

**CAPITALIZATION STRATIFICATION AND FIRM RETURNS:  
EXAMINING FINANCIAL DRIVERS IN EQUITY MARKETS****Anirudh Mahesh Chatterjee**

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**Abstract**

In this article, we analyse the impact of firm specific factors, namely, total income, net profit, and earnings per share (EPS) on stock returns of companies from the large cap, mid-cap and small-cap (LMS) categories using the panel quintile regression. We also use the ordinary least square method to compare our panel regression results. We select companies from NSE Large Cap100, NSE Mid Cap 100 and NSE Small Cap 100 Indices and each index is composed of 100 companies. These indices reflect the overall state of the Indian stock market. Our empirical analysis based on quarterly data from June 2010 to March 2022 shows some important findings. First, net sales significantly and negatively affect stock returns across the large, mid, and small cap stocks. Second, net profit and EPS have a substantial and positive impact on companies from all the categories. However, the coefficients are not significant across all quintiles. In short, the impact of firm specific factors on stock returns is not homogeneous across the LMS stocks implying that these factors do not influence stocks in a uniform way. The plausible reason may be that large, mid, and small cap companies share differences in terms of market capitalization, growth potential and volatility.

**Keywords:** Firm Performance, Net Sales, Net Profit, EPS, Stock Return**INTRODUCTION**

The behavior of stock price is a very complicated phenomenon in the area of financial research because the precise forecasting of future prices cannot be done. However, the analyst, portfolio manager and investors try to predicate share price looking at the past data. The performance of economy, industry and company affect stock prices (Li et al., 2020; Nayak & Barodawala, 2021; Tahir et al., 2013). Bottom-up and top-down are two important investment approach. Bottom-up investing focuses on individual stock analysis and reduces the importance of macroeconomic and market cycles. Bottomup investor's emphasis on company specific factors and its fundamentals, on the other hand, the industry and economy are the focus areas of top-down investors. The bottom-up approach assumes individual companies can do well even in an underperforming industry and that is the reason we examine the impact of firm- specific factors, namely, net sales, net profit and Earnings Per Share (EPS) on stock returns in India. This is clearly revealed in the past studies, which show that firms' fundamentals influence the stock returns (Anwaar, 2016; Budi & Davianti, 2022; Santoso et al., 2020; Saputra, 2022; Sausan et al., 2020;

Sudirman et al., 2020; Tahir et al., 2013). However, these studies have focused on companies from well-established or large market capitalisation (or market cap) category and they have ignored mid cap and small cap companies. Stocks in the stock exchanges are often divided among three groups based on their market capitalisation as large-cap, midcap, and small-cap (LMS) stocks. In India, companies with Rs 20,000 crore or more come under large-cap companies. Meanwhile, the market cap of Rs 5,000 crore and less than Rs 20,000 crore is for mid-cap companies and small-cap companies put under a market cap of below Rs 5,000 crore. Furthermore, the large, mid and small cap stocks also share –Differences in terms of volatility and growth potential. The investors can make informed investment decisions based on this categorization. Keeping this point in mind, we extend previous studies by analysing the impact of net sales, net profit and EPS on stock returns of companies from large-cap, mid-cap and small-cap categories. This scenario motivated us to answer the following unanswered questions; Do net sales, net profit and EPS affect stock returns of companies from LMS categories? Whether the impact is homogeneous across LMS stocks?

We address these questions by using the panel quantile regression model.

We also use the Ordinary Least Square

(OLS) method to compare results with panel quantile regression for a quarterly dataset ranging from June 2010 to March 2022. Our research is different from the past papers for Indian stock market because it is the first study that covers the sensitivity of mid cap and small cap stocks along with large cap stocks to the firm specific factors. The outline of the paper is as follows. Section two describes the previous studies. Section three presents the dataset and variables. Section four provides the econometric models. Section five shows the empirical findings for the LMS stock returns. Section 6 close the paper with conclusion.

