Stock Valuation of Select Companies using Residual Income Method

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Abstract: This study is carried out in order to examine the intrinsic value of the selected companies namely HDFC, Aditya Birla Capital Ltd., India Infoline Ltd., Mahindra and Mahindra Finance, Bajaj Finance, India Cements Capital Ltd. and LIC Housing Finance Ltd. and to find out if their stocks are appropriately valued. The study period is based from the year 2004-2018 on which residual income valuation method has been applied. It is found that Housing Development Finance Corporation Limited (HDFC Limited), Aditya Birla Capital Limited, LIC Housing Finance Limited, Mahindra and Mahindra Finance Limited, Bajaj Finance Limited and India Infoline Limited's stock is overvalued, so, investing in the above mentioned companies stocks are not recommended whereas India Cements Capital Limited's stock is undervalued comparing to its market price, so, investing in this stock is recommended.

INTRODUCTION

Fundamental and technical analyses are two major schools of thought while approaching the market. Both the approaches involve research and forecasting the future trends in stock prices and both these methods have their advantages. A fundamental analysis is usually done by an investor looking to invest for long term. On the other hand, technical analysis is usually done for short term investments.

Fundamental analysis is a holistic approach to understand and study a business. There are two ways in this: top down approach which is a strategy that analyses the economy in general and then analyses the sectors and companies within. The alternative approach is the bottom up approach wherein an investor focuses on a particular company, exploring the business and its growth. The key macroeconomic variables are GDP, interest rate, inflation, unemployment rate, money supply and also sectoral analysis is important.

A fundamental analysis is useful for the investor in identifying where to invest and in which company's stock to invest. Whereas a technical analysis is helpful in finding out the right time to invest in those stocks. It answers the question of when to invest (Caljkusic, 2011) Technical analysts believe that prices take a long time to adjust to information and markets aren't fast to adjust to any kind of information. Whereas a fundamental analyst believes that a market will adjust to information. In the process of adjusting, stocks can be picked using buy and sell strategies to make profit in the market.

Intrinsic value is how much an investor believes a stock is actually worth. There is no single intrinsic value of a stock at a given time. The value varies from investor to investor. Intrinsic value is subjective to every investor as it is the perceived value of a stock. It depends on

various factors such as risk-taking capacity of an investor, required rate of return, margin of safety, etc. There methods to find out the intrinsic value of a stock. Most of the methods involve forecasting and making predictions which may or may not be correct.

Value investors rely on intrinsic value whereas growth investors rely on earnings. Relying on earnings can go wrong as estimates can be too high. Value investors buy stocks which are selling at a price lower than their estimated intrinsic value and wait for the price to reach its fair value. They can choose to sell their shares after the market price rises above the intrinsic value or hold it and wait for further rise.

There various methods and models of estimating the intrinsic value of a stock of a company. There are two categories of valuation models that can be used to value stocks: absolute valuation models and relative valuation models. Absolute models try to find the intrinsic value of a stock whereas relative models are used to compare companies using ratios. Relative models are much simpler to use than the absolute models.

No single valuation model is appropriate for every situation. Also, investors are not limited to using just one model. They can use more than one model or a composite model which takes an average of estimates of various models. More number of methods used can result in a more accurate estimate.

Financial statements such as balance sheet, income statement and cash flow statement are considered to find the intrinsic value of the stock. The most common model used in this approach is the discounted cash flow model and discounted dividend model. This study will focus on the residual income method of valuation. This method attempts to adjust a company's future earnings estimate, to compensate for the cost of equity. This approach makes use of data readily available from a company's financial statements. These models look at a company's economic profitability rather than just the accounting profitability. It shows that though some companies may make accounting profit, they might still not prove to be profitable if they are not able to generate any residual income.

The residual income valuation approach is an increasingly popular method among analysts. When used along with other valuation approaches, the residual model can give the investor a better and more accurate estimate of the intrinsic value of the firm.

