NVIDIA Corporation Equity Valuation

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Dissertation written under the supervision of professor José Tudela Martins

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Abstract

This thesis explores the application of equity valuation to NVIDIA Corporation, a leading player in the semiconductor and artificial intelligence industries. The primary objective is to determine NVIDIA's intrinsic value through two valuation methodologies: the Adjusted Present Value (APV) model and market multiples. The APV model yields a target share price of $105 as of January 26, 2025, supported by a relative valuation analysis to ensure consistency with the market pricing of comparable companies. When measured against the market value on November 20, 2024, the findings indicate a potential -28% return, leading to a SELL recommendation. Finally, these results are contrasted with equity research published by Deutsche Bank, highlighting differences in assumptions and valuation methodologies.

Keywords: Semiconductors; Intrinsic and Relative Valuation; Equity Research; NVIDIA Corporation

Resumo

Esta tese avalia o valor das ações da NVIDIA Corporation, uma das principais empresas nos setores de semicondutores e inteligência artificial. O principal objetivo é determinar o valor intrínseco da empresa através de duas metodologias de avaliação: o modelo de Valor Presente Ajustado (APV) e os múltiplos de mercado. O modelo APV indica um preço-alvo de $105 a 26 de janeiro de 2025, valor que é complementado por uma análise de avaliação relativa para garantir a consistência com os preços de mercado de empresas comparáveis. Quando comparado com o valor de mercado a 20 de novembro de 2024, os resultados indicam um retorno potencial de -28%, levando a uma recomendação de VENDA. Por fim, estes resultados são analisados em paralelo com a pesquisa de mercado publicada pelo Deutsche Bank, destacando as diferenças nos pressupostos e metodologias de avaliação.

Palavras-chave: Semicondutores; Avaliação Intrínseca e Relativa; Análise de Ações; NVIDIA Corporation

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Table of Contents

List of Abbreviations

FY	Fiscal Year
APV	Adjusted Present Value
FCF	Free Cash Flows
DCF	Discounted Cash Flows
WACC	Weighted Average Cost of Capital
EBITDA	Earnings Before Interest, Taxes, Depreciation, and Amortization
CAPM	Capital Asset Pricing Model
MRP	Market Risk Premium
US	United States
DDM	Dividend Discount Model
PV	Present Value
RIM	Residual Income Model
ROE	Return on Equity
EVA	Economic Value Added
RI	Residual Income
NI	Net Income
BV	Book Value
GBM	Geometric Brownian Motion
PE	Price-to-Earnings
EV	Enterprise Value
EPS	Earnings per Share
M&A	Mergers and Acquisitions
NAV	Net Asset Value
R&D	Research and Development
GPU	Graphics Processing Unit
AMD	Advanced Micro Devices
CPU	Central Processing Unit
TPU	Tensor Processing Unit
IPO	Initial Public Offering
CUDA	Compute Unified Device Architecture
HPC	High-Performance Computing
PC	Personal Computer
OEM	Original Equipment Manufacturer
CMP	Cryptocurrency Mining Processor
CAPEX	Capital Expenditures
YTD	Year-to-Date
SoC	System-on-a-Chip

List of Exhibits

1. Introduction

In the world of finance, numbers tell stories. To unlock the true worth of an asset is not a simple task: behind every figure lies a narrative of growth, stability or decline, and this narrative only emerges through the process of valuation.

NVIDIA Corporation is a name synonymous with next-generation technology in the semiconductor and AI sectors. But what is the real worth of a company driving such transformation?

This thesis seeks to address this question, centering the analysis on a valuation date aligned with the end of NVIDIA’s Fiscal Year 2025, which concludes on January 26, 2025. This falls on the last Sunday of January, a standard practice for NVIDIA.

Using fundamental valuation techniques like Adjust Present Value and market multiples, it is possible go over the market noise and short-term price fluctuations to find the intrinsic value of this tech giant.

And as with any great journey, there’s a destination. By the end, this thesis offers more than just a valuation, it provides an investment recommendation based on the gap between the intrinsic value discovered and the market price.

2. Literature Review

This chapter provides a review of valuation methodologies that are fundamental to assessing the worth of assets, companies, and investment opportunities.

In NVIDIA's case, a company operating within a fast-evolving and highly competitive industry, it is essential to continuously reassess its worth. Market Capitalization is often the simplest and most commonly used method to value publicly traded companies, calculated by multiplying the company's stock price by its total outstanding shares.

$$1)\ Market\ Capitalization = Stock\ Price \times Total\ Outstanding\ Shares$$

While this straightforward approach provides a quick snapshot of a company's value, it captures market sentiment at a specific moment in time and is susceptible to short-term volatility.

More sophisticated valuation methods are generally divided into three main categories:

1) Income-based approaches
2) Market-based approaches
3) Asset-based approaches

Each of these approaches provides a distinct perspective on value creation, with the selection of the most appropriate method depending on factors such as industry dynamics, data availability, and the purpose of the valuation.

Before examining into the valuation methods, it is important to provide an overview of fundamental concepts that form the basis of these approaches.

Free Cash Flow

Free Cash Flow represents the amount of cash generated by a company after accounting for capital expenditures needed to maintain or expand its asset base. FCF reflect the cash available to investors, including both equity and debt holders.

$$2)\ FCF = Operating\ Cash\ Flow - Capital\ Expenditures$$

Weighted Average Cost of Capital

The Weighted Average Cost of Capital represents the overall cost a company incurs for the capital it uses to finance its operations. WACC is calculated as the weighted average of the cost of equity and the cost of debt, proportionate to the company's capital structure. WACC serves as the discount rate in traditional DCF models and assumes a static capital structure.

$$3)\ WACC = \frac{E}{E+D} \times r_e + \frac{D}{E+D} \times r_d \times (1-T)$$

$Where$:

$E = Market\ Value\ of\ Equity$

$D = Market\ Value\ of\ Debt$

$r_e = Cost\ of\ Equity$

$r_d = Cost\ of\ Debt$

$T = Corporate\ Tax\ Rate$

Terminal Value

Terminal Value represents the value of a business beyond the forecast period in a discounted cash flow analysis. Since it is impractical to project cash flows indefinitely, the terminal value accounts for the future cash flows after the forecast period. It can be calculated using the perpetuity growth model as seen in Formula 4.

$$4)\ TV = \frac{FCF_N \times (1+g)}{r-g}$$

$Where$:

$FCF_n = Last\ Free\ Cash\ Flow\ Projected$

$g = Perpetual\ Rate$

$r = Discount\ Rate$

Cost of Equity

The Cost of Equity is the return that equity investors expect to receive for investing in a company. It is typically derived using the Capital Asset Pricing Model (CAPM), which factors in the risk-free rate, the company's beta, and the market risk premium, as in Formula 5).

$$5)\ r_e = r_f + \beta \times MRP$$

$Where$:

$r_e = Cost\ of\ Equity$

$r_f = Risk\ free\ rate$

$\beta = Beta\ of\ the\ stock$

$MRP = Market\ Risk\ Premium$

Risk-Free Rate

The Risk-Free Rate is the return on investment expected from an asset that is considered free of risk, typically government bonds from a stable country, such as U.S. Treasury bonds. It represents the time value of money.

Beta

Beta is a measure of a stock's volatility in relation to the overall market. A beta value greater than 1 suggests that the stock is more volatile than the market, while a beta less than 1 indicates lower volatility.

$$6)\ \beta = \frac{Cov(Stock\ Returns, Market\ Returns)}{Var(Market\ Returns)}$$

Market Risk Premium

The Market Risk Premium is the excess return that investors expect from investing in a risky market portfolio compared to risk-free investments.

$$7)\ MRP = Expected\ Market\ Return - r_f$$

Income-based approaches

After reviewing the basic terms of valuation, we will now turn to the valuation approaches. The income-based approaches focus on the future earnings potential of a company or asset. The most well-known method in this category is the Discounted Cash Flow (DCF) model, which calculates the present value of a company's expected future free cash flows, discounted using an appropriate rate (usually WACC). This approach was first formalized in economic theory by Irving Fisher (1930) and later by John Burr Williams (1938). The DCF method is built on the assumption that the intrinsic value of a business is the sum of its discounted future cash flows.

$$8)\ DCF = \sum \frac{FCF_t}{(1 + WACC)^t}$$

Where:

FCF_t = Free Cash Flow in period t
$WACC$ = Weighted Average Cost of Capital
t = Time Period

There are a lot of variations of the DCF method. One of them is the Dividend Discount Model (DDM), which was first introduced over a century ago and remains a valuable tool for valuing companies that regularly pay dividends. This model discounts expected future dividend payments to their present value, typically concluding with a perpetuity at the end. Its practical application can be challenging as companies often do not base their dividends directly on Free Cash Flow (FCF), which would provide a more accurate reflection of their financial health. Instead, dividends are frequently used as signals to the market, regardless of whether the payout aligns with actual FCF generation. This can lead to an overvaluation of companies, as they might distribute more than what their FCF would justify.

$$9)\ DDM = \frac{D_1}{r - g}$$

Where:

D_1 = Dividend expected in the next period

r = Required rate of return (cost of equity)
g = Dividend growth rate

As an extension of the traditional Discounted Cash Flow method, the Adjusted Present Value (APV) was introduced by Stewart Myers in 1974. APV separates the firm's value into two distinct parts: the value of the firm as if it were entirely equity-financed and the value added by financing decisions. This approach is particularly advantageous in scenarios where the capital structure (debt-equity ratio) of a company is not expected to stay the same and when there are benefits associated with financing, such as tax shields. Basically, this method highlights clearly how specific financing decisions, like debt financing and the resulting tax benefits, contribute to overall firm value. Other factors such as costs of financial distress or subsidies from debt can also be included.

The formula for APV is:

$$10)\ APV = V_L + V_U + PV(Tax\ Shields) - PV(Costs\ of\ Financial\ Distress)$$

Where:

- $V_L$is the levered firm value (with debt)

- V_U is the unlevered firm value (without debt)

- $PV(Tax\ Shields)$ represents the present value of the tax benefits of debt,

- $PV(Costs\ of\ Financial\ Distress)$ accounts for any potential costs associated with taking on debt.

The APV model can be further developed with stochastic elements such as Geometric Brownian Motion (GBM), introducing variability to the model. GBM is a widely used mathematical process for modeling the random behavior of variables and it incorporates two moments of the statistical distribution: both a drift and volatility (for random fluctuations).

The GBM framework assumes that the variable we are modeling, such as sales or cost structures, follows a stochastic process where:

1. Prices or values are lognormally distributed, which avoids negative outputs. Additionally, all final values are reverted to the normal scale by exponentiating log-scale outcomes. (see equation 16 and 17)

2. The process models the changes in these variables, focusing on yearly returns.

3. The model is based on the assumption that residuals are independent and normally distributed, allowing us to ignore skewness or kurtosis.

4. It is non-stationary, indicating that it does not revert to a long-term mean.

The drift term $(\mu - \frac{1}{2}\sigma^2)$ accounts for expected growth, while the volatility σ captures random fluctuations. The model was implemented by generating 5,000 simulation paths.

16) $Ln\,(P_t) = (\mu - \frac{1}{2}\sigma_2)\,dt + Ln\,(P_{t-1}) + \varepsilon_t, where\ \varepsilon_t = \sigma Z_t$

17) $e^{Ln(Pt)}$

In the cost modeling, the GBM framework can be used, similar to the one applied for sales. However, recognizing the dependency of costs on sales, the model should incorporate a correlation term, ρ, into the equation for costs. While sales are an independent lognormal process, the costs followed a correlated Wiener process, where the correlation ρ captures the relationship between the two variables.

18) $Ln\,(P_t) = (\mu - \frac{1}{2}\sigma_2)\,dt + Ln\,(P_{t-1}) + \varepsilon_t, where\ \varepsilon_t = \sigma Z_t\,(\rho + \sqrt{1-\rho^2})$

19) $e^{Ln(Pt)}$

Another income-based approach is the Residual Income Model (RIM), from the late 19th century. This model had Alfred Marshall as a key contributor and measures excess income after accounting for the cost of equity, providing a view of profitability by factoring in both earnings and the cost of capital.

By focusing on the difference between the return on equity (ROE) and the cost of equity (Ke), the model reflects whether a firm is generating value in excess of the equity capital required by investors. A notable drawback of the RIM lies in the book value of equity, since it can misrepresent value creation or destruction when book value does not accurately reflect the true economic condition of a firm. It can be inflated or outdated.

$$20)\ RIM = BV_0 + \sum \frac{RI_t}{(1+r)^t}$$

Where:

BV_0 = Book value of equity at time 0

RI_t =Residual income in period t

r = Cost of equity

Residual income is calculated as:

$$21)\ RI_t = NI_t - r \times BV_{t-1}$$

Where:

NI_t = Net income in period t

BV_{t-1} = Book Value of equity in period t-1

Market-based approaches

In contrast, market-based approaches derive value from the pricing of similar assets. The Comparable Companies Analysis (dates back to the 1930s from Harvard economists) involves using valuation multiples from a peer group to estimate a company's worth.

P/E Multiple:

$$22)\ P/E\ Multiple = \frac{Price\ per\ Share}{Earnings\ per\ Share}$$

EV/EBITDA Multiple:

$$23)\ EV/EBITDA\ Multiple = \frac{Enterprise\ Value}{EBITDA}$$

EV/Revenues:

$$24)\ EV/Revenues\ Multiple = \frac{Enterprise\ Value}{Revenues}$$

Multiples can be based on either historical data or forward-looking estimates. Trailing Twelve Months multiples rely on the last four quarters of reported data and forward multiples project a company's valuation based on expected future performance, using Forward 12 Months data (next four quarters of expected financial results).

For instance, as NVIDIA's Fiscal Year ends on the last Sunday of January, F12M includes the last quarter of 2024 and the first three quarters of 2025. In contrast, the T12M reflects the last four quarters of available data, meaning the first three quarters of 2024 and the last quarter of 2023.

Another market-based approach, Precedent Transactions Analysis, is commonly used in M&A to estimate a company's value based on the multiples paid in past transactions involving similar companies. This is particularly valuable in buyout scenarios, but can be influenced by the market conditions at the time of the transactions.

