Impact of Major Global Stock Market on Indian Stock Market

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ABSTRACT- Below paper is an attempt to study impact of World Stock Market of Countries like United Kingdom, United States of America and China on stock market of India NSE over a period of five years covering from 1 april 2016 to 31 march 2021 using Correlation, Regression and Granger's causality test. Result of the study shows that movement in stock market of united states of America, United Kingdom, China impact the stock market of India NSE (directly or indirectly).in this way this paper is an attempt to examine indispensable factor that affect Indian stock market directly or indirectly.this paper also analyze various prior study done in the same field.

Key Words-Correlation Test, Regression Test, Granger's Causality Test, Stock Market.

Introduction

An Organization, Association that provide market place so that Bonds,Options,Future and Commodities can be bought and sold is called an Exchange.on business days ,Buyers and Sellers come forward to trade during mentioned time. Exchanges establish various laws and ordinance on the firms and brokers that are associated with them.On exchange if a specific company is traded ,it is called as "Listed Company".In India ,Number of Stock Exchanges are working but among them ,the two leading well renowned exchanges are BSE and NSE. Stock Exchange of any country show economic state of that Country ,they act like an indicator of economic situation of country. Stock Market is a place where Stocks of Company are bought and sold. Stocks exhibit high degree of volatility i.e Demand and Supply determine Stock Prices and Prices of Stocks changes every minute. Stockbroker act as a mediator between Buyer or Sellar of Securities and an institution and charge some commission.

The Securities and Exchange Board of India (SEBI) is statutory body established on february 21,1992,regulated Stock Exchanges and other Financial Institutions.

The most scientific measure of analyzing stock is Volatility. It is the measure by which market risk for Single Stock or Portfolio can be measured. With the emergence of Globalization, Free Flow of Fund and International Trade are increasing correlated. Out of Globalisation, stock prices of International Market also shown Correlative nature. That is why Stock Prices of one Market affect its own market and the same effect is transferred to another market also, that is why prior making any investment ,an investor gather information about variation in its price in different countries also

Literature review-

Zhang Yan (Dec, 2016), Comparison of Variation and Correlation between Stock Prices of China, Japan and USA is made . Analysis of Impact of Global Financial Crisis on Volatility and linkage between Stock Market of China ,Japan and the United State of America is made. Sample is collected for a period ranging from 1 January 1991 to 31 December 2014 using EGARCH model. Result of EGRACH model show that although volatility of China's Stock Prices was far greater than that of Japan and US Stock Prices

During the Financial Crisis of 2007 China face less impact than Japan and USA. In case of China ,ups and downs in Stock Prices was highest in the start of 90's ,soon after the establishment of its Stock Market. the study revealed that after global financial crises, connection between Chinese, Japan and USA Stock Market has increased. Apart from it ,Granger Causality testing shown that USA Interest Rates affects Variation in Stock Prices,whereas monetary policy variables (M2 and Interest Rate) do not influence China and Japan Stock Price Volatilities

Wickremasinghe in year 2011 analyse long run relation between six macroeconomic variables such as 3 Month Fixed Deposit Rate, Consumer Price Index,US Stock Market Index Narrow M1 and GDP of Sri Lanka and Capital Market of Sri Lanka (CSE).Researcher use Unit root test,Co Integration,Variance Decomposition and Error Correction Mechanism and collected monthly data from January 1985 to December 2004 and try to find short term and Long Term relationship between Stock Prices and Macroeconomic Variables. Variance decomposition advises that GDP and M1 plays a significant role in longer horizon to forecast changes in Stock Prices.

Pal &Mittal (2011) examine the long run relationship between two Indian Capital Markets and some Macroeconomic Factors such as Inflation Rates, Inflation and Exchange Rate and Gross Domestic Savings.The data they extracted if of quarterly nature from January 1995 to December 2008 ,they use Unit Root Test,Co Integration and Error Correction Mechanism.Their finding shows that Inflation Rate have Crucial Impact on both Capital Market ,however Interest Rate and Foreign Exchange Rate have the Impact on one Capital Market.Both Market remain untouched by Gross

Domestic Savings.As per Researcher ,Study can be made for longer period by taking into account other Macroeconomic Variables that will give more inclusive results.

