Price Return Dynamics in the Indian Stock Markets: Evidence from Large-Cap and Mid-Cap Stocks

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Abstract

India is one of the fastest-growing economies in the world and a global investment powerhouse. At the centre of this development stands the Indian Stock Market with the two prominent stock exchanges, BSE and NSE, powering its growth. It is important to understand and analyse companies' performance and how their stocks are performing. This study examines data from over 200 large-cap and mid-cap stocks to test whether stock price level predicts 365-day returns across price-capitalisation categories, challenging conventional low-price anomaly expectations in emerging markets. Descriptive and Inferential statistics have been carried out to understand the performance of large-cap and mid-cap stocks. A significant performance divergence between Large Cap High Price and Mid Cap Low Price was found. Furthermore, a weak inter-category relationship between the two categories is found and price significantly predicts returns within specific segments. Hence, the findings of the study challenge the Low-Price Anomaly theory and the Efficient Market Hypothesis assumptions.

Keywords

Mid-cap stocks, Large-cap stocks, Indian Stock Market, Returns and Efficient market Hypothesis.

1. Introduction

Stock Returns form a crucial element in influencing investment strategies, portfolios, and wealth accumulation patterns worldwide. Stock return is the income including dividends and capital gains, earned by allocating savings to equity investments [1]. It is one of the key metrics that help investors decide when to sell or buy and how to divide a portfolio into different asset classes to maximise returns [2]. Studies show that investors become more risk-averse when returns are uncertain and more risk-seeking when returns appear guaranteed [3]. The relationship between stock prices and subsequent returns remains highly debated. Perception of the investor plays an important role in deciding whether a stock is higher-priced or lower-priced.

A seminal study by Fritzemeier (1936) found that stocks priced around $10 exhibited substantial growth compared to stocks priced at $110, although the lower-priced stocks showed higher volatility and fluctuations. In contrast, it has been observed that the highest-priced stocks often yielded the greatest returns, highlighting the complex relationship between stock price levels and returns [4]. Traditional finance theory suggests that nominal stock prices do not matter when determining a firm's value; however, it is seen that institutional investors tend to favour stocks with high prices, whereas retail investors are drawn to stocks with lower prices due to their affordability and gambling-like skewness [5]. Under the Efficient Market Hypothesis, prices fully reflect all available information—past, present, and anticipated—so price levels alone should not predict returns [6] [7]. However, it does not take into consideration the irrational part of human nature and certain cognitive biases like hindsight bias [8].

An anomaly contradicting the efficient market hypothesis is a strange occurrence persisting in the financial markets. Low price anomaly is the situation where a lower-priced stock gives more returns than a higher-priced stock. [9] Emerging markets like India experience large regulatory changes, high volatility and currency devaluations, which makes it difficult to quantitatively understand the lower price anomaly [10]. Building on this theoretical foundation, Kahneman and Tversky(1979) aptly described it as an alternative to the theory of expected utility and explained that the perception of risk differs depending on previously experienced profits or losses. According to this theory, an experienced loss drives investors to riskier behaviour [11].

SEBI (Securities and Exchange Board of India) is the statutory body regulating the securities market in India. The Securities and Exchange Board of India Act, 1992, is a significant piece of legislation that established the Securities and Exchange Board of India (SEBI) as the regulatory authority for the securities market in India [12]. The main function of SEBI is to protect the interests of investors in securities and to promote the development of the securities market in India. The matter of Hindustan Lever Limited v. SEBI introduced the concept of ‘price sensitive information’, leading to the SEBI Insider Trading Regulations in 1992 [13]. The amendments in the functioning of the SEBI have made the regulatory environment in India mature. Indian listed companies are broadly categorised by market capitalisation. Large-cap stocks – 1st to 100th company in terms of full market capitalisation (Large-cap stocks are less volatile and are highly traded). Mid-cap stocks – 101st to 250th company in terms of full market capitalisation (Mid-cap stocks in the Indian context have been associated with high volatility and less traded as compared to large-cap stocks), and Small-cap stocks – 251st company onwards in terms of full market capitalisation [14]. Although risk-return relationships have been extensively studied using

