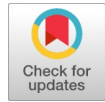


A Study on the Relation Between the Indian Stock Market and Indian Economy

B. Ashok, Abin P Sajan, Andrew Chacko



Abstract: *The relationship between stock market growth and economic activity has long been a topical discussion amongst economists, market players and policy makers. A natural question that arises is whether macro Economics influences stock behaviour or if stock market has its own dynamics, Its logical to believe that healthy macro economic indicators will improve both demand and industry output and as well its profits and growth which in turn would drive up the stock prices and vice versa. In the context of India, this study makes an effort to determine the correlation between stock market development and economic growth. The analysis reveals a clearly defined long-run relationship between the stock market indicators and economic growth in India using cointegration and causality tests for the period of April 2010 to March 2020. The empirical findings demonstrate a two-way causal relationship between market indices and economic growth with respect to Macro-Economic indicators.*

Keywords: GDP, Macro Economic Indicator, Lead and Lag, M3 (Broad money),

I. INTRODUCTION

India's financial industry has experienced significant expansion, and over the past 10 years, the trend of economic growth appears to be good. During 2010–2011 [3], the growth rate was close to 8.5 percent annually. The trend significantly slowed to 3.7 percent in 2019 before decelerating to -6.6 percent in 2020. A considerable decrease in India's GDP growth rate to -6.6% was observed in 2020, due to the Covid-19 Pandemic. This could lead to the conclusion that financial sector expansion in the economy affects how well economic growth performs. It is often said that Stock markets are barometers of future state of Economy. The stock market is a key economic institution that improves the efficiency of capital generation and allocation because it enables businesses and the government to raise long-term capital that they may use to fund new initiatives or expand their operations.

In support of the aforementioned claim. Companies in nations with developed stock markets are also less reliant on Institutional /bank funding, which can minimize the danger of a credit crisis.

Stock markets offer developing businesses a way to raise capital at market determined cost. There are no seminal work with convincing evidence of relationship between the stock market and economic growth was found. India's stock market has two major stock exchanges, the Bombay Stock Exchange (BSE) which was established in 1875 (oldest in Asia) and the National Stock Exchange (NSE) which was founded in 1992

II. LITERATURE REVIEW

Gevit (2007) [1] in his paper "The Relationship Between Stock Market and the Economic Growth: Evidence from International Markets" examined the causal relationship between stock market prices and economic growth using the Granger Causality test [5]. Findings from the study showed a unidirectional causal relationship between stock prices and GDP running from Stock prices to GDP for all the countries under study except Germany. Ted et al (2005) [2] in their study "Is The Indian Stock Market a Casino" examined the association between stock market development and economic growth. Their findings show no support that the Indian stock market development is associated with economic growth for the period 1981 to 2001. They thus concluded that the Indian stock market is a casino. Sudharshan and Rakesh (2011) investigated whether stock market performance leads to economic growth of India using both monthly and quarterly data for the period 1996 to 2009. Monthly Granger Causality test result suggest a bidirectional causal relationship between IIP and stock prices, while quarterly result reveals that there is no relationship between GDP and BSE, but in case of NSE and GDP, a unidirectional causality was found, running from GDP to NSE. Kwame (2012) [4] employed the GLS technique to investigate the impact of the stock market primarily on economic growth using panel data. Yields from the study showed the presence of a positive effect of stock market development on economic growth in some economies and sectors. The effect varies per region and time periods. Hamid and Sumit (2008) investigated the relationship between stock market development and economic growth using the dynamic panel methodology for twenty one countries. Results of the study suggest a positive relationship between several stock market indicators and economic growth both directly and indirectly through boosting private investment behavior.

Manuscript received on 10 October 2022 | Revised Manuscript received on 12 November 2022 | Manuscript Accepted on 15 November 2022 | Manuscript published on 30 November 2022.

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A. Objective

The objective of the study is to examine the relation between the Indian Stock Market indicators and the Macro-Economic Indicators of India with respect to the last decade. (2010-2020).

