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NVIDIA Corporation (NVDA-US)

Semiconductors

- We reiterate our Buy rating on NVDA as new data center opportunities along with an expected turnaround in gaming GPUs in the second half of this year will overcome near-term headwinds.
- Increasing data center opportunities along with growing visualization and automotive demand continue to drive accelerating Business Performance.
- Mellanox acquisition increases NVDA's data center capabilities and reduces dependence on gaming.
- NVDA's new Turing Architecture is driving the next generation of GPU technology.
- NVDA's market-leading, high-speed GPUs are taking it into new markets and emerging industries.
- NVDA's emphasis on GRID computing will increase GPU data center adoption further creating significant growth opportunities.
- NVDA continues to experience increasing demand for its industry-leading automotive data processor.
- NVDA continues to expand into new industry verticals that are benefiting from its high-speed GPU capabilities.
- 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 Report – Research Update

Company Note

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Research Action:	
Reiterate rating	
Rating:	Buy
Prior Rating:	Buy
Price 03/19/2019:	\$175.71
52 Week High / Low:	\$292.76 \$124.46
Key Data: (TTM as of Jan-19)	
Excess Cash per Share:	\$11.23
Annual Dividend:	\$0.64
Dividend Yield:	0.36%
Avg. Volume (30 Day):	13.2M
Shares Outstanding:	606.0M
Float:	552.1M
Short Interest:	13.4M
SI % / Float	2.44%
Equity MV:	\$106,480.3M
Sales TTM:	\$11,716.0M
Beta:	1.76
EBITDAR:	\$6,671.4M
NOPAT:	\$4,201.4M
Total Invested Capital:	\$12,038.5M
Return on Capital:	39.01%
Cost of Capital:	10.37%
Economic Profit:	\$3,084.4M
Market Value Added:	\$97,002.3M
Current Operations Value:	\$35,677.3M
Future Growth Value:	\$73,363.5M

NVIDIA Corporation (NVDA-US) Semiconductors

We reiterate our Buy rating on NVDA as new data center opportunities along with an expected turnaround in gaming GPUs in the second half of this year will overcome near-term headwinds. Recent weakness from macro headwinds and a significant drop in demand from crypto mining will start to turn later in this year. NVDA will also see strong demand for notebook GPUs and also expects a significant pickup in demand for its new Turing GPUs that offer powerful real-time ray-tracing and AI inference capabilities. NVDA continues to evolve into a platform provider with expertise in graphics processing, computing, and deep learning. GPUs for gaming and artificial intelligence for high-performance computing and cloud data centers are NVDA's key growth drivers. New innovations and applications for its industry-leading GPUs will continue to drive new growth opportunities. Growing speed needs in e-sports and ongoing cloud migration are driving increased demand for NVDA's GPUs in the gaming and data center markets. 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. NVDA's leadership position in visual data processing and increasing opportunities in AI, deep learning, and 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 and continue to recommend purchase.

Increasing data center opportunities along with growing visualization and automotive demand continue to drive accelerating Business Performance. For the 12 months ending January 2019, Net Sales Revenue increased 20.6% Y/Y from \$9.71 billion to \$11.72 billion. We forecast a further increase of 2.4% to just under \$12 billion over the NTM. Economic Operating Cash Flow (EBITDAR) increased 25% Y/Y from \$5.34 billion to \$6.67 billion over the LTM. We forecast a further increase of 1.6% to \$6.78 billion over the NTM. Net Operating Profit After Tax (NOPAT) increased 34% Y/Y from \$3.14 billion to \$3.7 billion over the LTM. We could forecast a decline of 6% to \$3.48 billion over the NTM. Return on Capital (ROC) increased from 33.79% to 34.36% over the LTM. We forecast a further increase to 37.69% over the NTM. Economic Profit increased 19.21% Y/Y from \$2.17 billion to \$2.58 billion over the LTM.

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We forecast a further increase of 9.7% to \$2.83 billion over the NTM. As NVDA works to overcome its current inventory issues and continues to develop new growth opportunities, we believe there could be further upside to our current outlook.

- Mellanox acquisition increases NVDA's data center capabilities and reduces dependence on gaming. Earlier this month, NVDA announced the acquisition of Mellanox Technologies (MLNX-US, Non-Rated) for a total of \$6.9 billion, expanding its expertise in the growing data center components market. NVDA will pay a cash price of \$125 a share which is a 14% premium to Mellanox's prior day's closing price, and represents Nvidia's largest acquisition to date. 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 as well as to increase 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 100 Gb speeds. The two companies have a long working history. NVDA currently uses Mellanox InfiniBand and Ethernet products in its DGX-2 artificial intelligence computer platform. The merger of the two companies furthers NVDA's ability to combine compute offload / acceleration, which is NVDA's core expertise, combined with high-speed interconnectivity which is Mellanox expertise, to meet the needs of highperformance applications used in AI, machine learning, and data analytics.
- NVDA's new Turing Architecture is driving the next generation of GPU technology. NVDA's new Turing Architecture is being described as the greatest breakthrough in visualization since the invention of NVDA's CUDA GPU. Turing is the successor to 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 in computer-generated video production. NVDA has launched its first line of Turing-based processors in its Quattro RTX line.

