A Comprehensive Analysis into the Rise of Nvidia's Stock Price

By Vicram Dhama

AUTHOR BIO

Vicram Dhama is a 15-year-old high school student living in Long Island, New York, descending from an Indian Family. He attends the Wheatley School, where he is an honors student with a love for math and history, hoping to one day get a job in the finance or accounting field. He is currently deeply involved with the school's DECA and Stock Market Club, competing in regional tournaments for both clubs. His interest in the stock market was sparked by the movie Dumb Money, which details how GameStop was able to make a late revival in the Stock Market. Vicram is able to balance his rigorous courses with extracurriculars like wrestling and internships at local businesses.

ABSTRACT

Financial analysts, stock market investors, and tech savvy customers are all invested in the skyrocketing price of Nvidia's stock. This research paper takes a deep dive into what has caused this massive boom in price for Nvidia's stock through a thorough look into the company's hold on the tech industry and its smart business decisions. By also reviewing Nvidia's financial performance through its history, this paper provides a view into how the increased reliance on artificial intelligence and the way the economy has played out over the past few years have also factored into their incredible boost into the face of investing.The analysis in this paper leads to the conclusion that Nvidia's success was enabled by their choke hold over the industry and advantages in many sectors in regards to their industry.

NVIDIA'S HISTORY AND BACKGROUND

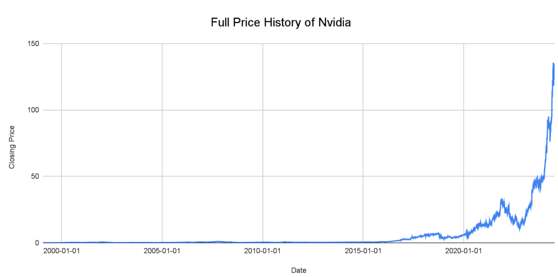
Nvidia, a software company founded in 1993, has found a way to create themselves into the biggest player in the semiconductor industry. Semiconductors are small chips that regulate the flow of electricity and are vital parts of all electronic devices. It is a big leap from just filling out a niche role a mere ten years ago in the same industry. The founders, Jensen Huang, Chris Malachowsky, and Curtis Priem, were visionaries who wanted to bring 3 dimensional graphics to a mostly 2 dimensional computer market. They succeeded in doing that by debuting the RIVA 128 and RIVA TNT in the late nineties. These were Graphics Processing Units, also known as GPUs. This was a new thing back then and it was the first of its kind. It was found out that GPUs were actually better at computing and doing calculations than Central Processing Units, also known as CPUs, which is what everyone was manufacturing up until that point. And by being first in the market, they were able to control a large part of the market and put themselves at the forefront of the computer gaming industry. Nvidia also has the best software ecosystem for GPUs, with many calling them the gold standard for Artificial Intelligence research and development.

By the time other companies had started realizing that GPUs were going to be a significant part of the semiconductor industry, Nvidia used their head start to stay ahead and made companies get their GPUs from them. For example, Tesla's autopilot mode uses Nvidia's GPUs because they are the best at processing the information from the sensors.They were also able to create enduring partnerships with key game developers and computer manufacturers that made sure nvidia's chips would be able to be used with popular games and were easily accessible to customers. Nvidia has also made sure to change with the times. They created shaders, a program that provides graphic data, which allows for better ways to develop new games. They also always changed with the times, constantly modifying the GPU design. They went from the RIVA to the NVX in 2002, which increased the capabilities of 3 dimensional clips. Then in 2006, they released the Compute Unified Device Architecture, also known as CUDA. This is what allowed GPUs to be used for all the different kinds of computing, not only graphics. Subsequently in 2018, tensor cores were debuted, which allowed Artificial Intelligence, also known as AI, workloads to skyrocket and in turn led to advancements in deep learning and AI applications. Finally, in 2023, Hopper Architecture was launched. The performance, scalability, and memory bandwidth of GPUs were significantly increased.

