PalArch's Journal of Archaeology of Egypt / Egyptology

IMPACT OF INFLATION AND INTEREST RATE TOWARD SAUDI ARABIA STOCK MARKET

Alanoud Alqahtani[1], Shabir Hakim[2]

[1]College of Business, Effat University, Qasr Khuzam St., Kilo. 2, Old Mecca Road. P.O.BOX 34689, Jeddah 21478, Saudi Arabia. aalqahtani@effatuniversity.edu.sa

[2]College of Business, Effat University, Qasr Khuzam St., Kilo. 2, Old Mecca Road. P.O.BOX 34689, Jeddah 21478, Saudi Arabia. shhakim@effatuniversity.edu.sa

ABSTRACT
The study is aimed to investigate impact of inflation and interest rate toward Saudi stock market. There was lack of previous studies on impact between these two variables on the stock market in Saudi Arabia. The study was used quarterly time series data from June 2007 to December 2015. Besides, this study used regression analysis to determine hypothesized relationship between inflation, interest rate and stock market return in Saudi Arabia. The result showed inflation had impact toward Saudi stock returns but interest rate had no impact on Saudi stock returns.

INTRODUCTION
In Saudi Arabia, stock market was $236.13 billion capitalization which lead Saudi capital market one of top and largest equity markets in the world. The contribution of Saudi was noteworthy as alone capital market of Saudi Arabia accounted for one-fourth (1/4) of capital of US$686 billion which total capital of 16 markets. The improved turnover ratio indicated good position of liquidity of Saudi market. Besides, in fact that when the market holds 56% of shares which acquired by government or semi-government entities; foreign partners and other big corporations limit the trade flotation [1].

Furthermore, the restriction on foreign investment to enter Saudi market keeps turnover ratio reasonable as the markets gave trading access permission only Saudi Arabia and GCC nations. In 2003, 70 major sectors were listed and total capitalization included banking (28.8%), industrials (23%), services (3.7%),

cement (7.4%), electricity (14.8%), agriculture (0.3%) and telecommunication (21.9%). The stock market was importance and impact of market returns on economy must know and market is expected to change based on impact on some factors such as inflation and interest rate in short and run term. There are different previous studies which found different relationships between inflations and stock returns. Some studies found positive relationship between inflation and stock return [2]. However, other studies by Geetha et al. [3] and Hussain et al. [4] found negative relationship between inflation and stock returns.

Meanwhile, there were some studies found different correlation between interest rate and stock return. The study carried out by Ali [5] showed positive relationship between interest rate and stock return. Other studies had found negative relationship between interest rate and stock return [6-8].
This study had focused on investigate the relationship between inflation and interest rate and both variables had impact toward Saudi Arabia stock return. This result will be helpful for the investors who want to invest in Saudi Arabian in stock market.

METHODOLOGY
In this study, secondary data were used which duration obtained was 10 years between 2007 and 2016. There were two variables used included inflation, interest rate. The stock return data obtained from Bloomberg Professional Database. The data source of inflation and interest rate was obtained from Bloomberg Professional database to obtain inflation percentage changes of Saudi Arabia. The model of this study as shown as below:

$$R_m = \alpha + \beta_1 Inf_A + \beta_2 Inf_B + e$$
$$R_m = \alpha + \beta_1 Inf_A + e$$
$$R_m = \alpha + \beta_2 Inf_B + e$$
$$R_m = Retur\ of\ Saudi\ stock\ Market$$

Where,
R_m = Return of Saudi stock Market
A   = Intercept
Inf   = Inflation on Saudi market
e   = Error term explained variance

$$R - squared = \frac{Explained\ Variance}{Total\ Variance}$$

R-squared (R^2) was always between 0 and 1. 0 indicated that model explained none of variability of the response data around its mean. 1 indicated that model explained all variability of the response data around its mean.

The regression analysis model was used in the study. This model was used to determine the relationship strength between two variables and also to predict future outcome. The t-test was hypothesis test that analyse two means that were statistically different from each other.

RESULT AND DISCUSSION
The mean quarterly on duration 10 years on inflation of Saudi Arabia was positive 0.331% with standard deviation of 2.331%. The distribution of returns was 1.258 and skewness 0.825 which indicated a hump around mean of 0.52 was normal distribution. The skewness of 0.825 indicated slight skew toward the right.

