Macro-Determinants of Stock Return in Pakistan

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Abstract: This study explores the association among macro-determinants and stock returns by analyzing the reaction of macroeconomic variables on individual equity returns. For this purpose a panel data of 394 listed companies listed in the Karachi Sock Exchanger over the period of 1998-2009 is used for empirical analysis. The results revealed that volatility and gross domestic product has a significant positive effect on individual equity return, while, inflation, interest rate, money supply and budget deficit confirm a significant negative association. The findings also highlighted a significant positive effect of exchange rate on equity return of textile sector. To recapitulate, returns of different sectors react differently to the same macro variable.

Key words: Volatility · GDP · Exchange Rate · Karachi Stock Exchange

INTRODUCTION

Since last decades, many researchers attempted to solve the equity premium puzzle. Capital Asset Pricing Model (CAPM) is the first and commonly accepted portfolio model, presented by Sharp [1], Lintner [2] and Black [3], deals just one factor, market premium. As the market premium alone cannot find out the equity premium; different fundamental and stock market variables have been analyzed to form a non-controversial (agreed) asset pricing model. Fama and French [4] stated that market premium and firm's fundamental alone cannot determine the firm's financial aggregates and equity returns. As well as fundamental and stock market variables are important, economic variables also contribute to identify the stock returns.

After CAPM, Ross [5] introduced Arbitrage Pricing Theory (APT) that comprises other variables also. APT was heavily criticized; it could not specify the variables, but just drive them statistically. Chan, Roll and Rose [6] presented the Macroeconomic Factor Model (MFM); it is an extended form of APT that mentioned the macroeconomic variables.

Previous empirical evidence supports that restrictive (expensive) economic policies declines (increases) contemporaneous equity returns, as well as predicted returns. For example, Nelson [7] predicted a relation of expected and un-expected inflation on US stocks. Chen

et al., [6] and Chen [8] also verified the similar association with US stocks. Clare and Thomas [9] confirmed the significance of oil price, bank lending, corporate default risk and retail price on UK stocks. Gjerde and Saettem [10] showed significant positive bound between oil price, real economic activity and Norway stock return. On the other, inflation proved to be in significant. Chaudhuri and Smiles [11] found the significance of real income, real oil price and real private consumption to predict the Australian stock return. In Singapore, Mookerjee and Yu [12] assessed a co-integration between M1, M2, foreign exchange reserve and stock prices. Cheung and Ng [13] observed the role of macroeconomic variables to analyze the stock returns in five countries, namely, USA, Japan, Italy, Germany and Canada. Wongbangpo and Sharma [14] confirmed the association between macroeconomic and ASEAN countries stocks returns. Nicholas *et al* [15] explored the significance of inflation, income, money supply, budget deficit, trade deficit and interest rate in 16 emerging economies.

An extensive literature is available which explore the dynamic relationship between macroeconomic factors and Pakistani stock market returns. Rizwan and Khan [16] applied two multivariate models, Vector Auto Regressive (VAR) and Multivariate EGARCH to analyze the effect of macroeconomic variables on Pakistani stock prices. Results confirmed the significant negative relation of money supply and inflation and significant positive

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relation of LIBOR and Morgan Stanley Capital International World Index. Sulaiman *et al.*, [17] investigated foreign exchange reserve, exchange rate, whole sale price index, industrial production, M2 and gross fix capital formation over the period of 1986 to 2008. Sulaiman *et al.*, [18] again re-evaluated the relationship between Pakistani stock market returns and macroeconomic variables, namely, inflation, exchange rate, money market rate, industrial production index, quasi money supply, gold reserve, gold price and oil price. Sohail and Hussain [19] analyzed the relation between return of KSE 100 index and macroeconomic variables. In shore, earlier studies in Pakistan focused on stock market returns. In contrast, this study investigate the empirical relation of gross domestic product (*GDP*), Inflation (*CPI*), interest rate (*IR*), money supply (*M1*), budget deficit (*BD*), exchange rate (*ER*) and volatility in stock prices (*VOL*) with individual equity returns, rather than stock market return. This study covers the data of all the non-financial firms listed in Karachi Stock Exchange (KSE) over the period of 1998 to 2009. After estimating all the non-financial sectors, data set divides into two categories, namely, textile sector and non-textile sector to analyze the impact of macroeconomic variables on equity returns of these sectors.

