CATERPILLAR

COMPANY VALUATION

Caterpillar (NYSE: CAT) company valuation using the discounted free cash flow (DCF) method.

Imperial College Business School

COMPANY OVERVIEW

World's leading manufacturer of construction and mining equipment, off-highway diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives

Two main segments for operations: **CAT ME&T** manufacturing of products for construction, resources and energy & transportation industries. **CAT FINANCE**, offering retail and wholesale financing and insurance.

Key Financial Metrics

- **Market Capitalisation:** $ 125.93B
- **Current Share Price:** $ 247.30
- **Revenue 2022:** $ 59.42B
- **EBITDA:** $ 11.41B
- **EBIT:** $ 9.19B
- **Net income:** $ 6.7B

Industry benchmarks using ratios from readyratios.com/sec/industry/35

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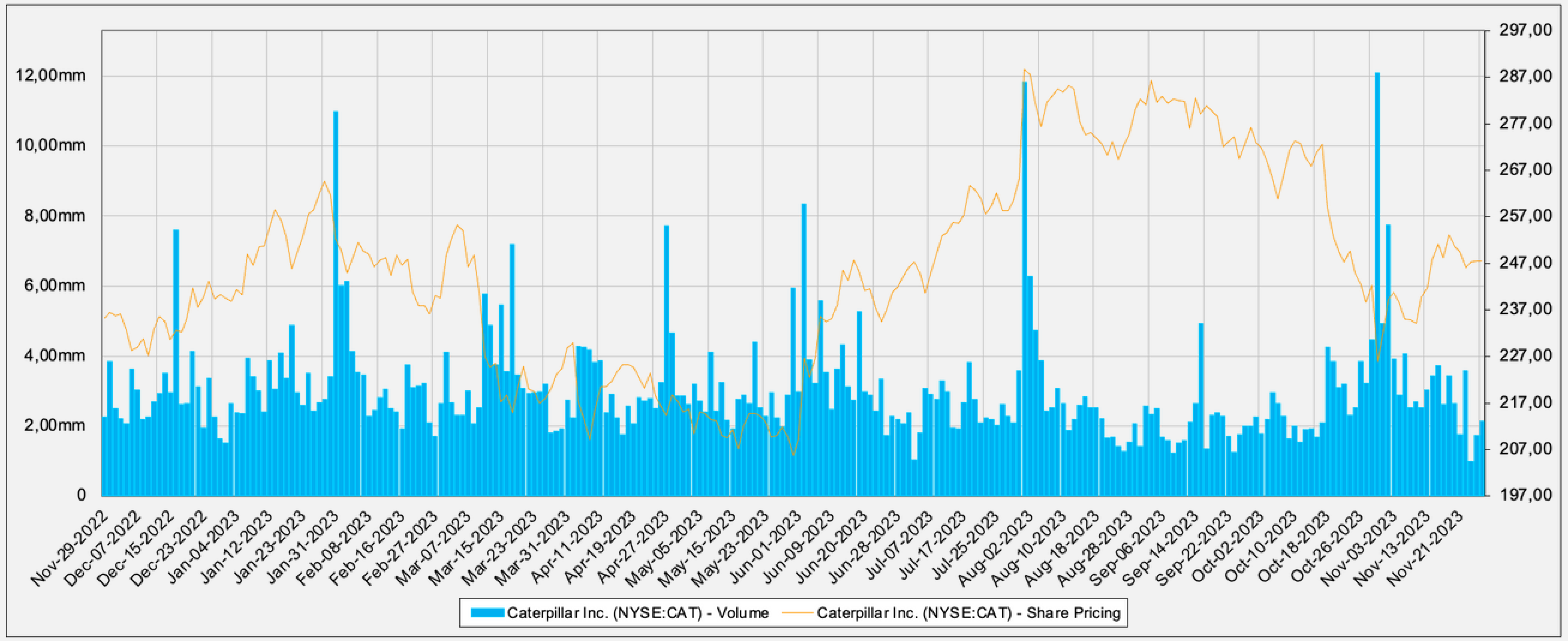

