Accountancy Business and the Public Interest
ISSN: 1745-7718

Volume: 40
Issue Number:03

THE DETERMINANTS OF STOCK PRICES: NEW EVIDENCE FROM NSE

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Abstract

The determinants of stock prices are a significant area of research for investors, stockbrokers, and fund managers. This research paper analyzes the impact of the macroeconomic factors like GDP, Money supply, Interest rate, Consumer Price Index, Exchange Rate, Inflation rate, and S&P US Index on the Nifty 50 index from April 2000 to December 2023 using ADF, VECM and VDA analysis. The study also conducted the panel data analysis of the firm-specific variables like EPS, Net worth, P/E ratio, Book value, ROCE, and Debt-equity ratio on the Dividend Yield of the 22 stocks of the Nifty Index from April 2000 to December 2023. The study indicates book value per share (B.V.) and debt-equity ratio (D/E) positively and substantially influence dividend rates. In contrast, earnings per share (EPS) and the share price per earnings ratio (P/E) have a significant negative relationship to NSE-listed companies' dividend return. Investors, relationship managers, and market participants should consider B.V., EPS, P/E and D/E ratios as the essential variables for investment. According to the study, the analysis indicates that GDP, Interest rate, Inflation rate, Monetary policy, Exchange rate, and U.S. stock index are important macro-economic determinants affecting the stock price.

Keywords: Macroeconomic, Gross Domestic Production, Debt-equity ratio, Vector Error Correction Model, Panel Data Analysis

JEL Classification Codes: D0, D4, D9, E5, E6

The Determinants of Stock Prices: New Evidence from NSE

INTRODUCTION

The stock market is an important segment of the financial system of any country as it transmits savings from the deficit sector to the surplus sector. Stock markets have posed severe challenges to policymakers, economists, corporates, and researchers in the past few years. They are often defined as a barometer of any economy because they reflect the change and direction of pressure on the economy.

The stock market is an essential mediator between creditors and borrowers in the modern economy. Generally, a good stock market increases the economic development process by using two crucial channels: boosting savings and making it possible for resources to be allocated more effectively. Savings are to grow as household assets are given on the stock market to meet their preferences for liquidity and risk (Leigh,1997).

In the past two and a half decades, in contrast to advanced stock markets, Emerging economies' stock markets like India and China have begun to improve quickly. Despite numerous efforts to develop and stabilize stock markets, emerging economies are often characterized by high volatility despite multiple efforts to build and stabilize stock markets (Angel & Rangel (2005). Further, emerging economies' stock markets are vulnerable to different factors, including

changes in their economic activities, Macroeconomic changes, and transformations in the international and political-economic environment. Investors must evaluate the potential economic fundamentals and other corporations' specific factors/characteristics to formulate stock market expectations.

There are various models developed so far by academicians globally for establishing the relationship between stock returns and their Determinants, such as the Discounted Cash Flows Model (DCFM), the Capital Asset Pricing Model (CAPM), and the Arbitrage-Pricing Model (APM). The existing models also suffer from many limitations based on the concept of market equilibrium and the existence of a perfect market.

In many developing countries, imperfections and other market characteristics make the existing models unsuitable for emerging countries like India. These models also need to incorporate the changes that happen on the global front. It becomes more challenging for academicians and researchers to measure the impact of the various determinants on the stock prices of India.

The key objective of the research was to explore the impact of the determinants of stock price, i.e., the macroeconomic variables and the micro/firm-specific variable. The research has covered a detailed review of the literature regarding the two determinants of stock price, namely the Macroeconomic and Microeconomic. However, a handful of studies were being done in India. Many studies concentrated on one of the determinants, either the macroeconomic or microeconomic factors. Therefore, the present research used macroeconomic factors since not many studies were done on NSE. Moreover, NSE is the most vibrant, highly liquid market, which has recently caught significant investments.

LITERATURE REVIEW

Research studies on Microeconomic determinants of stock price

Initiated by **Collins, 1957**, the determinants of equity share price in the U.S. market is the first study in this area. In the study, the author identified important determinants that impact share prices in the United States, such as dividends, net profit, book value and operating income. A great deal of theoretical and empirical research has been underway since then.