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This new GPU line will expand NVDA's product offerings to meet the requirements of architecture, media and entertainment, and manufacturing industries. It will also enable NVDA to further expand its dominance in gaming and continue to grow revenue and market share.

NVDA's market-leading, high-speed GPUs are taking it into new markets and emerging industries. 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. NVDA's GPU ability to process visual data is creating new opportunities in desktops, workstations, and data centers along with AI, data mining, and autonomous vehicle applications. Moreover, Windows 10 uses significantly more GPU resources than prior versions as it leverages improved graphics capabilities to create a richer, more interactive user experience. NVDA continues to dominate the fast-growing gaming market with over 70% market share. 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 is 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. NVDA's GPUs' intense processing power enable them to handle the increased demands of artificial intelligence (AI) applications. The industry's largest cloud infrastructure providers including Amazon's (AMZN-US, Buy Rated) web services (AWS), Alphabet (GOOGL-US, Strong Buy Rated) and Microsoft (MSFT-US, Buy Rated) all use NVDA processors in their cloud operations. NVDA's GPUs help drive AI applications by their ability to graphically analyze information through virtualization applications. NVDA is also expanding into virtual reality (VR) as its processors are being integrated into the VR headsets of the leading providers including Facebook's (FB-US, Strong Buy Rated) Oculus, along with others including Epic, Valve, and Vive. NVDA also continues to expand its applications into new industries including science and medicine.

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- NVDA's emphasis on GRID computing will increase GPU data center adoption further creating significant growth opportunities. NVIDIA GRID is a powerful GPU-based that powers virtual desktops in data centers, cloud platforms, and design software-as-a-service (SaaS) applications providing a high-quality, visually rewarding graphics experience that in the past was only available from a very high-powered and expensive dedicated PC. NVDA has partnered with VMware (VMW-US, Strong Buy Rated) to run GRID on the VMware Horizon Desktop-asa-Service (DaaS) Platform enabling it to offer its high-powered graphics technology on a virtual cloud-based platform. NVDA is currently offering a trial of its GRID technology enabling customers to test its GRID-backed VDI (virtual desktop infrastructure) and has attracted significant interest, which is helping to generate additional demand for its graphics technology. NVDA will introduce new GRID-based enabled devices that will drive increased adoption. NVDA will also expand its GRID for enterprise virtualization targeting a market of over 50 million enterprise workers globally, as well as emphasizing the availability on over 50 different server platforms. We believe the improved visual effects and broad adoption of NVDA's GRID enterprise virtual graphics will drive significant future revenue growth.
- NVDA continues to experience increasing demand for its industryleading 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, mapping 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.

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- 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 one that identifies fake results working against each other 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 great deal of capability 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. This is another example of NVDA industry-leading GPU processing power that drives new growth opportunities.
- 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 of January, NVDA currently has \$6.84 billion, \$11.23 per share, in excess cash and along with our expected Economic Operating Cash Flow (EBITDAR) generation of \$6.78 billion over the NTM, enables it to continue to fund R&D and strategic acquisitions for growth as well as dividend increases, and ongoing share repurchases. In November of last year, NVDA announced an additional open market purchase of \$7 billion worth of stock, making it its most significant share repurchase announcement to date. Since initiating a dividend in November 2012, NVDA has increased its dividend every year since 2013. In the last year, NVDA has returned close to \$2 billion to shareholders through a combination of dividends and share repurchases. NVDA plans to return a total of \$3 billion to shareholders by the end of FY 2020. NVDA repurchased \$700 million during the fourth guarter of FY19.

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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, 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 continues to drive increasing demand for NVDA's advanced high-speed 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.

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 circuit 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.

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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 systemon-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.

