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# Application of discounted cash flow model valuation: The case of Exide industries

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ABSTRACT

Theoretical and practical features of the widely used discounted cash flow (DCF) valuation approach are examined in depth in this paper. This research evaluates Exide Industries by using the DCF Valuation technique. It is widely accepted that the discounted cash flow approach is an effective tool for analyzing the situation of an organization even in the most complicated circumstances. The DCF approach, on the other hand, is prone to huge assumption bias, and even little modifications in an analysis' underlying assumptions may substantially affect the valuation findings. As a result, of the sensitivity analysis, we discovered bullish, base, and worst-case scenarios with target share prices of Rs. 253.25, Rs. 171.37, and Rs.133.25, respectively, by adjusting growth and WACC (Weighted-Average Cost of Capital) values.



## 1. Background of Exide Industries

Over seven decades, Exide Industries has built itself as one of India's most recognizable brands, with an unrivaled reputation and recall. Exide, based in India, is the world's biggest manufacturer of storage batteries, providing the most comprehensive assortment of old flooded and modern VRLA batteries accessible. The firm has climbed to the top of the lead-acid storage battery field as a consequence of its constant innovation, significant regional presence, strong client connections, and frequent technology upgrades with global business partners. Exide batteries are utilized in a variety of sectors and are available in a variety of sizes and voltages to satisfy the demands of consumers. It is continually updating and purchasing new technologies to fulfill the ever-increasing needs of its consumers. Exide's in-house research and development center, which has been recognized by the Indian government's Department of Scientific and Industrial Research, provides the most up-to-date battery technology (DSIR). Seven of the nine plants are devoted to the manufacturing of batteries, with the other two devoted to the production of household UPS systems. In addition to vehicle batteries, it manufactures power grid batteries (including wind and solar), telecommunications infrastructure batteries, railway and mine batteries, and submarine batteries. Automotive sales make for more than half of the company's revenue, while the industrial battery segment accounts for less than half of the company's revenue.[1] Exide generates 15% of its revenue from exports in the industrial sector, a figure that the company plans to increase by the fiscal year 2023. The Indian lead-acid battery industry generated more than $5 billion in sales in the fiscal year 2020, but this figure is expected to fall in fiscal year 21 due to the impact of Covid-19.

## 2. Introduction to DCF Model

A discounted cash flow model (DCF model) is a kind of financial model that uses cash flow forecasting and discounting to assess a company's current, present worth. The DCF is unique in that it is extensively utilized in both academics and clinical practice. Investment bankers,

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private equity firms, equity research organizations, and "buy-side" investors utilize the DCF to evaluate a company's value. The DCF model is often used in financial research to calculate a company's intrinsic value (worth based on its capacity to create cash flows) and compare it to its market value.[2] Instead, then depending on random supply and demand for a company's shares, as in market-based valuation methodologies like similar company analysis, the DCF model contends that a company's worth is determined by its internal dynamics. Instead, a company's worth is determined by its capacity to create cash flow for its owners in the near future.

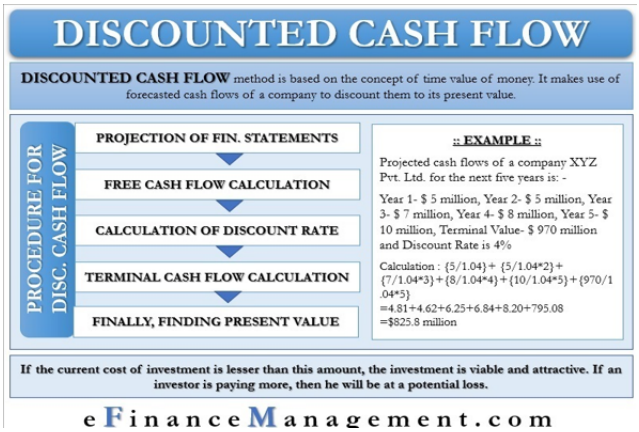


**Fig. 1:**

## 3. Research Methodology

Annual statistics (income statement, balance sheet, and cash flow statement) for the company's financial years 2017-2018, 2018-2019, 2019-2020, and 2020-2021 were gathered from their annual report, which was submitted to the National Stock Exchange NSE (National Stock Exchange) for consideration. As a result of data gathering, assumptions and predictions for the income statement, balance sheet, and cash flow statement are developed, and they are then used to form the DCF model (discounted cash flow model) to create financial statements for the organization.[3] The WACC (Weighted Average Cost of Capital) is computed using the financial statements and other assumptions. After that, the DCF model was used to determine the target share price (for more information on DCF, see Appendix II), and a sensitivity analysis was performed using the target share price, growth, and WACC to provide investors with a more comprehensive picture and possibilities of worst, base and bullish case- scenarios.