The study finds a positive relation between Vol, GDP and individual equity returns while CPI, IR, M1 and BD confirms a negative association and on contrary, ER is found to be insignificant in Pakistani context. Results of Vol, GDP, CPI and M1 in textile sector validate the previous results, whereas, IR and BD are insignificant. ER has a significant positive effect on textile equity returns which indicates an adverse effect of home currency depreciation on cash flow of a company. GDP, CPI and ER are insignificant to analyze the equity returns of non-textile sectors. Insignificance of GDP in non-textile sector while significance in textile sector suggests that contribution of textile sector in GDP is more than non-textile sectors.

The rest of the paper is organized as follows; Section II provides the review of previous studies. In section III, we present the data set and methodology of the study. Section IV discusses the empirical results of underlying variables. Section V consists of concluding remarks.

Literature: Arbitrage Pricing Theory (APT) provided the foundation for further studies, to identify those variables which may significantly contribute to equity return. Chen *et al.*, [6], Azeez and Yonezawa [20] and Antoniou *et al.*, [21] studied New York stock exchange, Japanese stock market and London stock market respectively.

Dhankar and Esq [22] focused on Indian stock market, they tried to find out the appropriate variables for equity returns. All the above researchers concluded the three main factors; company's fundamentals, stock market variables and macroeconomic variables.

Nelson [7] observed the post-war period from 1953-1974 and confirmed the negative relation of expected and unexpected inflation on US stock returns. Chen *et al.*, [6] evaluated a set of macroeconomic variables to stock return. Consumption, market index and oil price are not significant while industrial production, twist in yield curve and risk premium contains explanatory power to predict stock return in US. Chen [8] again investigated US stocks and concluded the significance of default risk, one month t-bills, term spread and industrial production growth rate. Clare and Thomas [9] examined the effect of eighteen macroeconomic variables on stock returns in the UK. Oil price, bank lending, corporate default risk and retail price proved to be significant risk factors. Relation between macroeconomic factors and Japanese stock was analyzed by Mukherjee and Naka [23]. Inflation rate, exchange rate, money supply, long term government bond and real economic activity and call money rate are found to be co-integrated with stock return. Gjerde and Saettem [10] inspected oil price, real economy activity and inflation in Norway. Oil price and real economic activity showed positive and significant result while inflation failed to predict the stock returns. Flannery and Protopapadakis [24] confirmed significant relation among US stock returns and consumer price index, producer price index, employment, balance of trade, M1, housing starts. On the other hand, industrial production and GDP proved to be insignificant. Tsoukalas [25] examined listed firms of Cypriot stock market and confirmed a strong relationship among macroeconomic variables and stock prices. Chaudhuri and Smiles [11] found long term relation among economic variables (real income, real oil price and real private consumption) and stock prices in Australian stock market.

Bailey and Chung [26] investigated the impact of exchange rate movement, financial fluctuation and political changes on ownership of Philippine stocks on equity stock returns. Finding of the study did not show an affiliation among them. Mokerjee and Yu [12] examined Singapore stock market and empirically found the co-integration between M1, M2, aggregated foreign exchange reserve and stock prices. Chatrath *et al.*, [27] found significant negative relation of inflation and stock returns in Indian perspective. Kwon and Shin [28] analyzed Korean stock market and argued that change in the stock return was mainly due to the trade balance,

