QUARTERLY CHANGES IN FINANCIAL INDICATORS AND STOCK RETURNS: AN EMPIRICAL STUDY ON NIFTY 50 STOCKS IN THE INDIAN EQUITY MARKET

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Abstract

This paper presents an empirical investigation on how firm-specific fundamental variables affect the stock returns of companies listed in the Nifty-50 index from 2009 to 2021. Percentage changes in the Trailing Twelve Month (TTM) values of six prominent company-specific fundamental variables have been taken at quarterly intervals to determine their impact on stock returns. Besides using company-specific fundamental variables as predictors, the study has also used market premium and lagged stock returns as independent variables to improve the model's predictive accuracy. A two-way system, the Generalized Methods of Moments (GMM) approach, was used to measure the relationship of selected variables with stock return. The study results find that besides market risk, quarterly changes in the trailing twelve-month values of asset turnover ratio, lagged operating profit margin, and sales significantly impact stock returns. Finally, the research results observe the negative relationship between the lagged stock returns and the current stock returns, thus confirming the presence of the contrarian effect in the quarterly stock returns in the Indian equity market. The investing community may deploy the study results to devise appropriate investment strategies.

Key Words: Fundamental Factors, Stock Returns, Nifty-50, Panel Data, Trailing Twelve Months Approach

JEL Classifications: G11, G12

1. INTRODUCTION

The major hypothesis of the CAPM approach is that the asset's return is primarily influenced by fluctuations in the stock's beta (Fama and MacBeth, 1973). This suggests that market index up and down movements alone can explain the variations in a stock's return. However, numerous studies have refuted this assumption and claimed that when the stocks are sorted on the basis of fundamental

factors of companies, viz. price-earnings ratio, debt-equity ratio, size, value, etc., their returns can be more accurately predicted as compared to CAPM (see Basu, 1977; Banz, 1981; Bhandari, 1988). They showed that the excess risk-return relationship cannot be explained by the market beta alone and that a linear CAPM relationship based on a single factor is invalid. Singla and Pasricha (2012) argued that Indian investors are not adequate diversifiers and expect premium for bearing the unsystematic risk too, as measured by the stock's residual variance. This implies that the stock's standalone factors are also important in determining future stock returns.

The change in stock's price may potentially be caused by changes that have occurred in the company's fundamental factors (see, for instance, Abarbanell and Bushee, 1996; Chen et al., 2001; Abiodun, 2012; Penman and Zhu, 2014; Melgarejo et al., 2016; Barth et al., 2023). According to Abiodun (2012), income statements provide the most reliable data for estimating stock returns and company value. Chen et al. (2001) also presented evidence supporting the idea that accounting information holds value for investors in the share market studied. Abarbanell and Bushee (1996) demonstrated that portfolios based on various qualitative and quantitative fundamental variables (for example, gross margins, selling expenses, sales productivity, etc.) can generate an abnormal return. Melgarejo et al. (2016) found that quarterly earnings surprises can explain atypical stock returns and variations in trade volumes on the earnings disclosures. Besides the changes in company-specific fundamental variables, there are studies that showed overreaction and underreaction can occur when investors have insufficient financial knowledge, even if they are entirely rational (Brav and Heaton, 2002). Underreaction to earnings announcements can generate short-term momentum, and overreaction to corporate news allows contrarians to gain exceptional profits (Wu and Lin, 2017). Therefore, besides analyzing the effect of changes in company-specific fundamental variables, it is equally important to explore how past stock returns affect future stock returns.

From the Indian perspective, although several research studies have been undertaken to examine the price determination and predictability of stock returns based on firm-specific fundamentals, they are constrained by multiple limitations. These existing studies have used annual basis time series or panel data for the firm-specific fundamental variables to predict their relationship with the stock returns (see, for example, Srinivasan, 2012; Tandon and Malhotra, 2013; Sukhija, 2014; Irfan, 2018). However, most of the accounting variables are revised quarterly with the declaration of quarterly results by the company's board. Stock market analysts eagerly await any update in these company-specific fundamental variables and revise the target prices for the stocks accordingly. The mammoth popularity and use of quarterly updated Trailing Twelve Months (TTM) values of key fundamental variables, namely revenue, net profit, dividend per share, earning per share, price-to-earnings ratio, etc., makes their significance self-evident in the process of stock price determination.