B. Data and Methodology

Broad Market measure data of Nifty 50 was chosen as proxy for Stock price. Monthly data of adjusted closing prices of NSE fifty (from April 2010 to May 2020) and corresponding data of broad Economic measures as GDP in PPP, M3(Broad Money), Currency in Circulation were. taken The required data was sourced from websites of RBI and NSE. Analysis of the data was done by computing the percent changes and examining the correlation amongst these. To have common baseline some of the data's were annualized. As its well known that financial transmission across the system is not seamless, correlation between leads and lags were computed. For better understanding, these data were also graphically visualized.

C. Data Tabulation and Analysis

Table 1 shows the Indian GDP ppp basis, (purchasing power parity) data for a period of eleven years from 2010 to 2011 and also the changes from the previous years.

Table 2 shows the same data with lag of one year in GDP growth.

Figure 1 and 2 visually captures these trends.

Table 3 shows the repo rate change data (annualized) with Nifty changes. Table 4 shows the same data with one year repo rate change lag. And figures 3 and 4 respectively captures these trends.

Figure 5,6,7 respectively shows both the trend and correlation between Broad money Supply (M3) and Nifty for 0,3 and 6 months lag.

Figures 8,9,10 show similar data between currency circulation and Nifty 50 index movements.

While comparing both the data we can find that the average growth rate of Indian GDP is 5.95% for the period 2010 to 2020 at the same time period Market capitalization growth is 99.9%. So we could find a clear difference in the growth rate between the two. We got a correlation of -0.06848 between GDP growth rate and market capitalization growth rate using the Pearson correlation coefficient formula. This shows that there is no correlation between GDP growth and market capitalization.

Table 1

Year	GDP Growth	Stock Growth
2010	9.76	30.56
2011	7.44	-2.74
2012	9.52	1.84
2013	5.27	9.20
2014	4.69	26.16
2015	5.59	11.28
2016	8.03	-1.87
2017	7.01	18.70
2018	9.09	12.06
2019	5.90	6.55
2020	-6.85	-3.34

Correlation: 0.32495

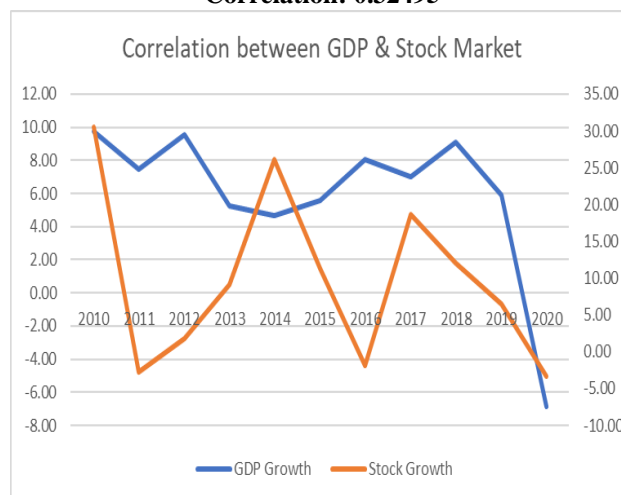


Figure 1

Table 2

Year	GDP Growth	Stock Growth	Lag Year
2010	9.76	-2.74	2011
2011	7.44	1.84	2012
2012	9.52	9.20	2013
2013	5.27	26.16	2014
2014	4.69	11.28	2015
2015	5.59	-1.87	2016
2016	8.03	18.70	2017
2017	7.01	12.06	2018
2018	9.09	6.55	2019
2019	5.90	-3.34	2020
2020	-6.85	42.98	2021

