

# The Short And Long -Run Impact Of Fiscal Deficit On Amman Stock Exchange Performance

Ali Mustafa Al-Qudah, Omar Khlaif Gharaibeh

**Abstract:** The current study aims to investigate the impact of the fiscal deficit (FISD), current account deficit (CACD), and value traded (VTD) on the performance of the Amman Stock Exchange (ASE) as measured by the General Price Index (SPI) during the period 1978-20018. The study used a co-integration test, (VAR), (VECM) and (FMOLS) and (VDC). The output of cointegration test, VECM, FMOLS and VDC indicate that (FISD), (CACD) and (VTD) have a long relationship with the (SPI). The results also indicate that (FISD) and (CACD) have a long run negative and significant impact on Amman stock exchange performance (SPI). While Value traded has a significant and positive long run impact on Amman stock exchange performance (SPI). The results also, indicated that (FISD) is the most effective variable in the long run with coefficient (-6.476723) and significant level 1%. In the short run VECM results shows that fiscal deficit has a significant and positive impact on (ASE) performance, while value traded has a significant and negative impact and current account deficit has an ambiguous effect.

**Index Terms:** Fiscal Deficit, FMOLS, Jordan, Performance, Stock Exchange, VDC, VECM.

## 1. INTRODUCTION

The stock market is an important institution that contributes to financial development and is used to provide financing for projects that can create jobs and improve economic growth. Also, the stock market is an important indicator that reflects the real economic activity in any country as well as reflects the soundness of the financial market and is a good measure of economic strength (Raza, et, al., 2012; Musa & Ibrahim, 2014). The main objective of the stock market is to facilitate the exchange of securities between sellers and buyers, and the prices of securities change daily depending on supply and demand interactions. However, the other factors that cause the increase or decrease in the supply and demand of securities, which increase or decrease their prices are the factors of the stock market such, corporate factors as well as external factors. In Jordan, it has become evident that the recurring and growing fiscal deficit (FISD) has become the problem of the Jordanian economy with extremely rare surpluses. This recurrent and growing deficit in the (FISD) goes beyond its negative effects on the real and financial economy to reduce share prices and undermine investor trust in the stock market, which reduces the capability of companies to raise capital on acceptable terms (Adrangi and Allender, 1988). The performance of stock exchange is important in economics because it reflects the performance of firms, macroeconomic, financial and monetary policies. The stock exchange performance reflects the state of the economy whether it is recovery or recession. Moreover, the stock markets works to determine the prices of equities fairly through the auction and thus reflects the most accurate picture in determining the stock prices. The stock exchange is participating in reducing the cost of short-term financing, which contributes to increase the productive capacity of the economy, and contributes to the recovery and economic prosperity. The importance of this study comes first from its attempt to identify the variables that affect the performance of the Amman stock market performance in the short and long

term. Secondly, it is trying to reach conclusions and recommendations that benefit all decision-makers, specialists and researchers. The (ASE) has witnessed phases characterized by accelerated development, since the volume of the (ASE) general price index in 2007 amounted to (1798.1). However, it witnessed a significant decline since 2008, when the general price index of (ASE) reached to (402.4) in 2018. This is due to many reasons, including internal and external such as fiscal deficit, current account deficit and value traded. Based on the foregoing, this study endeavor to examine the short and long term impact of fiscal deficit(FISD), current account deficit (CACD) and value traded (VTD) on the performance of the Amman Stock Exchange, measured by (SPI). The study used cointegration test, VAR, VECM, FMOLS and VDC to achieve the study objectives. The study includes five sections: Section 1, Introduction; Section 2 Literature Review; Section 3 Data and Methodology; Section 4 econometrics Analysis and Discussion of Results; and Section 5 Findings and Recommendations.

## 2 LITERATURE REVIEW

Both developing and developed countries have become increasingly interested in conducting statistical studies on the impact of the fiscal deficit on the performance of financial markets since the early 1980s. This interest is due to the negative effects that the deficit has on stock prices and, consequently, on economic growth. Roly and Shall (1988) believe that a large fiscal deficit could cause a financial market crash. On the contrary, Friedman, (1987) believes that the fiscal deficit does not significantly affect stock prices, and justifies that to the economic fallacies that cause stock prices to collapse. He cited what happened in the early eighties as a rise in share prices in countries that were suffering from a large financial deficit. The fiscal deficit (FISD) is defined as the increase in public spending over public revenue (Anusic 1994). Empirical Evidence: Below is a summary of a number of studies that have examined the effect of the fiscal deficit (FISD) on the performance of the stock market as measured by the stock price index (SPI).Kabuga, N. A. (2018); Joshi and Giri (2015); Osahon and Oriakhi (2013). Adrangi and Allender (1998), Abakah and Adusah-Poku (2016), Quayes (2010) and Pilinkus(2009) and Osamwonyi and Evbayiro-Osagie (2012). Empirical evidence on the Impact of (FISD) on (SPI) in the long run: Joshi and Giri (2015); Osahon and Oriakhi (2013); Osamwonyi and Evbaviro-Osagie (2012) find that (FISD) has