money supply, exchange rate and industrial production. Ibrahim [29] examined the dynamic interactions between Kuala Lumpur Stock Exchange Composite Index and macroeconomic variables (money supply M1 and M2, exchange rate, consumer price index, credit aggregates foreign reserves and industrial production index). Observing that such macroeconomic factors led the Malaysian stock indices. Ibrahim and Aziz [30] again analyzed the impact of macroeconomic variables on Malaysian stock indices. Stock prices are found to be significant positive with CPI and industrial production while significant negative with Ringgit exchange rate and money supply. Chuang *et al.*, [31] confirmed the significance of budget deficit and money supply in Hong Kong, Taiwan, South Korea and Singapore stock markets. Izedonmi and Abdullahi [32] reevaluated the effect macroeconomic variables on Nigerian stock returns. Arbitrage Pricing Theory was applied to test the stock market capitalization, exchange rate and inflation over the period 2000 to 2004. Ordinary Least Square provides no evidence of macroeconomic variables.

Cheung and Ng [13] examined five countries namely, USA, Japan, Italy, Germany and Canada to analyze the effect of macroeconomic variables on stock prices. They found GNP, Money Supply (M1), total personal consumption and real oil prices to be important factors for these markets. Johnson *et al.*, [33] tested 25 emerging economies and found that macroeconomic variables did not have predictive power to explain stock returns. Bilson, Brailford and Hooper [34] investigated the emerging economies to find out the best macroeconomic predictors of stock returns. Findings suggested that money supply, world market index and exchange rate the most significant determinants. Wongbangpo and Sharma [14] studied five ASEAN countries namely, Malaysia, Indonesia, Singapore, Thailand and Philippines to find a relation between macroeconomic variables and stock returns. Results provided empirical support that, in the long-run, growth in output is positively related to the stock prices. On the other hand, in the short-run, past and current values of macroeconomic factors affected the stock prices. Nicholas *et al.*, [15] analyzed the relationship among macroeconomic variables and excess return of 16 emerging markets over the period of 1996 to 2009. GMM estimation technique applied as proposed by Arellano and Bon [35]. Inflation, income, money supply, budget deficits, trade deficits confirmed significant positive while interest rate showed significant negative relation with stock return.

Sulaiman *et al.*, [17] empirically investigated the Pakistani stock market from the period 1986-2008. Foreign exchange reserve, industrial production and wholesale price index documented a significant positive effect. On the other side, there is inverse relationship among stock returns with exchange rate, interest rate and money supply. Sulaiman *et al.*, [18] again evaluated the relationship between Pakistani stock returns and macroeconomic variables, namely, inflation, exchange rate, money market rate, industrial production index, quasi money supply, gold reserve, gold price and oil price. The results showed that gold prices, gold reserves and oil prices have positive relationship with stock returns. On the contrary, exchange rate, money market rate, industrial production index and quasi money supply confirmed significant negative relation with stock returns. Sohail and Hussain [19] analyzed the KSE 100 index to explore a dynamic relationship among stock return and macroeconomic variables. Inflation, industrial production, real effective exchange rate, broader money supply and 3 month T-bills were analyzed over the period of 1991 to 2008. In the long run, Inflation, Industrial production and exchange rate were found significant positive while money supply and interest rate showed significant negative relation with stock prices.

Data and Methodology: The study employs yearly data of all the non-financial companies listed in KSE and macroeconomic variables for the period from 1998 to 2009. The companies with insufficient data are eliminated from the sample. Delisted, merged and acquired firms are also excluded and thus final sample consist of 394 companies. The main sources of the data are Karachi Stock Exchange Reports, bulletins of State Bank of Pakistan, Publications of Federal bureau of statistics, International Financial Statistics (IFS) and Business Recorder[1]. Panel data analysis is applied to analyze the effect of macroeconomic factors on individual stock returns and industrial returns, following equation is estimated to find such effect:

