

Company Note	2
Investment Thesis	6
Company Overview	7
Financial Data	9
Financial Analysis	10
Ratings History	11
Tigress Research Methodology Overview	11
Glossary of Key Terms and Measures	11
Contacts	12
Analyst Certification	12
Research Disclosures	12
Tigress Research Investment Rating Meanings and Distribution	12
Specific Disclosures for the companies that are the subject of this Report	13
Research Report Disclaimer	14
About Tigress Financial Partners LLC	14

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NVIDIA Corporation (NVDA-US)

Semiconductors

- **We reiterate our Buy rating on NVDA as a turnaround in gaming, new data, and center opportunities, together with its penetration of new markets, will continue to drive a reacceleration of growth.**
- **The turn in gaming and strength in automotive, together with a pickup in data center demand and expanding applications for NVDA's industry-leading GPU technology in new and emerging markets, will drive a reacceleration of Business Performance trends.**
- **The Mellanox acquisition increases NVDA's data center capabilities providing increased speed between GPU processing and network connectivity.**
- **NVDA's market-leading, high-speed GPUs are driving new market opportunities.**
- **NVDA's advanced Turing Architecture is driving the next generation of GPU technology.**
- **NVDA's high-speed GPU capabilities are creating revolutionary opportunities in healthcare.**
- **NVDA continues to experience increasing demand for its industry-leading automotive data processor.**
- **NVDA's strong balance sheet and cash flow enable it to fund ongoing innovation and strategic acquisitions as well as increasing the return of cash to shareholders.**
- **NVDA is on our Research Focus List and is in our Focused Opportunity Portfolio.**

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Company Note
NVIDIA Corporation (NVDA-US)
 Semiconductors

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Research Action:

Reiterate rating

Rating: Buy

Prior Rating: Buy

Price 10/03/2019: \$181.31

52 Week High / Low: \$286.25 / \$124.46

Key Data: (TTM as of Jul-19)

Excess Cash per Share: \$13.08

Annual Dividend: \$0.64

Dividend Yield: 0.35%

Avg. Volume (30 Day): 8.2M

Shares Outstanding: 609.0M

Float: 582.5M

Short Interest: 9.9M

SI % / Float 1.70%

Equity MV: \$110,417.8M

Sales TTM: \$10,185.0M

Beta: 1.77

EBITDAR: \$5,499.6M

NOPAT: \$2,803.6M

Total Invested Capital: \$13,110.8M

Return on Capital: 23.37%

Cost of Capital: 9.35%

Economic Profit: \$1,681.8M

Market Value Added: \$100,460.8M

Current Operations Value: \$29,986.3M

Future Growth Value: \$83,585.3M

- **We reiterate our Buy rating on NVDA as a turnaround in gaming, new data, and center opportunities, together with its penetration of new markets, will continue to drive a reacceleration of growth.** NVDA continues to evolve into a platform provider with expertise in graphics processing, computing, and deep learning. GPUs for gaming, along with artificial intelligence for high-performance computing and cloud data centers are NVDA's key growth drivers due to growing speed needs for e-sports and ongoing cloud migration. New innovations and applications for NVDA's industry-leading GPUs indicate further growth potential. NVDA is branching out into additional growth channels, including expanded data center capabilities, and into the science and medical fields, which are benefiting from the strength and speed of NVDA's GPUs. NVDA is also experiencing accelerating adoption of its Volta processors and DRIVE PX2 onboard computers for the auto industry. The closing of the Mellanox acquisition, which is expected by the end of this year, increases NVDA's data center capabilities and will again drive incremental growth. NVDA's leadership position in visual data processing and the acceleration of opportunities in AI and deep learning, as well as ongoing data center adoption will continue to drive greater Return on Capital, increasing Economic Profit and greater shareholder value creation. We believe significant upside opportunity exists from current levels and continue to recommend purchase.
- **The turn in gaming and strength in automotive, together with a pickup in data center demand and expanding applications for NVDA's industry-leading GPU technology in new and emerging markets, will drive a reacceleration of Business Performance trends.** For the 12 months ending July 2019, Net Sales Revenue declined 14.25% Y/Y from \$11.88 billion to \$10.19 billion. We forecast a turnaround with close to 18% growth to \$12 billion over the NTM. Economic Operating Cash Flow (EBITDAR) declined 20.17% Y/Y from \$6.89 billion to \$5.50 billion over the LTM. We forecast an increase of 20.79% to \$6.64 billion over the NTM. Net Operating Profit After Tax (NOPAT) declined 35.68% Y/Y from \$4.36 billion to \$2.80 billion over the LTM. We forecast an increase of 26% to \$3.538 billion over the NTM. Return on Capital (ROC) declined from 44.65% to 23.37% over the LTM. We forecast a turnaround as Business Performance trends reaccelerate to 26.65% over the NTM. Economic Profit declined 48.70% Y/Y from \$3.28 billion to \$1.68 billion over the LTM. We forecast an increase of 5% to \$1.77 billion over the NTM. NVDA's reacceleration of growth driven particularly by gains in data center demand could provide further upside to our expectations.