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a significant negative long-run impact on (SPI) in developing countries. While Kabuga (2018); Abakah Adusah-Poku (2016); Safdar (2014), find a significant positive long run impact of (FISD) on (SPI). In developed countries, Quayes and Jamal (2010) Adrangi and Allender (1998) find that (FISD) has a significant negative long run impact on (SPI) in USA, While Adrangi and Allender (1998) find that (FISD) has no effect on (SPI) in Japan, France and Germany. Empirical evidence on the Impact of (FISD) on (SPI) in the Short run: Joshi and Giri (2015); Safdar (2014); Osahon and Griakhi (2013) find that (FISD) has a positive impact on (SPI) while Kabuga (2018) find a negative impact in developing countries. But Osamwonyi and Ekvaviro-Osagie (2012) find that (FISD) has no impact on (SPI) in the short run. Causality evidence between (FISD) and (SPI). Kabuga, (2018); Saleem, et. al., (2012) find a unidirectional causality running from (FISD) to (SPI). The long run relationship between (FISD) and (SPI). Kabuga, (2018); Safdar (2014), Saleem, et. al., (2012) find by using cointegration test and bound test that there is a long run relationship between (FISD) and (SPI).

### 3 DATA AND METHODOLOGY

#### 3.1 Data

The data used in this study related to the (FISD) and (CACD) were taken from the Central Bank of Jordan's data base. As for data related to the value traded (VTD) and Amman Stock Exchange (SPI), it was taken from the Amman Stock Exchange (ASE) data base. The study period covers the period 1978 - 2018. Which covers the life of the Amman Stock Exchange, which commenced operations in 1978.

#### 3.2 Methodology

This study relied on its methodology on a study methodology of Joshi and GIRI (2015) and Zafar (2013) with some modifications in line with the variables of the study and the availability of its data. The relationship between the performance of the Amman Stock Exchange as measured by (SPI) and (FISD), (CACD) and (VTD) can be determined as follows:

$$SPI = F (FISD, CACD, VTD) \dots\dots\dots(1)$$

The following general model has been used to examine the effect of (FISD), (CACD) and (VTD) on the (SPI) of (ASE).

$$SPIt = \beta_0 + \beta_1 FISDt + \beta_1 + \beta_2 CACDt + \beta_3 VTDt + \epsilon t \dots\dots\dots(2)$$

Where SPI is stock price index, FISD is fiscal deficit, CACD is current account deficit, VTD is value traded,  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$  are parameters,  $\beta_0$ , intercept, t time and  $\epsilon$  error term.

#### 3.2.1 Study Variables

##### 3.2.1.1 The Dependent Variable

Stock Price Index (SPI): (general price index. Amman Stock Exchange, 2019). This measure express the stock market performance. The stock exchange is a main indicator that reflects the real economic activity in any country as well as reflects the soundness of the stock exchanget and is a good measure of economic strength (Yartey, 2008).

##### 3.2.1..2 Independent Variables

Fiscal deficit (FISD): The difference between government revenues and expenditures (Quayes and Jamal, 2010). It is

expected that the trend of the impact of the (FISD) on the stock prices is negative, because the (FISD) causes upward pressure on the nominal interest rate, which would lead to lower share prices ( Geske and Roll, 1998).In the same context Laopodis (2006) believes that the (FISD) is negatively affects the prices of stocks, because the (FISD) enhances the interest rate, which leads to lower consumption ,lower capital expenditure and a decline in the real economy all of this would negatively affect the stock price index. Current account deficit (CACD): Net exchange of goods, services and transfers between the state and other countries Zafar (2013). It is one of the most important components of the balance of payments, given this importance, any imbalance that may affect it will negatively affect the economic variables and policies applied in the countries. The country that has imports more than its exports is suffering from a (CACD). This deficit may be the result of the state importing goods and services for current consumption or importing investment goods that contribute to increasing production and exports (Khalid and Guan, 1999). Value traded (VTD): It is the value of shares that are traded in Amman stock exchange during the daily trading period (Amman Stock Exchange, 2019). It expresses the liquidity of the stock exchange and the ability of investors in securities to convert their assets to liquidity in the stock market quickly and easily, which undoubtedly encourages investors to increase investment in securities. This is because the highly liquid stock market provides confidence to investors in their ability to transfer their financial assets quickly and easily (Levine & Zervos, 1998).

#### 3.3 Study Goals

The study aims to achieve the following goals.