Literature review: Baresa *et al*. (2013) study the main function of fundamental analysis is to estimate and find out the future earnings of a company. The business environment has to be considered wherein the business is operating. The study talks about the importance of macroeconomic and sectoral analysis as a part of fundamental analysis. It focuses on key economic variables like Gross Domestic Product (GDP), unemployment rate, inflation, interest rate and sectoral performance. The study then focuses on financial statements like balance sheet, income statement and the cash flow statement and the financial ratios like liquidity, leverage, turnover and profitability ratios to analyse securities. The calculation of intrinsic value using dividend discount model is discussed about. They also bring in the concept of growth rate and hence, eventually talk about the Gordon's Model. It concludes on the notion that though a fundamental analysis would not guarantee an investor high profits, it will certainly have an impact on achieving the goal of wealth creation.

Wafi *et al*. (2015) try to identify the better model for fundamental analysis. They study the different models that can be used to arrive at the intrinsic or the 'fair' value of shares of a company. The study shows the various techniques like the dividend discount models, discounted cash flow models, residual income valuation models and models that depend on multiples like earnings multiplier model, price to book value ratio, price to sales ratio, etc. The study is meant to identify which model could be more suitable for emerging markets and which one for the developed markets. It is concluded that the residual income valuation model is suitable for both the emerging as well as the developed markets. It is reliable and has high credibility. It also makes up for the shortcomings of other models.

Penman (2001) studied risk in terms of overpaying to buy a share or selling it for too less a price. He takes the example of the recent stock market bubble in Japan to state that an investor should not invest in a share without knowing its fair value as not doing, so would hamper the investor's long run interests. He infers that a bubble is like a chain letter and rides on beliefs and speculations. This bubble forms only to burst very soon. A fundamental analysis tests the beliefs and speculations that the investor has. The study also shows about the quality of earnings stating that if earnings cannot be repeated in future, then the earnings are of poor quality. Fundamental analysis anchors the investor against the noise in the market. The researcher gives examples using residual income model and earnings capitalization model and says that such models act as an anchor for the investors.

Caljkusic (2011) the paper's main motive was to identify the right approach to evaluation of stock. The analysis here was made using the prices of companies listed on the Zagreb stock exchange. The researcher has used both technical analysis using various charts and fundamental analysis using various financial ratios to value stocks. The researcher arrives at a notion that to identify 'when' to enter the market, a technical analysis can be more useful. And to identify as to 'where' to invest, a fundamental analysis is more appropriate. The

researcher uses 7 models in her analysis. She concludes by saying that to ensure better returns and growth an investor should make use of both technical as well as fundamental analysis while picking stocks.

Bentes and Navas (2013) according to the study, investors, while carrying out fundamental analysis follow either or both the top-down approach and the bottom-up approach. The top-bottom approach involves analysing the economic indicators like GDP growth rates, energy prices, inflation and interest rates first and then narrowing down to total sales, competition in the market and price levels. Under the bottom-up approach, analysis starts from within a particular sector not taking into consideration the region. The paper talks about the various advantages and the strategies that the managers can use by carrying out fundamental analysis. The study involves using EPS, P/E, ROI, P/B ratios for analysis. It is concluded that an investor should have both quantitative as well as qualitative information before deciding as to which companies to invest in.

Penman (2001) examined valuation attributes like dividend, cash flow, earnings and book values and states that all of the above yield similar valuations for the long run. He inferred valuation differs from time to time and a short run forecast would give the best indication of value in the long run. He suggested that dividends and cash flows do not generate value for the firm and are concerned with value distribution. According to him, it is better to forecast earnings rather than dividends and cashflows. He cited some real-life examples and indicates that an investor would prefer forecast of earnings to forecast of cashflows. Earnings are estimated to overcome the shortfalls of cashflows. Investments are added back as they would have been deducted from the cash from investing activities. Earnings adds value as it takes into account not just cash earnings but non-cash accruals as well. Cash accounting is not beneficial in estimating firm value and hence, R&D investments should not be treated as expenses. Therefore, he concluded by saying that earnings and book value do value in valuation of a company.

