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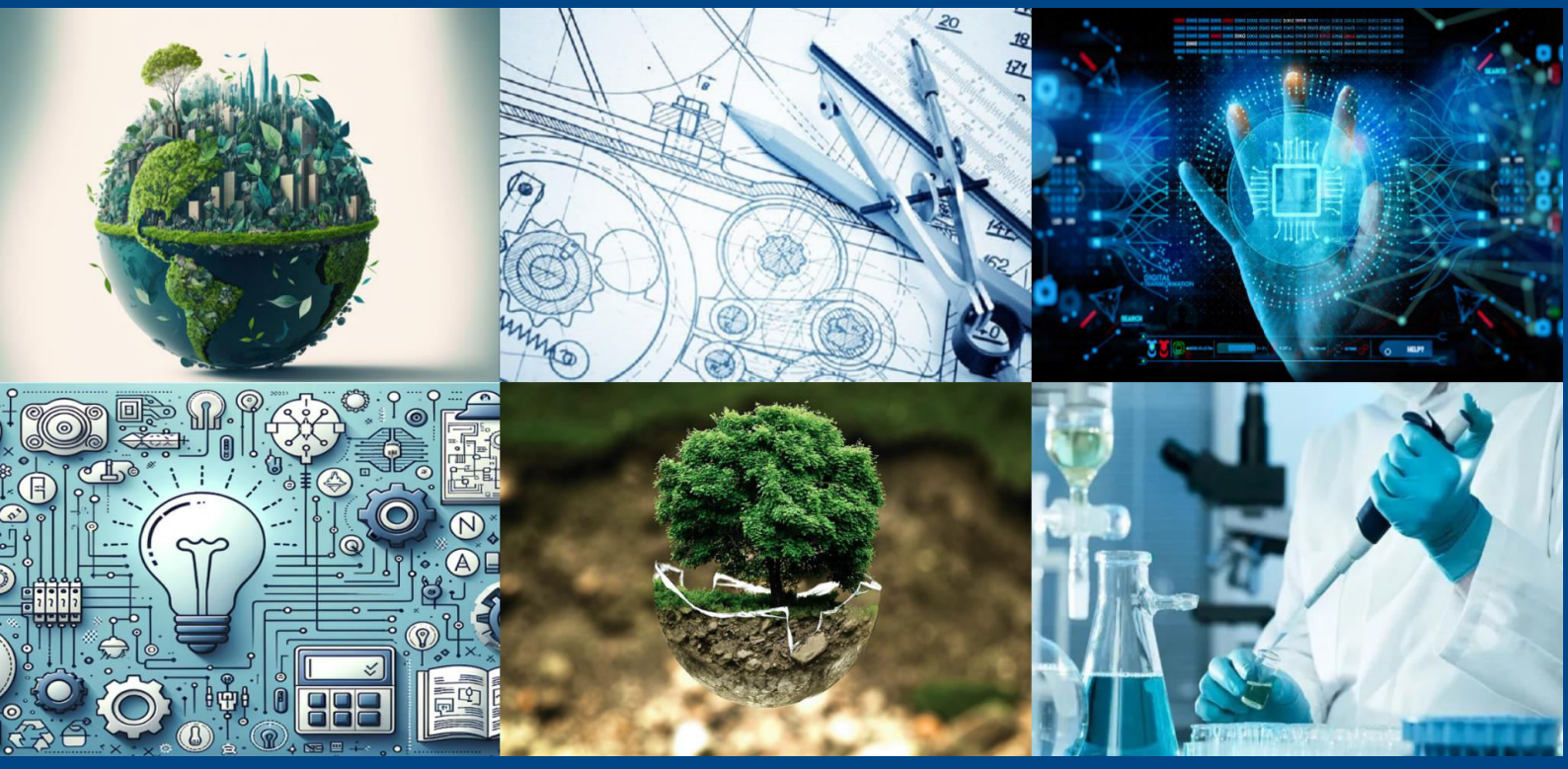