Further, it has been discovered that the market discounts significant information in companies' disclosures before official publication (Wu and Lin, 2017). These issues have been well addressed in the present research, firstly by

considering the quarterly updated data on selected fundamental variables and secondly by including the lagged version of the regressors along with their current values in the model to account for the impact of any delayed information input in the quarterly statements. Thirdly, the lagged version of the dependent variable, excess actual return over risk-free rate of return, has also been considered an explanatory variable to capture the contrarian or momentum effect in the Indian stock returns. Fourthly, the list of explanatory variables in the study also incorporates market risk premium to consider the effect of changes in macro variables on stock prices through their impact on market return. The highly cited research work by McGrattan and Jagannathan (1995) favored the idea that the market risk premium is closely associated with macroeconomic aggregates that fluctuate throughout the business cycle and can elucidate expected returns. The present study attempts to integrate the multiple forces (variables) that influence the stock returns in the Indian equity market. Lastly, the existing literature, including studies such as Srinivasan (2012), Tandon and Malhotra (2013), Sukhija (2014), Irfan (2018), and many others, suffer from the limitations of model specification error due to faulty (endogenous) variable selection. These research studies have also considered such fundamental variables or ratios in the list of independent variables which are based on market price either in the denominator or in the numerator, viz. P/E, price-to-book value ratio, market equity-to-book equity, market capitalization, etc. Consequently, these variables can exhibit a positive (negative) relationship with stock returns by default. However, the present study has excluded all such fundamental variables or ratios in the list of independent variables and thus is free from such model specification error.

Additionally, the present study analyses the effect of trailing twelve months (TTM) quarterly updated values of key fundamental variables on future stock returns. To compute the TTM values of a variable, the most recent quarterly reported value would be added up to the aggregate of the last three quarters utilizing four quarters of data, which mitigates the impact of seasonal variations and enhances precision compared to relying solely on year-to-date data. Additionally, they reduce the effects of seasonal variations or distortions caused by exceptional events by providing the most up-to-date annualized figures. The research studies by Trejo et al. (2015), Alberg and Lipton (2017), and Ellahie (2021) have advocated that adopting the trailing twelve-month (TTM) approach can help to mitigate the influence of seasonality. Based on data characteristics, the present study uses Roodman's (2009) xtabond2 command developed for Stata software to apply a two-way system generalized method-of-moments estimator (GMM) approach and produce correct coefficient inferences. The GMM estimator, proposed by Holtz-Eakin et al. (1988), Arellano and Bond (1991), and Blundell and Bond (1998), is a widely used estimator designed explicitly for scenarios characterized by a limited number of periods and a large number of units. This estimator is suitable when the independent variables are not exclusively exogenous but correlated with past and potentially current error realizations. Additionally, they can handle fixed effects, heteroscedasticity, and autocorrelation within individuals.

This study contributes to the current body of research by tackling the limitations of previous studies and offering a more comprehensive and applicable

model to assess the impact of quarterly variations in firm-specific exogenous fundamental variables, market premium, and historical price overreaction or underreaction on forecasting future stock returns.

