

Type of Traders' Effect on Risk and Return: The Case of Egyptian Stock Exchange

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Abstract

This research paper aims to estimate the effect of investor categories (Foreigners, Arab, Egyptian institutions and individuals) trading volume, value and number of transactions on capital market returns and volatility.

We depend on data Foreigners, Arabian and Egyptian trading volume, values and number of transaction of buying and selling for institutions and individuals and capital market values for the period from January 1st 2009 to December 31 2013.

We used descriptive statistics to identify normal distribution of data. Then, performing lead lag structure approach to obtain the optimum lag for the independent variable which has the maximum correlation with the dependent variable. Next, Garch model utilized to estimate the effect of trading volume, value, number of transactions on capital market return and volatility. Finally, the same model utilized to estimate the effect of investor categories on capital market return and volatility for the six periods starting from January 1st 2009 to December 31 2013 which represents the whole period and five yearly periods for the same period.

We found that institutions are the main source of volatility in the Egyptian stock market. Garch models showed weak effect on volatility for all periods. In the light of this study Foreigners and trading value items are the main source of effect on volatility. Finally, consistent with Chou (1988), the findings of GARCH model indicated that volatility persistence is less than unity which revealed that the Egyptian stock market could absorb shocks across time.

Keywords: traders, risk, return, volatility, Egyptian stock exchange

1. Introduction

Market volatility affects the incentive to save and to invest. That is the more volatile the asset market holding the average return constant the less the agent will save and hence the less investment will be. But, certain degree of market volatility is unavoidable even desirable as one would like the stock price fluctuation to indicate changing values across economic activities so that resources can be better allocated. Next three figures show the trend trading volume, value and number of transactions across the last five years quarterly were as follows:

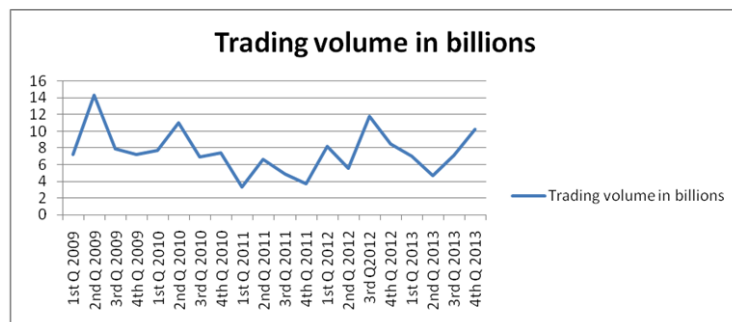


Figure 1. Trading volume in millions

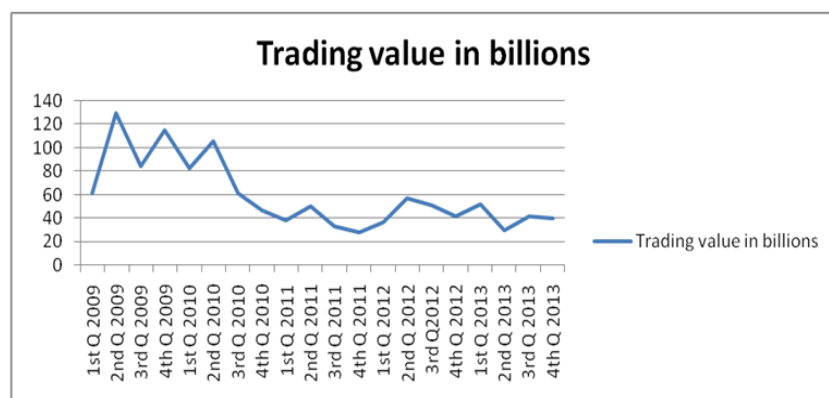


Figure 2. Trading volume in billions

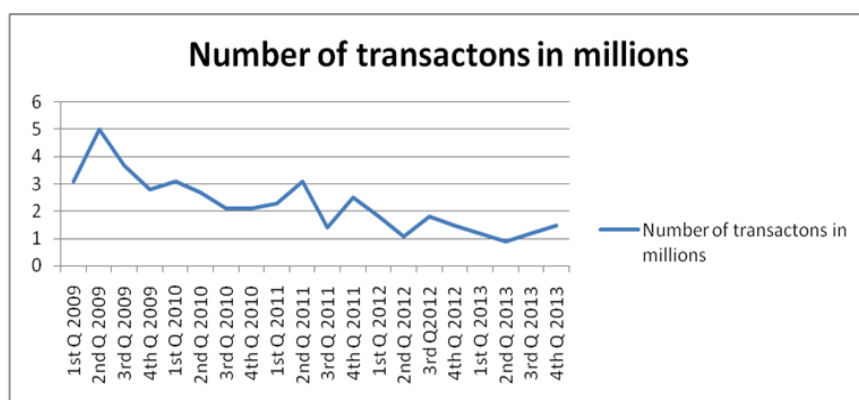


Figure 3. Number of transactions in millions

We could observe from the previous figures strong variance across time for all and at the same time curves were not moving in the same directions especially after 2010 which mean that those variables might vary in their effect on capital market return and volatility across time. The rest of the paper will be organized as follows. Section 2 explain the literature review, section 3 the methodology, section 4 the results of the analysis and section 5 provide the conclusion.