NVIDIA'S FINANCIAL HISTORY AND THE MAIN DRIVERS OF ITS HISTORIC RISE

Nvidia first went public in 1999, with its initial public offering, also known as an IPO, valued at 626 million dollars. Over the next decade, Nvidia slowly but surely grew more and more, until 2015, when the stock started to pick up. This was when GPU demand started getting higher, but in 2016, following the use of GPUs in AI and data centers, Nvidia's stock started growing. To compare from 2000 to 2015, the closing price went up by 555%. Meanwhile from 2015 to 2024, the closing price has gone up by almost 21,000%. Their revenue has skyrocketed, with the first quarter of fiscal year 2025 revenue set at 26 billion. This was accompanied by extremely high profit margins, with Nvidia posting a seventy eight point four percent gross margin for the quarter and beating out projection by almost one and a half percent. Their revenue also beat out their projections by almost two billion dollars. They also had an adjusted earnings per share of six dollars and twelve cents, which beat out projection by over sixty cents. Meanwhile Nvidia's GAAP earnings per diluted share at $5.98. That is up 21% and their Price to Earnings ratio as of August 22, 2024 is 75.68, which is a fifty five percent decrease from last year. So although Nvidia does have a very high Price to Earnings ratio, it has gotten much better over the past few years. This strong financial performance on Nvidia's part has led it to becoming one of the largest companies in terms of market capitalization with a market cap of 3.3 trillion dollars.

The graph below is of Nvidia's full price history using a logarithmic scale. You can see, based on the graph, there is a huge spike after 2020 in Nvidia's stock price, as well as a little dip. During that little dip, two of the largest single day drops of Nvidia stock happened, with Nvidia stock dropping 9.5% because of a bad market day on September 13, 2022 and dropping 9.2% the day after earnings were released on August 26, 2022. Also the little dip towards the very end is the largest single day drop in Nvidia stocks history, as due to various headlines on April 19, 2024 nvidia stock price dropped 10%. However there were also significant increases during thai time as well. On November 10, two months after Nvidia stock dropped on September 13, nVidia's stock rose 14.3% as a result of an overall very good day in the market. And a year before, on November 4, nVidia stock rose by 12% due to a press release. And earlier this year, on July 31st, Nvidia stock went up by 12.8% due to various different headlines and press releases.



Source: author creation using public data from yahoo finances.

What you can also see from the graph is that there has been a substantial rise in the stock price of nvidia over the past four years. In fact, it has gone up over 2000% during this time period. There are multiple factors for it, with a lot of it resting on the fact that GPUs are more important now than ever. The demand is so high, especially for Nvidia's GPUs, as a result of the fact that they are essential to the training of complex AI models. Meta also announced on January twenty first of this year that they will order three hundred fifty thousand of Nvidia's state of the art H100 graphics cards, which use the new hopper architecture. This is part of Meta CEO Mark Zuckerberg's plan to build an open-source artificial general intelligence. This order alone will make Nvidia at least eight and three quarters of a billion dollars. Also, Nvidia’s stock price has benefited greatly from the fact that their revenue is expected to more than double in the second quarter of fiscal year 2025. They also did a 10 for 1 stock split this past June, which bought back close to eight billion of dollars of their own stock, and also raised its dividend by one hundred fifty percent from four to ten cents.

NVIDIA’S EXPECTATIONS LOOKING AT THE FUTURE

The future isn't very clear when it comes to Nvidia. It is pretty obvious that most companies are trying to wean themselves off Nvidia’s GPUs, as big tech doesn't want to be ruled by one company for too long. However they have been mostly unsuccessful, as most companies are still willing to pay a high price premium and wait a year for their Nvidia chips, as well as the fact that the partnerships with developers that Nvidia has built hasn't been stopped. Most big developers still build off of Nvidia first, and this is shown by the new technologies and softwares that are being developed with and for Nvidia's GPUs. However, Nvidia has still been threatened with its dominance of chips, as Apple has recently come out and said that they have made a state of the art AI using just Google chips. Also, Nvidia stock is extremely volatile as a result of all the unpredictables related to the semiconductor industry. As a result of being a fabless company, Nvidia has relied on Taiwan Semiconductor Manufacturing Company, also known as TSMC, for all of their chips. The fact that former President Donald Trump has hawkish views on trade and defense policies in East Asia and that he is a favorite to win the 2024 United States Presidential Election has led to many investors being quite bearish over Nvidia and other companies that rely on TSMC for chips.

WILL NVIDIA KEEP GOING UP

Many people are debating on whether or not Nvidia will keep on going up. There is an argument for both. On one hand Nvidia had consistently had the best GPU software, and it only works on their own GPUs. Nvidia's annual revenue has increased by almost 500% over the last five years and since they are the founders of GPUs, it is now the industry standard. Nvidia initially had too little supply for their own demand and this led to less growth in 2023, but now TSMC has been able to produce enough supply to bring the supply and demand chain back to a more equal footing. And as AI becomes more and more important and popular, demand for Nvidia's GPUs will only continue to grow and they will become more needed.

