THE OHIO STATE UNIVERSITY
FISHER COLLEGE OF BUSINESS

NVIDIA Corporation (NVDA)

BUSFIN 4228 – Student Investment Management

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Summary

NVIDIA creates products that help provide optimal computer performance. They make graphic processing units, which are crucial for the growing gaming industry and the speed of these processors allow for AI and machine learning developers to work faster than ever before. NVIDIA also creates chip units that are used for mobile computing and in the auto industry.

Investment Thesis

I am recommending that investors buy NVIDIA Corporation due to the following reasons:

- NVIDIA's AI computing model is more advanced than its competitors and the NVIDIA DRIVE feature has potential to enter the market soon with autonomous driving vehicles.
- The potential acquisition of Mellanox Technologies, Ltd. is expected to add more value to the fundamental value of NVIDIA Corporation.
- Discounted Cash Flow and Valuation Metrics show NVIDIA stock is undervalued in the current distressed market.

Risks

Potential risks associated with investing in NVIDIA Corporation include:

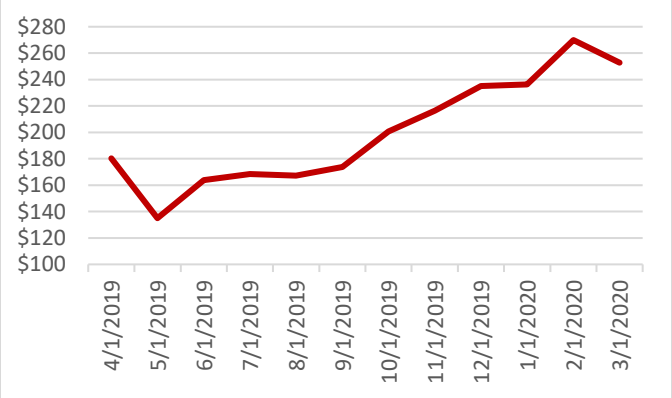
- Market volatility that comes with uncertainties about the Coronavirus and trade war with China.
- Stricter Artificial Intelligence (AI) regulations coupled with increase AI computing competition from AMD and INTC.
- The uncertainty surrounding the NVIDIA's possible acquisition of Mellanox Technologies, Ltd.

Company Information	
Ticker	NVDA
Sector	Technology
Industry	Semiconductors
Price as of 2/4/20	$247.00
Market Cap (bn)	$154.212
Shares Outstanding (mn)	612

Recommendation	
Stock Rating	Buy
Price Target	$266.98
Implied Upside	8.09%
Dividend Yield	0.27%

Key Statistics	
Revenue (2019, mn)	$11,716
Earnings (2019, mn)	$4,141
EPS (2019)	$6.63
P/E (2/4/20)	55.48
Beta	1.67

Performance History	
52-week High	$316.32
52-week Low	$132.60
1-year Return	40.75%



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Company Overview

NVIDIA Corporatin is a visual computing company that began in 1933 and is headquartered in Santa Clara, California. Since 1993, NVIDIA has grown to be a global competitior by producing top of the line products in both their GPU and Tegra Processor business lines. The products produced in both lines of business are sold to original equipment/device manufacterurs, network builders, retailers, the automotive industry, mapping companies and internet/cloud providers. Once NVIDIA's products are sold to these parties and incorporated into their own unique products, NVIDIA processor's and software are then used for gaming, professional visualization, datacenter and automotive markets through these enhanced products.[1]

Business Segments

NVIDIA's products are divided into their either their GPU or Tegra Processor segment. It is difficult to tell which segment has higher earnings since the Tegra Processor segement is partly made up of GPUs, but it is clear that the GPU segment has a higher revenue than the Tegra Processor segment. NVIDIA's GPU segment growth began when their chip was recognized as the fastest graphic chip against their compeitiors. Shortly after in 2000, Microsoft anounced NVIDIA would be their sole supplier for the X-BOX. Furthermore, acquisitions of 3dfx Interactive Inc., Media Q and most recently, Mellanoc Technologies, Ltd. allowed the segment to continue to grow with the knowledge and expertise of these smaller niche companies. These events jump started the growth of the GPU segment and have allowed it to become the main source of NVIDIA's revenue.

GPUs

NVIDIA's graphic processing units (GPU) sector is crucial to the corporation since it brings in the majority of the business revenue, about 86% in 2019. NVIDIA was also the company to invent GPUs when they introduced GeForce 265 to the world in 1999. GPUs are used in both personal and company computers and gaming systems to enhance visibility, speed and storage. A few examples of GPUs NVIDIA offers are GeForce for gaming, GRID for PCs and cloud gaming, Tesla and DGX for artificial intelligence, and Quadro for design professionals.[2]

From just 2018 to 2019, the sector grew from $8.1B to $10.1B, showing the rapid growth that the sector is capable of. Although the projected revenue for 2020 has dipped to $9.5B since there is low PC and data center demand due to the Coronavirus, consesus revenues for the graphic processing unit sector are to exceed $11.3B.[3]