## 4. Literature Review

From 2005-06 to 2014-15, Dr. N. Venkata Raman (2016) examined the operational performance of many Indian battery companies. Analytical tools such as correlation and regression analysis are used by the author to assess the operating performance of a company. Nippon and Amara Raja, according to the author's investigation, have built up a short-term liquidity position. Expenditures on both labor and materials have decreased at Bosch and Exide, while profits have risen. Low-performing businesses aren't using the potential of their employees to increase sales and profits. A statistical model was used to study the negative correlation between the debt-equity ratio and operational performance ratios, as well as the absence of a correlation between CR and operating performance. Operations metrics have a significant impact on debt-to-equity ratios, but no impact on current ratios, according to the author.

Using a time-varying cost of capital variable, Marek Capinski (2006) suggested a method for estimating a company's value. Accordingly, one must take into account shareholder cash flow and the rate of return on equity as a basis for determining the stock market value; this is known as the direct approach. As a common multi-period, design, this study uses one-year intervals between periods. Discounting perpetuity with the assumption of constant structure and applying it to the infinite tail of cash flows beyond the horizon date yields the final value.[4] The author assumed the cost of capital for an unlevered business. On the other hand, the initial investment cost is well-known. If you're using CAPM with historical data, you could run across this issue.

Shahid Imam, Richard Barker, and Colin Clubb studied valuation methods employed by UK financial analysts in 2008. A total of 35 sell-side analysts from 10 prominent investment banks, seven buy-side analysts from three asset management firms, and 98 equity research papers from sell-side interviewees for FTSE 100 companies were interviewed in semi-structured interviews. This study uses two research approaches. Some buy-side analysts are included in two different sets of London-based sell-side analyst interviews. The second type of study uses content analysis to analyze an equity research report. In this article, financial experts' valuation models are explored. This study reveals that analysts are abandoning simple DCF models in favor of more complex DCF models, as seen in Figure 1. When valuing a company, analysts seem to use both cash flow and earnings-based models (especially PE).

The impact of stock valuation using the dividend discount model (DDM), the Free Cash Flow to Equity (FCFE) method, and the Walter Model method on investment decisions were studied by Apriliana Ika Kusumanisita and Frilya Hajar Minanti in the year (2021). Twenty-four businesses in the Consumer Goods Industry were chosen at random for this study. A quantitative and descriptive approach was used to collect the data. As part of our inquiry, we spoke with other sources for data. When time-series and cross-sectional data are combined, the result

is a panel data set. Consumer Goods Industry companies on ISSI were less likely to employ this model because of its positive impact on investment choices. In the Consumer Goods Industry, FCFE has less impact on investment decisions than it does in other industries. When it comes to ISSI-listed Consumer Goods companies, the Walter Model makes it tough for investors to make decisions.

Researcher Hiren Patel (2018) looked at the target price of a financial security's expected price level, which is commonly proclaimed by an investment analyst or an advisor. This study takes into consideration financial facts, demand, and expectations to determine the correctness of target prices. The goals of this study are dual. Developing a model of target price attainment and a model of target price accuracy are the first two steps. r. This is a depiction of the price at which a trader would recognize their investment as the best possible result if it is achieved. National Stock Exchange (NSE) banking stocks were all considered in this study. A key indicator for assessing target price accuracy for Indian banking companies was found by the author utilizing models, and this was followed by financials and the price-to-book ratio for those firms.[5]

Russian companies' attractiveness to foreign investors may be assessed using discounted cash flow methods, according to an article published in (2021) by E. Y. Selezneva, Y. Y Rakutko, O. S. Temchenk, D. V. Skalkinn, and V. Belik. For international cooperation between Russia and other countries, it is essential to improve the country's investment climate. You may use discounted cash flow analysis to see whether a company is worth investing in. After raising concerns about Russian evaluation requirements, the authors came up with ways to improve the DCF methodology's assessment of corporate attractiveness. In order to achieve their financial objectives, investors believe that this strategy is the best fit for them. Cash flow, not profit, is used to estimate a company's revenue in the DCF technique. Those who are only beginning their journey to long-term success should use this method, say the authors.

"Emerging market stock valuation: new data from Peru" was published in 2021 by Pablo Jose Arana Barbier and Kurt Johnny Burneo Farfan. There was some discussion of emerging market stocks in the report's findings. However, there is still a discussion concerning whether valuation multiples are more accurate in determining the firm's present worth, according to the author. A recent study did not contain relevant earlier data, and the authors are now in an "exploratory" phase in which they randomly target multiples rather than examining established and new markets in different studies, according to the author. Researchers say their objective is to see whether academic valuation multiples can appropriately explain the price of equities in developing nations, like Peru, according to their research. Research conducted by the author shows that a model based on valuation multiples from various studies in emerging countries has a strong correlation with the stock price. A novel explanatory variable, commodity-related business, is also included in the model's short but statistically sound expression.[6]

## 5. Need of Research

We identified a research gap after assessing a significant number of research papers on the DCF model and stock valuation in which the author of the paper had only illustrated the theoretical explanation of calculating the DCF. As we can see, the market is in a bull market, and value is a major risk that investors should carefully evaluate. We picked Exide Industries to carry out our DCF valuation approach because the markets are ready for a surge in battery-operated electric vehicles and have solid insights into their potential, which is why we chose Exide Industries.