GARCH and other volatility models, the impact of stock price level on subsequent returns remains underexplored in India. This paper aims to examine the relation between prices and returns in the Indian Stock Market

2. Methodology

2.1 Research Aim and Data Characteristics

This study aims to understand the relation between the stock returns and the price by analysing Mid-Cap and Large-Cap stocks in the Indian financial markets. It utilises the two datasets sourced from Kaggle, which were published by (Ramesh Maity) and (Deba). The data provides the Company Name, Symbol (As listed), Capitalisation category, Price, Price bucket, Market Capitalisation, Price to Earnings ratio, Dividend Yield, Long Term Price, 30 Day Returns, 365 Day Returns from 2015 to 2022. The study provides insight into the relation between price and returns in the Indian Market context, filling the existing knowledge gap. The data consists of monthly observations for the entire year, providing 14 observations per Independent variable per year, resulting in a total of 2,862 data points, allowing for a clear analysis. The dataset consists of data for Large-Cap and Mid-cap stocks categorised as low and high.

2.2 Data Analysis Strategy

The data were explicitly partitioned into four groups by CapCategory (Large, Mid) and PriceBucket (High, Low): Large-High, Large-Low, Mid-High, Mid-Low. Descriptive and inferential statistics, along with graphical representations, were carried out for the analysis. This included mean, median, standard deviation, variance, minimum, maximum, range, skewness, kurtosis, sum and count for 365-day returns sum and count for 30-day returns. The software Microsoft Excel has also been used for conducting statistical analysis. A multiple regression and correlation has been conducted to understand how the interplay of a multitude of factors can affect the returns of a stock. The output included Multiple R, R Square, Adjusted R Square, Standard Error, ANOVA table (df, SS, MS, F, Significance F), and a coefficients table (coefficient, standard error, t-stat, p-value, lower/upper 95%). A t-test: A two-sample test, Assuming Unequal Variances, will be performed to gauge whether or not a statistically significant difference exists between the price and the returns.

3. Results and Discussion

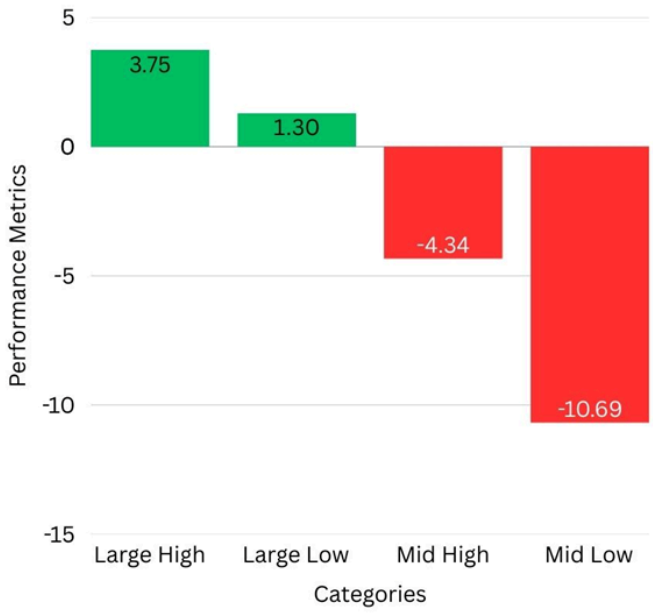

Figure 3.1: The *performance metrics that influence Average Yearly Returns.*

In Figure 3.1, we can observe that the highest Average Yearly Returns are shown by Large Cap stocks in the higher price category(3,75%), followed by Large Cap stocks in the lower price category(1.30%). It is interesting to note that the Mid Cap stocks, both the low (-10.69%) and high (-4.34) price categories, show negative returns. This study aims to show the influence of certain performance metrics on the Average Yearly Returns of stocks in different categories.

