

Study of Multiple Year Holding Period Equity Model and its Application on Stock Price Valuation: with Special Reference to FMCG Sector

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Abstract: Finance professionals frequently value assets using fundamental valuation methods that discount the expected cash flows received by investors. Security analysis of FMCG companies with specific emphasis on fundamental analysis using dividend discount models is the focus of this research. The basic idea of the dividend discount models is that the intrinsic value of an equity share is a function of the earnings level, growth rate, and risk exposure of a company. These in turn depends to a great extent on the prospectus of the industry to which company belongs.

Keywords: Dividend Discount Model, Stock Price Valuation

I. Introduction

Conceptual Framework

Any stock is ultimately worth no more than what it will provide investors in current and future dividends. Financial theory says that the value of a stock is worth of all of the future cash flows expected to be generated by firm, discounted by an appropriate risk adjusted rate. The idea is that when an investor buys a stock in a firm, the only cash flows received by him from his investments is in the form of dividends. The valuation model was popularized by John Burr Williams who published “The Theory of Investment Value” in 1938.

The dividend discount model can be a worthwhile tool for equity valuation. It is a method for assessing the present value of a given stock based on the growth rate of dividends. Using information on share price, dividend payments and earnings for a firm over a period of time the comparison between actual prices and expected prices are done. A stock is worth the present value of all the dividends ever to be paid upon it, no more, no less. Present earnings, outlook, financial condition, capitalization should bear upon the price of a stock only as they assist buyers and sellers in estimating future dividends.

In this research the researcher suggest over FMCG companies listed on NSE (National Stock Exchange) whether investors should buy/sell/hold the stock of these companies based on analysis. In order to take investment decisions it is important to have an appropriate foresight and so the study provides investors with a direction heading towards profitable returns. It is important to analyze whether investors will be benefited by investing in FMCG companies or FMCG companies over performance over other industries in just the temporary phase, it is worthwhile investing in such FMCG companies or not?; and will the growth of companies continue in future?

The only cash flow one receives from a firm when they buy publicly traded stock is the dividend, and the simplest model for valuing equity is the dividend discount model — the value of a stock is the present value of expected dividends on it.

If investor plans to hold a stock for two years, the value of the stock is the present value of the expected dividend in first year, plus the present value of expected dividend in second year, plus the present value of the expected selling price at the end of two years.

The expression for the DDM value of a share of stock for any finite holding period is a straightforward extension of the expression for one-year and two-year holding periods. For n-periods model, the value of a stock is the present value of the expected dividends for the n-periods plus the present value of the expected price in n-periods.

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II. Review of Literature

Shiller (1981) in his research found the volatility of stock prices to be six to twelve times its upper limit. The researcher following this conclusion has been twofold. Firstly, much research has been done that accept the results from the variance bounds framework and set out to explain the excess volatility found. Most other research following the findings focused on the volatility of variance bound framework. The research that set out to explain the observed excess volatility in stock prices found many different causes for this phenomenon.

DeBondt and Thaler (1985) and West (1987) attributed it to rational bubbles while Gutierrez and Vanzquez (2004) attributed it to regime-switching in the dividend process. DeLongetal (1990) and Campbell and Kyle (1993) attributed it to the presence of noise traders in the market. None of these explanations, however, has led to a valuation model that explains the data better than the dividend discount model. The other strand of research has focused on the validity of the use of the variance bound framework to test for the aforementioned relation. The frameworks used in both Shiller (1981) and Leroy and Porter (1981) have econometric problems which are considered to invalidate the results. By altering the variance bound framework, Kleidom (1986) explicitly reject the framework used by Shiller (1981) that employs a time series variance bound test. By replacing this framework by cross-sectional variance bound test, they find that the validity of traditional dividend discount model cannot be rejected.

Flavin (1983) adopts a different point of criticism on the variance bound framework, Flavin argue that the simple volatility adopted in Shillers (1981) are obtained by taking the variation from the sample mean instead of the much larger population variance. This leads her to conclude that the excess volatility can be contributed to the sampling of the volatility measures. Following the criticism of variance bound framework, new tests were developed that incorporated all the objections described.

