Relationship between Profitability and Stock Price: A Study of selected Pharmaceutical Companies in India

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Abstract

This study examines the relationship between of profitability indicators and stock prices of selected pharmaceutical companies in India. This study is based on secondary data obtained from CMIE Prowess database for the period from 2007 to 2022. In the course of analysis, correlation statistics, panel unit root test, panel causality test and ARDL model have been used. The results conclude that there is no causality association between NPM, ROCE, ROA, and RONW and stock prices in selected 5 Pharmaceutical companies in India. Besides, the ARDL model has been employed to find out long-run and short-run upshots of this association. No log-run association is identified for profitability and its stock prices; but, there is a positive upshot in short-run.

Keywords: Profitability indicators, stock prices, pharmaceutical company, India, panel causality test.

1. Introduction

In August 2021, the Indian pharmaceutical market augmented at 17.70 percent yearly, awake from 13.70 percent in July 2020. Consistent with India ratings and research, the Indian pharmaceutical market revenue anticipated to be over 12 percent in the year 2022. The Indian pharmaceutical sector is valued at 42 billion US dollar and ranked 3rd and 13th in terms of volume and value worldwide (Sanghvi, 2021). Stock prices vary rapidly; they can still vary in a subject of seconds. Stock price variations are persuaded by macro-and-micro economic variables of the company (Rohmawati, 2017). A number of profitability indicators that have a shock on company profits (Jannah & Haridhi, 2016). Profitability is a measurement of effectiveness and in the end its accomplishment or crash. Profitability is a business's capability to create a return on an investment on the basis of its resources concerning another investment through profitability ratios, namely, net profit margin, return on capital employed, return on assets, and return on net worth. The outlook of Indian pharmaceutical industry is extremely sinning. In

the 2020-2030 periods, we expect Indian pharma industry to grow at a compounded annual growth rate of 12 percent to achieve at 130 billion US dollar by 2030 from 41.70 billion US dollar in 2020. Recent year's stock price of peak pharmaceutical companies furthermore valued. Keeping in view of this, this study examines the relationship between share price and profitability of selected pharmaceutical companies in India.

2. Literature Review

Numerous studies have handled the factors that influence stock prices which are associated with the profitability ratios. The most important collection of these studies talked about the internal factors that influence stock prices, each of these studies obtain a variety of profitability indicators for example net profit margin, return on capital employed, the return on assets, the return on net worth (Bayrakdaroglu et al., 2017, Susilowati, 2015, Om and Goel, 2017, Bhattarai, 2014). Other collection of studies spotlighted on the macro economic variables that influence the stock prices, for instance GDP growth, inflation rate, interest rate, exchange rate and money supply (Celebi and Hönig, 2019, Demir, 2019). The association between profitability indicators and stock prices was observed by Bayrakdaroglu et al., 2017 using panel data regression. The result demonstrated that there was a optimistic linear association between the net profit margin and their stock prices. Susilowati (2015) illustrated that return on asset had an important pessimistic upshot on the stock price, while return on capital employed and return on net worth had an optimistic upshot on the stock price.

The fundamental inspiration of this study is to find out if there is an association between the profitability indicators and stock prices of selected pharmaceutical companies in India. This study endeavors to test the following research hypotheses:

(i) There is a significant association between net profit margin and stock prices.

(ii) There is a significant relationship between return on capital employed and stock prices.

(iii) There is a significant relationship between return on asset and Stock Prices.

(iv) There is a significant relationship between return on net worth and stock prices.

3. Data and methodology

The study is based on yearly secondary data collected from CMIE Prowess database for the period from 2007 to 2022 of selected 5 Pharmaceutical companies in India (Aurobindo Pharma Ltd., Cipla Ltd, Dr. Reddy'S Laboratories Ltd., Lupin Ltd., and Torrent Pharmaceuticals Ltd.). This study employs the most commonly technique namely panel data unit root tests and a panel Granger causality test. To empirically examine the association between profitability indicators and stock prices, this study uses an asymmetric description of the autoregressive distributed lag model (ARDL) to find out long-run and short-run upshots of this association. The pooled mean group move toward in the panel ARDL structure have established by (Pesaran et al., 1999). Pesaran et al. (2001) has extended autoregressive distributed lag model model to facilitate include I(0) and I(1) variables in matching conclusion. In line with Pesaran et al. (1999), the homogeneity in the long-run relationship can be recognized to numerous indicators for example mediation state, widespread technologies, or the institutional progress that was encircled by every cluster. With the intention of test the research's hypotheses, Autoregressive Distributed Lag model is used, to estimation the association between profitability and stock price.