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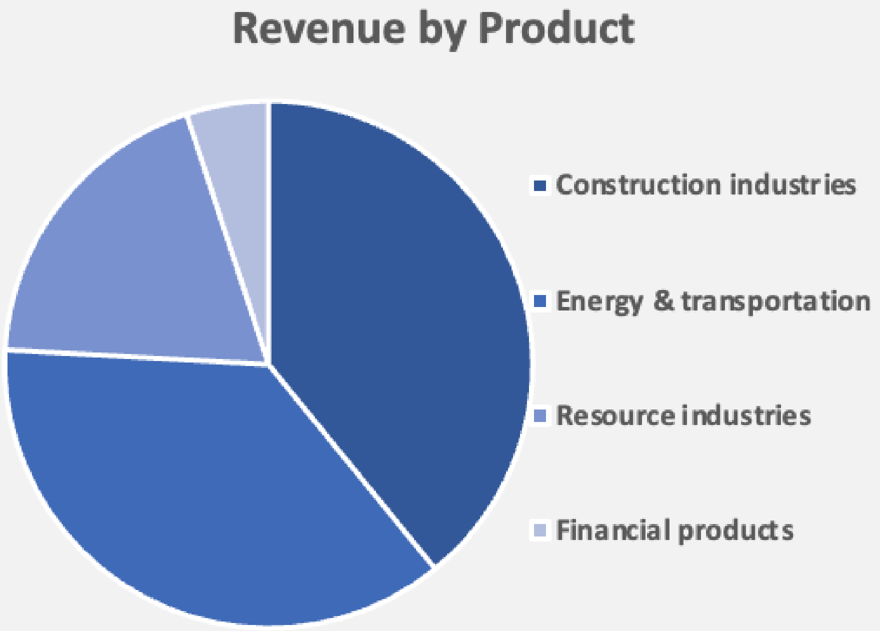
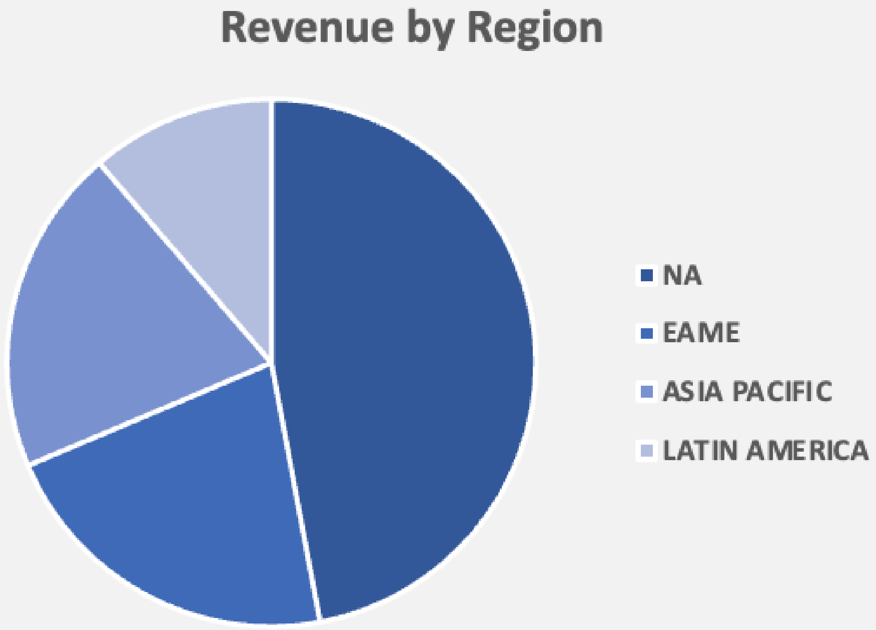




**S&P CAPITAL IQ*
***STATISTA*

PROFITABILITY RATIOS

Gross Margin: We see a flat gross margin of 29% for the ‘20-’22 period, down from 31% in 2019 reflecting the negative macroeconomic impact of Covid-19 on CAT’s gross income (-26.4%) and revenues (-22.4%) for 2020, with both metrics only returning to pre-pandemic levels in 2022*.

- Gross margins fall short of industry average of 32.5% for 2021, 32.8% for 2020, and 34.8% in 2019, indicating CAT may not retain total sales revenue after direct costs as efficiently as peers

Operating Margin: We see some similar trend as with gross margin for the ‘20-’22 period, with a large dip in 2020 relative to 2019 (-26.7%), followed by a sustained recovery to pre-pandemic levels by 2022**.

- Operating margins far exceed industry averages of 7.3% for 2021, 3.6% for 2020, and 6.9% for 2019, indicating CAT may retain revenue after variable costs more efficiently than peers

Profit Margin: We see a similar trend as with gross and operating margins for the 20-22 period, with a large (-36.4%) dip in 2020 relative to 2019, followed by growth and a peak at 13% in 2021 before returning to pre-pandemic levels of 11% in 2022**.

