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UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF CALIFORNIA

OAKLAND DIVISION

In re NVIDIA CORPORATION SECURITIES LITIGATION	Case No. 4:18-cv-07669-HSG
	FIRST AMENDED CONSOLIDATED CLASS ACTION COMPLAINT FOR VIOLATIONS OF THE FEDERAL SECURITIES LAWS
This Document Relates to: All Actions.	DEMAND FOR JURY TRIAL
	Judge: Hon. Haywood S. Gilliam, Jr. Courtroom: 2

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Lead Plaintiffs E. Öhman J:or Fonder AB ("Öhman Fonder") and Stichting Pensioenfonds PGB ("PGB," and together with Öhman Fonder, "Lead Plaintiffs") bring this action individually and on behalf of all others who purchased or otherwise acquired the common stock of NVIDIA Corporation ("NVIDIA" or the "Company") between May 10, 2017, and November 14, 2018 (the "Class Period"), and were damaged thereby.

Lead Plaintiffs allege the following based upon personal knowledge as to themselves and their own acts and upon information and belief as to all other matters. Lead Plaintiffs' information and belief are based on the ongoing independent investigation of their undersigned counsel. This investigation includes review and analysis of, among other things: (i) NVIDIA's public filings with the U.S. Securities and Exchange Commission ("SEC"); (ii) research reports by securities and financial analysts; (iii) videos and transcripts of NVIDIA's conference calls with analysts and investors; (iv) Company presentations, press releases, and reports; (v) news and media reports concerning NVIDIA and other facts related to this action; (vi) price and volume data for NVIDIA securities; (vii) information from consultations with relevant experts; and (viii) information provided by former NVIDIA employees, some of whom expressed concern about providing Lead Counsel with information for fear of retaliation by NVIDIA. Lead Counsel's investigation into the factual allegations continues, and many of the relevant facts are known only by Defendants or are exclusively within their custody or control. Lead Plaintiffs believe that substantial additional evidentiary support is likely to exist for the allegations set forth herein after a reasonable opportunity for discovery.

I. INTRODUCTION

1. Defendant NVIDIA is a multinational technology company that purports to have invented in 1999 the graphics processing unit ("GPU"), a type of processor that electronics manufacturers incorporate into their devices, including graphics cards for video games. NVIDIA's flagship product line is its "GeForce" brand of GPUs, a favorite among video-game enthusiasts ("gamers"). NVIDIA's Gaming segment—the business unit that developed, marketed, and sold the GeForce product line—is the Company's most important segment by far, generating more revenues than its four other segments combined.

2. In early 2017, NVIDIA faced an unusual problem: its flagship product was flying off the shelves. Under normal circumstances, such a trend would be cheered. But the enormous sales growth owed not to an increase in demand from gamers (NVIDIA's traditional consumer), but rather to bands of online prospectors who were buying up the processors by the thousands and deploying them in massive datacenters to solve complex mathematical problems in pursuit of digital tokens called "cryptocurrencies."

3. These so-called "crypto-miners" were chasing a modern-day gold rush unfolding in cyberspace and based on an esoteric new technology called "blockchain." Instead of picks and shovels, the crypto-miners relied on computing power and processors. They discovered that GeForce GPUs were particularly adept at quickly processing the computations required by cryptocurrency mining—and at a fraction of the cost of more powerful chips designed for scientific and industrial settings. As the financial rewards of cryptocurrency mining escalated rapidly, so, too, did demand for GeForce GPUs.

4. The new cryptocurrency boom served as rocket fuel for NVIDIA's Gaming segment, supercharging the revenues of the Company's most-watched segment by the middle of 2017. Yet NVIDIA's top executives—led by Defendants CEO Jensen Huang, CFO Collette Kress, and Senior Vice President and Head of Gaming Jeff Fisher—knew that the spike in GeForce GPU sales was not sustainable. NVIDIA's chief rival in the GPU market, Advance Micro Devices ("AMD"), had been burned in a different cryptocurrency boom earlier that decade. AMD had watched its sales numbers—and its share price—skyrocket as crypto-miners hoarded its GPUs, only to see both plunge when cryptocurrency prices crashed and demand from miners evaporated. AMD's experience taught investors that cryptocurrency-related revenues were unreliable, as miners' demand for GPUs was directly linked to the wildly volatile prices of the cryptocurrencies for which they labored.