2. LITERATURE REVIEW

Numerous studies in the past have argued in favor of different financial ratios as important determinants of stock prices. Studies such as Zare and Zare (2013) and Hanif (2017) have provided compelling statistics indicating that a firm's sales are a more precise predictor of the share value of a company compared to the other fundamental variables. It suggests that there might be a favorable correlation value and that the connection between sales growth and stock prices is unidirectional. Other research, specifically Bayrakdaroglu et al. (2017) and Alaagam (2019), have suggested that profitability and profit growth rates can more effectively explain fluctuations in stock prices and returns. Cohen et al. (2002) found that companies with higher profitability tend to have larger average stock returns. Martani and Khairurizka (2009) asserted that a direct relationship exists between the assets turnover ratio (ATR) and stock prices. Jermsittiparsert et al. (2019) examined the significance of many factors, including asset turnover, asset growth ratios, price-to-earnings ratio, return on assets, return on equity, and working capital, in determining stock returns. Their research reported that assets turnover ratio (ATR) and asset growth ratios were the most prominent elements used to assess stock returns, followed by other fundamental ratios. Past studies such as Ozlen (2014), Bhatia and Mulenga (2019), and Kurniawan (2021) have also identified a positive linkage between the ATR and stock prices. According to Suroso (2022), a high ROA indicates a company's strong performance, encouraging investors to invest; consequently, the stock return can be better. This suggests that the stock price rises or falls in tandem with changes in the return on assets. This unidirectional effect is supported by various studies highlighting the positive and significant impact of ROA on stock prices and returns (Mule et al., 2015; Khan et al., 2017; Rafaqat et al., 2021). The return on equity (ROE), another well-known financial measurement, gauges how well equity funds can produce profits for shareholders or investors. According to Monteiro (2006), the ROE may be regarded as the most crucial ratio that an investor ought to consider. Saha (2021) discovered that firms achieving a particular percentage (15%) of return on equity for the previous decade will likely surpass market benchmarks in the subsequent five years. A high ROE indicates that a company has good performance, and of course, it will positively affect the market worth of a company's share (Bhatia and Mulenga, 2019; Mudzakar, 2021; Sudarman and Diana, 2022). Agnihotri and Arora (2021) discovered that return on capital employed (ROCE) and return on equity (ROE) represent the best methods to evaluate a company's financial performance, and ROCE outperforms ROE, ROA, and net profit margin (NPM) regarding stock market returns determination. According to Har and Ghafar (2015), the ROCE impacts the stock returns along with other variables during pre-recession and recession periods. Sukhija (2014) and Venkataramani and Kayal (2023) observed a positive and significant impact of ROCE on shareholders' wealth in the form of higher future stock returns.

Fama and French (2004) found that investors choose mean-variance-efficient portfolios around the efficiency frontier. The CAPM assumes that mean-variance-efficient portfolios on the efficient frontier are the same as the market portfolio. Changes in market-level conditions mainly determine the market portfolio's return. Flannery and Protopapadakis (2002) examined the impact of macro series announcements on the daily returns of a comprehensive equity market index from 1980 to 1996. They found that these pronouncements resulted in substantial trading volume increases and stock return fluctuations. Empirical research has also proven the long-term positive correlation between stock prices and economic activity (Schwert, 1990; Roll, 1992). In their research, Lubis and Halim (2022), based on past literature, concluded that the market premium as the main component of the CAPM model is captured mainly by the macroeconomic variables of a country. Therefore, the market risk premium is closely linked to macroeconomic variables responsible for the fluctuations in the business cycle and can elucidate expected returns (McGrattan and Jagannathan, 1995).

Furthermore, Chan (2003) discovered that investors underestimate public information signals while overreacting to perceived private signals. Whether the market exhibits overreaction or underreaction, it is indisputable that it assimilates all news and manifests it through share prices. Many studies have shown that contrarian strategies generate short-term to long-term reversal profits in various stock markets when the portfolio is constructed according to factors such as credit risk, size, P/E ratio, and more (Chou et al., 2007; Dhankar and Maheswari, 2014; Mohapatra and Misra, 2019).

Based on the preceding discussion, it is clear that a variety of firm-specific financial indicators, market premiums, and contrarian or momentum effects have the potential to influence future stock returns. Thus, a comprehensive model for predicting future stock returns can be constructed by considering firm-specific fundamental variables, market premium, and past stock returns as independent variables influencing future stock returns.