- 1- Examine the impact of (FISD) on Amman stock exchange performance (SPI).
- 2- Examine the impact of (CACD) on Amman stock exchange performance (SPI).
- 3- Examine the impact of value traded (VTD) on Amman stock exchange performance (SPI).
- 4- Identify the most influential variables on Amman stock exchange performance (SPI).
- 5- Determine the short and long-term relationship between the (FISD, CACD, VTD and SPI).

#### 3.4 Study Hypotheses

The following hypotheses were examined.

- 1- Fiscal deficit (FISD) has not a significant impact on Amman stock exchange performance (SPI).
- 2- Current account deficit (CACD) has not a significant impact on Amman stock exchange performance (SPI).
- 3- Value traded (VTD) has not a significant impact on Amman stock exchange performance (SPI).

**TABLE 1**  
**UNIT ROOT TEST RESULTS (ADF AND PP TESTS STATISTICS)**

Variable	ADF Statistics	%ADF critical	Prob	PP Statistics	% PP critical	Prob	Order of integration	Stationary _not stationary
SPI	-0.19733	-1.94932	0.6089	-0.32242	-1.94932	0.563	I(0)	Not stationary
<b>SPI</b>	<b>-3.05337</b>	<b>-1.94986</b>	<b>0.0032</b>	<b>-7.02803</b>	<b>-1.94961</b>	<b>0.000</b>	<b>I(1)</b>	<b>Stationary</b>
<b>FISD</b>	<b>-2.08585</b>	<b>-1.94986</b>	<b>0.037</b>	<b>-2.08741</b>	<b>-1.94986</b>	<b>0.0369</b>	<b>I(1)</b>	<b>Stationary</b>
<b>FISD</b>	<b>-6.65635</b>	<b>-1.95039</b>	<b>0</b>	<b>-8.57948</b>	<b>-1.95039</b>	<b>0.000</b>	<b>I(1)</b>	<b>Stationary</b>
<b>CACD</b>	<b>-0.82883</b>	<b>-1.94932</b>	<b>0.3506</b>	<b>-0.77019</b>	<b>-1.94932</b>	<b>0.3763</b>	<b>I(0)</b>	<b>Not stationary</b>
<b>CACD</b>	<b>-5.96407</b>	<b>-1.94961</b>	<b>0.000</b>	<b>-6.26008</b>	<b>-1.94961</b>	<b>0.000</b>	<b>I(1)</b>	<b>Stationary</b>
<b>VTD</b>	<b>-1.78681</b>	<b>-1.94932</b>	<b>0.0705</b>	<b>-2.2734</b>	<b>-2.93694</b>	<b>0.1852</b>	<b>I(0)</b>	<b>Not stationary</b>
<b>VTD</b>	<b>-7.19608</b>	<b>-1.94961</b>	<b>0.000</b>	<b>-7.1437</b>	<b>-1.94961</b>	<b>0.000</b>	<b>I(1)</b>	<b>Stationary</b>

**TABLE 3***THE RESULTS OF COINTEGRATION RANK TEST (TRACE)*

Hypothesized	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.65857	62.38829	47.85613	0.0012
At most 1	0.52642	28.00068	29.79707	0.0794
At most 2	0.119778	4.082779	15.49471	0.8967
At most 3	5.26E-06	0.000168	3.841466	0.9913

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

## 4 REGRESSION RESULTS AND DISCUSSION

### 4.1 Unit Root Test

The use of different regression tests requires that the time series of the variables under study should be stationary to avoid the spurious regression and to ensure the validity of the regression results ( t statistics, F, statistics) and R2(Granger and Newbold, 1977). Time series are either stationary at the level or at the appropriate difference called the degree of integration (Ramanathan, 1992). To achieve that Augmented Dickey Fuller (ADF) test and Phillips -Perron (PP) test was used. E- Views. 9 is used in all analysis stages.

The results of the stationary tests (ADF and PP ) in Table (1) pointed that (SPI), (CACD), (VTD) are not stationary at level since the ADF and PP absolute values statistics are less than absolute critical values of ADF and PP at 5%. While (FISD) variable is stationary at level. And the results in Table (1) pointed that all variables are stationary at first difference which implies that all variables are integrated at order I(1). The result indicates the requirement for co- integration test between study variables.

### 4.2 The Results of Lag Order Selection Criteria

To determine the appropriate lag order, a VAR lag order

**TABLE 4***THE RESULTS OF COINTEGRATION RANK TEST (MAXIMUM EIGEN VALUE)*

Hypothesized	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.65857	34.38761	27.58434	0.0057
At most 1 *	0.52642	23.9179	21.13162	0.0197
At most 2	0.119778	4.08261	14.2646	0.8505
At most 3	5.26E-06	0.000168	3.841466	0.9913

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05

selection criteria is used. Since choosing the appropriate lag order is a condition for conducting a co- integration test and conducting a Vector Autoregressive (VAR) model and Vector Error correction model (VECM). This is to choose the appropriate number of parameters. The results in Table (2) show the alternative five information criteria results .The Final prediction error (FPE), Akaike information criterion (AIC) and Hannan-Quinn information criterion (HQ ) (at 5% level) indicate that 4 lags is the appropriate.