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Empirical Valuation Analysis of NVIDIA Corporation Using Integrated 3-Statement Modelling, DCF and Trading Comparables

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ABSTRACT: Accurate corporate valuation is critical in high-growth, innovation-driven industries where market prices may deviate from intrinsic value due to investor sentiment and rapid technological shifts. This study estimates the intrinsic value of NVIDIA Corporation using an integrated 3-statement financial model, Discounted Cash Flow (DCF) valuation, sensitivity analysis, and trading comparables analysis. Historical financial data from 2021–2025 were used to construct a forward-looking model projecting performance from 2026–2030. Free Cash Flow to Firm (FCFF) was estimated and discounted using a Weighted Average Cost of Capital (WACC) of 15.97% with a terminal growth rate of 3%. The DCF analysis produced an intrinsic value of USD 183.09 per share compared to the market price of USD 186.23, indicating fair valuation under base-case assumptions. Trading comparables yielded a lower implied range of USD 100.54–167.72, reflecting premium market positioning. Sensitivity analysis highlights high dependence on discount rate and terminal growth assumptions. The study concludes that NVIDIA's current valuation is broadly justified by its projected cash flows and strong profitability, though valuation risk remains sensitive to macroeconomic and growth variables.

KEYWORDS: Financial Modelling, Discounted Cash Flow, Free Cash Flow to Firm, WACC, Trading Comparables, Intrinsic Value

I. INTRODUCTION

The increasing complexity of global capital markets necessitates robust and forward-looking valuation techniques. Traditional ratio analysis alone is insufficient for evaluating high-growth firms operating in dynamic technological environments. NVIDIA Corporation, a global leader in graphics processing units (GPUs), artificial intelligence (AI) infrastructure, and accelerated computing, has experienced substantial market capitalization growth in recent years.

Such rapid expansion raises critical valuation questions: Does NVIDIA's market price accurately reflect its intrinsic value? Or is it influenced by growth optimism and speculative momentum?

This study applies an integrated valuation framework combining:

- 3-Statement Financial Modelling
- Discounted Cash Flow (DCF) Analysis
- Sensitivity Testing
- Trading Comparables Analysis

The objective is to determine whether NVIDIA's current market price aligns with its projected cash-generating capacity and long-term growth expectations.

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II. REVIEW OF LITERATURE

Extensive literature supports the application of DCF and comparable valuation techniques. Penman (1997) demonstrated that valuation models converge conceptually but are highly sensitive to terminal value estimation. Steiger (2008) emphasized that small changes in WACC and growth assumptions significantly affect valuation outcomes.

Cooper and Nyborg (2006) highlighted the importance of consistent leverage assumptions when applying DCF frameworks. Nissim (2019) found that terminal value estimation methods strongly influence overall firm value, often contributing more than 60% of enterprise value.

Comparable company valuation studies by Sommer and Wöhrmann (2011) suggest that EBITDA and EBIT multiples provide superior valuation accuracy compared to sales multiples. Choi and Kang (2021) proposed algorithmic improvements to traditional comparables analysis, enhancing objectivity.

The literature collectively indicates that:
- DCF is theoretically sound but assumption-sensitive.
- Terminal value dominates valuation output.
- Multiples provide market benchmarking but may understate high-growth firms.

This study integrates both intrinsic and relative approaches to enhance valuation robustness.

III. RESEARCH METHODOLOGY

A. Research Design
The study adopts a quantitative, analytical research design using secondary financial data. A bottom-up financial modelling approach is applied to project future financial statements.

