COMPARATIVE STUDY OF INDIAN STOCK EXCHANGES WITH INTERNATIONAL STOCK EXCHANGES

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ABSTRACT

Indian Stock Market at Global Stage holds a predominant place in world's economy. Bombay Stock Exchange and National Stock Exchange are two stock exchanges with advance technologies. Globally India's stock Exchange holds a great significance when it comes to comparison of all stock exchanges. In this research paper we will compare major world's stock exchange in terms of both qualitative and quantitative terms. The stock market is witnessing heightened activities and is increasingly gaining importance. In the current context of globalization and the subsequent integration of the global markets this paper captures the trends, similarities and patterns in the activities and movements of the Indian Stock Market in comparison to its international counterparts. This study covers New York Stock Exchange (NYSE), Hong Kong Stock exchange (HSE), Tokyo Stock exchange (TSE), from various socio politico-economic backgrounds. Both the Bombay Stock exchange (BSE) and the National Stock Exchange of Indian Limited (NSE) have been used in the study as a part of Indian Stock Market. The time period has been divided into various eras to test the correlation between the various exchanges to prove that the Indian markets have become more integrated with its global counterparts and its reaction are in tandem with that are seen globally.

INTRODUCTION

Stock market of any country is considered a market parameter of the country's economy. It acts as a bridge in procuring funds from the interested investors and therefore the same is employed for the aim of commercial growth which successively leads to corporate growth.In terms of growth measurement of stock market, the index is used as proxy to determine the level of the growth over the period of the years. Normally stock market indices show ups and downs with reference to their movement due to the price fluctuation and the price of the script is operated under market condition i.e. demand and supply

factors. As long as the influx of investment is at the larger extent, the indices of the stock market react positively showing upward trend. The stock market is one of the most vital components of a free-market economy, as it provides companies with access to capital in exchange for giving investors a slice of ownership in the company. The stock market makes it possible to grow small initial sums of money into large ones, and to become wealthy without taking the risk of starting a business or making the sacrifices that often accompany a high-paying career.

Stock Market integration is usually perceived as a true barometer for the economic growth. This integration is due to globalization and liberalization. With financial integration, emerging economies have become increasing attractive place for the portfolio investors who generally seek marginal amount of return than what available in other developed countries. There are several benefits related to financial integration like real price discovery, market efficiency, higher savings and investments, low transaction costs which would cause overall economic development.

STOCK MARKET OF INDIA

Focusing now on the Indian stock market, most of the trading in the Indian Stock Market takes place on its two stock exchanges: the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). The BSE has been in existence since 1875 and has about 4700 listed firms whereas NSE was founded in 1992 and began trading in 1994 and has about 1900 listed firms. The two prominent Indian market indexes are Sensex and Nifty. Sensex is the oldest market index for the equities; it includes shares of 30 firms listed on the BSE, which represent about 47% of the index's free-float market capitalization. It was created in 1986 and provides time series data from April 1979, onward.The Indian stock market is the engines that drive the vehicle of Indian economy by generating much capital needed. The Indian stock market is one of the most developed markets in the world. The origin of Indian stock market in India can be traced to the later part of the Eighteenth century. It is one of the oldest and fastest growing in the world.

RELATIONSHIP BETWEEN INTERNATIONAL AND INDIAN STOCK EXCHANGE.

The study pertains to comparative analysis of the Indian Stock Market with respect to various international counterparts. Exchanges are now crossing national boundaries to extend their service areas and this has led to cross-border integration. Also, exchanges have begun to offer cross-border trading to facilitate overseas investment options for investors. This not only increased the appeal of the exchange for investors but also attracts more volume.

Exchanges regularly solicit companies outside their home territory and encourage them to list on their exchange and global competition has put pressure on corporations to seek capital outside their home country. The Indian stock market is the world third largest stock market on the basis of investor base and has a collective pool of about 20 million investors. There are over 9,000 companies listed on the stock exchanges of the country. The Bombay Stock Exchange, established in 1875, is the oldest in Asia. National Stock Exchange, a more recent establishment which came into existence in 1992, is the largest and most advanced stock market in India is also the third biggest stock exchange in Asia in terms of transactions. It is among the five biggest stock exchanges within the world in terms of transactions volume.

