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NVIDIA External Analysis

Introduction

Almost 30 years ago, there existed three individuals that all believed that the next wave of computing was going to exist within graphics-based computing. After banding together, they managed to secure $20 million of venture capital funding to build upon their ideas and work to turn their dreams into a reality. On April 5, 1993, the American multinational technology company NVIDIA was born. Six years later, in 1999, a Graphics Processing Unit (GPU) called the GeForce 256 was released. Introducing on-board Transformation and Lighting (T&L) to consumer-level 3D hardware, the “world’s first GPU” outperformed other products available at the time by a wide margin. Due to this success, NVIDIA was contracted by technology giant Microsoft to create and develop the graphics hardware for the Microsoft Xbox gaming console, earning both a bright outlook for its future within the field of graphics hardware and an advance of $200 million. Since then, NVIDIA has been a leader in R&D on GPUs and has expanded onwards to other projects like supercomputing and artificial intelligence, along with acquiring some smaller competitors along the way.

Financials

Fast forwarding to 2020, NVIDIA now has a market cap of a cool $321.704 billion, and is in the process of releasing its newest RTX 3000 series of GPUs that are claimed by company employees to be the “greatest generational leap” in their hardware yet. From a financial standpoint, NVIDIA is in a very strong position. In the previous few years, the net income of NVIDIA increased drastically. In 2016, NVIDIA had a $614 million net income and $53.33 share price. From the year 2016 to the year 2017, this skyrocketed to a new yearly net income of $1,666 million and a share price of $149.38. Then, from 2017 to 2018, the net income increased once again to $3,047 million and the share price to $245.75. In 2020, despite the unrivaled influence of coronavirus, the stock of the company has embraced continued success. After the pandemic struck, the NVIDIA stock began to see rapid increases in value, reaching a current

stock price of $526.23 and boasting a whopping 52-week high of $589.07, as compared to its 52-week low of $170.13. All in all, these are intense increases in value over the last few periods for NVIDIA, and the company is performing extremely well financially.

PORTER MODEL ANALYSIS --

Threat of New Entrants

Being within the industry of computer hardware, the threat of new entrants is very low. NVIDIA was lucky in that its founders were able to secure a large amount of funding very early on in the existence of the company, as the graphics industry is one that has a huge requirement for large amounts of resources and grand economies of scale. NVIDIA was able to start early and capitalize on a large-scale technological change in the world (personal computing) in order to create large amounts of capital to further increase profits. Without a large budget, not much progress can realistically be made due to the nature of the field. Product differentiation within the industry is also low - NVIDIA and its main rival AMD constantly release chips that are nearly identical technically - meaning marketing and name recognition are essential towards the buildup and sale of products. This makes it increasingly difficult for new entrants to arrive in the industry, as the products are not cheap ones that can be replaced mindlessly. To add on to this, NVIDIA has been providing consumers with high quality products for many years now and has built a loyal customer base that is unlikely to switch to a potential new entrant.

Bargaining Power of Buyers

The bargaining power of buyers for NVIDIA and its industry is low. Other than the more rare and specialized contracted deals with large companies for hardware production (like with Microsoft for the Xbox or with Sony for the PlayStation 3), buyers of NVIDIA products within the industry are normally only one person purchasing one product. If the consumer does not upgrade or dispose of it, the graphics card itself can last for more than 5 years. Along with this, NVIDIA is supremely popular within the computer hardware industry for its graphics cards, and these cards have a very high demand. This means that a single consumer in the industry does not have a lot of leverage and is very price flexible. Over the last few releases of the signature

RTX series, prices for models have increased by a significant amount. These price increases, however, have not affected demand from consumers whatsoever - recently, the releases of the new RTX 3000 series graphics cards have all sold out in minutes, both on the NVIDIA website and with the many retailers that are utilized to sell the products. Because of all of this and more, it can be said that the bargaining power of buyers is low for NVIDIA and its industry.

Bargaining Power of Suppliers

The bargaining power of suppliers within the graphics hardware industry is medium to weak. There are very few chip manufacturers that can design products that meet the meticulously created regulations and specifications of NVIDIA and other graphics card companies. These world-class suppliers are the only ones capable of mass-producing quality chip sets, meaning that they are highly specialized and therefore there exists some degree of bargaining power for suppliers. Along with this, NVIDIA cannot make a final product if the supplier does not deliver. In turn, this boosts the leverage that these suppliers have within the industry. On the other hand, NVIDIA has such a large portion of the market share for discrete graphics cards that it would not be logical nor beneficial for a supplier to not work to supply chip sets. As mentioned before, NVIDIA owns 80% of the discrete graphics card All in all, this gives the suppliers a medium to weak level of bargaining power within the industry.