Suresh (2013) in his study, explains how the fundamental and technical analysis of a company's stock is carried out. He says that risk and return are important components of any investment. Different types of investors have different risk-taking capacities. According to researcher investors with high income are usually less hesitant in taking risk as compared to investors with lower incomes. Hence, the risk-taking capacity of an individual is largely dependent on his or her income. It is stated that the advantages of fundamental analysis are that it helps in identifying companies that are of good value, helps in identifying key revenue and profit drivers of a company and also spot the key value drivers. The study is

concluded on the notion that both fundamental and technical analysis must be carried out by an investor while deciding upon a stock to invest in. Trends in stock markets should not be taken for granted.

Prusak (2017) has based his work on the hypothesis that valuation by Discounted Cash Flow (DCF) Model has greater accuracy, i.e., result closer to the market price, than valuation through the market approach. The study is limited to the companies listed on the Warsaw stock exchange. The study identifies that the best approach to value stocks was a mix of both, the DCF and the market approach. His research establishes that the highest level of accuracy was obtained for mixed valuation. According to Prusak, DCF approach was the less accurate than the mixed as well as the market approach to valuation. Hence, an approach which involves averaging results of valuation from different methods lead to higher accuracy in valuation.

Santos and Montezano (2011) here use two types of portfolios; one dimensional which are sorted by P/E and the P/B ratios and two-dimensional portfolios that combine both the ratios. They also apply a buy and hold strategy. According to their risk analysis, value stocks were not riskier than growth stocks. Their analysis showed that value stocks performed way better than the growth stocks and produced high returns even during economic contraction. They also state that beta is not an adequate measure of risk. The study concludes by stating that the portfolios sorted by the P/E ratio or the price-to-earnings ratio gave the best results.

Higgins (2011) used the residual income model to carry out firm valuation. He used statistical approaches to get better stock price forecasts. According to the him, accurate forecasts help in developing a profitable portfolio. The study seeks to provide a valuating method combining fundamental information and also the mechanical data. Higgins uses RIM by adjusting for correlations. He says that it is important to apply the RIM accurately to take better pricing decisions. He took a sample of 500 companies and states that his approach was most suitable for large firms than for medium and small firms.

Ebrahimi and Sarikhani believe stock price changes can be effectively forecasted by fundamental analysis. They use the Residual Income Model (RIM) to carry out the fundamental analysis. They take a sample of companies listed on the Tehran Stock Exchange (TSE). Their analysis indicated a strong relation between the market value and the calculated value of the stock. Also, they further state that the ratio of price arrived at by the residual income model to market value is suitable rather than the ratio of book value to market value. They conclude that the RIM is one of the effective models for valuation.

Haritha and Ravisankar (2013) provide certain guidelines for an investor to make proper investment decisions. They use fundamental analysis approach to find out the intrinsic value or the fundamental value of stocks. They select 10 companies as their sample. The study shows analysis using ratios like Dividend Pay Out Ratio (DPOR), average DPOR, average retention ratio, average return on equity, average price earnings ratio and intrinsic value. According to the researchers, an intrinsic value analysis will be of support to assess stock performance. They conclude by suggesting every investor to use the intrinsic value analysis while investing.

Tiwari (2016) tries identify the accuracy of income-oriented and market-oriented models. Income oriented models include free cash flow model and residual income model. The market-oriented models are price-to-earnings, price-to-book value and price-to-sales multiple models. Tiwari tries to find out if a composite valuation model, combining the values will improve accuracy. The models for this purpose are selected on the basis of prediction error. He takes certain companies listed on the bombay stock exchange as their samples. The study states that prediction error for larger firms is negligible due to high liquidity and low transaction costs. He concludes by stating that a composite model is a better model than the others for the Indian manufacturing industry as it considers more variables.

Carpenter *et al*. (2015) state that share prices of firms in China are highly dependent on firm fundamentals. This strong relation shows that the stock market is giving signals that can be of use to improve investment decisions. They compare the price informativeness of China and US firms. They find that stock prices are as informative in China as in the US. According to the researcher China's stock market seems to be pricing the stocks well. The study also shows that opening of China's stock market to international investors can be beneficial. Limiting government intervention and liberalization of stock market to overseas investors will benefit China's economic growth.