## LITERATURE REVIEW

Some studies consider panel data to investigate the impact of firm specific factors on stock returns. Faniband and Marulkar, (2020) analyse the impact of total income, net profit, and EPS on stock price on companies from SENSEX using panel cointegration test. They find a long-run cointegration between the variables and share prices. They consider stock prices on the date results announcement. Further, the same authors (Faniband & Marulkar, 2019) confirm no causality between above variables and stock price using panel causality test and the same dataset. However, they do not consider mid and small cap companies.

A specific group of studies are done on the impact of net sales on stock return. Sharma et al. (2015) reveal that sales has no impact on returns of stock from National Stock Exchange (NSE). Similarly, (Saputra, 2022) also finds that revenue has no impact on share prices of 20 listed firms from food and beverage industry in Indonesia. Tahir et al. (2013) show no effects of sales growth on stock returns of non-financial companies in Pakistan.

Furthermore, another set of research is focused on net profit-stock returns. Rokhayati et al. (2021) use fixed effects model and find that the net profit margin has no impact. Sharma et al. (2015) find that net profit has no visible impact on NSE-listed companies. Babu and Kasilingam (2013) notice that stock price goes up with the increase

in net profit in quarterly results. However, the increase in price was because of market condition rather than the announcement of results. Similarly, (Anwaar, 2016) using panel regression analysis and find that net profit margin has a substantial and positive effects on companies listed in FTSE-100 Index. Santoso et al. (2020), Sudirman et al. (2020) and Tikasari and Surjandari (2020) also show a substantial and positive impact of net profit margin on the stock returns. Saputra (2022) finds that net profit has a substantial impact on stock prices of 20 listed food and beverage companies in Indonesia. However, (Baber et al., 2006) find a negative impact of net profit on stock price.

The previous studies on the impact of EPS on stock returns include (Sausan et al., 2020) and (Santoso et al., 2020) who reveal no impact of EPS on 21 property and real estate companies and engineering and construction services companies in Indonesia respectively. Sharma et al. (2015) and Tikasari and Surjandari (2020) find no effect of EPS on stock return, whereas (Choiriyah et al., 2021) notice a substantial impact on banking companies in Indonesia. Anwaar (2016) using panel regression analysis and find a substantial negative impact on listed companies in FTSE-100 Index. Tahir et al. (2013) also reveal the significant impact of EPS on stock returns of 307 non-financial listed companies in Pakistan. On the other hand, (Sudirman et al., 2020) show a positive and substantial effect on companies in the consumer goods industry. Menaje Jr (2012) finds a strong positive correlation between share price and EPS.

Menaje Jr. (2012) find a weak negative correlation between return on assets and share price. Kumar (2015) find that reaction of share price is mixed during pre and post announcement of quarterly results. Tahir et al. (2013) reveal the significant impact of market capitalization and book to market value on stock market returns of 307 non-financial companies listed in Pakistan. Sudirman et al. (2020) detect no effect of the debt-to-equity ratio on the stock price in Indonesia. Tikasari and Surjandari (2020) find that EVA has a positive and significant; no impact of the debt-to equity and current ratios on the stock returns. Sudirman et al. (2020) show that return on equity has a substantial positive effect, while the debt-to-equity ratio has no impact on the stock prices of the consumer goods sector companies in Indonesia. Ortiz et al. (2010) notice a significant anomaly for the last quarter but the clear stock return anomalies were not found for the first three quarters for loser small-cap stocks of Spanish market. Nasreen et al. (2020) notice that oil prices have a weak degree of association with stock returns of companies from clean energy and technology. Wardlaw (2020) study the impact of mutual fund pressure on stock returns. Duz Tan and Tas (2021) detect that twitter activity and sentiment affect trading volume and returns. Ni et al. (2015) reveal the impact of opening accounts number and turnover rate on a Chinese stock market. The results indicate that the impact is substantial from one to twenty-four months. Youssef et al. (2021) considers the EPU of badly affected COVID-19 countries and examines the linkages between stock indices and EPU using the time-varying VAR. They show the substantial positive impact of EPU on total dynamic spillover. On the other hand, the results of Arouri et al. (2016), Ftiti and Hadhri (2019) and Istiak and Alam (2020) find the negative

influence of US EPU on stock markets. Chellaswamy et al. (2020) find the impact of inflation, interest rate and exchange rate on stock returns in China and India.