Presently, the fluctuations within the Indian market are attributed heavily to cross border capital flows in the form of FDI, FII and to reaction of Indian market to global market cues. In this context, understanding the relationship and influence of various exchanges on each other is very important. This study compares global exchanges which are from different geo politico- socio-economic areas. With the cross-border movements of capital like never before in the form of FDI and FII, coupled with the easing of restrictions bringing various stock exchanges at par in terms of system and regulations, it can be assumed reasonablythat a particular stock exchange will have some impact on different exchanges.

LITERARTURE REVIEW

Arumugam and Soundararajan (2013) investigated the seasonality and time varying volatility in the Indian stock markets. The Chi-square and ANOVA statistical test were applied to obtain the results. The study concluded that there was seasonality and volatilityin the days of the week and months of the year.

Chander and Kumar (2016) studied the Seasonality Effect in BSE SENSEX. The secondary data was used from daily closing prices of BSE SENSEX from 1st April 2005 to 31st March 2015. Descriptive statistics were used to complied the data. The paper suggested that BSE SENSEX in India was not free from seasonal anomalies despite increased use of advanced information technology and numerous regulatory frameworks.

Pathak Manish (2013) highlighted the stock market seasonality effect. The secondary data used in the study were collected from closing prices of the NSE index during the period from 1st april 2002 to 31st March 2012. Kruskal Walis test and one-way ANOVA test were used toachieve the objective. The result of this study revealed that there was no seasonality present in the daily and monthly return of the market.

Rajput et al. (2013) focused the futures trading and its impact on volatility of Indian stock market. Bi-Variate EGARCH and Unit root technique were used to fetch the results. The paper found the uni-directional relationship between future trading and spot market. Finally, the study concluded that spot and future market were improve the riskmanagement and investment decision of the agent.

OBJECTIVE OF THE STUDY

(1) To evaluate the closing prices of the index of BSE and NSE and find out therelationship between them.

(2) To analyze the movement of Indian stock exchanges with International stockexchanges.

(3) To explore the relationship between Indian stock exchanges and International stockexchanges.

RESEARCH METHODOLOGY

The method of collecting the data used here is the secondary. The above listed and the following data is available on the various stock exchanges of the different countries. In this research paper we are covering nine major stock exchanges for 10 years data from 2009- 2019. The following is table of stock exchange of nine global stock exchanges with their major Index.

ANALYSIS AND INTERPRETATION

Descriptive Statistics

	Mean	Std. Deviation	N
BSE	24710.283595	7896.7721852	132
NSE	7471.367804	2398.4745150	132
TSE	13740.949257	1896.5065563	132
NYSE	9846.400435	2264.3891103	132
SSE	2780.679278	511.1054436	132
HSE	174.913258	53.1258086	132
LSE	2303.763789	1704.2111924	132
ASE	5200.025779	760.3252891	132
TOSE	13740.949257	1896.5065563	132

Correlations

		BSE	NSE
BSE	Pearson Correlation	1	.999**
	Sig. (2-tailed)		.000
	N	132	132
NSE	Pearson Correlation	.999**	1
	Sig. (2-tailed)	.000	
	N	132	132

**. Correlation is significant at the 0.01 level (2-tailed).

Here, we have observed that is a high correlation between the BSE and NSE data figures. It means that whenever stocks in the BSE were positive, the stocks in the NSE were positive too. In other words, whenever stocks in the BSE were negative, the stocks in the NSE were negative.