S. Sharma, 2011: For the period 1993-94 to 2008-2009, Sharma examined the empirical relationship among share prices, explaining variabilities such as the book's value, dividend, profit per share, dividend returns, dividend payout ratios, and Net-worth. Sharma examined the empirical relationship between stock prices. The study shows that dividends, book value by share and income by share are the most critical market price determinants. However, companies must also adhere to a liberal dividend policy.

Srinivasan, 2012: In his study, P. Srinivasan employed panel data on six key industries in the Indian economy. The study uses techniques for data tables such as models for random effects and fixed effects, and the result shows vital factors in the share price per share, the price-benefit ratio, the company size and book value per share.

Malhotra & Tandon 2013: In a survey, Nidhi Malhotra assesses the variables determining the share price of 100 companies at the National Stock Exchange (NSE). A sample was sufficient of 95 companies selected from 2007 to 2012. The linear regression model introduced into the study shows a significant positive association between the company's book value, the profit per share, and the price-earnings ratio. The dividend return is substantially reversed with the company's market price. In linear regression models, the study showed that the company's book value, income by share, and price/earnings were positively associated with the company's share

prices for 100 companies from the NSE. In contrast, dividend income suggests a remarkable inverse relation associated with the company's stock market price.

Pandya & Marvadi, 2016: The determinants of the Indian market prices are investigated by Hemal. This study uses the complete changing, standard least-squared method of panel data for 30 companies consisting of BSE SENSEX over 2010-2014. Results show that prices of Indian stocks are most critically affected by the variables levy supported by Price-Earnings Ratio, profitability and GDP. Leverage's inverse association with share prices shows that raising capital through debt requires regular interest payments by firms.

Milosevic & Milenkovic, 2017: In this research project, the authors identified the main factors for equity prices listed on the stock exchange of Belgrade. The results of the panel data analysis for 42 companies listed on the BelgradeLine index showed that variables such as the company's asset size, financial leverage, stock earnings, and book value significantly contributed to the stock prices.

Neupane, 2020: Neupane studied determinants of equity prices in Nepal Equity Exchange using various financial and statistic tools such as standard defects, correlation, regression analysis and t-tests. He concluded that DPS, BPS and EPS are not individually related to their market price. Prices vary from company to company. Prices differ. However, jointly EPS, BPS and DPS have an essential influence on the share price. So, there may be other important factors affecting the share price significantly.

Research works on Macroeconomic Determinants of Stock Price

Mookerjee & Yu, 1997: Monthly data from October 1984 to April 1993 were used for the following analysis. The interaction of Singapore returns with the four macroeconomic variables, including a reduced cash supply, a broad cash supply, exchange rates and foreign reserves, were examined. Their analysis revealed that, while the exchange rate did not, wide and narrow currency and foreign currency reserves had a long-term connection with share prices.

Wongbangpo & Sharma 2002: In Asian countries such as Malaysia, Indonesia, Singapore, the Philippines, and Thailand, they studied the relationship in terms of macroeconomic variables such as GNP, inflation, cash, exchange rates, and interest rates. The analysis shows that all five stock price indexes remained positively linked to growth in productivity and were not long-term related to the overall price level. Nevertheless, they found a negative relationship but positive relation between Malaysia and Indonesia, the stock price indexes and Singapore, Thailand and the Philippines' interests.

Sirucek, 2012: This paper tries to identify links between S&P 500 and Dow Jones Industrial average U.S. indexes and macroeconomic selected variables (DJIA). Macroeconomic variables such as inflation, interest rates, unemployment, supplies of money, the price index for producers, the index for industrial production, the price of oil, and its impact on the selected U.S. stock indexes were investigated during 1999-2012. This study of the above-mentioned macroeconomic variables strongly associated with the S&P 500 consists of the producers' Price Index, the industrial production index, the oil price and the Dow Jones Index.

HUI et al., 2014: The Singapore stock price variations as a crucial issue for investors, corporations and policymakers, according to Choi Jun Hui, Chua Pui Yi, and Lee Siew Chenanalyz. The inclusion of macroeconomic variables, like rate, exchange rate, financial supplier and GDP, in the OLS Regression Model and the CPI as separate variables leads to stock-price fluctuations. The significance and relation of these macroeconomic variables with stock price fluctuation have also been established.

Barakat et al., 2015: In their study, Mohammed, Sara, and Khaledin sought to highlight the relation between the stock markets in Egypt and Tunisia between January 1998 and January 2014 and the macroeconomic elements in the two emerging economies. The findings showed that the Stock Index and CPI are causally related to Egypt's supply of money and interest rate. The market index had a similar impact in Tunisia (CPI) except for the consumer price index. The study conducted in developing economies differs from the survey on advanced markets. This study identified that variables like money supply, interest rates, exchange rates and inflation have a critical impact on stock prices.