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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Sector Financial Partners

Company Report – Research Update

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NVIDIA Corporation (NVDA-US)

Semiconductors & Semiconductor

Financial Data

Report Basis Reported Period Ending	LTM 01/26/2014	LTM 01/25/2015	LTM 01/31/2016	LTM 01/29/2017	LTM 01/28/2018	LTM 01/27/2019	NTM 01/31/2020	5 Yr Average	3 Yr Average	Current Trend
Net Sales Revenue	\$4,130.2	\$4,681.5	\$5,010.0	\$6,910.0	\$9,714.0	\$11,716.0	\$11,999.5	\$7,606.3	\$9,446.7	\$11,857.8
Sales Growth	-3.50%	13.35%	7.02%	37.92%	40.58%	20.61%	\$11, 955 .5 2.42%	23.90%	33.04%	11.51%
Sales Growth Trend	0.72%	6.61%	9.55%	25.56%	39.52%	28.60%	9.70%	21.97%	31.23%	19.15%
Economic Operating Cash Flow (EBITDAR)	\$2,150.9	\$2,461.0	\$2,562.8	\$3,716.9	\$5,338.1	\$6,671.4	\$6,779.7	\$4,150.0	\$5,242.1	\$6,725.6
EBITDAR Margin	52.08%	52.57%	51.15%	53.79%	54.95%	56.94%	56.50%	53.88%	55.23%	56.72%
EBITDAR Growth	3.14%	14.42%	4.14%	45.03%	43.62%	24.98%	1.62%	26.44%	37.88%	13.30%
Net Operating Profit Before Tax (NOPBT)	\$532.2	\$833.8	\$988.8	\$2,020.9	\$3,288.1	\$3,955.4	\$4,026.6	\$2,217.4	\$3,088.1	\$3,991.0
NOPBT Margin	12.88%	17.81%	19.74%	29.25%	33.85%	33.76%	33.56%	26.88%	32.29%	33.66%
NOPBT Growth	-20.98%	56.69%	18.59%	104.38%	62.70%	20.30%	1.80%	52.53%	62.46%	11.05%
Cash Operating Income Tax	\$73.3	\$137.3	\$171.9	\$274.8	\$152.4	\$255.1	\$547.6	\$198.3	\$227.4	\$401.4
Economic Tax Effective Rate	13.77%	16.46%	17.39%	13.60%	4.63%	6.45%	13.60%	11.71%	8.23%	10.03%
Net Operating Profit After Tax (NOPAT)	\$458.9	\$696.6	\$816.9	\$1,746.2	\$3,135.7	\$3,700.3	\$3,479.0	\$2,019.1	\$2,860.7	\$3,589.6
NOPAT Margin NOPAT Growth	11.11% -19.81%	14.88% 51.80%	16.31% 17.27%	25.27% 113.75%	32.28% 79.58%	35.86% 33.99%	28.99% -5.98%	24.92% 59.28%	31.14% 75.77%	32.43% 14.00%
								AA 447 -	A= 400 0	
Cash & Equivalents	\$4,671.8	\$4,623.3	\$5,037.0	\$6,798.0	\$7,108.0	\$7,422.0	\$8,141.6	\$6,197.7	\$7,109.3	\$7,781.8
Total Assets	\$7,250.9 \$1,310.9	\$7,201.4 \$1,272.8	\$7,370.0 \$1,312.0	\$9,841.0 \$1,122.0	\$11,241.0 \$1,593.0	\$13,292.0 \$1,752.0	\$14,580.7 \$1,921.9	\$9,789.1 \$1,410.4	\$11,458.0 \$1,489.0	\$13,936.4 \$1,836.9
Non - Interest Bearing Liabilities (NIBLs) Net Assets	\$5,940.0	\$5,928.6	\$6,058.0	\$8,719.0	\$9,648.0	\$1,752.0	\$1,921.9	\$8,378.7	\$9,969.0	\$1,030.9
Economic Asset Adjustments	\$323.8	\$380.2	\$547.3	\$267.5	\$235.3	\$498.5	\$546.8	\$385.7	\$333.8	\$522.6
Net Operating Assets	\$6,263.8	\$6,308.8	\$6,605.3	\$8,986.5	\$9,883.3	\$12,038.5	\$13,205.7	\$8,764.5	\$10,302.8	\$12,622.1
Debt & Debt Equivalents	¢4.004.5	£4 620 Q	¢4 752 0	\$2.04C E	£0.000.0	¢0 500 5	¢0.000.7	¢0.000 F	¢0 570 4	£0.004.0
Equity & Equivalents	\$1,634.5 \$4,456.4	\$1,620.2 \$4,418.0	\$1,753.3 \$4,469.0	\$2,946.5	\$2,222.3 \$7,471.0	\$2,560.5 \$9,342.0	\$2,808.7 \$10,247.8	\$2,220.5 \$6,292.4	\$2,576.4 \$7,525.0	\$2,684.6 \$9,794.9
Total Capital - Financing Sources	\$6,090.9	\$6,038.2	\$6,222.3	\$5,762.0 \$8,708.5	\$9,693.3	\$9,342.0 \$11,902.5	\$10,247.6	\$8,512.9	\$10,101.4	\$9,794.9
Capital Adjustments	\$63.2	\$158.4	\$304.0	\$141.0	\$18.0	(\$74.0)	(\$81.2)	\$109.5	\$28.3	(\$77.6)
Net Capital Financing Sources	\$6,154.1	\$6,196.6	\$6,526.3	\$8,849.5	\$9,711.3	\$11,828.5	\$12,975.3	\$8,622.4	\$10,129.8	\$12,401.9
