DCF VALUATION – MICROSOFT CORPORATION

INTRODUCTION

This project focuses on **Discounted Cash Flow (DCF) Valuation**, a fundamental financial modeling technique used to determine a company's intrinsic value. DCF analysis is widely applied in **investment banking, equity research, and corporate finance** to assess whether a stock is fairly valued.

This case study evaluates **Microsoft Corporation (MSFT)** using **DCF valuation**, incorporating **financial forecasts, risk assessment (WACC), and intrinsic share price estimation** to support investment decision-making.

UNDERSTANDING DCF VALUATION

The **Discounted Cash Flow (DCF) Model** estimates a company's intrinsic value by forecasting future free cash flows (FCFs) and discounting them back to present value using the company's cost of capital.

Key Components of DCF Model:

✅ **Free Cash Flow (FCF):** The cash generated by a business after accounting for operating expenses and capital expenditures.
✅ **Discount Rate (WACC):** The rate at which future cash flows are discounted to present value.
✅ **Terminal Value:** The estimated value of the company beyond the forecast period.
✅ **Enterprise Value (EV):** The total value of a business, including both debt and equity.
✅ **Equity Value & Share Price:** The final intrinsic stock price derived from the valuation model.

DCF VALUATION PROCESS

1. Projecting Free Cash Flows (FCF)

- Forecasting FCF for **5-10 years** based on revenue growth, operating margins, and reinvestment needs.
- Utilizing historical financial statements to estimate future performance.

2. Calculating WACC (Weighted Average Cost of Capital)

- **Formula:**

$$WACC = (E/V) * Re + (D/V) * Rd * (1 - Tc)$$

Where:

  - **E/V:** Proportion of equity in capital structure.
  - **D/V:** Proportion of debt.
  - **Re:** Cost of equity (calculated using the **Capital Asset Pricing Model (CAPM)**).
  - **Rd:** Cost of debt.

- **Tc:** Corporate tax rate.

3. Estimating Terminal Value

- **Using Gordon Growth Model:**

$$TV = \frac{FCF_{n} * (1 + g)}{WACC - g}$$

Where:

- **g** is the perpetual growth rate.
- **FCF_n** is the final projected free cash flow.

4. DISCOUNTING CASH FLOWS TO PRESENT VALUE

- Future cash flows and terminal value are discounted using WACC:

$$PV = \frac{FCF-t}{(1 + WACC)^t}$$

5. CALCULATING INTRINSIC SHARE PRICE

- **Enterprise Value (EV) = PV of Free Cash Flows + PV of Terminal Value**
- Adjusting for debt and cash to get **Equity Value.**
- **Fair Share Price = Equity Value / Shares Outstanding.**

KEY INSIGHTS FROM MICROSOFT DCF VALUATION

✅ **Current Share Price:** $374.36
✅ **Implied Share Price (DCF Model):** $375.91 (Base Case)
✅ **Valuation Scenarios:** Conservative, Base, and Optimistic cases used for comparison.
✅ **WACC Calculated Using Market-Based Inputs** to determine the required rate of return.

REAL-WORLD APPLICATIONS OF DCF VALUATION

📌 **Investment Decision-Making:** DCF valuation helps investors determine whether a stock is undervalued or overvalued.
📌 **Mergers & Acquisitions:** Companies use DCF to assess acquisition targets and determine fair offer prices.
📌 **Corporate Financial Planning:** Businesses use DCF to evaluate expansion projects and capital investments.
📌 **Stock Valuation for Equity Research:** Analysts rely on DCF to provide recommendations for buying or selling stocks.
📌 **Risk-Based Pricing:** Companies adjust their cost of capital based on market risk and financial conditions.

CONCLUSION

This case study provides deep insights into **financial modeling and valuation techniques** using the **DCF method**. By incorporating **forecasted cash flows, WACC calculations, and intrinsic share price estimation**, this project demonstrates expertise in:

- ✅ **Financial Data Analytics**
- ✅ **Corporate Valuation & Risk Assessment**
- ✅ **Investment Decision-Making**
- ✅ **Financial Modeling for Stock Valuation**

DCF valuation is a powerful tool that allows analysts and investors to make **data-driven investment decisions**, ensuring a structured and quantitative approach to evaluating a company's financial health. 🚀