MACROECONOMIC DETERMINANTS OF THE BEHAVIOUR OF KUWAIT STOCK EXCHANGE

ABDULLAH AL-MUTAIRI AND HUSAIN AL-OMAR

Public Authority for Applied Education and Training
E-mail: abdullamutairi@hotmail.com

ABSTRACT

This paper is an attempt to study the effect of macroeconomic variables and the behaviour of Kuwait stock exchange during the period from 1995 to 2005 using monthly data for both the market and its sub sectors. Interest rate, money supply, inflation, and government expenditure are the macro variables used, while market activity is represented by the value of traded shares. Vector autoregression technique is employed to achieve this goal. The study indicates that macroeconomic variables have the expected but a limited impact on the activities of the Kuwait Stock Exchange. Concerning the size of the macroeconomic variables effect, the results show that macroeconomic variables have a long run but limited effect averaging 30%. However, this effect varies across sectors with a range from 18% to 30%. In a closer look at the results, on average, inflation has the highest effect among the macro variables with an average of 11%, followed by money supply with an average of 6%, then interest rate with an average of 4%, and finally government expenditure with an average of 2.6%. On the other hand, the results indicate, on average, that a negative and long term effect of both interest rate and inflation, a positive and long term effect of money supply, and a positive and long term effect of government expenditure except for the insurance sector. These results are typical for emerging markets such as that of Kuwait Stock Exchange where speculation dominates the activities in such markets.

I. INTRODUCTION

The impact of macroeconomic variables on stock prices has been the subject of growing theoritical and emperical investigation. The central issue in this literature is the size and nature of this impact. Theoriticaly, the price of a stock is determined by the expected return on this stock and the discount rate, both of which are affect by macroeconomic conditions. Expected return is sensitive to overall performance of the economy, while the discount rate is affected by interest rate and a risk premium reflecting investor's uncertainty about future returns.

Empirically, stock prices are found sensitive to macroeconomic variables such as GDP, money supply, inflation, and interest rate, however, the nature and the size of such an influence varies across countries and time as a result of different institutional structures that affect the link between stock prices and macroeconomic variables. In this context, developed and emerging stock markets are expected to differ in terms of the sensitivity of their stock prices to economic conditions due to different legal and institutional structures.

The purpose of this paper is to explore the impact of macroeconomic variables on the value of traded shares in the small and open economy of Kuwait, where financial markets are less mature in comparison with those in the industrial countries. Thus, the outcome of this study will be beneficial to both policy makers and investors. In addition, the outcome of this paper is expected to contribute to the limited body of empirical studies on the macroeconomic determinants of market returns in the Gulf Co-operation Council (GCC) countries stock markets in general, and in Kuwait in particular.

The following sections of the study are a brief review of related literature, followed by a summary of previous studies on this issue with a concentration on GCC and Kuwait, then an overview of the Kuwaiti economy is presented in section four, followed by the data and its statistical properties, the model and empirical findings are offered in section six, and the paper ends with a conclusion.

II. LITERATURE REVIEW

Since the fundamental value of stocks equals the expected present value of the firm's future dividends, stock price (return) performance is expected to be a product of the features of macroeconomic factors. In the literature real activity (GDP), interest rate, money supply, and inflation are considered as the main factors affecting the behavior of the stock market.

Due to the expected positive impact of real economic activity on the firm's future profits and consequently on its future dividends, GDP is expected to exert a positive impact on stock return (Fama, 1981, 1990).

The interest rate represents an opportunity cost for investing in stocks. It is also a component of the equity capitalization rate. Therefore, it is considered as one of the most important factors affecting the behavior of investors in the markets. As interest rises, bonds become more attractive investment, given their risk-return characteristics, this motivates investors to adjust their investment portfolios by buying bonds and selling stocks, thus depressing stock prices. Furthermore, the rise in interest rates raises equity capitalization rates, which also leads to lowering stock prices. Accordingly, interest rate is expected to have an inverse effect on stock price.