Net Working Capital	\$338.6	\$557.2	\$418.5	\$1,245.5	\$1,684.7	\$2,603.8	\$2,856.3	\$1,301.9	\$1,844.7	\$2,730.0
Cost of Net Working Capital	\$34.9	\$39.8	\$43.7	\$82.5	\$152.9	\$222.4	\$244.0	\$108.3	\$152.6	\$233.2
% of Revenue	0.84%	0.85%	0.87%	1.19%	1.57%	1.90%	2.03%	1.28%	1.56%	1.97%
Operational Capital	\$1,140.7	\$1,308.6	\$1,115.8	\$1,864.0	\$2,868.0	\$4,473.3	\$4,907.0	\$2,325.9	\$3,068.4	\$4,690.1
Cost of Operational Capital	\$106.5	\$108.9	\$108.6	\$147.8	\$247.0	\$380.7	\$417.6	\$198.6	\$258.5	\$399.2
% of Revenue	2.58%	2.33%	2.17%	2.14%	2.54%	3.25%	3.48%	2.49%	2.64%	3.36%
Productive Capital	\$2,079.9	\$2,148.5	\$1,899.8	\$2,586.0	\$3,538.0	\$5,136.3	\$5,634.3	\$3,061.7	\$3,753.4	\$5,385.3
Cost of Productive Capital	\$196.0	\$188.1	\$181.4	\$222.5	\$319.6	\$449.8	\$493.4	\$272.3	\$330.7	\$471.6
% of Revenue Total Operating Capital	4.75% \$1,798.5	4.02% \$1,919.5	3.62% \$1,818.8	3.22% \$2,534.0	3.29% \$3,261.0	3.84% \$5,202.3	4.11% \$5,706.7	3.60% \$2,947.1	3.45% \$3,665.8	3.98% \$5,454.5
Cost of Total Operating Capital	\$163.5	\$165.4	\$167.5	\$2,534.0	\$302.5	\$438.9	\$481.4	\$258.0	\$319.1	\$460.2
% of Revenue	3.96%	3.53%	3.34%	3.12%	3.11%	3.75%	4.01%	3.37%	3.33%	3.88%
Non - Operating Capital	\$4,465.3	\$4,389.3	\$4,786.5	\$6,452.5	\$6,622.3	\$6,836.2	\$7,499.0	\$5,817.4	\$6,637.0	\$7,167.6
Cost of Non - Operating Capital	\$377.8	\$393.9	\$411.2	\$557.5	\$682.4	\$697.9	\$765.6	\$548.6	\$646.0	\$731.8
% of Revenue	9.15%	8.41%	8.21%	8.07%	7.03%	5.96%	6.38%	7.53%	7.02%	6.17%
Total Capital	\$6,263.8	\$6,308.8	\$6,605.3	\$8,986.5	\$9,883.3	\$12,038.5	\$13,205.7	\$8,764.5	\$10,302.8	\$12,622.1
Cost of Total Capital	\$541.3	\$559.2	\$578.7	\$773.4	\$984.9	\$1,136.8	\$1,247.0	\$806.6	\$965.0	\$1,191.9
% of Revenue	13.11%	11.95%	11.55%	11.19%	10.14%	9.70%	10.39%	10.91%	10.34%	10.05%
Cost of Capital (WACC)	9.46%	8.90%	8.96%	9.92%	10.44%	10.37%	10.37%	9.72%	10.24%	10.37%
Capital Structure										
Debt & Debt Equivalents	\$1,634.5	\$1,620.2	\$1,753.3	\$2,946.5	\$2,222.3	\$2,560.5	\$2,808.7	\$2,220.5	\$2,576.4	\$2,684.6
Debt & Debt Equivalents % of Market Value	15.59%	12.58%	10.01%	4.66%	1.48%	2.55%	2.55%	3.23%	2.47%	2.55%
Preferred Equity	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Preferred Equity % of Mark et Value	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Market Value of Common Equity	\$8,846.4	\$11,256.7	\$15,758.0	\$60,244.0	\$147,458.0	\$97,691.5	\$107,163.3	\$66,481.6	\$101,797.8	\$102,427.4
Common Equity % of Market Value	84.41%	87.42%	89.99%	95.34%	98.52%	97.45%	97.45%	96.77%	97.53%	97.45%
Total Economic Market Value (MV)	\$10,480.9	\$12,876.9	\$17,511.3	\$63,190.5	\$149,680.3	\$100,252.0	\$109,972.0	\$68,702.2	\$104,374.3	\$105,112.0
Total %	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Excess Cash	\$4,465.3	\$4,389.3	\$4,786.5	\$6,452.5	\$6,622.3	\$6,836.2	\$7,499.0	\$5,817.4	\$6,637.0	\$7,167.6
Economic Enterprise Value	\$6,015.6	\$8,487.6	\$12,724.8	\$56,738.0	\$143,058.0	\$93,415.8	\$102,473.0	\$62,884.8	\$97,737.3	\$97,944.4
Average Capital	\$5,619.2 \$1,069.9	\$6,175.4 \$42.5	\$6,361.4 \$329.6	\$7,687.9 \$2,323,2	\$9,280.4 \$861.9	\$10,769.9 \$2 117 1	\$12,401.9 \$1 146 8	\$8,055.0 \$1,134,9	\$9,246.1 \$1,767.4	\$11,585.9 \$1,632,0
Capital Δ Source: Company Data, Financial statements and Tigress F		\$42.5	\$329.6	\$2,323.2	\$861.9	\$2,117.1	\$1,146.8	\$1,134.9	\$1,767.4	\$1,632.0