Simiyu in a Year 1992 -Around the World ,Stock Prices do not move together in the same manner ,it is because of the reason that economic system in which Stock Market are located have distinct environment in terms of Tax System, Growth of Industry ,Government Stability and Monetary Policies among other factors.A normal increase in level of the prices of Stock Market is called as Bull Market or Normal Decrease in Price Level is called as Bear Market Price.Sudden Downward Movement in Price is referred to as Stock Market Crash.There are three main measures for knowing Stock Market Performance such as Stock Market Indexing,Market Capitalisation and Stock Turnover. one of the most widely used measure of Stock Market Performance is Stock Market Indexing. Portfolio of many Stocks are hold by Investors and it is complex to follow progress on each security in the Portfolio ,that is why it is rational to observe Portfolio moved in same direction as aggregate market.The Index of various Stock Market such as NSE Index is used to observe total returns for entire Market and this returns are used to evaluate the performance of Individual Portfolios.The Presumption is that selecting a large number of Stocks randomly from total market would allow investor to generate a rate of return camparable to the market.

El wassal in year 2005, examine the connection between growth of Stock Market and Economic Growth,Financial Liberalization, and Foreign Portfolio Investment in 40 emerging markets between 1980 and 2000.For the emerging Stock Market Growth Leading Factors are Economic Growth, Financial Liberalization Policies, and Foreign Portfolio Investments.

BATRA,S in the year (2003) stated that the crucial business implication of NPAs is that it pay way for management of Credit Risk and hold importance over other functions of bank. Thus whole machinery of bank work on recovery procedures rather than working for expanding business.Reserve Bank of India through its various circulars and guidelines suggest banks “How to Manage NPA”.This outlook was supported by Yadav,MS(2011) and stated that elevated NPA engage banking staff on NPA recovery measures that include filing legal suits to recover loan amount instead of devoting time for planning to mobilization of funds. Thus NPA impact Earning Capacity and Performance of Banks.The most shocking conclusion derive from elevated NPA is the change in bankers sentiments which create blockage in the credit expansion to productive purpose.Banks may incline toward more risk free investment to diminish riskiness,which is not favorable for the growth of economy

Berman and Saldanha (2010) It is imperative to know that from a long term perspective, the value of Average Correlation between GDP growth rate for developed and emerging markets is very low I.e 0.24 from the data of 1980 to 2009.Researcher believe that emerging market equities and economies have ability to outperform moving forward, we believe that using GDP growth rates as an indicator for analyzing stock market behaviour is simplistic in nature.MCSI (2009) In emerging market ,GDP growth is accompanied by strong Market Returns since 1990,the highest GDP Growth Countries have not always produced the highest Stock Market Returns from both real and nominal perspective. China and Russia who have highest Nominal GDP,did not produce best Stock Market Returns. Mexico with only one sixth of their GDP growth ,defeated this two countries in stock market return.

Ahmed & Imam (2007) examine the relationship between stock market and different macroeconomic variables such as Money Supply,treasury bill rate,interest rate,GDP,industrial Production Index. Various Test such as Unit Roots,Co Integration,Vector Error Correction Model are used for Research. Monthly data from period ranging from July 1997 to June 2005 are analyzed and they found that no long run relationship exists between Stock Market Index and Macroeconomic Variables but change in Interest Rate or change in growth rate of T Bill may have some influence on Market Return .

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Schwert (1989) strive to study the relationship between economic activity and Stock Returns by analysing the Correlation between changes in Economic Activity and changes in Stock Prices .As per finding of Schwert, volatility of Stock Market depends on health of the economy.He use monthly data and his finding shows that average volatility increased by 189 percent in times of recession. Because of the difference in result and views ,the question in the literature on link between Stock Prices and Economy remain inconclusive.

Modigliani (1971) study the impact that variable of wealth has on Consumption Holding of individual wealth increase with the increase in Security Prices and thus their permanent income also increase with increase in Security Prices. An increase in Permanent Income will help consumer to accelerate their Consumption level in each period.