The literature on LMS stocks is quite rare. Shukrant and Amanpreet (2018) find the significant impact of macroeconomic factors (Index of Industrial Production, inflation, exchange rate etc.) on BSE LMS indices. Khanra and Dhir (2017) reveal that small-cap stocks (NSE Small 100 index) are less affected by the market volatility index in comparison with large and mid-cap stocks. Jena et al. (2021) think that the major contributor to total volatility was mid-cap index followed by the small- and large-cap. Wang et al. (2013) study the large- and small-cap stocks in twenty-three emerging economies and detect that the international asset pricing model is applicable for most large- cap stocks, whereas it is not applicable for small-cap stocks.

### **MATERIALS AND METHODS**

#### **Data and Variables**

We empirically examine the impact of net sales, net profit, and EPS on stock returns. We use stocks included under NSE Large Cap100, NSE Mid Cap 100 and NSE Small Cap 100 Indices. These indices are composed of 100 companies. We select these indices because it reflects the overall state of the Indian stock market. For this paper, we consider quarterly data from June 2010 to March 2022. Since some firms in the LMS indices have missing data or are not listed in the 2010, the final sample size is 220. It includes 84, 70 and 66 companies from large, mid, and small caps respectively. The data of net sales, net profit, EPS, and stock prices are collected from the Prowess CMIE database.

The selection of the exploratory variables is based on the following reasons. First, the ultimate growth of a firm can be captured using net sales. Net sales is must because no firm can make any kind of profit in absence of net sales and that is the reason net sale is independent of profit. Further, an investor considers net sales to know how profitable the firm. Second, Net profit is the payoff for the risk assumed by the investor and the firm use it for its growth. It is believed that, if the net sales is backbone, net profit is lifeblood. Third, EPS serves the market price in fundamental analysis. Hence, higher the EPS, higher will be the market price.

#### **Methodology**

We employ the panel quintile regression model with fixed effect to study the impact of net sales, net profit, and EPS on stock returns in the Indian stock market. Quintile regression, proposed by Koenker & Bassett, (1978), is useful for investigating the asymmetric distribution of stock returns. This method is useful to find asymmetric aspects of stock returns and estimate coefficients of different quintiles of stock returns. It also allows us to understand heterogeneous effects of net sales, net profit, and EPS on the stock returns.

The panel quintile regression model with fixed effect is written as follows:

$$Q_y(\tau|x_{ij}) = \alpha_i + x_{ij}^T \beta \quad \tau \quad i=1, \dots, m; \quad j=1, \dots, n \quad \text{-----(i)}$$

In formula (1),  $\alpha$ 's have a pure location shift impact on the conditional quintiles. The impact of the covariates  $x_{ij}$  are permitted to rely the quintile  $\tau$  of interest.  $i$  is the index of individual and  $j$  is the index of time.  $m$  is the number of observations on the individual  $i$ .  $n$  is the number of observations on the time  $t$ .

The following is the basic regression model.

$$RN_{it} = \alpha_i + \beta_1 NS_{it} + \beta_2 NP_{it} + \beta_3 EPS_{it} + \gamma \psi_t + \mu_{it} \quad \text{-----(ii)}$$

Where  $i = 1, \dots, N$ ,  $t = 1, \dots, T$ ,  $N$  is the number of companies.  $T$  is the number of time.  $N_{it}$  denotes the stock returns for company  $i$  at time  $t$ .  $NS$  means net sales,  $NP$  refers to net profit and  $EPS$  refers to earnings per share. In the model, we include macroeconomic variables, inflation (Consumer Price Index), interest rates and exchange rate as the controlling variables.

