JOURNAL OF ALGEBRAIC STATISTICS
Volume 13, No. 3, 2022, p. 2754 - 2757
https://publishoa.com
ISSN: 1309-3452

Macro-Economic Factors of Stock Market: A case study of Regional Economies

Sumair Farooq

Assistant Professor, Hamdard University, Karachi, Pakistan.

ABSTRACT

The study is about the factors related to stock markets of Asian economies. This study is based on determining the factors that influencing the regional economies of Asian countries. Second, it also discusses the how it impacting the stock exchange behavior in those market. A time series pairwise regression has used to examine the impact of macro-economic factors which is quite appropriate for the analysis and interpretation.. There is clear evidence that it supports connection between Asian Economies Stock markets is also time varying, and macro-economic determinants significantly affect this time varying relationships. It is analyzed that there is long run interdependence exist between Asian stock markets and the Chinese stock market and macro-economic factors are significantly affect this relationship.

Keywords— stock market, macro-economic, emerging markets, Interdependence

I. INTRODUCTION

It is undeniable fact that the stock market are segmented and the forces at the back are functional. It is gaining considerable attention across the word. It is suggested that the international diversified portfolios going through lower risk and massive returns (markowitz 1960). The current studies is divided into considerable thought about the stock market. Early studies examined the first aspect for e.g. (Cheol S. Eun and Sangdal Shim 1989; Cheung and Mak 1992;). It is also suggested by Longin and Solnik (1995) that the research studies must concentrate on the primary determinants of cross market correlations. However, Majority of the studies are relevant to the developed stock markets. The markets undergone different times of ups and down with the different economic and political measures. Moreover, these market are more stable in comparison to developing and underdeveloped markets. It is fact that three are some studies related to newly emerge financial markets but there is need to conduct more work on it. Some studies reveals that these market have appeal to do be developed as potential market.

This study tries to fill the gap in the existing literature of equity market of Asian emerging market. In the study, instead of US market, the Chinese market taken as a benchmark because China prominent position in biggest economies across the globe particularly in Asian region due to CPEC. The study aims to examine interdependence among the Asian emerging market. Another aspect is to determine the potential macro-economic factors of these markets. The reason of investigating these markets is mutual, social, political and economic feature which have some impact on behavior of market.

II. RESEARCH DESIGNE

In this research paper data has been acquired monthly closing of stock prices of each index from Pakistan (KSE), Chia (SSC composite) India India (BSENSEX and some other .

Economies. The model of regression has also applied to investigate the impact of macroeconomic variable on the stock market. Some other information were also obtained using IMF statistical table.

III. METHODOLOGY

The research presents multivariate co integration test on the Chinese and other stock market including: Malaysia, Iran, Turkey, Iran and Pakistan. Forecast error variance decomposition of the interdependence between stock market of Asian developing economies and China market. Time series regression has also been used to identify macroeconomic factors considerable impact the equity market**.**

Multivariate, co-integration, test:

VAR is based, co integration technique by (Johansen 1991, 1995) is used to examine the long term static co-movement. To observe the long run relation among the markets stock price data is expressed in the natural logarithms. There is another criteria which is called lag length criteria based on AIC to measure the co-integration and it is proved that lag length residual are random We apply Johansen co-integration approach using two unique likelihood ratio test- one is maximum eigenvalue (ʎmax) and the other is trace (ʎtrace), to observe the long run association between the precise

JOURNAL OF ALGEBRAIC STATISTICS
Volume 13, No. 3, 2022, p. 2754 - 2757
https://publishoa.com
ISSN: 1309-3452

factors.

$$\lambda_{trace}(r) = -T\sum_{i=r+1}^{g}\ln(1-\hat{\lambda}_i) \quad \text{----------1}$$

$$\lambda_{max}(r, r+1) = -T\ln(1-\hat{\lambda}_{r+1}) \quad \text{----------2}$$

Regression Expresssion:

To examine the impact on stock market of macro-economic, regression model of time series is applied. FEVD variable receives an expression from Chinese stock market. Bilateral trade, inflation, industrial production, interest rate are the independent variable in the process. It comprises eighty four data points and covers a length of seven years' time period. This study applies regression of pair wise time series for capturing the impact of macro-economic variables on the interdependence among the markets.
The regression model is as follows:
FEVD it = C + β1Tit + β2ERit + β3IDit + + β4INFit + β5IRDit + μt ---------- (3)

IV. RESULTS & DISCUSSION

Unit root analysis prior to measurement of long run co-movement among emerging economies, it is necessary to check stationary. Results of both tests show that every variable is integrated at first difference.