Aamir & Ali Shah, 2018: In their research, Muhammed Aamir and Syed Zulfiqar analyse the determining factor of the co-movements of emerging economies like Pakistan and Asia from 2001 to 2015. Philips-Perron trials (P.P.) and Dickey and Fuller (ADF) have been reinforced to monitor the correlation of their stock markets. The results of this research show that the stock markets in Indonesia, China, India, Korea, Thailand and Malaysia are integrated on a long-term basis. As mentioned earlier, this study shows the co-movements between Pakistan and the emerging Asian markets**.** The results from the Panel reveal significant underlying integration forces between the Emerging Asian and Pakistani countries.

Ho, 2019: The macroeconomic determinants for South African bond development from 1975-2015 are reviewed by Sin-Yu Ho in their paper. The study examines the impact on the development of the South African stock market in terms of the banking sector, economic growth, interest rates, inflation and trade openness. The author used an autoregressive test procedure for distributed lag bounds, enabling him to try out short- or long-term relationships between stock market development and South Africa's determinants. The study indicated that the banking industry is developing, and economic growth fuels the growth of the capital market. At the same time, inflation rates, commercial openness and interest rates impede bond market trends.

Camilleri et al., 2019: Their study investigates links between share prices and significant macroeconomic indicators: inflation, interest rates, cash supplies, and industrial production. Camilleri, S.J., N. Scicluna, and Y. Baiin used Vector autoregressions (VARs) to evaluate the links to monthly data for Belgium, France, and Germany, From 1999 to 2017, the Netherlands and Portugal. The survey identifies different contemporary and leading relations between stock prices and the above variables, but the survey shows fluctuations in these countries. During that time, VAR models show that stock prices have led significantly to inflation and industrial production in every nation, and, in most cases, the relations have been positive. The study found no meaningful relationships between interest rates and stock indexes. However, in France, Germany and Portugal, the interaction between interest and the money supply was a significant stock price indicator.

Variables of the Study

The Macroeconomic variables considered in the study were constructed by a thorough literature review, particularly the studies in India. The macroeconomic determinants which affect the stock price include WPI, IIP, FII, GDP, Inflation rate, Exchange rate, Interest rate, Money Supply, S&P 500 Index, etc., on India's Nifty Index. Data considered is quarterly data from 2000 to 2023.

Micro-economic variables are Dividend yield, Earnings Per Share, Market Price per Share, Book-value, P/E, ROCE, and MCAP. Consideration of 22 companies from 2000 to 2023. Annual data taken for the companies were from Prowess Database. The selection criteria of the 22 companies were that they were a part of the Nifty Index from 2000 to 2023. It is found from

studying the constituents of the Nifty Index that all these 22 stocks were a part of the Nifty -50 Index consistently in the range of 11-13 years. These stocks are being picked as they are regularly constituent of the Nifty Index during the study period (2000-2023) and hence give a good representation of the performance of the S & P Nifty Index.

METHODOLOGY FOR ANALYSIS

Causality between S&P CNX Nifty and Macroeconomic Factors

The S&P CNX Nifty and macroeconomic variables were examined using the Vector Correction Model and Cointegration. The Dickey-Fuller (ADF) tests to check the stationary properties (miss of trend and longer-lasting average reversal) of the time-series data are performed to prevent false regression. Initially, the analysis was used to establish the integration of each variable because of the time series nature using the Augmented Dickey-Fuller Augmented Test indexes CMR, EXR, GDP, IIP, M3, WPI and S&P 500. The ADF analysis was carried out with the assumption of the zero unit root (Non-stationarity of the series). When cointegrated with the variables, e.g., S&P CNX 50 CMR, EXR, GDP, IIP, M3, WPI and S&P 500, there are valid error corrective representations of the variables, including long-lasting information and short-term dynamics.

Furthermore, an analysis of the decomposition of variances demonstrated an impact on the NIFTY-50 investigated by macroeconomic variables. The degradation of the variance showed the variable's proportion of error in the forecast. Therefore, the decomposition of variances allows each variable's relative importance to be determined by creating fluctuations in other variables (Ratanapakorn and Sharma, 2007).