Durham in the year 2002 draw a finding in his words positive impact of Stock Market is dependent on addition of higher income countries in the sample of Regression ,which restrict the relevance for lower income countries..He provides evidence that shows that development of Stock Market has a more positive impact on growth for greater levels of GDP per Capita, Lower Level of Country Credit Risk and Higher Levels of Legal Development.

Reilly (1997) Determinants of Stock Market Performance includes Monetary Policies ,Fiscal Policies , Inflation, Availability of Substitute Investments, Market Sentiments ,Change of Investor Preferences, Performance of the Economy. Activity of Stock Market are affected by developmental activity initiated by Government and Economic Performance of Country .The resulting economic conditions affect all Industries and Companies positively or negatively which in turn affect performance of Stock Markets.

Chen,et al (1986) analyse the result of Some Macroeconomic Variables on Stock Market Returns. Variables taken by Researcher are Long Term Interest Rates,Expected and Unexpected Rate of Inflation,Industrial Production and Spread between High and Low Grade Bonds. Data are taken for period between 1953 to 1972 ,12 Cross Sectional Regression was applied and conclusion is drawn that some of these macroeconomic variables have significant impact on stock returns such as Industrial Production and Changes in Risk Premium.

Objectives of the Study

The key objective of this paper is to study the effect of Various Stock Exchange such as London Stock Exchange, NASDAQ, Shanghai Stock Exchange on Indian Stock exchange National Stock Exchange

Methodology

The study

The study in a research paper is based on some stock exchanges which influence Indian Stock Market (National Stock Exchange). The three independent factors of this study are shanghai stock exchange, london stock exchange, Nasdaq and their effect on National Stock Exchange is studied. The exhaustive description of all independent variables are given as follows.

NASDAQ - NASDAQ is a Stock Market of United States of America with an headquarter in New York City, its full form is (National association of Securities Dealers Automated Quotations stock market).The rank of NASDAQ is Second in terms of Market Capitalization (on the basis of shares traded).The First Electronic Stock Market of the World is NASDAQ and it started its operations on February 8, 1971. The normal trading session in NASDAQ is 9.30 a.m to 4.00 p.m and average trading days are 253 days per year.

Stock market of NADSAQ has three different market tiers-

1. **Capital Market(NASDAQ-CM Small Cap)** is a Capital Market for Companies who have small level of market capitalization.The requirement of listing for this small cap companies are less stringent than larger companies having high market capitalization.

2. **Global Market (NADDAQ-GM Mid Cap)** is a market tier which represent NASDAQ Global Market. It include 1450 stocks that follow strict financial and liquidity requirements and corporate governance standards.

3. **Global Select Market (NASDAQ-GS Large Cap)** is a Market Capitalization-it include US Based Stock and International Stocks that represent Global Select Market Composite.It include 1200 stocks that meet strict Financial and Liquidity requirements and corporate governance standards.

London Stock Exchange (LSE) is a Stock Exchange of England, its headquarter is located in London . As per data of 2021,£3.9 Trillion is the total Market Value of all Companies trading on London Stock Exchange .Its Current Headquarter is situated in London.It was founded on 30 December,1801. Indices of London Stock Exchange is FTSE100,FTSE 250, FTSE 350 ,FTSE smallcap index and FTSE All-Share index.

Main markets of London Stock Exchange- the two markets on which companies trade on the London Stock Exchange.

Main Market - 1300 large companies from 60 countries are traded in main market .The main share Index of main market is FTSE 100 ,it took into account 100 most highly Capitalised UK companies listed on the main market.

Secondary markets-the securities available for trading on London Stock Exchange is Common Stock, Bonds, Derivatives, Exchange Traded Funds, Structured Products, Covered Warrants, Global depository Receipts ,Gilt Edged Securities.

Shanghai stock exchange- Shanghai Stock Exchange which was established on 26 November ,1990 is based on Shanghai , China .It is the third Largest Stock Market of the world by Market Capitalisation with total value US$7.62 trillion as of July 2021.It is Asia's biggest Stock Exchange .Shanghai Stock Exchange is not wholly open to Foreign Investor and affected by decision of Central Chinese government out of capital account control excerised by dominating Government.The main index of Shanghai Stock Exchange is SSE composite which is used to reflect Market Performance and act as an Indicator.