2. Literature Review

Tauchen and Pitts (1983) suggest that, in liquid or mature markets, where the number of stocks traders is large, the relationship between trading volume and volatility of price change should be positive. According to Wang (1994) investor heterogeneity and incomplete markets in asset pricing models, trading volume play important role in influencing asset prices. He developed one such “rational expectations” model, linking trading volume to stock price volatility under asymmetric information and found a positive relation between trading volume and absolute changes in stock prices. However informed and uninformed investors behave differently in his model. Huang, Roger D. and Masulis, Ronald W. (2003) analyzed transactions data for financial Times stock Exchange and showed that trade frequency and average trade size effect price volatility for small trade. While large trades have a frequency affects price volatility. Then, Xioo, and Wang (2007) examined the static relationship between stock return and trading and they found a significant positive correlation between them. Girard and Biswas (2007) investigated the relationship between volatility and volume in 22 developed markets and 27 emerging markets which could be attributed to relative inefficiency in those markets. They showed that when volume is decomposed into expected and unexpected components volatility persistence decrease. Again Girard and Omran (2009) showed identical results in the Egyptian stock Exchange. kyrolainen (2009) examined whether day trading is related to volatility of stock prices and found a strong positive time-series relation between the number of day trades by individual investors and intraday volatility among heavily day traded stocks. Li, and Wana (2010) examined the short-run dynamic relation between daily institutional trading and stock price volatility in a retail investor-dominated emerging market and they found a significant negative relation between volatility and

institutional net trading that was mainly due to the unexpected institutions trading. Tayde and Raq (2011) examined foreign institutional investors whether they exhibited herding and positive feedback trading while investing in the Indian market and they found that foreign institutional investors exhibited herding and positive feedback trading during different phases of the stock market. Bagchi (2012) examined the relationship between volatility index and stock index return by using three parameters stock beta, market to book value of equity and market capitalization for sorting purpose and found that India VIX had a positive and significant relationship with the returns of the value-weighted high-low portfolio sorted on the basis of the above parameters.

Chuang and Susmel (2012) investigated contemporaneous and causal relations between trading volume and stock returns for ten Asian stock market (Hong Kong, Japan, Korea, Singapore, Taiwan, China, Indonesia, Malaysia, Philippines and Thailand) and they found that there were a positive bi-directional causality between stock returns and trading volume in Taiwan and China, and between trading volume and return volatility in Japan, Korea, Singapore and Taiwan. Furthermore, Kaniel et al. (2012) examined information content of trading by individual investor's trades around earning announcements and they found that aggregate individual investor trading predicts abnormal stock return at and after earnings announcement dates and about half of the post earnings announcement abnormal return can be attributed to private information. Also, Ulku and Weber (2013) employed daily data on trading of various investor types and they found that merchant trading had both significant information content and forecasting ability; private funds were positive feedback traders but their trading had limited informational content, foreign investors were positive feedback traders and they also had significant information content. while, Adaoglu and katirciogler (2013) investigated the direction of causality between the monthly stock returns and the monthly net foreign investor flows and existence of feedback trading by foreign investors for the "blue ship" stocks of the Istanbul stock exchange and they found that unidirectional causality running from monthly stock returns to monthly net foreign investor flows detected from the pre-En accession negotiation period accompanied by a negative feedback trading could not be established for the post-Eu accession negotiation period, the relationship in a contemporaneous one rather than a lagged relationship for the latter period. Furthermore, Lan et al. (2014) studied the relationship between price volatility, trading volume by using threshold model, variable decomposition and found that the increasing volume adds to price volatility and opposite to developed markets, unexpected volume had less interpretation power for price volatility than expected volume. Finally, Tomas, Heryan (2014) examined whether the prices volatility of selected financial companies shares differs within the both samples below its average of trading volume and above. They founded no significant relationship between trading volume and stock price volatility.

The literature review showed the following aspects:

- Trade size and frequency influences stock price volatility.
- Institution and individual had a significant effect on stock price volatility.
- There were a relation between trade volume and stock market volatility and when it was decomposed into expected and unexpected volatility decrease.
- There was a relation between positive feedback trading and stock price volatility.
- There were different contemporaneous and causal relations between trading volume and stock returns across countries.

