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INFLUENCE ON THE COMPONENT ROOT TEST AND THE SIZE ASSORTMENT STANDARDS FOR THE LAG EARLIER CO-INTEGRATING WITH STOCK PRICE VARIABLES IN INDIA

Vishlesh K H
Research Scholar, School Of Business and Commerce
The Glocal University, Mirzapur Pole , Saharanpur ,Uttar Pradesh, India.

Dr.Sapna Rathore
Research Supervisor, School Of Business and Commerce
The Glocal University, Mirzapur Ploe, Saharanpur, Uttar Pradesh, India.

ABSTRACTS

The goal of the current study is to investigate how macroeconomic factors generally affect stock market results. The study looks at how key macroeconomic variables like "trade openness," "exchange rate," "inflation," "interest rate," and "crude oil prices" affect the long- and short-term relationships as well as the bidirectional and unidirectional causality between the share prices, as measured by the BSE SENSEX, and a few key macroeconomic indicators. Stock market values are a reliable predictor of a nation's economic health and a leading sign of actual economic activity. The country's population's household consumption, investments, and saving decisions can all be impacted by share prices. Thus, it has been demonstrated that the stock market functions similarly to a barometer to assess the real growth of the economy from a variety of angles. Connecting savers and investors to manage money leads to the expansion of the nation's financial system.

Key Words-: Macroeconomic,exchange rate,BSE SENSEX,

1. INTRODUCTION:

The movement of stock indices is highly sensitive to the changes in fundamentals ofthe economy and to the changes in expectations about future prospects. Expectations are influenced by the micro and macro fundamentals which may be formed either rationally or adaptively on economic fundamentals, as well as by many subjective factors which are unpredictable and also non quantifiable. It is assumed that domestic economic fundamentals play determining role in the performance of stock market. However, in the globally integrated economy, domestic economic variables are also subject to change due to the policies adopted and expected to be adopted by other countries or some global events. The common external factors influencing the stock return would be stock prices in global economy, the interest rate and the exchange rate. For instance, capital inflows and outflows are not determined by domestic interest rate only but also by changes in the interest rate by major economies in the world. Burning example in India is the appreciation of currency due to higher inflow of foreign exchange. Rupee appreciation has declined stock prices of major export oriented companies. Information technology and textile sector are the example of falling stock prices due to rupee appreciation. From the beginning of the 1990s in India, a number of measures have been taken for economic liberalization. At the same time, large number of steps has been taken to strengthen the stock market such as opening of the stock markets to international investors, regulatory power of SEBI, trading in derivatives, etc. These measures have resulted in significant improvements in the size and depth of stock markets in India and they are beginning to play their due role. Presently, the movement in stock market in India is viewed and

analyzed carefully by large number of global players. Understanding macro dynamics of Indian stock market may be useful for policy makers, traders and investors. Results may reveal whether the movement of stock prices is the outcome of something else or it is one of the causes of movement in other macro dimension in the economy. The study also expects to explore whether the movement of stock market are associated with real sector of the economy or financial sector or both We analyze the long term relationship between BSE and certain macroeconomic variables. We use the regression equation model (Galton, 1877) in order to investigate the relationship among these factors. Results reveal that there is high correlation between the empirical results reveal that exchange rate and gold prices highly effect the stock prices on the other hand the influence of foreign exchange reserves and Inflation on the stock price is upto limited extend only.

2. OBJECTIVES OF THE STUDY:

The paper aims at the following objectives:

1) To explore the Component Root Test.

2) To study the effect these macro-economic variables on stock price with Lag Lenth Selection Criteria

3. RESEARCH METHODOLOGY:

Research Design

In the present research the quantitative approach of has been used. By applying the quantitative research approach the time series data of dependent and independent variables have been collected and then a complete set of quantitative analysis performed. “Quantitative research method” accomplishes the standardized estimation for the taken indicators/ variables to estimate the expected results. The most dependable methods of organizing the s tudy/ research, as calculation is based on the numericaldata. “The QRM helps in the explanation of any issue or incident with the help of collecting thenumerical data and its analysis with the help of statistical tools” (Alieaga, and Gunaderson, 2003). A descriptive and causal-comparative research design has been applied in the study.

Data Analysis Tools & Techniques

The present research has taken a set of wide-ranging econometric models/methods for analysing data such as; the “Augmented Dicky Fuller” for Component root testing to convert the non-stationary time series data into stationary series , ARDL(Autoregressive Distributed Lag) Bound testing approach for analysing the short and long term connections among the variables, Bound Test, Wald Test for checking the chi square values of the variables in short run, “Johansen Co-integration Test”, VECM (Vector error correction model) based “Granger Causality Test” for testing the bidirectional causality among the variables , Residuals tests such as: -“Serial correlation test” , “Heteroscedasticity test” ,”Normality test” and CUSUM & CUSUM Square Test, “Impulse Response Function” and “Variance Decomposition Test” for analysing the exogenous shocks to the macroeconomic indicators respond to “BSE SENSEX”.

Independent Variable

“BSE SENSEX” has taken as an independent variable for this study.