Charumathi and Suraj (2014) use different types of valuation models like Ohlson (EBO) Model, P/E Model, P/B Model, CAPM Model, the Discounted Dividend (DD) Model and excess return model. The study uses market prices as dependent variables and certain parameters from the financial statements as independent variables and applies linear regression. They state that the EBO Model captures different aspects of share value of the stocks. They also rated P/B ratio model as the superior one among the relative valuation models. They conclude by saying that the EBO Model and the P/B Model outperform other models for stocks in the banking sector.

Yao uses various models to value the stocks of Goldman Sachs. He uses the DD Model, P/E, P/B, free cash flow model and residual income model. He states the advantages and disadvantages of each model he uses. He also performs an analysis of the financial statements of the company. He concludes that the residual income model performs better when compared to other models in valuing shares of companies listed in the US.

Foerster and Sapp (2006) establish that many firms might seem highly overvalued or undervalued than what their books show as the assumptions for future earnings or cashflows might not be accurate. Their study forms an approach as to value stocks whose profitability is not known. Higher uncertainty about future growth leads to increased expected future value. Uncertainty about average profitability doesn't affect discount rate. They find that the Market-to-Book (M/B) ratio in newer firms are higher than in older firms. The M/B declines much faster for the new firms. Also, the return volatility is high for new firms. They say that change in volatility is smaller when learning about the asset is faster.

Damodaran (2007) in his study, examines relative valuation models and find out if they are more accurate and reliable than the discounted cash flow method. He states that the discounted cash flows approach is highly dependent on the assumptions an investor makes. Hence, different investors arrive at different asset values. Under the relative valuation method, assets are valued on the basis of the price of similar assets. According to him, this method allows for a more meaningful comparison of firms within an industry. It helps in identifying whether all firms of an industry are under-valued or over-valued. He says that though this method of valuation may contain some error, this error is an indication that there are some parameters that other analysts have overlooked while making judgements.

Sharafoddin and Emsia (2016) study the relationship between the company's management and the company's stock valuation. They take 25 companies listed on the TSE (Tehran Stock Exchange) as their sample. According to the them, apart from practical methods, other factors like market conditions, demand and supply for company's products and services, technology and competition. Government spending, political environment, institutional investors bonus shares etc. also influence stock valuation. They examine Gordon's Model and Walter's Model in this study. They find that all the factors mentioned above should be taken into consideration while valuation of stock. They argue that though these models have some drawbacks, the factors stated are necessary to be considered. They conclude by saying that the management's success in valuation depends on how well it has understood the business environment and the accuracy of valuation of a company increases when influential factors are taken into account.

Sharafoddin and Emsia (2016) evaluate growth stocks and value stocks using the Enterprise Value (EV) approach. EBIT/EV and BV/EV approach has been used. It was found that value stocks perform significantly better than growth stocks and with limited risk. The holding

period of the stocks did not have any impact on their comparative performance. Value portfolio returns were less volatile than growth portfolio returns. According to the them, their study would be useful in choosing investment strategies as EBIT/EV and BV/EV are good indicators of undervalued stocks. They conclude by saying that the EBIT/EV and BV/EV ratios are just a part of only one of the investment valuation models and should be used with caution understanding the pros and cons of using it.

Company profile: India Cements Capital Limited (ICCL) is a part of the Chennai-based business house of the India Cements Limited. Mr. N.R. Krishnan is the Chairman of the Company. Mr. N.R. Krishnan is a retired Indian administrative services officer. He has rich and varied experience in administration and general management. He held several high positions in state and central governments. Served as non-executive director on the boards of several large public-sector undertakings, financial institutions. He is also director on the board of The India Cements Limited. ICCL is professionally managed under the stewardship of Mr. K. Suresh, qualified CA & CS with many years of experience in the non-banking finance industry. He has worked with United India insurance and associated with this company earlier as CFO. ICCL is engaged in the following activities:

For X change: For 'Xchange is one among the top 10 sellers of American Express Travellers Cheques. For 'X change handled the mega Haj Project in the year Dec., 2002 for 70000 passengers across 11 centers over a period of 35 days with a team of 80 members in association with ING Vysya Bank Ltd.

For 'Xchange along with Coromandel Travels, Midas Forex as divisions of India Cements Capital Ltd., along with Swastik broking and India cements investment services in the only organisation to handle an array of financial products as a one- stop- shop. Some of the products offered are:

Currency notes: They buy and sell all major currencies of various countries.