Thus most previous studies concentrate on the relation between trading and stock price or return volatility. While this examines the effect of institutions and individuals for (foreigners, Arab and Egyptians) trading volumes, values and number of transactions on capital market return volatility and its variation across different circumstances. In doing so, the following questions will be addressed:

- To what extent the investor categories Foreigners, Arab, Egyptian institutions and individuals trading volume, value and number of transactions affects the capital market return volatility?
- To what extent those effects vary in the last five years?

3. Data and Methodology

The research used data related to trading volume, values and number of transaction for buying and selling done by different investor categories institutions and individuals decomposes into Foreigners, Arabian and Egyptian and capital market values on daily basis. These data are collected during the period from January 1st 2009 to December 31, 2013, divided into six time series, the first one include the whole period and the rest divided yearly. Variables can be defined as follows:

A. Independent variables:

Total trading volume which is the number of shares traded in a stock market for a given period, typically for one day divided into:

Trading volume for institution (X1) decomposes into:

Trading volume for Egyptian institutions (X11).

Trading volume for foreign institutions (X12).

Trading volume for Arab institutions(X13).

Trading volume for individuals (X2) decomposes into:

Trading volume for Egyptian individuals(X21).

Trading volume for foreign individuals(X22).

Trading volume for Arab individuals(X23).

Total trading value which is the number of shares traded multiply by its close price (market price) in a stock market for a given period, typically for one day divided into:

Trading value for institutions (X3) decomposes into.

Trading value for Egyptian institutions(X31).

Trading value for foreign institutions(X32).

Trading value for Arab institutions(X33).

Trading value for individuals (X4) decomposes into.

Trading value for Egyptian individuals(X41).

Trading value for foreign individuals(X42).

Trading value for Arab individuals(X43).

Total number of transactions which is the sum of buys and sell transactions on shares in a stock market for a given period, typically for one day divided into:

Number of transactions institutions (X5) decomposes into:

Number of transaction for Egyptian Institutions(X51).

Number of transactions for foreign Institutions(X52).

Number of transactions for Arab Institutions(X53).

Number of transaction for individuals (X6) decomposes into.

Number of transactions for Egyptian individuals (X61).

Number of transactions of foreign individuals (X62).

Number of transactions of Arab individuals (X63).

B. Dependent variable:

Capital market return which is equal to the change percentage of daily capital market value.

Table 1. The descriptive statistics of the research variables

Var	Mean	StDev	Min	Median	Max	Skew	Kurtosis	J. Bara
y	0.04	1.22	-0.1	0.0	0.1	-0.5	3.9	8.03
X1	43338871.0	42869151.0	6917400.0	35850754.0	877395853.0	10.7	170.0	1.44E+4*
x11	17367468.0	23913856.0	2592606.0	13573535.0	652507043.0	17.5	432.4	9.26E+4*
X12	19209564.0	22585261.0	968978.0	14835442.0	391752769.0	9.4	130.7	8.58E+3*
X13	6761839.0	14478817.0	465554.0	4889471.0	441428698.0	24.0	693.2	2.38E+5*
X2	180337578.0	88657234.0	35676738.0	159159282.0	731103628.0	1.3	2.2	5.50
X21	169124909.0	81909684.0	35251401.0	150979817.0	696804135.0	1.3	2.3	5.79
X22	1110058.0	1096736.0	6000.0	770322.0	10780769.0	2.7	12.9	9.73E+1*
X23	10102611.0	9318743.0	419337.0	7098185.0	72490761.0	2.7	9.9	6.26E+01
X3	582125815.0	2106389268.0	27299497.0	356235521.0	39117543262.0	15.5	254.9	3.25E+4*
X31	225235629.0	1520648116.0	6711637.0	106155943.0	38993634672.0	21.7	503.1	1.26E+5*
X32	288805575.0	864480410.0	6233477.0	193507172.0	21856352563.0	18.8	407.7	8.25E+4*
X33	68084610.0	503366009.0	1397380.0	36086101.0	16913492930.0	31.8	1057.9	5.53E+5*
X4	840273714.0	561442948.0	111911547.0	690807407.0	4468987932.0	1.5	3.1	9.40E+00
X41	785344769.0	528808715.0	106207540.0	643261661.0	4432854264.0	1.6	3.6	1.14E+1*
X42	6421915.0	8746334.0	92085.0	3712169.0	98827737.0	4.4	27.5	4.09E+02*
X43	48507031.0	48493949.0	1613066.0	35924117.0	727631450.0	5.7	60.4	1.86E+3*
X5	8764.2	3370.1	1383.0	8488.0	22365.0	0.5	0.4	6.27E-1*
X51	3281.8	1596.5	399.0	3048.0	13016.0	1.0	1.8	3.61
X52	4466.1	2158.6	214.0	4224.0	17368.0	1.0	2.2	4.25
X53	1016.2	550.0	108.0	923.0	3806.0	1.1	1.4	3.10
X6	57712.0	31967.0	11981.0	50483.0	183141.0	1.2	1.4	3.67
X61	56102.0	31078.0	11406.0	48965.0	178745.0	1.2	1.4	3.69
X62	191.1	152.2	13.0	152.0	1238.0	2.3	8.2	4.33E+1*
X63	1418.9	885.0	205.0	1209.0	5541.0	1.3	1.8	5.08

*: means the corresponding variable doesn't follow the normal distribution.