Correlation between NSE and BSE is 0.999 that is highly correlated with each other.
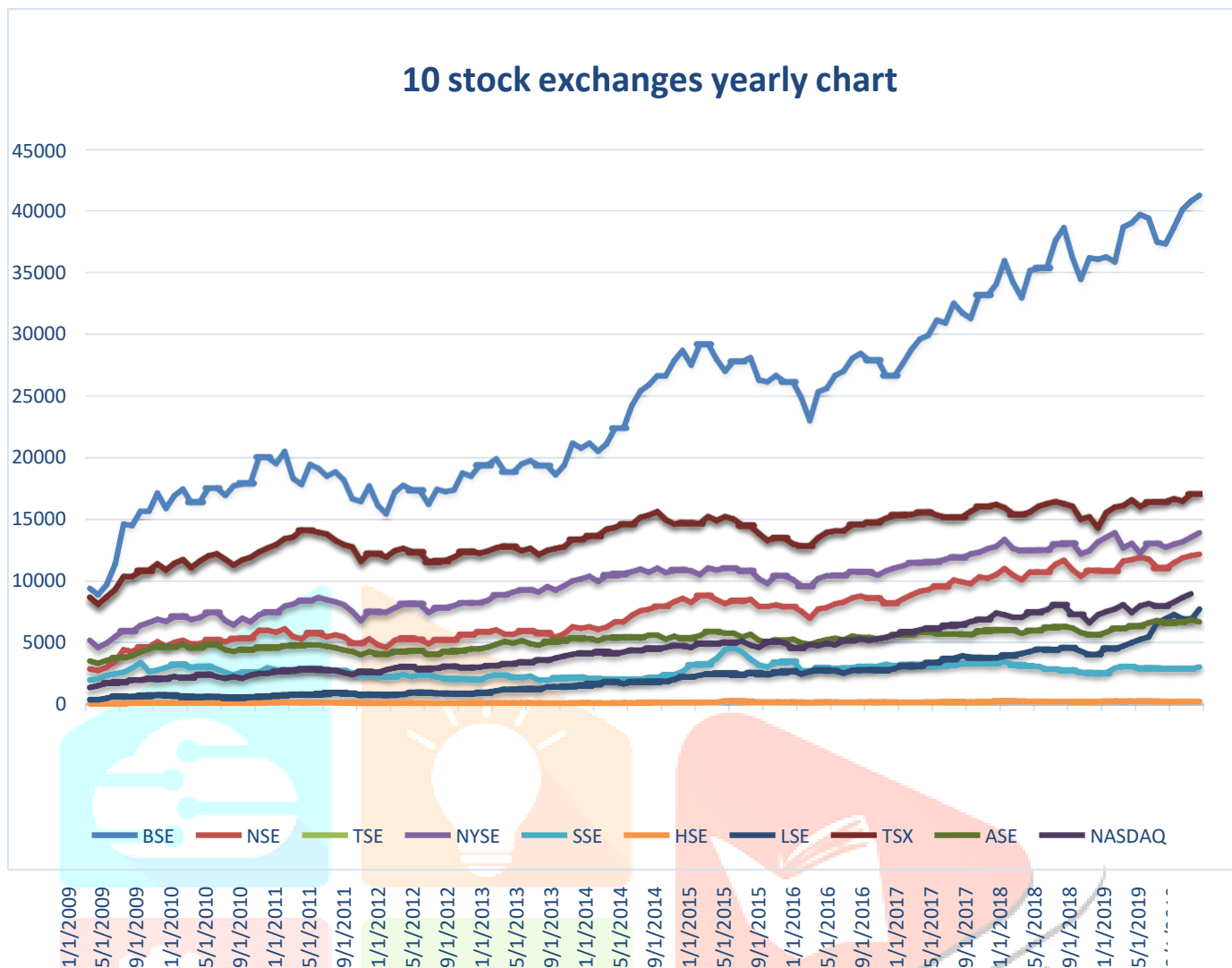
The comparative analysis of the Stock Indices of the world's top Stock Exchanges has been presented in the above graphical representation. The top position is of BSE, TSX and NYSE. The current lowest position is of SSE, LSE, TSE, ASE, HSE, NSE, and NASDAQ.

In the above Fig, the TEN stock exchanges have moved in a narrow range. The volatility is much higher in the BSE than in the other 9 stock exchanges. There seemed to be low connectivity between the 10 exchanges. The Bombay stock exchange had seen a good growth year by year. But at the same time, other 9 stock exchanges did not show so much variation as shown by Bombay stock exchange. BSE shows a very good growth from year 2014 as it increases sharply and from year 2014 it keeps on increasing but fall down a littlein 2016 for a while and then again jumps back to upward direction and the never fall that much. TSX is also at top position but moved in a very narrow range. As we can see TSX did not go much higher but also didn't fall and was holding a neutral position in a chart and not shown much variations as shown by BSE and on the other 8 stock exchanges did not showso much variations.