$$R_{i,t} = \beta_0 + \beta_1 Vol_{i,t} + \beta_2 GDP_{i,t} + \beta_3 INF_{i,t} + \beta_4 IR_{i,t} + \beta_5 M1_{i,t} + \beta_6 BD_{i,t} + \beta_7 ER_{i,t} + \varepsilon_{i,t}$$

where $R_{i,t}$ represents the return of stock i at year t, *Vol* is the volatility of individuals stock prices, *GDP* is the gross domestic product, *CPI* presents the consumer price index, *IR* is the interest rate, *M*1 show the money supply, *BD* is the budget deficit, *ER* is the Rupee-Dollar exchange rate and finally $\varepsilon_{i,t}$ is the random error term.

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[1]www.brecorder.com

Table 1: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
$R_{i,t}$	4094	0.1422	0.5470	-0.9076	6.2523
Vol	4632	6.5157	16.4617	0	383.1635
GDP	4728	4.6583	2.1237	1.7	9
CPI	4728	7.5333	4.7631	3.1	20.8
IR	4728	4.0117	2.2755	0.94	8.17
M1	4728	21.2507	0.6049	20.4116	22.0737
BD	4728	-4.8417	1.4954	-7.6	-2.3
ER	4728	58.2157	8.4097	43.196	78.4983

The Table reports the results of mean, standard deviation, minimum and maximum values of stated variables, where, $R_{i,t}$ is the equity return of stock i, derived from the daily stock prices. $Vol_{i,t}$ is computed by taking deviation of i stock prices at time t. GDP stands for gross domestic product, CPI represent Inflation rate, IR used for interest rate of saving accounts provided by the State Bank of Pakistan, M1 is the natural log of money supply, BD represents the budget deficit and ER stands for exchange rate of Rupee-Dollar.

Empirical Results

Descriptive Statistics: The empirical results provided by the range of studies confirmed a strong association between macroeconomic variables and equity return. On the other side, Pakistani stocks do not react according to the macroeconomic news. For inefficient stock exchange with respect to information it is important to analyze the descriptive inconsistency of the studied variables[2]. As presented in Table-1:

Total number of observation of stock return (R) are 4094 while mean value is 0.1422 with the deviation of 0.5470. Minimum and maximum value indicates a miner difference between the returns of all stocks. Volatility (Vol) has the mean value 6.5157 and the standard deviation is 16.4617. Minimum and maximum value of Vol are 0 and 383.1635 respectively, this huge difference is due to the highly fluctuations in stock prices. GDP has the mean value 4.6583 with the standard deviation 2.1237. Mean value of CPI is 7.5333 and the standard deviation is 4.7631, difference between minimum and maximum values of CPI is alarming. Mean value of IR, M1, BD and ER are 4.0117, 21.2507, -4.8417 and 58.2157 respectively.

The empirical results of Fixed Effect Model (FEM)[3] are presented in Table-2. Model-1 analyzes all the non-financial sectors listed in KSE to investigate the impact of macroeconomic variables on individual equity return. Vol has a significant positive value that validates the common perception that high volatile stock is being compensated by high return; positive sign is similar to Smith and Yamagata (2009) [36]. Results of GDP is significant and positive, as shown by Nicholas *et al*. (2012) [15], Hassapis and Kalyvitis (2002) [37] and Park (1997) [38], indicates GDP enhances the business conditions and stock market performance of the country that increases the stock returns. CPI confirms the significant negative relationship with equity return; higher inflation leads the tighter

Table 2: Fixed Effect Estimations

Dependent Variable $R_{i,t}$	Model (1)		Model (2)		Model (3)	
	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
Vol	0.0069	0.000	0.0069	0.000	0.0066	0.000
GDP	0.0199	0.096	0.0638	0.000	-0.0134	0.399
CPI	-0.0134	0.051	-0.0408	0.000	0.0078	0.395
IR	-0.0980	0.000	0.0249	0.322	-0.1941	0.000
M1	-0.2913	0.000	-0.1533	0.064	-0.3982	0.000
BD	-0.0545	0.000	-0.0185	0.423	-0.0845	0.000
ER	0.0015	0.738	0.0140	0.042	-0.0076	0.220
R^2	19.01%		16.31%		23.63%	