Table 1. Multivariate co integration test results Hypothesized

Hypothsized		***Trace***	***0.05***	
No.of CEs	*Eigen-value*	*Statistic*	*Critical- Value*	*Probe***
None	*0.425*	*117.861*	*95.753*	*0.000*
*At-most 1**	*0.363*	*72.907*	*69.818*	*0.027*
At-most 2	*0.206*	*36.375*	*47.856*	*0.377*
At-most 3	*0.128*	*17.641*	*29.797*	*0.592*
At-most 4	*0.076*	*6.478*	*15.494*	*0.639*
At-most 5	*0.0003*	*0.030*	*3.841*	*0.860*

Trace test indicates 2 co integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p – value)

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Table : 2. Unrestricted Cointegration Rank Test

Hypothsized		***Max Eign***	***0.05***	
No.of CEs	*Eigen value*	*Statistics*	*Critical value*	*Probe***
*None**	*0.425*	*44.954*	*40.077*	*0.013*
At-most 1	*0.363*	*36.532*	*33.876*	*0.023*
At-most 2	*0.206*	*18.734*	*27.584*	*0.435*
At-most 3	*0.128*	*11.163*	*21.131*	*0.631*
At-most 4	*0.076*	*6.447*	*14.264*	*0.556*
At-most 5	*0.000*	*0.030*	*3.841*	

Max-eigenvalue test indicates 2 co integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
Source: Author's estimate
FEVD Analysis:

JOURNAL OF ALGEBRAIC STATISTICS
Volume 13, No. 3, 2022, p. 2754 - 2757
https://publishoa.com
ISSN: 1309-3452

Observation of both PP and ADF test informs that equity indices are stationary at the first difference. Resultantly, return series may use in VAR frame work. FEVD ration estimated in Islamic Asian economies for every month for the period of 2012 to 2018.Three are some observation emerged in the EEVD analysis. NO specific market's own innovation entirely accounted and it implies that no market is fully exogenous. Yet, it was also noted that there is considerable relation between Islamic emerging market and Chinese stock market. A closer investigation of the FEVD of each market observed that the China stock market account for 6 percent variance in Pakistan, Turkey, Iran , Malaysia and other countries. Besides, 23 percent variation accounted for China stock market for its own shock or innovation (see. table.2)

Regression model:

This is used to estimate the effect of macro-economic factors on the market interdependence. The EEVD of Asian rising economies is the dependent variable. The result presents there is statistically significant trade line and it explains the variance especially in Iran and Pakistan with China.
In addition, there is significant bilateral trade Iran and between Pakistan and China which explains the internal dependence between these market and China. The study suggests that government owns a huge number of Chinese firms on the security exchanges (Mohanty et al. 2011). Moreover, there is positive significant influence in relation of expressing the variation between Chinese and Iran markets.

Table 3 Regression results:

Indonesia				***Malaysia***			***Turkey***		
vaiables	***Coeff***	***t-test***	***Pvalues***	***Coeff***	***t-test***	***Pvalues***	***Coeff***	***t-test***	***Pvalues***
Constant	*13.399*	*26.837*	*0.000*	*-14.478*	*-1.624*	*0.108*	*29.078*	*21.160*	*0.000*
Log of BT	*-3.477*	*-0.692*	*0.490*	*1.728*	*2.799*	*0.006*	*1.748*	*0.283*	*0.777*
Ind.Prod	*0.043*	*0.346*	*0.730*	*0.032*	*1.357*	*0.179*	*0.375*	*2.425*	*0.018*
INF	*0.257*	*0.421*	*0.675*	*0.001*	*0.006*	*0.994*	*-0.228*	*-0.369*	*0.712*
Int. rat	*5.171*	*1.536*	*0.129*	*-2.719*	*-19.626*	*0.000*	*1.571*	*0.824*	*0.413*
Ex.rat	*0.001*	*0.737*	*0.463*	*-0.973*	*-0.769*	*0.444*	*0.176*	*0.348*	*0.729*
Pakistan				**Iran**					
variables	***Coeff***	***t-test***	***Pvalues***	***Coeff***	***t-test***	***Pvalues***			
Constant	*-194.845*	*-1.946*	*0.055*	*4.843*	*6.538*	*0.000*			
Log of BT	*14.455*	*2.129*	*0.036*	*6.390*	*2.169*	*0.033*			
Ind.Prod	*0.108*	*0.765*	*0.447*	*0.006*	*0.342*	*0.733*			
INF	*2.980*	*1.556*	*1.916*	*-0.091*	*-0.324*	*0.747*			
Int. rat	*0.622*	*0.175*	*0.861*	*0.208*	*0.383*	*0.702*			
Ex.rat	*-0.617*	*-0.641*	*0.524*	*0.149*	*0.623*	*0.535*			