The dependent variable (capital market return) showed normal distribution according to Jarque-Bera test and it could be state that there is no randomness in the data. While independent variables (Institutions and individuals) from X1 to X6 showed that all institutions traded volume, value and number of transactions were not normally distributed and all individuals traded volume, value and number of transactions were normally distributed, which indicate that the institutions were the main source of randomness in the Egyptian stock market.

The model was developed in three steps. First, performing lead lag structure approach is to obtain the optimum lag for the independent variable which has the maximum correlation with the dependent variable. Second, utilizing Garch model for its ability to capture volatility to the institution and individual trading (trading volume, trading value and number of transactions), decomposed into three investors categories (Foreign, Arabian and Egyptian) clustering in stock return data. Finally, retry utilizing the models for each year to identify variation for the effect of independent variables (Institutions and individuals traded volume, value and number of transactions for Foreigners, Arab, and Egyptian) on capital market return volatility.

This study hypothesizes that the Egyptian Stock Exchange capital market return volatile due to the movements of trading volume, value and number of transactions which took place by the actions of institutions and individuals for Foreigners, Arab and Egyptian, and this volatility might vary across time during five years period from January 1st 2009 to December 31 2013 by employing ARCH /GARCH model.

The models are as follows:

$$Y = f\{X1, X2, X3, X4, X5, X6\} \quad (1)$$

$$Y = f\{X11, X12, X13, X21, X22, X23, X31, X32, X33, X41, X42, X43, X51, X52, X53, X61, X62, X63\} \quad (2)$$

The derived mathematical multiple regression of the above models is:

$$Y_t = \alpha + \beta_1 X(t-g) + \beta_2 X2(t-g) + \beta_3 X3(t-g) + \beta_4 X4(t-g) + \beta_5 X5(t-g) + \beta_6 X6(t-g) + \epsilon_t \quad (3)$$

$$Y_t = \alpha + \beta_1 X11(t-g) + \beta_2 X12(t-g) + \beta_3 X13(t-g) + \beta_4 X21(t-g) + \beta_5 X22(t-g) + \beta_6 X23(t-g) + \beta_7 X31(tg) + \beta_8 X32(t-g) + \beta_9 X33(t-g) + \beta_{10} X41(t-g) + \beta_{11} X42(t-g) + \beta_{12} X43(t-g) + \beta_{13} X51(t-g) + \beta_{14} X52(t-g) + \beta_{15} X53(t-g) + \beta_{16} X61(t-g) + \beta_{17} X62(t-g) + \beta_{18} X63(t-g) + \epsilon_t \quad (4)$$

In equations (3 and 4), Y representing capital market volatility, α is constant, β are the coefficients, X are representing independent variables, t is the daily date, g is the lead lag structure value & ε is the error term. In the light of literature review, the coefficient of variables; X's, are expected to be positive.

4. Results

The influence of trading volume, value and number of transactions for institutions and individuals of Foreigners, Arab and Egyptian variables on the capital market returns was estimated utilizing both OLS and ARCH/GARCH estimation models respectively.

Table 2. The estimation of the effect of influence of trading volume, value and number of transactions for institutions and individuals on the capital market return for the period from January 1st 2009 to December 31 2013 Dependent Variable: Y (Daily Capital Market Return)

ARCH test:

F-Statistics	115.2830	Probability	0.0000	
Obs*R squared	105.2238	Probability	0.0000	
Variables	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.005652	0.001561	-3.620597	0.0003
X1 (-3)	3.16E-13	2.37E-13	1.335238	0.0818
X4 (-1)	1.50E-11	5.79E-12	2.594420	0.0095
X5 (0)	3.81E07	1.34E-07	2.847158	0.0044
Variance Equation				
C	0.000225	7.69E-06	29.18651	0.0000
ARCH(1)	0.234921	0.033979	6.913689	0.0000
R-squared	0.016341	Mean dependent var	0.000458	
Adjusted R-squared	0.012180	S.D. dependent var	0.017376	
S.E. of regression	0.017270	Akaike info criterion	-5.350282	
Sum squared resid	0.352529	Schwarz criterion	-5.324625	
Log Likelihood	3184.067	F-Statistics	3.927103	
Durbin-Watson stat	1.673037	Prob(F-Statistics)	0.001551	

The model gave an explanation of 1.6% of the variation in capital market return which means that there were 98.4% explained by other variables and the calculated coefficients of X4 trading value of individuals and X5 number of transactions of institutions were positive and significant at 5%.