3. SAMPLE DATA AND METHODOLOGY

This section describes the data and methodology employed in the study. The study constitutes an empirical inquiry into the firm-specific fundamental variables that substantially influence stock prices. The study encompasses 84 firms that comprised the Nifty-50 index throughout the examined timeframe, spanning from April 1, 2009, to March 31, 2021. The required data of the sample companies has been compiled from several secondary sources, including Prowess IQ CMIE (Centre for Monitoring Indian Economy), the National Stock Exchange's official website, and the respective companies' official websites.

Three companies, namely Indiabulls Housing Finance Ltd., HDFC Life Insurance Company Ltd., and SBI Life Insurance Company Ltd., have been excluded from the analysis because of the absence of required financial data during the defined time period. The final sample consists of 81 companies covering the period from April 1, 2009, to March 31, 2021, with 3,564 observations. The dataset consists of

quarterly percentage changes in trailing twelve months (TTM) values of key variables: SALES, OPM, ATR, ROA, ROE, and ROCE. The dependent variable is the sample companies' dividend-adjusted quarterly excess stock return values. The difference between the dividend-adjusted quarterly stock return and risk-free rate of return is known as excess stock return. The risk-free rate of return has been proxied with the implicit yield of 91-day Treasury bills. The present study used a fixed-balanced panel dataset with more units (n) than time periods (t).

3.1 FORMULATION OF RESEARCH HYPOTHESIS

This study investigates the connection between the stock prices of the companies and important fundamental indicators. Table 1 lists the various independent factors that affect stock prices, their symbols, and anticipated relationship with the dependent variable.

Table 1. *List of dependent and independent variables*

	Definition	**Symbol**	**Expected Sign**
IV	Excess of dividend-adjusted lagged quarterly stock return over risk-free rate of return	L1.AR-Rf	H1(+/-)
IV	Excess of quarterly market return over risk-free rate of return (market premium)	MR-Rf	H2(+)
IV	Percentage change in quarterly Trailing Twelve Months (TTM) sales	SALES	H3(+)
IV	Percentage change in quarterly TTM operating profit margin	OPM	H4(+)
IV	Percentage change in quarterly TTM average turnover ratio	ATR	H5(+)
IV	Percentage change in quarterly TTM return on assets	ROA	H6(+)
IV	Percentage change in quarterly TTM return on equity	ROE	H7(+)
IV	Percentage change in quarterly TTM return on capital employed	ROCE	H8(+)
DV	Excess of dividend-adjusted quarterly stock return over risk-free rate of return	AR-Rf	

*IV – Independent variable ** DV – Dependent variable

Source: Authors' Compilation

The study employs panel or longitudinal data, as panel data exhibits greater variability and enables the examination of a broader range of topics than relying solely on time series or cross-sectional data (Kennedy, 2008). The utilization of panel dataset offers several advantages regarding data informativeness, variability, collinearity reduction among variables, higher degrees of freedom, and enhanced result efficiency (Baltagi, 2008). Based on the aforementioned hypotheses, a

regression equation has been formulated and applied to the present panel data structure:

$$AR - Rf = b_0 + b_1 AR - Rf_{it1} + b_2 MR - Rf_{it} + b_3 SALES_{it} + b_4 OPM_{it} + b_5 ATR_{it} + b_6 ROA_{it} + b_7 ROE_{it} + b_8 ROCE_{it} + \varepsilon_{it} \quad (1)$$

In the above regression model equation (1), coefficients for constant and independent variables are shown by 'b_0' and 'b_1 to b_8' respectively, 'i' denotes cross-sectional units or companies, and 't' represents periods.

3.2 DESCRIPTIVE STATISTICS OF THE SAMPLE DATA

Descriptive statistics such as central tendency, standard deviation, and other data distribution characteristics of the sample data have been summarized in Table 2.