Meanwhile, mean quarterly on interest rate of Saudi Arabia was negative 0.848% with standard deviation of 21.075%. The distribution of return of kurtosis was 4.554 and skewness was 0.460 indicated hump around mean of -0.083 which higher than normal distribution. The skewness of 0.460 indicated slight skew toward the right.

The mean quarterly on stock returns was negative 0.207% with standard deviation of 12.522%. The distributions of kurtosis return were 1.737 and skewness of -0.601 which indicated hump around mean of 1.348 was normal distribution. The Skewness of -0.601 was indicated slight skew toward left.

Table 1: Descriptive statistics of inflation, interest rate and stock returns

	Inflation	Interest rate	Stock return
Mean	0.3319	-0.8487	-0.2073
Standard error	0.3886	3.5126	2.0870
Median	0.52	-0.0831	1.3486
Standard deviation	2.3316	21.0758	12.5224
Sample variance	5.4367	444.1932	156.8115
Kurtosis	1.2580	4.5547	1.7374
Skewness	0.8252	0.4609	-0.6011
Range	10.6	127.2279	68.1285
Minimum	-3.03	-54.1832	-38.8155
Maximum	7.57	73.0447	29.313

From test result, following regression equation for relationship between inflation rate and Saudi stock market returns was obtained:

$$R_S = 0.903 - 3.4085 Inf_A + e$$

The equations if the inflation of Saudi Arabia increased by 1% of return in Saudi stock market was decreased by -3.41%. The null hypothesis $H_0 = \beta_0 = 0$ is rejected at 0.05 significance level because p-value was 0.0000396 which less than critical value of 0.05. The T-statistic of relationship between inflation and stock return was -4.788 and p-value was 0.0000396 because p-value was less than critical value of 0.05, the null hypothesis of 0-veta coefficient was rejected. This result meant inflation on Saudi Arabia had significant impact on Saudi stock market returns. The explanatory power of model was by its R^2 value of 0.402. The result meant variance of the inflation in Saudi Arabia explained 40.2% of variance in the stock market return. In additions, p level= 0.0000396 significant level of F-statistic which less than 0.05 indicated and model was good fit model.

Table 2: Regression analysis of relationship between stock return and inflation

Regression statistic					
Multiple R	0.634				
R square	0.402				
Adjusted R square	0.385				
Standard error	9.818				
Observation	36.000				
ANOVA					
	df	SS	MS	F	Sig.F
Regression	1.0	2210.7	2210.7	22.93	0.00
Residual	34.	3277.6	96.40		
Total	35.000	5488.40			
	Coef.	Std. error	T stat	p-value	
Intercept	0.92	1.65	0.55	0.58	
Inflation	-3.41	0.71	-4.79	0.00	

Based on Table 3, flowing regression equation for relationship between inflation rate and Saudi stock market return was obtained:

$$R_S = -0.217 - 0.012 Inf_B + e$$

The inflation of Saudi Arabia increased by 1% of return in Saudi stock market was decreased by 0.012%. The null hypothesis $H_0 = \beta_0$ was rejected at 0.05 significance level because p-value was 0.905 which more than critical value of 0.05. T-statistic was 0.119 and p-value was 0.905 because p-value was more than critical value of 0.05, null hypothesis of 0=beta coefficient was not rejected. This result meant interest rate on Saudi Arabia had no significant impact on Saudi stock market returns. The explanatory power of model gave by its R^2 value of 0.00042. It's meant the variance of inflation in Saudi Arabia explained 0.042% of variance in Saudi stock market return. In additions, 0.905 significant level of F-statistic which more than 0.05 indicated model was not good fit model.

Table 3: Regression analysis of relationship between stock return and interest rate

Regression statistic					
Multiple R	0.020				
R square	0.00042				
Adjusted R square	-0.028				
Standard error	12.702				
Observation	36.000				
ANOVA					
	df	SS	MS	F	Sig.F
Regression	1.0	2.30	2.30	0.01	0.91
Residual	34.00	5486.10	161.36		
Total	35.000	5488.41			
	Coef.	Std. error	T stat	p-value	

Regression statistic					
Intercept	-0.22	2.12	-0.10	0.92	
Inflation	-0.01	0.10	-0.12	0.91	

From test result, following regression equation for relationship among inflation, interest rate and Saudi stock market returns was obtained:

$$R_m = 0.903 - 3.420 Inf_A - 0.029 Inf_B + e$$

The equation showed if the inflation and interest rate of Saudi Arabia increased by 2% of returns in Saudi stock market was decreased by 3.41\$ and 0.029 respectively.