Table 3. The estimation of the effect of Foreigners, Arab and Egyptian institutions and individuals for trading volume, value and number of transactions on the capital market return for the period from January 1st 2009 to December 31 2013 Dependent Variable: Y (Daily Capital Market Return)

ARCH test:

F-Statistics	85.23109	Probability	0.0000	
Obs*R squared	79.64638	Probability	0.0000	
Variables	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.008022	0.001245	-6.441562	0.0000
X13(0)	2.63E-10	5.26E-11	4.995137	0.0000
X51 (0)	1.90E-10	4.25E-07	4.474309	0.0000
X42(-2)	-2.57E-10	4.04E-11	-6.367051	0.0000
X31(-3)	9.20E-13	5.40E-13	1.704417	0.0883
X18(-1)	-4.54E-08	2.07E-08	-2.190850	0.0285
X11	3.87E-06	1.05E-06	3.699312	0.0002
Variance Equation				
C	0.000207	6.01E-06	34.40654	0.0000
ARCH(1)	0.255550	0.033605	7.604494	0.0000
R-squared	0.080035	Mean dependent var	0.000458	
Adjusted R-squared	0.073792	S.D. dependent var	0.017376	
S.E. of regression	0.016723	Akaike info criterion	-5.416576	
Sum squared resid	0.329702	Schwarz criterion	-5.378091	
Log Likelihood	3226.446	F-Statistics	12.82123	
Durbin-Watson stat	1.707525	Prob(F-Statistics)	0.000000	

The model gave an explanation of 8% of the variation in capital market return which means that there were 92% explained by other variables and The calculated coefficients of X13 trading volume for Arab institutions, X51 number of transaction for Egyptian Institutions X42 trading value for foreign individuals, X61 number of transactions for Egyptian individuals X53 number of transactions for Arab Institutions were positive and significant at 5%.

Table 2 and 3 which represent the whole period didn't show which trading activities or investor categories have the core effect on capital market return volatility and this might return to nature of the research period which include consequences of world-wide financial crisis and 25th Egyptian revolution and its consequences, so we were gone to divide the whole period into five periods trying to discover the differentiation of the effect and the core of it and how it was changing across the five years by applying the two previous models as follows:

Table 4. The estimation of the effect of influence of trading volume, value and number of transactions for institutions and individuals on the capital market return for the period from January 1st 2009 to December 31 2009 Dependent Variable: Y (Daily Capital Market Return)

Variables	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.0013413	0.002535	-5.290116	0.0000
X1(0)	4.01E-11	1.19E-11	3.374275	0.0000
X4(0)	4.81E-12	2.46E-12	1.950990	0.0511
Variance Equation				
C	0.000263	2.30E-05	11.47239	0.0000
RESID(-1)^2	0.171429	0.086417	1.983731	0.0473
R-squared	0.097782	Mean dependent var		0.001431
Adjusted R-squared	0.090447	S.D. dependent var		0.021121
S.E. of regression	0.020143	Akaike info criterion		-4.901899
Sum squared resid	0.099814	Schwarz criterion		-4.831267
Log Likelihood	615.2864	F-Statistics		-4.873468
Durbin-Watson stat	1.791636			

The model gave an explanation of 9.8% of the variation in capital market return which means that there were 91.2% explained by other variables and the calculated coefficients of X1 trading volume for institutions and X4 trading value of individuals were positive and significant at 5%.

Table 5. The estimation of the effect of Foreigners, Arab and Egyptian institutions and individuals for trading volume, value and number of transactions on the capital market return for the period from January 1st 2009 to December 31 2009 Dependent Variable: Y (Daily Capital Market Return)

Variables	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.007006	0.004971	-1.409404	0.1600
X11(0)	5.17E-11	2.32E-11	2.226514	0.0269
X43(-1)	-1.59E-10	3.99E-11	-3.988348	0.0001
X41(0)	9.00E-12	3.47E-12	2.5966309	0.0100
X32(-1)	1.23E-11	5.18E-12	2.372284	0.0185
X15(-3)	6.23E-11	2.99E-11	2.085391	0.0381
X23(-5)	-1.60E-06	9.04E-07	-1.771460	0.0778
R-squared	0.191700	Mean dependent var		0.001430
Adjusted R-squared	0.171236	S.D. dependent var		0.021249
S.E. of regression	0.019344	Akaike info criterion		-5.024557
Sum squared resid	0.088687	Schwarz criterion		-4.924229
Log Likelihood	619.9960	Hannan-Quinn criter		-4.984150
F-Statistics	9.367966	Durbin-Watson stat		1.887186
Prob(F-static)	0.000000			

The model gives an explanation of 19.2% of the variation in capital market return which means that there were 80.8% explained by other variables and The calculated coefficients of X11 trading volume for Egyptian

institutions, X41 trading value for Egyptian individuals, X32 trading value for foreign institutions X11 trading volume for Egyptian institutions were positive expect X43 trading value for Arab individuals were negative and significant at 5% which contradict with all the previous studies and that indicate that not all investor categories within the Egyptian market were moving in the same direction and confirm random status of such market due to the dramatic change of investor sentiment which have negative effect on stock market return volatility Xindan & Bing (2008).