Tegra Processor

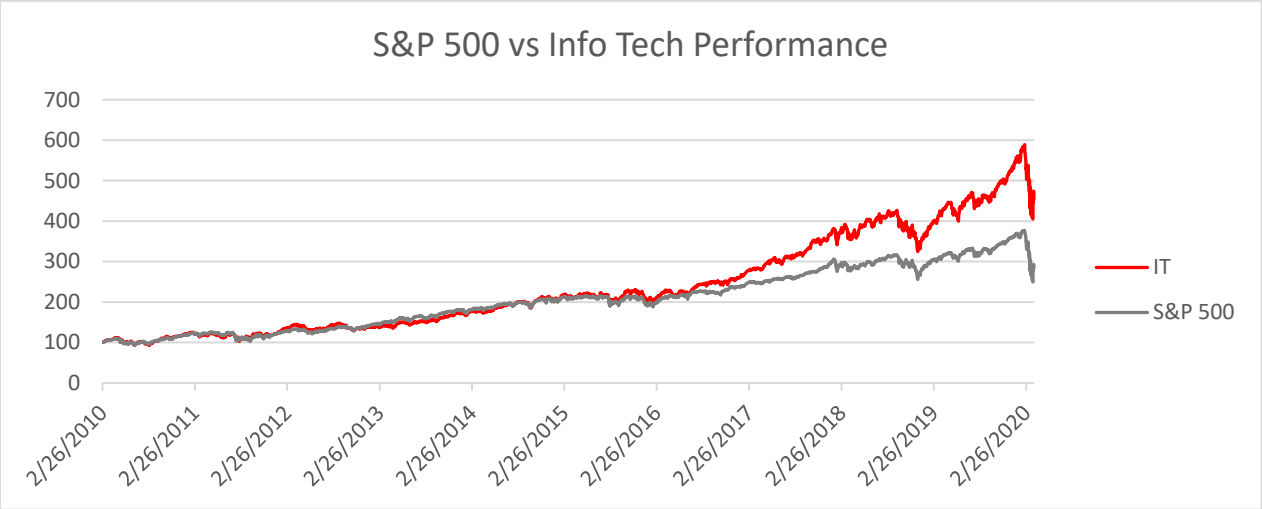
NVIDIA's Tegra Processor business line is smaller than the GPU segment since it was created within NVIDIA in 2008 by combining the already existing GPUs with CPUs. Although the segment has not had much time to grow to the size of the GPU business, the Tegra line has made a significant amount of progress in the past decade. In 2013, the Tegra Note tablet with a groundbreaking stylus and camera was introduced as well as Tegra 4 and Tegra 4i were announced. Tegra 4 is the fastest quad-core mobile processor and Tegra 4i is NVIDIA's first 4G LTE mobile processor. The Tegra business continued to lead the industry as they launched Tegra K1, a super chip engineered with the fastest GPU in the world in 2014 and launched NVIDIA DRIVE in 2015, which is paving the way for self-driving cars and intelligent robots. Although the Tegra Processor sector is young, it is able to grow rapidly since already existing GPUs can be the base of a new Tegra technology.[4]

While the revenue for the Tegra Processor line was $1.5B and is expected to stay stagnant for 1-2 years due to the disrupted trade relations with China, the revenue is expected to grow to around $2B shortly after the relationship is mended (since China makes up about a quarter of Tegra Processor sales) and gaming demands are back up.[3]

Market Landscape

Sector Landscape

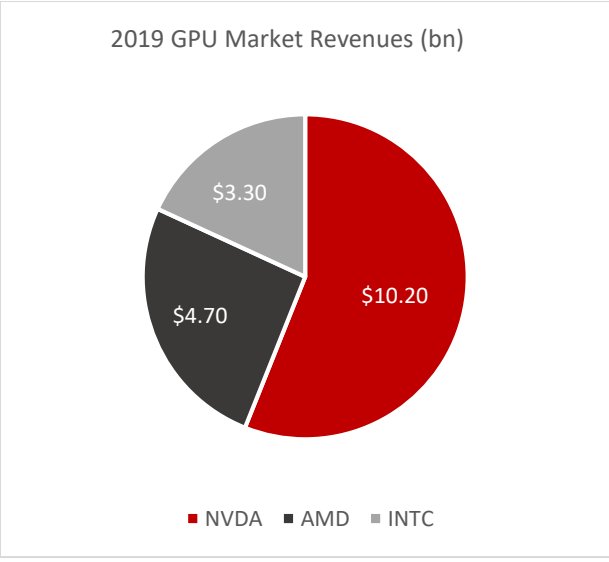
For the past ten years, the Information Technology Sector has moved similarly to the S&P 500, but at a faster growth rate. Over the past ten years, the S&P 500 has grown 122% while the Information Technology sector has grown 188%.[5] This growth in the IT sector in the past ten years is not only explained by the sector's advancements and discoveries in technology, but also the demand the market has for the technology being produced. However, since Coronavirus, the sector has dropped rapidly and will most likely continue to until the economy is in a stronger state. There is not as much of a demand for IT services when there is an economic crisis, but it is believed that the sector will rebound quickly due to its high growth potential. Furthermore, an economic downturn and health crisis can signal a great buying opportunity in Information Technology as prices drop due to a temporary lack of demand.[6]