Fundamental Determinants of Dividends of NSE-Listed Companies in India

The panel data techniques are used to examine the key determinants, i.e., the Fixed Effects (F.E.) model and the Random Effects (RE) model, of a dividend of selected NSE companies.

Model for Fixed Effects

To investigate the critical determinants of dividends for NSE companies in India, the fixed effects and the random effect pattern were used since the impact on the companies were considered, and their effects were subsequently considered.

The model of fixed effects is as follows:

$\Pi_{jt} = \alpha_j + \grave{\beta} X_{jt} + u_{jt} \qquad j = 1,\ldots, n;\ t = 1,\ldots, T$

u_{jt} is the calculated parameter is the error term and is supposed to be IN (0, μ_2). Where tube βt is the closing price of a specific industry group i^{th} stock during this period; β tube k is the explanatory vectors of that particular industry group. αj, 1...n are constant coefficients that are precise to the individual stock of each industry group. The αi model controls all variables omitted that are different but consistent over time. (Baltagi, 2003).

Random Effects (RE) Model

The Random effect model is given by

$\Pi_{it} = \alpha_i + \grave{\beta} X_{it} + u_{it} i = 1,\ldots, N;\ t = 1,\ldots, T$

where the αiare is considered a random variable instead of fixing constants. The αiare was presumed independent of the uit (0.2 ~ IID) and ucht ~ IID (0.2 ~ IID) error. αi are was supposed to be independent of the defined version β-five, β-five, Xit (Maddala, 2005).

The Hausman test matches the fixed and the random effects in the zero hypothesis that the distinct results are not correlated to others with models (Hausman 1978). When correlated (H_0 refused), a model with a random effect creates biased estimators which violate one of the assumptions by Gauss-Markov, which prefer a fixed effect model.

DATA ANALYSIS AND INTERPRETATION

Objective 1:

To ascertain the nature of the impact of macroeconomic variables like WPI, IIP, FII, GDP, EXCHANGE RATE, and INTEREST RATE on the Nifty 50 Index.

Table No.1: Results of Augmented Dickey-Fuller Test

Macro Variables	Level	First Difference
NIFTY	-0.825512	-6.383940*
CMR	-0.962744	-7.302345*
EXR	0.000326	-6.576231*
GDP	-0.991763	-4.505977*
IIP	-1.632988	-2.581292***
M3	-1.457472	-6.239301*
WPI	-1.369098	-6.705358*
FII	-0.813478	-6.482258*
SP500	-0.398864	-6.282761*
Notes: * & ***– indicate significance at one and ten per cent levels, respectively.		

The Dickey-Fuller Increased Test monitors the permanent property of time-series data. Table No 1 shows the results. For variables NIFTY, CMR, EXR, GDP, IIP, M3, WPI, FII and SP500, the ADF statistics are shown, and the test statistics are insignificant at level one, concluding the series is not exhibiting stationarity. For all the variables at the first difference, the ADF testing statistic rejects a unit root hypothesis that suggests that all of them are stationary.

Table No 2: Cointegration Test Results

Vector (r)	Trace test Statistics (λ_{trace})	Maximal Eigen value (λ_{max})	0.05 Critical value for trace Stats	0.05 Critical value for max-Eigen Stats
r = 0	355.6676**	104.7977**	197.3709	58.43354
r = 1	250.8699**	63.42564**	159.5297	52.36261
r = 2	187.4443**	56.25296**	125.6154	46.23142
r = 3	131.1913**	45.39381**	95.75366	40.07757
r = 4	85.79748**	31.59888	69.81889	33.87687
r = 5	54.19861**	22.73661	47.85613	27.58434
r = 6	31.46199**	17.49644	29.79707	21.13162
r = 7	13.96555	10.53717	15.49471	14.26460
r = 8	3.428384	3.428384	3.841466	3.841466
Notes: ** – indicates significance at the five percent level. r is the number of cointegrating vectors.				

Table No 2 presents the test output of Johansen co-integration. The findings of the maximal trace statistics for Johansen, Eigen, and Eigen (μmax), indicate co-intégrating vectors at a 5 per cent level of the vector between NIFTY, and CMR, EXR, GDP, IIP, M3, WPI, FII and S&P500. S&P NIFTY's long-term balance of interest, foreign exchange, economic growth, industrial production, money supplies, inflation, foreign institutional investment, and the United States stock market has been identified as the result of its empirical results.