In Table-1 all specifications are estimated by using Fixed Effect Model (FEM). Firstly, the results are calculated by both techniques, Random Effect Model (REM) and Fixed Effect Model (FEM), but Hausman specification test verifies the significance of FEM. Stock Return ($R_{i,t}$) is the dependent variable of the study. On the other side, independent variables are volatility of stock prices (Vol), gross domestic product (GDP), inflation rate (CPI), interest rate of saving accounts (IR), money supply (M1), budget deficit (BD) and Rupee-Dollar exchange rate (ER). Model (1) mentions the role of macroeconomic variables on individual equity return of all the sectors, Model (2) analyzes the impact of macroeconomic variables on individual equity return of textile sector. Model (3) discusses the effect of macroeconomic factors on non-textile firm returns.

Notes: P-value < 0.01 indicates significance at 1% level

P-value < 0.05 indicates significance at 5% level

P-value < 0.10 indicates significance at 10% level

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[2]As stated by Sulaiman *et al* (2009)

[3]Hausman specification test confirms the significance of FEM over the REM

monetary and fiscal policies in Pakistan which cause to decline the equity returns. Sulaiman *et al*. (2009) [17], Wongbangpo and Sharma (2002) [14], Flannery and Protopapadakis [24] and Chen, Roll and Ross [6] also confirmed this negative relation. High interest rate provides not only an alternate opportunity of investment, but also increases the cost of borrowing from financial institutions such increase in cost reduces the financial aggregates. Significant negative relation of *IR* is similar to the Sulaiman *et al*., [18], Nicholas *et al*., [15], Sulaiman *et al*., [17] and Chen [8].

Equity return is also negatively related with the *M*1 as reported by numerous studies in Pakistan, Sulaiman *et al*., [18], Sohail and Hussain [19] and Sulaiman *et al*., [17]. The negative association between *M*1 and equity return is perhaps interlinked with the inflation, during the upward trend of inflation, people sell out their shares as a result equity return falls. On the other hand, Sohail and Hussain [19] reported that negative association is due to the Keynesian liquidity trap faced by Pakistani economy during study period. The study empirically reported a significant negative relation of *BD* on equity returns. The result indicates that large deficit unable the firms to raise fund on favorable terms through equity issuance which undermine investors' confidence. The result of *ER* reported a significant positive relation between *ER* and stock return in Pakistan. This interpret that with the depreciation of domestic currency, export goods become cheaper for international markets which consequently increases the exports and equity return of exporting firms. The result of ER is in-line with the Sohail and Hussain [19] and Sulaiman *et al*., [17].

Model-2 reported the estimations of textile sector, whereas, *Vol, GDP* and *ER* are found to be positively significant, as similar to the results in Model-1. The result of *ER* indicates that depreciation in home country increases the exports of textile sector. *CPI* and *M*1 present the significant negative result, also parallel to the Model-1. On contrary, *IR* and *BD* do not play a significant role to analyze the equity return of textile firms.

A result of Model-3 presents the result of non-textile sector; *IR* and *BD* have significant negative effect on non-textile stock returns while *Vol, GDP, CPI, M*1 and *ER* are insignificant. The insignificance of *GDP* in non-textile sector and its significance in textile sector confirms that *GDP* of Pakistani economy heavily depends on textile sector.

CONCLUSION

In this study, Panel data specification test is applied to investigate the empirical relationship between macroeconomic variables and individual equity returns. Vol and GDP are significant positive while CPI, IR, M1 and BD are negatively related with individual equity returns. Results of Vol, GDP, CPI and M1 in textile sector validate the previous results, whereas, IR and BD are insignificant. ER has a significant positive effect on textile equity returns which indicates an increase home currency depreciation on cash flow of a company. GDP, CPI and ER are insignificant to analyze the equity returns of non-textile sectors. Insignificance of GDP in non-textile sector while significance in textile sector suggests that contribution of textile sector in GDP is more than non-textile sectors. To bring to an end, Pakistani stocks react differently to same macroeconomic news.