### 4.3 The Results of the Johansen Cointegration Test

The study examined the co-integration between the study variables (SPI, FISD, CACD and VTD) in the model to ensure that there is a long-term relationship between the variables. A vector autoregressive (VAR) model is used if there is not a cointegration between variables otherwise Vector error correction (VECM) model is used. This methodology is developed by Johansen (1988) and Johansen and Juselius (1990). The maximum Eigen value and trace tests were used to determine the cointegration between the variables in the model. Table (3) and Table (4) show the cointegration Trace and Max-Eigen tests results which indicate one and two cointegration respectively, this means there is a long run association between (SPI), (FISD), (CACD) and (VTD). So, there is a causality relationship running from (FISD), (CACD) and (VTD) to (SPI) of Amman stock exchange. This result is a line with e result of Kabuga, (2018); Safdar (2014), Saleem, et. al., (2012).

### 4.4 The results of Vector Error Correction Model (VECM)

In light of the results of the (ADF and PP) tests, Johansen cointegration tests which indicated that the time series are stationary at the first difference, and there is also a cointegration between the variables, so a (VECM) is used which is the restrictive formula VAR.

**TABLE 2***LAG ORDER SELECTION CRITERIA BY VAR*

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1079.19	NA	2.96E+24	67.69914	67.88236	67.75987
1	-996.851	138.9415	4.74E+22	63.55316	64.46924	63.85681
2	-949.029	68.74352	6.83E+21	61.56431	63.21326	62.11089
3	-914.621	40.85942*	2.48E+21	60.41381	62.79563*	61.20332
4	-889.113	23.91341	1.82e+21*	59.81959*	62.93427	60.85202*

\* indicates lag order selected by the criterion.

Table 5 shows the results of VECM which includes cointegration results and error correction results, also it shows the dependent variables which includes the first difference for each of (SPI, FISD, CACD and VTD), the independent variables consisting of the first, second, third and fourth lag for the dependent variables. The VECM output give us coefficient, standard error and t test values but it does not give the probability. Because of that we find models system (D (SPI), D (FISD), D (CACD), D (VTD). and estimate the model related to D (SPI).

$$D(SPI) = C(1)*( SPI(-1) + 71.6475266637*FD(-1) - 14.7772408385*CACD(-1) - 1.48944117548*VTD(-1) + 5822.72439931 ) + C(2)*D(SPI(-1)) + C(3)*D(SPI(-2)) + C(4)*D(SPI(-3)) + C(5)*D(SPI(-4)) + C(6)*D(FISD(-1)) + C(7)*D(FISD(-2)) + C(8)*D(FISD(-3)) + C(9)*D(FISD(-4)) + C(10)*D(CACD(-1)) + C(11)*D(CACD(-2)) + C(12)*D(CACD(-3)) + C(13)*D(CACD(-4)) + C(14)*D(VTD(-1)) + C(15)*D(VTD(-2)) + C(16)*D(VTD(-3)) + C(17)*D(VTD(-4)) + C(18).....(3)$$

C(1) the coefficient of cointegration (EC t-1) , c(2), (3),C(4), C(5), C(6), C(7), C(8), C(9), C(10), C(11),C(12), C(13),C(14), C(15), C(16), C(17) are coefficients. C(18) is the intercept.

From Table (6) C(1) is the coefficient of the cointegration (Error Correction) our guide line is if the c(1) the co-integration coefficient is negative and statistically significant, it means that there is a long-term association between the variables of the model otherwise there is not a long term association between variables. from table (6) the value of C(1) the cointegration coefficient is -0.19702 and the probability is 1% this means that there is a long term association between the variable and that there is a causal relationship running from (FISD), (CACD) and value traded (VTD) to (SPI). To confirm the result a Wald test was used, the result indicated that the value of Chi-Square is (35.42378) and the probability is 1% this means there is a long run relationship between the variables. The coefficient of co-integration (error term) shows the speed of adjusting the disequilibrium in the short term to the equilibrium in the long term by a speed of 19.7% per year.