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NVIDIA Corporation (NVDA-US)

Semiconductors & Semiconductor

Financial Analysis

Report Basis	LTM	LTM	LTM	LTM	LTM	LTM	NTM	5 Yr	3 Yr	Current
Report Basis Reported Period Ending	01/26/2014	01/25/2015	01/31/2016	01/29/2017	01/28/2018	01/27/2019	01/31/2020	5 fr Average	Average	Trend
Return on Market Value (NOPAT / MV)	4.38%	5.41%	4.67%	2.76%	2.09%	3.69%	4.05%	3.72%	2.85%	3.87%
Return on Enterprise Value (NOPAT / EV)	7.63%	8.21%	6.42%	3.08%	2.19%	3.96%	4.35%	4.77%	3.08%	4.15%
Return on Capital (NOPAT / Average Capital) Cost of Capital (WACC)	8.17% 9.46%	11.28% 8.90%	12.84% 8.96%	22.71% 9.92%	33.79% 10.44%	34.36% 10.37%	37.69% 10.37%	23.00% 9.72%	30.29% 10.24%	36.02% 10.37%
Economic Return Spread	-1.29%	2.38%	3.88%	12.79%	23.35%	23.99%	26.31%	13.28%	20.04%	25.15%
Capital Charge	\$531.4	\$549.4	\$570.1	\$762.7	\$968.8	\$1,117.0	\$1,225.3	\$793.6	\$949.5	\$1,171.2
Economic Profit (EP)	(\$72.5)	\$147.2	\$246.8	\$983.4	\$2,166.9	\$2,583.3	\$2,833.7	\$1,225.5	\$1,911.2	\$2,708.5
Economic Profit Improvement (EPI)	(\$197.8)	\$219.8	\$99.6	\$736.7	\$1,183.5	\$416.3	\$250.5	\$531.2	\$778.8	\$333.4
EP Growth Economic Profit Margin on Sales	-157.93% -1.76%	302.92% 3.14%	67.64% 4.93%	298.51% 14.23%	120.34% 22.31%	19.21% 22.05%	9.70% 23.62%	161.72% 13.33%	146.02% 19.53%	14.45% 22.83%
Economic Profit Per Share	(\$0.12)	\$0.27	\$0.45	\$1.82	\$3.62	\$4.25	\$4.66	\$2.08	\$3.23	\$4.45
GAAP Earnings Per Share	\$0.75	\$1.14	\$1.12	\$3.02	\$5.07	\$6.81	\$4.64	\$3.43	\$4.97	\$5.73
Excess Cash Per Share	\$7.85	\$8.07	\$8.88	\$11.67	\$10.93	\$11.23	\$12.31	\$10.15	\$11.27	\$11.77
Performance Drivers										
Sales Growth	-3.50%	13.35%	7.02%	37.92%	40.58%	20.61%	2.42%	23.90%	33.04%	11.51%
Sales Growth Trend (ROC Sales Growth)	0.72%	6.61%	9.55%	25.56%	39.52%	28.60%	9.70%	21.97%	31.23%	19.15%
EBITDAR Margin	52.08%	52.57%	51.15%	53.79%	54.95%	56.94%	56.50%	53.88%	55.23%	56.72%
EBITDAR Growth	3.14%	14.42%	4.14%	45.03%	43.62%	24.98%	1.62%	26.44%	37.88%	13.30%
NOPBT Margin	12.88%	17.81%	19.74%	29.25%	33.85%	33.76%	33.56%	26.88%	32.29%	33.66%
NOPBT Growth NOPAT Margin	-20.98% 11.11%	56.69% 14.88%	18.59% 16.31%	104.38% 25.27%	62.70% 32.28%	20.30% 35.86%	1.80% 28.99%	52.53% 24.92%	62.46% 31.14%	11.05% 32.43%
NOPAT Growth	-19.81%	51.80%	17.27%	113.75%	79.58%	33.99%	-5.98%	59.28%	75.77%	14.00%
Economic Profit Margin on Sales (EP / Sales)	-1.76%	3.14%	4.93%	14.23%	22.31%	22.05%	23.62%	13.33%	19.53%	22.83%
Economic Profit Growth	-157.93%	302.92%	67.64%	298.51%	120.34%	19.21%	9.70%	161.72%	146.02%	14.45%
Economic Return Spread (ROC-WACC)	-1.29%	2.38%	3.88%	12.79%	23.35%	23.99%	27.32%	13.28%	20.04%	25.65%