Concerning the relationship between the stock price and inflation, there is a belief that stocks might prove to be a good hedge against inflation (Fama and Schwert, 1977), since stocks represent claims to real asset. Moreover, stocks are widely assumed to be an attractive investment in an inflationary environment, because they are based on real assets. If rates of return on common stocks move directly with the rate of inflation, investors would be fully compensated for the erosion in purchasing power. This is because common stocks represent a claim to real resources and their value would increase with inflation. However, empirical results show a negative impact of inflation on stock returns; this result may reflect the fact that inflation has a negative impact on real economic activities and consequently on stock returns due to the positive impact of real economic activities on stock returns (Fama, 1981).

Finally, the impact of money supply can be explained in two hypotheses namely Monetary Portfolio Hypothesis (MPH) and Efficient Market Hypothesis (EMH). While EMH assumes that the impact of the change

of money supply on share price reaction is limited and the speed of adjustment does not leave a room for traders to obtain abnormal returns because stock prices incorporate all relevant information, the MPH expects that an increase in money supply will result in an increase in almost all-economic activities including the stock market (Friedman, 1988). Therefore, an increase in domestic liquidity is expected to increase demand for stocks and consequently an increase in stocks prices. However, a negative impact of money supply on stock prices is possible if an increase in money supply result in inflationary pressure (Fama, 1981).

III. PREVIOUS STUDIES

Extensive empirical research has been undertaken to identify the impact of macroeconomic variables, such as GDP, money supply, interest rate, and inflation, on stock return in both developed and emerging markets. The majority of these studies found support for the theoretically expected impact of these variables on the behaviour of stock prices (return).

For developed markets, studies found positive impact of GDP, and a negative impact of interest rate, and inflation in these markets, for example (Jaffe and Mandelker, 1976; Fama, 1981, 1990; Mandelker and Tandon, 1985; Wasserfallen, 1989; Lee, 1992; Kaneko and Lee, 1995; Choi et al., 1999; Atindehou and Gueyie, 2001 ; Joseph, 2002)

Studies on emerging markets, on the other hand, found significant negative effect of interest rate and inflation, while GDP and money supply are found to have positive impact, for example (Kwon et al., 1997;

Groenewold and Fraser, 1997; Adrangi et al.,1999; El-Aal, 1999; Fifield et al., 2002; Hondroyiannis and Papapetrou, 2001; Maghayereh, 2003; Oaikhenan ,2003). Other studies have reported no impact of inflation rate on market return (Kwon et al., 1997; Soenen and Johnson, 2001).

The evidence, however, on the relationship between macroeconomic variables and market returns in the GCC markets is inconclusive. Al-Batel (1999) observed that there is a negative impact for interest rate on stock return in Saudi Arabia investor's behaviour. Bashir and Hassan (1997) found significant and negative relationship between the interest rate fluctuations and stock returns in the United Arab Emirates, similar results have been obtained by Al-Qenae et al. (2002) in the case of Kuwait. While Al-Batel (1999) and Al-Bazai (1999) observed sensitivity between money supply and the Saudi stock market returns, Midani (1991), using a sample of 19 firms operating in three sectors (industry, service, and food), argued that macroeconomic variables such as interest rate and exchange rates have little impact on stock prices in Kuwait Stock Exchange (KSE). Accordingly, the empirical findings on this subject for the GCC countries are mixed and further investigation is needed.

IV. AN OVER VIEW OF THE KUWAITI ECONOMY

Before proceeding into our empirical investigation, a brief overview of the Kuwaiti economy is worth the while. The economy of Kuwait is characterized by its smallness and openness to the rest of the world. Oil and service sectors are the main sectors in the economy averaging about

94% of GDP, non-oil sectors contribute about 50% of GDP. Due to its ownership of the oil sector, the Government plays a significant role in domestic economic activity, it contributes about 70% of GDP, with its expenditure, mainly financed by oil revenue, averaged 30% of GDP and 70% of non-oil GDP. The private sector is still small and depends strongly on government activities and expenditure. During the period between 1995 and 2005, non-oil GDP grew by an average annual rate of 6%, followed by money supply with an average of 6%, then government expenditure by 3%. Inflation on the other hand has been very moderate averaging 2%, while domestic interest rate has been declining at an average rate of 4%. Figures (1) and (2) trace the trend in the behavior of these four macro variables during this period.