Cochrane (1992), for example, finds that by controlling for the issues mentioned the variance bound is satisfied when using data for the New York Stock Exchange. Ackert and Smith (1993), furthermore, come to similar conclusions when analysing the Toronto Stock Exchange. Since the models following the criticism on the variance bounds literature conclude much more favourably on the relation between the variation in stock prices and dividends, its strengthens the validity of the traditional dividend discount model. However, most companies in U.S.A. do not pay dividends Baker and Powell (1999). The majority of empirical work involves estimating the cost of capital. Geykdajy (1981) examine the trend of the cost of equity for twenty eight U.S. multinational companies and twenty eight domestic U.S. companies over the period of (1965-1978) based on the anticipated ex-ante dividends.

Siegel (1985) derives a simple approximation to estimate cost of capital with less restrictive assumptions. The assumptions are (1) growth rate are constants; dividend yield and growth rates must be calculated on yearly basis to estimate yearly cost; and (2) the price is based on ex-dividend quotations. The main result of this study indicates that the cost of capital is sensitive to the choice of data. Scott (1992) measured the real cost of equity capital (1927-1987). He found the real growth rate of dividend to be dominant factor that affects the real cost of capital.

Ohlson (1995) identified that book value and abnormal earnings are basically the same as dividend. Dividends, Ohlson suggests, derive accounting data as they withdraw capital from investments, rather as a function of profitability. Ohlson begins to define concept of residual income which deals with the ability of invested assets to generate return over the cost of capital. Ohlson (2001) also explored that how residual income and dividends are related.

Lintner (1956) interviewed many managers to determine how and why their firms paid dividends; he found that managers target a long run payout ratio (dividend as a percentage of earnings).

Williams (1964) said that stock is worth present value of all the dividends ever to be paid upon it, no more, no less. Present earning; outlook, financial condition, and capitalization should bear upon the price of a stock only as they assist buyers and sellers in estimating future dividends.

Tilman (2009) said that there exists excess volatility, where the variation in dividends cannot explain the volatility in stock prices.

Springer (2011) his research helps the investors to determine whether a given stock is undervalued or overvalued through dividend discount model by taking time value of money into account.

Rationale of the Study

Similar study was undertaken by few of researchers especially with reference to FMCG sector. The current study is undertaken to evaluate variation between market value and fundamental value of FMCG companies in form of under-price and over-price of share value.

Objectives of the study

- To study the valuation of stock prices related to FMCG sector.
- To study the growth in dividend, price, earnings in FMCG sector.

III. Research Methodology

The Study

The study is Empirical in nature.

The Sample

The stock valuation study is conducted using stocks listed on NSE and the stocks shortlisted for analysis on the basis of market capitalization.

The Study Period is taken from (2010-2014)

Following five FMCG companies are selected for study:

- Colgate Palmolive India Ltd
- Procter & Gamble India Ltd
- Dabur India Ltd
- Hindustan Unilever Ltd
- Nestle India Ltd

Tools for Data Collection

Data for study is Secondary in nature and taken from various websites:

- www.nseindia.com
- www.moneycontrol.com
- www.money.rediff.com

Tools for Data Analysis

- Trend Analysis
- Multiple Year Holding Period Equity Model:

$$P_0 = \sum_{n=1}^N \frac{[(e_0) (d/e) (1+g)^n]}{(1+r)^n} + \frac{[(P/E) (e_0) (1+g)^{N+1}]}{(1+r)^N}$$

Where,

- D = recent dividend paid
- g = annual expected growth in earning, dividends & price
- e0 = most recent earnings per share
- P/E = price earning ratio
- r = required rate of return
- n = holding period in years

IV. Research and Analysis

Table 1: Collected Variables

VARIABLES	DEFINITION
Growth Rate	Annual expected growth of a company
Earning Per share	Earnings after tax divided by number of shares outstanding
Dividend Per Share	Actual dividend paid to shareholders
Required Rate of Return	Discounting factor
Price Earning Ratio	Market price per share divided by earning per share
Market Price	Share price prevailing in the market

Table 2 describes how we calculated required rate of return for years during 2015 to 2020 using trend analysis in Microsoft Excel (i.e., the trend() function).