1- The impact of the fiscal deficit (FISD) on (SPI) of Amman stock exchange in the short run. from table (6) the coefficients C(6), C(7) C(9) for D(FISD(-1)), D(FISD(-2)) and D(FISD(-4)) have a significant and positive impact on Stock price index(SPI). Since their coefficient values are (5.312795), (11.75994) and (4.354457) respectively and significant level of 1%. While the C(8) for D(FISD(-3)) has not an impact on (SPI). For more confirmation Wald test used and the result indicates that the Chi-Square is (19.06692) with significant level of 1% which confirms the existence of short-term impact. This may be attributed to the fact that financing the (FISD) in the short term increases public spending and this increases the demand for goods and services produced in the local market, which increases the sales of companies and increases profits. This is reflected positively on their financial performance, and thus increases the price of its shares in the stock market. This, in turn, improve the stock market performance through increasing stock price index.

2- The impact of current account deficit (CACD) on (SPI) of Amman stock exchange in the short run. From Table (6) the coefficients C(11) for D(CACD(-2)) have a positive and significant impact on (SPI) since the coefficient value is

TABLE5  
VECTOR ERROR CORRECTION ESTIMATES  
STANDARD ERRORS IN ( ) & T-STATISTICS IN [ ]

Cointegrating Eq:	CointEq1			
SPI(-1)	1.000000			
FISD(-1)	71.64753 (10.2456) [ 6.99303]			
CACD(-1)	-14.77724 (3.20468) [-4.61114]			
VTD(-1)	-1.489441 (3.59532) [-0.41427]			
C	5822.724			
Error Correction:	D(SPI)	D(FISD)	D(CACD)	D(VTD)
CointEq1	-0.213050 (0.03689) [-5.77498]	-0.015445 (0.00389) [-3.96788]	0.023715 (0.01131) [ 2.09729]	-0.153149 (0.03607) [-4.24623]
D(SPI(-1))	2.366141 (0.39910) [ 5.92876]	0.058803 (0.04211) [ 1.39642]	-0.305577 (0.12233) [-2.49806]	2.322620 (0.39017) [ 5.95280]
D(SPI(-2))	2.019820 (0.63811) [ 3.16532]	0.106417 (0.06733) [ 1.58056]	-0.200010 (0.19558) [-1.02263]	1.317651 (0.62384) [ 2.11216]
D(SPI(-3))	-0.363099 (0.65814) [-0.55171]	0.012786 (0.06944) [ 0.18413]	-0.365359 (0.20172) [-1.81119]	-0.346824 (0.64342) [-0.53903]
D(SPI(-4))	1.050099 (0.86800) [ 1.20979]	-0.000715 (0.09159) [-0.00781]	0.074452 (0.26605) [ 0.27984]	0.410486 (0.84860) [ 0.48372]
D(FISD(-1))	6.736897 (2.46330) [ 2.73491]	0.503007 (0.25991) [ 1.93531]	-0.768738 (0.75502) [-1.01817]	3.809539 (2.40822) [ 1.58189]
D(FISD(-2))	10.89189 (2.32215) [ 4.69044]	0.134193 (0.24502) [ 0.54769]	-0.985350 (0.71175) [-1.38440]	8.541630 (2.27023) [ 3.76246]
D(FISD(-3))	0.738504 (1.40634) [ 0.52512]	0.217868 (0.14839) [ 1.46824]	-0.405191 (0.43105) [-0.94000]	-0.339092 (1.37490) [-0.24663]
D(FISD(-4))	4.389157 (1.37177) [ 3.19963]	0.052162 (0.14474) [ 0.36039]	0.018859 (0.42046) [ 0.04485]	2.315114 (1.34110) [ 1.72628]
D(CACD(-1))	-2.246818 (1.04158) [-2.15713]	-0.140670 (0.10990) [-1.27999]	0.503493 (0.31925) [ 1.57711]	-4.403294 (1.01829) [-4.32421]
D(CACD(-2))	1.446991 (1.35054) [ 1.07141]	-0.309965 (0.14250) [-2.17519]	-0.140919 (0.41395) [-0.34043]	0.851715 (1.32035) [ 0.64507]
D(CACD(-3))	-4.506160 (1.37298) [-3.28203]	-0.107394 (0.14487) [-0.74132]	0.040144 (0.42083) [ 0.09539]	-3.761815 (1.34228) [-2.80255]
D(CACD(-4))	-0.482905 (1.09545) [-0.44083]	-0.094534 (0.11558) [-0.81788]	0.142056 (0.33576) [ 0.42308]	0.175751 (1.07096) [ 0.16411]
D(VTD(-1))	-3.013583 (0.45287) [-6.65443]	-0.113209 (0.04778) [-2.36922]	0.455574 (0.13881) [ 3.28206]	-2.897378 (0.44274) [-6.54414]
D(VTD(-2))	-1.195724 (0.63205) [-1.89183]	-0.165712 (0.06669) [-2.48485]	0.149665 (0.19373) [ 0.77256]	-0.967438 (0.61792) [-1.56565]
D(VTD(-3))	-0.972987 (0.87617) [-1.11050]	0.042436 (0.09245) [ 0.45902]	0.305313 (0.26855) [ 1.13688]	-1.540885 (0.85658) [-1.79887]
D(VTD(-4))	2.635056 (0.96623) [ 2.72715]	0.047073 (0.10195) [ 0.46172]	-0.111249 (0.29616) [-0.37564]	1.858181 (0.94463) [ 1.96710]
C	-166.4993 (254.583) [-0.65401]	-15.34178 (26.8618) [-0.57114]	107.4023 (78.0315) [ 1.37640]	-186.5631 (248.891) [-0.74958]
R-squared	0.966207	0.897155	0.861899	0.947861
Adj. R-squared	0.918335	0.751458	0.666256	0.873996
Sum sq. resid.	10174173	113268.8	955829.2	9724311.
S.E. equation	920.7865	97.15486	282.2276	900.1996
F-statistic	20.18280	6.157675	4.405463	12.83248