Table 2. *Descriptive Statistics*

(Observations= 3564)

Variable (% changes)	Mean	Std. De	Min	Max
AR-Rf	2.448	22.095	-78.047	278.616
MR-Rf	1.028	8.660	-30.656	23.525
SALES	5.093	154.846	-100	9177.778
OPM	-1.009	1823.565	-76905.55	76735.41
ATR	0.021	0.713	-4.771	26.530
ROA	0.006	0.225	-5.503	6.080
ROE	1.407	564.458	-22387.8	23174.33
ROCE	2.301	238.694	-9065.764	7940.99

Source: Authors' calculations

The probability values of skewness and kurtosis being less than 0.05 indicate that the data violates the assumption of an asymptotically normal distribution (see Appendix 1). However, while considering the assumptions for an estimator to be the Best Linear Unbiased Estimator (BLUE), it is widely believed that assuming normally distributed errors is of lesser importance (Lumley et al., 2002), and it has been observed that deviations from normality do not cause bias in the regression results (Ramsey and Schafer, 2012).

3.3. MULTICOLLINEARITY TEST

The presence of multicollinearity in regression models can be a major problem because it can undermine the statistical significance of independent variables. The pair-wise correlation matrix is used to test the problem of multicollinearity. Table 3 shows the pair-wise collinearity values between the different study variables.

Table 3. *Correlation Matrix*

Variable	AR-Rf	MR-Rf	SALES	OPM	ATR	ROA	ROE	ROCE
AR-Rf	1.000							
MR-Rf	0.516	1.000						
SALES	0.021	0.002	1.000					
OPM	0.006	-0.026	0.706	1.000				
ATR	0.012	0.004	0.005	0.000	1.000			
ROA	0.019	0.014	0.007	0.001	0.626	1.000		
ROE	0.003	0.009	0.000	-0.000	0.027	0.014	1.000	
ROCE	0.040	0.064	-0.037	-0.062	0.170	0.319	0.123	1.000

Source: Authors' calculations

In statistical analyses where the pair-wise correlations among regressors exceed the 80% threshold limit, it becomes a case of severe multicollinearity and a matter of concern (Gujarati, 2022). Since the most significant correlation between SALES and OPM is 70%, the values in Table 3 demonstrate no significant multicollinearity among the variables.

3.4 APPROPRIATE MODEL SELECTION

Using a rigorous methodology, this study empirically investigates the eight hypotheses that make up the general model to discover the factors affecting share prices in India. The analysis has not considered the accounting ratios incorporating market price as a component in the denominator or numerator. STATA 14.2 has been used to carry out the analysis. Various pre- and post-diagnostic tests, including correlation statistics, variance inflation factor, and autocorrelation approaches, have been utilized to determine the most appropriate panel model. These steps facilitated the selection of an appropriate model that satisfies the specific criteria matching the data characteristics. The Hausman test is typically used to choose between models with fixed and random effects; however, it is valid only under homoscedasticity. The homoscedasticity assumption in the present study data has not been satisfied for the Hausman Test, as the Modified Wald test (Andrews, 1993) suggests group-wise heteroscedasticity (see Appendix 2). Further, under the asymptotic assumptions of the Hausman test (Hausman, 1978), the value produced is 0.286, which advocates for the random effects as a fitted model (see Appendix 3). Dummies for every quarter have been examined to see if they equal zero in order to evaluate whether the time-fixed effects are required when executing a fixed effects model. Time-fixed effects have not been advised because the results failed to reject the null hypothesis as the F-value probability (0.287) is higher than 0.05. Next, the Breusch-Pagan Lagrange Multiplier test was used to determine the feasibility of random effects.