5. With the cryptocurrency markets again catching fire and GeForce sales rising, analysts began to question whether NVIDIA would fall prey to the boom-and-bust cycle that AMD had suffered several years before. Defendants refused to publicly acknowledge that NVIDIA's proliferating sales were the result of fickle cryptocurrency miners, lest investors discount the Company's stock to reflect the volatility of crypto-related demand. Instead, Defendants opted for a strategy that would capitalize on miners' fervent demand for GeForce GPUs while falsely telling investors that the spike in GeForce sales

came from *gamers*, not miners, and making it appear that NVIDIA's core Gaming business was immune from the volatility of the cryptocurrency markets.

6. The strategy involved two steps. First, in May 2017, NVIDIA launched a special GPU specifically designed for cryptocurrency mining (the "Crypto SKU"). Critically, NVIDIA did ***not*** report Crypto SKU sales in Gaming segment revenues, which made up more than 50% of NVIDIA's sales year after year. Rather, the Company publicly reported the Crypto SKU sales in the "Original Equipment Manufacturer & Intellectual Property" ("OEM") segment, an ancillary catch-all segment that contributed just 5% to 10% of Company revenues. Second, Defendants repeatedly assured the market—often in direct response to analyst questions—that sales to miners consisted almost entirely of its Crypto SKU, claiming that NVIDIA satisfied the "***vast . . . majority of the cryptocurrency demand out of that specialized product***." Indeed, the ***only*** revenues that Defendants publicly disclosed as cryptocurrency-related were sales of the Crypto SKU. Launching the Crypto SKU and reporting its sales in the OEM segment thus allowed Defendants to claim that any mining-related revenues were cordoned off in OEM, creating the impression that NVIDIA's crown jewel Gaming business was insulated from crypto-related volatility (and the crash in demand that would follow the cryptocurrency markets' inevitable bust).

7. As the Class Period continued, Defendants repeatedly emphasized that cryptocurrency was ***not*** a material driver of NVIDIA's rising revenues, attributing the gains to strong demand from gamers while ignoring or falsely trivializing the sizable impact of sales to crypto-miners. For example, when Defendant Huang was interviewed by *VentureBeat* in November 2017, he was explicitly asked whether "cryptocurrency is driving all of your success." Huang rebuffed the idea, stating, "***crypto is small for us but not 0. . . . It's large for somebody else. But it is small for us***." Later that month, in response to a Credit Suisse analyst's question about the impact of cryptocurrency-related demand on NVIDIA's Gaming segment revenues, Defendant Kress stated that it was "***some small amount***" but that the "***majority***" of the Company's cryptocurrency-related revenues stemmed from the Crypto SKU (and were therefore reported in the OEM segment). Similarly, statements in NVIDIA's SEC filings ascribed the Company's swelling revenues to robust gaming demand, not cryptocurrency-related demand. The strategy had its intended effect, with the financial press reporting that NVIDIA was making specific "cards designed for this use

[i.e., cryptocurrency mining] so that the surging digital currency demand doesn't affect its ability to serve the lucrative PC gaming market."

8. In truth, and as Defendants fully understood at the time, cryptocurrency mining was driving the spike in GeForce sales (and therefore Gaming segment revenues). Contrary to Defendants' public statements, the newly launched Crypto SKU had not absorbed anywhere close to a majority of crypto-miners' demand for NVIDIA's GPUs. Miners were buying up GeForce GPUs in droves, often in bulk purchases of thousands or tens of thousands at a time.

9. Throughout the Class Period, Defendants Huang, Fisher, Kress, and other senior managers personally monitored, analyzed, and exploited this phenomenon of cryptocurrency-driven GeForce demand. They did so through multiple internal data sources that illuminated the crypto-related sales from a variety of angles. This information included: (a) sales data specifically identifying and quantifying global GeForce sales to crypto-miners that was consolidated in a centralized database that Huang accessed; (b) quarterly internal meetings in which NVIDIA Vice Presidents presented crypto-specific GeForce sales data to Huang; (c) weekly reports sent directly to Huang at his request detailing miners' voracious demand for GeForce GPUs from regions around the world; (d) usage data from a software program bundled with GeForce GPUs called "GeForce Experience" which reflected how the processors were being utilized by end-users and was compiled in monthly reports sent to Huang and accessed by Kress; (e) weekly sales emails quantifying GeForce sales to miners in NVIDIA's largest market, sent to Fisher and other members of the GeForce executive team; and (f) an internal study, commissioned by Fisher, proving that NVIDIA was measuring GeForce sales to miners. ***All*** of these data streams made Defendants aware that crypto-miners, not gamers, were behind NVIDIA's surging GeForce sales.