Interpretation and Conclusion-

Method used in this research work are Correlation,Regression and Granger Causality Test.,Changes in the value of one variable predict the change to the value of another is shown by statistical measure which is known as Correlation Coefficient. If the value increases or decreases in tandem it would be referred as positive correlated variable. In negative correlated variables, two values are inversely proportional ie value of one increases as the value of the other decreases.

Dependent Variable: NSE
Method: Least Squares
Date: 04/29/22 Time: 12:44
Sample: 1 1214
Included observations: 1209

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5993.463	273.6419	21.90258	0.0000
NASDAQ	1.062858	0.030799	34.50991	0.0000
LSE	-0.394340	0.028776	-13.70360	0.0000
SHANGAI	-0.505306	0.093025	-5.431949	0.0000

R-squared	0.750799	Mean dependent var	10492.02
Adjusted R-squared	0.750179	S.D. dependent var	1528.556
S.E. of regression	764.0050	Akaike info criterion	16.11833
Sum squared resid	7.03E+08	Schwarz criterion	16.13519
Log likelihood	-9739.530	Hannan-Quinn criter.	16.12468
F-statistic	1210.151	Durbin-Watson stat	0.049725
Prob(F-statistic)	0.000000		

In the above output table,dependent variable is national stock exchange. The method used in above research is least square method or ordinary least method .sample taken for research is 1 1214 .we consider 1209 values for our observation.

In the mentioned table we have 5 column ,the first column is variable the first variable which is called as c is constant or fixed value of regression ,other variables are NASDAQ, London Stock Exchange , Shanghai stock exchange the column c which is refereed as constant or fixed value . the second column is coefficient and the values given in these column are coefficient values ,Coefficient value are also known as parameter values. That tells us the impact of independent variable on dependent variable. These values are always expressed in mathematical terms either in

positive terms or in negative terms that means if the coefficient value come in positive mathematical expression it shows that independent and dependent variable are directly proportional to each other that means rise in one value will result in rise in another value and vice versa

The value of coefficient of NASDAQ is +1.062 from which one can infer that if the returns of NASDAQ increases by 1 unit the return or indices of NSE will also increase by 1.062 units , which means their exist a positive relationship between NASDAQ AND NSE

On the other hand the value of coefficient for london stock exchange is -0.394 from which one can understand that if the returns of LSE increases by 1 unit, the return or indices of NSE decreases by -0.394

In case of shanghai stock exchange ,the value of shanghai stock exchange is -0.505 that means one unit positive change in shanghai stock exchange lead to -0.505 unit negative change in National Stock Exchange.

In case of regression model,third column standard error is nothing but residual analysis in which t test or t statistics is applied . t test statistic is hypothesis testing tool .here we are using t test in generic form . on the basis of t test only we can accept or reject hypothesis and on the basis of values of t statics we can infer that whether values are correct, incorrect or test result is reliable..the fifth column probability whose values are tetra 0 for all the independent variable is the criterion of accepting or rejecting hypothesis.

We use two types of hypothesis for our research paper

Null hypothesis- 1.there is no impact of NASDAQ return or indexes on NSE.

2. There is no impact of London stock exchange on NSE

3. There is no impact of shanghai return or indexes on NSE

Alternate hypothesis- 1. there is significant impact of NASDAQ return or indixes on NSE.

2. There is significant impact of LSE return on NSE

3. There is significant impact of shanghai return on NSE .

The above prob values are accepting alternate hypothesis as the value of probability F statistics is less than 0.5 which means alternate hypthesis is accepted and null hypothesis is rejected.

R square , Adjusted R Square are same tool to provide output interpretation.their interpretation is that all independent variable consolidatory impacting dependent variable. As per value of r square 75% variation in NSE is due to all these stock market and 25% variation is due to some other factors

F statistics shows about appropriateness of selected model and its value show it is appropriate model

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