Table No. 3: Long-term coefficients from the Cointegration test

Dependent Variable: S&P NIFTY

CMR_{t-1}	0.872312 [3.21891]*
EXR_{t-1}	3.905199 [4.05245]*
GDP_{t-1}	16.69020 [10.4682]*
IIP_{t-1}	-2.487947 [-1.08911]
$M3_{t-1}$	-7.921043 [-7.87220]*
WPI_{t-1}	1.331348 [0.56929]
FII_{t-1}	1.18E-06 [0.08057]
$SP500_{t-1}$	-3.284919 [-10.9085]*
C	-116.5917
Notes: * – indicates significance at one percent level.	

The long-term coefficients for macroeconomic factors which affect S&P NIFTY are shown in Table 3. At a 1% level, a one-per cent increase in the call money rate results in a 0.87% increase for long-term S&P CNX NIFTY prices. The rate is shown as positive and statistically significant. The exchange rate coefficient at one percent is positive and significant statistically, which means that a one-per cent increase in exchange rates will cause S&P CNX NIFTY prices to grow 3.90% over the long term. The 1% GDP is positive and statistically significant; a 1% economic growth will lead to a 16.69% increase in long-term S&P CNX NIFTY prices. A negative and statistically significant coefficient of M3 is found at a 1% level, which means a 1% increase in the money supply would lead to a 7.92% decrease in S&P CNX NIFTY prices over time. Moreover, the S&P 500 coefficient has a negative and statistically significant 1% increase and a 1% increase in U.S. equity prices, leading to a 3.82% drop in S&P CNX NIFTY prices over time. The study continues with estimates of the short-term impact on Indian stock in the Vector Error Correction Model (VECM) of the macroeconomic factors, and its results are presented in Table 3.

In the VECM representation, you can use the error correction term to test the causal dynamics of the Granger senses among the selected series. The error correction (ECT) coefficients in CMR, GDP, IIP, and M3 are significant statistically and confirm that the variables chosen have a prolonged relationship. The short-term dynamics are captured by each of the different terms' coefficients. The short-term results show that the coefficient of call-money rates is negative and statistically significant at 1%, indicating an increase of 1% in a call-money rate leads to an increase of 0.35% in Nifty short-term returns. The one-way cause is more precisely due to the interest rate at NIFTY-50.

Table No 4: Results of Vector Error Correction Model

Variables	**$\Delta NIFTY_t$**	**ΔCMR_t**	**ΔEXR_t**	**ΔGDP_t**	**ΔI**	**$\Delta M3_t$**	**ΔWPI_t**	**ΔFII_t**	**$\Delta SP500_t$**
ECT	-0.023897 [-1.29630]	-0.073763 [-3.00443]*	0.003948 [0.64026]	-0.080195 [-10.2255]*	-0.027139 [-3.61739]*	0.005322 [2.45218]*	0.003626 [1.49739]	2165.767 [1.53146]	0.016314 [1.26751]
$\Delta NIFTY_{t-1}$	0.336726 [2.20895]**	-0.067527 [-0.33261]	-0.028760 [-0.56401]	0.196823 [3.03494]*	0.077587 [1.25061]	0.045481 [2.53445]**	0.025244 [1.26053]	11347.16 [0.97033]	0.237484 [2.23138]**
ΔCMR_{t-1}	-0.352673 [-4.15888]*	0.033183 [0.29382]	0.053579 [1.88882]***	0.025513 [0.70718]	-0.026370 [-0.76408]	0.023775 [2.38158]**	0.006657 [0.59750]	-12709.43 [-1.97368]**	-0.185716 [-3.13678]*
ΔEXR_{t-1}	0.368004 [0.89494]	0.197276 [0.36022]	0.088830 [0.64578]	0.541471 [3.09514]*	0.138608 [0.82824]	-0.001919 [-0.03965]	-0.044647 [-0.82646]	66049.67 [2.09380]**	0.151413 [0.52739]
ΔGDP_{t-1}	0.391059 [1.68136]***	0.475331 [1.49800]	-0.089326 [-1.12080]	0.701834 [6.92406]*	0.688689 [7.10250]*	-0.034882 [-1.24368]	-0.122999 [-3.92962]*	-12874.12 [-0.70437]	-0.211752 [-1.27297]
ΔIIP_{t-1}	-0.021150 [-0.06930]	0.345252 [0.84946]	-0.185007 [-1.81228]***	-0.290824 [-2.23999]**	-0.643193 [-5.17867]*	0.108339 [3.01565]*	0.128660 [3.20907]*	-18745.42 [-0.80070]	0.258250 [1.21205]
$\Delta M3_{t-1}$	-0.063258 [-0.07258]	0.651489 [0.56130]	-0.095072 [-0.32612]	-0.746791 [-2.01418]**	-0.113912 [-0.32117]	0.298128 [2.90593]*	0.285484 [2.49346]**	-143309.7 [-2.14355]**	-1.463273 [-2.40486]**
ΔWPI_{t-1}	-0.480482 [-0.55246]	3.379616 [2.91775]*	-0.016740 [-0.05754]	0.582811 [1.57514]	0.117873 [0.33302]	-0.030055 [-0.29356]	0.242401 [2.12152]**	76772.25 [1.15068]	0.401239 [0.66078]
ΔFII_{t-1}	1.32E-07 [0.08658]	-1.48E-06 [-0.72600]	-2.27E-07 [-0.44373]	1.80E-06 [2.77584]*	3.38E-07 [0.54282]	1.85E-08 [0.10271]	-5.34E-07 [-2.66175]*	-0.387795 [-3.30793]*	-1.53E-06 [-1.43421]
$\Delta SP500_{t-1}$	0.091181	0.410370	-0.032630	-0.348423	-0.053477	-0.068028	0.015557	-24054.60	0.126457