Asset-based approaches

Finally, asset-based approaches focus on the company's underlying assets and liabilities. The Net Asset Value (NAV) method is commonly used for companies with substantial tangible assets, such as real estate firms, by subtracting liabilities from asset values. However, this method often falls short for companies with significant intangible assets or high growth potential.

$$25)\ NAV = Total\ Assets - Total\ Liabilities$$

Vasicek Model

In this part of the thesis two approaches were used regarding interest rates: the Vasicek Model and the CIR (Cox-Ingersoll-Ross) Model.

The Vasicek Model focuses specifically on modeling the level of the yield curve, without explicitly incorporating additional factors such as inflation risk (which influences the slope) or credibility risk (affecting the curvature). Despite being a one-factor-model, the model effectively captures expectations for interest rate movements. Historically, this is supported by data from the Correlation Matrix of USD Libor and Swaps (1988-2009), which shows a R-squared of over 50% in explaining yield curve. This level is strong for a single-factor model and provides a solid foundation for the yield curve analysis.

The Vasicek Model assumes that interest rates follow a normal distribution and that the process is mean-reverting, with speed k, implying that rates will tend to move toward a long-term average (θ). This model operates under a risk-neutral process, and is well-suited for Monte Carlo simulations, with the key assumption being static volatility in interest rate movements. It can present negative values, which makes it particularly relevant according to recent history where interest rates were negative.

$$26)\ \Delta r_t = k(\theta - r_{t-1})\Delta t + u_t$$

Where:

k = Speed

θ = Long-Term Average

Δr_t = Interest Rate Change

r_{t-1} = Interest Rate at time t-1

Δt = Time Interval

u_t = Random Shock at time t

CIR Model

The CIR Model was employed specifically for spreads. It also assumes mean-reverting behavior, but incorporates the more realistic notion that volatility changes with the level of the rate. The CIR model presumes that the basis-point volatility of short-term rates is proportional to the square root of the rate, ensuring that rates remain positive without needing to impose a lognormal distribution. This model is suitable for real-world scenarios where volatility is not static, and it is commonly used in risk-neutral processes. It also has the capacity to prevent negative rates/spreads.

$$27)\ \Delta r_t = k(\theta - r_t)d\Delta + \sigma\sqrt{\Delta t}\sqrt{r_t}u_t$$

Where:

k = Speed

θ = Long-Term Average

Δr_t = Interest Rate Change

r_t = Interest Rate at time t

Δt = Time Interval

u_t = Random Shock at time t

3. Industry Overview

History and Key Trends

The semiconductor industry traces its roots back to the mid-20th century, when the invention of the transistor in 1947 revolutionized electronics, leading to the development of integrated circuits in the 1960s. This marked the beginning of the industry's explosive growth, with companies like Intel and Texas Instruments playing key roles.

After the last years of the 20th century, with the rise of the internet, smartphones, and mobile computing, the demand for semiconductors reached new highs.

Nowadays, the industry holds critical sectors such as consumer electronics, industrial automation, gaming, and artificial intelligence. Although demand for chips and related devices declined in the first half of 2023, market forecasts suggest a strong rebound in 2024.

This recovery is not just a short-term correction, but part of a larger, promising long-term trend. In fact, the global semiconductor market is expected to reach over $1 trillion by 2030, up from $600 billion in 2021[1].

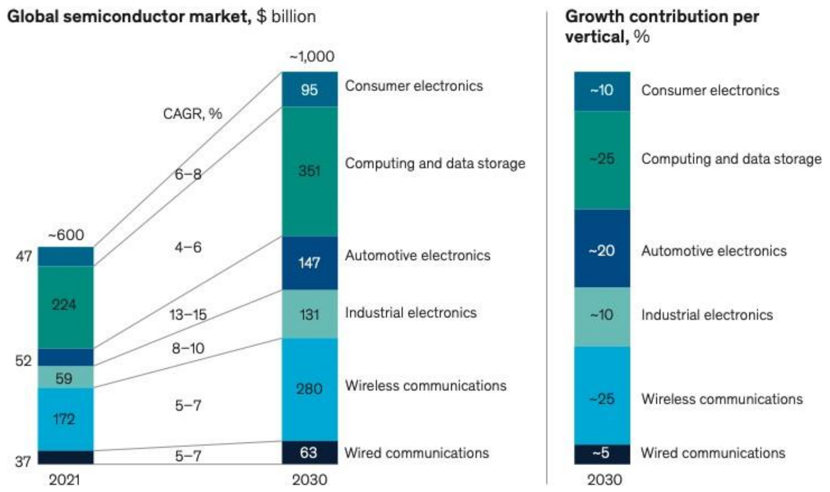

Figure 1 - Global Semiconductor Market Projections

This rapid growth of artificial intelligence is tied to changes in consumer habits, as society increasingly adopts digital solutions that demand faster, smarter, and more efficient computing power. Simultaneously, the world is transitioning from Web 2.0 to Web 3.0, marking a

[1] Numbers by *McKinsey on Semiconductors: Creating Value, Pursuing Innovation, and Optimizing Operations*, March 2024

fundamental change in the digital landscape. Web 2.0 is focused on centralized platforms, where companies hold control over user data and digital interactions. Now, web 3.0, powered by blockchain technology, decentralizes control, offering users ownership of their data and enabling more secure, transparent transactions. This shift is accelerating NVIDIA's revenues, as the world migrates from a central processing unit (CPU) dominated world to GPU-accelerated computing. The emergence of Web 3.0 is a shift in how industries operate and create value. Current estimates place the digital economy at approximately 20% of global economy (GDP), with projections from Citibank, Morgan Stanley, and Goldman Sachs suggesting that the Web 3.0 market could grow into an $8-12 trillion industry by 2030 - accounting for nearly half of the future digital economy.

Competitors

Among the various segments within this industry, the data center GPU market stands out as one of the most well-documented. This segment is dominated by a few well-established companies, and NVIDIA has consistently maintained a leading market share, rising to 94.0% in 2024 (Figure 2). In the following sections, a short analysis of the roles, strategies, and market positioning of the key players in NVIDIA's industry is conducted.

Year	NVIDIA Share (%)	AMD Share (%)	Intel Share (%)
2017	87.5%	9.5%	3%
2018	91.9%	7.8%	0.3%
2019	91.8%	8.2%	-0%
2020	96.6%	3.4%	-0%
2021	95.8%	4%	0.2%
2022	97.3%	2.6%	0.1%
2023	98.0%	1.2%	0.8%
2024	94.0%	4.2%	1.8%

Figure 2 - GPU Market Share by Company

NVIDIA

NVIDIA has solidified itself as a premium brand in the semiconductor market, particularly excelling in GPUs and AI-focused hardware. With an early lead in AI chips and a strong presence in gaming GPUs, NVIDIA has been powering AI workloads and data centers.

AMD

AMD (Advanced Micro Devices) competes in both the CPU and GPU markets. The company's Ryzen and EPYC series have made it a strong competitor to Intel in the CPU market. AMD's ability to offer competitive pricing without sacrificing performance has been key to its market share gains. With its Radeon GPUs challenging NVIDIA’s dominance, AMD is pushing further into data centers and AI, sectors that will define its future success.

Intel

Intel has long dominated the CPU market, holding approximately 60% market share globally. Despite strong brand recognition and manufacturing capabilities, Intel has been criticized for technological delays and setbacks, especially in keeping up with NVIDIA in AI and GPU segments. Intel's recent deal with Microsoft around the 18A chip signals its ambition to reinvent itself in the data center and AI spaces. This partnership aims to deliver high-performance chips for AI workloads, giving Intel a new edge.

Broadcom

Broadcom is another heavyweight in the semiconductor industry, primarily focusing on custom chips for hyperscalers and infrastructure software solutions. Its specialty is in developing tailored solutions for smartphone manufacturers, telecommunications providers, data centers and cloud providers.

Qualcomm

Qualcomm is a leading player in the semiconductor industry, known for its focus on wireless communication technologies and advanced chipsets. The company specializes in developing solutions for smartphones, IoT devices, automotive applications, and telecommunications infrastructure. Qualcomm’s strength lies in its leadership in 5G technology, providing high-performance processors and modems.

4. Company Overview

History of the Company

As the AI revolution reshapes the world, NVIDIA's story is being rewritten. To understand its journey, let's go back to its foundation.

NVIDIA was founded in 1993 by Jensen Huang, Chris Malachowsky, and Curtis Priem with the vision of advancing graphics processing technologies. Initially focused on developing graphics processing units for gaming and visual computing, NVIDIA rapidly grew into a market leader. A significant breakthrough came in 1999 when the company introduced the GeForce 256, considered the world's first GPU.

What also marked NVIDIA's success is its CUDA programming language, introduced in 2006. CUDA enables developers to leverage the processing power of NVIDIA GPUs for a wide range of tasks and it became a trusted platform for developers, accelerating innovation and adoption.

Although traditionally known for its hardware power, NVIDIA has also been steadily transforming itself into a company that integrates both hardware and software solutions. This can be seen as an ecosystem approach, following the model of companies like Apple.

Over the last decade, NVIDIA has continually pushed the boundaries of its hardware performance and energy efficiency. The introduction of its Blackwell architecture (in October 2024) represents a continuation of this trend as the chip has enabled up to 100,000x energy savings in AI workloads.

Blackwell adoption is already underway by every major cloud service provider, server maker, and leading AI company, including Amazon, Google, Meta, Microsoft, OpenAI, Tesla, and xAI.

NVIDIA's business is organized into several key segments, each contributing significantly to the company's revenue and growth. In the table below, we see how the revenues in the first three quarters of this year are divided within each segment. All tables presented in this thesis report values expressed in millions.

Segments	2024Q1A	2024Q2A	2024Q3A
Data Center	22.600	26.300	30.800
Gaming	2.600	2.900	3.300
Automotive	329	346	449
Professional Visualization	427	454	486

Figure 3 - NVIDIA Revenue by Segment

1) Data Centers: This segment has become NVIDIA's most critical source of revenue, contributing more than 80%-90% of total sales in recent years. NVIDIA provides GPUs and software solutions for data centers that handle demanding tasks such as AI models, high-performance computing, and cloud services. The growth of AI-driven applications and the need for scalable computing power have made NVIDIA's offerings essential in this space.

NVIDIA's GPUs have become indispensable for the companies. One example is the manufacturing giant Foxconn, which is using the company's products to create a digital twin of its new factory in Mexico. This digital twin, which is basically a virtual replica of the physical system (that can be used for simulations, testing, and optimization), is expected to drive automation in the factory and achieve a 30% reduction in annual energy consumption.

2) Gaming: This segment supplies GPUs to gaming consoles, PCs, and eSports platforms and represented (on average) 10% of sales in the most recent years. NVIDIA's GPUs are known for providing superior graphics performance and smooth experiences.

3) Professional Visualization: This segment is focused on industries that require advanced graphics capabilities, such as media and entertainment, architecture, product design, and engineering (2% of sales in the most recent years). NVIDIA's GPUs and related software provide high-quality rendering, simulation, and visualization, making it an important tool for professionals in these fields. Its technology supports 3D design and virtual reality applications.

4) Automotive: NVIDIA's Automotive segment is still small, but it is experiencing rapid growth as the company develops AI-driven solutions for autonomous driving, electric vehicles, and smart transportation systems. This segment shows an average weight of 1%-3% in revenues. NVIDIA offers platforms that use machine learning to process data from vehicle sensors, enabling self-driving technology and enhancing the safety and efficiency of vehicles.

5) OEM: The Original Equipment Manufacturer segment is where NVIDIA provides GPUs to companies that incorporate them into their own products. This includes a wide range of applications, from laptops and desktops to more specialized hardware (industrial systems/IoT devices). This segment also includes revenues from cryptocurrency mining processors (CMPs). The OEM segment is not prominently featured in the company's quarterly reports.

Next Wave for NVIDIA: Robotics

After the wave of AI Agents, the robotics sector is rapidly emerging as one of the most transformative markets of the coming decades. Projections for the robotics market underline its potential: according to Morgan Stanley, the humanoid robot population is expected to grow from 40,000 in 2030 to a staggering 63 million by 2050. Citigroup offers an even more optimistic forecast, predicting a $7 trillion humanoid robot market by mid-century, with 1.19 billion humanoid robots in operation.

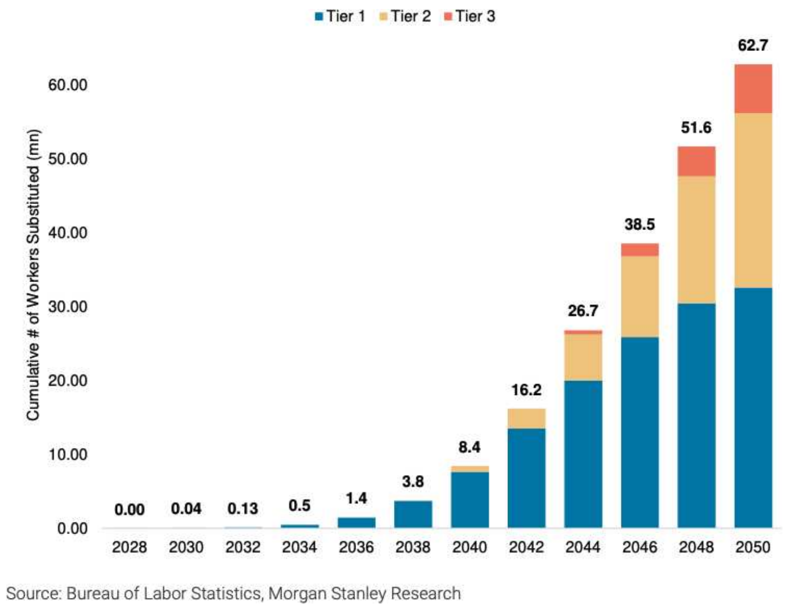

Figure 4 - Cumulative Number of US Jobs with Humanoid Optionality, 2028-50 (mn)

Data from Morgan Stanley (organized in Tiers[2]) highlights an estimated cumulative humanoid robot population that corresponds to a $3 trillion wage impact in the U.S. alone.