Table 3.2: *Descriptive Statistics carried out to understand the relation between price and return of different large-cap and mid-cap stocks.*

Variables	Standard Deviation	Sample Variance	Kurtosis	Skewness	Range	Minimum	Maximum	Standard Error
Large Cap High Price	28.86	833.07	2.52	0.94	163.46	-69.04	94.42	4.08
Large Cap Low Price	27.03	730.69	-0.07	0.67	112.44	-46.84	65.6	3.94
Mid Cap Low Price	36.71	1347.85	0.62	0.97	156.45	-66.13	90.32	5.47
Mid Cap HighPrice	41.37	1711.6	3.13	1.42	220.07	-83.37	136.7	6.24

In Table 3.2, descriptive statistics have been performed to understand the relation between price and returns. Large Cap High Price stocks exhibit the highest average yearly returns with positive kurtosis, outperforming Large Cap Low Price stocks, which show lower returns despite similar variability but flatter distribution patterns. This pattern aligns with Arora & Gakhar (2020), who found large-cap portfolios exhibit higher mean returns and lower kurtosis (less extreme losses) compared to volatile mid-caps, confirming size-price effects in Indian markets. [15]

Table 3.3: *Independent t-test analysis among 365-day returns among mid-cap and large-cap stocks.*

Variable	Categories	Mean	Variance	t	p
Large Cap High Price vs Large Cap Low Price	Large-High	3.8	850.3	0.98	0.33
	Large-Low	-10.6	750.7		
Mid Cap High Price vs Mid Cap Low Price	Mid-High	-4.3	1347.8	1.23	0.22
	Mid-Low	1.3	1711.6		
Mid Cap High Price vs Large Cap High Price	Mid-High	-4.3	1377.5	1.57	0.12
	Large High	3.7	753.1		
Large Cap High Price vs Mid Cap Low Price	Large-High	3.7	57.4	2.20	0.03*
	Mid-Low	1.3	78.2		
Mid Cap High Price vs Large Cap Low Price	Mid-High	-4.3	744.6	1.29	0.20
	Large-Low	-10.6	1377.5		
Large Cap Low Price vs Mid Cap Low Price	Large-Low	-10.6	1735.6	1.98	0.05*
	Mid-Low	1.3	744.6		

*p<0.05

Table 3.3 shows that most comparisons of 365-day returns between mid-cap and large-cap stocks were not statistically significant. For example, differences between high- and low-priced stocks within the same capitalisation group (large-cap or mid-cap) did not reach significance, with $p > 0.05$. Large-cap high-price stocks had higher returns than mid-cap low-price stocks ($M = 3.7$, $SD = 7.57$ vs $M = 1.3$, $SD = 8.84$), $t(100) = 2.20$, $p < 0.05$. Similarly, large-cap low-price stocks were different from mid-cap low-price stocks ($M = -10.6$, $SD = 41.66$ vs $M = 1.3$, $SD = 27.29$), $t(100) = 1.98$, $p = 0.05$. Earlier studies, like Sharma and Jain (2020), found that firm size and valuation play an important role in shaping stock returns. Our results also show that differences appear mainly when capitalisation and price level interact [16].

Table 3.4: *Correlation Analysis between Large-High, Large-Low, Mid-High and Mid-Low*

Variable	Large High Price	Large High Return	Large Low Price	Large Low Return	Mid High Price	Mid High Return	Mid Low Price	Mid Low Return
Large High Price	1	0.16	0.15	0.21	-0.08	-0.02	0.10	-0.05
Large High Return	0.15	1	0.159	0.17	0.15	-0.16	-0.21	-0.31
Large Low Price	0.15	0.15	1	-0.02	-0.08	-0.08	-0.04	-0.19
Large Low Return	0.21	0.17	-0.02	1	-0.0	-0.09	0.02	-0.29
Mid High Price	-0.08	0.15	-0.08	-0.08	1	-0.02	-0.15	-0.15
Mid High Return	-0.08*	-0.16	-0.09	-0.08	-0.02	1	0.32	0.17
Mid Low Price	0.10	-0.21	-0.04	0.03	-0.15	0.32	1	0.19
Mid Low Return	-0.06	-0.32	-0.19	-0.29	-0.15	0.1743	0.19	1