Correlation: -0.74885

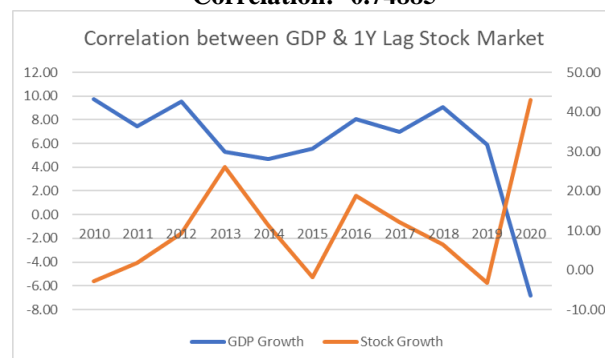


Figure 2

Table 3



Year	Repo Rate	Stock Market
2010	18.4%	30.6
2011	17.8%	-2.7
2012	-3.8%	1.8
2013	17.6%	9.2
2014	6.7%	26.2
2015	-8.6%	11.3
2016	-12.8%	-1.9
2017	-5.9%	18.7
2018	4.2%	12.1
2019	-8.6%	6.5
2020	-26.4%	-3.3
2021	13.7%	43.0

Correlation: 0.512414

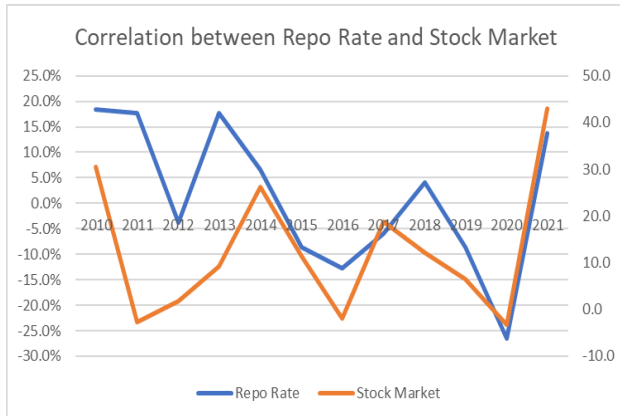


Figure 3

Table 4

Year	Repo rate	Stock Market	Year
2010	18.4%	-2.7	2011
2011	17.8%	1.8	2012
2012	-3.8%	9.2	2013
2013	17.6%	26.2	2014
2014	6.7%	11.3	2015
2015	-8.6%	-1.9	2016
2016	-12.8%	18.7	2017
2017	-5.9%	12.1	2018
2018	4.2%	6.5	2019
2019	-8.6%	-3.3	2020
2020	-26.4%	43.0	2021