[2] Industries are grouped by their likelihood of adopting humanoid robots. Tier 1 (60-70%) includes physically demanding jobs like construction and healthcare, expected to adopt robots by 2028. Tier 2 (30-60%) covers sectors like transportation and sales, adopting by 2036. Tier 3 (0-30%) involves creative roles like arts, with adoption around 2040.

This growth comes from the steps in generative AI. Rev Lebaredian, NVIDIA's Vice President of Omniverse, explains:

> Breakthroughs in generative AI are bringing 3D perception, control, skill planning, and intelligence to robots. NVIDIA has strategically positioned itself to provide the "brains" behind these machines.

According to NVIDIA's annual report, they have (already) dedicated nearly a decade to advancing robotics AI.

Siemens AG, a global leader in industrial automation, is already collaborating with NVIDIA to integrate AI into automation solutions. Roland Busch, President and CEO of Siemens AG, emphasized:

> AI-powered robots will accelerate the digital transformation of industry and take over repetitive tasks that were previously impossible to automate. Together with NVIDIA, Siemens is empowering our customers and partners.

NVIDIA's annual report describes the imminent "ChatGPT moment" for robotics - a milestone where robots achieve a level of versatility and functionality like ChatGPT's impact on AI.

As the CEO stated, "the next wave of AI is around the corner."

Stock Price

NVIDIA's stock price has been a standout performer in the technology sector, significantly outperforming the S&P 500. Over the past five years, a $1 investment in NVIDIA would have grown to $9.18, an impressive 818% increase, compared to $1.73 in the S&P 500, which represents a 72.60% gain. In the last year, a $1 investment in NVIDIA would have risen to $2.79, or 179.10%, while the S&P 500 would have grown to $1.34, reflecting a 34.20% increase.

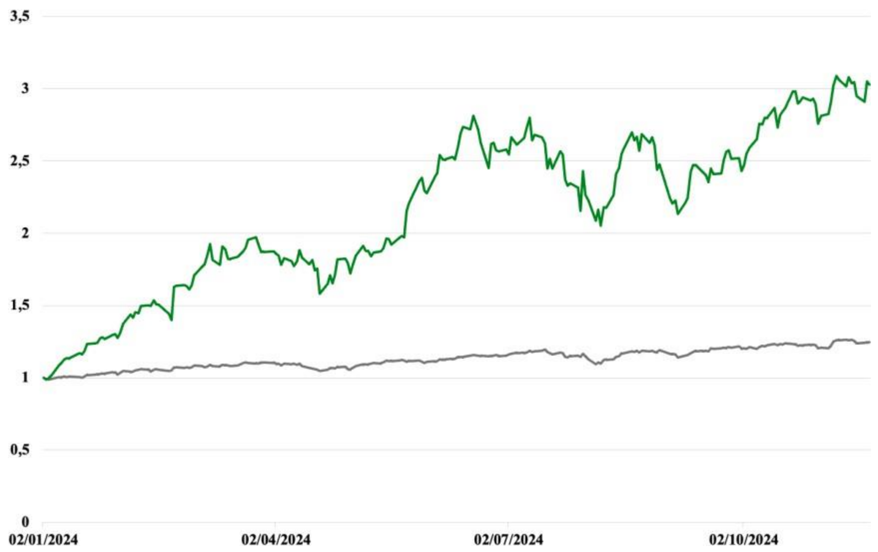

Figure 5 - NVIDIA Stock Price Performance vs. S&P500 (YTD)

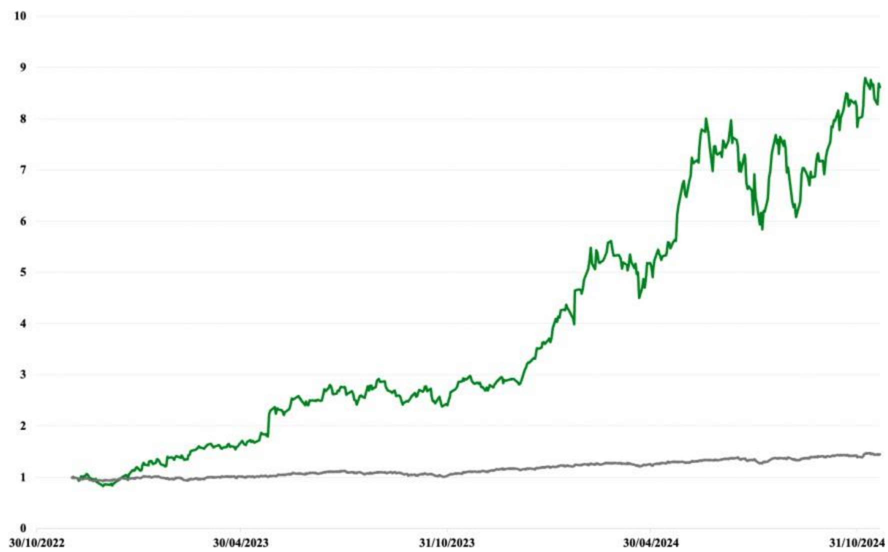

Figure 6 - NVIDIA Stock Price Performance vs. S&P500 (since ChatGPT launch)

5. Chosen Models

For the valuation, the APV model with Geometric Brownian Motion is going to be used. While the APV model is less commonly used compared to WACC-based DCF, it offers advantages, particularly in addressing the limitations of static capital structure assumptions. To provide a more complete assessment of NVIDIA's value, I will also include a multiple valuation analysis after the valuation chapter.

All estimates and forecasts are as of November 20, 2024, which is the last earnings date for NVIDIA and marks the conclusion of the research phase.

6. APV Valuation

In the modeling of NVIDIA's valuation, the analysis focuses on two key areas of corporate strategy: Investment Policy and Financing Policy.

Investment Policy

This dimension focuses on how NVIDIA allocates its resources to generate returns, primarily from the operations side.

The estimation for NVIDIA's final quarter of fiscal year 2025 is the first step on the valuation and was constructed using the company's median quarterly growth rate since the fiscal year 2021[3]. From now on I will call this sample period the "Post-COVID Sample". The choice to use this approach is based on three key considerations:

1. The median growth rate was used to avoid the impact of extreme outliers, such as the extraordinary 88% revenue growth seen in Q2 2023, which could skew projections.
2. This timeframe captures market shifts and industry dynamics crucial to NVIDIA's growth, such as the data center boom; post-COVID gaming growth and the rise of generative AI, such as ChatGPT in 2022.
3. This period also includes the global chip shortages in 2021-2022 and inflationary pressures of 2022-2023.

As we face a lot of uncertainty regarding the future, such as ongoing tensions in the Middle East or the potential chip shortages, it is essential to adopt a pragmatic approach and use a sample that captures these varied conditions as the world changed after COVID.

[3] The average tax rate was used due to minimal variability observed over the past three quarters, with rates consistently recorded at 13.88%, 13.61%, and 13.47%.

Quarterly Data of FY2025

Income Statement (figures in millions)	2025Q1A	2025Q2A	2025Q3A	2025Q4E
Revenues	**26.044**	**30.040**	**35.082**	**40.394**
Cost of Revenues	(5.638)	(7.466)	(8.926)	(9.976)
Gross Profit	20.406	22.574	26.156	30.418
Gross Margin for the Quarter	*78%*	*75%*	*75%*	*75%*
Selling, General and Administrative Expenses	(3.497)	(3.932)	(4.287)	(4.568)
Other Operating Expenses	(0.139)	(0.141)	(0.155)	(0.144)
Operating Profit	17.048	18.783	22.024	25.994
Non-Operating Income/(Expenses)	0.370	0.572	0.447	0.451
Non-Recurring Income/(Expenses)	(0.139)	(0.141)	(0.155)	(0.127)
Pre-Tax Income	17.279	19.214	22.316	26.318
Income Taxes	2.398	2.615	3.007	3.298
Net Income	14.881	16.599	19.309	23.019

Figure 7 - Quarterly Data for the 2025FY

The valuation of NVIDIA then continues with a forecast of its revenue and costs, broken down by its operating segments[4]: Automotive, Professional Visualization, Gaming, Data Center & Robotics (renamed due to the next wave of expansion), and OEM. Each variable in the valuation is simulated across 5,000 scenarios per year, with every variable analyzed period by period and path by path. The final values presented are the averages derived from these 5,000 paths.

Revenues

NVIDIA's revenues primarily consist of the sale of products and services across all business segments.

Data Center & Robotics Segment (Final Forecasted CAGR: 34%)

NVIDIA's future in DCR presents a promising trajectory, with the segment projected to grow at a 34% CAGR. This estimate is derived from the average growth rates reported by three reputable studies: McKinsey's Data Center Growth Estimates until 2030 (33% per year), the Global AI Accelerator Chips Market report by Research Dive (39% CAGR until 2031), and the AI Robots Market study by Market Research Future (30% CAGR by 2032).
This prediction was still cross-checked with other industry studies to ensure the forecast was

[4] To improve readability in the tables and figures throughout this thesis, I will adopt the following abbreviations for the business segments: the Data Center & Robotics Segment will be referred to as DCR, the Gaming Segment as Gaming, the Automotive Segment as Auto, the Professional Visualization Segment as PV, and the OEM Segment as OEM.

reliable: Dell'Oro Group forecasts that data center investments will rise by approximately 30% to $463.7 billion next year, reinforcing the upward trajectory of the Market that NVIDIA is in.

McKinsey also emphasizes the capital intensity required to scale data center infrastructure, estimating more than a trillion dollars in investment across the ecosystem. With the data center market projected to reach $1 trillion by FY2030, and the complementary AI robotics market, estimated to be worth approximately $50 billion according to Research Dive, NVIDIA is strategically positioned to capitalize on these opportunities.

Data Center & Robotics Segment	
DCR Drift	**34%**
Data Center Growth Estimates until 2030 (by McKinsey)	33%
Global AI Accelerator Chips Market (by Research Dive)	39%
AI Robots Market (by Market Research Future)	30%

Figure 8 - DCR Segment Projections

Two major factors drive these impressive CAGRs of the studies. On the demographic side, many developed economies are dealing with aging populations and declining workforce participation rates, which create a need for automation to maintain productivity and economic growth. Robots, powered by advanced AI, offer an effective solution to overcome labor shortages and save billions of dollars. Meanwhile, the rise of AI agents (ChatGPT) are revolutionizing how companies operate, enabling smarter, faster, and more cost-effective solutions across sectors.

Gaming Segment (Final Forecasted CAGR: 24%)

NVIDIA's gaming segment is projected to grow at a robust CAGR of 24%, fueled by several trends that are reshaping the industry. These include rapid expansion of the eSports market, rise of the metaverse, and the increasing adoption of cryptocurrency-based games. Together, these trends are redefining gaming by creating virtual ecosystems where players can interact, compete, and transact in new ways. The metaverse market, according to Statista, is expected to grow at a CAGR of 37.73% from 2024 to 2030, reaching $507.8 billion in value, with user penetration going from 14.6% in 2024 to 39.7% by 2030. Additionally, cryptocurrency-based games are completely new in the industry, combining gaming with blockchain economies to allow players to earn, trade, and invest in digital assets. The cryptocurrency-based market was valued at $128.62 billion in 2022 and is expected to expand at a CAGR of 21.8%, reaching $614.91 billion by 2030. On the other hand, the global eSports market is also booming, projected to grow at a CAGR of 21.9%, reaching $12.4 billion by 2030, driven by increased monetization opportunities through advertising, sponsorships, and media rights.

Gaming Segment	
Gaming Drift	**24%**
Metaverse in Gaming Growth Estimates until 2030 (by Statista)	38%
eSports Market until 2030 (by Marketing Report)	22%
Blockchain Gaming Market (by Fortune Business Insights)	22%

Figure 9 - Gaming Segment Projections

Automotive Segment (Final Forecasted CAGR: 23%)

NVIDIA's automotive segment is expected to growth at a CAGR of 23% through 2030. This growth is fueled by rapid adoption of autonomous vehicles (AVs), the integration of generative AI technologies, and the increasing demand for advanced in-vehicle computing solutions. NVIDIA's DRIVE Hyperion platform is offering an end-to-end solution for AVs that includes high-performance AI computing hardware, a modular software platform, and data center-based simulation tools like NVIDIA DRIVE Sim. As AV algorithms evolve toward video transformers and more vehicles are equipped with cameras, the demand for NVIDIA's automotive data center processing is expected to grow significantly.

NVIDIA is collaborating with hundreds of partners, including automakers, tier-one suppliers, and sensor manufacturers. The introduction of generative AI in automotive applications is set to accelerate, with industry players like Mercedes-Benz adopting NVIDIA's software-defined architecture in all next-generation models.

With the AVs market (Visiongain) and generative AI in automotive (Grand View Research) both projected to grow at a 23% CAGR through 2030, NVIDIA is well-positioned to capture significant market opportunities in this sector.

Automotive Segment	
Auto Drift	**23%**
Generative AI in Automotive Growth Estimates until 2030 (by Grand View Research)	23%
Autonomous Vehicles Growth Estimates until 2030 (by Visiongain)	23%

Figure 10 - Automotive Segment Projections

Professional Visualization Segment (Final Forecasted CAGR: 14%)

NVIDIA's Professional Visualization segment is projected to grow at a CAGR of 14% through 2030, driven by advancements in 3D rendering, advanced visualization, and visualization tools. These sub-segments are estimated to grow at respective CAGRs of 20%, 11%, and 12%, reflecting the applications of visualization technologies across multiple industries. 3D rendering is demanded in architecture, product design, and gaming, while scientific research and analytics are key drivers for advanced visualization. The higher growth projection for 3D rendering can be attributed to the adoption of immersive technologies, while more moderate estimates for other tools reflect incremental advancements in software and hardware adoption.

NVIDIA is growing in this segment by leveraging its GPU computing platform to enhance productivity and enable workflows in fields such as design, manufacturing, and digital content creation.

Professional Visualization Segment	
PV Drift	**14%**
3D Rendering and Visualization Growth Estimates until 2030 (by Fortune)	20%
Advanced Visualization Growth Estimates until 2030 (by PS Intelligence)	11%
Visualization Tools Growth Estimates until 2030 (by Precedence Research)	12%

Figure 11 - Professional Visualization Segment Projections

OEM Segment (Final Forecasted CAGR: 10%)

The OEM segment's growth is projected at 10% through 2030, driven by the demand for laptops and IoT devices. Laptops are expected to grow at a CAGR of 7%, fueled by sustained remote work trends, increasing consumer preference for mobility, and need for high-performance computing solutions with AI.