Table 2: Calculation of Required Rate of Return

YEAR	INFLATION RATES	YEAR	TREND ANALYSIS
2005	5.57%	2015	9.58%
2006	6.53%	2016	9.79%
2007	5.51%	2017	10.00%
2008	9.70%	2018	10.21%
2009	14.97%	2019	10.41%
2010	9.47%	2020	10.62%
2011	6.49%		
2012	11.17%		
2013	9.13%		
2014	5.89%		

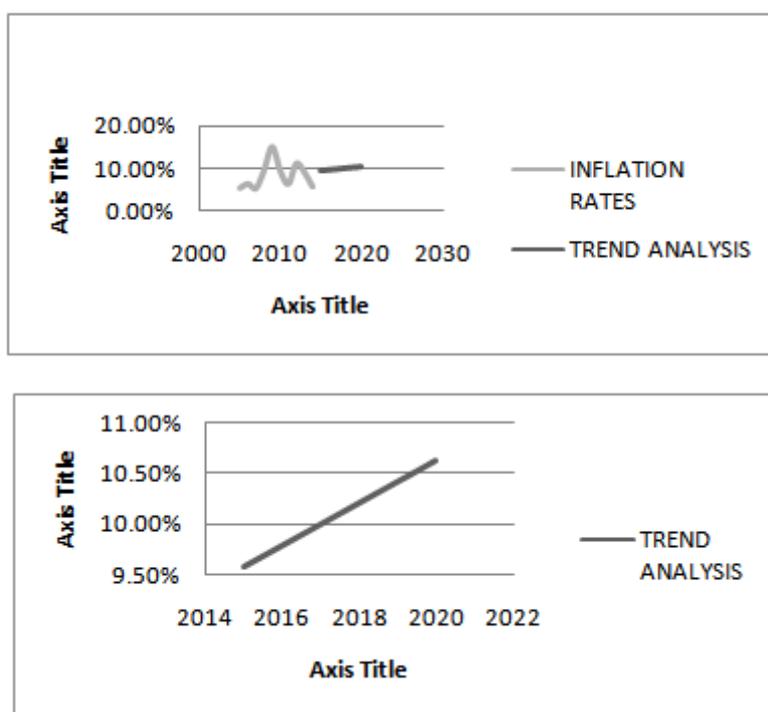


Figure 1: Trend Analysis of Inflation Rates

Table 3 shows all input variables used in calculation of expected present value of shares.

Table 3: Input data required in calculating expected present value of shares

Company Name	G	EPS(Rs)	DPS(Rs)	P/E	R	MP(Rs)
Colgate Palmolive	8.02%	39.7	27	46.16	9.79%	1832.9
Procter & Gambler	5.28%	93.04	27.5	70.96	9.79%	6603
Dabur India	5.44%	3.85	1.75	70.25	9.79%	270.5
Hindustan Unilever	33.08%	17.88	13	49.65	9.79%	887.75
Nestle	0.00%	115.87	48.5	58.63	9.79%	6797.15

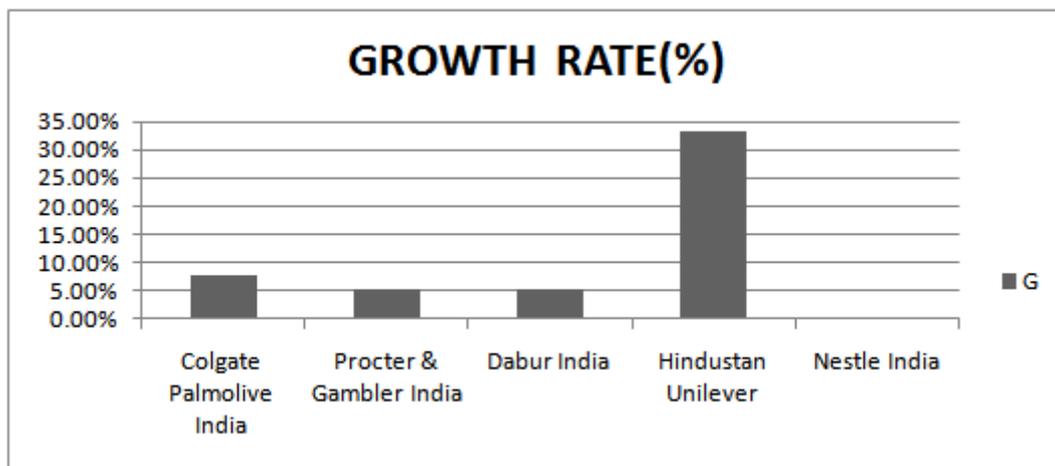


Figure 2: Percentage of Growth of all Companies

Illustrates the level of growth of each company, it is found that Hindustan Unilever is the fastest growing company among all.

