <sup>2</sup> = 0.387					
F = 8.679					
Sig. = 0.099					

Note: \*\* significance at the 0.05 level (2-tailed).

In order to test the impact of INR, IR, EGR, and FI all together on ASE performance, multiple regression analysis was employed, we state that the model variable together possesses no significant impact on ASE performance as Sig. t = 9.9% that is higher than 5%. Moreover, these variables can explain 38.7% of the change in the ASE index and the remaining percentage may be attributed to other factors such as political factors or per capita income in Jordan, or it can be due to some factors related to listed companies' financial performance indicators, that have an influential power on investor's investment decision. It is worth mentioning that, foreign investment owns the highest significant impact on ASE performance ( $\beta = 42.6\%$ ) and that the least impact of the study independent variable is attributed to the economic growth rate ( $\beta = 6.7\%$ ), but this impact is not significant (Sig. = 0.663) which higher than 5% (the study significance level).

#### 4.2. Testing sub-hypotheses

Regarding the impact of each independent variable on ASE performance, a simple regression analysis was adopted. The result of each sub-hypothesis can be illustrated as follow.

*H1-1: There is a statistically significant impact of the inflation rate (INR) on ASE performance.*

**Table 4.** The impact of INR on ASE performance

Model	R	R <sup>2</sup>	F	$\beta$	t	Sig.
INR and ASE performance	0.622	0.387	8.872	0.364	2.979	0.004

Note: \*\* significance at the 0.05 level (2-tailed).

Table 4 displays the impact of the inflation rate on ASE performance. The  $\beta$  value of was 36.4% at Sig. t = 0.004 > 5% meaning that INR reveal a significant impact on ASE performance. The coefficient of determination (R<sup>2</sup>) which is equal to 0.387. This means that the inflation rate had the ability to interpret 38.7% of the changes in the ASE index, and the remaining 61.3% of the change in the ASE index is due to other variables. Eldomiaty, Saeed, Hammam, and AboulSoud (2020), Megaravalli and Sampagnaro (2018), and Al-Abbadi and Abdul-Khaliq (2017) indicated that associations between stock prices and inflation rates are negative. While Al Qaisi et al. (2016) incline that, there was no proven significant relationship between inflation rate and stock price. Putra (2016) concluded that the inflation rate impacts the stock price.

*H1-2: There is a statistically significant impact of change in average interest rate (IR) on ASE performance.*

**Table 5.** The impact of change in average IR on ASE performance

Model	R	R <sup>2</sup>	F	$\beta$	t	Sig.
Average change in IR and ASE Performance	0.349	0.122	8.065	0.491	2.840	0.006

Note: \*\* significance at the 0.05 level (2-tailed).

Eldomiaty et al. (2019) stated in their study that associations between stock prices and interest rates are positive and this is consistent with the study results. Interest rate plays a pivotal role in attracting investment into securities markets. As investors always seek low-interest rates to encourage them to borrow in order to infuse such money into securities markets, while the high-interest rate plays as a repelling force for investment. According to Tandellin (2010), an increase in interest rates could direct investors to withdraw their investments in the stock market and shift them to investments in the form of deposits or savings. Thus, high-interest rates are a negative signal to stock prices movement. As displayed in Table 5 related to the impact of change in average interest rate (average lending rate) on ASE performance (ASE index),  $\beta$  value was 49.1% (Sig. t > 5%), which imply that there is a significant impact of the change in the average interest rate on ASE index. However, the coefficient of determination (R<sup>2</sup>) was equal to 0.122, which is low and indicates that change in the average interest rate variable had the ability to explain only 12.2% of the change in ASE performance.

*H1-3: There is a statistically significant impact of economic growth rate (EGR) on ASE performance*

**Table 6.** The impact of EGR on ASE performance

Model	R	R <sup>2</sup>	F	$\beta$	t	Sig.
EGR and ASE performance	0.452	0.204	14.869	0.452	3.856	0.000

Note: \*\* significance at the 0.05 level (2-tailed).

Sulong et al. (2018) proclaimed that stock market performance indicators were considered effective in determining the trends of economic activity. As shown in Table 6, implying that economic growth rate manifests a significant impact on the ASE index as a proxy for ASE performance, where the value of  $\beta$  was 0.452, meaning that if the level of economic growth rate increased by one unit, this will lead to an increase in ASE performance by a value of 0.452, with sig. value of 0.001.

Confirming the aforementioned outcome, calculated the F-value (15.805) at the significance level (0.05), and since it is greater than the F-statistic value (1.95). Moreover, based on the coefficient of determination ( $R^2$ ) economic growth rate was able to interpret 20.4% of the changes in ASE performance.

*H1-4: There is a statistically significant impact of foreign investment (FI) on ASE performance.*

**Table 7.** Results of the impact of FI on ASE performance

Model	R	R <sup>2</sup>	F	$\beta$	t	Sig.
FI and ASE Performance	0.579	0.335	29.264	0.579	5.410	0.000

Note: \*\* significance at the 0.05 level (2-tailed).

