Discounted Cash Flow (DCF) Valuation of HDFC Bank

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Model Assumptions

- Growth rate, $g = 3.5\%$
- Forecast period, years = 5
- EBIT margin = 25%
- Tax rate = 26%
- Weighted Average Cost of Capital (WACC) = 10.5%
- Depreciation & Amortization as % of Revenue = 3%
- Capital Expenditure (CapEx) as % of Revenue = 0.5%
- Change in Net Working Capital as % of Revenue = 0.5%
- Outstanding Shares = 2,546,748,882
- Net Debt (Cr) = 385000

Step 1: Revenue Forecast

Using the formula for revenue growth:

$$\text{Revenue}_t = \text{Revenue}_{t-1} \times (1 + g)$$

Starting with base revenue Revenue_0 = last reported revenue, forecast revenues for next 5 years as:

$$\begin{aligned} \text{Revenue}_1 &= \text{Revenue}_0 \times (1 + 0.035) \\ \text{Revenue}_2 &= \text{Revenue}_1 \times (1 + 0.035) \\ &\vdots \\ \text{Revenue}_5 &= \text{Revenue}_4 \times (1 + 0.035) \end{aligned}$$

Step 2: EBIT Calculation

Calculate EBIT as a fixed percentage of revenue:

$$\text{EBIT}_t = \text{Revenue}_t \times \text{EBIT margin} = \text{Revenue}_t \times 0.25$$

Step 3: NOPAT Calculation

Net Operating Profit After Tax (NOPAT):

$$\text{NOPAT}_t = \text{EBIT}_t \times (1 - \text{Tax rate}) = \text{EBIT}_t \times (1 - 0.26)$$

Step 4: D&A, CapEx, and Change in NWC

$$\begin{aligned} \text{D\&A}_t &= \text{Revenue}_t \times 0.03 \\ \text{CapEx}_t &= \text{Revenue}_t \times 0.005 \\ \Delta\text{NWC}_t &= \text{Revenue}_t \times 0.005 \end{aligned}$$

Step 5: Free Cash Flow (FCF)

Calculate Free Cash Flow:

$$\text{FCF}_t = \text{NOPAT}_t + \text{D\&A}_t - \text{CapEx}_t - \Delta\text{NWC}_t$$

Step 6: Discount Free Cash Flows

Discount each year's FCF to present value using WACC:

$$\text{Discounted FCF}_t = \frac{\text{FCF}_t}{(1 + \text{WACC})^t} = \frac{\text{FCF}_t}{(1 + 0.105)^t}$$

Step 7: Terminal Value Calculation

Calculate terminal value assuming perpetual growth at g:

$$\text{Terminal Value} = \frac{\text{FCF}_5 \times (1 + g)}{\text{WACC} - g} = 596,553.20 \text{ (Cr)}$$

Discount terminal value to present:

$$\text{Discounted Terminal Value} = \frac{\text{Terminal Value}}{(1 + \text{WACC})^5} = 596,553.20 \times \frac{1}{(1.105)^5}$$

Step 8: Enterprise Value

Sum of discounted FCFs and discounted terminal value:

$$\text{Enterprise Value} = \sum_{t=1}^{5} \text{Discounted FCF}_t + \text{Discounted Terminal Value} = 827,482.50 \text{ (Cr)}$$

Step 9: Equity Value

Subtract net debt from enterprise value:

$$\text{Equity Value} = \text{Enterprise Value} - \text{Net Debt} = 442,482.50 \text{ (Cr)}$$

Step 10: Intrinsic Value per Share

Divide equity value by outstanding shares:

$$\text{Intrinsic Value per Share} = \frac{442,482.50 \times 10^7}{2,546,748,882} = 1,737.44 \text{ ()}$$

Conclusion

- If Intrinsic Value per Share $>$ Market Price: Stock is **Undervalued**
- If Intrinsic Value per Share $<$ Market Price: Stock is **Overvalued**