REGRESSION

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.999[a]	.999	.999	250.0530083

a. Predictors: (Constant), NASDAQ, SSE, TOSE, HSE, ASE, NSE, NYSE, LSE

This table provides the R and R^2 values. The R value represents the simple correlation and is 0.999 (the "**R**" Column), which indicates a high degree of correlation. The R^2 value (the "**R Square**" column) indicates how much of the total variation in the dependent variable, Price can be explained by the independent variable, Income. In this case, 99.9% can be explained, which is very large.

R denotes the **correlation** between predicted and observed stock exchanges. In our case, R = 0.99. Since this is a very high correlation, our model predicts stock exchanges rather precisely.

r square is simply the square of R. It indicates the proportion of **variance** in various stock exchanges that can be "explained" by our three predictors.

Because regression maximizes R square for our sample, it will be somewhat lower for the entire population, a phenomenon known as shrinkage. The **adjusted r-square** estimates the population R square for our model and thus gives a more realistic indication of its predictive power.

The next table is the **ANOVA** table, which reports how well the regression equation fits the data (i.e., predicts the dependent variable) and is shown below:

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5860625754.830	8	732578219.354	11716.283	.000[b]
	Residual	7065495.284	113	62526.507		
	Total	5867691250.114	121			

a. Dependent Variable: BSE

b. Predictors: (Constant), NASDAQ, SSE, TOSE, HSE, ASE, NSE, NYSE, LSE

This table indicates that the regression model predicts the dependent variable significantly well. Look at the "**Regression**" row and go to the "**Sig.**" column. This indicates the statistical significance of the regression model that was run. Here, $p < 0.0005$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Coefficients[a]

	Model	B	Std. Error	Standardized Coefficients Beta	t	Sig.
		Unstandardized Coefficients				
1	(Constant)	34.757	333.910		.104	.917
	NSE	3.315	.064	1.025	52.049	.000
	NYSE	.047	.071	.014	.663	.509
	SSE	-.495	.088	-.038	-5.604	.000
	HSE	6.303	1.440	.045	4.376	.000
	LSE	-.131	.136	-.024	-.965	.337
	TOSE	-.135	.049	-.035	-2.758	.007
	ASE	.533	.131	.051	4.066	.000
	NASDAQ	-.214	.121	-.055	-1.774	.079

a. Dependent Variable: BSE

The **Coefficients** table provides us with the necessary information to predict price from income, as well as determine whether income contributes statistically significantly to the model (by looking at the "**Sig.**" column). Furthermore, we can use the values in the "**B**" column under the "**Unstandardized Coefficients**" column.

The column "Sig." holds the **p-values** for our predictors. As a rule of thumb, we say that a b coefficient is statistically significant if its p-value is smaller than 0.05. All of our b coefficients are not statistically significant as there are values which are greater than 0.05.

The **beta coefficients** allow us to compare the relative strengths of our predictors. NSE is contributing significantly with SSE, HSE, BSE and have an impact on stock market. Whereas NYSE, LSE, NASDQ have no impact on Indian Stock market.

CONCLUSION

The results of this study strongly support the view that, there is a substantial integration between Indian and International financial markets. BSE has witnessed a greater fluctuation which has been indicated by a very high Co-efficient of variation compared to other select indices. BSE, the Indian bench mark index, has shown strong association with China, Japan and Taiwan's Composite Index. The study reveals that, there is a poor integration of BSE with SSE, LSE, TSE, ASE, HSE, NSE, and NASDAQ and. Indian stock market exhibited strong positive correlation and perfect price correlation with global stock markets. In Asia pacific region, when compared to Hang Kong, correlation of the Indian market with global markets is not so attractive.

The study conclude that Indian stock market which has linked with stock markets of all the countries is globally integrated over the next 10-15 years, need to move towards far greater integrated global financial world and policy maker in India need to rethink the framework for such integration.

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