	[0.42651]	[1.44129]	[-0.45628]	[-3.83084]*	[-0.61464]	[-2.70308]*	[0.55389]	[-1.46671]	[0.84722]
C	0.016389 [0.48191]	-0.082798 [-1.82801]***	0.014056 [1.23549]	0.022266 [1.53890]	0.010987 [0.79377]	0.023017 [5.74898]*	-0.001195 [-0.26741]	4017.343 [1.53980]	0.045009 [1.89553]***
Notes: *, ** & *** – indicates significance at one, five, and ten percent level, respectively.									

At ten percent, the GDP factor is positive and statistically significant. The results indicate a 1% increase in economic activity would increase Nifty returns by 0.39%. The laggard NIFTY coefficient also dramatically influences the GDP variable, indicating the two-way cause between economic activity and the short-term NIFTY-50 returns. During the short-term study period, the other significant macroeconomic variables such as the NIFTY-50, the exchange rate, the FII, supply of money, industrial output, inflation, and the U.S. stock market have no significant impact. Conversely, the table findings show that the NIFTY-50 return on the supply of money and U.S. stock market returns positively affect the short term. Therefore the study period is driven by the supply of money and the U.S. stock market to the Indian stock market.

The decomposition of the difference provides further evidence of the impact on the NIFTY-50 of the macroeconomic variables. The variance decomposition showed the percentage of a variable prediction mistake due to the other variable. Therefore, the relative importance associated with each variable can create variations in other variables by decomposing the variance (Ratanapakorn and Sharma, 2007). The results of the variance degradation test are provided in Table 6. The table shows that NIFTY-50 variance was explained by its shocks after ten quarters by approximately 67 per cent. A 24% impact on the changes in NIFTY-50 prices was explained through Call Money Rate (CMR). After that, economic activity (GDP) explained an impact of 11,35% on price variations at the NIFTY-50 and explained prediction variances of 6.0%, 1.14%, 0.45%, 0.38% and 0.36% and 0.05%, in other macroeconomic variables, respectively, for NIFTY-50 including inflation, money supply, industrial output, exchange rate and institutional foreign investment as well as U.S. stock. The results also confirm the results of the error correction model, suggesting an interest rate and economic activity influencing NIFTY-50 movements.

Hypothesis - Macro-Economic Variables

Hypothesis Cointegration

Hypothesis: 1

H_0: A Long-run relationship between the Macroeconomic factors and S&P CNX NIFTY does not exist in India

H_1: A Long-run relationship between the Macroeconomic factors and S&P CNX NIFTY exists in India

Research has shown that macroeconomic parameters, like Call Money (CMR), Exchange Rate(E.R.), Gross National Product (GDP) and Wholesale Price Index, have positive implications for the CNJ Nifty 50. (WPI). The long-term negative impact on the CNX Nifty-50, macroeconomic variables such as the supply of cash and U.S. S&P 500. Since the majority of macroeconomic variables had a substantial effect on the CNX Nifty-50, Ho is rejected, or H1 is accepted as the alternative

Hypothesis VEC Model

Hypothesis: 2

H_0: Significant impact of Macroeconomic factors and S&P CNX NIFTY, in the long run, is not established

H_1: Significant impact of Macroeconomic factors and S&P CNX NIFTY, in the long run, is established.