The findings did not provide sufficient evidence to dismiss the null hypothesis, and simple OLS regression is recommended as the p-value (0.320) is larger than 0.05 (see Appendix 4). The various employed test results show that fixed

or random effect models are unsuitable, and OLS can be a better choice. But the post-diagnostic test reveals the true nature of the panel data. Pesaran's test (Pesaran, 2003) of cross-sectional independence produces a p-value of 0.000, less than 5% significance, and shows a contemporaneous correlation of residuals across entities (see Appendix 5). Thus, due to violating the assumption of non-autocorrelation, the OLS estimator cannot be the best unbiased linear estimator (BLUE). Harris–Tsavalis (1999) assumes a fixed time dimension (t) and a relatively large number of cross-sectional units (n) in the proposed unit-root testing. Thus, the Harris–Tsavalis test (HT) has been employed to obtain the unit-root testing by eliminating cross-sectional means to manage contemporaneous correlation. Harris-Tsavalis unit-root found that there is no long-run relationship (i.e., co-movement) among the variables, so the need for cointegration estimation does not arise (Buteikis, 2018) (see Appendix 6).

Further investigation found that the dependent variable (DV) and some independent variables (IDVs) correlate with other factors within the variable setup. Therefore, different variables can determine an independent fundamental variable's value. If sales increase, there is an increase in the firm's earnings over the years, which leads to greater demand for the company's shares in the market, increasing the stock prices (Sukesti et al., 2021). In the present case, the test results confronted endogeneity bias in the OLS estimates. Durbin-Wu-Hausman test (Durbin, 1954; Wu, 1974; Hausman, 1978) confirms that the added residual is statistically significantly different from zero in the original regression, and the fundamental variables, such as sales, interact with other variables. The instrumental variables regression technique also supports the existence of endogeneity. Durbin-Wu-Hausman scores have probability values less than 0.05 when different variables, such as SALES, have been instrumented in the two-stage least square regression. It demonstrates that the selected variables have an endogeneity issue in the instrumental variable regression model (see Appendix 7).

Lastly, the model includes a lagged dependent variable, the quarterly lagged stock return, to represent the delayed effect of past stock returns on present stock returns. As the stock return of the current period is found to be significantly correlated with its lagged values (past realizations), the endogeneity within the data emerges. The relationships assessed in this context include regressors that are contemporaneously linked with the disturbances resulting from transformations. It is preferable to analyze such equations using the efficient GMM method rather than instrumental variables and other specifications (Kiviet, 2008). Hence, a more optimal choice would be transitioning from a static panel estimator to a dynamic one. So, the present study applied the two-way system GMM as most of the conditions have been fulfilled for which this estimator is designed, viz. few periods and many cross-sectional units; the dependent variable should be dynamic, fixed individual effects implying unobserved heterogeneity and endogeneity.

4. FINDINGS AND DISCUSSION

The findings of the dynamic panel estimator have been compiled in Table 4.

Table 4. *Results of the dynamic panel model*

Two-way System GMM model results

Number of groups (Cross-sections) = 81
Number of instruments = 16
Wald chi2(13) = 12702.16
Prob > chi2 = 0.000

Variables	Coefficients	Standard Error	Z	P-Values
L1. AR-Rf	-0.067*	0.025	-2.60	0.009
MR-Rf	1.826*	0.217	8.39	0.000
SALES	0.036*	0.010	3.66	0.000
L1. SALES	0.0120	0.012	0.94	0.350
OPM	0.000*	0.000	6.80	0.000
L1. OPM	0.004*	0.001	3.86	0.000
ATR	0.482*	0.144	3.33	0.001
L1. ATR	-0.275	0.328	-0.84	0.401
ROA	-0.676	0.916	-0.74	0.460
L1. ROA	-0.060	2.198	-0.03	0.978
ROE	-0.000	0.000	-0.37	0.711
L1.ROE	-0.000	0.000	-0.13	0.900
ROCE	0.000	0.001	0.21	0.831
L1. ROCE	0.002	0.002	0.95	0.344
Constant	0.637	0.452	1.41	0.158

Arellano-Bond test for AR(1) in first differences: z = -6.16 Pr>z = 0.000
Arellano-Bond test for AR(2) in first differences: z = 0.51 Pr >z = 0.607
Sargan test of over identification restrictions: chi2(1) = 1.29 Prob> chi2 = 0.255
Hansen test of over identification restrictions: chi2(1) = 1.16 Prob> chi2 = 0.281