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- **The Mellanox acquisition increases NVDA's data center capabilities providing increased speed between GPU processing and network connectivity.** NVDA's acquisition of Mellanox has received US regulatory approval and progressing in Europe and China with expectations to close by the end of this year. The acquisition will further accelerate NVDA's integration of its GPUs in data centers, driving faster innovation and processing of data, and integrating AI capabilities in large databases. Data centers of the future will function as a single giant computer with tens of thousands of computer nodes requiring interconnection to drive parallel processing, increasing applications for NVDA's GPUs. The combined company's products are used in all of the industry's leading supercomputers, and both companies supply every major cloud service provider and computer maker. Mellanox is the market share leader in high-performance network connectivity with over 90% share of InfiniBand networking connectivity and over 75% share in Ethernet network adapter cards supporting up to 100Gb speeds. The two companies have a long working history. NVDA currently uses Mellanox InfiniBand and Ethernet products in its DGX-2 artificial intelligence computing platform. The merger of the two companies enhances NVDA's ability to combine compute offload / acceleration, which is NVDA's core expertise, with high-speed interconnectivity, which is Mellanox expertise, to meet the needs of high-performance applications used in AI, machine learning, and data analytics. The long-term synergy of network and GPU architecture is the key driver of the deal and new growth opportunities.
- **NVDA's market-leading, high-speed GPUs are driving new market opportunities.** As computer interaction continues to become more visual, NVDA's innovative ability and powerful GPUs are continuing to create new opportunities for its growth. More complex software is, in turn, creating the need for a more sophisticated visual user interface rather than just textual information. The ability of NVDA's GPUs to process visual data is creating new opportunities in desktops, workstations, and data centers along with AI, data mining, and autonomous vehicle applications. The gaming market continues to grow driven both by increasingly more complex and visually-intensive games as both the number of participants continues to grow as well as the fact that e-sports are growing as a spectator sport at a very fast pace. NVDA's GeForce GPUs are being used many of the leading and largest e-sports tournaments. High-Performance Computing (HPC) and data centers will continue to experience tremendous growth as processing demand continues to increase. NVDA consistently launches new products that can process greater amounts of data with lower energy and operating costs. The intense processing power of NVDA's GPUs enables them to handle the increased demands of artificial intelligence (AI) applications.

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- **NVDA's advanced Turing Architecture is driving the next generation of GPU technology.** NVDA's Turing Architecture is viewed as the greatest breakthrough in visualization since the invention of NVDA's CUDA GPU. Turing is the successor to its Pascal Architecture and is named after the noted mathematician and computer scientist Alan Turing. It enables real-time graphic ray tracing, which is a rendering technique for generating images by tracing the path of light as pixels in an image plane and simulating interactions with virtual objects. It increases the capabilities of producing very high degrees of visual realism, which has many applications, including e-sports, gaming, and computer-generated video production. NVDA has launched its first line of Turing-based processors in its Quattro RTX line.
- **NVDA's high-speed GPU capabilities are creating revolutionary opportunities in healthcare.** NVDA continues to expand into new industry verticals that are benefiting from its high-speed GPU capabilities. NVDA is partnering with leading medical research providers to create synthetic brain scans to detect brain cancer. Data and medical scientists from NVDA, the Mayo Clinic, and the partnership between Massachusetts General Hospital and Brigham and Women's Hospital Center for Clinical Data Science are working together using NVDA's GPUs (Graphical Processing Unit) visual analysis and artificial intelligence (AI) capabilities to create synthetic brain MRI images using Generative Adversarial Networks (GANs) to detect and study brain tumors. GANs are two concurrent AI systems that mirror each other to create synthetic results within a category and identify fake results by working against one another to improve both. It provides similar capabilities of a neural network to measure wrong data versus predictive data. NVDA is powering away to generate large data sets for training AI systems to analyze brain tumors. AI can provide a significant number of new capabilities for medical professionals to better understand medical imaging. However, when it comes to studying brain tumors, there is not a large data set of abnormal brain images to use for comparison. New research from NVDA is working to provide a solution to this problem. This provides an additional facet to its product line and GPU capabilities. The research team uses NVDA's DGX-system with the cuDNN-accelerated PyTorch deep learning framework to train the GAN on data from two publicly-available data sets of brain MRIs - one with images of brains with Alzheimer's disease, and the other with images of brains with tumors.

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- **NVDA continues to experience increasing demand for its industry-leading automotive data processor.** NVDA's DRIVE PX2 is the auto industry's most powerful onboard computer enabling in-vehicle AI and driving enhancement technology. DRIVE PX2 is enabling auto manufacturers and component suppliers to accelerate the production of automated and autonomous vehicles. It can scale from a module for auto cruise capabilities to an AI-powerful supercomputer capable of autonomous driving. It scales from a palm-sized, energy-efficient module for AutoCruise capabilities, to a powerful AI supercomputer capable of autonomous driving. NVDA also introduced Xavier, an AI supercomputer chip design for self-driving cars. DRIVE PX can process ambient vehicle information and GPS data in real-time to provide autonomous vehicle guidance. It is an extremely advanced self-driving car platform that combines deep learning, sensor fusion, and surround vision. NVDA is currently working with over 300 automakers and tier-one auto parts suppliers to map companies, automotive research institutions, and with new and emerging companies working on systems for self-driving automobiles. NVDA's ongoing development of AI capabilities will continue to drive increased market penetration into the automotive industry.
- **NVDA's strong balance sheet and cash flow enable it to fund ongoing innovation and strategic acquisitions as well as increasing the return of cash to shareholders.** As of the end July 2019, NVDA currently has \$7.97 billion, \$13.08 per share, in excess cash and along with our expected Economic Operating Cash Flow (EBITDAR) generation of \$6.64 billion over the NTM, enabling it to continue to fund R&D and strategic acquisitions, including the pending \$6.9 billion Mellanox acquisition. NVDA will continue to enhance shareholder returns through ongoing dividend increases and share repurchases. In November 2018, NVDA announced an additional open market purchase of \$7 billion worth of stock, making it its most significant share repurchase announcement to date, and which followed a previous announcement of a \$2 billion open market purchase in November 2016. In FY 2019, which ended in January, NVDA repurchased a total of \$1.58 billion worth of stock. While so far in FY 2020, NVDA has not repurchased any shares, the company has stated it will resume repurchases once it closes its acquisition of Mellanox.