IoT devices, growing at an estimated 13% CAGR, represent another driver for the segment. These devices incorporate the ongoing digital transformation across industries, from connected household gadgets to industrial equipment.

By addressing both high-performance AI laptops and connected IoT systems, NVIDIA is will benefit from the OEM market's multi-faceted growth.

OEM Segment	
OEM Drift	**10%**
Laptops Growth Estimates until 2030 (by Markets and Data)	7%
IoT Devices Growth Estimates until 2030 (by Grand View Research)	13%

Figure 12 - OEM Segment Projections

After reviewing the final data for the full year of 2024 (FY2025) and projecting each segment CAGR, it is time begin constructing the narrative that represents the foundation of this valuation. A phased growth analysis is going to be applied and this approach divides NVIDIA's growth trajectory into three distinct periods, each characterized by specific dynamics.

Phased Growth Analysis

Years	Phase	Name
FY2026	Phase 1	Margin Squeeze Period
FY2027-FY2030	Phase 2	Expansion Period
FY2031-FY2035	Phase 3	Transition Period

Figure 13 - Phased Growth Projections

With some near-term headwinds, the company is expected to experience a temporary margin squeeze that will ease over the medium term. NVIDIA is expected to sustain strong momentum in Hopper chip shipments through 2025 while ramping up shipments of its Blackwell chip. The company's execution in product development and manufacturing, particularly with Blackwell, is a key driver of growth. However, according to JP Morgan, supply tightness across components such as Chip-on-Wafer-on-Substrate and High-Bandwidth-Memory remains a challenge, although the team is actively unlocking supply capacity, with improvements throughout 2025-2026.

The Networking sub-segment in Data Centers has seen a 15% quarter-over-quarter decline due to timing issues (data center readiness) and supply shortages affecting optics, transceivers, and cabling. Strength in Infiniband, Ethernet switches, and SmartNICs partially offsets these challenges. Gross margins are projected to decline in the coming quarters (after the first quarter of 2025), driven by these higher ramp-up costs and lower production yields of new Blackwell solutions. However, as yields improve and costs are better absorbed, gross margins are forecasted to recover, reaching mid-70s by late 2025 or 2026, as noted in NVIDIA's recent press release.

NVIDIA's FY2024 report also reinforces that gross margin fluctuations can be influenced by factors such as inventory provisions, product transition complexities, and simultaneous shipments of new and prior architecture products. These dynamics are especially relevant given NVIDIA's accelerated product launch cadence. The company also stated that their inventory and manufacturing commitments have been affected by shorter component lead times.

The Figure 13 illustrates the narrative behind the growth rates for NVIDIA. The Margin Squeeze Period (FY2026) reflects an initial period of volatility and substantial growth, where margins suffer to the downside in relation to previous years, indicating challenges (as expected by CEO, IB Reports and Wall Street) due to Blackwell chip production. This is followed by the Expansion Period (FY2027-FY2030), where growth rates remain robust and grow more than costs, being upgraded in relation to the two most recent years. Volatility also decreases significantly, reflecting greater predictability and operational stability. Finally, the Transition Period (FY2031-FY2035) represents a plateau, preparing the model for the perpetuity, where growth rates get close to 2%, and volatility reduces to industry levels.

In line with industry projections and the company's guidance, the growth in cost of revenues is expected to be slightly higher than revenue growth in the short term. This results in a reduction in margins as expected by the CEO and Wall Street's consensus, which anticipates margins between 70% and 72.5%.

To model this, the average growth rate (drift, in GBM terms) for both revenues and cost of revenues was based on the trends observed during the "Post-COVID" Sample (2021-2025). This results in an initial gross margin of 70-71%.

The Initial Gross Margin

The DCR segment initial gross margin will now be used as an example, as this method as applied across all segments. To ensure realistic projections, the median was used as a central measure to prevent the impact from outliers or overly optimistic assumptions. This results in an estimated revenue growth rate for NVIDIA's data center segment of approximately 65% and a cost of revenue growth rate of around 105%. All values related to the "Post-COVID" Sample.

For FY2026, the midpoint between this median value (65%) and the projected compound annual growth rate (CAGR) for the data center segment (34%) was used, yielding a revenue growth rate of 49.6% (creating an alpha of ~15pp relative to the market).

This midpoint aligning closely with a recent Goldman Sachs' projection of 48.7% in DC revenue growth and reflects the consistent alpha NVIDIA has historically achieved relative to the GPU market. Since COVID, the GPU market has grown at an average rate of 31%, while NVIDIA's revenues have achieved an average CAGR of 47%, representing the differential alpha of 15/16 percentage points. However, the model expects this alpha to gradually decrease, with NVIDIA's growth rate converging to the DCR Segment CAGR of 34% in 2026. This transition is assumed to occur linearly over the two-year period (FY2025 and FY2026).

Regarding cost of revenues, a similar midpoint methodology (66%) was applied. The expected growth rate of cost of revenues was set between 105% (median growth rate) and 27.5% (projected CAGR for expansion period). The 27.5% figure derives from the assumption that, while margins are expected to improve medium-term, the improvement reverts to a trend consistent with historical performance.

This 27.5% is supported by an 80% cost-of-revenues-to-revenues ratio in growth rates, derived as the average over a five-year period starting from Fiscal Year 2019. Growth rates from Fiscal Years 2020 (COVID-19 impact) and 2023 were intentionally excluded, as these years represent strong anomalies that could distort the projections. Consequently, the sample was extended to ensure a more representative analysis.

The 10-Year Forecasting Period

A 10-year forecasting period is employed to address the growth expectations associated with the company. Utilizing a shorter forecasting horizon, such as five years, for example, would be inappropriate for valuation purposes, given the abrupt transition it would impose between growth phases and perpetuity.

Revenue per Segment Forecast (all values in millions)

Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total	131.561	212.460	282.829	392.827	528.564	748.541	938.974	1.120.147	1.297.676	1.457.187	1.565.350
DCR	114.994	191.778	256.384	358.963	485.180	692.402	870.500	1.038.615	1.204.789	1.354.353	1.456.186
Gaming	12.711	16.275	21.217	27.632	35.974	47.181	58.217	69.909	80.113	89.017	94.662
PV	1.978	2.134	2.426	2.773	3.140	3.631	3.961	4.313	4.602	4.882	5.076
Auto	1.622	2.025	2.532	3.164	3.951	4.972	5.924	6.919	7.765	8.509	8.986
OEM	256	249	270	296	320	355	372	391	407	425	439

Figure 14 - Revenue per Segment Projections

Cost of Revenue per Segment

According to NVIDIA's annual reports, cost of revenue consists primarily of the cost of semiconductors, including wafer fabrication, assembly, testing and packaging, board and device costs, manufacturing support costs, final test yield fallout, inventory and warranty provisions, memory and component costs, tariffs, and shipping costs. The simulation from the model is summarized in the next table.

Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total	38.806	62.310	81.057	118.520	149.971	192.852	236.740	290.718	334.729	367.507	393.181
Data Center	30.766	52.984	69.933	105.199	133.934	173.453	213.886	264.490	305.555	335.933	360.017
Gaming	6.300	7.376	8.973	10.921	13.336	16.329	19.417	22.445	25.086	27.236	28.659
Professional Visualization	627	653	684	725	775	837	898	954	1.004	1.047	1.078
Automotive	915	1125	1.292	1.494	1.738	2.036	2.334	2.615	2.863	3.062	3.193
OEM	198	172	175	181	187	196	205	214	222	229	234

Figure 15 - Cost of Revenues Projections

Data Center and Robotics: Closer Look

At this stage in the valuation process, we have modeled both revenues and the cost of revenues for the forecasting period, enabling us to take a closer look at the results for the Data Center and Robotics segment.

The DCR segment is the most relevant for the valuation model due to its significant contribution to the company's growth. This will represent the core of NVIDIA's strategic focus for the future. The other segments collectively account for 7-10% of NVIDIA's total revenues, making them less critical to the overall valuation. For a more detailed breakdown, all the inputs for the GBM model used in this thesis are included in the appendix, point 8.

Model Inputs

Phase 1: Margin Squeeze Period

Revenues			Cost of Revenues		
Year	Drift	Volatility	**Year**	Drift	Volatility
2025	49.6%	75%	**2025**	66.5%	62%

Revenues: The drift for revenues is projected at 49.6%. However, volatility is high at 75% (average of the sample of Post-COVID Sample), indicating uncertainty due to ongoing supply chain issues and ramp-up costs for the Blackwell series.

Cost of Revenues: Drift for cost of revenues is 66.5%, reflecting elevated expenses driven by supply constraints and low production yields. Volatility stands at 62%, the average of the sample of Post-COVID Sample.

Phase 2: Expansion Period

Revenues			Cost of Revenues		
Year	**Drift**	**Volatility**	**Year**	**Drift**	**Volatility**
2026	34%	69%	**2026**	27.5%	57%
2027	34%	62%	**2027**	27.5%	51%
2028	34%	56%	**2028**	27.5%	46%
2029	34%	50%	**2029**	27.5%	41%

Revenues: During this period, the drift stabilizes at 34% (CAGR consistent with multiple industry studies). Volatility, however, begins to decline linearly year-over-year, from 69% in 2026 to 50% in 2029. This trend reflects a gradual convergence toward the industry's average volatility, explained in Phase 3.

Cost of Revenues: Drift for cost of revenues decreases to 27.5% in this period, consistent with expectations of improving production yields and better cost absorption. Volatility also decreases linearly, from 57% in 2026 to 41% in 2029.

Phase 3: Transition Period (to Perpetuity)

	Revenues	
Year	Drift	Volatility
2030	28.7%	43%
2031	23.4%	37%
2032	18.1%	30%
2033	12.9%	24%
2034	7.6%	17%

	Revenues	
Year	Drift	Volatility
2030	23.3%	36%
2031	19.1%	30%
2032	14.9%	25%
2033	10.7%	20%
2034	6.5%	14%

Revenues: Revenue drift gradually declines from 28.7% in 2030 to 7.6% in 2034, as the model transitions to the perpetuity growth rate of 2.143%, which will be further detailed in the valuation chapter. Volatility also decreases steadily, from 43% in 2030 to 17% in 2034.

Cost of Revenues: Similarly, the drift for cost of revenues declines from 23.3% in 2030 to 6.5% in 2034 (transition to perpetuity), while volatility decreases from 36% to 14% over the same period.

It is important to note that the volatility is assumed to change from being firm-specific to aligning with the industry average (done by averaging the volatility in Cost of Revenues of the Peer Group[5]).

[5] In this Segment Analysis, the selection of companies was extended beyond those used in the multiple valuation analysis. While the multiple valuation focuses on a closely related set of companies - AMD, Marvell Technology, Broadcom, Intel, and Qualcomm (discussed in Multiple Valuation chapter) - the broader peer group includes Texas Instruments, Cisco Systems, and Taiwan Semiconductors. This broader inclusion aims to better approximate the industry-wide average volatility in revenues and costs by incorporating companies with a wider range of operational profiles.

Gross Margin

The evolution in Revenues and Cost of Revenues reflects precisely the narrative in terms of Gross Margin.

Metric	2024	2025	2026	2027	2028	2029
Revenue	131.561	212.505	282.858	393.006	528.763	748.781
CR	38.788	62.279	81.023	118.522	149.937	192.827
Margin	71%	71%	72%	71%	73%	74%

Figure 16 - Gross Margin Projections Part 1

Metric	2030	2031	2032	2033	2034
Revenue	939.316	1.120.517	1.298.064	1.457.688	1.565.947
CR	236.709	290.694	334.718	367.506	393.178
Margin	75%	75%	75%	76%	76%

Figure 17 - Gross Margin Projections Part 2

NVIDIA's gross margin remains relatively stable at around 71-72% during the early forecast years, gradually increasing to 74% during the mid-term (2029-2032) before going to 76% by 2034.

EBITDA Forecast

$$26)\ EBITDA_n = Gross\ Margin_n - SG\&A_n - R\&D_n$$

To forecast EBITDA, the formula above was used. In this formula 26, *n* represents each year in the forecast period, and the subscript indicates that this formula is applied iteratively across 5,000 simulated paths. After modeling the core revenue drivers and gross margins, the next step involves accounting for these critical cost components.

R&D expenses are important for sustaining NVIDIA's position as a leader in high-performance computing and AI. The increase in R&D and SG&A expenses for fiscal year 2024 was primarily driven by compensation and benefits, including stock-based compensation, which reflects the company's focus on attracting and retaining top talent and this trend is expected to continue.

Metric	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
SG&A	4.208	5.297	6.526	7.865	9.247	10.646	12.053	13.336	14.429	15.412	16.036
R&D	12.077	16.706	22.484	29.393	37.154	45.713	54.609	63.363	71.266	77.798	82.109

R&D and SG&A

The SG&A and R&D expenses are projected to grow in the first year of the forecasting period at a rate equivalent to the average growth observed in the post-COVID sample period. Subsequently, these expenses will decrease linearly over the forecast period, converging to the perpetuity growth rate of 2.143%, as determined in the perpetuity calculation at the end of the valuation. The volatility of these components is also assumed to transition linearly, aligning with industry standards.

The EBITDA table below illustrates NVIDIA's projected operating profitability over the forecast horizon.

Metric	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
EBITDA	76.470	128.210	172.809	237.200	332.392	499.553	635.869	753.051	877.587	996.893	1.174.530
Margin	58%	60%	61%	61%	62%	65%	66%	66%	67%	68%	68%

FCFF Forecast

$$27)\ FCFF_n = EBIT_n \cdot (1 - \tau) + D\&A - CapEx - \Delta NWC$$

These tables illustrate the expected evolution of NVIDIA's FCF over the forecast horizon, accounting for the variability introduced through the stochastic modeling process (5,000 paths).