The impact of macroeconomic variables on the CNX Nifty 50 price was identified using the Vector Correction Model (VECM) in the long term. The CMR, GDP, IIP and M2 coefficients of error correction terms (ECTs) show significant positive consequences over the long run. Hence the null hypothesis is rejected, and accepts the alternative hypothesis.

Hypothesis: 3

H_0: Significant impact of Macroeconomic factors and S&P CNX NIFTY in the short-run is not established

H_1: Significant impact of Macroeconomic factors and S&P CNX NIFTY in the short run is established

The short-term results show that the call money rate at 1 percent is negative and statistically significant. The result is from the interest rate to Nifty-50. One way out. The null hypothesis is rejected, and the alternative hypothesis is accepted.

Objective 2

To deduce the impact of Micro-economic factors like Dividend Payout, Earnings Per Share, Book-value, and firm size on the select stock prices of the Nifty Index in India

Table No 5: Hausman Test

Correlated Random Effects – Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	18.974916	7	0.0083

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var (Diff.)	Prob.
BV	0.245389	0.338383	0.004166	0.1496
DE	0.191716	0.197748	0.001182	0.8607
EPS	-0.006640	-0.008468	0.000001	0.1063
PE	-0.656740	-0.794650	0.002494	0.0058
PRICE	-0.264274	-0.217130	0.029555	0.7839
ROCE	0.006571	0.007390	0.000008	0.7732
MCAP	-0.009221	-0.007745	0.028067	0.9930

Cross-section random effects test equation:

Dependent Variable: YIELD

Method: Panel Least Squares

Sample: 2000 2023 Periods included: 21

Cross-sections included: 21

Total panel (unbalanced) observations: 304

Variable	Fixed	Random	Var (Diff.)	Prob.
C	3.520759	0.914709	3.849051	0.0001
BV	0.245389	0.129628	1.893018	0.0594
DE	0.191716	0.099361	1.929490	0.0547
EPS	-0.006640	0.002994	-2.217604	0.0274
PE	-0.656740	0.106814	-6.148449	0.0000
PRICE	-0.264274	0.185036	-1.428230	0.1544
ROCE	0.006571	0.007233	0.908558	0.3644
MCAP	-0.009221	0.172867	-0.053344	0.9575

Effects Specification

Cross-section fixed (dummy variables)			
R-squared	0.574790	Mean dependent var	1.348125
Adjusted R-squared	0.533193	S.D. dependent var	1.244544
S.E. of regression	0.850313	Akaike info criterion	2.601160
Sum squared resid	199.5570	Schwarz criterion	2.943518
Log-likelihood	-367.3763	Hannan-Quinn criteria.	2.738111
F-statistic	13.81818	Durbin-Watson stat	1.617549
Prob(F-statistic)	0.000000		

The Hausman test determines which of the two effects, the fixed or random effect model is a good one for the data. The above table shows that the fixed effect model is more relevant for the current study. The table indicates that EPS and Market capitalization have a negative impact on the stock price, while the ROCE has a positive impact on the stock price.

Fundamental Determinants of Dividends of NSE-Listed Companies in India

Table No 6: Correlation Matrix

	YIELD	BV	DE	EPS	PE	PRICE	ROCE	MCAP
YIELD	1							
BV	0.1675	1						
DE	0.2033	-0.1368	1					
EPS	0.0633	0.7284	-0.0970	1				
PE	-0.6007	-0.2807	-0.1995	-0.2881	1			
PRICE	-0.2168	0.3740	-0.2120	0.2786	0.2315	1		
ROCE	-0.0864	-0.0443	-0.3246	0.3363	0.0289	0.0136	1	
MCAP	-0.0811	0.2248	-0.2473	0.2176	0.0500	0.2661	0.1919	1