Turning to KSE, it was established in 1977 under the supervision of the Ministry of Commerce, in 1983 a decree was issued to reorganize the market as an independent entity governed by a market committee. Kuwaiti as well as non-Kuwaiti companies is allowed to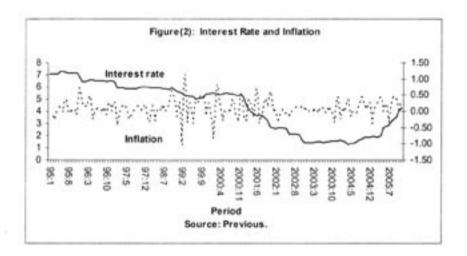 be enlisted based on specific criteria. The market has been growing in terms of both listed companies and activities, however, it has been mainly dominated by speculation which eventually resulted in the crash of 1982, the Manakh Crisis, which greatly depressed the market and the economy as a whole forcing the Government to intervene to save the economy and the banking sector in particular which faces a huge amount of bad debt reaching more than 6 billion KD. This crisis forced the authorities to revise the regulations governing the activities of the market toward more efficient market.
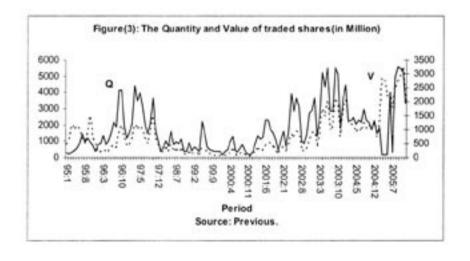
The number of listed companies increased from 51 companies in 1995 to 158 in 2005, while market capitalization increased from 4.3 billion KD in 1995 to 41 billion KD, and net profits from 318 million KD in 1995 to 3.31 billion KD in 2005. During this period, the market has witnessed a noticeable increase in both prices and trade volume, as table (1) shows, where volume increased by 477%, value by 1389%, and Price Index by 738 %. Accordingly, on average, profits increased by an annual rate of about 32%, while volume and value of traded shares increased by 41% and 62% respectively.

Table(1) : Main Indicators of KSE (in billion except listed companies and price index)

Year	Listed Co's.	Net Profit	Capitalization	Volume	Value	Price Index
1995	51	0.318	4.1	9.05	1.90	1365
1996	60	0.405	6.2	25.74	5.76	1905
1997	74	0.616	9	33.99	10.49	2651
1998	78	0.352	5.8	13.91	3.34	1582
1999	85	0.432	6.2	9.49	1.84	1442
2000	86	0.472	6.4	6.75	1.29	1348
2001	88	0.578	8.3	16.29	3.58	1709
2002	95	0.667	10.5	27.83	6.68	2375
2003	108	1.25	18.1	49.56	16.25	4790
2004	125	1.66	22.1	33.53	15.27	6410
2005	158	3.31	41.4	52.24	28.42	11445

Figure(1): Government Expenditure and Money Supply (Million KD)

Period
Source: CBK, Quarterly Reports.

Figure(2): Interest Rate and Inflation

Period
Source: Previous.

Figure(3): The Quantity and Value of traded shares(in Million)

Period
Source: Previous.

The data, however, show that this trend has been fluctuating as the market experienced two main upward trends in 1997, and during the period from 2002 to 2005. The data in general show a continuiuos increase in net profits and capitalization since the year 2000, a positive signal of healthy performance by listed companies which in general was associated with a similar trend in market activities as indicated by price index as well as both the volume and value of traded shares.

V. DATA AND ITS STATISTICAL PROPERTIES

Data

Since the purpose of this study is to examine the impact of macroeconomic factors on KSE performance, the data employed consists of monthly observations covering the period from 1995 to 2005 of the value of traded shares (V) for the whole market and its seven sectors; Banks, Investment, Insurance, Real-Estate, Industry, Service, and Food. In addition, the study used the following four macroeconomic variables: Government expenditure (GX), Broad Money Supply (M), Interest Rate (R), and Inflation measured by the change in the log of consumer price index (P). While the other variables are widely used in the literature, the inclusion of Government expenditure is decided in order to capture the effect of this important variable and to proxy domestic real activities.

Statistical properties

Before proceeding to the empirical investigation, the data are subjected to stationarity and cointegration tests to insure valid empirical results.