Travellers cheques: They stock and sell American express travellers cheques. The travellers cheques are available in US Dollars, G B Pounds, Euro, Japanese Yen, Swiss Francs, Canadian Dollars and Australian Dollars giving the customer the benefit of availing destination currencies.

AXIS Bank's travel currency cards-TCC: The TCC cards are available in USD, GBP, EUR, AUD, CAD, SGD, JPY, SEK, CHF, AED, SAUDI RIYAL and shortly THB & NZD.

HDFC Forex plus cards: The Forex plus cards are available in USD, GBP, EUR, AUD, CAD, SGD, SEK, JPY, CHF, AED, THB & HKD individually in respective currencies.

Midas advisory: The Midas Forex Advisory division expands proficient direction in Forex risk management to importers and exporters. The customers are given access to the consistently changing Foreign exchange markets through a very much prepared managing room. Reports on the development of different monetary forms with expert remarks by professionals are made accessible to the customers at day by day, mid-day and week by week interims. Particular advice on arrangements or cover guidance choice is additionally given to enable the customers to hedge risks in the trade market. Services provided by Midas advisory are as follows:

- Forex information through email and regular currency alerts
- Forex consultancy
- Forex trading on behalf of clients
- Workshops on forex risk management
- Streaming rates
- Calculators for cancellation forward rate calculators live charts
- Currency history
- Reports and commentary

Coromandel travels: Coromandel travels is the division occupied with broadening far reaching travel related services like ticketing (international and domestic), hotel appointments, car rentals, recreation packages inside India and abroad and random services like passport issuance and visa processing. The services are stretched out of seven areas namely Chennai, Mumbai, New Delhi, Kolkata, Bangalore, Hyderabad and Guwahati. Business segments:

- Corporate/individual outbound holidays inbound and domestic
- Dealer incentive tours/conferences/exhibitions services
- Airline ticket booking domestic/international
- Tie up with all and International Airlines to provide information on economic pricing, routings and latest offers
- Offer competitive hotel rates through tie up with all leading hotel chains in India and abroad
- Offer online-insurance policies through tie-up with leading insurers
- Assistance in passport/visa processing with updated information on requirements/formalities

Share broking: India Cements Investment Services Ltd., (ICISL) is a subsidiary of the India Cements Capital Ltd., (ICCL). ICISL is a corporate member of the NSE and is engaged in share broking activities. The company deals in cash market, futures and options, currency and extends DP services. The director of the company is Mr. K. Suresh. It started operation in the year 1994. ICISL is a depository participant registered under National Securities Depository Limited (NSDL). The trading is done in capital market, futures and options and currency segment. ICISL also provides online trading for their DP. It is professionally managed by NCFM qualified staffs. It has an excellent infrastructure and one of the competitive brokerages in the market. The company operates out of 15 branches with the Corporate Office at Chennai. There are 7 branches in Kerala, 7 in Tamil Nadu. The company has satellite office within the city of Chennai at Anna Salai. The company's gross income was about Rs.158.85 lakhs according to the latest annual report. ICIS commodities limited has entered into an arrangement with Goodwill commodities as sub-broker to provide commodity trading platform for ICISL clients. Features and benefits:

- Settlement of securities traded on the exchanges as well as off market transactions. Shorter settlements thereby enhancing liquidity pledging of securities
- Electronic credit in public issue
- Auto credit of rights/bonus/public issues/dividend credit through ECS
- Auto credit of public issue refunds to the bank account
- No stamp duty on transfer of securities held in demat form
- No concept of market lots. Change of address, signature, dividend mandate, registration of power of attorney, transmission etc. can be effected across companies held in demat form by a single instruction to the Depository Participant (DP)
- Nomination facility
- Consolidation of demat accounts
- Freezing of accounts
- Periodic statement of holdings and transactions

Objectives of the study: To find out the intrinsic value of the selected companies by using residual income method. To find out whether stocks valuated are overvalued or undervalued in comparison to their market price.

Type of data: The type of data used in this project is secondary data which is collected from the company's annual reports from the years 2014-2018.