4. DATAANALYSIS

ModelSpecifications

LBS=α0+α1LCO+ α2CPI+α3LEXR +α4LIR+α5LTO +Ɛt….(45)

ComponentRootTestand LagSizeselectionCriteria beforecointegration

Prior to conduct the cointegration test, it needs to examine whether all the variables arestationary or not. We have used the Component root tests such as "Augmented Dicky Fuller" &"Phillip Perron" for converting the non-stationary series into stationary series. Results areinterpretedthroughtheTables(1,1.1,2,2.1).Thefindingsrevealthatthedependentandindependent indicators have a Component root at level (Table 1 & 2). After that the variables havebeen rechecked in first difference and according to the findings all available have convertedinto stationary series. The results show in Table 1.1 & 2.1, the time series data are establishedtobestationaryseriesafterdifferencing,i.e.,I(1).Intheanalysis,thestudyincludes"Autoregressive Distributed Lag" (ARDL) model to cointegration. It was also important todetermine the ideal lag Size criteria. In the model, the order of the lag should be chosensuitablysothatthe"errorterms"oftheequationswillnothaveaserialcorrelation.Theresults are explained in the Tables (3 ,3.1,3.2,3.3,3.4,3.5,3.6,3.7,3.8,3.9,3.10 & 3.11). Theoptimum lag Size criteria is selectedbased on"Akaike Info Criterion" and "Schwarz Info Criterion"(SIC).

AugmentedDicky-Fullertest

Table4.1:AugmentedDickyFullerTest (AtLevel)

	AtLevel	
	t-statistics	Prob.
BS	1.48	0.99
CO	1.53	0.99
CPI	1.39	0.99
EXR	1.38	0.99
IR	1.08	0.99
TO	2.30	0.99
1%-(CriticalValue)	-4.730522	

5%-(CriticalValue)	-3.029861	
10%-(CriticalValue)	-3.254188	

Source:Results obtained byown calculationon E-Views 12

H_0:TimeSerieshasaComponentroot.**(*)H0R**ejectedat5%levelofsignificance

AugmentedDicky-Fullertest

Table4.2:AugmentedDicky-FullerTest(Atfirstdifference)

	At1st Difference		Order
	t-statistic	P(Prob.)	
BS	-3.04*	0.00	I(1)
CO	2.89 *	0.00	I(1)
CPI	-4.83*	0.00	I(1)
EXR	4.93 *	0.00	I(1)
IR	-4.90*	0.00	I(1)
TO	-5.13*	0.00	I(1)
1%-(CriticalValue)	2.857386		
5%-(CriticalValue)	-4.040391		
10%-CriticalValue	-4.660551		

Source:"Results"obtainedbyowncalculation onE-Views12

H_0:Time SerieshasaComponentroot.**(*)H0R**ejectedat5%levelof significance

Phillip-Perrontest

Table4.3:Phillip-PerronTest(At-Level)

	AtLevel	
	t-statistic	P(Prob.)
BS	2.2944	0.98
CO	1.3045	0.98
CPI	3.6562	.98
EXR	2.5277	0.98
IR	0.1480	0.98
TO	2.4035	0.98
1%-CriticalValue	-3.830511	
5%-CriticalValue	-4.0409970	
10%-CriticalValue	-3.755194	

Source:Resultsobtained byown calculationonE-Views12

H_0:TimeSerieshasaComponentroot**.(*)H0R**ejected at5%levelofsignificance

Phillip-Perrontest

Table4.4:Phillip-PerronTest(Atfirstdifference)

	At1stdifference		Order
	t-statistic	P(Prob.)	
BS	-5.0650	0.00	I(1)
CO	-4.9161	0.00	I(1)
CPI	-6.6034	0.00	I(1)
EXR	-4.9445	0.00	I(1)
IR	-4.9065	0.00	I(1)
TO	-4.135	0.04	I(1)
1%-CriticalValue	4.857332		
5%-CriticalValue	-2.040390		
10%-CriticalValue	-5.660451		

Source:Resultsobtained byown calculationonE-Views12

H_0:TimeSerieshasaComponentroot**.(*)H0R**ejected at5%levelofsignificance

Interpretation: - ADF test & PP test results confirms that the time series data are not thestationaryseriesatlevel butthesehavebeenconvertedintostationaryatthe1st difference.

5. Conclusion:

The empirical analysis began with testing the stationarity of the time series data by applying the "Augmented Dicky Fuller" (ADF) and "Phillip Perron" Component root test. At the first difference, all the time series data were converted into stationary series, and the lag Size selection criteria were determined by applying Vector Autoregressive Model (VAR). For studying the short-term and long-term cointegration relation amongst the macroeconomic indicators and share prices, "Autoregressive Distributed Lag" (ARDL) & bound

testing approach has been applied. The "error correction term" (ECM t-1) identified the rapidityof adjustments in the direction of the symmetry. After further establishing the cointegrating relation, the "direction of causality" is examined using the "Vector Error Correction Model" (VECM) based "Granger Causality test".

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