4. Empirical results and analysis

4.1 Correlation analysis

The correlation analysis is a method that can test whether and how strongly pairs of variables are associated. This study tests the association between net profit margin, return on capital employed, the return on assets, the return on net worth and stock price.

Table – 1: Correlation Analysis

SP	NPM	ROCE	ROA	RONW
1	.703**	.679**	.684**	.520*
	.003	.005	.005	.047

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The results (table -1) demonstrate that, there is a strong relationship of NPM, ROCE, and ROA with stock prices and a moderate relationship of RONW with stock prices and this result is compatible with (Susilowati, 2015).

4.2 Panel unit root tests

Table – 2: LLC Unit Root Test Results

	At level	Remark	At 1st Difference	Remark
SP	-1.35	Non-stationary	-18.24	Stationary
NPM	-5.86	Stationary	-16.11	Stationary
ROCE	-1.05	Non-stationary	-6.02	Stationary
ROA	-0.88	Non-stationary	-7.14	Stationary
RONW	-1.97	Non-stationary	-5.51	Stationary

Levin, Lin & Chu unit root (LLC) test has been used and suggested the following hypotheses:

H0: each time series contains a unit root.

H1: each time series is stationary

The results (table 2) demonstrate that SP, ROCE, ROA, and RONW are non-stationary at the level because the value of LLC test results are less than the critical value at a 5% level of significance but NPM is stationary at the level because the value of LLC test results are more than the critical value at a 5% level of significance. SP, NPM, ROCE, ROA, and RONW turned into stationary at the first difference because the value of LLC test results is more than the critical value at a 5% level of significance. The result of (LLC) at 1st difference is depiction that reject the Null hypotheses (H0: has a unit root) and accept the alternative assumption (H1: has no unit root). These results (reject the null of unit root) were compatible with (Wu, 1996).

4.3 Panel Causality Tests Result

Table – 3: Panel Causality Tests Result

F – Statistic	Prob. Value	The Direction of Causality
0.94	0.10	NPM≈ LnStock Price
0.65	0.09	LnROCE≈ LnStock Price
0.71	0.24	LnROA≈ LnStock Price
0.56	0.30	LnRONW≈ LnStock Price
6.12	0.00	LnStock Price≈NPM
4.99	0.00	LnStock Price≈NPM
5.21	0.00	LnStock Price≈NPM
5.34	0.00	LnStock Price≈NPM

Table 3 illustrates the results of a causal association between profitability indicators and stock price, whether in one direction or a joint direction. Consistent with the result of the causality test, the causality connection from profitability indicators (NPM, ROCE, ROA, and RONW) and stock prices has no significance level of 5%. By the way, it could be deduced because the profitability indicators give no helpful information for the stock prices of the companies in question. On the other hand, profitability indicators have got no shock on stock prices and vice versa, there is a causality association from stock prices to net profit margin with a significance level of 5% for ROCE, ROA, and RONW. Where the effect of the evaluation requires acknowledging the null hypotheses that charged there is no causality association between NPM, ROCE, ROA, and RONW and stock prices in selected 5 Pharmaceutical companies in India.

4.4 ARDL Tests Result

Table – 4: ARDL Model Tests Result

	Variable	Coefficients	t-statistic	Prob. Value
Long-term coefficients	NPM	-0.77	-1.64	0.12
	Ln (ROCE)	-0.46	-1.78	0.19
	Ln (ROA)	-0.14	-1.08	0.36
	Ln (RONW)	-0.27	-1.64	0.33
Short-term coefficients	D.Ln stock price (-2)	0.11	3.02	0.00
	D(NPM)	0.17	2.49	0.01
	D.Ln (ROCE) (-2)	0.58	2.99	0.00
	D.Ln (ROA) (-2)	1.04	3.15	0.00
	D.Ln (RONW) (-2)	0.05	4.93	0.00

Table 4 shows the ARDL test results. In line with theoretical anticipations, the error-correction coefficient sign (ECM) is negative and between 0 and 1 as well as is statistically significant. It can be observed that, there is no long–run association between the profitability indicators and stock prices because ECM is not significant

statistically. On the other hand, there is a positive upshot in the short- run because all the variables are significant statistically.

5. Conclusions

To examine the association between profitability indicators and the stock prices of five pharmaceutical companies in India, panel data methodology has been used. The results wrap up that there is no causality association between NPM, ROCE, ROA, and RONW and stock prices in selected 5 Pharmaceutical companies in India. Besides, the ARDL model has been employed to find out long-run and short-run upshots of this association. No log-run association is identified for profitability and its stock prices; but, there is a positive upshot in short- run.

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