- Profit margins far exceed industry averages of 5% for 2021, 1.6% for 2020, and 4.3% in 2019 indicating substantially greater profitability of CAT relative to other industry peers.

	2019	2020	2021	2022
Gross Margin	*0.31*	0.29	0.29	0.29
Operating Margin	*0.15*	0.11	0.13	0.15
Profit Margin	*0.11*	0.07	0.13	0.11

* CAT 10-K FILINGS ATTRIBUTE THIS MOSTLY TO LARGE REDUCTION IN SALES VOLUME FOR 2020 VS. 2019, RETURNING TO PRE-PANDEMIC LEVELS WITH STEADY SALES VOLUME GROWTH AND IMPROVED PRICE REALIZATION THROUGH 2021 AND 2022.

** ATTRIBUTED TO INCREASED SALES VOLUME AND FAVOURABLE PRICE REALIZATION IN 2021 AND 2022, OFFSET BY HIGHER MANUFACTURING AND SG&A/RD COSTS COMPRISING INCREASED FREIGHT, RAW MATERIAL, LABOUR COSTS SYMPTOMATIC OF POST-PANDEMIC RECOVERY AS WELL AS CURRENCY IMPACTS, NEGLIGIBLE IMPACT OF CAT FINANCIAL PRODUCTS.

2019 figures included to illustrate trend

PROFITABILITY AND EFFICIENCY RATIOS

Profitability Ratio Analysis Cont.

Return on Equity: We see a pronounced decrease (-54.8%) in ROE for 2020 vs 2019, owing to decreased net income and increasing shareholder equity in 2020, likely due to adverse macroeconomic operating conditions arising from the Covid-19 pandemic and government financial support-related bullish market conditions in 2020 and 2021 respectively. We then see a return to pre-pandemic levels by 2022, owing to sustained net income growth with shareholder equity continuing to increase up until 2021 before then decreasing in 2022, reflecting growing market uncertainty.

- **ROE** greatly exceeds industry averages of 6.7% for 2021 and 0.6% for 2020, indicating substantially greater ability to turn shareholder financing into income and growth of CAT relative to other industry competitors.

Return on Assets: We see a pronounced (-50%) decrease in ROA for 2020 vs 2019, owing to decreased net income vs relatively constant asset portfolio in 2020. We then see a return to pre-pandemic levels by 2021, owing to sustained net income growth vs relatively constant assets and a flat ROA in 2022 vs 2021. This reflects the long-term time horizon of CAT business; roughly half of liabilities and assets are non-current.

- **ROA** greatly exceeds industry averages of 3.7% for 2021 and 0.6% for 2020, indicating substantially greater ability to turn investment into assets into income and growth of CAT relative to other industry competitors

	2019	2020	2021	2022
ROE	0.42	0.19	0.39	0.42
ROA	0.08	0.04	0.08	0.08

Efficiency Ratio Analysis

Asset Turnover Ratio shows us how well CAT has used its assets to bring in revenue. We can compare this to the industry average (2020 - 0.63, 2021-0.75...) which has been consistently higher than CAT's turnover which signifies CAT has been less efficient in using its assets to generate income and might be an area to improve.

Inventory Turnover Days indicates the number of days CAT's cash has been held by its inventories. A smaller number is preferred as it shows that CAT has been more efficient in selling its inventory. CAT's ratio seems to be slightly higher but around he same as the industry (2022- 135, 2021-125..) which is a good sign as it shows that CAT is effectively managing its inventory and hence effectively managing its operational capital requirements for its business.

	2020	2021	2022
Asset Turnover	0.53	0.61	0.72
Inventory Turnover	139.42	129.08	131.96

LIQUIDITY & LEVERAGE RATIOS

Liquidity Ratios

CATs **Current Ratios** seems to be lower than its peers / the industry (2019-2.3, 2020-3.08, 2021-2.34) indicating that CAT may have a higher risk of distress in a short run or perhaps because its customers pay slowly, as CAT is a heavy machinery company, CAT might need to improve its receivables' collection. But ratios appear to be above 1 indicating that the company's assets are greater than its debts, in a short run.