Economic Return Ratio (ROC / WACC) Economic Profit Momentum (ΔΕΡ/Capital)	86.35% -3.21%	126.80% 3.55%	143.29% 1.53%	228.94% 8.32%	323.68% 12.19%	331.27% 3.52%	363.39% 1.93%	230.79% 5.82%	294.63% 8.01%	347.33% 2.73%
Economic Profit Momentum ($\Delta EP/Sales$)	-4.79%	4.69%	1.99%	10.66%	12.18%	3.55%	2.09%	6.62%	8.80%	2.82%
Capital Growth	21.04%	0.69%	5.32%	35.60%	9.74%	21.80%	9.70%	14.63%	22.38%	15.75%
Capital Turns	0.67X	0.76X	0.77X	0.78X	1.00X	0.99X	0.92X	0.86X	0.92X	0.96X
EVC Acceleration Margin EVC Acceleration Spread	-4.62% -4.18%	5.32% 3.91%	2.13% 1.61%	14.70% 11.58%	17.13% 15.39%	4.29% 4.49%	2.14% 2.33%	4.43% 4.28%	10.24% 9.67%	3.53% 3.61%
Risk Factors										
Free Cash Flow (NOPAT - Δ Capital)	(\$611.0)	\$654.1	\$487.3	(\$577.1)	\$2,273.8	\$1,583.1	\$2,332.2	\$884.2	\$1,093.3	\$1,957.7
Free Cash Flow Rate (FCF / Capital)	-9.93%	10.56%	7.47%	-6.52%	23.41%	13.38%	17.97%	9.66%	10.09%	15.68%
Free Cash Flow Yield (FCF / MV)	-5.83%	5.08%	2.78%	-0.91%	1.52%	1.58%	2.12%	2.01%	0.73%	1.85%
Total Debt / Total Capital	26.56%	26.15%	26.86%	33.30%	22.88%	21.65%	21.65%	26.17%	25.94%	21.65%
Total Debt / EBITDAR	75.99%	65.83%	68.41%	79.27%	41.63%	38.38%	41.43%	58.71%	53.09%	39.90%
Excess Cash Financial Leverage ((Total Debt - Excess Cash) /	\$4,465.3 -27.01%	\$4,389.3 -21.50%	\$4,786.5 -17.32%	\$6,452.5 -5.55%	\$6,622.3 -2.94%	\$6,836.2 -4.26%	\$0.0 2.55%	\$5,817.4 -10.32%	\$6,637.0 -4.25%	\$3,418.1 -0.86%
Pension Leverage (Net Pension Liability / MV)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Equity Risk Index (S&P 500 = 1.00)	1.70	1.72	1.72	1.71	1.71	1.76	1.76	1.72	1.73	1.76
Stock Price Volatility	3.74	3.40	4.84	5.96	5.62	6.19	6.19	5.20	5.92	6.19
Sales Index (NL Sales)	8.33	8.45 9.46	8.52 9.77	8.84 11.05	9.18 11.92	9.37 11.52	9.39 11.61	8.87 10.74	9.13 11.50	9.38
Market Value Index (NL Market Value) Size Index (NL Sales: MV)	9.26 8.79	8.96	9.77	9.95	10.55	10.44	10.50	9.81	10.31	11.56 10.47
Beta	2.05	2.07	2.07	2.07	2.05	2.13	2.13	2.08	2.08	2.13
TFP Adjusted Beta	1.70	1.72	1.72	1.71	1.71	1.76	1.76	1.72	1.73	1.76
Stock Price Volatility	3.74	3.40	4.84	5.96	5.62	6.19	6.19	5.20	5.92	6.19
Valuation Measures										
Total Economic Market Value (MV)	\$10,480.9	\$12,876.9	\$17,511.3	\$63,190.5	\$149,680.3	\$100,252.0	\$109,972.0	\$68,702.2	\$104,374.3	\$105,112.0
Economic Enterprise Value	\$6,015.6	\$8,487.6	\$12,724.8	\$56,738.0	\$143,058.0	\$93,415.8	\$102,473.0	\$62,884.8	\$97,737.3	\$97,944.4
Equity Market Value Total Capital	\$8,846.4 \$6,263.8	\$11,256.7 \$6,308.8	\$15,758.0 \$6,605.3	\$60,244.0 \$8,986.5	\$147,458.0 \$9,883.3	\$97,691.5 \$12,038.5	\$107,163.3 \$13,205.7	\$66,481.6 \$8,764.5	\$101,797.8 \$10,302.8	\$102,427.4 \$12,622.1