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- **NVDA is on our Research Focus List and is in our Focused Opportunity Portfolio.** NVDA's innovative ability and industry-leading position will continue to increase market penetration in many secular technology trends, including artificial intelligence, autonomous vehicle technology, emerging opportunities in healthcare, along with increasing graphical and data visualization opportunities and data center growth.

Investment Thesis

NVDA's dominance in gaming, artificial intelligence, machine learning, data center processing, and autonomous vehicle technology will, along with new areas in science and medicine, continue to drive increasing demand for NVDA's advanced high-speed GPUs. NVDA's emerging applications in key areas of healthcare applying AI analysis for brain scan imaging to create baseline analysis patterns will create significant future opportunities for its GPUs. NVDA's innovative capabilities and market-leading position will drive new product development and increasing demand for its GPUs, which will continue to drive higher Returns on Capital, increasing Economic Profit, and greater shareholder value creation.

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Company Overview

NVIDIA Corp. (NVDA-US) is the world's leading developer of visual computing technologies and the creator of the Graphics Processing Unit (GPU). NVDA develops three-dimensional (3D) graphics processors and software for use on visual computing platforms. It enables the conversion of digital data into visual data and also can convert visual data into digital data for a wide range of applications used to generate visually realistic interactive graphics for workstations, personal computers, game consoles, and mobile devices. NVDA's processors are used in applications for creating digital content, digital image editing, and industrial applications.

NVDA's technologies enable visual machine learning that power artificial intelligence (AI) applications such as cryptocurrency mining and autonomous driving. Its GPUs are used in video cards for used in many PCs and in gaming consoles. Its GPUs also power applications for autonomous vehicles and deep learning uses in data centers for scientists and researchers.

NVDA's customers include all of the major original equipment manufacturers (OEMs) original device manufacturers, system builders, integrated circuits, and add-in board makers, along with electronic distributors and retailers. NVDA's GPUs power the world's biggest data center and by all of the leading cloud hosting environment operators.

NVIDIA operates and reports revenue in two Business Segments:

Graphics Processing Unit - (87% of revenue) consists primarily of its GeForce line of high-end Graphics Processing Unit (GPUs) for use in desktop and portable computers. NVIDIA's GPUs can be part of a video card or can be directly integrated into a computer's motherboard. NVIDIA's GeForce for PC graphics and GeForce NOW line of GPUs for cloud-based computing services and in data centers includes Quadro for desktops and workstations for use in computer-aided design, video editing, and other visual applications. NVIDIA's Tesla and DGX datacenter GPUs are for use by scientists, researchers, and medical applications.

Tegra Processor - (13% of revenue) includes its Tegra line of system-on-a-chip CPUs for use in mobile applications, including mobile gaming and entertainment, as well as autonomous robots, drones, and cars. NVIDIA's Tegra line includes its DRIVE PX2, automotive chip systems that provide self-driving capabilities, and SHIELD, which includes a family of devices and services for cloud-based mobile applications for home entertainment, AI, and gaming. NVIDIA GRID provides virtual desktops.

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NVIDIA reports revenue in six Geographic Segments: Taiwan (29% of revenue); China (24% of revenue); Other Asia-Pacific (20% of revenue); United States (13% of revenue); Europe (8% of revenue); and Other Countries (7% of revenue).

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NVIDIA Corporation (NVDA-US)
Semiconductors
Financial Data