With its **Quick Ratio** fluctuating around 1, CAT appears to be in a alright position to cover its current liabilities as its liquid assets are just about enough to cover its short-term debt obligations. But we can see a slight declining trend in the ratio which shows it may not be able cover its obligations using only quick assets if it continues to decline. Although, it is fluctuating around the same amount as the industry averages (2020-1.05, 2021- 0.93).

	2020	2021	2022
Current Ratio	1.53	1.46	1.39
Quick Ratio	1.09	0.99	0.87

Leverage Ratios

The Debt-to-Asset Ratio for Caterpillar stands marginally below the industry benchmark at 0.52, indicative of a modest decrease in leverage in proportion to its assets. Concurrently, the Debt-to-Equity Ratio, at a higher point than the industry average of 1.01, exhibits a declining trajectory.

This elevated Debt-to-Equity Ratio, surpassing 2, is likely attributed to Caterpillar's strategic use of debt financing to foster rapid expansion initiatives, such as the capital-intensive launch of hydrogen-powered solutions in 2021. This approach effectively accelerates growth while preserving shareholder equity from dilution. Overall, these leverage metrics suggest a consistently stable financing framework within Caterpillar.

	2020	2021	2022
Debt to Asset	0.47	0.46	0.45
Debt to Equity	2.42	2.29	2.33

MODEL ASSUMPTIONS

Revenue Growth

Operations tied to economic growth

Caterpillar Inc. (NYSE: CAT), a major player in the Manufacturing, Energy, and Transportation (ME&T) sector, with a focus on construction, resource extraction, and energy equipment, sees its performance closely linked to global economic conditions.

In a flourishing economy with low interest rates, minimal inflation, and reduced unemployment, Caterpillar benefits from increased investments, boosting demand for its products. However, in a climate of high interest rates and geopolitical tensions, potentially leading to trade disputes, Caterpillar faces risks to its operational stability.

This report presents three forecast scenarios – optimistic, baseline, and conservative – to illustrate how different economic conditions could impact Caterpillar's business, offering a succinct overview of potential market influences.

D&A and NWC

Historical averages based estimates

In estimating Net Working Capital (NWC) and Depreciation and Amortization (D&A), our approach involved leveraging historical data spanning the last three years. This data facilitated the computation of both D&A and NWC as percentages of the company's total revenue. Subsequently, the average of these percentage values was derived and uniformly applied across the entire five-year forecast period. This standardized approach ensures consistency and accuracy in our financial projections.

EBITDA margin

New company commitments

In alignment with the strategic direction delineated in the 2022 10-K report, Caterpillar is initiating substantial modifications to achieve its newly defined sustainability goals. This entails a commitment to the creation of innovative products that align with contemporary environmental regulations and policies.

It is anticipated that this strategic pivot will result in increased Research and Development (R&D) expenditures, subsequently impacting Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA). Consequently, the EBITDA figures have not been standardized, reflecting the financial implications of this strategic shift.