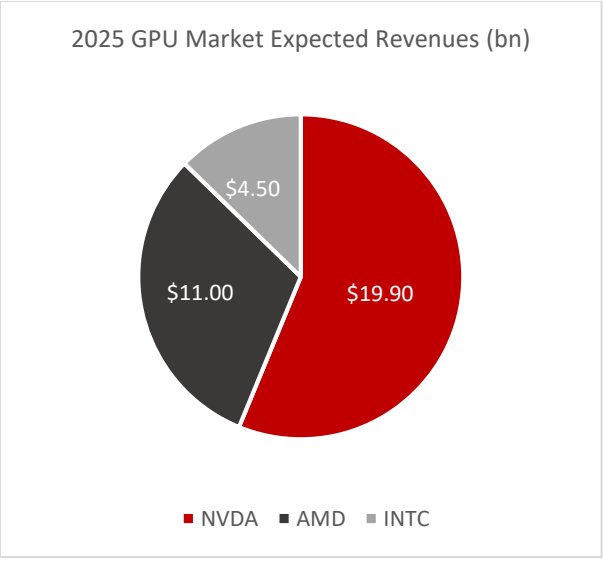


Competitive Landscape

NVIDIA competes in GPUs and Tegra Processors against their main competitors: AMD and Intel.

In 2019, NVIDIA had control of 56% of the GPU market share, while AMD had about 26% and Intel had 18%. NVIDIA has the first mover advantage since they were the first to introduce the GPU to the market in 1999.[7] NVIDIA has since been able to develop faster and smarter GPUs, including a GPU with the DNA to work faster than any other GPU invented. The knowledge NVIDIA has from first inventing the GPU will allow NVIDIA to hold the largest market share from its competitors for an extremely long time. Analysts have estimated that NVIDIA will keep about 56% of market share at least until 2025 as the total GPU market revenue increases from $18.2B to $35.4B.[8]





As far as NVIDIA's Tegra Processor competitors, AMD, Intel, Qualcomm, Broadcom and Samsung are companies to look out for. These companies have platforms with similar specifications as NVIDIA's semiconductors, chips and mobile processors. However, NVIDIA has potential to grow in this line of business since they haven't even been in this line for 15 years and there is strong growth in their automotive and SoC (system-on-a-chip) segments. For example, as autonomous cars become more popular and allowed by the government, NVIDIA's DRIVE PX platform will continue to be purchased by auto manufacturers to improve automotive AI in their cars. The automotive and SoC platforms will continue to drive growth in the Tegra Processor segment and contribute to NVIDIA's total revenue.[9]

Market Drivers

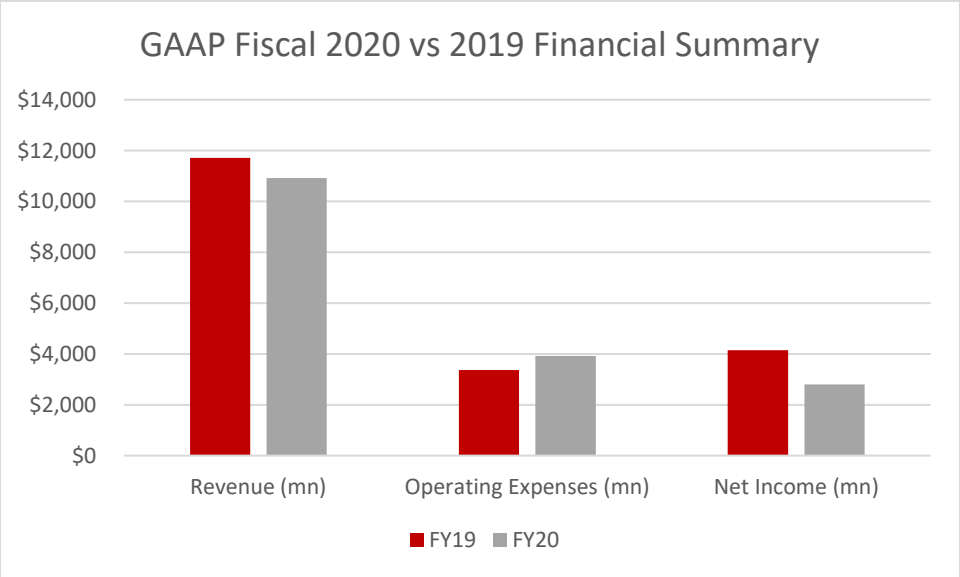
While near-term expectations are low due to Coronavirus concerns, the outlook for the next 2-3 years looks very strong for the Information Technology sector. Even though IT companies have relatively stronger valuations compared to other public companies right now, their values will continue to increase after this economic downturn since IT companies have strong fundamentals. Furthermore, after the bear market, many companies will be utilizing their extra cash from increased revenues to upgrade and improve their technology in order to stay competitive in the fast-changing business world. These purchases will not only raise the Information Technology sector's valuations, but also motivate the IT companies to innovate more as there is an increased demand for the new innovations. Lastly, IT spending was said to increase to $4T by 2021, with cloud software and services contributing the most to this increase in spending.[10] Although the Coronavirus will delay this massive increase in spending, IT companies that specialize in clouds, like NVIDIA, are still expected to benefit at this time due to increased demand for cloud products and specialized software.[11]