## 6. DCF Model of Exide

### *6.1. Income statement analysis*

1. Net profit increased by 5.4 percent year-on-year (YoY) in FY21.
2. Net profit margins declined from 5.3 percent in FY20 to 5.2 percent in FY21 throughout the year.
3. Operating income increased by 5.7 percent year-on-year.
4. In FY21, operating profit margins increased to 7.9 percent, up from 7.5 percent the prior year.
5. Depreciation has increased by 3.8 percent.
6. Finance expenditures increased by 47.2 percent year-on-year.
7. Other income increased by 13.8 percent year-on-year.

### *6.2. Balance sheet analysis*

1. The company's current liabilities were Rs 4,804.81 crore in FY21, up from Rs 3251.55 crore in FY20, a 47.8 percent increase.
2. Long-term debt increased by 867 percent to Rs 85.58 crore in FY20, up from Rs 8.85 crore the previous year.
3. Current assets have grown by 16% to Rs 6255.93 crore.
4. Overall, total assets and liabilities for FY21 were Rs 28,687.11 crores, up 17.7 percent from Rs 24,365.59 crores in FY20.

### *6.3. Cash flow analysis*

1. The company's cash flows from operational activities (CFO) were Rs 2263.13 crore in FY21, an increase of 39.8 percent year-on-year.
2. Cash flows from investment activities (CFI) was Rs -2080.29 crore in FY21.

3. Cash flows from financial operations (CFF) was Rs.169.98 crores in FY21.
4. Overall, the company's net cash-flows in FY21 increased from Rs -9.53 crore in FY20 to Rs 12.86 crore in FY21.

### 6.4. DCF valuation

The target value of a company may be expressed as the present value of its future cash flows discounted at an acceptable rate of return. This is referred to as the discounted cash flow technique (DCF). The basic technique of equity valuation, also known as the intrinsic value approach, contrasts a firm's inherent worth with the market price at which it is traded in order to arrive at an investment choice. Unlike dividend discount models, which often capture just a percentage of total cash flows available for distribution to shareholders, free cash flows under the DCF technique account for the whole cash flow available for distribution to shareholders.[7]

### 6.5. Income statement assumptions (See Table 1)

1. Total revenue was anticipated using an average of (year-over-year rise of the prior four years) and grew consistently throughout the forecast period.
2. COGS and Other Operating Expenses as a Percentage of Revenue were computed using statistics from fiscal years 2020-21.
3. Depreciation was computed at 2.82 percent of sales for the next five years (as per FY2020-21 value).
4. Finance expenses are expected to remain unchanged from FY20.
5. The effective tax rate was established at 25.24 percent of EBT for the next five years (in line with FY 2020-21 levels)
6. Minority Interest was expected to be a percentage of PAT, which matched to FY2020-21 levels.

### 6.6. Balance sheet assumptions (See Table 2)

1. Capex as a percentage of revenue was projected to be in line with levels in fiscal years 2020-21.
2. The proportion of inventory as a percentage of revenue was calculated to be 17.16 percent (as of FY 2020-21 levels)
3. Assumptions were made that trade receivables, other current financial assets, and other current assets, each expressed as a percentage of revenue, would be consistent with FY 2020-21 levels.
4. The equity share capital was maintained at the same level for the following five years.
5. We assumed that the corporation will not incur any further debt for the following five years.
6. Trade payables as a proportion of sales were projected to remain consistent with levels in fiscal years 2020-21.
7. The assumption was that other equity would expand at a YOY rate consistent with levels in fiscal years 2020-21.

### 6.7. Other Assumptions

1. Risk-Free Rate of Return was taken from RBI's official website which is the Indian Government 10 Year Bond Yield (See Table 4).
2. To know more about colour representations and calculation of free cash flow to the firm (See Appendix I).
3. Market risk premium was taken from Market Risk Premia's official website i.e., 7.92% (See Table 4).
4. Beta was taken from Money Control's official website i.e., 0.74 (See Table 4).
5. Table II's debt and equity values were utilized to calculate the weighted average cost of capital, which was determined to be 14.41 %. (See Table 4).
6. It was assumed that the long-term growth rate would be 7% (See Table 5).
7. The total number of shares was taken from the company's latest annual report (See Table 5).
8. Based on the facts available, it was determined that the target share price would be Rs 171.37. (See Table 5).
9. A sensitivity analysis model, which looked at the effects of changes in WACC and long-term growth rates, was also used to assess the optimistic and bearish scenarios. (See Table 6)

## 7. Findings

1. The model predicts that the share price of Exide Industries will be Rs 171.37. (See Table 5).
2. According to the sensitivity analysis, the worst-case scenario's share price is Rs 133.25, the base case scenario is Rs 171.37, and the best-case scenario's share price is Rs 253.25 as indicated in Table 6.
3. As a consequence, the WACC of the firm increases significantly in FY 2021, which is worth noting for investors.
4. According to the data, the company's weighted average cost of capital is 14.41%.
5. As long as the free cash flow to the company (FCFF) is increasing, the business is deemed profitable. Depreciation charges, taxation, and other expenditures are taken into account. Working capital and investments are also taken into consideration. A look at Table 3 below shows that the company's cash flows from operations are expected to provide excellent financial performance over the next several years.
6. Net cash and cash equivalents are in a favorable position for the forecasted time frame.