Correlation: -0.42996

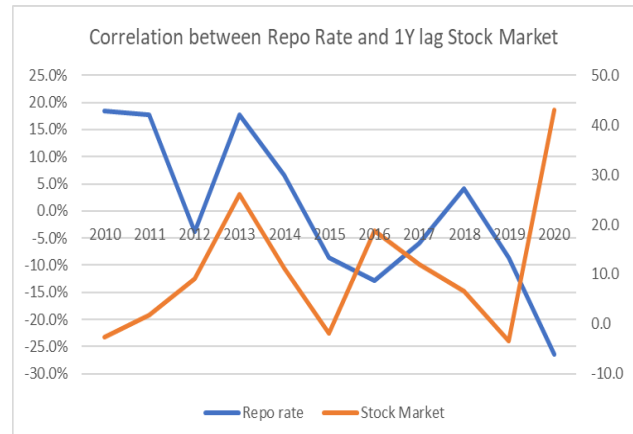
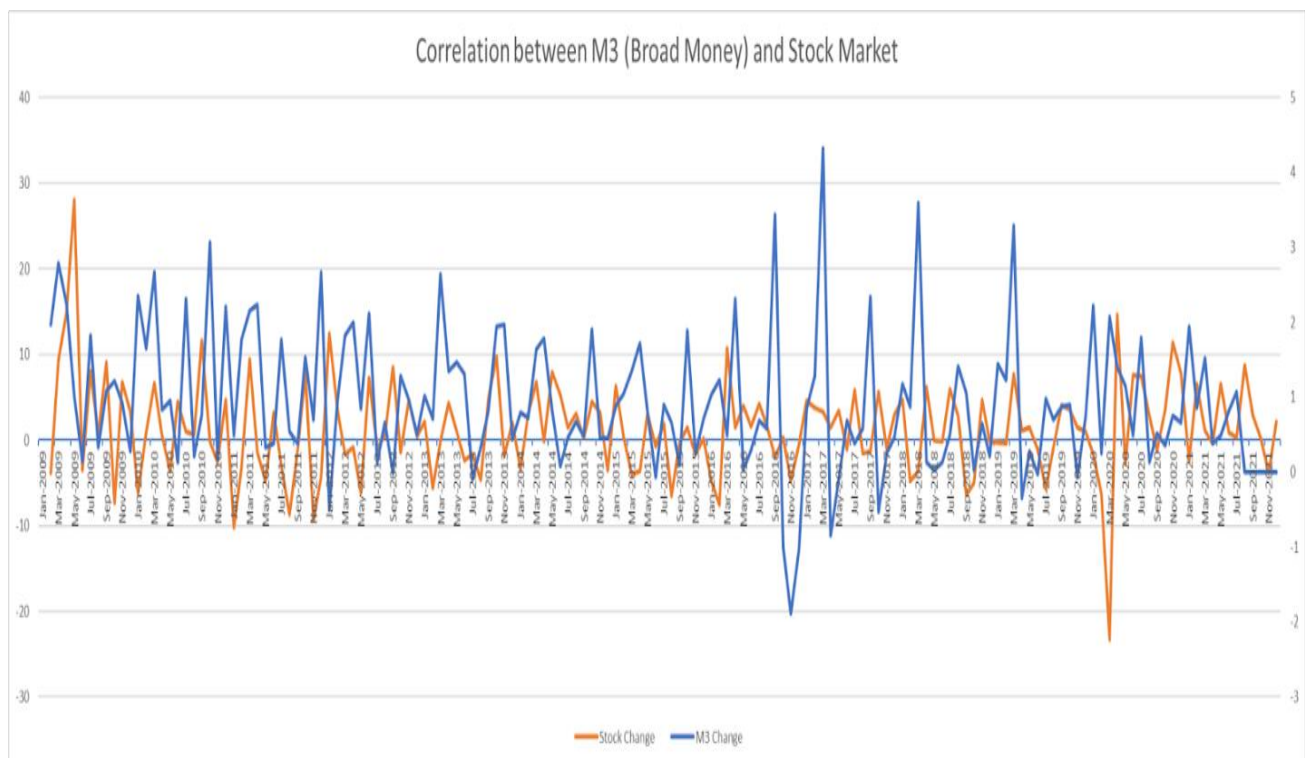


Figure 4



Correlation:0.1952

Figure 5

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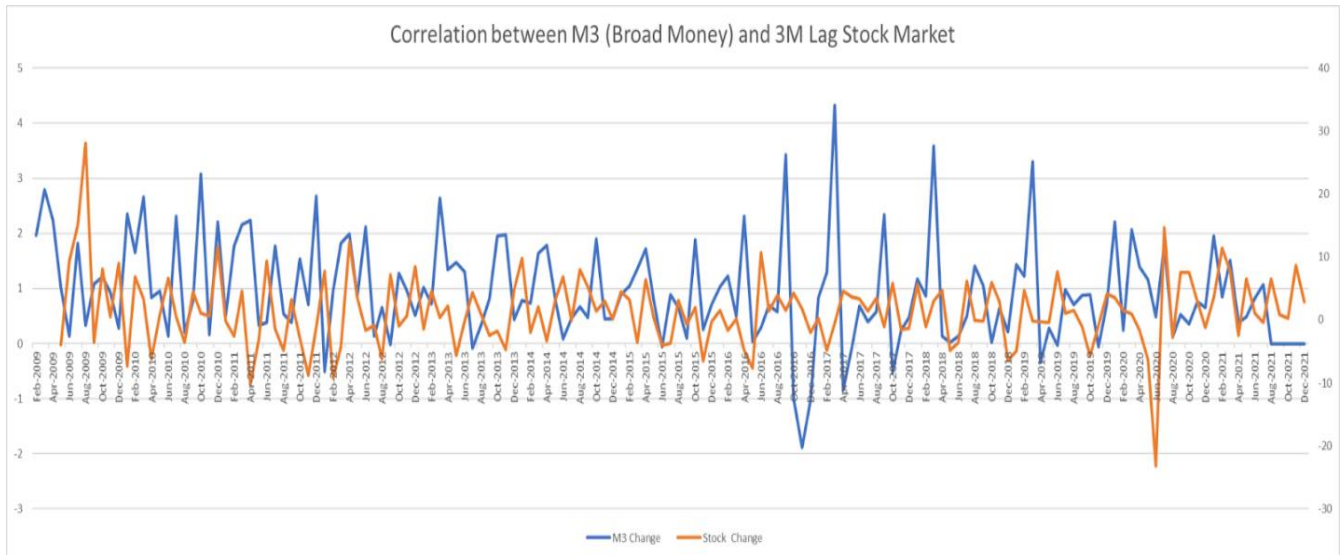