$p<0.05$

Correlation analysis was conducted to examine the relationships between price and return metrics across large- and mid-cap segments. The results revealed several positive associations. However, none reached statistical significance of $p<0.05$. For the large-cap segment, Large High Price was positively correlated with Large High Return ($r(98)=0.14$, $p=0.16$), Large Low Price ($r(98)=0.1$, $p=0.15$), and Large Low Return ($r(98)=0.13$, $p=0.21$). These findings suggest that higher prices in large-cap stocks tend to align with stronger returns and other price measures, though the associations are weak and not statistically reliable. Within the mid-cap segment, Mid High Return showed positive correlations with Mid Low Price ($r(98)=0.10$, $p=0.32$) and Mid Low Return ($r(98)=0.14$, $p=0.17$). These results indicate moderate alignment between returns in higher-priced mid-cap stocks and performance in lower-priced ones, but again, the

relationships did not achieve statistical significance. The moderate correlations observed between Large-High and Mid-Low returns align with Poshakwale (2002), who documented that large-cap indices exhibit independent price dynamics from mid/small-caps due to trading effects in Indian markets. [17]

Table 3.5: *Average Returns in 30 and 365 days and Average Total Returns in 30 and 365 days between Large-High, Large-Low, Mid-High and Mid-Low categories.*

Predictor	B	SE B	t	p
Large Cap High Price	3076.92	5761.83	1.36	0.18
Large Cap Low Price	508.5	339.95	4.24	0.00
Mid Cap High Price	-733.07	1924.19	-0.74	0.46
Mid Cap Low Price	312.25	168.89	4.08	0.00

**p<0.05*
B = Coefficients
SE B = Standard Error

Table 3.5 presents the regression analysis carried out with return categories (Large-High, Large-Low, Mid-High and Mid-Low) as predictors. The analysis confirmed significant predictive effects for Large Cap Low Price ($B = 508.50$, $t = 4.24$, $p < 0.01$)and Mid Cap Low Price ($B = 312.25$, $t = 4.08$, $p < 0.01$), indicating that these variables reliably explain variation in average returns. In contrast, Large Cap High Price ($B = 30\ 76.92$, $t = 1.36$, $p = 0.18$, $R^2 = 0.02$) and Mid Cap High Price ($B = -733.07$, $t = -0.74$, $p = 0.46$, $R^2 = 0.005$) did not reach statistical significance. It was found that the price level significantly predicts returns within the Mid Cap Low Price and Large Cap Low Price categories, while showing a marginal effect for the Large Cap High Price and Mid Cap High Price categories, confirming price as a key return driver across different market segments. A study by Jain & Khalsa (2023) applied identical multiple regression analysis across Indian market segments[18]

The findings of the study will benefit portfolio managers, mutual funds, FIIs, pension funds and day-to-day traders to make informed decisions about their investments. A future EMH study is required, as this study finds small patterns. Also, superior portfolio construction is a strong claim. It will enable evidence-based allocation rather than just price-based investing. However, while this study provides insights into price-return relationships across the Indian market, several limitations must be acknowledged. The study does not take into consideration uncontrolled macroeconomic factors such as FII and institutional preference. It also shows causal ambiguity by showing association but not causation. Another limitation which must be known is that the study only takes a limited amount of data taken from a Kaggle dataset, which might not enable full inspection.

4. Conclusion

The study aims to investigate the relation between the price and the 365-day returns with the help of large-cap and mid-cap stocks in the context of the Indian Stock Market. Results reveal insignificant differences between Large Cap and Mid Cap stocks, alongside non-significant comparisons across other categories. Pearson correlations confirm weak relationships, indicating returns move independently regardless of price level. Multiple regression analysis shows price explains minimal return variance, with most category predictors lacking statistical significance. These findings should be interpreted with caution, given the multiple limitations of this study, but they encourage future studies to look at the relation between price and return in the context of a developing economy such as India. Future studies should test alternative predictors (momentum, liquidity, Fama-French factors), examine longer horizons, and validate across multiple emerging markets to identify true return drivers beyond price effects.

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