RESULTS

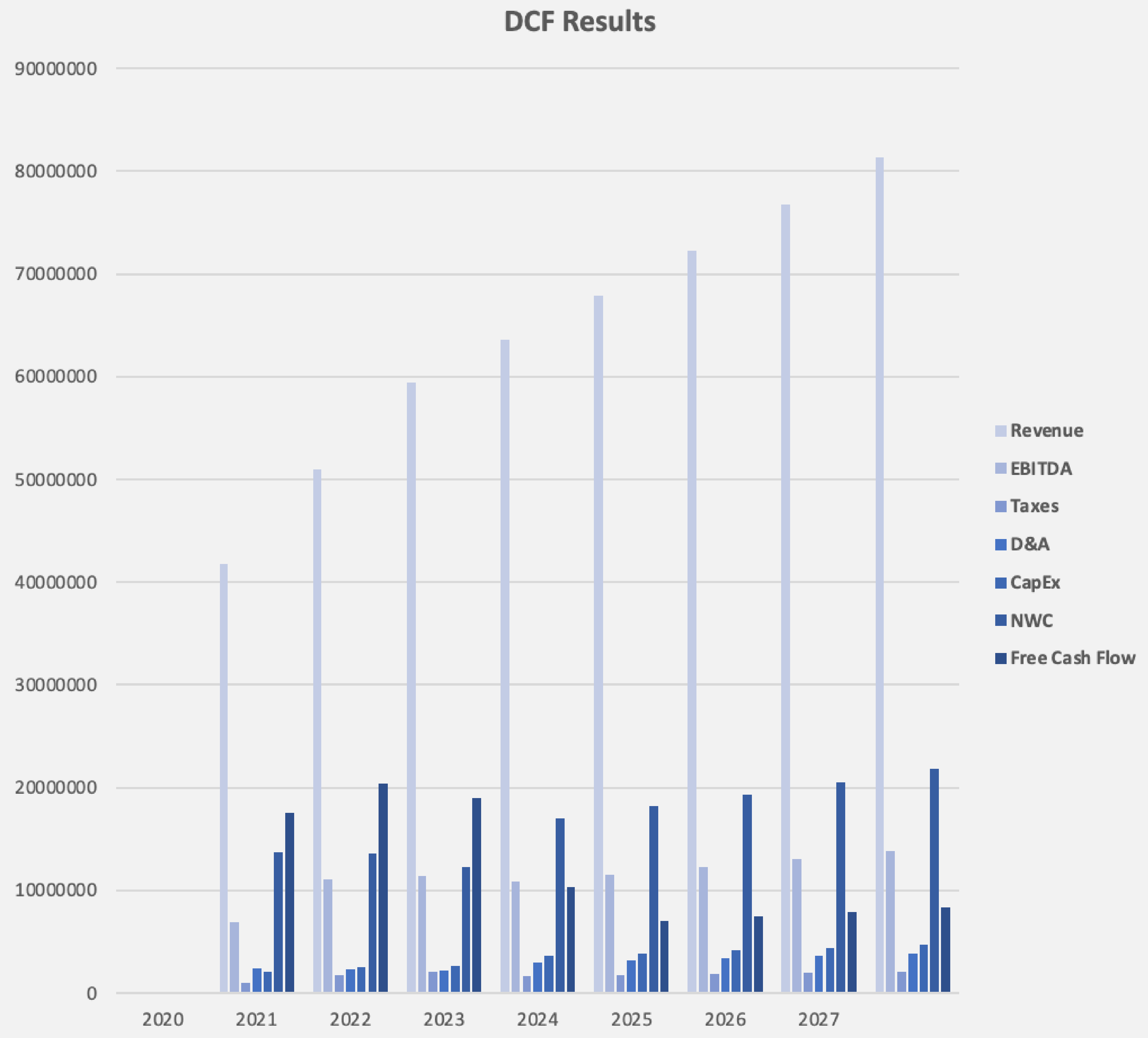
The results of the Discounted Cash Flow analysis see an overall growth in revenues, D&A and NWC. Because of the expected increase in costs incurred by the company, EBITDA experiences a slower increase.

The result is an overall stable **positive Free Cash Flow** for Caterpillar.

Valuation

For the valuation we first estimate the WACC by estimating the **Cost of Debt** using Caterpillar's bond yields not yet matured **(5.26%)** and **Cost of Equity** by taking the 30 year risk free rate for treasury bonds, the equity beta of 1,08 and the market RP for the US **(9.97%)**, for a **WACC** of **8.85%**.

Using the WACC to calculate enterprise value, and adding to it the cash in excess and CAT's total debt we get a total equity value of **$195,219,373** (in thousands), and a value per share of **$383.**



PRICE DISCUSSION

Base Case uses the **standard** calculated **WACC**, **average EBITDA margin** and linearly decreases revenues from 7% to 6% in last year. With a share value of **$383** the upside form current share price is +**55%**.

With the conservative case we deducted one percentage point from last year revenue growth, **added 0.5%** to the **WACC** and linearly reducing EBITDA margin. This incurs in a share value of **$214**
, a **-13.5%** drop from current price.

Conservative Case

$214

Base-Conservative Cases

$349

$321

$271

Base Case

$383

Base-Optimistic Cases

$856

$665

$511

Optimistic Case

$925

Finally, the **Optimistic Case** sees a **0,5% drop** in the WACC, and both revenue growth and EBITDA margin linearly **growing by one point** in last year.

With this extremely optimistic case the upside is roughly **+274%**.

LOSS

PROFIT

Closing Comments

Caterpillar is a “value stock” - proposition supported by above average dividend pay-out ratio (0.37) compared to industry peers (0.28) [and average of all industries (0.27)]

Caterpillar is a long term company with long term capital structure

Suitable as a long term investment as a top firm in a robust industry which follows trends linked to general macroeconomic performance

For a more patient investor with a long-term investment horizon, Caterpillar may be a perceived as a conservatively valued stock which will holds great future value thanks to its strong profitability

THANK YOU