Stationarity test:

To avoid the problem of spurious regression, the variables are first tested for stationarity to ensure that all variables are stationary and are integrated of the same order. Augmented Dickey-Fuller test and Philips-Perron test are used. The results as shown in table (2) are mixed, accordingly the study will consider all variables as first-difference stationary except for inflation which is stationary in its level. This in turn raise two issues; the first is that there is no long run relation between the value of traded shares and inflation, the

Table (2) : Stationarity Test

	Dickey-Fuller		Philips-Perron	
	Level	**1ST Diff**	**Level**	**1ST Diff**
Banks	-1.7	-6.8*	-4.1*	-
Investment	-1.7	-5.6*	-2.6	-11.8*
Insurance	-2.7	-8.07*	-6.4*	-
Real Estate	-1.7	-6.4*	-2.6	-13.8*
Industry	-2.1	-5.4*	-3.03**	-12.5*
Serervice	-1.5	-5.9*	-2.8	-12.9*
Food	-2.6	-7.6*	-3.9*	-
Market	-1.5	-5.9*	-2.5	-12.6*
R	-0.1	-6.5*	-0.6	-5.7*
GX	-3.3**	-7.6*	-9.4*	-
M	1.1	-5.7*	0.7	-9.3*
P	-6.4*	-	-15.5*	-

* significant at 1% ; ** significant a

second is that since the value of traded shares is non- stationary, then it might be argued that KSE is ineffecient (Leigh, 1997).

Cointegration Test:

The next step is to test for possible long-run equilibrium relation between the dependent and the three non-stationary independent variables, R, GX, and M, using the cointegration test developed by Johansen (1991). The results as shown in table (3) indicate the existence of cointegration

Table (3) : Cointegration Results

	Cointegrated vectors	Likelihood Ratio
Banks	1	92.5*
Investment	1	73.8*
Insurance	2	101.3*
Real Estate	1	71.2*
Industry	1	71.7*
Serervice	1	79.9*
Food	1	73.5*
Market	1	77.8*

*significant at 1% level % ; ** significant at 5%

between the value of traded shares and the macro variables for all sectors at 1% level of significance, and accordingly the existence of a long-run equilibrium relationship. This result supports the inefficiency

argument in the previous section, as cointegration implies the possibility of using information on macroeconomic variables to predict the behaviour of the value of traded shares.

VI. The Model and Emperical Results
The Model

Vector autoregression technique is employed to examine the effect of these macro variables, this technique requires ordering the variables from the least to the most affected by the others. Therefore, the variables are ordered as follow: R, GX, M, P, V, and the model is estimated by a system of equations equals the number of variables in the model where each variable is regressed on it's lagged values and the lagged values of the other variables in the system, the number of lags are usually determined by Akaike criterion which indicates that for this model 2 lags is the optimal lag length, thus the model will be estimated using two lags for each variable, and since the variables are integrated of the same order except for inflation, then they will be used in their first difference form (Engle and Granger, 1987).

Accordingly the following VAR system of equations will be estimated by OLS:

$$R_t = C_4 + \sum_{i=1}^{2} \alpha_{4i} GX_{t-i} + \sum_{i=1}^{2} \beta_{4i} M_{t-i} + \sum_{i=1}^{2} \tau_{4i} P_{t-i} + \sum_{i=1}^{2} \kappa_{4i} R_{t-i} + \sum_{i=1}^{2} \pi_{4i} V_{t-i} + U_4 \qquad (1)$$

$$GX_t = C_1 + \sum_{i=1}^{2} \alpha_{1i} GX_{t-i} + \sum_{i=1}^{2} \beta_{1i} M_{t-i} + \sum_{i=1}^{2} \tau_{1i} P_{t-i} + \sum_{i=1}^{2} \kappa_{1i} R_{t-i} + \sum_{i=1}^{2} \pi_{1i} V_{t-i} + U_1 \qquad (2)$$

$$M_t = C_2 + \sum_{i=1}^{2} \alpha_{2i} GX_{t-i} + \sum_{i=1}^{2} \beta_{2i} M_{t-i} + \sum_{i=1}^{2} \tau_{2i} P_{t-i} + \sum_{i=1}^{2} \kappa_{2i} R_{t-i} + \sum_{i=1}^{2} \pi_{2i} V_{t-i} + U_2 \qquad (3)$$