Figure 6

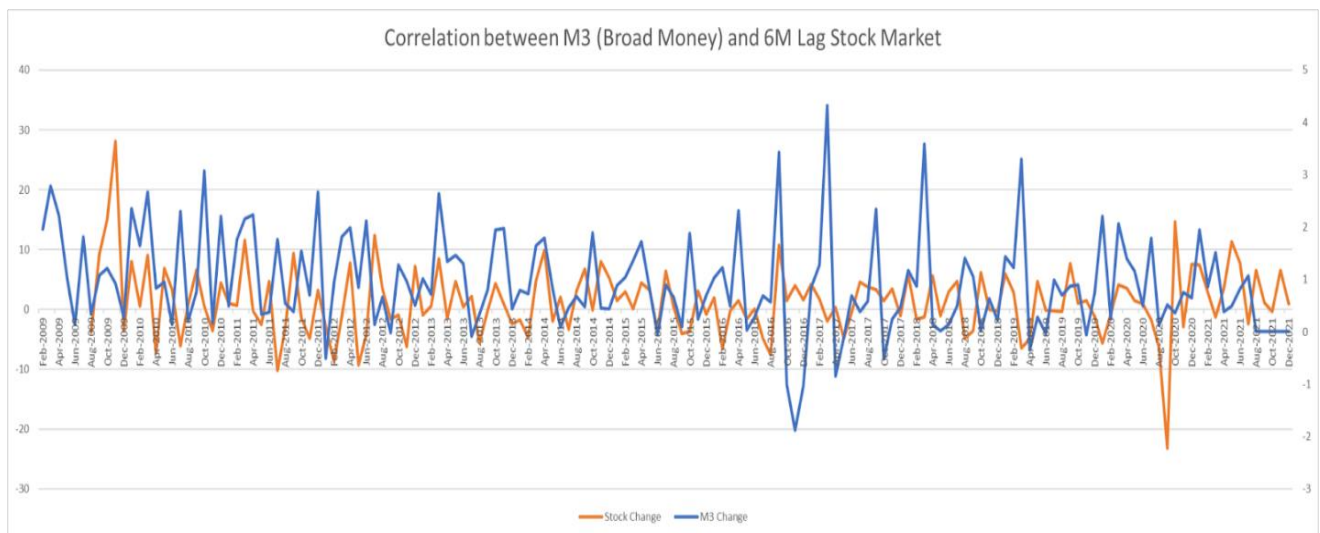


Figure 7

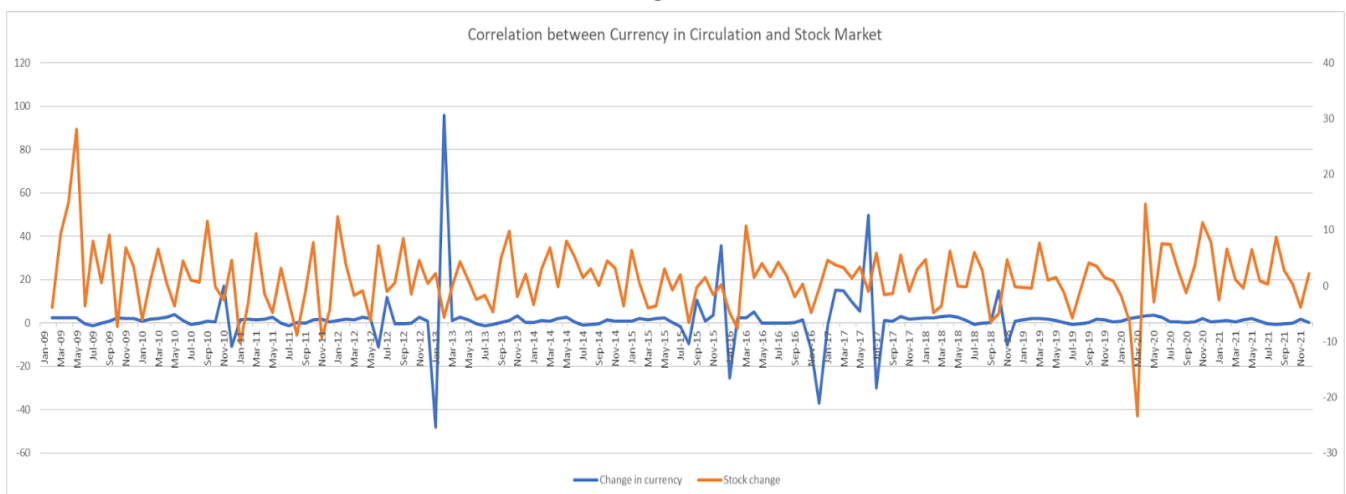