B. Data Source
- NVIDIA Annual Reports (2021–2025)
- Public financial disclosures
- Market price data

Forecast period: 2026–2030

C. Analytical Tools
1. Integrated 3-Statement Model
2. Free Cash Flow to Firm (FCFF) Calculation
3. Discounted Cash Flow (DCF) Valuation
4. Sensitivity Analysis
5. Trading Comparables Analysis

D. Hypothesis
H_0: There is no significant difference between intrinsic value (DCF) and market price.
H_1: There is a significant difference between intrinsic value (DCF) and market price.

IV. RESULTS AND DISCUSSION

A. Segment Revenue Analysis
Between 2021 and 2025, total revenue increased significantly, driven primarily by the Compute and Networking segment. Revenue mix shifted from Graphics dominance (59% in 2021) to Compute dominance (89% in 2025), reflecting NVIDIA's AI-focused transformation.
This structural shift supports aggressive forward projections in the financial model.

B. 3-Statement Financial Model
The integrated financial model projects sustained revenue expansion and stable gross margins (~75%). EBIT and net income demonstrate strong operating leverage.

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Balance sheet projections indicate increasing retained earnings and strong liquidity, while cash flow analysis confirms rising operating cash generation sufficient to fund capital expenditures.
The projections are internally consistent and aligned with historical profitability trends.

C. Free Cash Flow Analysis
Projected FCFF increases steadily over the forecast horizon, driven by:
- Rising EBIT
- Stable reinvestment requirements
- Strong operating margins

This validates the application of intrinsic valuation techniques.

D. Discounted Cash Flow (DCF) Valuation
Key Assumptions:
- Cost of Equity: 16.0%
- After-Tax Cost of Debt: 3.6%
- WACC: 15.97%
- Terminal Growth Rate: 3%

Valuation Output:
- Enterprise Value: USD 4.57 trillion
- Equity Value: USD 4.54 trillion
- Intrinsic Value per Share: USD 183.09

The DCF value is marginally below the market price of USD 186.23, suggesting fair valuation.
Terminal value contributes approximately 70% of enterprise value, consistent with academic findings regarding long-horizon valuation models.

E. Sensitivity Analysis
Valuation sensitivity testing indicates:
- At 15% WACC → Intrinsic value ≈ USD 198–200
- At 17% WACC → Intrinsic value ≈ USD 167–169

Changes in terminal growth assumptions significantly influence valuation outcomes.
Thus, valuation risk remains highly sensitive to capital market conditions.

F. Trading Comparables Analysis
Peer group includes AMD, Broadcom, and Qualcomm.
Median Multiples:
- EV/EBITDA: 40x
- EV/Sales: 7.6x

Implied Valuation Range:
USD 100.54 – 167.72
The current market price exceeds peer-implied valuation, indicating a premium valuation supported by superior growth expectations.

G. Comparative Valuation Summary

Table 1: Valuation comparison

Method	Value per Share (USD)
DCF	183.09
Market Price	186.23
Trading Comps	100.54 – 167.72

DCF aligns closely with market value, while comparables indicate conservative benchmarks.

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V. CONCLUSION

This study applied integrated financial modelling and valuation techniques to estimate NVIDIA's intrinsic value. The 3-statement projections demonstrate strong revenue scalability, expanding profitability, and increasing free cash flow generation.

The DCF valuation estimates a fair intrinsic value of USD 183.09 per share, closely aligned with the prevailing market price of USD 186.23. Sensitivity analysis reveals high dependence on discount rate and terminal growth assumptions. Trading comparables indicate that NVIDIA trades at a premium relative to peers.

Overall, NVIDIA appears fairly valued under base-case assumptions, with valuation risk primarily driven by changes in macroeconomic conditions and long-term growth expectations.

LIMITATIONS

- High dependence on forecast assumptions
- Terminal value dominance
- Limited peer selection
- Market sentiment not explicitly modelled

FUTURE RESEARCH

- Scenario-based valuation (Bull/Base/Bear cases)
- Sum-of-the-Parts (SOTP) valuation
- Monte Carlo simulation for WACC uncertainty
- Incorporation of machine-learning-based comparable selection

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