Report Basis	LTM	LTM	LTM	LTM	LTM	LTM	NTM	5 Yr	3 Yr	Current
Reported Period Ending	07/27/2014	07/26/2015	07/31/2016	07/30/2017	07/29/2018	07/28/2019	07/31/2020	Average	Average	Trend
Net Sales Revenue	\$4,403.8	\$4,779.9	\$5,439.0	\$8,344.0	\$11,877.0	\$10,185.0	\$11,999.8	\$8,125.0	\$10,135.3	\$11,092.4
Sales Growth	3.79%	8.54%	13.79%	53.41%	42.34%	-14.25%	17.82%	20.77%	27.17%	1.79%
Sales Growth Trend	4.83%	6.64%	11.69%	37.56%	46.77%	8.39%	4.99%	22.21%	30.91%	6.69%
Economic Operating Cash Flow (EBITDAR)	\$2,296.0	\$2,466.8	\$2,829.6	\$4,511.9	\$6,889.7	\$5,499.6	\$6,643.0	\$4,439.5	\$5,633.7	\$6,071.3
EBITDAR Margin	52.14%	51.61%	52.02%	54.07%	58.01%	54.00%	55.36%	53.94%	55.36%	54.68%
EBITDAR Growth	5.99%	7.44%	14.71%	59.45%	52.70%	-20.18%	20.79%	22.82%	30.66%	0.31%
Net Operating Profit Before Tax (NOPBT)	\$675.6	\$859.6	\$1,229.6	\$2,680.9	\$4,524.7	\$2,460.6	\$3,775.3	\$2,351.1	\$3,222.0	\$3,117.9
NOPBT Margin	15.34%	17.98%	22.61%	32.13%	38.10%	24.16%	31.46%	27.00%	31.46%	27.81%
NOPBT Growth	4.00%	27.24%	43.03%	118.03%	68.78%	-45.62%	53.43%	42.29%	47.06%	3.91%
Cash Operating Income Tax	\$105.5	\$195.5	\$179.3	\$292.4	\$166.2	\$69.9	\$244.3	\$180.7	\$176.2	\$157.1
Economic Tax Effective Rate	15.62%	22.74%	14.58%	10.91%	3.67%	2.84%	6.47%	10.95%	5.81%	4.66%
Net Operating Profit After Tax (NOPAT)	\$570.1	\$664.2	\$1,050.3	\$2,388.5	\$4,358.5	\$2,803.6	\$3,531.1	\$2,253.0	\$3,183.5	\$3,167.3
NOPAT Margin	12.95%	13.90%	19.31%	28.62%	36.70%	27.53%	29.43%	25.21%	30.95%	28.48%
NOPAT Growth	0.71%	16.50%	58.13%	127.41%	82.48%	-35.68%	25.95%	49.77%	58.07%	-4.86%
Cash & Equivalents	\$4,386.1	\$4,505.0	\$4,879.0	\$5,877.0	\$7,943.0	\$8,475.0	\$8,898.1	\$6,335.8	\$7,431.7	\$8,686.6
Total Assets	\$6,933.7	\$6,979.0	\$7,461.0	\$9,402.0	\$12,882.0	\$14,775.0	\$15,512.7	\$10,299.8	\$12,353.0	\$15,143.8
Non - Interest Bearing Liabilities (NIBLs)	\$1,130.8	\$1,272.0	\$1,383.0	\$1,231.0	\$1,916.0	\$1,700.0	\$1,784.9	\$1,500.4	\$1,615.7	\$1,742.4
Net Assets	\$5,802.9	\$5,707.0	\$6,078.0	\$8,171.0	\$10,966.0	\$13,075.0	\$13,727.8	\$8,799.4	\$10,737.3	\$13,401.4
Economic Asset Adjustments	\$404.1	\$473.1	\$622.9	\$403.6	\$272.5	\$35.8	\$37.6	\$361.6	\$237.3	\$36.7
Net Operating Assets	\$6,207.0	\$6,180.1	\$6,700.9	\$8,574.6	\$11,238.5	\$13,110.8	\$13,765.4	\$9,161.0	\$10,974.6	\$13,438.1
Debt & Debt Equivalents	\$1,649.2	\$1,634.1	\$1,679.9	\$2,202.6	\$2,216.5	\$3,153.8	\$3,311.3	\$2,177.4	\$2,524.3	\$3,232.6
Equity & Equivalents	\$4,304.8	\$4,185.0	\$4,552.0	\$5,975.0	\$8,795.0	\$10,336.0	\$10,852.0	\$6,768.6	\$8,368.7	\$10,594.0
Total Capital - Financing Sources	\$5,954.0	\$5,819.1	\$6,231.9	\$8,177.6	\$11,011.5	\$13,489.8	\$14,163.4	\$8,946.0	\$10,893.0	\$13,826.6
Capital Adjustments	\$141.0	\$250.0	\$379.0	\$277.0	\$57.0	(\$562.0)	(\$590.1)	\$80.2	(\$76.0)	(\$576.0)
Net Capital Financing Sources	\$6,095.0	\$6,069.1	\$6,610.9	\$8,454.6	\$11,068.5	\$12,927.8	\$13,573.3	\$9,026.2	\$10,817.0	\$13,250.6
Net Working Capital	\$470.0	\$534.0	\$671.0	\$1,800.2	\$2,216.9	\$2,377.3	\$2,495.9	\$1,519.8	\$2,131.4	\$2,436.6
Cost of Net Working Capital	\$40.4	\$45.1	\$55.8	\$125.8	\$222.4	\$214.8	\$225.5	\$132.8	\$187.7	\$220.1