**Table 1:** (Consolidated income statement) (author's calculation)

| **Consolidated Income Statement** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Particulars (in cr)** | **2016-17** | **2017-18** | **2018-19** | **2019-20** | **2020-21** | **2021-22E** | **2022-23E** | **2023-24E** | **2024-25E** | **2025-26E** |
| Revenue from operations | 11,178.63 | 12,808.08 | 14,720.88 | 14,471.01 | 15,296.89 | - | - | - | - | - |
| Other Income | 102.71 | 67.65 | 39.88 | 61.88 | 70.45 | - | - | - | - | - |
| **Total Revenue** | 11,281.34 | 12,875.73 | 14,760.76 | 14,532.89 | 15,367.34 | 16,634.04 | 18,005.15 | 19,489.28 | 21,095.74 | 22,834.62 |
| YoY Growth (%) | | 14.13% | 14.64% | -1.54% | 5.74% | 8.24% | 8.24% | 8.24% | 8.24% | 8.24% |
| Expenses | | | | | | | | | | |
| Cost of Materials Consumed | 4996.90 | 6086.94 | 7076.22 | 6567.39 | 6645.50 | 7193.28 | 7786.20 | 8428.00 | 9122.71 | 9874.68 |
| % Of total Revenue | 44.29% | 47.27% | 47.94% | 45.19% | 43.24% | 43.24% | 43.24% | 43.24% | 43.24% | 43.24% |
| Gross Profit | 6,284.44 | 6,788.79 | 7,684.54 | 7,965.50 | 8,721.84 | 9,440.76 | 10,218.95 | 11,061.28 | 11,973.03 | 12,959.95 |
| % Of total Revenue | 55.71% | 52.73% | 52.06% | 54.81% | 56.76% | 56.76% | 56.76% | 56.76% | 56.76% | 56.76% |
| Employee Benefit Expenses | 867.70 | 962.09 | 1034.25 | 1118.93 | 1122.49 | 1215.01 | 1315.17 | 1423.57 | 1540.91 | 1667.93 |
| % Of total Revenue | 7.69% | 7.47% | 7.01% | 7.70% | 7.30% | 7.30% | 7.30% | 7.30% | 7.30% | 7.30% |
| Other Expenses | 3947.38 | 4364.14 | 5058.95 | 5338.63 | 5948.48 | 6438.80 | 6969.54 | 7544.02 | 8165.86 | 8838.96 |
| % Of total Revenue | 34.99% | 33.89% | 34.27% | 36.73% | 38.71% | 38.71% | 38.71% | 38.71% | 38.71% | 38.71% |
| Exceptional Items | - | -41.83 | 108.29 | -21.7 | - | - | - | - | - | - |
| **EBITDA** | 1,469.36 | 1,420.73 | 1,699.63 | 1,486.24 | 1,650.87 | 1,786.95 | 1,934.24 | 2,093.68 | 2,266.26 | 2,453.06 |
| % Of total Revenue | 13.02% | 11.03% | 11.51% | 10.23% | 10.74% | 10.74% | 10.74% | 10.74% | 10.74% | 10.74% |
| Depreciation And Amortisation Expenses | 225.93 | 267.21 | 343.54 | 417.58 | 433.65 | 469.39 | 508.09 | 549.97 | 595.30 | 644.37 |
| % Of total Revenue | 2.00% | 2.08% | 2.33% | 2.87% | 2.82% | 2.82% | 2.82% | 2.82% | 2.82% | 2.82% |
| **EBIT** | 1,243.43 | 1,153.52 | 1,356.09 | 1,068.66 | 1,217.22 | 1,317.55 | 1,426.16 | 1,543.71 | 1,670.96 | 1,808.69 |
| % Of total Revenue | 11.02% | 8.96% | 9.19% | 7.35% | 7.92% | 7.92% | 7.92% | 7.92% | 7.92% | 7.92% |
| Finance Costs | 146.29 | 105.65 | 107.08 | 96.59 | 142.19 | 142.19 | 142.19 | 142.19 | 142.19 | 142.19 |
| % Of total Revenue | 11.77% | 9.16% | 7.90% | 9.04% | 11.68% | 10.79% | 9.97% | 9.21% | 8.51% | 7.86% |
| **EBT** | 1,097.14 | 1,047.87 | 1,249.01 | 972.07 | 1,075.03 | 1,175.36 | 1,283.97 | 1,401.52 | 1,528.77 | 1,666.50 |
| Less: Tax Expense | 293.12 | 353.77 | 401.66 | 209.40 | 271.29 | 296.61 | 324.02 | 353.68 | 385.79 | 420.55 |
| Current Tax | 269.37 | 368.77 | 368.49 | 288.02 | 291.24 | - | - | - | - | - |
| Deferred Tax | 23.75 | -15.00 | 33.17 | -78.62 | -19.95 | - | - | - | - | - |
| Effective tax rate % | 26.72% | 33.76% | 32.16% | 21.54% | 25.24% | 25.24% | 25.24% | 25.24% | 25.24% | 25.24% |
| **PAT** | 804.02 | 694.10 | 847.35 | 762.67 | 803.74 | 878.75 | 959.95 | 1,047.84 | 1,142.97 | 1,245.95 |
| % Of total Revenue | 7.13% | 5.39% | 5.74% | 5.25% | 5.23% | 5.28% | 5.33% | 5.38% | 5.42% | 5.46% |
| Minority Interest | -2.97 | -3.14 | -1.8 | 14.08 | 6.16 | 7.43 | 8.12 | 8.87 | 9.67 | 10.54 |
| % Of PAT | -0.37% | -0.45% | -0.21% | 1.85% | 0.77% | 0.85% | 0.85% | 0.85% | 0.85% | 0.85% |
| **Consolidated Profit After MI** | 801.05 | 690.96 | 845.55 | 776.75 | 809.90 | 886.19 | 968.07 | 1,056.70 | 1,152.64 | 1,256.49 |