Market Value Created MVC (MV - Capital)	\$4,217.1	\$6,568.1	\$10,906.0	\$54,204.0	\$139,797.0	\$88,213.5	\$96,766.4	\$59,937.7	\$94,071.5	\$92,489.9
MVC Margin (MVC / Sales)	102.10%	140.30%	217.69%	784.43%	1439.13%	752.93%	806.42%	788.00%	995.82%	780.00%
MVC Spread (MVC / Capital)	67.32%	104.11%	165.11%	603.17%	1414.47%	732.76%	732.76%	683.87%	913.07%	732.76%
Current EVC Value (EP / WACC)	(\$767.1)	\$1,654.8	\$2,753.6	\$9,912.7	\$20,758.4	\$24,907.4	\$27,322.3	\$12,611.0	\$18,657.3	\$26,114.8
Current Operations Value COV Current Operations Value Per Share	\$4,852.1 \$8.25	\$7,830.1 \$14.18	\$9,115.0 \$16.79	\$17,600.6 \$32.53	\$30,038.8 \$50.15	\$35,677.3 \$58.68	\$39,724.2 \$69.86	\$20,666.0 \$36.34	\$27,903.4 \$47.89	\$37,700.7 \$64.08
Future Growth Value (MVC - EVA Value)	\$5,628.8	\$5,046.7	\$8,396.3	\$45,589.9	\$119,641.5	\$64,574.7	\$70,247.8	\$48,036.2	\$76,470.9	\$67,411.3
Future Growth Value Reliance (FGV / MV)	53.71%	39.19%	47.95%	72.15%	79.93%	64.41%	63.88%	69.92%	73.27%	64.13%
Share Price	\$15.24	\$18.48	\$29.29	\$70.56	\$201.86	\$198.29	\$198.29	\$103.70	\$156.90	\$198.29
Dividend Yield	2.03%	1.84%	1.35%	0.69%	0.28%	0.31%	0.0001	47 7001	E4 040	00.000
Total Shareholder Return (TTM) MV to IC Ratio	28.51% 1.67X	23.10% 2.04X	59.84% 2.65X	141.59% 7.03X	186.37% 15.14X	-1.46% 8.33X	0.00% 8.33X	-47.70% 7.84X	51.31% 10.13X	26.38% 8.33X
EV / EBITDAR Multiple		3.45X	4.97X	15.26X	26.80X	14.00X	15.11X	15.15X	18.64X	14.56X
	2.00^			28.08X	43.51X	23.62X	25.45X	28.36X	31.65X	24.54X
EV / NOPBIT Multiple	2.80X 11.30X	10.18X	12.87X	20.007						
EV / NOPAT Multiple	11.30X 13.11X	12.18X	15.58X	32.49X	45.62X	25.25X	29.45X	31.14X	34.17X	27.29X
EV / NOPAT Multiple EV / EP Multiple	11.30X 13.11X -82.92X	12.18X 57.66X	15.58X 51.56X	32.49X 57.69X	45.62X 66.02X	36.16X	36.16X	51.31X	51.14X	36.16X
EV / NOPAT Multiple EV / EP Multiple Future Growth Value (% of MV)	11.30X 13.11X -82.92X 53.71%	12.18X 57.66X 39.19%	15.58X 51.56X 47.95%	32.49X 57.69X 72.15%	45.62X 66.02X 79.93%	36.16X 64.41%	36.16X 63.88%	51.31X 69.92%	51.14X 73.27%	36.16X 64.13%
EV / NOPAT Multiple EV / EP Multiple Future Growth Value (% of MV) Current Operations Value (% of MV)	11.30X 13.11X -82.92X 53.71% 46.29%	12.18X 57.66X 39.19% 60.81%	15.58X 51.56X 47.95% 52.05%	32.49X 57.69X 72.15% 27.85%	45.62X 66.02X 79.93% 20.07%	36.16X 64.41% 35.59%	36.16X 63.88% 36.12%	51.31X 69.92% 30.08%	51.14X 73.27% 26.73%	36.16X 64.13% 35.87%
EV / NOPAT Multiple EV / EP Multiple Future Growth Value (% of MV)	11.30X 13.11X -82.92X 53.71%	12.18X 57.66X 39.19%	15.58X 51.56X 47.95%	32.49X 57.69X 72.15%	45.62X 66.02X 79.93%	36.16X 64.41%	36.16X 63.88%	51.31X 69.92%	51.14X 73.27%	36.16X 64.13%