(2.344484) and significant level 5%. While C (12). For D (CACD (-3)) has a significant and negative impact on (SPI) since the coefficient value is (-4.74693) and significant level 1%. But 10th and 13th lags have not an impact on (SPI). So the results show that (CACD) has an ambiguous impact on (SPI) in the short run. For more confirmation Wald Test was used, the result of which indicated that the value of Chi-Square is (26.04188) with

**TABLE6**  
DEPENDENT VARIABLE: D (SPI)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.197022	0.033103	-5.951788	0.0000
C(2)	2.079396	0.273680	7.597922	0.0000
C(3)	2.424735	0.488637	4.962238	0.0003
C(4)	-0.545206	0.631214	-0.863742	0.4034
C(5)	0.505771	0.670107	0.754761	0.4638
C(6)	5.312795	1.995673	2.662157	0.0196
C(7)	11.75994	2.147528	5.476036	0.0001
C(8)	0.116557	1.256415	0.092769	0.9275
C(9)	4.354457	1.370058	3.178301	0.0073
C(10)	-2.199940	1.039538	-2.116268	0.0542
C(11)	2.344484	0.998443	2.348139	0.0353
C(12)	-4.746926	1.349934	-3.516414	0.0038
C(13)	0.111157	0.914829	0.121506	0.9051
C(14)	-2.720403	0.341779	-7.959533	0.0000
C(15)	-1.405822	0.594649	-2.364121	0.0343
C(16)	-1.610025	0.592676	-2.716533	0.0176
C(17)	3.087887	0.849817	3.633592	0.0030
C(18)	-63.92922	232.2379	-0.275275	0.7874
R-squared	0.965859			
Adjusted R-squared	0.921213			
F-statistic	21.63380			
Prob(F-statistic)	0.000001			

significance value of 1% this confirms that there is a short-term impact of the current account deficit. So, (CACD) has an ambiguous impact. since it has a positive and negative impact in the short run, the positive impacts refers to that the imports are used in production, which positively affects the sales and profits of companies and the prices of their shares in the stock exchange, while the negative impact refers to the competition of imports of local products in terms of price, which reduces exports and sales of companies and profits, and therefore low

**TABLE7**

THE RESULTS OF BREUSCH-GODFREY SERIAL CORRELATION LM TEST

F-statistic	0.056157	Prob. F(4,9)	0.9931
Obs*R-squared	0.754881	Prob. Chi-Square(4)	0.9444

prices of their shares in the stock exchange.

3- The impact of value traded (VTD) on (SPI) of Amman stock

**TABLE8**

THE RESULTS OF HETEROSKEDASTICITY TEST: BREUSCH-PAGAN-GODFREY

F-statistic	0.135902	Prob. F(20,10)	0.9999
Obs*R-squared	6.625191	Prob. Chi-Square(20)	0.9977
Scaled explained SS	2.352754	Prob. Chi-Square(20)	1.0000

exchange in the short run. from Table (6) the coefficients C(14), C(15), C(16) for D(VTD(-1)), D(VTD(-2)) D(VTD(-3)) have a significant and negative impact on (SPI) since the coefficient values are (-2.7204), (-1.40582) and (-1.61003) and significant levels of 1%, 5%, 5% respectively. while C(17) for D(VTD(-4)) has a significant and positive impact on (SPI) with coefficient value of(3.087887) and significant level of 1%. For more confirmation Wald test results indicated that the Chi-square value is (22.62325) with significance level of 1% which confirms the short-term impact of (CACD) on (SPI). This is due to the lack of liquidity in the stock exchange, investors lose confidence in the market and reduces their appetite for investment in securities, which reflects negatively on their stock prices and then on (SPI).