**Table 2:** (Consolidated balance sheet) (author's calculation)

| **Consolidated Balance Sheet** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Particulars (in cr)** | **2016-17** | **2017-18** | **2018-19** | **2019-20** | **2020-21** | **2021-22E** | **2022-23E** | **2023-24E** | **2024-25E** | **2025-26E** |
| Assests | | | | | | | | | | |
| Total Non-Current Assets | 12936.42 | 14733.01 | 16980.48 | 18957.64 | 22431.18 | 22864.91 | 23345.14 | 23864.96 | 24427.63 | 25036.68 |
| Property, Plant and Equipment | 1647.64 | 2065.08 | 2456.38 | 2620.00 | 2970.19 | 3349.25 | 3759.55 | 4203.67 | 4684.39 | 5204.75 |
| Capex | | 684.65 | 734.84 | 581.20 | 783.84 | 848.45 | 918.39 | 994.09 | 1076.03 | 1164.72 |
| % Of total Revenue | | 5.32% | 4.98% | 4.00% | 5.10% | 5.10% | 5.10% | 5.10% | 5.10% | 5.10% |
| Capital Work-In-Progress | 146.37 | 236.99 | 264.99 | 360.72 | 379.47 | 379.47 | 379.47 | 379.47 | 379.47 | 379.47 |
| Intangible Assets | 29.26 | 33.99 | 41.52 | 46.60 | 46.66 | 46.66 | 46.66 | 46.66 | 46.66 | 46.66 |
| Non-Current Investments | 10297.03 | 11536.21 | 13221.56 | 14820.50 | 17803.04 | 17803.04 | 17803.04 | 17803.04 | 17803.04 | 17803.04 |
| Deferred Tax Assets | 6.45 | 6.99 | 10.01 | 16.1 | 9.94 | - | - | - | - | - |
| Long Term Loans and Advances | 26.10 | 23.69 | 39.74 | 38.08 | 51.17 | 51.17 | 51.17 | 51.17 | 51.17 | 51.17 |
| Other Non-Current Assets | 783.57 | 145.41 | 211.44 | 474.44 | 386.87 | 386.87 | 386.87 | 386.87 | 386.87 | 386.87 |
| Total CurreNT ASSETS | 4835.29 | 5089.21 | 5460.47 | 5409.95 | 6255.93 | 6924.33 | 7676.68 | 8535.64 | 9515.63 | 10632.97 |
| Inventories | 1702.01 | 2004.85 | 2065.31 | 2414.56 | 2636.86 | 2854.21 | 3089.48 | 3344.14 | 3619.79 | 3918.16 |
| % of total Revenue | 15.09% | 15.57% | 13.99% | 16.61% | 17.16% | 17.16% | 17.16% | 17.16% | 17.16% | 17.16% |
| Investments | 1587.10 | 954.29 | 1106.43 | 995.00 | 1536.62 | 1536.62 | 1536.62 | 1536.62 | 1536.62 | 1536.62 |
| Trade Receivables | 738.57 | 1093.57 | 1245.03 | 1060.83 | 1076.20 | 1164.91 | 1260.93 | 1364.87 | 1477.37 | 1599.15 |
| % Of total Revenue | 6.55% | 8.49% | 8.43% | 7.30% | 7.00% | 7.00% | 7.00% | 7.00% | 7.00% | 7.00% |
| Cash And Cash Equivalents | 323.53 | 317.46 | 349.89 | 341.60 | 353.57 | 333.52 | 430.76 | 653.44 | 982.02 | 1483.98 |
| Other Cash Equivalents (Balancing Equation) | - | - | - | - | - | 351.07 | 618.50 | 835.16 | 1032.36 | 1156.08 |
| Short Term Loans and Advances | 18.66 | 25.17 | 18.21 | 22.87 | 20.76 | - | - | - | - | - |
| Other Current Assets | 465.42 | 693.87 | 675.60 | 575.09 | 631.92 | 684.01 | 740.39 | 801.42 | 867.48 | 938.98 |
| % Of total Revenue | 4.13% | 5.39% | 4.58% | 3.96% | 4.11% | 4.11% | 4.11% | 4.11% | 4.11% | 4.11% |
| Total Assets | 17771.71 | 19822.22 | 22440.95 | 24367.59 | 28687.11 | 29789.24 | 31021.82 | 32400.61 | 33943.27 | 35669.65 |
| Equity And Liabilit IES | | | | | | | | | | |
| Equity | 5,047.89 | 5,447.27 | 6,139.86 | 6,514.26 | 7,318.49 | 8,224.96 | 9,245.76 | 10,395.30 | 11,689.83 | 13,147.62 |
| Equity Share Capital | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| Other Equity | 4947.13 | 5344.18 | 6021.86 | 6382.32 | 7187.27 | 8093.74 | 9114.54 | 10264.08 | 11558.61 | 13016.40 |
| YOY Growth % | | 8.03% | 12.68% | 5.99% | 12.61% | 12.61% | 12.61% | 12.61% | 12.61% | 12.61% |
| Total Shareholders Fund | 5,032.13 | 5,429.18 | 6,106.86 | 6,467.32 | 7,272.27 | 8,178.74 | 9,199.54 | 10,349.08 | 11,643.61 | 13,101.40 |
| Minority Interest | 15.76 | 18.09 | 33 | 46.94 | 46.22 | 46.22 | 46.22 | 46.22 | 46.22 | 46.22 |
| Non- Current Liability IES | 10,116.29 | 11,320.74 | 12,925.96 | 14,601.78 | 16,563.81 | 16,563.81 | 16,563.81 | 16,563.81 | 16,563.81 | 16,563.81 |
| Long Term Borrowings | 0.78 | 8.90 | 9.75 | 8.85 | 85.58 | 85.58 | 85.58 | 85.58 | 85.58 | 85.58 |
| Deferred Tax Liabilities [Net] | 162.52 | 147.88 | 182.39 | 107.82 | 83.10 | 83.10 | 83.10 | 83.10 | 83.10 | 83.10 |
| Other Long-Term Liabilities | 9900.41 | 11107.00 | 12678.84 | 14412.57 | 16331.17 | 16331.17 | 16331.17 | 16331.17 | 16331.17 | 16331.17 |
| Long-Term Provisions | 52.58 | 56.96 | 54.98 | 72.54 | 63.96 | 63.96 | 63.96 | 63.96 | 63.96 | 63.96 |
| Current Liabilit IES | 2607.53 | 3054.21 | 3375.13 | 3251.55 | 4804.81 | 5000.47 | 5212.25 | 5441.49 | 5689.63 | 5958.22 |
| Short Term Borrowings | 184.10 | 50.33 | 75.11 | 58.53 | 46.67 | 46.67 | 46.67 | 46.67 | 46.67 | 46.67 |
| Trade Payables | 1215.86 | 1519.39 | 1576.86 | 1605.57 | 2373.67 | 2569.33 | 2781.11 | 3010.35 | 3258.49 | 3527.08 |
| % Of total Revenue | 10.78% | 11.80% | 10.68% | 11.05% | 15.45% | 15.45% | 15.45% | 15.45% | 15.45% | 15.45% |
| Other Current Liabilities | 980.29 | 1243.02 | 1446.40 | 1280.68 | 2103.87 | 2103.87 | 2103.87 | 2103.87 | 2103.87 | 2103.87 |
| Short Term Provisions | 227.28 | 241.47 | 276.76 | 306.77 | 280.60 | 280.60 | 280.60 | 280.60 | 280.60 | 280.60 |
| Total Equity and Liability IES | 17,771.71 | 19,822.22 | 22,440.95 | 24,367.59 | 28,687.11 | 29,789.24 | 31,021.82 | 32,400.61 | 33,943.27 | 35,669.65 |