*Source: Authors' calculations (2024) * denotes the significance of coefficients at 1% level; L1 represents the first lagged value of a regressor factor.*

The results show that the sales have a positive coefficient value of 0.036, which is statistically significant with a p-value of 0.000. It suggests that a robust and statistically significant positive linkage exists between the quarterly percentage change in the TTM sales value of the company and the market price of its stock. On the other hand, the influence of the previous quarter's percentage change on TTM sales value, that is, lagged sales on the current quarter's excess stock return, is found

to be negligible. The findings presented in this study are in align and consistent with previous research conducted by Zare and Zare (2013) and Hanif (2017). Tripathi and Aggarwal (2018) believe that constructing a portfolio based on revenue growth prediction has the potential to emerge as a prominent performer, yielding additional monthly returns.

The study's results also indicate a substantial correlation between the excess stock return in the Indian stock market and the percentage change in the trailing twelve-month operating profit margin (OPM). The value of the coefficient generated in the regression model is determined to be both statistically positive and significant, reinforcing the null hypothesis at the 1% significance level. Also, the coefficient value (0.004) of lagged quarterly percentage change in operating profit margin (OPM) provides evidence of a positive influence of lagged quarterly OPM on the company's stock returns. The study's findings suggest that an increase in a specific company's operating profit margin (OPM) may confirm its stock prices' upward movement during the corresponding and subsequent quarters. These results align with past studies, including Allozi and Obeidat (2016) and Jermsittiparsert et al. (2019).

It is advisable for investors and analysts to closely monitor a company's operating efficiency by utilizing the ATR ratio, as it has been found to exhibit a significant association with stock prices. The dynamic panel (GMM) regression model results suggest a statistically significant positive correlation (coefficient value= 0.482, p-value= 0.001) between the percentage variation in the quarterly updated TTM asset turnover ratio and the excess stock returns. Thus, it is established that as the ATR increases, there is a corresponding increase in share prices. The findings of the current study align with the results of prior research, specifically those conducted by Malik and Ali (2013), Ozlen (2014), and Kurniawan (2021).

Results in Table 4 also show that ROA and ROE variables are negatively associated with the excess stock return during the study period. It is worth noting that these two variables do not exhibit substantial predictive capability, as coefficient values for their current quarter value and the lagged quarter value do not support the significance statistics. The results also reveal that the return on capital employed (ROCE) has a favorable connection with a company's stock returns but produces a statistically insignificant coefficient. Lastly, the error term (constant) observed in the model is statistically insignificant. It suggests that the variation in quarterly excess stock returns can be well explained by the independent variables that are used in the model.

Further, the results in Table 4 observed a coefficient value of 1.826, thus revealing a strong positive relationship between the excess market return and the excess stock returns. It implies that the market premium significantly influences a specific stock's price. Changes in macroeconomic factors such as inflation, GDP growth, interest rates, foreign direct investments, etc., primarily cause the excess market return or the market premium. This result aligns with the research carried out by Tripathi et al. (2015) and Chandrashekar et al. (2018), confirming the importance

of market premium in affecting stock returns. Lastly, the results compiled in Table 4 also show that the observed relationship between the dependent variable and its lagged counterpart is statistically negative at a 1% significance level, as indicated by a -0.67-coefficient value. It demonstrates the presence of a contrarian effect in the Indian stock market, wherein the market undergoes a self-correcting process to the price overreaction in the last quarter. The contrarian investment approach implies investors entering the market when prevailing sentiment for the stock is unfavorable and exiting when sentiment is positive. The findings produced results supporting previous studies, including Tripathi and Aggarwal (2009) and Dhankar and Maheshwari (2014).