4- The first difference and first lag D(SPI(-1)), second lag

D(SPI(-2)), have a positive and significant impact on (SPI) since the coefficient is (2.079396) , (2.424735) respectively, with significant level of 1%. This indicates that the previous values have an effective and positive impact on the (SPI). This is because the good performance acceptable to investors in the stock market encourages them to invest more, which reflects positively on the performance of the market, and vice versa. From Table (6) R2 and adjusted R2 values are (0.96) and (0.92) respectively this means the independent variables explain 92% of change in (SPI). F statistics is 21.63 with significant level 1% which express the causality relationship between the variables.

**TABLE9**

THE RESULTS OF HETEROSKEDASTICITY TEST: BREUSCH-PAGAN-GODFREY

Jarque -Bera	0.236461
Probability	0.888491

#### 4.5 Diagnostic test Results

The results of the Breusch-Godfrey Serial Correlation LM Test, Heteroskedasticity Test: Breusch-Pagan-Godfrey and normality

**TABLE10**

THE RESULTS OF FMOLS. DEPNEDENT VARIABLE (SPI)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FISD	-6.47672	2.311835	-2.80155	0.0083
CACD	-2.28709	1.045121	-2.18835	0.0356
VTD	1.449136	0.158311	9.153754	0
C	1002.651	716.4632	1.399445	0.1707
R-Squared	0.918734			
Adjusted- R-Squared	0.911563			

tests indicate that the model passes since their significant levels are more than 5%. This is a proof that the model is a good model.

#### 4.6 The Results of Full Modified Least Squares (FMOLS)

The Full modified OLS (FMOLS) method is used to estimate the coefficients of variables with long-term relationships (cointegration) proposed by (Phillips and Hansen 1990), because the coefficients estimated using this method are consistent with the small samples. This method also takes into account the problem of the possibility of endogeneity between variables with co integration and also takes into account the problem of serial-correlation (Maddala and Kim,1998; Hong and Wagner, 2011).

- 1- Table (10) shows the long run impact of fiscal deficit (FISD) on Amman stock market capitalization (SPI). The results indicate that the fiscal deficit (FISD) has a negative and significant long run impact on (SPI) of Amman stock exchange. Where the value of the coefficient is (-6.476723) with 1% significant level.

This means that if the (FISD) increased by one unit while the other factors remain constant, this will reduce (SPI) by (-6.476723) unit. This result is in line with the result of a study (Kabuga, 2018; Joshi and Giri, (2015); Sahan and Oriakh, (2016)) Abakah and Adusah-Poku,(2013); quayes and Jamal (2010) . This can be justified by the fact that increasing the fiscal deficit will increase interest rates in the long run, this reduces the attractiveness of investment in the stock exchange and the decline in share prices, and (SPI). In this context Hall and Taylor

(1993), state that the prediction of unsustainable deficit increase taxes will reduce domestic consumption, which is reflected negatively on the production, sales and profits of local companies and thus on the prices of shares, which leads to a decline in (SPI). Ball and Mankiw (1995) wrote that reducing the (FISD) will reduce future taxes and this will increase private consumption and increase sales and profits of local companies and this reflects positively on the prices of their shares in the stock market and thus improve (SPI). Hardouvelis (1988) and Chandra (2004) wrote that the rise in interest rates adversely affects the returns on stocks as it raises the rate discount on securities and also reduces the real production and reduces the profits of companies.

- 2- The results of FMOLS Table (10) indicate that current account deficit (CACD) has a negative and significant long run impact on Amman (SPI). Since the coefficient value is (-2.287088) with significant level of 5%. This means if the current account deficit increased by 1 unit. While the other factors remain constant. (SPI) will decrease by (2.287088) unit. This is because the increase in the (CACD) means that Jordan is suffering of its inability to export its products internationally due to its high cost. This results in a decrease in the sales of companies and a decrease in their profits. This is reflected negatively on the performance of companies and this negative performance is reflected on the prices of their shares in the stock market. The result is in the line with the result of ( Safdar, 2014).
- 3- The FMOLS results in Table (10) show that the Value trade (VTD) has a positive and significant long run impact on Amman (SPI) since the coefficient is 1.449136 with significant level 1%. This means if value traded increased by 1 unit. While the other factors remain constant, Amman (SPI) will increase by (1.449136) unit, this results is in line with the result of (Zafar, 2013). This is attributed to that the value of trading reflects the liquidity of the stock exchange. The higher the liquidity of the stock exchange, the greater the confidence of investors in the stock exchange and the increasing interest in investing in securities, because they have great confidence in the stock exchange through their ability to sell their financial assets easily and with the least possible loss which helps to promote the stock exchange and increase its financial indicators, (SPI). In this context Engle and Lange (1997) wrote that Liquidity is an important indicator of the development of the stock market because it is a guide to how the market can help allocate funds for the profitable projects, which promotes long-term economic growth. This possibility depends on the ability of investors to transfer their investments easily and quickly, which reduces the investment risk.