**Table 3:** (Consolidated cash flow statement) (authors calculation)

| **Consolidated Cash Flow Statement** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Particulars (in cr)** | **2016-17** | **2017-18** | **2018-19** | **2019-20** | **2020-21** | **2021-22E** | **2022-23E** | **2023-24E** | **2024-25E** | **2025-26E** |
| Cash Flows From Operating Activities | | | | | | | | | | |
| Net profit before tax | 1,097.14 | 1,047.87 | 1,249.01 | 972.07 | 1,075.03 | 1,175.36 | 1,283.97 | 1,401.52 | 1,528.77 | 1,666.50 |
| Adjustments for | | | | | | | | | | |
| Depreciation and Amortization | 225.93 | 267.21 | 343.54 | 417.58 | 433.65 | 469.39 | 508.09 | 549.97 | 595.30 | 644.37 |
| Exceptional Items | - | - | -108.29 | - | - | - | - | - | - | - |
| Net profit on sale of investment | -283.99 | -288.42 | -85.88 | -214.57 | -146.86 | -146.86 | -146.86 | -146.86 | -146.86 | -146.86 |
| (Profit)/loss on fixed assets sold / discarded (net) | 0.49 | 4.86 | 0.29 | -7.32 | 0.18 | - | - | - | - | - |
| Income from investment including dividend and interest | -732.06 | -728.64 | -876.31 | -1015.54 | -1189.59 | -1189.59 | -1189.59 | -1189.59 | -1189.59 | -1189.59 |
| (Gain) / loss on fair valuation of financial assets | -122.76 | 67.56 | -84.21 | 292.52 | -461.22 | - | - | - | - | - |
| Gain on fair valuation of investments in mutual fund unit | -0.75 | -0.50 | -0.48 | -1.44 | | - | - | - | - | - |
| Finance costs | 2.67 | 8.60 | 12.19 | 16.33 | 40.48 | 40.48 | 40.48 | 40.48 | 40.48 | 40.48 |
| Impairment loss on investment | - | - | - | 27.98 | | - | - | - | - | - |
| Provision for expected credit loss on receivables | - | - | - | 17.03 | 2.82 | - | - | - | - | - |
| Share of loss of equity accounted investees, net of tax | - | - | - | 0.19 | 0.64 | - | - | - | - | - |
| Change in valuation of liability against life policies | 1549.71 | 1350.08 | 1734.56 | 1622.86 | 2346.75 | 2346.75 | 2346.75 | 2346.75 | 2346.75 | 2346.75 |
| Total | 639.24 | 680.75 | 935.41 | 1155.62 | 1026.85 | 1520.17 | 1558.87 | 1600.75 | 1646.08 | 1695.15 |
| Operating profit before working capital changes | 1736.38 | 1728.62 | 2184.42 | 2127.69 | 2101.88 | 2695.54 | 2842.83 | 3002.27 | 3174.85 | 3361.65 |
| Adjustments for | | | | | | | | | | |
| (Increase) / decrease in trade receivables | -26.21 | -354.65 | -150.18 | 167.24 | -18.16 | -88.71 | -96.02 | -103.94 | -112.50 | -121.78 |
| (Increase) in inventories | -455.53 | -302.84 | -60.46 | -349.25 | -222.30 | -217.35 | -235.27 | -254.66 | -275.65 | -298.37 |
| (Increase) / decrease in loans, other financial assets and other assets | -90.59 | -251.92 | -29.19 | 26.68 | -179.77 | -52.09 | -56.38 | -61.03 | -66.06 | -71.50 |
| Increase / (decrease) in other financial liabilities, other liabilities and provisions | 64.89 | 461.71 | 130.1 | -92.2 | 858.24 | 195.66 | 211.78 | 229.24 | 248.14 | 268.59 |
| Total | -507.44 | -447.70 | -109.73 | -247.53 | 438.01 | -162.49 | -175.89 | -190.38 | -206.08 | -223.06 |
| Cash generated from operations | 1228.94 | 1280.92 | 2074.69 | 1880.16 | 2539.89 | 2533.05 | 2666.95 | 2811.89 | 2968.77 | 3138.59 |