Recent Stock News

Earnings

NVIDIA reported that their Q4 revenue was up 41% from last year's Q4 revenue, and up 3% from the previous Q3 revenue. Furthermore, their GAAP earnings per diluted share were up 66% from last year and up 6% from Q3. Although NVIDIA's fiscal revenue is down 7% compared to the year prior, NVIDIA is excited about the initiatives they are taking in their business lines to foster growth. CEO Jensen Huang said, "our initiatives are achieving great success" when referring to the NVIDIA accelerated computing that drove data center revenues to a record high. NVIDIA also introduced the first scalable GPU-accelerated supercomputer and announced that Alibaba and Baidu's recommendation engines are now running on NVIDIA AI. NVIDIA AI is

better understanding and decrypting languages and improving core algorithms that make computers more intelligent, which is adding competitive advantages to both of these prestigious companies using NVIDIA AI. Lastly, NVIDIA RTX has revolutionized graphics this past quarter in the gaming, design, and cloud markets, making NVIDIA products more attractive than AMD or Intel's. In addition to the initiatives and new products NVIDIA is rolling out, NVIIDA said time and time again that they have the knowledge and equipment to keep up with future technology trends that gain popularity. They are confident that they can defend their market share, it is just a matter of growing it with their new initiatives.[12]



Growth Since Previous Quarter	Q3	Q4
Revenue (bn)	$3.01	$3.11
Earnings/Diluted Share	$1.45	$1.53

Trade Relations with China

Since China accounts for about 25% of sales of NVIDIA's Tegra Processors, it is crucial that the United States and China are on good trading terms so the Tegra Processor sector can continue to grow against competitor's models. Although there was quite a bit of uncertainty toward the end of 2019 since there were disputes on intellectual property and trading etiquette between the two countries, NVIDIA suffered. Trading with China decreased over this period until things were sorted out in Phase 1 of the trade deal in January. Although this deal does not solve all intellectual property issues, it allowed for China and the United States to be on good trading

terms, increasing NVIDIA's sales to China as a direct result. For the time being, relations are stable enough with China to where there are not any immediate concerns, but the continued progress/steps taken back in these trade relations could positively or negatively impact the Tegra Processor business sector revenue.[13]

Coronavirus

The Information Technology sector is particularly vulnerable to the Coronavirus since it has been the most sensitive sector to the overall markets the past three years. When the market has experienced a correction in the past, the IT sector seems to follow, and the same is true for the impact of the Coronavirus on the markets. The instant the markets dipped into a correction and then a bear market, the IT sector followed this market trend.

However, this trend leads analysts to believe that after the short-term dip in the sector, it will grow rapidly just like the markets will after this time of economic stress. Most likely, large IT companies will make it out with a few bumps and bruises, but generally the IT sector is cushioned with enough cash and is not carrying too much debt to where it could potentially be an issue if the economy is headed into a recession. In addition, when spending levels return to normal, IT companies can count on consumers to buy their products. Likewise, when wages begin to rise again, companies may begin to follow the trend of replacing physical employees with technology, thus propping up the IT sector.[11]

For the time being, IT businesses will stay afloat by fulfilling customer's cloud demands, since those have been on the incline. IT businesses will also bring in bits of revenue when employees working from home or parents who have children learning from home have to buy new computers or upgrade the ones they have.[13]

Although many people are in survival mode, it is important to remember that many are not. People that have money saved and are still making their full wage have the ability to buy IT products online without worry during this time. Similarly, businesses that are investing in innovation still will be purchasing NVIDIA products to continue to advance in their innovations and new products. Lastly, the $2T stimulus package from the government is helping individuals, families and businesses stay afloat during this unprecedented time. If these people do need to purchase products related to the IT sector at this time, they may have enough cushion to do so depending on their disposable income with the stimulus package.[14]

Investment Thesis

Fundamental Drivers

There are multiple fundamental drivers that the outlook of NVIDIA is based on, and they are surrounded by uncertainty since the market is volatile right now. However, the risk of not knowing how these drivers will play out in the upcoming months/years can lead to a great return if acted upon correctly. The first driver is the projects that the AI computing model supports and if these projects will be profitable for NVIDIA or even able to launch. The second driver is the potential acquisition of Mellanox Technologies, Ltd. The outcome of the potential AI launches and the acquisition of Mellanox Technologies, Ltd. will play an enormous role in the future valuation of NVIDIA.

AI Computing Model

One of the main projects NVIDIA is working on under their Artificial Intelligence Computing Model is NVIDIA DRIVE. This initiative was introduced in 2015 to begin to penetrate into the $10T transportation industry and is designed to allow researchers and programmers develop new algorithms to expand autonomous driving training sets. These algorithms simulate potentially dangerous situations that could occur on the road. Without the ability to test the algorithms and have the car supercomputer learn from them before that car is on the real road, the supercomputer would be learning how to drive at the expense of human lives.[15]

The government, however, is worried that if they allow for self-driving cars, enough algorithms will not have been tested and the cost will be human lives. While this is an understandable perspective, I think the growth of technology in the world and need for an easier and more efficient daily life will eventually outweigh the skepticism. In the long run, autonomous cars can save many more lives than they will cost, and they will become a safer alternative to driving. In addition, the government recently approved Nuro with the first federal safety approval to deliver groceries via their self-driving robot in February. Since the first safety approval is out, it is only a matter of time before other robots and self-driving cars carrying passengers are approved as well (depending how Nuro's trial run goes).[16]

As a result, NVIDIA will get a great return on their original investment in the transportation industry. Although self-driving cars for the use of all citizens will not be approved in 2020, they will in the foreseeable future, and cause NVIDIA's value to grow.

