



## **"Cointegration and Causal relationship between Pharmaceutical sector and Nifty – An empirical Study"**

**Mahabub Basha S<sup>1</sup>, Dr. Aditi Priya Singh<sup>2</sup>, Dr. Mohammed Rafi<sup>3</sup>,  
Mrs. Ibha Rani<sup>4</sup>, Dr. N Mukund Sharma<sup>5</sup>**

<sup>1</sup>Research Scholar, ISBR, UOM, Asst. Professor, Koshys Institute of Mgt Studies

<sup>2</sup>Associate Professor, ISBR, UOM

<sup>3</sup>Associate Professor, Brindavan College

<sup>4</sup>Research Scholar, VTU, Asst. Professor, SSR College of Science and Mgt studies

<sup>5</sup>Professor, BNM Institute of Technology

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### **ABSTRACT**

Predicting the Pharmaceutical stocks along with Nifty index is possibly one of the very toughest exercises in Indian Capital Markets. The present study focuses on Short & Long term dynamics of the Pharmaceutical industry in Indian capital market. The Pharmaceutical sector along with Nifty Index Regular closing monetary value are a sample to the analysis between June 2015 and June 2020. In the paper, ADF test is embarked to examine immovability of data and is evident that it is un-movable at initial difference level. The co-integration test of Johansen is applied to assess long-term balance of Nifty Index analysis with the pharmaceutical sector and to define the co-integration of the variables. Granger causality test is used to regulate causal & short-term relationship of the variables with the corresponding bidirectional casualties amidst them.

### **INTRODUCTION**

After privatization and globalization, Indian Capital markets have become more integrated worldwide. Due to independent movement of capital in financial markets, international capital markets and economies became progressively more integrated in the mid-1990s of globalization. Indian stock exchanges are popular not only in Asia, But also in global markets (Swetadri et al 2018). This stock-market reform process continued with successful FDI trend control in many sectors and

capital market integration. Integrated capital markets can associate price fluctuations with other markets. Macro-Influenced financial markets, such as crude oil prices, gold prices, exchange rates ( chinnadurai kathiravan et al 2019).

Capital market plays a pivotal role in Indian economy development and achieving the economic goals of various industries (Srihari 2017). Stock market is a place for selling long term debt or shares. It has two section forms, one is primary and later is secondary However, primary market helps companies collect resources by selling shares, and tributary market is the succeeding security sales and purchases. The Countries foremost stock exchanges are Bombay stock exchange and the NSE. The dawn of technology to markets primarily led to investor's trading and settlement processes (Anjali et al 2015). Over the years, Pharmaceutical Industry in India has stretched at a multiplying annual growth rate of 15 percent and substantial market opportunities. Most pharmaceutical companies will continue to expand organically and inorganically through global alliances and associations (PWC 2020). Indian pharmaceutical Industry supplies 48% of global demand for different medicines and 41% of US demand for genetic medicines and 29% of all medicines in Europe (IBEF.org 2020). India's government has given affirmation to foreign direct investment policy in the pharmaceutical department to permit up to hundred percent FDI under certain conditions. Indian pharmaceutical industry has a chance to play a greater role in the global drug supply market. The Indian pharmaceutical sector is the nation's strategic industry, contributing 1.5% directly to GDP, with another 3% coming indirectly (Business line 2020).

## ASSESSMENT OF LITERATURE

**Rajiv Menon et al (2009)** published a report on Indian stock market co-integration, including six 10-year stock exchanges. These markets were evaluated separately for co-integration testing. The study showed co-integration between Indian and US markets and also found good co- integration between Indian, Hong kong and Singapore markets.

**A Anjali et al (2015)** analyzed the long-term liaison amongst the federal bank capital market and banking. Secondary data was used from 1 January 2005 to 31 December 2014. Study analyzed ADF test, Granger test and analysis of co-integration. Co-integration study by Johansen revealed unidirectional movement between nifty and federal banks. Researchers came to conclusion that, the NSE effects contribute to banking sector movement.

**Jiya tom (2020)** studied Nifty 50 stock price macro variables from 2006 to 2017. FII has unit root after Initial variance finds patterns in Nifty 50, IIP, call currency, WPI and interchange rates. The co-integration test by Johansen showed that there is co-integration among the variables suggesting continuing equilibrium affiliation amongst macro variable and Nifty 50 index. Researcher concluded that granger causality test indicates exchange rates can affect nifty, but nifty does not affect exchange rates.

**Eddie Simiyu et al (2020)** investigated Kenya's stock market shocks. Consuming Johansen's co-integration, Vector fault rectification model and its effects resulted in bidirectional granger connection amongst the manufacturing and associated banking segments. There is no causality between investment and manufacturing industries. However, the study found that impulse retort investigation showed that

shocks from other sectors to manufacturing and related sectors were less important. Shocks in banking sector were most powerful in their ability to respond from other market indices. This study concluded that the banking sector has the greatest propensity to affect volatility in other sector shocks.

**Nsiong P et al (2016)** explored the complex relationship amongst crude oil values and stock market pointers and Nigerian economic progress using VAR model and Johansen co-integration study. Study found the long-term sustainable relationship between variables using Johansen co- integration tests. Extended affiliation with a vector-autoregressive order model VAR (3). They concluded that crude oil values, movement of stock markets and economic growth have an extended affiliation.

**D Bhuvaneshwari et al (2017)** evaluated co-integration and causality amongst Nifty 50 shock values and alteration rates since January 2006 to December 2015. Researcher evaluated Johansen lack of extended affiliation amongst nifty and exchange rates. Variables do not co- integrate long-term relationships, but short-term causality relationships were strong between shock values and nifty-fifty. Study settled that there is a short-term association amongst shock values and exchange rates.

Many analysts performed various sectoral capital market studies in India and other global markets. Many studies testing Johansen's co-integration and Granger's causality test among different sectors. This study explores the possible Pharmaceutical sector relation with Nifty 50 index.

## OBJECTIVE

1. To study the cointegration relationship between Pharmaceutical sector and Nifty Index
2. To study the course of the causal affiliation amongst Pharmaceutical sector and Nifty Index.

## Hypothesis

The below mentioned hypothesis are set to empirically verified to study the aforesaid objectives

H 1: The study variables Nifty 50 and Pharma Sector are normal distribution.

H 2: There is non-stationary exists between the variables

H 3: There is no long-term equilibrium relationship amongst the variables

H 4: There is no causality prevailing amongst the variable

## Data and Research Methodology

Present paper targets at scrutinizing the co-integration and causal affiliation amongst Pharmaceutical sector and Nifty 50 for the period of June 2015 to June 2020. The daily closing prices of both Pharmaceutical sector and Nifty 50 have been collected from NSE website. The key statistical tools used in the study are ADF unit root test, Johansen cointegration and Granger causality tests.

## CONCLUSION

Language learning is based on the cognitive levels of the human being and affected from the factors of socio-economic, environment and psychological. Further, learner should have a positive attitude in learning the language and at the same time, teacher should create a friendly and open environment to motivate the learners to learn positively. Learners should be encouraged by the teachers to be passionate in learning

a language like English and make them come out of superfluous inhibitions and premeditated thoughts about learning a foreign language.

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