Metric	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
ΔWC	-469	25.438	18.547	32.829	33.561	50.586	46.973	50.438	45.247	37.472	27.031
CapEx	3.120	6.708	12.769	23.151	42.433	61.656	75.589	127.345	141.744	173.928	189.913
D&A	1.819	3.050	4.456	6.556	9.929	13.542	16.678	20.890	23.939	28.949	29.544
EBIT	74.652	125.161	168.353	230.644	322.463	486.011	619.191	732.162	853.648	967.943	1.044.987
FCFF	61.081	76.622	121.081	168.197	245.652	375.858	497.057	596.508	706.279	808.634	885.315

NWC

The calculation of NWC for NVIDIA is based on the Revenue Forecast and Cost Forecast . The Accounts Receivable Period (ARP, in days) is applied to the revenue forecast, while the Inventory Period (IP, in days) and Accounts Payable Period (APP, in days) are applied to the cost of revenues forecast.

$$28)\ NWC = \frac{ARP\ \cdot Revenue\ Forecast}{365} + \frac{IP\ \cdot Cost\ Forecast}{365} + \frac{APP\ \cdot Cost\ Forecast}{365}$$

To ensure a stable analysis, the periods (Accounts Receivable, Inventory, and Accounts Payable) were averaged from fiscal year 2016 onwards. This approach provides a more complete and balanced perspective, as the post-COVID period was highly volatile and less reflective of long-term trends.

Following this, the average changes in Net Working Capital (NWC) were calculated period by period and path by path, based on the NWC estimated for each forecasted period.

CapEx and D&A

The same rationale applied to R&D and SG&A was also used for CapEx and D&A, with growth in the first year based on the average of the post-COVID sample period, followed by a linear decline to the perpetuity growth rate of 2.143%.

Cost of Equity

The cost of equity (K_E) for NVIDIA was calculated to discount the FCF as in Formula 28. The 30-year U.S. Treasury yield was used as the risk-free rate for the K_E, and industry-specific unlevered betas were sourced from Damodaran's data. Geographic revenue distributions were analyzed based on Refinitiv Eikon data for the post-COVID sample period (2021-2024), as detailed in the appendix, point 9.

This geographic allocation (average of the post-COVID sample period) were the input for the Country Risk Premium used for the cost of equity calculation for each geographic segment. Europe was not included in the analysis, as its weight over the last eleven quarters was always close to 0%[6].

[6] Nvidia CEO highlighted that "EU has to accelerate the progress in AI," and noted the gap with US and China to Europe: "there's an awakening in every country realizing that the data is a national resource."

After considering the equity risk premium (ERP) and sovereign risk adjustments, a final weighted average cost of equity of 9.89% was achieved. The weights for each segment used were based on the most recent available quarter of data, as averaging the post-COVID period would yield a DCR weight of approximately 70%, which is not reflective of the current trend. In recent quarters, this weight has ranged between 80-90%. All calculations detailed in appendix, point 10.

29) $Cost\ of\ Equity\ = R_f + \beta_{Matured\ Market} \cdot MRP + Country\ Risk\ Premium\ (CRP)$[7]

Tax Rate: Deep-Dive

A key element in determining FCFF is the effective tax rate, which has shown significant variability in NVIDIA's historical performance. For instance, the effective tax rate decreased from 17% in FY2016 to an anomalous -4% in FY2023.

Going forward, the effective tax rate is expected to stabilize as shown in the table.

Metric	2024-2025	2025-2034
Tax Rate	17.06%	18.70%

Figure 18 - Tax Rate Forecast

For the following paragraphs, it is important to know that NVIDIA generates approximately 50% of its income from non-U.S. sales (Taiwan, China and Singapore) and 50% from U.S. sales[8].

From 2024 to 2025, NVIDIA is expected to benefit from the current tax treatment of Foreign-Derived Intangible Income (FDII)[9]. This policy provides a reduced effective tax rate of 13.125% for qualifying export-related income, compared to the standard U.S. corporate tax rate of 21%. The tax model assumes that NVIDIA's income derived from non-U.S. sales qualifies as Foreign-Derived Deduction Eligible Income (FDDEI), given its significant international sales and tangible Qualified Business Asset Investment (QBAI).

For the period leading up to 2026, NVIDIA's effective tax rate is projected to be 17%, reflecting the weighted contributions of U.S. and non-U.S. sales under the current tax regime. This

[7] $Country\ Risk\ Premium\ (CRP) =\ \lambda \cdot 5yr\ CDS_{country}\ (Sovereign\ Risk)$
[8] NVIDIA operates in multiple countries; however, data from Refinitiv Eikon indicates that the revenue contribution from countries outside the four selected for the representative analysis is residual and close to zero.
[9] For a more detailed analysis and supporting calculations, please refer to appendix (point 12).

calculation incorporates the standard U.S. tax rate of 21%, the reduced FDII rate of 13.125%, and the assumed 50%/50% revenue split.

However, legislative changes are scheduled to take effect starting January 1, 2026. The FDII deduction will decrease from 37.5% to 21.875%, raising the effective tax rate on qualifying income from 13.125% to 16.406%. This change is expected to impact NVIDIA's non-U.S. sales, while the U.S. corporate tax rate remains at 21%. Consequently, NVIDIA's overall tax rate is forecasted to rise to 19% beginning in 2026.[10]

As specific data regarding income from U.S. and non-U.S. regions is unavailable, sales figures will be used as a proxy benchmark for this analysis.

[10] This projection assumes that the revenue mix remains constant, and that no further legislative changes are enacted.

Financing Policy

The financing policy addresses the capital structure and how NVIDIA manages its debts relative to its earnings.

Debt Structure

After the end of the research phase (20th November), NVIDIA Corporation has outstanding debt of $8.5 billion (Refinitiv). This amount is distributed across seven fixed-coupon senior unsecured bonds denominated in U.S. dollars and the maturity profile goes from 2026 to 2059. All of this information can be further analyzed in appendix (point 3).

Year	2026	2028	2030	2031	2039	2049	2059
Debt Maturing	1.000	1.250	1.500	1.250	1.000	2.000	500

Figure 19 - Debt Maturity Projections

The company demonstrates a strong financial position, with total outstanding debt of $8.5 billion offset by the most recent available cash reserves of $38.5 billion (as of 20/11/2024, yield a net positive cash position of $30 billion).

Debt Forecast

The company's strategic focus suggest that it is not currently inclined to increase leverage. The only plausible scenario in which NVIDIA might consider increasing debt would be in the context of M&A and, as of now, there are no publicly available announcements of M&A deals.

Based on this information and assuming no significant changes to NVIDIA's capital structure strategy, its current debt load of $8.5 billion is expected to decline over time as the company's bonds reach maturity[11].

[11] This would not be a surprise for NVIDIA as in the end of the Fiscal Year of 2016 they reach an incredibly low amount of just $97 millions of debt (with $5 billion of cash in that same time)

Interest Rate Model

Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
US 5Y	4.28%	4.00%	3.75%	3.53%	3.36%	3.22%	3.09%	2.98%	2.89%	2.80%	2.72%
CDX	0.57%	0.67%	0.73%	0.78%	0.86%	0.95%	0.88%	0.87%	0.90%	0.89%	0.82%
Interest Rate	4.85%	4.67%	4.48%	4.31%	4.22%	4.17%	3.97%	3.85%	3.79%	3.69%	3.54%

Figure 20 - Interest Rate Forecast

The interest rate was modeled based on the CDX Investment Grade spread (CIR Model) and the U.S. Treasury Yield (using Vasicek Model).

In terms of calibration for the rates, the Time Series approach was used, which means historical data was used to simulate future outcomes (last 20 years of data).

The CDX Investment Grade index, which consists of a basket of high-quality corporate securities, is traditionally structured with a 5-year maturity. To maintain consistency, the U.S. Treasury yield was modeled at the same 5-year time horizon.

To model the 5-Year U.S. Treasury yield, a long-term average based on the past 20 years of data was applied, yielding a baseline value of 2.4%. The speed of adjustment toward this long-term mean was set at 16.86%, consistent with historical trends. Additionally, the model incorporated an annual volatility of 0.73%, with a delta time interval of one month for the analysis. As of November 20, 2024, the observed 5-Year U.S. Treasury yield stands at 4.28%, reflecting current market conditions.

Similarly, the CDX 5-Year spread was modeled using its long-term average of 0.81%, derived from 20 years of historical data. The speed of adjustment to this long-term mean was set at 58.62%, consistent with the more dynamic nature of spreads. A daily delta time was used, with a daily volatility of 1.377%, resulting in an annualized volatility of 21.78%.

To illustrate this debt trajectory, the following table provides a forecast of NVIDIA's debt.

Year	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total Debt	7.106	5.711	4.817	3.922	3.341	2.759	2.427	2.274	2.120	1.967
Interest Payment	230	155	142	109	99	78	75	76	70	64
MV of Debt	237	2.069	2.921	2.890	2.649	1.981	1.318	1.156	1.003	847
Interest Tax Shield	39	26	24	19	17	13	13	13	12	11

Figure 21 - Debt Forecast

Based on the GBM model used in this thesis, there is a 0.9% probability of NVIDIA going bankrupt over the forecast period ending in 2034. This estimated probability reflects the S&P cumulative default rate for a company rated AA, which, as of the latest 2023 update, stands at 0.98% over a 10-year horizon.

Debt Assumptions

Some paths with negative FCF result in values where additional debt or cash would need to be raised to cover the shortfall. However, as shown in the appendix, these values are relatively small (ranging from $1B to $2B) compared to NVIDIA's robust cash position of approximately $30B, and the model assumes these deficits can be covered by the company's liquidity.

Market Value of Debt

The market value of debt was calculated using the present value formula that discounts the expected interest payments and principal repayment. The formula is:

$$30)\ PV(Debt) = \sum \frac{Interest\ Payment + Principal\ Payment}{(1 + r_D)^t}$$

where r_D represents the cost of debt, and t is the time period.

Perpetuity of Tax Shield

In the valuation process, the terminal value (TV) of the interest tax shield for Year 11 onward was calculated using the formula:

$$31)\ TV(Interest\ Tax\ Shield) = \frac{\tau \cdot Debt}{K_E}$$

where τ is the corporate tax rate, $Debt$ is the assumed debt level in 2034, and K_E is the cost of equity. Once the terminal value was derived, it was discounted back 10 years using the appropriate discount rate to reflect its present value at the valuation date[12].

Share Price

$$32)\ Value\ Unlevered\ Firm = PV(FCFF_{until\ 2034}) + PV(Terminal\ Value)$$

Through the APV model, the value of NVIDIA's share price was determined. Initially, projected FCFF were discounted to their present value using cost of equity, deriving the unlevered firm value. This value represents the intrinsic worth of the company, independent of its capital structure and is reached through a perpetuity after 2034.

Perpetuity

Country	Subject	2024	2025	2026	2027	2028	2029
United States	Inflation, average consumer prices	2.987%	1.852%	2.052%	2.105%	2,123%	2.143%

Figure 22 - IMF Inflation Estimates

The Figure 19 provides inflation data from the IMF, measured as the percentage change in average consumer prices for the years 2024 to 2029.

The inflation rate stabilized at approximately 2.143% in 2029, which was used as the perpetuity growth rate. It is assumed that, after 2034, NVIDIA's growth will align with inflation, reflecting industry saturation and a growth rate close to global GDP. Nevertheless, a sensitivity analysis was conducted to account for potential variations in the perpetual growth assumption.

[12] All variables, including debt, interest payments, and the discount rate, vary across 5,000 simulated paths, consistent with the stochastic framework of the model.

$$33)\ Value\ Levered\ Firm = Value\ Unlevered\ Firm + PV(ITS) - PV(BC)$$

The next step involved calculating the levered firm value. To achieve this, the present value of the interest tax shield was added, which had been previously modeled to reflect both sample periods and a terminal value. Additionally, costs and risks associated with debt financing were accounted. Specifically, bankruptcy costs are included, estimated at 21.7% of firm value in the event of financial distress. To estimate the probability of default after the perpetuity, the fifteen-year time horizon was utilized, which represents the longest duration available in S&P's credit assessment data. NVIDIA's AA- rating yields a cumulative probability of default of 1.36% over this period, provides the most reliable market-based estimate for this analysis.

The assumption regarding bankruptcy costs is set at 21.7% of the firm's value, based on the findings of Davydenko (2022). Their research provides a robust, market-based estimate of default costs, derived from changes in the market value of a firm's assets upon default. Using a large dataset of defaulting firms over 14 years, the study estimates the average cost of default for firms across various contexts. This figure includes both direct costs, such as legal and administrative expenses, and indirect costs, such as reputational damage, operational disruptions, and loss of customer and supplier confidence.

$$34)\ Equity\ Value = Value\ Levered\ Firm - Debt\ Market\ Value$$

Finally, to calculate the equity value of the firm, the market value of its outstanding debt was subtracted from the levered firm value (period by period, path by path). This provided a representation of the value attributable to shareholders in 5,000 scenarios. To determine the share price, I divided the equity value by the total number of shares outstanding. This process resulted in a range of possible share price outcomes that were averaged, arriving at an estimated price target.

Recommendation

My final price target for NVIDIA is **$105.47**, lower than the closing price of **$145.89** on November 20, 2024. This reflects a SELL recommendation, as I believe investors are underestimating the risks the company faces. While this suggests that a downward trajectory could be next, it is also recognized that market sentiment, momentum, or growth prospects may continue to support a higher valuation in the near term. Therefore, a sell recommendation is appropriate, reflecting the view that the stock should be sold but without the urgency or aggressive idea associated with a strong sell rating.