The stock return was dependent variable while inflation and interest rate were independent variables. The test result of model showed that independent variables, inflation and interest rate had beta coefficient of -3.420 and -0.029 respectively. The t-statistics of coefficient were -4.739 and -0.369 with corresponding p-values of 0.0000396 and 0.713. The p-value of inflation was 0.0000396 which is less than critical value of 0.05; the null hypothesis of zero-beta coefficient was rejected. As p-value in interest rate was 0.713 which was greater than critical value of 0.05, null hypothesis of zero-beta coefficient was not rejected. The result showed inflation in Saudi Arabia did not impacted on the returns of Saudi stock market. The explanatory power of model represented by its adjusted R2 meant that variance of inflation and interest rate explained 36.9% of variance in the Saudi stock market stock.

Table 4: Regression analysis of relationship among stock return, inflation and interest rate

Regression statistic					
Multiple R	0.636				
R square	0.405				
Adjusted R square	0.369				
Standard error	9.945				
Observation	36.000				
ANOVA					
	df	SS	MS	F	Sig.F
Regression	2.0	2224.3	1112.2	11.2	0.000189
Residual	33.0	3264.1	98.9		
Total	35.0	5488.4			
	Coef.	Std. error	T stat	p-value	
Intercept	-0.9	1.7	0.5	0.6	
Inflation	-3.4	0.7	-4.7	0.000396	Rejected
Interest rate	-0.02	0.1	-0.4	0.71	Not rejected

CONCLUSION

In conclusions, the inflation had significant impact on Saudi stock returns since the result showed negative relationship between inflation and return of Saudi stock market. In additions, the result showed interest rate had no significant impact with stock returns but showed negative relationship between two variables. This result was contradiction to previous studies due to lack of significant variation in interest rate over study period.

ACKNOWLEDGMENTS

The authors appreciate the College of Business, Effat University for its unconditional support.

REFERENCES

Seyyed, F. J., Abraham, A., and Al-Hajji, M. 2005. Seasonality in stock returns and volatility: The Ramadan effect. Research in International Business and Finance, 19, 3, 374-383.

Adusei, M. 2014. The inflation -stock market returns Nexus: evidence from the Ghana stock exchange. Journal of Economics and International Finance, 6, 2, 38-46.

Geetha, C., Mohidin, R., Chandran, V. V., and Chong, V. 2011. The relationship between inflation and stock market: evidence from Malaysia, United States and China. International Journal of Economics and Management Sciences, 1, 2, 1-16.

Hussain, S., and Malik, S. 2011. Inflation and economic growth: evidence from Pakistan. International Journal of Economics and Finance, 3, 5, 262-276.

Ali, H. 2014. Impact of interest rate on stock market: evidence from Pakistani market. IOSR Journal of Business and Management, 16, 1, 64-69.

Alam, A., and Haseebullah. 2013. The impact of interest rate volatility on stock returns volatility: empirical evidence from Pakistani markets. The 2013 WEI International Academic Conference Proceedings.

Uddin, M. 2011. Relationship between interest rate and stock price: empirical evidence from developed and developing countries. International Journal of Business and Management, 4, 3.

Thang, F. Z. 2009. Impact of interest rate and exchange rate on the stock market index in Malaysia: a cointegration analysis. Thesis, University Science Malaysia.

*This form below helps us to understand your paper better, so please fill in the information of all authors. The form itself will not be published.

Authors' background

Position can be chosen from: Prof. / Assoc. Prof. / Asst. Prof. / Lect. / Dr. / Ph. D Candidate / Postgraduate / Ms.				
Paper ID	Position, Full Name,	Email address	Research	Personal

	Working unit & nation		Interests	website (if any)
	Dr. Shabir Hakim, Effat University, Saudi Arabia	shhakim@effatuniversity.edu.sa		
	Student, Alanoud Alqahtani, Effat University, Saudi Arabia	aalqahtani@effatuniversity.edu.sa		