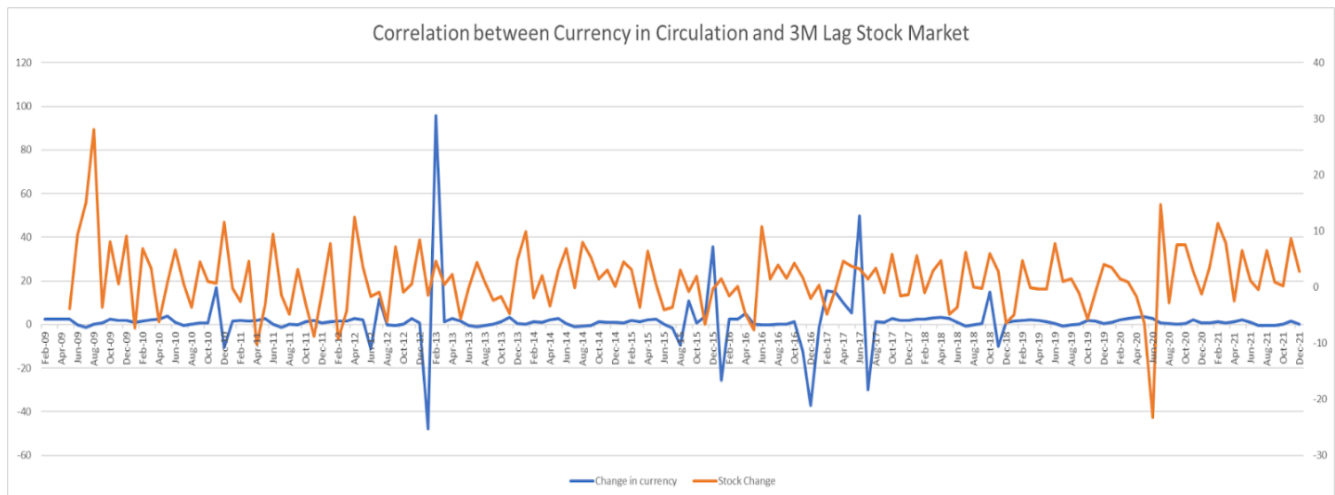
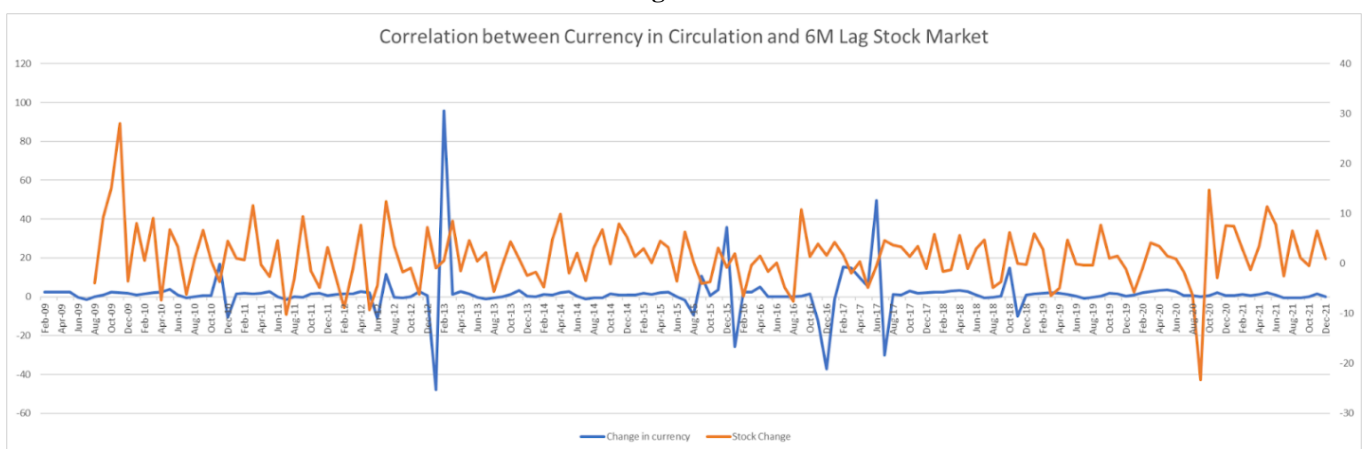