$$P_t = C_3 + \sum_{i=1}^{2} \alpha_{3i} GX_{t-i} + \sum_{i=1}^{2} \beta_{3i} M_{t-i} + \sum_{i=1}^{2} \tau_{3i} P_{t-i} + \sum_{i=1}^{2} \kappa_{3i} R_{t-i} + \sum_{i=1}^{2} \pi_{3i} V_{t-i} + U_3 \qquad (4)$$

$$V_t = C_5 + \sum_{i=1}^{2} \alpha_{5i} GX_{t-i} + \sum_{i=1}^{2} \beta_{5i} M_{t-i} + \sum_{i=1}^{2} \tau_{5i} P_{t-i} + \sum_{i=1}^{2} \kappa_{5i} R_{t-i} + \sum_{i=1}^{2} \pi_{5i} V_{t-i} + U_5 \qquad (5)$$

Then two tools are utilized to measure the size, nature, and duration of the impact of each variable on the value of traded shares, those tools are variance decomposition and impulse response function respectively.

Variance Decomposition

This tool measures the relative effect of each variable on itself and the others in the system, thus indicating the contribution, out of 100%, of each variable on the variation of itself and the others. The results as shown in table (4) indicate that the macro variables have a long-run but limited effect on the

behavior of the value of traded shares. For the market as a whole about 11% of the variation in the value of traded shares is explained by the variation in these variables, while for the sectors, the contribution of these variables varies as services comes first with a contribution of 16% followed by insurance with 14%, food with 11%, investment with 10%, bank with 10%, real-estate with 7%, and industry with 7%.

In a closer look at the results, government expenditure has the highest effect among the macro variables with an average of 3.9%, followed by inflation with an average

Table (4) : Variance Decomposition of Value of Traded Shares

Banks					Investment					Insurance				
R	GX	M	P	V	R	GX	M	P	V	R	GX	M	P	V
0.62	1.50	1.47	0.00	96.40	0.15	2.88	0.62	0.37	95.98	2.88	0.22	0.42	2.48	94.00
1.70	1.49	1.24	0.86	94.71	0.62	3.48	0.68	2.35	92.88	5.55	1.73	0.77	4.99	86.97
3.99	1.51	2.25	1.84	90.42	0.57	3.70	0.85	4.83	90.05	5.53	1.99	0.99	5.17	86.33
3.87	1.48	2.58	1.82	90.25	0.61	4.14	0.99	4.79	89.46	5.51	2.14	1.04	5.16	86.15
4.13	1.48	2.59	1.86	89.94	0.61	4.13	1.00	4.91	89.35	5.49	2.41	1.06	5.14	85.90
4.14	1.47	2.58	1.92	89.89	0.61	4.14	1.00	4.92	89.33	5.49	2.46	1.06	5.14	85.85