10. Defendants began monitoring crypto-related sales well before the Class Period began. Indeed, prior to the Class Period, Huang explained: "We monitor the inventory in the channel continuously, not only from the guys that buy from us, but where the parts go after that—***who they sell to, and who they sell to***," confirming "***we monitor sellout in the channel literally every day***." By late 2016, NVIDIA's sales force in China—the Company's largest market by far, accounting for more revenues than the rest of the world combined—had started to track crypto-related GeForce sales based on transaction data provided by NVIDIA's manufacturing partners. NVIDIA paid its partners to collect this data. The data

expressly quantified GeForce sales to crypto-miners, who began to make bulk purchases of tens of thousands of GPUs at a time from these partners. This data, which, as recounted by a former Senior Account Manager, "obsessed" NVIDIA's U.S. executive team, was sent in weekly reports to top executives and consolidated in NVIDIA's centralized sales database. Huang personally reviewed the sales data in this centralized sales database, a fact documented by a Company-produced video shown at an internal meeting attended by top executives. The sales data demonstrated that, throughout 2017, 60% to 70% of NVIDIA's GeForce revenue in China came from sales to crypto-miners, ***not*** gamers. Given the importance of both the GeForce product line and the China market to NVIDIA's overall business, this staggering percentage revealed that a substantial portion of the Company's total Gaming-segment revenues actually came from crypto-related sales in that one region alone.

11. Unable to ignore the data pouring into NVIDIA's headquarters, Defendants solicited additional information from the field. In March 2017, Fisher and his top deputies traveled to China to receive a presentation from the sales team in which the explosion in cryptocurrency-related sales was addressed head-on. These executives were told that sales to crypto-miners had recently caused GeForce sales to nearly double in NVIDIA's critical China market (which included mainland China, Hong Kong, and Taiwan). Later, in August 2017, Fisher privately commissioned a study of crypto-related demand in China to be presented to top GeForce executives. Among other internal data, the resulting slide deck noted that during the first eight months of 2017, 1.5 million GeForce gaming GPUs had been sold to crypto-miners in China, producing hundreds of millions of dollars in crypto-related GeForce sales from that region alone. The presentation also forecasted that crypto-related sales in the China market would reach 2 million GeForce GPUs annually, yielding hundreds of millions of dollars in additional Gaming segment revenues.

12. Of course, the cryptocurrency phenomenon was not limited to the China market, as Defendants understood at the time. Indeed, Huang personally received and reviewed detailed accounts from all over the world of surging GeForce sales to crypto-miners on a weekly basis throughout the Class Period. Ever eager to keep his pulse on NVIDIA's performance around the world, Huang—described by former employees as the consummate "micromanager"—had instituted an internal reporting system called "Top 5," which required senior sales and marketing personnel from all of NVIDIA's regions to send a summary of current market conditions, trends, and events to Huang and other top executives every Friday.

Huang carved out time on Sundays to review the reports, often responding directly to the senders seeking additional information, with the expectation that his questions would be answered Monday morning. A former senior marketing executive from NVIDIA's European division, who was on the Top 5 distribution list, recalled that virtually every salesperson discussed how crypto-driven demand was fueling the boom in GeForce sales and that nearly all sales reports during the second half of 2017 and first half of 2018 discussed crypto-mining and the explosion in sales to miners, which the Company had achieved with little effort or marketing budget. The emails also discussed the acute shortages of GeForce GPUs that the miners' insatiable demand had created, which former employees recalled were pronounced in regions as diverse as China, the United States, Russia, and India. Huang also attended quarterly meetings at which NVIDIA Vice Presidents presented crypto-specific GeForce sales data, relying on the miners' avid demand for GeForce GPUs to justify their sales projections.