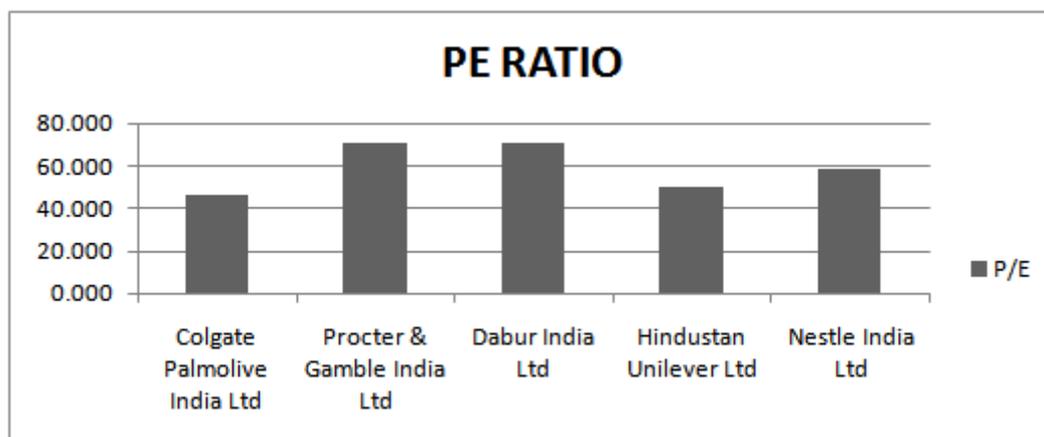


Figure 3: Price Earnings Ratio of all Companies

Illustrates the price earnings ratio of all five companies, showing that the PE Ratio of Dabur and Procter & Gamble are highest comparatively.

Table 4 shows the output derived on using multiple year holding period formula in Ms Excel. All of these cash flows, i.e., the expected dividends, earnings and prices, were discounted using a required rate of return in order to determine the expected present value.

Table 4: Expected Present Value of Shares and their Valuation

Company Name	MP	Growth in Dividends $(e_0 * (D/E)) * (((1+g)^n) / (1+r)^n)$	Growth in Earnings $((P/E) * e_0) * (((1+g)^{n+1}) / (1+r)^n)$	Expected Present Value	Valuation	Decision
Colgate Palmolive India Ltd	1832.9	128.59	1824.61	1953.2	Underpriced	Buy Equity
Procter & Gamble Ltd	6603	121.45	5635.65	5757.11	Overpriced	Sell Equity
Dabur India Ltd	270.5	7.76	232.98	240.74	Overpriced	Sell Equity
Hindustan Unilever Ltd	887.75	120.09	3091.36	3211.45	Underpriced	Buy Equity
Nestle India Ltd	6794.2	184.84	4258.69	4443.54	Overpriced	Sell Equity

Table 5 shows the variation between market value and fundamental value of shares

Table 5: Market Value Vs Fundamental Value

Company Name	Market Value(Rs)	Fundamental Value(Rs)	Variation(Rs)
Colgate Palmolive India Ltd	1832.9	1953.2	120.3
Procter & Gamble Ltd	6603	5757.11	-845.89
Dabur India Ltd	270.5	240.74	-29.76
Hindustan Unilever Ltd	887.75	3211.45	2323.7
Nestle India Ltd	6794.15	4443.54	-2350.56