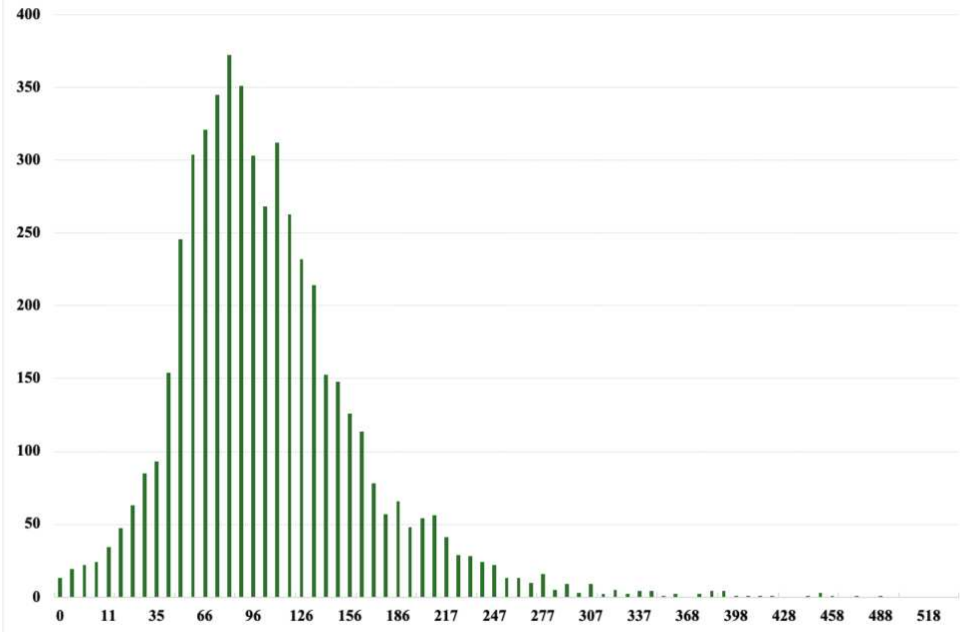

Figure 23- Share Price Distribution

Risks

According to NVIDIA's reports, compliance with a broad range of existing and potential governmental regulations - including intellectual property rights, taxes, tariffs, data privacy, environmental standards, and AI governance - could substantially increase costs and adversely affect the company's competitive position.

There is also the imminent risk that NVIDIA could face a forced split or significant regulatory intervention as in the third quarter alone, NVIDIA captured 63% of the combined net profit of the world's top 10 semiconductor companies, which is a significant concentration of market power. This dominance has drawn attention from regulators, with the U.S. Department of Justice (DOJ) recently launching an investigation into potential antitrust violations.

The risks for NVIDIA include also the persistent uncertainty surrounding macroeconomic conditions that could weaken consumer demand for gaming PCs. Although PC gaming demand has shown resilience, any economic challenges could impact this key segment, which accounts for approximately 53% of NVIDIA's, showing a downside risk to projections. In addition, the Data Center segment could face several challenges if it sees a lower-than-expected deployment of GPUs into data center applications or if hyperscale customers slow their adoption of deep learning technologies. Furthermore, one example of many others could be the NVIDIA's $3.5 billion backlog in HP, as noted by the CEO Antonio Neri, highlighting demand that will only be partially fulfilled in 2025 due to supply constraints. Broader risks to NVIDIA include increased restrictions on GPU exports, delays in new product launches, weaker-than-expected demand for gaming GPUs, and persistent supply chain bottlenecks.

Hypothetical Scenarios

To justify NVIDIA's current trading levels of approximately $130-$140 per share, several assumptions would need to hold:

1. A CAGR of 40% during the expansion period in the DCR segment would be necessary. This would result in total revenues nearing $1 trillion by fiscal year 2030. Under these assumptions, the model would yield a price target of $140 per share.
2. To achieve a price target of $130 per share, a CAGR of 60% during the expansion period would be required for the Automotive and Gaming segments. This would mean a 16-fold increase in combined revenues for these segments over six years, with the Automotive and Gaming segments collectively generating an extraordinary $130 billion in revenues by 2030.
3. A uniform CAGR of 37.5% applied across all business segments would be needed to reach a valuation corresponding to $130 per share. Under this scenario, NVIDIA would achieve a projected EBITDA of approximately $630 billion by 2030.

Sensitivity Analyses

To incorporate inflation into perpetuity calculations, sensitivity analyses are conducted. The best estimate for inflation beyond 2034, given the long-term nature of such projections, will be assumed to align with IMF's 2,143%. The Figure 23 presents the results, which combines variations in perpetuity with cost of equity. This dual analysis is essential, as the perpetuity contributes between 40% and 60% of the total valuation, depending on the specific scenario selected from the 5,000 simulated paths.

		Terminal Growth						
		1.543%	1.743%	1.943%	**2.143%**	2.343%	2.543%	2.743%
Cost of Equity	9.29%	112$	112$	115$	117$	120$	123$	126$
	9.49%	107$	109$	111$	113$	116$	118$	121$
	9.69%	103$	105$	107$	108$	110$	113$	115$
	9.89%	99$	101$	103$	**105$**	107$	109$	111$
	10.09%	97$	97$	99$	100$	102$	105$	106$
	10.29%	93$	95$	96$	98$	99$	100$	102$
	10.49%	89$	90$	91$	93$	95$	97$	98$

Figure 24 - Sensitivity Analysis: Cost of Equity and Terminal Growth Rate

An additional sensitivity analysis was performed to evaluate the CAGR of DCR and Gaming segment. This analysis aims to capture potential impact of different growth trajectories within the two most critical business areas on the overall valuation. Values are applied just for the Expansion Period, which means they affect FY2027 to FY2030 and the Perpetuity Transition Period.

		CAGR for Data Center and Robotics Segment						
CAGR for Gaming Segment		28%	30%	32%	**34%**	36%	38%	40%
	21%	73$	85$	96$	102$	113$	128$	146$
	23%	74$	87$	97$	103$	115$	128$	147$
	25%	75$	87$	99$	104$	115$	129$	147$
	27%	77$	88$	100$	**105$**	116$	130$	149$
	29%	78$	89$	101$	106$	118$	131$	150$
	31%	79$	90$	101$	107$	120$	133$	151$
	33%	80$	91$	103$	108$	122$	135$	152$

Figure 25 - Sensitivity Analysis: CAGRs for Gaming and DCR

7. Multiple Valuation

Peer Group Selection

NVIDIA operates across a wide range of technological domains, including chip architecture, advanced networking, and acceleration libraries. To ensure a representative analysis, the peer group was selected to reflect companies with similar strategic focuses and market dynamics (within different areas).

The peer group includes:

1. AMD: NVIDIA's primary competitor in GPUs, with substantial overlap in custom chips and SoC solutions targeting gaming and data centers.
2. Intel: Competes in GPUs, AI hardware, and data center products, leveraging its scale and legacy in semiconductors.
3. Qualcomm: Increasingly active in AI hardware, edge computing, and SoC solutions, making it a notable competitor in emerging markets.
4. Broadcom: Significant overlap in SoC products, networking solutions, data centers, and high-performance computing, aligning closely with NVIDIA's focus areas.
5. Marvell Technology: Direct competition in data center networking, storage, and DPUs, emphasizing infrastructure-driven technologies.

The selection of peer companies aligns also with Damodaran's (2007) definition of comparable firms, which states that peers must share similar cash flows, growth potential, and risk. To evaluate whether the selected peers truly meet these criteria and are comparable to NVIDIA, a table is presented, analyzing key indicators. For cash flows, Free Cash Flow and EBITDA are used. Growth potential is examined through historical revenue growth rates, R&D and capital expenditures. Risk is evaluated using the debt-to-equity ratio and the interest coverage ratio. This analysis is based on FY2024 data, with FCF, EBITDA and CapEx presented in millions. CAGRs are calculated using data from the past five fiscal years (2020-2024), sourced from the Refinitiv Eikon database.

Companies	FCF	EBITDA	Revenue CAGR	R&D CAGR	CapEx	Debt/Equity	Interest Coverage Ratio
NVIDIA Corp	**26.626**	**35.103**	**47%**	**30%**	**1.069**	**14.8%**	**130.7**
Advanced Micro Devices Inc	1.121	3.955	-2%	35%	546	3%	31.48
Intel Corp	(17.367)	9.480	(5%)	4%	25.750	26%	(0.14)
Qualcomm Inc	7.474	11.959	17%	11%	1.031	26.5%	14.71
Marvell Technology Inc	814	989	16%	17%	350	19.6%	(2.06)
Broadcom	19.414	25.260	19%	18%	548	40.8%	3.86

Figure 26 - Peer Group Metrics

Moreover, NVIDIA's 2024 annual report double-checks these companies as peers, citing their comparable market presence, operational complexity, and size, measured by revenue and market capitalization. These firms meet NVIDIA's criteria and are frequently referenced in NVIDIA's competitive landscape section.

In terms of profitability, the peer group highlights NVIDIA's superior performance, solidifying its position as a premium brand. Gross margins as of FY2024 for competitors like Intel (40%), Marvell Technology (42%), Qualcomm (56%), and Broadcom (54%). NVIDIA outperforms, with a gross margin of 75%.

Multiple Selection

In the semiconductor sector, valuation multiples such as Price-to-Earnings (P/E), EV/EBITDA, and EV/Revenue are widely for relative valuation, as they capture profitability, operational efficiency, and revenue-generating capacity. These metrics have been extensively applied in various studies, including the KMPG's *Semiconductor Industry and M&A Update Summer 2024* and McKinsey's *What's Next for Semiconductor Profits and Value Creation?*.

The P/E ratio, in particular, is widely used as links a company's market valuation directly to its profitability. It serves as a critical indicator of expected earnings growth and investor confidence in future profitability. This metric is especially significant in industries like semiconductors (facing a new wave of expansion), where projected growth often drives valuations more than current earnings.

EV/EBITDA complements this by focusing on operational performance and EV/Revenue is valuable for high-growth firms, offering a perspective on a company's ability to scale and generate top-line growth.

Implied Value per Share Analysis

In the following tables, the implied value per share derived from these multiples is presented, first based on forward 12-month estimates and then using trailing 12-month data.

Companies	EV/Revenues	EV/EBITDA	P/E
AMD	6x	17xx	25x
Intel Corp	2x	8x	21x
Qualcomm	4x	11x	14x
Marvell Technology	13x	37x	43x
Broadcom	19x	29x	37x

Figure 27 - Peer Group Multiples F12M (Refinitiv Eikon)

Companies	EV/Revenues	EV/EBITDA	P/E
High Percentile	19x	37x	43x
75th Percentile	13x	29x	37x
Average	9x	20x	28
Median	6x	17x	25x
25th Percentile	4x	11x	21x
Low	2x	8x	14x

Figure 28 - Peer Group Multiples Statistics

The table presents the implied value per share based on EV/Revenue, EV/EBITDA, and P/E multiples. Using a multiple of 9 for EV/Revenue, the implied value per share is $72. For EV/EBITDA, with a multiple of 20, the implied value per share is $102, while the P/E multiple of 28 yields an implied value per share of $117. These values account for the adjustments made for net debt (-$27,590 million) and are based on 24,530 million shares outstanding.

	EV/Revenues	EV/EBITDA	P/E
Multiple	9x	20x	28x
Implied Enterprise Value	1.741.502	2.482.757	
Net Debt	(27.590)	(27.590)	
Implied Market Value	1.769.093	2.510.348	2.875.375
Shares Outstanding	24.530	24.530	24.530
Implied Value per Share	**72**	**102**	**117**

Figure 29 - Implied Value per Share F12M Multiples

The range of valuations are in line with expectations, particularly around $102-$117. The implied value per share based on EV/Revenue ($72), however, appears significantly lower and unlikely to be reflected in market conditions, given the sector's growth dynamics and valuation trends.

The revenues, EBITDA, and earnings presented in the table were calculated using estimates generated by the valuation model for the forward 12 months (F12M), incorporating projections for Q1 2025 and the remaining quarters (Q2-Q4 2025).

	2025Q1E	2025Q2-Q4E	Final Value
F12M Revenue	40.394	159.345	199.740
F12M EBITDA	26.4921	96.378	122.869
F12M Earnings	23.020	77.417	100.437

Figure 30 - NVIDIA F12M Metrics

Having analyzed the forward 12-month valuations, it is now time to turn our attention to the trailing 12-month results to provide a comparison. All detailed calculations and tables used to derive the trailing 12-month multiples are included in the appendix (point 13). In the following table, the final results for the T12M implied values are presented.

	EV/Revenues	EV/EBITDA	P/E
Multiple	11x	28x	43x
Implied Enterprise Value	1.236.897	2.070.500	
Net Debt	(17.525)	(17.525)	
Implied Market Value	1.254.422	2.088.025	2.737.411
Shares Outstanding	24.940	24.940	24.940
Implied Value per Share	50	84	110

Figure 31 - Implied Value per Share T12M Multiples

The trailing 12-month multiples implied value per share derived from EV/Revenue ($50) appears (once again) significantly lower and less aligned with current market dynamics, reflecting the limitations of this multiple in capturing NVIDIA's true valuation in a growth-oriented sector. In contrast, the values derived from EV/EBITDA and P/E are more aligned with the $105 target.

All multiples were extracted as of 1st January 2025 to minimize the gap with the valuation reference date of 26th January 2025. By that time, NVIDIA's trailing 12-month P/E ratio was 57.11 and the forward 12-month P/E ratio was 31.2, sourced from Refinitiv Eikon.

Multiples from the Model

This table assumes a share price of $105.47 as basis for the calculations.

	Shares Outstanding	Equity Value	Net Debt	EV/Revenues	EV/EBITDA	P/E
NVIDIA	24.530	2.587.179	-27.590	13x	21x	41x

Figure 32 - Multiples from the Model

8. Comparison with Investment Bank Report

To validate the financial forecasts and estimations presented in this dissertation, a comparison is conducted with projections in the report by Deutsche Bank (November 20, 2024).

2024Q4 Comparison

Income Statement 2024Q4 (values in millions)	*Thesis Projections*	*DB Projections*
Revenues	**40.394**	**38.998**
Cost of Revenues	(9.976)	(9.969)
Gross Profit	30.418	29.029
Gross Margin	*75%*	*75%*
SG&A Expenses	(4.568)	(3.773)
Other Operating Expenses	(0.144)	-
Operating Profit	25.994	25.256
Non-Operating Income/(Expenses)	0.451	0.437
Non-Recurring Income/(Expenses)	(0.127)	-
Pre-Tax Income	26.318	**25.693**
Income Taxes	3.593	4.239
Net Income	22.724	21.454

Figure 33 - IB Report Comparison

The thesis forecasts NVIDIA's Q4 2024 revenues at $40.394 billion, higher than Deutsche Bank's projection of $38.998 billion. This variance can be attributed to differing assumptions regarding market demand, particularly in the AI and data center segments. Both analyses, however, agree on the company's strong gross margin, estimated at ~75%, showcasing NVIDIA's efficient cost management (which can be compromised in Fiscal Year of 2025/2026). On the expense side, the thesis estimates SG&A Expenses at $4.568 billion, compared to Deutsche Bank's lower estimate of $3.773 billion. This discrepancy likely reflects a more conservative approach in DB's projections, possibly underestimating the costs associated with NVIDIA's aggressive expansion.