% of Revenue	0.92%	0.94%	1.03%	1.51%	1.87%	2.11%	1.88%	1.49%	1.83%	1.99%
Operational Capital	\$1,290.0	\$1,254.1	\$1,399.8	\$2,504.8	\$3,594.3	\$4,994.1	\$5,243.4	\$2,749.4	\$3,697.7	\$5,118.8
Cost of Operational Capital	\$114.2	\$114.3	\$122.8	\$198.8	\$337.7	\$401.5	\$421.5	\$235.0	\$312.7	\$411.5
% of Revenue	2.59%	2.39%	2.26%	2.38%	2.84%	3.94%	3.51%	2.76%	3.06%	3.73%
Productive Capital	\$2,193.8	\$2,062.1	\$2,155.8	\$3,198.8	\$4,263.3	\$5,661.1	\$5,943.7	\$3,468.2	\$4,374.4	\$5,802.4
Cost of Productive Capital	\$202.7	\$191.2	\$195.2	\$272.6	\$413.2	\$463.9	\$487.1	\$307.2	\$383.2	\$475.5
% of Revenue	4.60%	4.00%	3.59%	3.27%	3.48%	4.56%	4.06%	3.78%	3.77%	4.31%
Total Operating Capital	\$2,041.1	\$1,914.1	\$2,093.8	\$3,114.8	\$3,889.3	\$5,145.1	\$5,402.0	\$3,231.4	\$4,049.7	\$5,273.5
Cost of Total Operating Capital	\$183.5	\$177.7	\$185.5	\$265.1	\$387.8	\$422.3	\$443.4	\$287.7	\$358.4	\$432.9
% of Revenue	4.17%	3.72%	3.41%	3.18%	3.27%	4.15%	3.70%	3.54%	3.53%	3.92%
Non - Operating Capital	\$4,165.9	\$4,266.0	\$4,607.1	\$5,459.8	\$7,349.2	\$7,965.8	\$8,363.5	\$5,929.6	\$6,924.9	\$8,164.6
Cost of Non - Operating Capital	\$326.5	\$378.8	\$410.7	\$512.4	\$709.3	\$715.9	\$751.7	\$545.4	\$645.9	\$733.8
% of Revenue	7.41%	7.93%	7.55%	6.14%	5.97%	7.03%	6.26%	6.92%	6.38%	6.65%
Total Capital	\$6,207.0	\$6,180.1	\$6,700.9	\$8,574.6	\$11,238.5	\$13,110.8	\$13,765.4	\$9,161.0	\$10,974.6	\$13,438.1
Cost of Total Capital	\$510.1	\$556.6	\$596.2	\$777.6	\$1,097.1	\$1,138.3	\$1,195.1	\$833.1	\$1,004.3	\$1,166.7
% of Revenue	11.58%	11.64%	10.96%	9.32%	9.24%	11.18%	9.96%	10.47%	9.91%	10.57%
Cost of Capital (WACC)	9.48%	8.99%	9.26%	10.18%	11.07%	9.35%	9.35%	9.77%	10.20%	9.35%
Capital Structure										
Debt & Debt Equivalents	\$1,649.2	\$1,634.1	\$1,679.9	\$2,202.6	\$2,216.5	\$3,153.8	\$3,311.3	\$2,177.4	\$2,524.3	\$3,232.6
Debt & Debt Equivalents % of Market Value	14.25%	13.53%	5.21%	2.20%	1.43%	2.87%	2.87%	2.66%	2.07%	2.87%
Preferred Equity	\$0.0	\$0.0	\$72.0	\$2.0	\$0.0	\$0.0	\$0.0	\$14.8	\$0.7	\$0.0
Preferred Equity % of Market Value	0.00%	0.00%	0.22%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%
Market Value of Common Equity	\$9,926.2	\$10,448.0	\$30,491.4	\$97,812.0	\$152,976.1	\$106,617.6	\$111,940.8	\$79,669.0	\$119,135.3	\$109,279.2
Common Equity % of Market Value	85.75%	86.47%	94.57%	97.80%	98.57%	97.13%	97.13%	97.32%	97.92%	97.13%
Total Economic Market Value (MV)	\$11,575.4	\$12,082.1	\$32,243.3	\$100,016.6	\$155,192.6	\$109,771.5	\$115,252.1	\$81,861.2	\$121,660.2	\$112,511.8
Total %	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Excess Cash	\$4,165.9	\$4,266.0	\$4,607.1	\$5,459.8	\$7,349.2	\$7,965.8	\$8,363.5	\$5,929.6	\$6,924.9	\$8,164.6
Economic Enterprise Value	\$7,409.6	\$7,816.1	\$27,636.2	\$94,556.8	\$147,843.5	\$101,805.7	\$106,888.6	\$75,931.7	\$114,735.3	\$104,347.2
Average Capital	\$5,272.8	\$6,082.0	\$6,340.0	\$7,532.7	\$9,761.5	\$11,998.2	\$13,250.6	\$8,342.9	\$9,764.1	\$12,624.4
Capital Δ	\$1,644.2	(\$25.9)	\$541.8	\$1,843.7	\$2,613.9	\$1,859.4	\$645.5	\$1,366.6	\$2,105.7	\$1,252.4