The FMOLS results show that the value of R-squared and Adjusted R squared are (0.918734), (0.911563) respectively, this indicates that the independent variables (FISD, CACD, VTD) explain 91% of the change in Amman (SPI) in the long run.

#### 4.7 The Results of Variance Decomposition of (SPI)

Sims(1980) and Brook, (2008) wrote that the analysis of variance Decomposition (VDC) gives that part of the movements of dependent variables resulting from their own shocks versus the shocks of other variables. Therefore, the

study took the results of the analysis of variance decomposition to test how the (SPI) responds to own shocks and the shocks of other variables, for ten years period. From Table (11) in the first year 100% of the changes in Amman (SPI) is explained by its own shocks, 0.00% of the variability is explained by fiscal deficit (FISD), current account deficit (CACD) and value traded (VTD). In the second year, 47.82% of the changes in (SPI) is explained by its own shocks, 4.96% and 6.96% and 40.24% of the changes are explained by (FISD), (CACD) and (VTD)

**TABLE 11**

*VARIANCE DECOMPOSITION OF SPI*

Period	S.E.	SPI	FISD	CACD	VTD
1	920.7865	100.0000	0.000000	0.000000	0.000000
2	2781.486	47.82642	4.962677	6.964833	40.24607
3	4812.157	23.75611	6.978112	53.83897	15.42682
4	6404.717	26.40588	13.34334	51.53772	8.713061
5	9614.575	54.89112	10.14654	26.22582	8.736524
6	15675.93	56.85649	12.51159	11.98332	18.64860
7	23218.62	36.75921	12.57332	42.06524	8.602232
8	30042.42	34.97042	19.70929	40.18015	5.140146
9	44351.99	52.57736	13.39335	22.78090	11.24838
10	68214.38	52.60248	15.28146	10.83684	21.27922

respectively. It can be seen that in year (10) 52.60% of the changes in Amman (SPI) is explained by its own shocks, 15.28% and 10.83% and 21.27 of the changes are explained by (FISD), (CACD) and (VTD) respectively. Therefore, fiscal deficit (FISD), current account deficit (CACD) and value traded (VTD) have a short and long -run impact on Amman (SPI). This result confirms the result of VECM and FMOLS.

## 5 CONCLUSIONS AND POLICY IMPLICATION

The study aimed to examine the impact of the fiscal deficit (FISD), current account deficit (CACD), and value traded (VTD) on Amman (SPI) during the period 1978-2018. The study used a co-integration test, Vector Autoregressive model (VAR), Vector-Error Correction model (VECM) and cointegration regression by using full modified OLS (FMOLS) and Variance Decomposition analysis (VDC).

1- The VECM and Cointegration results indicated a long run relationship between (FISD, CACD, VTD and SPI).

2- cointegration regression by using FMOLS indicated that (FISD) has a long run negative and significant effect on Amman (SPI). This refers to the continuing fiscal deficit will raise future taxes, raise interest rate due to financing from the local market and increase exchange rate. All of this leads to the decline, of companies sales, exports, profits, stock prices and thus decline in the Amman (SPI).

3- cointegration regression by using FMOLS indicated that (CACD) has a long run negative and significant effect on Amman (SPI). This is attributed to the increased current account deficit This means that Jordanian commodities suffer from their opportunities in exports because of their high prices due to high interest rates, high taxes, high exchange rate and low competitiveness locally and internationally, which leads to a decline in sales of companies, profits and share prices and thus a decline in Amman (SPI).

4- cointegration regression by using FMOLS indicated that value traded has a long run positive and significant effect on Amman (SPI). This refers to the increased liquidity of the stock exchange in the long run. Which increases the confidence of local and foreign investors in the stock exchange, which increases their desire to invest in securities, and this reflected positively on stock prices and thus on Amman (SPI).

5- The VECM and OLS results indicates that fiscal deficit has

a short run positive and significant effect on Amman (SPI), while the current account deficit has an ambiguous effect (Positive, negative) in the short run. But value traded has a short run negative and significant effect. Policy implication: The results showed that the (FISD) and the (CACD) have a negative impact on Amman (SPI) in the long-run. Therefore, the government should take all procedures that would reduce the fiscal and the current account -deficit. Thus Amman stock exchange can restore the confidence of domestic and foreign investors. Especially that foreign investors own the largest share in the market and thus recover the activity of the Amman stock exchange. The liquidity of the stock exchange plays a positive role in the performance of the stock exchange. Therefore, the concerned parties should always endeavor to provide the necessary liquidity to the market to ensure its prosperity and maintain its significant and important role in the national economy.

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