However, there are still the bearish scenarios. Nvidia's revenues are wholly dependent on how AI does in the coming years. And if they are not as utilized as expected, Nvidia is more than likely to have an excess supply of GPUs, which will lead to their profit margins and lilly their stock prices to decrease. Another problem with Nvidia is the kind of GPU they manufacture. Nvidia makes mainly general purpose GPUs and just got started with custom GPUs, and as big tech shifts to more custom GPUs, they are more likely to buy from different companies in order to reduce the negotiating power of Nvidia. For example, Google went with Broadcom to develop their own custom chip called TPU. Broadcom specializes in custom silicone, unlike the H100, which is more like a swiss army knife. Also Microsoft is turning towards their own internally custom made Cobalt and Maia chips and Amazon recently released their own custom made chips that were named Trainium and Inferentia. There is also always the threat of Taiwan and China getting into a war. Tensions between the two countries are at an all time high, with Chinese Coast Guard ships carrying out patrols in the Taiwan strait on August 17 and 18. They also recently held military training exercises in the strait, trying to scare and coerce Taiwan into joining China in a similar way to how Hong Kong joined China back in the late nineties and early two thousands.

WHEN SHOULD I TAKE MY MONEY OUT OF NVIDIA

When looking at Nvidia, many investors wonder when they should take out their money in order to maximize their profits. It is no secret that Nvidia is a volatile stock that has consistently been swinging up and down for the past few months. However, throughout the years, there have been signs in the stock market that it may be time to pull out your money. A big sign that many people believe is Nvidia becoming the most valuable company in the world. By being the most valuable company in the world, Nvidia's stockholders will be pressuring and expecting more out of their own stock. They will get too greedy and sell their shares. That is not good for the price of Nvidia stock as it will lead to people believing that there is something wrong with the stock and more people selling and less people buying. Another thing to watch out for is Jensen Huang retiring. He has been an amazing chief executive officer, or CEO for Nvidia, and is a big part in why this company is as successful as it is. He is one of the very few people that has successfully turned their idea into a working business, and it shows. Although many people say that he has high demands, no one says that he isn't a good boss and many say that he is generally well-liked and respected. Unless Jensen Huang is able to train and teach a successor well enough to succeed him, Nvidia may fall off the map when he is no longer at its helm.

REFERENCES

Ballard, J. (2024, May 19). Why is Nvidia's stock price so high? The Motley Fool. https://www.fool.com/investing/2024/05/19/why-is-nvidias-stock-price-so-high/

Benzinga. (n.d.). Nvidia stock price | NVDA stock quote, news, and history | markets insider. Business Insider. https://markets.businessinsider.com/stocks/nvda-stock

Cohan, P. (2024, June 28). Nvidia stock tops $1,000 as Blackwell could aid a tenfold rise by 2026. Forbes. https://www.forbes.com/sites/petercohan/2024/05/25/nvidia-stock-tops-1000-blackwell-could-aid-10-fold-rise-by-2026/

fullratio. (n.d.). Stocks. NVDA - Nvidia PE ratio, current and historical analysis. https://fullratio.com/stocks/nasdaq-nvda/pe-ratio

Market Chameleon. (n.d.). NVDA volume and Price Nvidia. MarketChameleon.com. https://marketchameleon.com/Overview/NVDA/Stock-Price-Action

McBride, S. (2024, June 10). When to sell Nvidia Stock?. Medium. https://wire.insiderfinance.io/when-to-sell-nvidia-stock-a17d4ce78d87

Nvidia. (2024, August 23). News archive. NVIDIA Newsroom. https://nvidianews.nvidia.com/news/nvidia

Salvi, P. (2024, March 2). The Nvidia's rise as a semiconductor industry giant: A story of innovation, influence, and... Medium. https://medium.com/@pratikgsalvi03/the-nvidias-rise-as-a-semiconductor-industry-giant-a-story-of-innovation-influence-and-c4b642bf2787

Team, T. (2024, July 10). Nvidia Stock: A reality check. Forbes. https://www.forbes.com/sites/greatspeculations/2024/07/09/nvidia-stock-a-reality-check/

The Value Edge. (n.d.). Nvidia's path forward: Weighing the bull and bear cases (nasdaq:NVDA)|seeking alpha. Seeking Alpha. https://seekingalpha.com/article/4677402-nvidia-path-forward-weighing-bull-and-bear-cases

Wile, R. (2024, June 5). How Nvidia grew to a trillion-dollar company fueling the AI Revolution. NBCNews.com. https://www.nbcnews.com/business/business-news/what-is-nvidia-what-do-they-make-ai-artificial-intelligence-rcna140171

Yahoo Finance. (n.d.). Nvidia Corporation (NVDA.NE) stock price, news, Quote & History - Yahoo Finance. Yahoo. https://finance.yahoo.com/quote/NVDA.NE/