Table 6. The estimation of the effect of influence of trading volume, value and number of transactions for institutions and individuals on the capital market return for the period from January 1st 2010 to December 31 2010 Dependent Variable: Y (Daily Capital Market Return)

Variables	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.006651	0.002678	-2.483802	0.0130
X3(0)	3.49E-12	3.30E-12	1.055452	0.0491
X4(0)	4.90E-12	2.66E-12	1.844105	0.0465
Variance Equation				
C	0.000138	1.57E-05	8.781654	0.0000
RESID(-1)^2	0.171429	0.102787	1.667808	0.0954
R-squared	0.052953	Mean dependent var		0.000657
Adjusted R-squared	0.045190	S.D. dependent var		0.013408
S.E. of regression	0.013102	Akaike info criterion		-5.850094
Sum squared resid	0.041883	Schwarz criterion		-5.779054
Log Likelihood	727.4866	F-Statistics		-5.821492
Durbin-Watson stat	1.985710			

The model gave an explanation of 5.3% of the variation in capital market return which means that there were 94.7% explained by other variables and the calculated coefficients of X3 trading value for institutions and X4 trading value of individuals were positive and significant at 5%.

Table 7. The estimation of the effect of Foreigners, Arab and Egyptian institutions and individuals for trading volume, value and number of transactions on the capital market return for the period from January 1st 2010 to December 31 2010 Dependent Variable: Y (Daily Capital Market Return)

Variables	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.005036	0.002544	-1.979968	0.0477
X32(0)	4.01E-11	4.68E-12	1.685456	0.0919
X42(-9)	-3.19E-10	5.93E-11	-5.384748	0.0000
X63(0)	4.52E-06	1.62E-06	2.794636	0.0052
X43(-4)	-3.77E-11	1.47E-11	-2.558945	0.0105
X33(0)	6.13E-12	9.43E-12	1.650153	0.0516
Variance Equation				
C	0.000119	1.40E-05	8.492148	0.0000
RESID(-1)^2	0.171429	0.077809	2.203187	0.0276
R-squared	0.097782	Mean dependent var		0.000657
Adjusted R-squared	0.116585	S.D. dependent var		0.013408
S.E. of regression	0.012602	Akaike info criterion		-5.928241
Sum squared resid	0.038275	Schwarz criterion		-5.814577
Log Likelihood	740.1378	F-Statistics		-5.882479
Durbin-Watson stat	2.097270			

The model gives an explanation of 9.8% of the variation in capital market return which means that there were 91.2% explained by other variables and The calculated coefficients of X42 trading value for Foreigners individuals, X43 trading value for Arab individuals, were negative expect X63 number of transactions of Arab individuals, was positive and significant at 5% which contradict with all the previous studies and that indicate that not all investor categories within the Egyptian market were not moving in the same direction and confirm random status of such market due to the dramatic change of investor sentiment which have negative effect on

stock market return volatility (Xindan & Bing, 2008).

Table 8. The estimation of the effect of influence of trading volume, value and number of transactions for institutions and individuals on the capital market return for the period from January 1st 2011 to December 31 2011 Dependent Variable: Y (Daily Capital Market Return)

Variables	Coefficient	Std. Error	z-Statistic	Prob.
C	0.001910	0.003005	1.483802	0.0525
X3(-7)	-1.72E-12	2.49E-11	-0.690611	0.4898
X4(-7)	-2.78E-12	2.09E-12	-1.327757	0.0843
Variance Equation				
C	0.000186	3.49E-05	5.328257	0.0000
RESID(-1)^2	0.480564	0.184036	2.611251	0.0090
R-squared	0.022902	Mean dependent var		-0.003084
Adjusted R-squared	0.013323	S.D. dependent var		0.019361
S.E. of regression	0.019232	Akaike info criterion		-5.309106
Sum squared resid	0.041883	Schwarz criterion		-5.779054
Log Likelihood	555.4925	Hannan-Quinn criter		-5.270042
Durbin-Watson stat	1.467698			

The model gave an explanation of 2.3% of the variation in capital market return which means that there were 97.7% explained by other variables and the calculated coefficients of X3 trading value for institutions was negative and significant at 5%, which contradict with all the previous studies and this might indicate market decline during 25th Egyptian revolution and rising irrational behavior that might lead to the scratch of financial markets (Baur et al., 1996).