Mellanox Technologies, Ltd.

Mellanox is a supplier of interconnect solutions/services for storage, servers and infrastructure. These interconnect systems increase data center performance by providing faster applications and unlocking enhanced system performance.[17] For over a year, Mellanox was looking to partner with a larger semiconductors business to share resources and create a synergy between the companies. After being courted by AMD and Intel as well, Mellanox decided to chose to be acquired by NVIDIA. The companies plan is to share resources and knowledge, but ultimately let Mellanox stand alone in Israel while NVIDIA helps to grow their business model. This model will also benefit NVIDIA since they have the opportunity to increase their revenue through an already profitable company and use the niche resources Mellanox has personnel wise and location wise in Israel. If the $6.9B transaction goes through before June 10th, 2020, Mellanox will be acquired at $125/share.[18]

Before NVIDIA can acquire Mellanox, regulatory approval must be granted from China. While there is low visibility on the Chinese regulators, the European Union has recently granted permission for NVIDIA to acquire Mellanox, so there is hope that China will follow the lead.[19] Moreover, even though Mellanox has a substantial amount of cash, ($0.876B, a 99.75% increase from 2018) it may be beneficial for the two companies to merge during this time of financial uncertainty so they can grow into a bull market as a synergy, and stronger than they were individually.[20]

If NVIDIA is given the opportunity from China to acquire Mellanox, their fundamental valuation will increase over time to raise their current valuation (, after NVIDIA recovers from the typical stock price drop that comes with acquiring a company).

Economic Analysis

Compared to other sectors, the Information Technology sector has slightly more elevated valuations during this time of economic downturn, proving their strong fundamentals. While prices are more elevated than other sectors, they have decreased in tandem with the market, specifically the S&P 500. While this sensitivity exposes IT companies like NVIDIA to a possible downfall in the market, it brings the opportunity of an unlimited upside after the Coronavirus and economic related repercussions pass.

In addition to a promising unlimited upside in several months, the economy needs anything related to healthcare at the moment due to the spread of the virus. When the virus calms down and there is more clarity in companies' financials, there is an opportunity to invest in healthcare AI programs, which many IT companies, like NVIDIA, already have. These programs will allow AI to catch and identify diseases like this faster and stop the spread sooner. After the world just

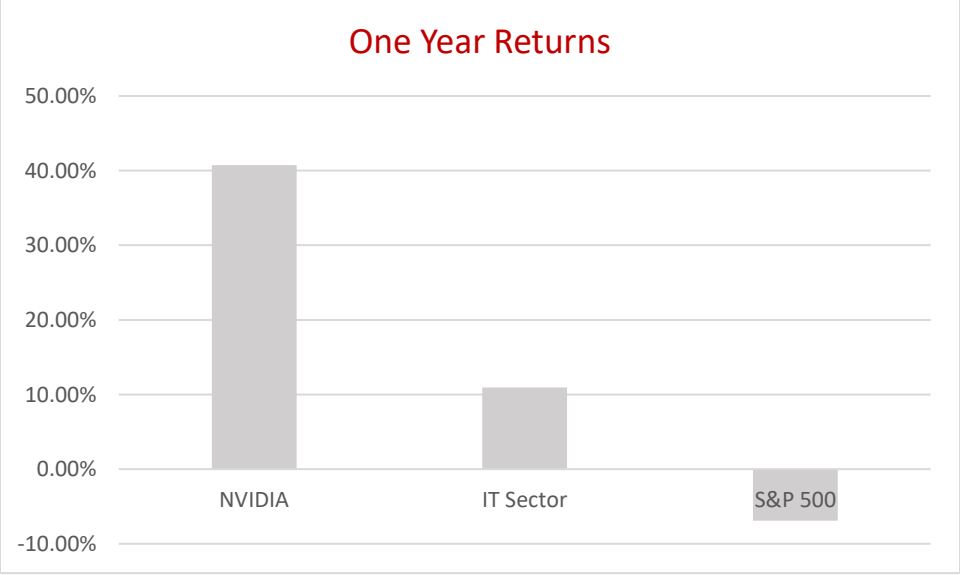
experienced this traumatic event, there will be much more ease in finding investors and buyers of these innovative products.

Lastly, while consumer and business spending are down due to the Coronavirus and many businesses/restaurants/etc. shutting down, less NVIDIA products are being bought, and therefore the stock price is lower than it would be normally when markets are healthier. This environment creates a perfect buying opportunity for NVIDIA since it can be bought at a discount to its intrinsic value.