Operating profit, as a result, diverges between the models, with the thesis estimating $25.994 billion versus DB's projection of $25.256 billion. At the pre-tax level, the thesis forecasts $26.318 billion, compared to DB's slightly lower estimate of $25.693 billion. The discrepancy is seen also at the net income level, where the thesis estimates $22.724 billion, significantly higher than DB's projection of $21.454 billion. A key driver of this difference is the tax expense, with the thesis assuming $3.593 billion, while DB estimates a higher tax obligation of $4.239 billion. There is no explicit indication in NVIDIA's reports or Deutsche Bank's analyses to suggest that the tax rate will increase to approximately 16%. Over the past three quarters, the tax rate has been consistently recorded at 13.88%, 13.61%, and 13.47%. Given the absence of any guidance or additional information from the company, the most reasonable estimate for the next quarter would be the average of these recent values.

Methodology and Assumptions Comparison

The thesis model simulates 5,000 potential paths for NVIDIA's future. By using high volatility as an input and a different assumption, the model captures the extreme outcomes in the future, with some paths projecting negative Free Cash Flows. This approach accounts for the full range of possibilities. In contrast, Deutsche Bank's analysis adopts a more deterministic perspective, without explicitly addressing bull, bear cases or the critical volatility surrounding NVIDIA.

Price Target Comparison

The difference in price targets can be attributed to differing underlying assumptions for the long-term. Deutsche Bank's target aligns more closely with the current market sentiment as it anticipates a strong reacceleration in the Data Center segment, as evidenced by the growth in F4Q, and projects a robust gross margin in 2025/2026. The $105 target of the thesis, on the other hand, incorporates a more tempered expectation for the pace of the segment's reacceleration throughout the next year and the following years.

The divergence between price can be also significantly attributed to the assumptions made about NVIDIA's performance beyond 2027, as Deutsche Bank provides limited visibility into its forecasts for the years following that period. This lack of information suggests that their assumptions for long-term growth and profitability are optimistic, allowing them to arrive at a higher final price target.

Another critical difference lies in the perpetuity value, which typically constitutes a substantial portion of the valuation in DCF/APV models. Different perpetuity growth can lead to significant valuation differences, and Deutsche Bank's approach may rely on more aggressive assumptions for terminal growth.

Conclusion

Incorporating assumptions of high volatility and different growth projections in NVIDIA's revenues, a price target of $105 has been achieved. This valuation considers both the company's growth prospects and associated long-term risks, presenting a contrast to Deutsche Bank's current price target of $140.

9. Appendix

1. Historical FY2016-FY2024

Year	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024
Revenues	**5.010**	**6.910**	**9.714**	**11.716**	**10.918**	**16.675**	**26.914**	**26.974**	**60.922**
YoY Growth	-	38%	41%	21%	-7%	53%	61%	0%	126%
Cost of Revenues	**2.184**	**2.832**	**3.871**	**4.518**	**4.111**	**6.069**	**8.652**	**10.783**	**15.857**
YoY Growth	-	30%	37%	17%	-9%	48%	43%	25%	47%
Gross Profit	**2.811**	**4.063**	**5.822**	**7.171**	**6.768**	**10.518**	**18.121**	**16.053**	**44.924**
YoY Growth	-	45%	43%	23%	-6%	55%	72%	-11%	180%
SG&A	**1.933**	**2.126**	**2.612**	**3.367**	**3.922**	**5.836**	**7.434**	**9.779**	**11.329**
YoY Growth	-	10%	23%	29%	16%	49%	27%	32%	16%
R&D	**1.331**	**1.463**	**1.797**	**2.376**	**2.829**	**3.924**	**5.268**	**7.339**	**8.675**
YoY Growth	-	10%	23%	32%	19%	39%	34%	39%	18%
CapEx	**86**	**176**	**593**	**600**	**489**	**1.128**	**976**	**1.833**	**1.069**
YoY Growth	-	*105%*	*237%*	*1%*	*-19%*	*131%*	*-13%*	*88%*	*-42%*
D&A	**197**	**187**	**199**	**262**	**381**	**1.098**	**1.174**	**1.544**	**1.508**
YoY Growth	-	-5%	6%	32%	45%	188%	7%	32%	-2%

2. Post-COVID Sample FY2021-FY2025E

Figures	FY2021	FY2022	FY2023	FY2024	FY2025E
Revenues	**16.675**	**26.914**	**26.974**	**60.922**	**131.561**
YoY Growth	*53%*	*61%*	*0%*	*126%*	*116%*
Cost of Revenues	**6.069**	**8.652**	**10.783**	**15.857**	**32.007**
YoY Growth	*48%*	*43%*	*25%*	*47%*	*102%*
Gross Profit	**10.518**	**18.121**	**16.053**	**44.924**	**99.554**
YoY Growth	*55%*	*72%*	*-11%*	*180%*	*122%*
SG&A	**5.836**	**7.434**	**9.779**	**11.329**	**16.284**
YoY Growth	*49%*	*27%*	*32%*	*16%*	*44%*
R&D	**3.924**	**5.268**	**7.339**	**8.675**	**12.077**
YoY Growth	*39%*	*34%*	*39%*	*18%*	*39%*
CapEx	**1.128**	**976**	**1.833**	**1.069**	**3.120**
YoY Growth	*131%*	*-13%*	*88%*	*-42%*	*192%*
D&A	**1.098**	**1.174**	**1.544**	**1.508**	**1.819**
YoY Growth	*188%*	*7%*	*32%*	*-2%*	*21%*

3. Debt Outstanding (Refinitiv Workspace)

Coupon Class: Fixed Coupon

Currency: US Dollar

Rank: Senior Unsecured

Maturity	Amount Outstanding	Coupon	Last Price	Yield	*Maturity*	*Weight*
2026	1.000.000.000	3,2	68,462	4,03%	2	12%
2028	1.250.000.000	1,55	61,764	3,68%	3	15%
2030	1.500.000.000	2,85	63,538	4,16%	5	18%
2031	1.250.000.000	2,0	87,548	4,16%	6	15%
2040	1.000.000.000	3,5	86,652	4,70%	15	12%
2050	2.000.000.000	3,5	80,717	4,82%	25	24%
2060	500.000.000	3,7	80,531	4,86%	35	6%
Total	**8.500.000**	-	-	-	-	-

4. Credit Ratings

Rating Agency Name & Rating Type	Rating	Rating Date
S&P Senior Unsecured [SSU] (Domestic)	AA-	30-Apr-24
S&P Long-term Issuer Rating [SPI] (Foreign)	AA-	30-Apr-24
S&P Long-term Issuer Rating [SPI] (Domestic)	AA-	30-Apr-24
S&P Short-term Issuer Credit Rating [SIS] (Foreign)	A-1+	05-Jun-23
S&P Short-term Issuer Credit Rating [SIS] (Domestic)	A-1+	05-Jun-23
S&P Commercial Paper [SCP] (Domestic)	A-1+	05-Jun-23
Moody's Senior Unsecured [MSU] (Domestic)	Aa3	06-Mar-24
Moody's Most Recent Short-term Rating [MRS] (Domestic)	P-1	06-Mar-24
Moody's Derived Long-term Issuer Rating [MDL] (Domestic)	Aa3	06-Mar-24
Moody's Commercial Paper [MCP] (Domestic)	P-1	14-Sep-20
Fitch Senior Unsecured [FSU] (Domestic)	WD	04-Jan-21
Fitch Short-term Debt Rating [FDT] (Domestic)	F2	19-Dec-17
Fitch Short-term Issuer Default Rating [FDS] (Foreign)	WD	04-Jan-21
Fitch Long-term Issuer Default Rating [FDL] (Foreign)	WD	04-Jan-21
Fitch Commercial Paper [FCP] (Foreign)	F1	12-Mar-20
Fitch Commercial Paper [FCP] (Domestic)	WD	04-Jan-21
Egan-Jones Senior Unsecured [EJU] (Foreign)	A	21-Mar-24
Egan-Jones Senior Unsecured [EJU] (Domestic)	A	21-Mar-24
Egan-Jones Commercial Paper [EJC] (Foreign)	A1+	08-Jun-16
Egan-Jones Commercial Paper [EJC] (Domestic)	A1+	08-Jun-16

5. Average cumulative default rates for corporates by region (1981 to 2023) (%)

Rating for U.S. Companies	10	11	12	13	14	15
AAA	0,81%	0,85%	0,89%	0,93%	1,02%	1,10%
AA	0,98%	1,06%	1,14%	1,21%	1,28%	1,36%

6. Debt Forecasts

	Years to Maturity	Amount Outstanding
2026	2	1.000
2028	4	1.250
2030	6	1.500
2031	7	1.250
2040	16	1.000
2050	26	2.000
2060	36	500

	Amount Paid by Year									
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Debt Maturing 2026	500	500	-	-	-	-	-	-	-	-
Debt Maturing 2028	312.5	312.5	312.5	312.5	-	-	-	-	-	-
Debt Maturing 2030	250	250	250	250	250	250	-	-	-	-
Debt Maturing 2031	178.571	178.571	178.571	178.571	178.571	178.571	178.571	-	-	-
Debt Maturing 2040	62.5	62.5	62.5	62.5	62.5	62.5	62.5	62.5	62.5	62.5
Debt Maturing 2050	76.93	76.93	76.93	76.93	76.93	76.93	76.93	76.93	76.93	76.93
Debt Maturing 2060	13.888	13.888	13.888	13.888	13.888	13.888	13.888	13.888	13.888	13.888

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Amount Paid	1.394.383	1.394.383	894.383	894.383	581.883	581.883	581.883	153.312	153.312	153.312
Debt Updated	7.105.617	5.711.233	4.816.850	3.922.466	3.340.583	2.758.700	2.426.816	2.273.504	2.120.192	1.966.880

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
FCF after Interest Payment	76.322	120.813	167.957	245.392	375.574	496.737	596.170	705.928	808.238	884.839
FCF after Debt Payment	75.122	119.677	167.216	244.633	375.060	496.204	595.865	705.785	808.094	884.694
Debt Increase[13]	2.026	3.177	3.285	3.165	2.463	1.688	1.546	1.408	1.251	1.118
Debt Change Predicted	(1.394)	(1.394)	(894)	(894)	(582)	(582)	(332)	(153)	(153)	(153)

7. Interest Rate Forecasts

U.S. Treasury 5Y	
Speed of Adjustment	16.86%
Long-Term Average	2.41%
Delta Time	1/12
Annual Volatility	0.73%
Current Rate	4.28%

CDX IG 5Y	
Speed of Adjustment	58.62%
Long-Term Average	0.81%
Delta Time	1/365
Annual Volatility	1.377%
Current Rate	21.71%

[13] When free cash flows (FCF) are negative, the model assumes that debt would need to increase to cover the shortfall. The table reflects the average across 5,000 simulated paths under these conditions. However, given NVIDIA's cash position of approximately $30 billion, these shortfalls are assumed to be comfortably managed.

8. Geometric Brownian Motion Inputs

Figures	2020Q1A	2020Q2A	2020Q3A	2021Q4A	FY2021	2021Q1A	2021Q2A	2021Q3A	2022Q4A	FY2022
Revenues	**3.080**	**3.866**	**4.726**	**5.003**	**16.675**	**5.661**	**6.507**	**7.103**	**7.643**	**269.14**
QoQ Growth		25,5%	22,2%	5,9%	-	13,2%	14,9%	9,2%	7,6%	-
Cost of Revenues	**1.076**	**1.591**	**1.766**	**1.847**	**6.157**	**2.032**	**2.292**	**2.472**	**2.644**	**8.793**
QoQ Growth		47,9%	11,0%	4,6%	-	10,0%	12,8%	7,9%	7,0%	-
Gross Profit	**2004**	**2275**	**2960**	**3156**	**10518**	**3629**	**4215**	**4631**	**4999**	**18121**
Gross Margin (%)	65,1%	58,8%	62,6%	63,1%	63,08%	64,1%	64,8%	65,2%	65,4%	67,3%
SG&A	**1028**	**1624**	**1562**	**1649**	**5836**	**1673**	**1771**	**1960**	**2029**	**7434**
QoQ Growth		58,0%	-3,8%	5,6%	-	1,5%	5,9%	10,7%	3,5%	-
Other Operating Expense	**-5**	**-474**	**-192**	**-38**	**-**	**-5**	**-4**	**0**	**0**	**-**
QoQ Growth		0,0%	-59,5%	-80,2%	-	-86,8%	-20,0%	-	-	-
Operating Expenses	**2099**	**2741**	**3136**	**3458**	**11993**	**3700**	**4059**	**4432**	**4673**	**16227**
Operating Profit	**981**	**1125**	**1590**	**1545**	**4682**	**1961**	**2448**	**2671**	**2970**	**10687**
Financing Income	**6**	**-41**	**-46**	**-46**	**-127**	**-47**	**-54**	**-55**	**-52**	**-207**
QoQ Growth		-783,3%	12,2%	0,0%	-	2,2%	14,9%	1,9%	-5,5%	-
Pre-tax Profit	**986**	**1083**	**1540**	**1508**	**4559**	**1925**	**2404**	**2630**	**2943**	**10539**
Non-Recurring Expense	**-5**	**-474**	**-192**	**-38**	**-150**	**119**	**-10**	**8**	**-78**	**-598**
QoQ Growth		0,0%	-59,5%	-80,2%	-	0,0%	-108,4%	-180,0%	0,0%	-
Income before Taxes	**981**	**609**	**1348**	**1470**	**4409**	**2044**	**2394**	**2638**	**2865**	**9941**
Income Taxes	**64**	**-13**	**12**	**13**	**77**	**132**	**20**	**174**	**-138**	**189**
Net Income	**917**	**622**	**1336**	**1457**	**4332**	**1912**	**2374**	**2464**	**3003**	**9752**
CapEx	**155**	**217**	**473**	**283**	**1128**	**298**	**183**	**222**	**273**	**976**
QoQ Growth		40,0%	118,0%	-40,2%	-	5,3%	-38,6%	21,3%	23,0%	-
D&A	**107**	**404**	**299**	**288**	**1098**	**281**	**286**	**298**	**309**	**1174**
QoQ Growth		277,6%	-26,0%	-3,7%	-	-2,4%	1,8%	4,2%	3,7%	-