Threat of Substitutes

The threat of substitute products and services is medium. Despite NVIDIA already having an extremely large market share, they are still the fastest growing company within the field, and a highly innovative firm expanding into many other lucrative fields (AI, supercomputing, etc.). Because of advanced R&D and investment into new technologies, the immediate risk of market substitutes is lowered. The risk is not completely eliminated, however, as there always exists the threat of the invention of new technologies that surpass those of NVIDIA. To go along with this, currently consumers who use the GPU for PC gaming/entertainment do so because it is the most optimal method. If, however, gaming consoles upgrade significantly enough to overtake computers as the most optimal method for gaming, consumers may not see the need to

purchase such high-powered graphics cards for their computers. All in all, this makes the threat of substitutes a medium threat for NVIDIA.

Product Complements

NVIDIA produces Graphics Processing Units (GPUs) which are necessary when building a computer to use. Because of this, many of the other, separate PC hardware parts that NVIDIA has no relation to are still essential complements to their products (CPU, Power Supply, Motherboard, Memory, Storage, etc.). For example, without a Central Processing Unit (CPU), the computer cannot run and the GPU cannot be used, so a GPU is useless without a CPU. This same interaction occurs with many of the other parts required in order to build a fully functional desktop computer. Because of this, these products are not only just complements to one another, but in fact are dependent on each other.

Industry Rivalry

The level and intensity of rivalry in the discrete GPU market is high. The industry is a consolidated industry with two main competitors - NVIDIA and AMD - that account for basically the entire market. From the second quarter of 2019 to the second quarter of 2020, the market share of NVIDIA is the discrete GPU market went from 71% to 80%. This came at the expense of AMD, whose market share went from 29% to 20% in the same time period. The large number of consumers that were quarantined and bored due to coronavirus created an increased demand in the PC hardware market, resulting in a very high level of current industry growth and development. This allows for new developments to be made by either side in order to gain more of a competitive edge over the other. Both NVIDIA and AMD are also essentially tied to the industry and would face extreme difficulty in exiting. This results in dedication to making quality products that will do well commercially, and further increases rivalry within the field. Finally, NVIDIA and AMD are further pushed together as rivals by their more distant rival Intel, who controls the overall GPU market share. Because Intel caters to the lower price segment of the market and has such wide reach, NVIDIA and AMD are forced to keep their prices closer to one another. Altogether, the intensity of the rivalry within the industry is high.

Macro Environmental Factors

There exist many different environmental factors that affect NVIDIA and the industry that it is within. Demographically, the main consumers of NVIDIA graphics cards are those who require high levels of power to process and load data on a computer. This can range anywhere from PC gamers and data scientists to graphic designers and engineers for self-driving cars. As long as there is a need for increased graphical computing power, NVIDIA will have consumers to sell to. Socially, more and more people worldwide are transitioning to playing video games on computers, providing an opportunity for NVIDIA to sell more products. Also, as more niche instruments that require high powered graphics are created, the demand for the graphics cards will increase along with it. Legally, NVIDIA has dealt with a lawsuit regarding false advertising, along with a class action lawsuit over manufacturing defects. These lawsuits have been fully cleared; both are seemingly in the past, not mentioned when discussing NVIDIA and its products. Technologically, NVIDIA is a leading company in innovation and is working in many cutting-edge fields like self-driving cars, artificial intelligence, image recognition, and more. Economically, the demand for NVIDIA products is currently at a very high point. Coronavirus and its resulting consequences boosted the financial performance of NVIDIA significantly. This can be explained by the heavy increase of individuals now working from/stuck at home on their computers. Along with this, NVIDIA has just recently launched a new version of their flagship graphics cards series with a staggered online release worldwide that sold out almost instantaneously.. Globally, trade partnerships and business infrastructure built overseas plays a heavy role in international performance. Currency exchanges, new competition, possible regulations, and more are only some global factors that exist that can affect the performance of NVIDIA at any moment. These are some of the many macro environmental factors that apply to NVIDIA.

Industry Life Cycle

Even though the company has existed since 1993, I believe that NVIDIA is still within the “growth” phase of the Industry Life Cycle. As mentioned, when discussing the financials of the company, the stock value of NVIDIA has been surely and steadily skyrocketing over the course of

the past few years. Along with this, they have been leading innovators and investors in new cutting-edge technological fields like AI and self-driving cars. As a primarily R&D focused company, NVIDIA relies on growing and adapting in order to be successful, and thus I would consider them to be in the “growth” phase of the Industry Life Cycle.

Conclusions

NVIDIA is a behemoth of a company in the field of graphics hardware that has been doing very well since its inception. As the world prepared for the beginning of a huge technological change, NVIDIA stood ready to capitalize on every opportunity in the field available at every chance possible. As technology (especially consumer technology) becomes increasingly complex and intricate, NVIDIA continues to adapt, improve, and innovate in order to remain a market and industry staple. In the past few years, NVIDIA has realized ridiculous levels of growth financially, and only seems to be trending even higher. With the unique position of being market leader in its industry as a R&D company, NVIDIA has a lot of revenue to reinvest into research into new technologies that can be incorporated into the NVIDIA sphere. All in all, NVIDIA is a company with great success headed towards more - competitors are sure to be more than envious.

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