Financials

Over the past year, NVIDIA stock had a year's return of 40.47%. While NVIDIA has performed well the past couple months, specifically before the dip in the markets, Coronavirus stunted and decreased that growth from its potential. Over the same year span, the Information Technology sector and S&P 500 had returns of 10.96% and -6.9% respectively. NVIDIA has outperformed the S&P 500 as well as its sector the past year because its fastest computer is now operating at 3 times its performance record and the GeForce RTX gaming experience took off.

Since mid-February, when the Coronavirus pandemic became a serious concern, NVIDIA's stock had four days with sharp inclines each around -16%. In the last couple days since those drops, NVIDIA's stock has begun to increase slightly each day in tandem with the S&P 500.



While NVIDIA clearly outperformed the IT sector and the market as a whole, their performance varies among their competition. AMD's promising returns give hope that the NVIDIA stock will have returns of this magnitude in the future since AMD and NVDA have similar platforms and innovations. Intel is extremely focused on the chip industry, which performed poorly in 2019, and Qualcomm is focused in chip processors as well, which explains their slower growth compared to AMD and NVDA.

	NVIDIA	Advanced Micro Devices	Intel	Qualcomm
Ticker	NVDA	AMD	INTC	QCOM
12-month return	40.75%	67.49%	-0.97%	20.40%
Revenue (2019, mn)	$11,716	$6,731	$71,965	$24,273
Net Income (2019, mn)	$4,141	$341	$21,048	$4,386
EPS	$6.63	$0.30	$4.71	$3.52
P/E Ratio	55.48	159.58	11.69	19.82

My projected Income Statement for NVDA is shown in Appendix I. The projections reflect the Revenue NVIDIA will gain if they are granted permission to acquire Mellanox, and a decrease in sales due to the Coronavirus.

I expect Revenue to barely increase in 2020, and then exponentially increase when the Mellanox acquisition begins to add value to NVIDIA. Additionally, I expect Net Income to decrease from $4,141mn (2019) to $2,730mn in 2020. The Coronavirus has caused a temporary decrease in sales and an increase in costs. It is more expensive for NVIDIA to make products and there is less of a demand at the moment, but after 2020, average costs are expected to decrease and demand will increase, resulting in a higher Revenue and Net Income.

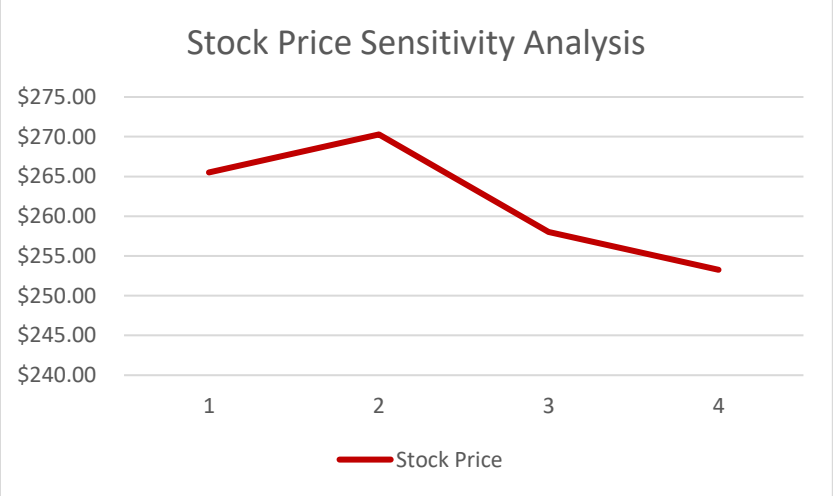
Valuation and Price Target

To accurately find a price target and provide a valuation for NVIDIA, I created valuations using several price multiples and a discounted cash flow method (DCF). In order to find the price of NVIDIA based on multiples, I benchmarked NVIDIA ratios to those of the S&P 500, Information Technology Sector, and competitors of NVIDIA. I utilized four pricing multiples, including Price/Earnings, Price/Book, Price/Sales and Price/EBITDA. The competitors I compared NVIDIA's price multiples to are Advanced Micro Devices, Intel, Broadcom, Cypress Semiconductor Corporation, Qualcomm and Xilinx. The table below summarizes these fours multiples and target prices based on each multiple. The target prices were computed by creating a target multiple, with respect to the ratios I have used as a benchmark, and growing the current ratio by the target multiple.

Ticker	P/E TTM	P/S TTM	P/B	P/CF TTM	EV/ EBITDA TTM
Average	31.36	6.68	5.78	19.58	16.56
NVDA	68.17	15.03	13.5	35.91	44.05
AMD	208.07	8.47	24.68	451.31	50.39
INTC	13.83	3.78	3.47	8.79	7.23
AVGO	35.84	5.43	5.78	12.65	14.29
CY	89.45	3.79	4.12	11.85	13.02
QCOM	13.67	4.52	21.12	15.08	9.15
XLNX	26.87	7.61	9.29	22.44	20.49

Next, I performed a discounted cash flow analysis to determine the price of NVIDIA based on their cash flows and financials. I used the Income Statement I generated (Appendix I) to make four different discounted cash flow models, one of which can be seen in Appendix II. For each model, I changed either the Terminal Discount Rate or the Terminal FCF Growth Rate. Small changes in both rates can have a dramatic effect on projected equity value of the company, and therefore the intrinsic share price being estimated. To account for the strong influence of the rates, I used Discount Rates ranging from 10.25-10.50% since NVIDIA is slightly riskier than the market, which has a Discount Rate of about 10%. Moreover, I chose Growth Rates ranging from 6.00-6.50% since NVIDIA is expected to grow at a rapid pace compared to the market.