Table 9. The estimation of the effect of Foreigners, Arab and Egyptian institutions and individuals for trading volume, value and number of transactions on the capital market return for the period from January 1st 2011 to December 31 2011 Dependent Variable: Y (Daily Capital Market Return)

Variables	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.001503	0.003113	0.482791	0.6292
X18(-7)	-1.06E-07	6.16E-08	-1.723653	0.0848
X13(-7)	-5.78E-12	4.25E-12	-1.359161	0.0741
X22(0)	2.24E-09	1.31E-09	1.702887	0.0886
Variance Equation				
C	0.000185	1.40E-05	8.492148	0.0000
RESID(-1)^2	0.444798	0.126124	3.526684	0.0004
R-squared	0.044171	Mean dependent var		-0.003084
Adjusted R-squared	0.030045	S.D. dependent var		0.019361
S.E. of regression	0.019068	Akaike info criterion		-5.290445
Sum squared resid	0.073807	Schwarz criterion		-5.193844
Log Likelihood	553.5611	Hannan-Quinn criter		-5.251381
Durbin-Watson stat	1.525633			

The model gives an explanation of 4.4% of the variation in capital market return which means that there were 95.6% explained by other variables and the calculated coefficients were not significant at 5% and this might return to the negative influence of 25th Egyptian revolution.

Table 10. The estimation of the effect of influence of trading volume, value and number of transactions for institutions and individuals on the capital market return for the period from January 1st 2012 to December 31 2012 Dependent Variable: Y (Daily Capital Market Return)

Variables	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.009632	0.002675	-3.601198	0.0003
X5(0)	1.00E-06	4.80E-07	2.091746	0.0365
X3(0)	-1.22E-12	8.84E-12	-1.137922	0.0890
X1(0)	7.73E-11	6.46E-11	1.967245	0.0231
Variance Equation				
C	0.000207	1.14E-05	18.19832	0.0000
RESID(-1)^2	0.171429	0.050231	3.412799	0.0006
R-squared	0.077597	Mean dependent var		0.001844
Adjusted R-squared	0.066115	S.D. dependent var		0.018237
S.E. of regression	0.017624	Akaike info criterion		-5.195597
Sum squared resid	0.074857	Schwarz criterion		-5.109852
Log Likelihood	642.4606	Hannan-Quinn criter		-5.161068
Durbin-Watson stat	1.717517			

The model gave an explanation of 7.8% of the variation in capital market return which means that there were 92.2% explained by other variables and the calculated coefficients of X5 number of transactions institutions and X3 trading value of institutions were positive and significant at 5%.

Table 11. The estimation of the effect of Foreigners, Arab and Egyptian institutions and individuals for trading volume, value and number of transactions on the capital market return for the period from January 1st 2012 to December 31 2012 Dependent Variable: Y (Daily Capital Market Return)

variables	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.007611	0.003046	-2.498526	0.0125
X63(0)	1.13E-05	4.18E-06	2.706555	0.0068
X42(-2)	-7.20E-11	1.88E-11	-3.837199	0.0001
X43(0)	-2.42E-11	7.61E-12	-3.178172	0.0015
X51(0)	3.09E-06	1.28E-06	2.423663	0.0154
X13(0)	2.60E-10	1.81E-10	1.437921	0.0905
Variance Equation				
C	0.000240	1.61E-05	14.86807	0.0000
RESID(-1)^2	0.144503	0.059384	2.433345	0.0150
R-squared	0.167857	Mean dependent var		0.001844
Adjusted R-squared	0.150448	S.D. dependent var		0.018237
S.E. of regression	0.016810	Akaike info criterion		-5.308051
Sum squared resid	0.067532	Schwarz criterion		-5.193724
Log Likelihood	658.2362	Hannan-Quinn criter		-5.262012
Durbin-Watson stat	1.719737			

The model gives an explanation of 16.8% of the variation in capital market return which means that there were 83.2% explained by other variables and The calculated coefficients of X42 trading value for Foreigners individuals, and X43 trading value for Arab individuals, were negative expect X63 number of transactions of Arab individuals and X51 number of transaction for Egyptian Institutions were positive and significant at 5% which contradict with all the previous studies and that indicate that not all investor categories within the Egyptian market were not moving in the same direction and confirm random status of such market due to the rising irrational behavior that might lead to the scratch of financial markets Baur et al. (1996).