## RESULTS AND DISCUSSIONS

Our results are divided into three sub-sections. The first sub-section discusses the impact of firm-specific factors of large cap companies on large cap stock returns. The second sub-section shows the results about mid cap stocks and third subsection presents the sensitivity of small cap stock returns to net sales, net profit, and EPS of small cap companies. The results of the panel unit root tests presented in Table 1, 3 and 5 show that the variables are conclusively and consistently stationary at level.

### Firm-specific Factors and Stock Returns for Large Cap Stocks

Table 2 reveals the effects of the firm-specific factors on stock returns of large cap companies. The quintile regression model estimated for 20<sup>th</sup>, 40<sup>th</sup>, 50<sup>th</sup>, 60<sup>th</sup> and 80<sup>th</sup> quintiles and we also compare our results with OLS. Our results confirm a substantial and negative impact of net sales on the large cap stock returns. This result is consistent with Budi & Deviant, (2022) who found the positive impact of net sales on stock return. It indicates that an increase in net sales decreases stock return. Further, net profit has a substantial and positive impact on stock return in OLS, 0.2 and 0.6 quintiles whereas, the impact is found to be insignificant 0.4 and median quintile. Moreover, the stock return is positively and significantly reacted to EPS as all the coefficients are substantial except 0.4. These results are not in line with (Sharma et al., 2015) who find that the above three variables do not affect stock returns of companies listed in NSE.

Table 1. Panel unit root tests for large cap

	Net Sales	Net Profit	EPS	Share Return
LLC	4.659	-5.601***	-10.537***	-30.125***
IPS	6.824	-10.030***	-14.904***	-31.287***
ADF	159.475	513.211***	608.362***	1234.500***
PP	271.681***	938.693***	1056.720***	1870.350***

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$

Table 2. Panel quintile regression results for large cap

	OLS	0.2	0.4	0.5	0.6	0.8
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<b>C</b>	1.095*** (0.005)	-7.681*** (0.000)	-0.115 (0.680)	2.482*** (0.000)	5.418*** (0.000)	12.479*** (0.000)
<b>Net Sales</b>	-5.510*** (0.009)	-9.740*** (0.002)	-3.860*** (0.040)	-3.420*** (0.010)	-3.540*** (0.007)	-3.580*** (0.002)
<b>Net Profit</b>	3.620* (0.064)	9.060*** (0.000)	2.750 (0.138)	2.110 (0.107)	2.300* (0.093)	2.340 (0.812)
<b>EPS</b>	0.033*** (0.007)	0.024* (0.095)	0.006 (0.552)	0.018* (0.078)	0.023*** (0.000)	0.016*** (0.004)

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### Firm-specific Factors and Stock Returns for Mid Cap Stocks

Table 4 documents the OLS and panel quintile regression results for mid cap companies. The effect of net sales is negative and substantial for OLS, bottom, and median quintiles, whereas no substantial effect is observed in the higher quintiles which indicates that the structure of dependence is asymmetric with dependence in the bottom tail and independence in the higher tail. Further, we observe that net profit and EPS have a positive and substantial impact on stocks returns. The coefficients of OLS and bottom quintiles are found to be significant. However, the median and upper quintile show an insignificant impact.

Table 3. Panel unit root tests for mid cap

	Net Sales	Net Profit	EPS	Share Return
<b>LLC</b>	2.655	-4.086***	-7.750***	-22.924***
<b>IPS</b>	3.396	-10.122***	-11.284***	-25.746***
<b>ADF</b>	169.964**	444.710***	441.650***	914.790***
<b>PP</b>	257.481***	851.354***	822.643***	1469.750***

Note: \*\*\* p<0.01, \*\* p<0.05

Table 4. Panel quintile regression results for mid cap

	OLS	0.2	0.4	0.5	0.6	0.8
<b>C</b>	1.219*** (0.002)	-9.448*** (0.000)	-1.261*** (0.000)	1.711*** (0.000)	5.007*** (0.000)	14.831*** (0.000)
<b>Net Sales</b>	-1.330*** (0.008)	-3.660*** (0.000)	-1.540*** (0.001)	-7.830 (0.207)	-4.050 (0.207)	-2.730 (0.682)
<b>Net Profit</b>	8.041*** (0.004)	0.000*** (0.006)	0.000*** (0.000)	6.560 (0.545)	2.370 (0.545)	-1.850 (0.918)
<b>EPS</b>	0.008* (0.077)	0.006*** (0.000)	0.000 (0.922)	0.005 (0.538)	0.009 (0.538)	0.004 (0.109)