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NVIDIA Corporation (NVDA-US)

Semiconductors & Semiconductor

Ratings History

ltem #	Date	Research Action	Rating	Price	\$300 -					#9
#10	11/26/2018	Reiterate Rating	Buy	\$153.05	\$250 -				#8	
# 9	10/05/2018	Reiterate Rating	Buy	\$269.86					· · · · ·	Man and the
# 8	08/23/2018	Reiterate Rating	Buy	\$165.80	\$200	#3	#4	#6 #7		
‡ 7	08/18/2016	Reiterate Rating	Buy	\$62.10	\$150 41	#3	[#4] [l la
# 6	02/26/2016	Reiterate Rating	Buy	\$31.60	\$100 _ #2		#5		and the	A
# 5	08/13/2015	Reiterate Rating	Buy	\$23.52				1 🔶 🦵		#10
# 4	06/17/2015	Upgrade Rating	Buy	\$21.58	\$50 - 1 1	4	* *	*		
# 3	11/14/2014	Reiterate Rating	Neutral	\$19.55	\$0					
# 2	08/02/2013	Reiterate Rating	Neutral	\$14.76	01/2013	01/2014	01/2015	01/2016	01/2017	01/2018
¥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
For more information on the	key terms and measures, please review the Tigress Investment Research Guide to Company Valuation and Analysis

For more information on the key terms and measures, please review the Tigress Investment Research Guide to Company Valuation and Analysis.

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Analyst Certification

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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Tigress Research Investment Rating Meanings and Distribution

0	employs a five-tier rating system for evaluating the investment opportunity and		Rating Distribution (03/19/2019)						
universe. The pote	sociated with owning the common equity of rated firms within our research ential return is measured on a relative basis to the general market which is a S&P 500 and to the subject company's industry peer group as indicated.	-	Companies Under Coverage			Relationship Companies Under Coverage*			
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.		16	14%	1	15%			
Buy:	Expect out-performance for the price of the stock relative to its industry peer group and general market over the next 12 months.		51	44%	5	70%			
Neutral:	Expect little or no outperformance opportunity over the next 12 months.		44	38%	1	15%			
Underperform:	Expect underperformance for the price of the stock relative to its industry peer group and general market over the next 12 months.		5	4%	0	0%			
Sell:	Expect price decline or significant relative market and industry underperformance over the next 12 months.		0	0%	0	0%			
Not Rated	No Current Research Rating		NA	NA	65	NA			
Partners LLC or or	panies under research coverage are companies in which Tigress Financial ne of its affiliates has received compensation for investment banking or non-	Total	116	100%	72	100%			

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

Comp	any:	Disclosure:
NVIDI	A Corporation (NVDA-US)	14
Key	Disclosure:	
1.	The Analyst or a household member re the primary subject of this report in a po	esponsible for the production of this report currently holds a position in securities of the company that is ersonal, related or beneficial account.
2.		esponsible for the production of this report beneficially owns one percent or more in securities of the this report in a personal, related or beneficial account.
3.	Tigress Financial Partners LLC togethe report.	er with its affiliates beneficially owns one percent or more of the security that is the primary subject of this
4.	The Analyst or a household member re member of the company that is the prin	esponsible for the production of this report currently serves as an officer, director or advisory board nary subject of this report.
5.	An employee of Tigress Financial Partr the company that is the primary subjec	ners LLC, its affiliates or subsidiaries currently serves as an officer, director or advisory board member o t of this report.
6.		liates or subsidiaries is acting as manager/co-manager, underwriter, selling group member, placement o curities of this subject company/entity or one of its affiliates.
7.		liates or subsidiaries has acted as manager/co-manager, underwriter, selling group member, placement securities of this subject company/entity or one of its affiliates within the past 12 months.
8.		ffiliated entity currently receives compensation for non-investment banking services from the company ersons of the company that is the primary subject of this report.
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