4.15	1.48	2.58	1.91	89.88	0.61	4.14	1.01	4.92	89.31	5.49	2.46	1.07	5.14	85.84
4.16	1.49	2.58	1.92	89.85	0.61	4.14	1.01	4.92	89.31	5.49	2.46	1.07	5.14	85.83
4.16	1.49	2.57	1.92	89.85	0.61	4.14	1.01	4.92	89.31	5.49	2.47	1.07	5.14	85.83
4.16	1.49	2.58	1.92	89.85	0.61	4.14	1.01	4.92	89.31	5.49	2.47	1.07	5.14	85.83
4.16	1.49	2.58	1.92	89.85	0.61	4.14	1.01	4.93	89.31	5.49	2.47	1.07	5.14	85.83
4.16	1.49	2.58	1.92	89.85	0.61	4.14	1.01	4.93	89.31	5.49	2.47	1.07	5.14	85.83
Real Estate					**Industry**					**Services**				
R	GX	M	P	V	R	GX	M	P	V	R	GX	M	P	V
0.02	2.76	0.08	0.17	96.96	0.01	0.38	1.94	1.20	96.47	0.01	3.84	0.53	0.04	95.58
0.68	3.99	0.28	0.72	94.33	0.05	0.52	2.60	1.18	95.65	0.17	5.19	0.55	6.04	88.06
0.81	3.97	1.09	1.04	93.09	0.37	0.53	4.72	1.39	92.99	0.16	5.09	0.58	9.97	84.21
0.80	4.67	1.10	1.02	92.41	0.45	0.61	4.70	1.41	92.83	0.16	5.08	1.01	9.94	83.80
0.79	4.84	1.10	1.02	92.24	0.47	0.61	4.70	1.41	92.81	0.16	5.26	1.23	9.98	83.37
0.80	4.85	1.10	1.02	92.23	0.47	0.64	4.70	1.41	92.77	0.17	5.38	1.25	9.97	83.22
0.80	4.88	1.11	1.02	92.19	0.47	0.66	4.71	1.41	92.75	0.17	5.40	1.25	9.97	83.20
0.80	4.89	1.11	1.02	92.18	0.47	0.66	4.71	1.41	92.75	0.17	5.40	1.26	9.97	83.20
0.80	4.89	1.11	1.02	92.18	0.47	0.66	4.71	1.41	92.75	0.17	5.40	1.26	9.97	83.20
0.80	4.89	1.11	1.02	92.18	0.47	0.66	4.71	1.41	92.75	0.17	5.41	1.26	9.97	83.19
0.80	4.89	1.11	1.02	92.18	0.47	0.66	4.71	1.41	92.75	0.17	5.41	1.26	9.97	83.19
0.80	4.89	1.11	1.02	92.18	0.47	0.66	4.71	1.41	92.75	0.17	5.41	1.26	9.97	83.19
Food					**Market**									
R	GX	M	P	V	R	GX	M	P	V					
0.19	3.56	0.05	0.92	95.28	0.16	3.21	0.60	0.20	95.83					
0.21	5.49	0.28	1.09	92.93	0.82	4.24	0.57	2.71	91.66					
0.24	6.07	1.95	1.51	90.23	0.76	4.03	0.64	5.01	89.57					
0.27	7.79	1.93	1.50	88.50	0.79	4.38	0.84	4.96	89.03					
0.27	7.97	1.94	1.51	88.31	0.78	4.41	0.89	5.09	88.83					
0.28	8.01	1.98	1.51	88.23	0.78	4.41	0.89	5.09	88.82					
0.28	8.10	2.00	1.51	88.13	0.78	4.41	0.90	5.10	88.81					
0.28	8.12	1.99	1.51	88.10	0.78	4.41	0.90	5.10	88.81					
0.28	8.12	2.00	1.51	88.10	0.78	4.41	0.90	5.10	88.81					
0.28	8.12	2.00	1.51	88.10	0.78	4.41	0.90	5.10	88.81					
0.28	8.12	2.00	1.51	88.10	0.78	4.41	0.90	5.10	88.81					
0.28	8.12	2.00	1.51	88.09	0.78	4.41	0.90	5.10	88.81					