Results of the study are useful for individual investors, portfolio managers and policy makers as well, while scrutinizing the stocks. Many questions remain unaddressed about the relation between macro-determinants and individual equity returns. Stock Index return and individual equity returns should be tested simultaneously to confirm the consistence relation. Furthermore, macro-determinants and time period of the study should be extended to analyze such association.

REFERENCE

1. Sharpe, W.F., 1964. Capital Asset Prices: A Theory of Market Equilibrium under Considerations of Risk. The Journal of Finance, 19(3): 425-443.
2. Lintner, J., 1965. The valuation of risk assets and selection of risky investments in stock portfolios and capital budgets. Review of Economics and Statistics, 47(1): 13-37.
3. Black, F. and M. Scholes, 1974. The effects of dividend yield and dividend policy on common stock prices and returns. Journal of Financial Economics, 1(1): l-22.
4. Fama, E.F. and K.R. French, 1993. Common risk factors in the returns on stocks and bonds. Journal of Financial Economics, 33: 3-56.
5. Ross, S.A., 1976. The arbitrage theory of capital asset pricing. Journal of Economic Theory, 13: 341-360.

6. Chen, N., R. Roll and S. Ross, 1986. Economic Forces and the Stock Market. Journal of Business, 59: 383-403.

7. Nelson, C.R., 1976. Inflation and rates of return on common stocks. Journal of Finance, 31(2): 471-483.

8. Chen, N., 1991. Financial Investment Opportunities and the Macroeconomic. Journal of Finance, 46: 529-554.

9. Clare, A.D. and S. Thomas, 1994. Macroeconomic Factors, the APT and the UK Stock Market, Journal of Business Finance and Accounting, 21: 309-330.

10. Gjerde, O. and F. Saettem, 1999. Causal Relations among Stock Returns and Macroeconomic Variables in a Small, Open Economy, Journal of International Financial Markets, Inst. Money, 9: 61-74.

11. Chaudhuri, K. and S. Smiles, 2004. Stock market and aggregate economic activity: evidence from Australia, Applied Financial Economics, 14: 121-129.

12. Mokerjee, R. and Q. Yu, 1997. Macroeconomic Variables and Stock Prices in a Small Open Economy: The Case of Singapore. Pacific-Basin Finance Journal, 5: 377-388.

13. Cheung, Y.W. and L.K. Ng, 1998. International evidence on the stock market and aggregate economic activity, Journal of Empirical Finance, 5. 281-296.

14. Wongbangpo, P. and S.C. Sharma, 2002. Stock Market and Macroeconomic Fundamental Dynamic Interactions: ASEAN-5 Countries. Journal of Asian Economics, 13: 27-51.

15. Nicholas, A., G. Artikis and S. Eleftheriou, 2011. The Role of Macroeconomic Factors for Excess Returns: Evidence from a Group of Emerging Economies. Journal of Accounting, Finance and Economics, 1(2): 1-12.

16. Rizwan, M. and S.U. Khan, 2007. Stock Return Volatility in Emerging Equity Market (KSE): The Relative Effects of Country and Global Factors. International Review of Business Research Papers, 3(2): 362-375.

17. Sulaiman, D.M., A. Hussain, M.A. Jalil and A. Ali, 2009. Impact of Macroeconomics Variables on Stock Prices: Emperical Evidance in Case of KSE (Karachi Stock Exchange). European Journal of Scientific Research, 38(1): 96-103.

18. Sulaiman, D.M., S. Naqvi, I. Lal and S. Zehra, 2012. Arbitrage Price Theory (APT) and Karachi Stock Exchange (KSE). Asian Social Science, 8(2): 253-258.