Source: Company Data, Financial statements and Tigress Research

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Company Report – Research Update

NVIDIA Corporation (NVDA-US)

Semiconductors

Financial Analysis

Report Basis	LTM	LTM	LTM	LTM	LTM	LTM	NTM	5 Yr	3 Yr	Current
Reported Period Ending	07/27/2014	07/26/2015	07/31/2016	07/30/2017	07/29/2018	07/28/2019	07/31/2020	Average	Average	Trend
Return on Market Value (NOPAT / MV)	4.93%	5.50%	3.26%	2.39%	2.81%	2.55%	2.68%	3.30%	2.58%	2.62%
Return on Enterprise Value (NOPAT / EV)	7.69%	8.50%	3.80%	2.53%	2.95%	2.75%	2.89%	4.11%	2.74%	2.82%
Return on Capital (NOPAT / Average Capital)	10.81%	10.92%	16.57%	31.71%	44.65%	23.37%	26.65%	25.44%	33.24%	25.01%
Cost of Capital (WACC)	9.48%	8.99%	9.26%	10.18%	11.07%	9.35%	9.35%	9.77%	10.20%	9.35%
Economic Return Spread	1.33%	1.93%	7.31%	21.53%	33.58%	14.02%	14.72%	15.67%	23.04%	14.37%
Capital Charge	\$499.8	\$546.5	\$586.9	\$766.9	\$1,081.0	\$1,121.8	\$1,177.8	\$820.6	\$989.9	\$1,149.8
Economic Profit (EP)	\$70.3	\$117.6	\$463.4	\$1,621.6	\$3,277.5	\$1,681.8	\$1,765.8	\$1,432.4	\$2,193.6	\$1,723.8
Economic Profit Improvement (EPI)	(\$11.6)	\$47.3	\$345.8	\$1,158.2	\$1,655.9	(\$1,595.7)	\$84.0	\$322.3	\$406.1	(\$755.9)
EP Growth	-14.15%	67.29%	293.92%	249.93%	102.11%	-48.69%	4.99%	132.92%	101.12%	-21.85%
Economic Profit Margin on Sales	1.60%	2.46%	8.52%	19.43%	27.60%	16.51%	14.71%	14.90%	21.18%	15.61%
Economic Profit Per Share	\$0.12	\$0.21	\$0.85	\$3.00	\$5.47	\$2.77	\$2.90	\$2.46	\$3.75	\$2.84
GAAP Earnings Per Share	\$0.93	\$0.96	\$1.66	\$4.03	\$7.09	\$4.51	\$6.53	\$3.65	\$5.21	\$5.52
Excess Cash Per Share	\$7.46	\$7.89	\$8.63	\$9.15	\$12.11	\$13.08	\$13.73	\$10.17	\$11.44	\$13.41
Performance Drivers										
Sales Growth	3.79%	8.54%	13.79%	53.41%	42.34%	-14.25%	17.82%	20.77%	27.17%	1.79%
Sales Growth Trend (ROC Sales Growth)	4.83%	6.64%	11.69%	37.56%	46.77%	8.39%	4.99%	22.21%	30.91%	6.69%
EBITDAR Margin	52.14%	51.61%	52.02%	54.07%	58.01%	54.00%	55.36%	53.94%	55.36%	54.68%
EBITDAR Growth	5.99%	7.44%	14.71%	59.45%	52.70%	-20.18%	20.79%	22.82%	30.66%	0.31%
NOPBT Margin	15.34%	17.98%	22.61%	32.13%	38.10%	24.16%	31.46%	27.00%	31.46%	27.81%
NOPBT Growth	4.00%	27.24%	43.03%	118.03%	68.78%	-45.62%	53.43%	42.29%	47.06%	3.91%
NOPAT Margin	12.95%	13.90%	19.31%	28.62%	36.70%	27.53%	29.43%	25.21%	30.95%	28.48%
NOPAT Growth	0.71%	16.50%	58.13%	127.41%	82.48%	-35.68%	25.95%	49.77%	58.07%	-4.86%
Economic Profit Margin on Sales (EP / Sales)	1.60%	2.46%	8.52%	19.43%	27.60%	16.51%	14.71%	14.90%	21.18%	15.61%
Economic Profit Growth	-14.15%	67.29%	293.92%	249.93%	102.11%	-48.69%	4.99%	132.92%	101.12%	-21.85%
Economic Return Spread (ROC-WACC)	1.33%	1.93%	7.31%	21.53%	33.58%	14.02%	17.30%	15.67%	23.04%	15.66%
Economic Return Ratio (ROC / WACC)	114.07%	121.52%	178.96%	311.46%	403.18%	249.92%	285.02%	253.01%	321.52%	267.47%
Economic Profit Momentum (ΔEP/Capital)	-0.19%	0.78%	5.23%	13.70%	14.96%	-12.34%	0.62%	4.47%	5.44%	-5.86%
Economic Profit Momentum Margin (ΔEP/Sales)	-0.26%	0.99%	6.36%	13.88%	13.94%	-15.67%	0.70%	3.90%	4.05%	-7.48%
Capital Growth	36.94%	-0.42%	8.93%	27.89%	30.92%	16.80%	4.99%	16.82%	25.20%	10.90%
Capital Turns	0.72X	0.79X	0.82X	0.99X	1.07X	0.79X	0.88X	0.89X	0.95X	0.84X
EVC Acceleration Margin	-0.27%	1.07%	7.23%	21.29%	19.85%	-13.43%	0.82%	2.69%	5.00%	-7.46%
EVC Acceleration Spread	-0.25%	0.90%	5.68%	18.27%	21.98%	-16.35%	0.70%	2.43%	4.87%	-7.74%
Risk Factors										
Free Cash Flow (NOPAT - Δ Capital)	(\$1,074.2)	\$690.1	\$508.5	\$544.8	\$1,744.6	\$944.2	\$2,885.6	\$886.4	\$1,077.9	\$1,914.9
Free Cash Flow Rate (FCF / Capital)	-17.62%	11.37%	7.69%	6.44%	15.76%	7.30%	21.26%	9.71%	9.84%	14.28%
Free Cash Flow Yield (FCF / MV)	-9.28%	5.71%	1.58%	0.54%	1.12%	0.86%	2.50%	1.96%	0.84%	1.68%