Referring to the impact of foreign investment on ASE performance,  $\beta$  value was 0.579 and Sig. t = 0.000, meaning that foreign investment does possess a significant impact on ASE performance. This result was inconsistent with Shabbir and Muhammad's (2019) study, as it concluded that there that foreign investment has not affected the number of shares traded nor market performance. Additionally, the foreign investment variable can explain 33.5% of fluctuation in ASE performance.

## 5. DISCUSSION

Jordan has confronted various economical drawbacks since the subprime financial crisis that erupted in 2007-2008, and these circumstances have affected adversely all economic sectors performance as unemployment reached almost 25% by 2020, while the inflation rate dropped to 0.3% and this was due to low demand level that declined dramatically due to COVID-19 pandemic. Such decline is a result of the high unemployment rate. Additionally, Jordanian GDP shrank by 1.6% for the same year. All these factors imposed unfavourable impact on ASE as a whole since listed companies in ASE have dropped to 179 companies by end of 2020 comparing to 191 in 2019. In addition, the value of market capitalization has declined to JOD 12,908 million (USD 18,200 million) in 2020 comparing 2019 JOD 14,915 million (USD 21,030 million) and comparing the market capitalization before the financial crisis which amounted to JOD 29,214 million (USD 41,192 million). We notice that market capitalization has lost more than 50% of its value. The global financial crisis of 2007-2008 and its aftermath is being experienced by the world at large as a Great Economic Recession, it had an enormous impact on the global markets and is proved to be a huge game-changer (Ahmed, Al-Gasaymeh, & Mehmood, 2017).

Regression analysis results show that there is a statistically significant impact of inflation rate on ASE performance (Eldomyaty et al., 2019; Shula, 2017; Megaravalli & Sampagnaro, 2018). This is because inflation is a reflection and a consequence of the economic policies followed by an impact on prevailing prices as any increase in the inflation rate will lead to an increase in goods and services prices. A high rate of inflation is not desirable to current and potential investors because inflation means an actual decrease in the intrinsic of their money associated with their investment, as well as the low value of real returns that they expect from their

investments. The results also incline that there is a statistically significant impact of average lending interest rate on ASE performance (as a proxy for ASE volatility). This result is consistent with Al Oshaibat (2016). The reason behind this result may be due to the fact that interest rates are still high and have not been reduced sufficiently by lending entities to motivate fixed-vessel investors to invest in the stock market, where it is known that lowering interest rates is to have positive effects on the stock market trading. Whereas the Jordanian economy has gone through difficult periods since 2004, during all those years, there have been no adequate movements.

Additionally, analysis outcomes proclaim that there is a statistically significant impact of economic growth rate on ASE performance. This result is consistent with Er and Vuran (2012) and Ho (2017). As financial experts linked their expectations to the improved performance of ASE with the high rate of economic growth. This is because ASE performance is a reflection of the country's economy. Improving the wheel of production by simplifying procedures and instructions and reducing costs will lead to a boom in growth, and this is what is actually needed during this difficult economic condition, in order to enhance all economic parties, which will bear a positive impact on all dimensions. Finally, analysis results showed there is a statistically significant impact of foreign investment on the ASE index movement. This result is consistent with Ho and Iyke (2017). There is no doubt that foreign investment is one of the major elements that contribute to the development of financial markets, because of the close relationship related to developing the investment environment and stimulating the flow of funds in order to accelerate the desired economic development vector.

## 6. CONCLUSION

This recent study is aimed at investigating the factors that have an effect on ASE performance. Based on the analysis result we can conclude that all macroeconomic variables under investigation have reflected a positive and significant impact on the ASE index as a proxy of stock market performance. Based on that, banks should reduce the lending interest rate to encourage borrowing which ultimately will enhance investment in securities and improve the economic growth rate. More efforts should be exercised by related authorities and parties in order to attract direct and indirect foreign investment through, either tax incentives or more relaxation of prevailing rules and regulations. In addition, the Jordanian government should establish an investment fund that must be direct to investment in productive sectors in order to enhance GDP indicator performance and in order to increase per capita income. This, definitely will have a favourable effect on the demand side of the production, and will enhance investment by individuals and will work toward achieving comprehensive development in all financial and economic aspects. Also, there is an urgent need that different financial and banking institutions to merge in order to absorb unexpected economic shocks and to achieve economy of scale which will lead to better profitability and better financial indicators. This study has certain limitations, as it was conducted on

ASE as a developing country, thus, results may not be reliable for developed markets, and moreover, it relied on external factors only and didn't take into consideration internal factors that may have an effect on stock market performance. Further

studies can be performed on different countries taking into consideration internal and external factors as the study variables so results may be generalised.

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