19. Sohail, N. and Z. Hussain, 2011. The Macroeconomic Variables and Stock Returns in Pakistan: The Case of KSE 100 Index. International Research Journal of Finance and Economics, 80(1): 66-74.

20. Azeez, A.A. and Y. Yonezawa, 2006. Macroeconomic Factors and the Arbitrage Pricing Theory in the Japanese Stock Market. Japan and the World Economy, 18: 568-591.

21. Antoniou, A., I. Garrette and R. Priestley, 1998. Macroeconomic variables as common pervasive risk factors and the empirical content of the Arbitrage Pricing Theory. Journal of Empirical Finance, 5(3): 221-240.

22. Dhankar, S. and R.S. Esq, 2005. Arbitrage Pricing Theory and the Capital Asset Pricing Model–evidence from the Indian stock market. Journal of Financial Management. Analysis, 18(1): 14-28.

23. Mukherjee, T.K. and A. Naka, 1995. Dynamic Relations Between Macroeconomic Variables and the Japanese Stock Market: An Application of a Vector Error Correction Model. Journal of Financial Research, 18(1): 223-237.

24. Flannery, M.J. and A.A. Protopapadakis, 2002. Macroeconomic Factors do Influence Aggregate Stock Returns. Review of Financial Studies, 15: 751-782.

25. Tsoukalas, D., 2003. Macroeconomic factors and stock prices in the emerging Cypriot equity market. Managerial Finance, 29: 87-92.

26. Bailey, W. and Y.P. Chung, 1996. Risk and Return in the Philippine Equity Market: A Multifactor Exploration. Pacific-Basin Finance Journal, 4: 197-218.

27. Chatrath, A., S. Ramchander and F. Song, 1997. Stock prices, inflation and output: evidence from India. Applied Financial Economics, 7(4): 439-445.

28. Kwon, C.S. and Tai S. Shin, 1999. Cointegration and Causality Between Macroeconomic Variables and Stock Market Returns. Global Finance Journal, 10: 71-81.

29. Ibrahim, M.H., 1999. Macroeconomic variables and stock prices in Malaysia: an empirical analysis. Asian Economic Journal, 13(2): 495-574.

30. Ibrahim, M.H and H. Aziz, 2003. Macroeconomic Variables and the Malaysian Equity Market A View Through Rolling Subsamples. Journal of Economic Studies, 30: 6-27.

31. Chuang, I.Y., J. Lu and K. Tswei, 2007. Interdependence of international equity variances: Evidence from East Asian markets. Emerging Markets Review, 8: 311-327.

32. Izedonmi, P.F. and B.A. Abdullahi, 2011. The Effects of Macroeconomic Factors on the Nigerian Stock Returns: A Sectoral Approach. Global Journal of Management and Business Research, 11(7): 24-30.

33. Johnson, S., P. Boone, A. Breach and E. Friedman, 2000. Corporate governance in the Asian financial crisis. Journal of Financial Economics, 58: 141-186.

34. Bilson, C.M., T.J. Brailsford and V.J. Hooper, 2001. Selecting Macroeconomic Variables as Explanatory Factors of Emerging Stock Market Returns. Pacific-Basin Finance Journal, 9: 401-426.

35. Arellano, M. and S. Bond, 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. Review of Economic Studies, 58: 277-297.

36. Smith, L.V. and T. Yamagata, 2009. Firm Level Volatility-Return Analysis using Dynamic Panels. Department of Economics and Related Studies, University of York, York

37. Hassapis, C. and S. Kalyvitis, 2002. Investigating the links between growth and real stock price changes with empirical evidence from the G-7 economies. Quarterly Review of Economics and Finance, 42: 543-575.

38. Park, S., 1997. Rationality of negative stock-price responses to strong economic activity. Financial Analysts Journal, 53: 52-56.