These four DCF trials projected the equity value for NVIDIA between $146,948mn and $156,828mn. Furthermore, across the four sensitivity situations, implied equity value per share ranged from $253.36 to $270.39. With a stock price of $247.00 at the time of this valuation, a 0.25-6.99% upside is expected. The average implied stock price for these four scenarios with changing rates is $261.82, a 6% upside from the current valuation.



By weighting the price multiple and DCF prices appropriately, I was able to come to the intrinsic value of NVIDIA, $266.98. This price promises an upside of 8.09%. In the table below, the different valuations used are shown, with their respective weights and target prices.

Valuation Metric	Weight	Price Target
DCF	70%	$261.82
P/E	10%	$272.00
P/B	10%	$279.43
P/S	5%	$294.26
P/EBITDA	5%	$276.95
Final Price Target		**$266.98**

Risks

Industry Risks

The Information Technology sector faces several risks in this time of uncertainty. The IT industry should take Coronavirus, the trade war with China and stricter AI regulations into account when assessing the risk a stock carries in this industry.

Coronavirus is not only creating volatility in the market, but also uncertainty and confusion among businesses and consumers. To help stimulate an economy with relatively low consumer and business spending, the Fed created a $2T stimulus package and have lowered the Federal Funds Rate multiple times over the past months. The Fed Funds Rate sits at 0.25%, 25 basis points higher than where it sat two weeks ago with near-zero rates.[21] While the Fed hopes these emergency rate cuts will potentially stimulate the economy, this excessive quantitative easing will come coupled with quantitative tightening in the future. Historically, the IT sector has slower growth with high interest rates, so when the economy is growing again with higher interest rates, IT sector growth could begin to slow down.

Another IT industry risk is the trade war with China. While the United States and China are currently on good terms, the trade war was not completely sorted out, there was only a Phase I agreement made. If tensions rise again between the two companies, IT sales will decline dramatically since China is a key buyer of U.S. technology products and services.

Lastly, the government is looking to provide stricter AI regulations. These regulations are to help prevent cyber-attacks/hacking, lack of transparency from IT companies and improve privacy for citizens exposed to AI. These future regulations the government will impose are currently unknown, and therefore it is difficult for IT companies to incorporate these new rules

into their products.[22] The cost of abiding to the regulations is also unknown, meaning it could take a major toll on the IT sector's Net Income.

Company Risks

NVIDIA has a couple company specific risks including how the potential Mellanox acquisition plays out and how their competitors grow relative to NVIDIA.

If China does not approve NVIDIA to acquire Mellanox, NVIDIA's valuation could drop. The potential merger is slightly baked into NVIDIA's current stock price since investors have high expectations for the synergy between the two companies. Moreover, the markets could take this as China saying NVIDIA is not strong enough to acquire another company and grow their business model the way they have grown companies they acquired in the past.

In addition to the risk of the Mellanox merger being called off, NVIDIA faces competition risks. As cloud computing and AI grow within the technology sector, more semiconductor companies, like AMD and INTC, are increasing their focus on these two lines of business. NVIDIA, a semiconductor company itself, is focusing on these areas as well. Since AI is a developing field, another semiconductor could potentially master certain AI tasks before NVIDIA, decreasing NVIDIA's consumer base and market share. The developing and rapidly growing cloud computing and AI lines of business are increasing competition among semiconductor companies and creating uncertainty in future market share statistics.

Conclusion

BUY NVIDIA Corporation (NVDA) with a target price of $266.98 with an implied upside of 8.09%.

NVIDIA's stock is currently undervalued but has strong fundamental drivers to increase the price to its intrinsic value in the future. NVIDIA has an AI computing model with competitive advantages in the autonomous driving space, an area that is expecting growth. Additionally, China is expected to approve the acquisition of Mellanox Technologies, Ltd. before June 10th. This acquisition will add an enormous amount of value and quite a bit of revenue to NVIDIA Corporation. Lastly, the economic downturn right now creates the perfect market to buy NVIDIA at a discounted price before the market heads into another bull market in the upcoming years.