Multicollinearity is not a significant issue in panel data where heterogeneous entities (countries) exist. However, the correlation matrix or VIF are useful tests to confirm any Multicollinearity problem. The main problem with the fixed effects (LSDV) model is that it hosts too many regressors, which leads the model to be misleading and infects it with multicollinearity problems. The correlation matrix of regressors used in the fixed and random effects model is depicted in Table no 6. *The Pearson Correlation Matrix regressors' correlation coefficients show that almost all the coefficients are much less than the threshold magnitude, indicating no multicollinearity problem.*

Table No 7: Fundamental Determinants of Dividends

Variables	**Fixed Effect Model**		**Random Effect Model**	
	Coefficient	**t-value**	**Coefficient**	**t-value**
C	3.520759*	3.849051	3.259070*	5.143303
BV	0.245389***	1.893018	0.338383*	3.010022
DE	0.191716***	1.929490	0.197748**	2.121238

EPS	-0.006640**	-2.217604	-0.008468*	-3.054994
PE	-0.656740*	-6.148449	-0.794650*	-8.415909
PRICE	-0.264274	-1.428230	-0.217130*	-3.172870
ROCE	0.006571	0.908558	0.007390	1.110815
MCAP	-0.009221	-0.053344	-0.007745	-0.181727
R-Squared	0.674790		0.428026	
Hausman test	18.974916* (0.0083)			
Notes: *, **, and *** denote significance at one, five, and ten percent levels, respectively. () -Figures in Parenthesis show probability. Value.				

The panel data techniques have been employed to examine the selected NSE-listed companies' dividend fundamental determinants. For key determinants in the dividend of selected NSE companies, the estimated fixed effect and random-effect models are presented in table No 7. The Hausman test was carried out in order to choose a suitable model for data analysis. The Hausman test results show a consistent difference between fixed and changed effects and that the model is favourable for fixed effects. In other words, the null hypothesis of the model random effects with a 5% level of significance is considered appropriate under the Hausman specification test. Hence the study results on the determinants of dividend are based on Fixed effects estimation. Besides, the Fixed Effect model reports an R-square of 0.67, which is relatively better than the R-square of the Random Effect Model, indicating reasonably good explanatory power of the regressions.

The empirical results of the models for fixed effects show the book value per share (B.V.) and the Debt/Equity ratio (D/E) impact dividend yields positively and significantly, at 10%.

Variables such as share earnings (**EPS**), and the P/E ratio, have a significant negative connection with the dividend yield of the selected NSE-listed companies.

However, the other explanatory variables, such as adjusted closing price (**PRICE**), Market capitalization (**MCAP**), and Return on Capital Employed (**ROCE**), are found to be statistically insignificant. Therefore, the dividend yield of the selected NSE companies does not affect these variables.

The results of the study suggest the book value per share of the selected companies in India are the significant determinants of dividend rates, namely debt/equity ratio (D/E), income for share (EPS), and price/earnings ratio (P/E).

Hypothesis: 4

H_0: Significant impact of Microeconomic factors and S&P CNX NIFTY in India's NSE-listed firms is not established

H_1: There is a significant impact of Microeconomic factors, and S&P CNX NIFTY in India's NSE-listed firms is established

The research findings show that debt/equity ratios, book value, earnings per share and the P/E ratio significantly affect stock price determinants. The null assumption is rejected, and the alternate hypothesis is acceptable.

CONCLUSIONS:

In the short term, the study reveals a one-way trend between interest rates and Nifty returns, which had a substantially negative impact of 1%, indicating that the rate increase decreases short-term investment in the equity market. The CMR in the study depicts a slightly negative effect– a 1% increase in the calling currency rate, which results in a 0.39 percent decrease in

the Nifty. The GDP coefficient, in fact, in the short-run, has a positive impact in the short run, and the study also indicates bidirectional causation between the economic activity (GDP) of India and the NIFTY in the short-run, which is an encouraging sign for the short term investors and the participants. Substantial factors such as exchange rate, FII, cash supplies, industry output, inflations and U.S. stock markets have not had a substantial short-term impact on NIFTY-50 returns.

The study confirms the effect on selected stock prices of macroeconomic variables. The study's results could help investors and stock analysts make better decisions. The Capital market regulators should take the initiative to improve the market efficiency without influencing the interest of investors or denting the Indian stock market investor's confidence level. Thus, it confirms that the study of accounting factors, as it has durable illustrative powers and leads to accurately forecasting stock price, benefits national equity investments. It is, therefore, applicable. Thus, investors are suggested to consider macroeconomic variables when investing in shares.

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