Type of research: The type of research undertaken for this study is descriptive research as this topic was already discussed by various researchers in different time periods and for different industrial sectors and companies.

Tools for analysis:
- Microsoft Excel
- Knowledge of residual income valuation method

MATERIALS AND METHODS

- Use CAPM to find out the cost of equity of each company's stock
- Estimate the future profits using CAGR approach
- Estimate future residual income

Residual income-net profit-cost of equity:
- Find out Intrinsic Value: IV = BV+present value of expected residual incomes
- Book value = Total market capitalization/total outstanding shares
- Present value = $FV/(1+r)^n$
- Compare IV with current market price to determine whether stock is overvalued or undervalued

RESULTS AND DISCUSSION

Analysis of selected companies are as follows:

Housing Development Finance Corporation Limited (HDFC Limited):

$$\beta = 1.18 \; R_f = 7.7\% \; R_m = 13\%$$
$$R_e = 6.85 + 1.18(13 - 6.85) = 13.9\%$$

The stock is overvalued. We observe from Table 1 that in spite of the increase in expected profits at an annual growth rate of 9%, the residual income of the company is not very high. Hence, when the intrinsic value of the share of the company is computed, we get a value which is far lesser than the current market price of the stock. Investing in this stock may not be a good option.

Aditya Birla Capital Limited:

$$\beta = 0.93, \; R_f = 7.7\%, \; R_m = 13\%$$
$$R_e = 6.85 + 0.93(13 - 6.85) = 12.41\%$$

The stock is overvalued. It is observed that the profits of the company are expected to increase (Table 2). But the expected cost of equity is much higher than the profits. This means that the company has negative residual

Table 1: Valuation of HDFC Ltd.

Years	2017	2016	2015	2014	2013
Total shareholders funds	39,645.38	34,121.06	30,969.97	27,955.19	24,830.21
Cost of equity	5510.71	4742.83	4304.83	3885.77	3451.40
Profit/loss for the period	7,442.64	7,093.10	5,990.14	5,440.24	4,848.34
Years	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Total shareholders funds	43530.63	47796.63	52480.70	57623.81	63270.94
Cost of equity	6050.76	6643.73	7294.82	8009.71	8794.66
Profit/loss for the period	8112.48	8842.60	9638.43	10505.89	11451.42
RI	2061.72	2198.87	2343.62	2496.18	2656.76
PV	1792.80	1662.66	1540.97	1427.20	1275.64
PV per share	45.83				
BV	236.00				
IV	281.83				
CMP	1911.00				

Table 2: Valuation of Aditya Birla Capital Ltd.

Years	2017	2016	2015	2014	
Total shareholders funds	4,610.90	3,129.71	2,160.20	1,527.64	
Cost of equity	572.21	388.40	268.08	189.58	
Profit/loss for the period	4.24	-0.48	-48.56	-54.39	
Years	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Total shareholders funds	5214.928	5898.083	6670.732	7544.598	8532.941
Cost of equity	647.17	731.95	827.84	936.28	1058.94
Profit/loss for the period	8.1832	15.79358	30.4816	58.82949	113.5409
RI	-638.99	-716.16	-797.36	-877.46	-945.40
PV	-555.64	-541.52	-376.1	-501.69	-470.03
PV per share	-11.4251				
BV	21.48602				
IV	10.06				
CMP	128.8				

Table 3: Valuation of India Cements Capital Ltd.

Years	2017	2016	2015	2014	2013
Total shareholders funds	27.46	26.99	26.8	26.62	26.39
Cost of equity	2.92	2.87	2.85	2.83	2.80
Profit/loss for the period	0.47	0.19	0.26	0.24	0.08
Years	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Total shareholder's funds	27.68	27.90	28.12	28.35	28.58
Cost of equity	2.94	2.96	2.99	3.01	3.03
Profit/loss for the period	0.67	0.95	1.36	1.94	2.76
RI	-2.27	-2.01	-1.63	-1.07	-0.27
PV	-1.97	-1.52	-1.07	-0.61	-0.13
PV per share	-2.44				
BV	12.65				
IV	10.21				
CMP	5.08				

income. This has a significant effect on the intrinsic value. Hence, we observe that the intrinsic value of the stock of the company is much lower than the current market price. Investing in this stock may not be a good option.