Appendices

Appendix I: NVIDIA Corporation Income Statement

NVDA	FY 2022E	FY 2021E	FY 2020E	FY 2019	FY 2018	FY 2017	FY 2016	FY 2015
Consensus	16437	12800	10800					
Revenue	25465	18863	13473	11716	9714	6910	5010	4682
Cost of revenue	10186	7545	5389	4545	3892	2847	2199	2083
Gross profit	15279	11318	8084	7171	5822	4063	2811	2599
Operating expenses								
Research and development	3820	2829	2021	2376	1797	1463	1331	1360
Sales, general and administrative	1528	1132	808	991	815	663	602	480
Restructuring and other charges	0	0	0	0	0	3	131	0
Total operating expenses	8284	6136	4545	3367	2612	2129	2064	1840
Income from operations	6995	5181	3539	3804	3210	1934	747	759
Interest income	255	189	135	136	69	54	39	28
Income before income tax expense	6740	4993	3404	3896	3196	1905	743	755
Income tax expense	1783	1226	674	-245	149	239	129	124
Net income	4958	3767	2730	4141	3047	1666	614	631
EPS								
Basic net income per share	$9.01	$6.85	$4.96	$6.81	$5.09	$3.08	$1.13	$1.14
Diluted net income per share	$8.55	$6.49	$4.71	$6.63	$4.82	$2.57	$1.08	$1.12
Consensus	$8.48	$6.64	$4.38					
Shares Outstanding								
Basic Weighted Avg Shares	550	550	550	608	599	541	543	552
Diluted Weighted Avg Shares	580	580	580	625	632	649	569	563
Sales	35.00%	40.00%	15.00%	20.61%	40.58%	37.92%	7.01%	
Expenses as a % of Sales								
Research and development	15.00%	15.00%	15.00%	24.46%	18.50%	15.06%	13.70%	14.00%
Sales, general and administrative	6.00%	6.00%	6.00%	10.20%	8.39%	6.83%	6.20%	4.94%
Restructuring and other charges	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	1.35%	0.00%
Interest Income	1.00%	1.00%	1.00%	1.16%	0.71%	0.78%	0.78%	0.60%
Tax Rate	7.00%	6.50%	5.00%	-6.29%	4.66%	12.55%	17.36%	16.42%
Operating Margin	35.00%	35.00%	35.00%	28.74%	26.89%	30.81%	41.20%	39.30%
Gross Margin	60.00%	60.00%	60.00%	61.21%	59.93%	58.80%	56.11%	55.51%

Appendix II: NVIDIA Corporation Discounted Cash Flow

Shown below is scenario 1. The three additional DCF trials are not shown in the appendix.

NVIDA (NVDA)
Analyst: Maddie Smith
2/3/2020

Terminal Discount Rate = 10.50%
Terminal FCF Growth = 6.50%

Year	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E
Revenue	13,473	18,863	25,465	30,558	35,141	40,413	44,454	48,455	52,331	55,471
% Growth		40.00%	35.00%	20.00%	15.00%	15.00%	10.00%	9.00%	8.00%	6.00%
Operating Income	3,539	5,181	6,995	8,251	9,488	10,911	12,003	13,083	14,129	14,977
Operating Margin	26.26%	27.47%	27.47%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%	27.00%
Interest Income	135	189	255	306	351	404	445	485	523	555
Interest % of Sales	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Taxes	674	1,226	1,783	556	640	736	809	882	952	1,010
Tax Rate	5.00%	6.50%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Net Income	2,730	3,767	4,958	7,389	8,497	9,772	10,749	11,716	12,654	13,413
% Growth		37.96%	31.62%	49.04%	15.00%	15.00%	10.00%	9.00%	8.00%	6.00%
Add Depreciation/Amort	269	377	509	764	879	1,212	1,334	1,696	1,832	1,941
% of Sales	2.00%	2.00%	2.00%	2.50%	2.50%	3.00%	3.00%	3.50%	3.50%	3.50%
Plus/(minus) Changes WC	804	-674	-825	-917	-1,054	-1,212	-1,334	-1,454	-1,570	-1,664
% of Sales	5.97%	-3.57%	-3.24%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%
Subtract Cap Ex	606	849	1,146	1,375	1,494	1,718	1,778	1,817	1,962	1,941
Capex % of sales	4.50%	4.50%	4.50%	4.50%	4.25%	4.25%	4.00%	3.75%	3.75%	3.50%
Free Cash Flow	3,197	2,621	3,496	5,861	6,828	8,054	8,971	10,142	10,953	11,749
% Growth		-18.01%	33.36%	67.66%	16.50%	17.96%	11.38%	13.05%	8.00%	7.27%

NPV of Cash Flows	38,728	25%
NPV of terminal value	115,254	75%
Projected Equity Value	153,982	100%
Free Cash Flow Yield	2.18%	

Current P/E	53.69	38.92	29.57
Projected P/E	*56.40*	*40.88*	*31.06*
Current EV/EBITDA	38.81	26.59	19.69
Projected EV/EBITDA	*40.75*	*27.92*	*20.68*

Shares Outstanding	580

Current Price	$252.73
Implied equity value/share	$265.49
Upside/(Downside) to DCF	5.05%

Debt	1,988
Cash	782
Cash/share	1.35

Terminal Value	312,810
Free Cash Yield	3.76%
Terminal P/E	23.32
Terminal EV/EBITDA	18.56

NVIDIA Stock Price Valuation - Sensitivity Matrix			
Scenario	**Discount Rate**	**Terminal Growth Rate**	**Stock Price**
1	10.50%	6.50%	$265.29
2	10.25%	6.25%	$270.39
3	10.25%	6.00%	$258.02
4	10.50%	6.25%	$253.36
Average:			**$261.82**

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