Figures	2022Q1A	2022Q2A	2022Q3A	2023Q4A	FY2023	2023Q1A	2023Q2A	2023Q3A	2024Q4A	FY2024
Revenues	**8.288**	**6.704**	**5.931**	**6.051**	**26.974**	**7.192**	**13.507**	**18.120**	**22.103**	**60.922**
QoQ Growth	8,4%	-19,1%	-11,5%	2,0%	-	18,9%	87,8%	34,2%	22,0%	-
Cost of Revenues	**2.857**	**3.789**	**2.754**	**2.218**	**10.921**	**2.544**	**4.045**	**4.720**	**5.312**	**15.998**
QoQ Growth	8,1%	32,6%	-27,3%	-19,5%	-	14,7%	59,0%	16,7%	12,5%	-
Gross Profit	**5.431**	**2.915**	**3.177**	**3.833**	**16.053**	**4.648**	**9.462**	**13.400**	**16.791**	**44.924**
Gross Margin (%)	65,5%	43,5%	53,6%	63,3%	59,5%	64,6%	70,1%	74,0%	76,0%	73,7%
SG&A	**2.210**	**2.416**	**2.576**	**2.577**	**9.779**	**2.508**	**2.662**	**2.983**	**3.177**	**11.329**
QoQ Growth	8,9%	9,3%	6,6%	0,0%	-	-2,7%	6,1%	12,1%	6,5%	-
Other Op. Expense	**-156**	**-175**	**-190**	**-229**	**-54**	**-181**	**-139**	**-161**	**-141**	**0**
QoQ Growth	0,0%	12,2%	8,6%	20,5%	**-**	-21,0%	-23,2%	15,8%	-12,4%	-
Operating Expenses	**4.911**	**6.030**	**5.140**	**4.566**	**20.646**	**4.871**	**6.568**	**7.542**	**8.348**	**27.327**
Operating Profit	**3.377**	**674**	**791**	**1.485**	**6.328**	**2.321**	**6.939**	**10.578**	**13.755**	**33.595**
Financing Income	**-39**	**-17**	**23**	**58**	**0**	**83**	**181**	**105**	**492**	**0**
QoQ Growth	-25,0%	-56,4%	-235,3%	152,2%	-	43,1%	118,1%	-42,0%	368,6%	-
Pre-tax Profit	**3.338**	**657**	**814**	**1.543**	**6.346**	**2.404**	**7.120**	**10-683**	**14-247**	**34.441**
Non-Rec. Expense	**-1.533**	**-182**	**-201**	**-255**	**0**	**-195**	**-139**	**-161**	**-141**	**0**
QoQ Growth	0,0%	-88,1%	10,4%	26,9%	-	-23,5%	-28,7%	15,8%	-12,4%	-
Income Bef. Taxes	**1.805**	**475**	**613**	**1.288**	**4.181**	**2.209**	**6.981**	**10.522**	**14.106**	**33.818**
Income Taxes	**187**	**-181**	**-67**	**-126**	**-187**	**166**	**793**	**1.279**	**1.821**	**4.058**
Net Income	**1.618**	**656**	**680**	**1.414**	**4.368**	**2.043**	**6.188**	**9.243**	**12.285**	**29.760**
CapEx	**361**	**433**	**530**	**509**	**1.833**	**248**	**289**	**278**	**254**	**1.069**
QoQ Growth	32,2%	19,9%	22,4%	-4,0%	-	-51,3%	16,5%	-3,8%	-8,6%	-
D&A	**334**	**378**	**406**	**426**	**1544**	**384**	**365**	**372**	**387**	**1.508**
QoQ Growth	8,1%	13,2%	7,4%	4,9%	-	-9,9%	-4,9%	1,9%	4,0%	-

Figures	2021Q1A	2024Q2A	2024Q3A	2025Q4E
Revenues	**26.044**	**30.040**	**35.082**	**40.395**
QoQ Growth	17,8%	15,3%	16,8%	15,1%
Cost of Revenues	**5.638**	**7.466**	**8.926**	**9.977**
QoQ Growth	6,1%	32,4%	19,6%	11,8%
Gross Profit	**20.406**	**22.574**	**26.156**	**30.418**
Gross Margin (%)	78,4%	75,1%	74,6%	75,3%
SG&A	**3.497**	**3.932**	**4.287**	**4.568**
QoQ Growth	10,1%	12,4%	9,0%	6,6%
Other Operating Expense	**-139**	**-141**	**-155**	**-144**
QoQ Growth	-1,4%	1,4%	9,9%	-6,9%
Operating Expenses	**8.996**	**11.257**	**13.058**	**14.401**
Operating Profit	**17.048**	**18.783**	**22.024**	**25.994**
Financing Income	**370**	**572**	**447**	**451**
QoQ Growth	-24,8%	54,6%	-21,9%	0,9%
Pre-tax Profit	**17.418**	**19.355**	**22.471**	**26.445**
Non-Recurring Expense	**-139**	**-141**	**-155**	**-127**
QoQ Growth	-1,4%	1,4%	9,9%	-18,0%
Income before Taxes	**17.279**	**19.214**	**22.316**	**26.318**
Income Taxes	**2.398**	**2.615**	**3.007**	**3.298**
Net Income	**14.881**	**16.599**	**19.309**	**23.020**
CapEx	**369**	**977**	**813**	**961**
QoQ Growth	45,3%	164,8%	-16,8%	18,2%
D&A	**410**	**433**	**478**	**498**
QoQ Growth	5,9%	5,6%	10,4%	4,1%

Figures	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034
DCR Revenues										
Drift	*50%*	*34%*	*34%*	*34%*	*34%*	*29%*	*23%*	*18%*	*13%*	*7%*
Volatility	*75%*	*69%*	*62%*	*56%*	*50%*	*43%*	*37%*	*30%*	*24%*	*17%*
Gaming Revenues										
Drift	*24%*	*27%*	*27%*	*27%*	*27%*	*23%*	*19%*	*15%*	*11%*	*6%*
Volatility	*33%*	*31%*	*28%*	*26%*	*24%*	*22%*	*20%*	*18%*	*15%*	*13%*
PV Revenues										
Drift	*7%*	*14%*	*14%*	*14%*	*14%*	*12%*	*10%*	*8%*	*6%*	*4%*
Volatility	*50%*	*46%*	*43%*	*39%*	*35%*	*31%*	*27%*	*23%*	*19%*	*15%*
Auto Revenues										
Drift	*22%*	*23%*	*23%*	*23%*	*23%*	*20%*	*16%*	*13%*	*9%*	*6%*
Volatility	*33%*	*31%*	*29%*	*27%*	*24%*	*22%*	*20%*	*18%*	*15%*	*13%*
OEM Revenues										
Drift	*-3%*	*10%*	*10%*	*10%*	*10%*	*9%*	*7%*	*6%*	*5%*	*3%*
Volatility	*56%*	*52%*	*47%*	*43%*	*38%*	*34%*	*29%*	*25%*	*20%*	*16%*

Figures	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034
DCR Cost										
Drift	*67%*	*28%*	*28%*	*28%*	*28%*	*23%*	*19%*	*15%*	*11%*	*6%*
Volatility	*62%*	*57%*	*51%*	*46%*	*41%*	*36%*	*30%*	*25%*	*20%*	*14%*
Gaming Cost										
Drift	*19%*	*22%*	*22%*	*22%*	*22%*	*19%*	*15%*	*12%*	*9%*	*6%*
Volatility	*27%*	*25%*	*23%*	*22%*	*20%*	*18%*	*16%*	*14%*	*13%*	*11%*
PV Cost										
Drift	*12%*	*12%*	*12%*	*12%*	*12%*	*10%*	*8%*	*7%*	*5%*	*4%*
Volatility	*41%*	*38%*	*34%*	*31%*	*28%*	*25%*	*22%*	*19%*	*15%*	*12%*
Auto Cost										
Drift	*26%*	*19%*	*19%*	*19%*	*19%*	*16%*	*13%*	*10%*	*8%*	*5%*
Volatility	*34%*	*31%*	*29%*	*26%*	*24%*	*21%*	*19%*	*16%*	*14%*	*12%*
OEM Cost										
Drift	*-8%*	*8%*	*8%*	*8%*	*8%*	*7%*	*6%*	*5%*	*4%*	*3%*
Volatility	*41%*	*38%*	*34%*	*31%*	*28%*	*25%*	*22%*	*19%*	*15%*	*12%*

Figures	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034
SG&A Expenses										
Drift	*23%*	*21%*	*19%*	*17%*	*15%*	*13%*	*11%*	*9%*	*6%*	*4%*
Volatility	*31%*	*29%*	*27%*	*25%*	*23%*	*20%*	*18%*	*16%*	*14%*	*12%*
R&D Expenses										
Drift	*33%*	*30%*	*27%*	*24%*	*21%*	*17%*	*14%*	*11%*	*8%*	*5%*
Volatility	*10%*	*11%*	*12%*	*12%*	*13%*	*14%*	*15%*	*16%*	*17%*	*17%*
CapEx Expenses										
Drift	*71%*	*64%*	*57%*	*50%*	*44%*	*37%*	*30%*	*23%*	*16%*	*9%*
Volatility	*98%*	*92%*	*87%*	*82%*	*76%*	*71%*	*66%*	*60%*	*55%*	*49%*
D&A Expenses										
Drift	49%	44%	40%	35%	30%	26%	21%	16%	12%	7%
Volatility	79%	76%	74%	71%	69%	66%	63%	61%	58%	56%

9. NVIDIA Country Presence

Figures	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	4Q23	1Q24	2Q24
Taiwan	1.784	1.961	2.187	2.612	2.777	1.204	1.153	1.852	1.796	2.839	4.333	4.437	4.373	5.740
China	1.391	1.720	2.017	1.983	2.081	1.602	1.148	954	1.590	2.740	4.030	1.946	2.491	3.667
United States	2.105	2.397	2.559	3.048	3.430	3.898	3.630	3.245	3.806	7.928	7.055	15.720	15.143	15.011
Europe	381	429	340											
Singapore							536				2.702		4.037	5.622

Figures	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	4Q23	1Q24	2Q24
Taiwan	32%	30%	31%	34%	34%	18%	18%	31%	25%	21%	24%	20%	17%	19%
China	25%	26%	28%	26%	25%	24%	18%	16%	22%	20%	22%	9%	10%	12%
United States	37%	37%	36%	40%	41%	58%	56%	54%	53%	59%	39%	71%	58%	50%
Europe	7%	7%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Singapore	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	15%	0%	16%	19%

10. Cost of Equity by Segment

Variables	DCR	Gaming	PV	Auto	OEM
Risk-Free 30Y US	4,30%	4,30%	4,30%	4,30%	4,30%
Beta Unlevered	0,96	1,27	1,27	1,03	1,53
MRP (KMPG Netherlands)	5%	5%	5%	5%	5%
Weight Country Risk Premium	0,7%	0,7%	0,7%	0,7%	0,3%
Taiwan	0,9%	0,9%	0,9%	0,9%	0,9%
China	1,0%	1,0%	1,0%	1,0%	1,0%
United States	0,6%	0,6%	0,6%	0,6%	0,6%
Singapore	0,3%	0,3%	0,3%	0,3%	0,3%
Cost of Equity	9.73%	11.28%	11.28%	10.08%	12.25%

Segment	Industry Name	Damodaran Unlevered Beta	Weight in Revenues
Data Centers	Computer Services	0,96	87%
Gaming	Semiconductor	1,27	10%
PV	Computers	1,27	2%
Automotive	Auto & Truck	1,03	1%
OEM	Semiconductor Equipment	1,53	0%

11. Cost of Equity Sensitivity Analysis

Market Risk Premium	Beta Unlevered				
	$\beta - 0.2$	$\beta - 0.1$	β	$\beta + 0.1$	$\beta + 0.2$
4.50%	8,49%	8,69%	8,89%	9,09%	9,29%
4.75%	8,94%	9,17%	9,39%	9,61%	9,84%
5.00%	9,39%	9,64%	**9,89%**	10,14%	10,39%
5.25%	9,84%	10,12%	10,39%	10,66%	10,94%
5.50%	10,29%	10,59%	10,89%	11,19%	11,48%

12. Foreign-Derived Intangible Income

The Foreign-Derived Intangible Income (FDII) provision, introduced by the Tax Cuts and Jobs Act (TCJA) of 2017, provides a tax incentive for U.S. C corporations that generate income from serving foreign markets. The FDII deduction is available exclusively to U.S. corporations, including U.S. subsidiaries of foreign-based multinationals. For tax years beginning after December 31, 2017, and before January 1, 2026, eligible corporations can deduct 37.5% of their FDII, resulting in an effective tax rate of 13.125%, compared to the standard corporate tax rate of 21%. For tax years beginning after December 31, 2025, the deduction decreases to 21.875%, leading to an effective tax rate of 16.406%.

13. Multiple Valuation

Companies	EV/Revenues	EV/EBITDA	P/E
AMD	8	22	38
Intel Corp	2	12	(128)
Qualcomm	4	12	15
Marvell Technology	18	60	73
Broadcom	22	36	48

Companies	EV/Revenues	EV/EBITDA	P/E
High Percentile	22	60	73
75th Percentile	18	36	54
Average	11	28	43
Median	8	22	43
25th Percentile	4	12	32
Low	2	12	15

	EV/Revenues	EV/EBITDA	P/E
Multiple	11	28	43
Implied Enterprise Value	1.236.897	2.070.500	-
Net Debt	(17 525)	(17.525)	-
Implied Market Value	1.254.422	2.088.025	2.737.411
Shares Outstanding	24.940	24.940	24.940
Implied Value per Share	50	84	110

	Final Value
T12M Revenue	113.269
T12M EBITDA	73.318
T12M Earnings	63.74

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