India Cements Capital Limited:

$$\text{ß} = 0.63, R_f = 7.7\%, R_m = 13\%$$
$$R_e = 6.85 + 0.63(13 - 6.85) = 10.62\%$$

The stock is undervalued. From Table 3, we observe that the profits of the company for the next 5 years are expected to grow at an annual rate of 42.5%. The stock is trading at a price lesser than its book value which might

be a parameter for the investors to look out for. Though the residual income of the company is negative due to its higher cost of capital than its profits, its intrinsic value is almost two times its current market price. Investing in this stock may give investors good returns.

LIC Housing Finance Limited:

$$\text{ß} = 1.61, R_f = 7.7\%, R_m = 13\%$$
$$R_e = 6.85 + 1.61(13 - 6.85) = 16.48\%$$

The stock is overvalued. The stock of the company is trading at a price higher than the book value (Table 4). The profits of the company are expected to rise at an

Table 4: Valuation of LIC Housing Finance Ltd.

Years	2017	2016	2015	2014	2013
Total shareholders funds	11,077.03	9,145.98	7,818.44	7,532.90	6,481.29
Cost of equity	1825.49	1507.26	1288.48	1241.42	1068.12
Profit/loss for the period	1,931.05	1,660.79	1,386.19	1,317.19	1,023.21
Years	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Total shareholders funds	12328.73	13721.88	15272.45	16998.24	18919.04
Cost of equity	2031.78	2261.37	2516.90	2801.3	13117.86
Profit/loss for the period	2192.514	2489.381	2826.443	3209.143	3643.661
RI	160.74	228.01	309.54	407.83	525.80
PV	139.54	172.41	203.53	233.18	261.42
PV per share	20.02				
BV	219.521				
IV	239.54				
CMP	473				

Table 5: Valuation of Mahindra and Mahindra Finance Ltd.

Years	2017	2016	2015	2014	2013
Total shareholders funds	6,477.24	6,088.11	5,669.41	5,094.22	4,454.58
Cost of equity	834.92	784.76	730.79	656.64	574.20
Profit/loss for the period	400.23	672.6	831.78	887.23	882.69
Years	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Total shareholders funds	6975.987	7513.139	8091.65	8714.70	79385.74
Cost of equity	899.20	968.44	1043.01	1123.33	1209.82
Profit/loss for the period	341.3962	291.211	248.4029	211.8877	180.7402
RI	-557.81	-677.23	-794.61	-911.44	-1029.08
PV	-485.05	-512.08	-522.47	-521.12	-511.63
PV per share	-41.5692				
BV	105.4925				
IV	63.92				
CMP	460.2				

annual growth rate of 13.54%. Though, the residual incomes are positive, the computed intrinsic value of the company is lesser than its current market price. Investing in this stock may lead to losses for an investor.

Mahindra and Mahindra Finance Limited:

$$\beta = 1.01, R_f = 7.7\%, R_m = 13\%$$
$$R_e = 6.85 + 1.01(13 - 6.85) = 14\%$$

The stock is overvalued. The profits of the company have been falling at an annual rate of around 15% (Table 5). Keeping the scenario constant, the cost of equity is estimated to be higher than the expected profits. The residual income of the company is negative. Also, the intrinsic value of the company is much lesser than the current market price according to the residual income model.

Bajaj Finance Limited:

$$\beta = 1.44, R_f = 7.7\%, R_m = 13\%$$
$$R_e = 6.85 + 1.44(13 - 6.85) = 15.46\%$$

The stock is overvalued. The profits of the company are expected to rise at an annual growth rate of 29.78%. The estimated cost of equity is higher than the expected profits of the company. Therefore, we get a residual

income which is negative. The intrinsic value of the company as computed using the residual income model is close to its book value but much lesser than its current market price. Hence, the stock is highly overvalued (Table 6).

India Info Line Limited:

$$\beta = 1.06, R_f = 7.7\%, R_m = 13\%$$
$$R_e = 6.85 + 1.06(13 - 6.85) = 13.19$$

The stock is overvalued. The profits of the company are expected to grow at an annual rate of 10.35% (Table 7). The computed intrinsic value of the stock of the company according to the model is close to its book value but is much lesser than its current market price. Hence, the stock of the company as per the residual income model is highly overvalued.