Figure 8



Correlation: 0.0185

Figure 9



Correlation: -0.0146

Figure 10

III. DISCUSSIONS

- 1) Influence of GDP on Stock prices: After one year lag, correlation between GDP and Nifty 50 and increases in absolute values from 0.32 to – 0.74. This can be explained by reasoning that Stock markets are essentially the predictors of future growth.
- 2) Influence of Repo Rate: Logical thinking indicates that increasing repo rates would make investors to shift their assets from Stock markets to Bank Deposits and hence cause downward movement to the stock prices. A moderate correlation of 0.52 between Stock price increase and Repo rates increase defy this logic. This could be possible explained by perception of investors that relatively Bank deposit rates are not attractive.
- 3) Influence of Changes in Broad Money (which includes all form of money, which can be readily encashed as Bank deposits, treasury money, gilts etc). Conventional wisdom indicates that excessive liquidity can drive up the stock prices. The present study has shown that its not happening as expected.
- 4) Influence of Currency in circulation : Conventional wisdom tells that increase of currency in circulation would drive up liquidity and hence drive up the stock prices. Contrary to our expectations, Figures 8, 9 and 10

shows almost nil correlation between currency in circulation and stock price movements.

IV. CONCLUSION

Its clear that atleast during the past decade, of all the macro economic variables, only GDP has positive influence on broad stock market.

- 1) As in absolute values, we have better correlation with one year forward lead of stock prices between GDP and rate of increase in stock prices, its clear that Markets have the ability to sense the future GDP growth rates. Thus proving the adage that “ Markets are barometers of future Economy”.
- 2) Contrary to conventional wisdom, both Broad Money supply and currency in circulation has almost nil correlation with broad stock price movements.

SCOPE FOR FUTURE WORK

This study pertained only to previous decade. Perhaps the study can be extended to over over 3 decades to notice if there had been shifts in influence of macro economic parameters on stock price movements.

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Effects of changes in forex rates on stock price movements can be studied. Present study did not attempt the same as broadly Indian Listed companies are essentially catering to domestic markets.

ACKNOWLEDGMENT

We thank Xavier Institute of Management and Entrepreneurship for their active encouragement in our Research.

DECLARATION STATEMENT

Funding	No, I did not receive.
Conflicts of interest	No conflicts of interest to the best of our knowledge
Ethical approval and consent to participate	No, the article does not require ethical approval and consent to participate with evidence.
Availability of data and material	Not relevant
Authors Contributions	All authors have equal participation in this article.

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