Overall, the excess stock return can be captured at a significance level of 1% by the market proxy, which is defined by the excess market return over the risk-free rate of return (MR-Rf), as well as the quarterly percentage change in the TTM values of firm-specific fundamental variables, such as sales, current and lagged operating profit margin, and current assets turnover ratio. Hence, based on the study's empirical findings, null hypotheses denoted as H1, H2, H3, H4, and H5 have been accepted with high confidence. The study's outcomes, however, do not provide sufficient evidence to support the acceptance of the remaining hypotheses. Furthermore, a negative correlation is seen between the excess returns (AR-Rf) and their first lagged counterpart, indicating the presence of a contrarian effect of last quarter stock returns in their next quarterly stock returns. The critical test statistics in Table 4 reveal that the present estimator (system GMM) is free from misspecifications as there are fewer instruments (16) than cross-sectional units (81). The Arellano-Bond (1991) test statistics are utilized to assess the presence of serial correlation in the idiosyncratic error term. In the current study, the results demonstrate that the error term in levels is serially uncorrelated, as evidenced by the p-value of the AR(1) test being less than 0.05. Thus, in the first differences AR(1) test, the null hypothesis for first-order serial correlation has been disproved. However, in the first difference, AR(2), the null hypothesis for higher-order serial correlation has not been rejected. These specifications fulfill the criterion proposed by Kiviet (2020). The Sargan test (Sargan, 1958) exhibits a value beyond 0.10 and is nearly equivalent to the widely regarded benchmark threshold of 0.25. This result confirms that the model is appropriately described and devoid of over- and under-identifications (Roodman, 2009).

5. CONCLUSIONS

The study results conclude on the list of fundamental variables that play a significant role in influencing stock return in addition to the market premium. Based on the study results, the quarterly updated percentage change in key fundamental variables, namely sales, operating profit margins, and asset turnover ratio, significantly influence stock returns. Besides, the study also highlights the negative impact of last quarter's stock returns in determining future stock returns, thus validating the presence of a contrarian effect in the Indian stock market. Finally, the investors and equity research analysts must constantly monitor any updates in the

firm-specific financial indicators, the prevailing market mood, and the stock's past price behavior to devise appropriate investment strategies.

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Appendices: (Note: All appendices are sourced from authors' computations)

Appendix 1. Normality (Skewness/Kurtosis) test

Variable	Pr(Skewness)	Pr(Kurtosis)
Residuals	0.0000	0.0000

Appendix 2. Group-wise Heteroskedasticity (Modified Wald test) test

chi2 (81)	4630.12
Prob>chi2	Prob>chi2 = 0.0000

Appendix 3. Hausman test

Ho: No systematic differences in coefficients		
chi2(4)	(b-B)' [(V_b-V_B)^(1)](b-B	5.01
Prob>chi2	0.2867	Random effects

Appendix 4. Lagrangian multiplier (Breusch and Pagan) test

AR-Rf [CompanyCode,t] = Xb + u[CompanyCode] + e[CompanyCode,t]		
Var	SD	sqrt(Var)
AR-Rf	488.205	22.095
E	357.759	18.914
U	0.496	0.704
Test: Var(u) = 0 chibar2(01) = 0.22 Prob > chibar2 = 0.3209		

Appendix 5. Cross-sectional independence (Pesaran) test

16.568, Pr = 0.0000
Off-diagonal elements average absolute value = 0.183

Appendix 6. Unit-root (Harris-Tzavalis) test

Variables	Statistic	z	p-value
AR-Rf	-0.0656	-1.3e+02	0.000
MR-Rf	0.0000	-1.2e+02	0.000
SALES	-0.6726	-2.1e+02	0.000
OPM	-1.0130	-2.5e+02	0.000
ATR	-0.0269	-1.2e+02	0.000

ROA	-0.0025	-1.2e+02	0.000
ROE	-0.5031	-1.8e+02	0.000
ROCE	-0.4478	-1.8e+02	0.000

Appendix 7. Endogeneity testings

Ho: Exogenous variables		
Durbin- score chi2(1)	7.18821	p = 0.0073
Wu-Hausman F(1,3474)	7.18447	p = 0.0074