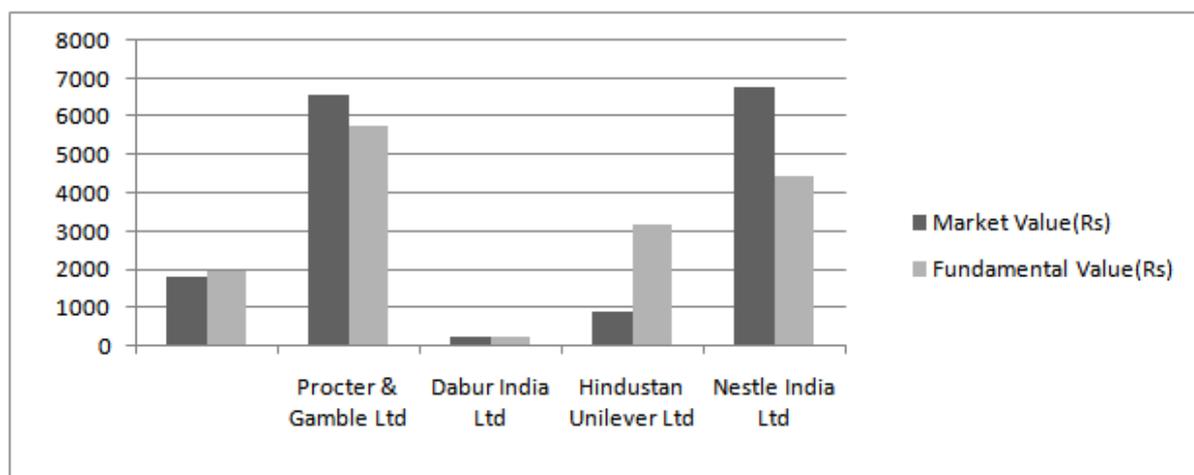


Figure 4: Comparison between Current Market Value and Expected Present Value

The analysis result illustrated in Fig.4 suggests the following:

1. Colgate Palmolive India showing an upward trend, the present value of the share of this company is more than the current price by Rs.120.3. The shares are underpriced thus buying of shares of this company will benefit the investor in future.
2. Present value of shares of Procter & Gamble India is lower than current market price by Rs. 845.89 so the share of this company is overpriced. The market is doing really good job but internally the firm may not succeed with the pace of the required rate of return over a period of five years.
3. Dabur India yet another company showing the sign of downfall in near future but the difference is very low i.e. Rs. 29.76. Suggested trading options is selling of shares of this company at current market price and buy them in future as prices are going to fall.
4. Hindustan Unilever is the most profitable option to invest in as the present value of shares is far more than current market value Rs.2323.7. The shares are undervalued therefore one must add these company in their portfolio.
5. Finally the last company Nestle India is overpriced, as the present value is lower by Rs.2350.56 than current share price. The variation is vast so it is guaranteed that the share value in future will fall.

The implications of the results can be summarized as follows:

1. For Investors: There are basically two types of investors, i.e. (a) individual investors and (b) institutional investors. The portfolio is a combination of securities such as stocks, bonds, money market instruments, they are chosen on the basis of their level of risk and probability of higher returns, this study helps the investor in selecting the most appropriate option available in FMCG sector. This analysis is very helpful for investors in taking decision regarding buying, selling, or holding of shares of the companies in FMCG sector.
2. For Researchers: This study helps researchers in conducting their research projects of similar nature.
3. For Financial Analyst/ Fund Manager: The major task of an analyst is to help their clients in taking appropriate investment decision for optimum allocation of funds. Therefore the study facilitates financial analysts in taking correct decisions for their clients and maximizes client satisfaction level.

V. Conclusion

Suggestions and Conclusion

The research conducted has a futuristic approach, as it estimates present value of share of five FMCG companies five year down the line, means if a person has to invest his savings for five years, which of these companies would benefit him in what way is analyzed, so this study assist them in taking decisions at present for future gains. The research has shown that, among five two companies namely Colgate Palmolive India and Hindustan Unilever are undervalued and have promising growth prospects. It is suggested that the shares of these companies should be bought. Some of the benefits are (1) Higher Dividends (2) Capital Appreciation, and (3) Minimization of portfolio risk. Thus it is found that the expected present value depicts that both FMCG Companies are fundamentally very strong and competent. As the fundamental strength of both the companies is good, shareholders are suggested to include these securities in their portfolio because risk is moderate and returns are reasonably high. The shares of these companies should be bought and can be held for multiple years as they have promising future ahead.

On the contrary, the other three companies: Procter & Gamble, Dabur India, Nestle India are overvalued therefore shares of these companies should be sold, because if an investor enters a future contract for five years he/she has an opportunity to make profits by selling them at current price prevailing in the market and buy the same at market value on the date of maturity of contract (after 5 years). This will ensure a profit despite of decreasing share value after five years.

In order to take investment decision it is important to have an appropriate foresight and so the study provides investors with a direction heading towards profitable returns.

Limitations

- Company selected for analysis should be dividend Payee Company.
- It should be long term holding of shares/equity.
- The prediction of dividend should be based on historical dividend declaration and current market performance.

Scope

This study is pervasive, as the procedure of estimation can be applied to all companies listed in any stock exchange and their value can be estimated quite easily.

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