Table 12. The estimation of the effect of influence of trading volume, value and number of transactions for institutions and individuals on the capital market return for the period from January 1st 2013 to December 31 2013 Dependent Variable: Y (Daily Capital Market Return)

Variables	Coefficient	Std. Error	z-Statistic	Prob.
C	0.002412	0.002315	1.042080	0.2974
X4(0)	1.08E-11	3.43E-12	3.163672	0.0016
X5(-5)	-9.15E-07	3.03E-07	-3.020234	0.0025
X1(-4)	-2.92E-11	1.92E-11	-1.523414	0.0928
Variance Equation				
C	0.000106	6.71E-06	15.75087	0.0000
RESID(-1)^2	0.171429	0.060919	2.814055	0.0049
R-squared	0.078074	Mean dependent var		0.000978
Adjusted R-squared	0.066502	S.D. dependent var		0.013237
S.E. of regression	0.012790	Akaike info criterion		-5.845951
Sum squared resid	0.039094	Schwarz criterion		-5.759703
Log Likelihood	716.2830	Hannan-Quinn criter		-5.811211
Durbin-Watson stat	1.882579			

The model gives an explanation of 7.8% of the variation in capital market return which means that there were 92.2% explained by other variables and The calculated coefficients of X4 trading value for individuals, was negative and X5 number of transactions for institutions, was positive and significant at 5% which contradict with all the previous studies and that indicate that not all investor categories within the Egyptian market was not moving in the same direction and confirm random status of such market due to the dramatic change of investor sentiment which have negative effect on stock market return volatility (Xindan & Bing, 2008).

Table 13. The estimation of the effect of Foreigners, Arab and Egyptian institutions and individuals for trading volume, value and number of transactions on the capital market return for the period from January 1st 2013 to December 31 2013 Dependent Variable: Y (Daily Capital Market Return)

Variables	Coefficient	Std. Error	z-Statistic	Prob.
C	0.000956	0.002868	0.333475	0.7388
X51(0)	1.13E-05	4.18E-06	2.706555	0.0068
X53(-6)	3.34E-06	8.94E-07	3.730720	0.0002
X12(-4)	-6.84E-11	5.99E-11	-1.418867	0.0925
X33(-2)	-4.65E-11	1.32E-11	-3.512622	0.0004
Variance Equation				
C	0.000240	1.61E-05	14.86807	0.0000
RESID(-1)^2	0.144503	0.059384	2.433345	0.0150
R-squared	0.130329	Mean dependent var		0.000978
Adjusted R-squared	0.115713	S.D. dependent var		0.013237
S.E. of regression	0.012448	Akaike info criterion		-5.936734
Sum squared resid	0.036878	Schwarz criterion		-5.836110
Log Likelihood	728.3131	Hannan-Quinn criter		-5.896204
Durbin-Watson stat	1.895334			

The model gives an explanation of 13% of the variation in capital market return which means that there were 87% explained by other variables and The calculated coefficients of X51 number of transactions for Egyptian institutions, and X53 number of transactions for Arab institutions, were positive expect X33 trading value for Arab institutions was negative and significant at 5% which contradict with all the previous studies and that indicate that not all investor categories within the Egyptian market were not moving in the same direction and confirm random status of such market due to the dramatic change of investor sentiment which have negative effect on stock market return volatility (Xindan & Bing, 2008).

5. Conclusion

In this paper we tried to estimate the effect of trading volume, value, number of transactions and investor

categories of institutions, individuals for Egyptians, Foreigners and Arab on capital market return volatility for by utilizing two models the first measuring the effect of trading volume, value, number of transactions on capital market volatility and the second measuring the effect of investor categories of institutions, individuals for Egyptians, Foreigners and Arab on capital market return volatility the period from January 1st 2009 to December 31 2013 and gave a weak estimation which might refer to the crisis and its consequences included within the period, so we divided the period into five periods and the results showed weak estimation R2 for all periods. This isn't confirm the role of macroeconomic variables interrelation between stock markets in estimating domestic market return volatility in advanced and emerging markets which were consistent with many previous studies such as Mala (2007) Fiji's stock market, Mele (2008) London stock market, Rao (2008) Gulf stock markets, Aliyu (2011) Nigeria and Ghana stock markets, Chiou (2011) Tokyo, London, and New York stock markets, Beetsma and Giuliodori (2012) U.S. stock markets, because macro-economic variables were depending on low frequency data, while high frequency data which we depended on reveals more about the volatility properties Daly (2008).

Consistent with Chiou (1988), the findings of GARCH model indicated that volatility persistence is less than unity (variance equation showed that $\text{Arch}(1)$ or $\text{Garch}(1) + \text{Resid}(-1)^2 < 1$) which means that shocks effect on capital market volatility were decreasing across time and this was a good sign of attracting investors toward investing in Egyptian stock market than many other emerging markets

Besides this, we remarked that the effect of independent variable increase when the dramatic financial and political events and its consequences tend towards stability and vice versa.

Finally, the results confirm the main source of volatility which indicates the high speculations within the Egyptian market was Foreigners and the traded value (Institutions and individuals for all categories Foreigners, Arab and Egyptian) are the main source of influencing the capital market return volatility.

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