| Direct taxes paid (net of refunds and interest thereon) | -291.68 | -366.57 | -387.92 | -260.97 | -276.76 | -276.76 | -276.76 | -276.76 | -276.76 | -276.76 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Net cash generated from operating activities | 937.26 | 914.35 | 1686.77 | 1619.19 | 2263.13 | 2256.29 | 2390.19 | 2535.13 | 2692.01 | 2861.83 |
| Cash Flows From Investing Activities | | | | | | | | | | |
| Purchase of property, plant and equipment including (intangible assets) | -441.21 | -807.68 | -811.21 | -608.09 | -501.62 | -379.06 | -410.30 | -444.12 | -480.73 | -520.35 |
| Proceeds from sale of property, plant and equipment | 0.47 | 1.19 | 125.44 | 12.97 | 2.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Acquisition of interest in associates | - | - | - | -23.36 | - | - | - | - | - | - |
| Net movement in bank deposits | - | - | - | - | -1.92 | - | - | - | - | - |
| Purchase of investments | - | - | - | -8684.21 | -7647.89 | - | - | - | - | - |
| Proceeds from sale of investments | - | - | - | 7207.28 | 4902.35 | - | - | - | - | - |
| Net Proceeds | -990.33 | -434.88 | -1589.83 | -1476.93 | -2745.54 | -2745.54 | -2745.54 | -2745.54 | -2745.54 | -2745.54 |
| Investment income including dividends and interest | 702.62 | 704.81 | 838.18 | 998.50 | 1166.73 | 1166.73 | 1166.73 | 1166.73 | 1166.73 | 1166.73 |
| Net cash used in investing activities | -728.45 | -536.56 | -1437.42 | -1096.91 | -2080.29 | -1957.-865472 | -1989.-110268 | -2022.-930511 | -2059.-53849 | -2099.-163993 |
| Cash Flows From Financing Activities | | | | | | | | | | |
| Proceeds from borrowings | 68.19 | 90.44 | 127.65 | 110.69 | 205.25 | 120.44 | 130.89 | 138.99 | 141.25 | 147.37 |
| Repayment of borrowings | - | -217.37 | -99.29 | -128.44 | -134.19 | -144.82 | -144.82 | -130.31 | -136.52 | -138.13 |
| Transaction with non-controlling interest | - | - | 13.77 | 28.21 | - | - | - | - | - | - |
| Dividends paid (including tax) | -248.19 | -248.54 | -245.94 | -502.11 | -170.00 | -282.96 | -289.91 | -298.18 | -308.63 | -269.94 |
| Payment of lease liabilities | - | -0.81 | -0.66 | -35.75 | -58.03 | - | - | - | - | - |
| Interest paid | -1.90 | -9.82 | -12.19 | -4.41 | -13.01 | - | - | - | - | - |
| Net cash used in financing activities | -181.90 | -386.10 | -216.66 | -531.81 | -169.98 | -307.33 | -303.84 | -289.51 | -303.90 | -260.70 |
| Net Increase/(decrease) in cash and cash equivalents | 26.91 | -8.31 | 32.69 | -9.53 | 12.86 | -8.91 | 97.24 | 222.68 | 328.58 | 501.96 |
| Cash and cash equivalents - opening balance | 286.65 | 314.98 | 308.6 | 340.94 | 331.47 | 342.43 | 333.52 | 430.76 | 653.44 | 982.02 |
| Cash and cash equivalents - closing balance | 313.56 | 306.67 | 341.29 | 331.41 | 344.33 | 333.52 | 430.76 | 653.44 | 982.02 | 1483.98 |
| Effect of exchange rate changes | 1.42 | 1.93 | -0.35 | 0.06 | -1.9 | 0 | 0 | 0 | 0 | 0 |
| Cash and cash equivalents - closing balance | 314.98 | 308.60 | 340.94 | 331.47 | 342.43 | 333.52 | 430.76 | 653.44 | 982.02 | 1483.98 |