Note:
- Risk free rate is rate of 10 year Government security (G-sec) bond
- Required rate of return is assumed to be 15%
- Total shareholders funds, cost of equity, P/L for the period, RI and PV are in Rs. crores

The calculation shows that even though companies show growing net profit in their books, the residual

Table 6: Valuation of Bajaj Finance Ltd.

Years	2017	2016	2015	2014	2013
Total shareholders funds	16,518.29	9,600.31	7,426.64	4,799.70	3,990.86
Cost of equity	2553.73	1484.21	1148.16	742.03	616.99
Profit/loss for the period	2,646.70	1,836.55	1,278.52	897.87	719.01
Years	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Total shareholders funds	21946.2	29157.72	38738.95	51468.57	68381.14
Cost of equity	3392.88	4507.78	5989.04	7957.04	10571.72
Profit/loss for the period	3434.887	4457.797	5785.329	7508.199	9744.141
RI	42.00	-49.99	-203.71	-448.84	-827.58
PV	36.52	-37.8	-133.94	-256.63	-411.45
PV per share	-14.1926				
BV	286.7759				
IV	272.5833				
CMP	2334				

Table 7: Valuation of India Info Line Ltd.

Years	2017	2016	2015	2014	2013
Total shareholders funds	1,499.49	1,475.89	1,400.06	1,323.46	1,310.03
Cost of equity	197.78	194.67	184.67	174.56	172.79
Profit/loss for the period	156.78	171.98	98.22	97.77	95.81
Years	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
Total shareholders funds	1540.576	1582.788	1626.156	1670.713	1716.49
Cost of equity	203.20	208.77	214.49	220.37	226.41
Profit/loss for the period	173.01	190.91	210.67	232.48	256.54
RI	-30.20	-17.86	-3.82	12.11	30.13
PV	-26.26	-13.5	-2.51	6.92	14.98
PV per share	-0.64				
BV	47.0207				
IV	46.38				
CMP	679				

income can be negative. This is an important factor for investors. Residual income model values the stock of a company after considering cost of equity. This shows a more accurate valuation of the company than models like discounted cash flow or discounted dividend model. This model includes the cost of equity which is ignored in various other models. This model is a conservative approach when compared to some other models. Thus, it shows the true intrinsic value of the company.

CONCLUSION

There are various different methods of valuing a company and its stock. One such method is the Residual Income Method (RIM). This method focuses on economic profitability rather than the accounting profitability.

SUGGESTIONS

Companies that were valued were HDFC, Aditya Birla Capital Ltd., India Infoline Ltd., Mahinda and Mahindra Finance, Bajaj Finance, India Cements Capital Ltd. and LIC Housing Finance Ltd. Out of these only one company, i.e., India Cements Capital Limited is found to be undervalued. This may be because the company's earnings history is stable. Also, investors preferring companies which are market movers and may not be aware of investment prospects of a comparatively small

impact company like India Cements Capital Limited. Hence, it may prove to be a good investment option over the other companies valued. Most of the companies here are profitable but do not generate a positive residual income. This may affect the profitability of an investor. Combining this model with other models can help investors take better decisions.

An investor should invest in an undervalued stock. As with time, the market will adjust and the prices will rise up to its true value. This will be beneficial for the investors. On the other hand, if an investor invests in an overvalued stock with time the price of the stock would fall and could lead to huge losses for an investor. It is important that an investor chooses stocks to invest wisely.

Residual income method is a rather conservative model than some of the other valuation models. This method helps us to understand the true value of a stock. But having said that, it is also necessary to know that every model has its pros and cons. Residual Income Method, though having many advantages over other models has some limitations that should not be ignored. Residual income method can be subject to manipulations in accounting. One of the major limitations of this model is that it is highly reliant on future numbers and forecasts which can be psychologically biased. Another condition for using residual income method is when the terminal value is highly uncertain. In spite of the limitations, the

residual income method is a very useful tool for any investor to decide upon which companies to invest in. Especially, to those investors who are not willing to take high risks.

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