Note: \*\*\* p<0.01, \*\* p<0.05

### Firm-specific Factors and Stock Returns for Small Cap Stocks

Table 6 indicates the results for small cap companies. The net sales has a substantial and negative impact because the OLS and quintile regression coefficients (except 0.6) are statistically substantial. This result is in line with large cap and mid cap stocks. However, the results of net profit are not completely consistent with the large and mid-cap stocks because the OLS and the quintile regression coefficients are insignificant except 0.2. The effect of EPS has a positive and substantial effect at the OLS and 0.2, 0.4 and median quintiles.

Table 5. Panel unit root tests for small cap

	Net Sales	Net Profit	EPS	Share Return
LLC	-0.805	-4.692 <sup>***</sup>	-7.340 <sup>***</sup>	-20.094 <sup>***</sup>
IPS	1.3123	-10.430 <sup>***</sup>	-13.303 <sup>***</sup>	-22.725 <sup>***</sup>
ADF	180.254 <sup>***</sup>	399.644 <sup>***</sup>	470.248 <sup>***</sup>	747.496 <sup>***</sup>
PP	231.789 <sup>***</sup>	870.510 <sup>***</sup>	963.528 <sup>***</sup>	1149.57 <sup>***</sup>

Note: \*\*\* p<0.01, \*\* p<0.05

Table 6. Panel quintile regression results for small cap

	OLS	0.2	0.4	0.5	0.6	0.8
C	2.564 <sup>***</sup> (0.000)	-12.280 <sup>***</sup> (0.000)	0.978 <sup>**</sup> (0.035)	5.334 <sup>***</sup> (0.000)	5.007 <sup>***</sup> (0.000)	18.290 <sup>***</sup> (0.000)
Net Sales	-0.000 <sup>***</sup> (0.000)	-6.980 <sup>***</sup> (0.000)	-9.770 <sup>***</sup> (0.000)	-9.030 <sup>***</sup> (0.010)	-4.051 (0.207)	-0.000 <sup>**</sup> (0.018)
Net Profit	-0.000 (0.102)	0.000 <sup>***</sup> (0.006)	4.090 (0.736)	-6.001 (0.500)	2.371 (0.545)	5.201 (0.651)
EPS	0.210 <sup>***</sup> (0.000)	0.025 <sup>***</sup> (0.000)	0.258 <sup>***</sup> (0.000)	0.297 <sup>***</sup> (0.000)	0.009 (0.538)	0.200 (0.118)

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### CONCLUSIONS

We study the impact of net sales, net profit, and EPS on stocks returns of LMS stocks using panel quantile regression for quarterly data. We report very some important results in this paper. First, net sales significantly and negatively affect across large, mid, and small cap stocks. Second, net profit and EPS have a substantial and positive impact. However, the coefficients are not significant across all quantiles. In a nutshell, the impact of the firm-specific factors on stock returns is not homogeneous across the large, mid, and small cap stocks implying that these factors do not influence stocks in a uniform way. The plausible reason may be that large, mid, and small cap companies share differences in terms of market capitalisation, growth potential and volatility.

Our results could be advantageous for portfolio managers and investors. Knowing the long-run connection between firm specific factors and stock returns can be of extreme importance with regard to the adoption of efficient decisions in the LMS stocks. This can also help make better asset allocation/portfolio diversification for investors, mutual fund managers, and foreign institutional investors. So, those who invest in the LMS stocks should pay close attention to firm specific factors and diversify their portfolio accordingly. This study can be further extended to the impact of macro and non-macro-economic factors on stock returns of the LMS stocks.

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