**Table 4:** (Authors calculation)

| | |
|---|---|
| Pre-tax Cost of Debt | 108% |
| Tax Rate | 25.24% |
| Cost of Debt (After Tax) | 134.65% |
| Beta | 0.74 |
| Risk Free Rate of Return | 6.10% |
| Market Premium | 7.92% |
| Cost of Equity | 11.96% |
| WACC | 14.41% |

**Table 5:** (Authors calculation)

| **Particulars (in cr)** | **2021-22E** | **2022-23E** | **2023-24E** | **2024-25E** | **2025-26E** |
|---|---|---|---|---|---|
| NOPAT | 985.06 | 1066.26 | 1154.15 | 1249.28 | 1352.26 |
| ADD: Depreciation And Amortisation | 469.39 | 508.09 | 549.97 | 595.30 | 644.37 |
| Less: Change in Working Capital | -864.06 | -964.13 | -1088.20 | -1228.13 | -1385.93 |
| Less: Capex | 848.45 | 918.39 | 994.09 | 1076.03 | 1164.72 |
| Free Cash Flows | 1470.07 | 1620.09 | 1798.23 | 1996.68 | 2217.83 |
| PV of Cashflows | 1284.86 | 1237.59 | 1200.61 | 1165.16 | 1131.15 |
| Growth Rate (Long Term) | 7% | | | | |
| Terminal Cash Flow | | | | | 16323.78 |
| PV of Terminal Cash Flow | | | | | 8325.577 |
| Enterprise Value (in cr) | 14344.94 | | | | |
| Less Debt | 132.25 | | | | |
| Add: Cash and Balances | 353.57 | | | | |
| Equity Value | 14566.26 | | | | |
| No. of Shares (in cr.) | 85.00 | | | | |
| Target Price per Share in (Rs) | 171.37 | | | | |

**Table 6:** (Authors calculation)

| **WACC** | | | | | | |
|---|---|---|---|---|---|---|
| - | 171.37 | 13.50% | 14.00% | 14.41% | 15.00% | 15.50% |
| | 5% | 165.96 | 156.29 | 149.12 | 140.09 | 133.25*** |
| **GROWTH** | 7% | 196.18 | 181.76 | 171.37** | 158.63 | 149.23 |
| | 9% | 253.25* | 227.61 | 210.05 | 189.54 | 175.05 |

*= Bullish Case, **= Base Case, ***= Worst Case

7. Using just annual data, our model forecasted a price per share of Rs 171.37 for the company as of November 12, 2021, which is close to the current market price of Rs 181.20 (Closing price) as of that date, according to the model.
8. Our model yielded results that were quite similar to those of the company's quarterly results, showing that the growth rate of 7 percent that we projected was reasonable.

## 8. Conclusion

With a clearer understanding of what the Discounted Cash Flow model is and what it achieves, we can use it to estimate the current market value of a firm based on the future cash flow it will create. It's also important to consider how much cash flow a company expects to generate in the future before investing. It is necessary to discount these future cash flows by the amount of time elapsed from the beginning of the time period under consideration in order to arrive at their present value. When it comes to stock valuation, it may help investors make more effective trading decisions. A company's share price is calculated using traditional equations and calculations that have been in use for decades. In order to determine a company's "internal" value, which is based on the company's future profitability and market value, stock valuation may be performed. [8–10]

## 9. Source of Funding

None.

## 10. Conflict of Interest

None.

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