Total Debt / Total Capital	27.06%	26.92%	25.41%	26.05%	20.03%	24.40%	24.40%	24.56%	23.49%	24.40%
Total Debt / EBITDAR	71.83%	66.24%	59.37%	48.82%	32.17%	57.35%	49.85%	52.79%	46.11%	53.60%
Excess Cash	\$4,165.9	\$4,266.0	\$4,607.1	\$5,459.8	\$7,349.2	\$7,965.8	\$0.0	\$5,929.6	\$6,924.9	\$3,982.9
Financial Leverage ((Total Debt - Excess Cash) / Pension Leverage (Net Pension Liability / MV))	-21.74%	-21.78%	-9.08%	-3.26%	-3.31%	-4.38%	2.87%	-8.36%	-3.65%	-0.76%
Equity Risk Index (S&P 500 = 1.00)	1.77	1.76	1.78	1.78	1.78	1.77	1.77	1.77	1.78	1.77
Stock Price Volatility	3.25	4.11	5.18	6.11	5.73	5.83	5.83	5.39	5.89	5.83
Sales Index (NL Sales)	8.39	8.47	8.60	9.03	9.38	9.23	9.39	8.94	9.21	9.31
Market Value Index (NL Market Value)	9.36	9.40	10.38	11.51	11.95	11.61	11.65	10.97	11.69	11.63
Size Index (NL Sales: MV)	8.87	8.94	9.49	10.27	10.67	10.42	10.52	9.96	10.45	10.47
Beta	2.15	2.13	2.16	2.16	2.17	2.16	2.16	2.15	2.16	2.16
TFP Adjusted Beta	1.77	1.76	1.78	1.78	1.78	1.77	1.77	1.77	1.78	1.77
Stock Price Volatility	3.25	4.11	5.18	6.11	5.73	5.83	5.83	5.39	5.89	5.83
Valuation Measures										
Total Economic Market Value (MV)	\$11,575.4	\$12,082.1	\$32,243.3	\$100,016.6	\$155,192.6	\$109,771.5	\$115,252.1	\$81,861.2	\$121,660.2	\$112,511.8
Economic Enterprise Value	\$7,409.6	\$7,816.1	\$27,636.2	\$94,556.8	\$147,843.5	\$101,805.7	\$106,888.6	\$75,931.7	\$114,735.3	\$104,347.2
Equity Market Value	\$9,926.2	\$10,448.0	\$30,491.4	\$97,812.0	\$152,976.1	\$106,617.6	\$111,940.8	\$79,669.0	\$119,135.3	\$109,279.2
Total Capital	\$6,207.0	\$6,180.1	\$6,700.9	\$8,574.6	\$11,238.5	\$13,110.8	\$13,765.4	\$9,161.0	\$10,974.6	\$13,438.1
Market Value Created MVC (MV - Capital)	\$5,368.4	\$5,902.0	\$25,542.4	\$91,442.0	\$143,954.1	\$96,660.6	\$101,486.6	\$72,700.2	\$110,685.6	\$99,073.6
MVC Margin (MVC / Sales)	121.90%	123.48%	469.62%	1095.90%	1212.04%	949.05%	845.73%	894.77%	1092.08%	893.17%
MVC Spread (MVC / Capital)	86.49%	95.50%	381.18%	1066.43%	1280.90%	737.26%	737.26%	793.59%	1008.56%	737.26%
Current EVC Value (EP / WACC)	\$741.9	\$1,309.1	\$5,006.1	\$15,928.3	\$29,595.1	\$17,988.1	\$18,886.2	\$14,661.9	\$21,503.0	\$18,437.2
Current Operations Value COV	\$6,014.7	\$7,391.1	\$11,346.1	\$23,461.1	\$39,356.6	\$29,986.3	\$32,136.8	\$23,004.7	\$31,267.1	\$31,061.5
Current Operations Value Per Share	\$10.23	\$13.38	\$20.90	\$43.37	\$65.70	\$49.32	\$56.51	\$40.45	\$53.66	\$52.80
Future Growth Value (MVC - EVA Value)	\$5,560.7	\$4,690.9	\$20,897.2	\$76,555.6	\$115,836.0	\$79,785.2	\$83,115.3	\$58,856.5	\$90,993.1	\$81,450.2
Future Growth Value Reliance (FGV / MV)	48.04%	38.83%	64.81%	76.54%	74.64%	72.68%	72.12%	71.90%	74.30%	72.39%
Share Price	\$18.73	\$22.03	\$57.10	\$104.30	\$226.33	\$178.09	\$178.09	\$117.57	\$169.57	\$178.09
Dividend Yield	1.76%	1.60%	0.77%	0.51%	0.26%	0.35%	0.00%	-33.98%	44.23%	5.02%
Total Shareholder Return (TTM)	41.43%	19.22%	159.97%	83.17%	117.26%	-20.96%	0.00%	-33.98%	44.23%	5.02%
MV to IC Ratio	1.86X	1.95X	4.81X	11.66X	13.81X	8.37X	8.37X	8.94X	11.09X	8.37X
EV / EBITDAR Multiple	3.23X	3.17X	9.77X	20.96X	21.46X	18.51X	16.09X	17.10X	20.37X	17.19X
EV / NOPBT Multiple	10.97X	9.09X	22.48X	35.27X	32.67X	41.37X	28.31X	32.30X	35.61X	33.47X
EV / NOPAT Multiple	13.00X	11.77X	26.31X	39.59X	33.92X	36.31X	30.27X	33.70X	36.04X	32.95X
EV / EP Multiple	105.37X	66.44X	59.64X	58.31X	45.11X	60.53X	60.53X	53.01X	52.30X	60.53X
Future Growth Value (% of MV)	48.04%	38.83%	64.81%	76.54%	74.64%	72.68%	72.12%	71.90%	74.30%	72.39%
Current Operations Value (% of MV)	51.96%	61.17%	35.19%	23.46%	25.36%	27.32%	27.88%	28.10%	25.70%	27.61%
Market Value (COV + FGV %)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Basic Shares Outstanding	587.9	552.3	543.0	541.0	599.0	608.0	568.7	568.7	582.7	588.3