Hence, it may be concluded that inflation, interest rate and bilateral trade are significant factors describing the

relationship between Asian economies and China Stock markets. The study suggest that equity correlation are linked to the co-movement or symmetric (Kizys and Pierdzioch 2009)

V. CONCLUSION:

Stock market interdependence has been a critical issue over the period of time because it is time varying phenomena. In this type of studies, US stock market was used as benchmark, but this time, China stock market taken as benchmark for the some Asian emerging economies. The study concluded that stock market of Chinese stock market and Asian emerging economies are having considerable interdependence, so the chances to invest in Chinese stock market has increased. Therefore, macro-economic changes should be highlighted of the policymakers of those economies as these changes have impact on the stock market performance of relevant economies.

REFERENCES

1. Cheung, Yan-leung, and Sui-choi Mak. 1992. 'The International Transmission of Stock Market Fluctuation between the Developed Markets and the Asian-Pacijic Markets'. Applied Financial Economics, 2:43–47.https://doi.org/10.1080/758527545.
2. Johansen, Søren. 1991. 'Estimation and Hypothesis Testing of Co integration Vectors in Gaussian Vector Autoregressive Models', Econometrica: Journal of the Econometric Society, 1551–80.
3. Johansen, Soren. 1995. 'Identifying Restrictions of Linear Equations with Applications to Simultaneous Equations and Cointegration', Journal of Econometrics, 69 (1):111–32.
4. Kizys, Renatas, and Christian Pierdzioch. 2009. 'Changes in the International Comovement of Stock Returns and Asymmetric Macroeconomic Shocks', Journal of international financial markets, institutions & money, 19:289–305. https://doi.org/10.1016/j.intfin.2008.01.002.
5. Lamba, Asjeet S. 2005. 'An Analysis of the Short- and Long-Run Relationships Between South Asian and Developed Equity Markets', International Journal of Business, 10 (4):383–402.
6. Lin, Cho-min, and Wan-hsiu Cheng. 2008. 'Economic Determinants of Comovement across International Stock Markets : The Example of Taiwan and Its Key Trading Partners Economic Determinants of Comovement across International Stock Markets : The Example of Taiwan and Its Key Trading Partners', Applied Economics, 40 (December 2013):37–41.https://doi.org/10.1080/00036840600771262.
7. Liu, Ming-Hua, and Keshab M. Shrestha. 2008. 'Analysis of the Long-Term Relationship between Macro-Economic Variables and the Chinese Stock Market Using Heteroscedastic Cointegration', Managerial Finance, 34 (11):744–55. https://doi.org/10.1108/03074350810900479.
8. Liu, Ya, Ms Pan, and Jcp Shieh. 1998. 'International Transmission of Stock Price Movements: Evidence from the US and Five Asian-Pacific Markets', Journal of Economics and Finance, 22 (1):59–69. https://doi.org/10.1007/BF02823233.
9. Longin, F.M., and B. Solnik. 1995. 'Is the Correlation in International Equity Returns Constant', Journal of International Money and Finance, 14 (1):3–26.
10. Markowitz, henry. 1960. Portfolio Selection: Efficient Diversification of Investments. New York: Wiley.
11. Mohanty, Sunil K., Mohan Nandha, Abdullah Q. Turkistani, and Muhammed Y. Alaitani. 2011. 'Oil Price Movements and Stock Market Returns: Evidence from Gulf Cooperation Council (GCC) Countries', Global Finance Journal, 22 (1). Elsevier Inc.:42–55. https://doi.org/10.1016/j.gfj.2011.05.004.
12. Paramati, Sudharshan Reddy, Rakesh Gupta, and Eduardo Roca. 2015. 'Stock Market Interdependence between Australia and Its Trading Partners : Does Trade Intensity Matter ?', Applied Economics, 47(48): 5186-5203. https://doi.org/10.1080/00036846.2015.1047088.
13. Paramati, Sudharshan Reddy, Eduardo Roca, and Rakesh Gupta. 2016. 'Economic Integration and Stock Market Dynamic Linkages : Evidence in the Context of Australia and Asia', International Journal of Business and Globalisation, 16(4): 512-529. https://doi.org/10.1080/00036846.2016.1153794.