of 3.7%, then money supply with an average of 1.9%, and finally interest rate with an average of 1.7%. Accordingly, both government expenditure and inflation are more important among macro variables in affecting the value of traded shares; with the other two variables have about half of the effect by the former.

Regarding the ranking by sector of the relative effect of each of the four macro variables, starting with the government expenditure effect, the food sector has the highest effect followed by services, real-estate, investment, service, insurance, banks, and industry. For inflation effect, services sector comes first followed by insurance, investment, banks, food, industry, and real-estate. The effect of interest rate is the highest on the insurance sector then banks, real-estate, investment, industry, food, and service respectively. Money supply has the highest effect on industry sector followed by banks, food, service, real-estate, insurance, and investmen

Impulse Response

Turning to the nature and duration of the

Table (5) : Response of Value of Traded Shares to Shocks in Other Variables

Banks					Investment					Insurance				
R	GX	M	P	V	R	GX	M	P	V	R	GX	M	P	V
-0.04	0.06	0.06	0.00	0.50	-0.02	0.10	0.05	-0.04	0.57	0.19	0.05	0.07	0.18	1.10
-0.06	-0.03	0.00	-0.05	-0.21	-0.04	-0.05	0.02	-0.08	-0.02	-0.23	-0.16	-0.08	-0.22	-0.47
0.09	-0.02	-0.06	0.06	-0.10	0.01	-0.05	0.03	0.10	-0.16	-0.02	0.07	0.06	0.06	0.00
0.02	0.01	0.04	-0.02	0.12	0.01	0.04	0.02	0.00	0.02	0.00	0.05	0.03	0.01	0.04
-0.03	0.00	-0.01	-0.01	-0.01	0.00	-0.01	-0.01	-0.02	0.04	-0.01	-0.07	-0.02	-0.01	-0.02
0.01	0.00	0.00	0.01	-0.04	0.00	-0.01	0.00	0.00	-0.01	0.01	0.03	0.00	0.00	0.00
0.01	-0.01	0.00	0.00	0.02	0.00	0.00	0.01	0.01	-0.01	0.00	0.00	0.01	0.00	0.00
-0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	0.00	0.01
0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Real Estate					Industry					Services				
R	GX	M	P	V	R	GX	M	P	V	R	GX	M	P	V
-0.01	0.11	0.02	-0.03	0.66	0.00	0.04	0.09	-0.07	0.64	0.01	0.11	0.04	-0.01	0.53
-0.06	-0.08	0.03	-0.05	-0.14	-0.01	-0.03	-0.05	0.01	-0.07	-0.02	-0.07	-0.01	-0.14	-0.04
-0.03	-0.02	0.06	0.04	-0.10	-0.04	-0.01	0.10	0.04	-0.13	0.00	0.02	-0.01	0.12	-0.05
0.00	0.06	0.01	0.00	0.07	-0.02	0.02	-0.01	-0.01	0.05	0.00	0.01	0.04	-0.01	0.00
0.00	-0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.00	-0.03	-0.03	-0.02	0.00
0.00	0.00	0.00	0.00	-0.01	0.00	-0.01	0.00	0.00	-0.01	0.00	0.02	0.01	0.00	0.00
0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00
0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Food					Market				
R	GX	M	P	V	R	GX	M	P	V
-0.04	0.16	-0.02	-0.08	0.83	-0.02	0.09	0.04	-0.02	0.47
-0.01	-0.13	-0.04	-0.04	-0.13	-0.04	-0.05	0.00	-0.08	-0.04
-0.02	-0.08	0.12	0.06	-0.13	0.01	-0.02	0.02	0.08	-0.13
-0.02	0.12	0.02	-0.02	0.06	0.01	0.03	0.02	0.00	0.03
0.00	-0.04	0.01	0.01	-0.01	0.00	-0.01	-0.01	-0.02	0.03
0.01	-0.02	-0.02	0.00	0.00	0.00	0.00	0.00	0.01	-0.01
0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.01	0.00	-0.01
0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

impact of each variable on the behavior of stock price in the sample, the results, as table (5) shows, indicate on average a negative and long term effect of both interest rate and inflation, a positive and long term effect of money supply, and a positive and long term effect of government expenditure except for the Insurance sector

Therefore, based on the previous discussion, it may be argued that macroeconomic variables have the expected effect on the behaviour of the value of traded shares, however, the effect of such variables is relatively small indicating the dominance of speculative expectations which on averaged is responsible for more than 88% of the variations in the value of traded shares, and thus support the inefficiency argument introduced in the previous sections.

VII. CONCLUSION

The results obtained by this study indicate that macroeconomic variables have the expected impact on the activities of the KSE, however, this impact is relativly small. Conserning the size of the macroeconomic variables effect, the results show that macroeconomic variables, on average, are responsible for 11% of the variation in the value of traded shares. However, this effect varies across sectors with a range from 7% to 16%. In a closer look at the results, on average, government expenditure has the highest effect among the macro variables with an average of 3.9%, followed by inflation with an average of 3.7%, then money supply with an average of 1.9%, and finally interest rate with an average of 1.7%. On the other hand, the results indicate a negative and long term effect of both interest rate and inflation, a positive and long term effect of money supply, and government expenditure. These results reflect the dominance of speculation in the activities KSE, and the ineffeciency characterizing it, thus stressing the need to improve the institutional framework governing the activities of this market.

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A Short Bio of Abdulla Kh. Al-Mutairi and Husain Al Omar

Abdulla Kh. Al-Mutairi (Ph.D. in Finance and Investment, Cardiff University, 2004), College of Business Studies, Public Authority Applied for Education and Training (PAAET), His area of interest includes dividend Policy, Bank Performance, Market reaction and Investor behavior.

Husain AL-Omar (Ph.D. in Economics, Miami University, Florida, USA 1990), Associate Professor, College of Business Studies, Public Authority Applied for Education and Training (PAAET), His area of interest includes dividend Policy Economic Policy, Bank Performance and Investment analysis