Source: Company Data, Financial statements and Tigress Research

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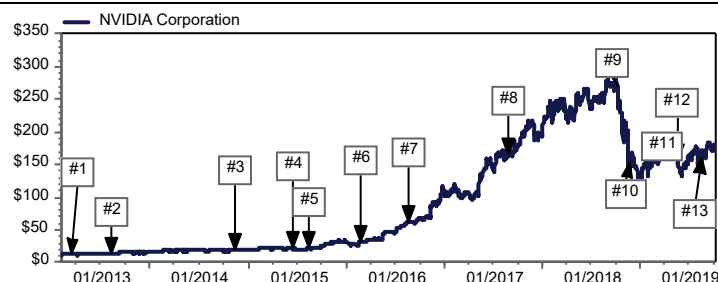
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NVIDIA Corporation (NVDA-US)
Semiconductors
Ratings History

NVIDIA Corporation (NVDA-US)				
Item #	Date	Research Action	Rating	Price
#13	08/16/2019	Reiterate Rating	Buy	\$159.56
#12	05/17/2019	Reiterate Rating	Buy	\$156.53
#11	03/20/2019	Reiterate Rating	Buy	\$153.05
#10	11/26/2018	Reiterate Rating	Buy	\$153.05
#9	10/05/2018	Reiterate Rating	Buy	\$269.86
#8	08/23/2018	Reiterate Rating	Buy	\$165.80
#7	08/18/2016	Reiterate Rating	Buy	\$62.10
#6	02/26/2016	Reiterate Rating	Buy	\$31.60
#5	08/13/2015	Reiterate Rating	Buy	\$23.52
#4	06/17/2015	Upgrade Rating	Buy	\$21.58
#3	11/14/2014	Reiterate Rating	Neutral	\$19.55
#2	08/02/2013	Reiterate Rating	Neutral	\$14.76
#1	03/18/2013	Initiation of Coverage	Neutral	\$12.55


Tigress Research Methodology Overview

We employ proprietary quantitative valuation models combined with dynamic fundamental analysis based on the principles of Economic Profit to formulate timely and insightful investment ratings, analysis, strategies, and recommendations.

We make key adjustments to reported financial data eliminating GAAP-based accounting distortions and measuring all companies on a cash operating basis.

Our proprietary research framework is a multi-factor model that scores and ranks companies based on their risk-adjusted ability to create Economic Profit relative to their current market value focusing on three key components:

Business Performance: Measuring economic profitability, growth and operating efficiency.

Risk: Measuring business sustainability, volatility, strength, and consistency.

Valuation: Linking business performance to market value. Measuring value created relative to capital employed and enterprise multiples of economic profit and cash flow.

We score and rank 24 key measurements of performance, risk, and value into relative market and industry investment recommendations.

Glossary of Key Terms and Measures

Excess Cash per Share:	Excess Cash per Share is the amount of excess cash divided by basic shares outstanding. Excess Cash consists of all cash and short-term securities less operating cash needed to run the business. Operating Cash is 5% of TTM net sales revenue.
EBITDAR:	Earnings Before Interest, Taxes, Depreciation, Amortization, and Restructuring and Rent Costs. This is especially important when comparing companies that use a significant amount of leased assets like restaurants and retailers.
NOPAT:	Net Operating Profit after Tax represents a company's after-tax cash operating profit excluding financing costs.
Total Invested Capital:	Total Invested Capital the total cash investment that shareholders and debt holders have made during the life of the company.
Return on Capital:	Return on Capital equals NOPAT divided by Total Invested Capital. It is a key measure of operating efficiency. ROC quantifies how well a company generates cash flow relative to the capital invested in its business.
Cost of Capital:	Is the proportionately weighted cost of each category of capital – common equity, preferred equity and debt.
Economic Profit:	Economic Profit is the net operating income after tax less the opportunity cost of the total capital invested. It is the most important driver of shareholder value.
Current Operations Value:	Current Operations Value is the portion of market value based on the discounted present value of the current earnings stream assuming it remains constant forever.
Future Growth Value:	Future Growth Value is the portion of market value based on un-earned Economic Profit

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Company Report – Research Update

October 4, 2019
Page 12 of 14

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I, Ivan Feinseth, hereby certify that the views expressed herein accurately reflect my personal views about the subject company and their securities and that I have not been and will not be directly or indirectly compensated for expressing specific recommendations or views in the report.

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Rating:	Meaning:
Strong Buy:	Expect significant price gains in the price of the stock relative to its industry peer group and general market over the next 12 months.
Buy:	Expect out-performance for the price of the stock relative to its industry peer group and general market over the next 12 months.
Neutral:	Expect little or no outperformance opportunity over the next 12 months.
Underperform:	Expect underperformance for the price of the stock relative to its industry peer group and general market over the next 12 months.
Sell:	Expect price decline or significant relative market and industry underperformance over the next 12 months.
Not Rated	No Current Research Rating

Rating Distribution (10/03/2019)

	Companies Under Coverage		Relationship Companies Under Coverage*	
	#	%	#	%
Strong Buy:	16	13%	1	15%
Buy:	55	46%	5	70%
Neutral:	44	37%	1	15%
Underperform:	5	4%	0	0%
Sell:	0	0%	0	0%
Not Rated	NA	NA	65	NA
Total	120	100%	72	100%

*Relationship Companies under research coverage are companies in which Tigress Financial Partners LLC or one of its affiliates has received compensation for investment banking or non-investment banking services from the company, affiliated entities and / or its employees within the past twelve months or expects to do so within the next three months.

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Specific Disclosures for the companies that are the subject of this Report

Company:	Disclosure:
NVIDIA Corporation (NVDA-US)	14

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