13. In addition to this deluge of sales figures and reports from the field, internal technical data confirmed that crypto-miners had overrun the market for GeForce GPUs. NVIDIA used a software program bundled with its GeForce GPUs to track how consumers were using their GeForce GPUs throughout the Class Period. The program, called "GeForce Experience," transmitted usage data from users back to NVIDIA, enabling the Company to determine whether consumers were using each GPU for gaming or for mining. As one former manager put it, "***We actually know this data***." Just two months before the Class Period began, when an analyst asked how NVIDIA "pars[ed]" its sales data, Kress confirmed her own access to this information and that NVIDIA used the GeForce Experience data to identify to whether sales were going to gamers, stating, "we can actually see [users] through our GeForce Experience . . . . ***So we have an ability to actually look to say, 'Yes, the intended use of those overall gaming platforms are actually being used for gaming***.'" NVIDIA's former senior marketing executive from the European division explained that, indeed, the GeForce Experience usage data was maintained in a central database and reported every month directly to Huang, who personally reviewed the data for each region. The same executive, who saw the monthly reports, stated that the usage data reflected that over 60% of GeForce sales went to miners during the Class Period—a figure in line with what the centralized sales database reflected was happening in NVIDIA's largest and most important market, China.

14. As miners' ravenous appetite for GeForce GPUs became clear internally, Fisher told his team that NVIDIA's growing reliance on fickle crypto-driven demand was "***dangerous***." Yet his warning, while prescient, did nothing to quell NVIDIA's enthusiasm for the revenues that crypto-mining was generating for the Gaming segment. To the contrary, Defendants not only knew about, but ***encouraged*** large-scale crypto-mining with GeForce GPUs throughout the Class Period. In fact, the China presentation that Fisher had commissioned detailed NVIDIA's plan to directly target the largest miners in China, going so far as to list ten large crypto-mining operations by name next to their contact information and projected monthly demand in thousands of units. Meanwhile, at the quarterly sales meetings, Huang and other top executives discussed business opportunities targeting large commercial miners, including a significant deal in 2017 with Genesis Mining, a leading crypto-mining operation based in Europe.

15. Then, in early 2018, NVIDIA accommodated large-scale mining operations when it issued a revised End User License Agreement for its GeForce product line. The revised agreement prohibited commercial datacenters from using GeForce GPUs, a move designed to push corporate customers out of cheaper GeForce gaming GPUs into far more expensive "professional" processors. Yet the new agreement also contained an important carve-out provision that allowed datacenters to continue using GeForce GPUs ***if they were used for crypto-mining***. The carve-out further demonstrated that Defendants knew at the time that the Crypto SKU was ***not*** satisfying the "vast majority" of crypto-related demand and that industrialized mining firms were in fact buying up GeForce GPUs on a massive scale.

16. In the spring of 2018, the cryptocurrency markets started to weaken considerably. With the value of cryptocurrencies in freefall by the summer of 2018, crypto-mining became unprofitable, and the miners' demand for NVIDIA GeForce GPUs evaporated. So, too, did GeForce sales. The façade of the Gaming segment's invulnerable growth began to crumble.

17. On August 10, 2018, Defendants were forced to acknowledge that "***a great deal***" of cryptocurrency miners had bought GeForce Gaming GPUs in recent months, revealing to investors that NVIDIA's crypto-related revenues had ***not*** been contained in its OEM segment, but rather had a substantial—and negative—impact on its core Gaming business. NVIDIA's share price fell on the news, with analysts blaming the drop on the collapse of cryptocurrency mining. Defendants also disclosed that GeForce inventories had ballooned more than 36% to $1.09 billion, reflecting the glut of supply that

followed the end of crypto-related demand. Yet Defendants falsely reassured the market that the swelling inventory would not be a problem, as demand from gamers would pick up the slack created by the disappearance of crypto-related sales. Analysts again credited these assurances.

18. On November 15, 2018, the relevant truth behind Defendants' deception was more fully revealed. Defendants announced that NVIDIA had missed analyst expectations for the third quarter and was revising its revenue guidance for the fourth quarter to reflect a ***7% decline*** year-over-year. Attributing the reversal to a "***sharp falloff in crypto demand***" for NVIDIA's Gaming GPUs, NVIDIA revealed that it would make no shipments into the distribution channel of—and thus recognize no revenue for—the mid-range GeForce GPUs that miners had favored. The promised demand from gamers simply did not exist, and it became fully apparent to the market that, contrary to Defendants' earlier representations, NVIDIA's revenues were unduly dependent on cryptocurrency mining. On the news, NVIDIA's stock plunged 28.5% over two trading sessions, falling from $202.39 to $144.70 per share on heavy trading volume.

19. Market observers were shocked by the revelations. One analyst noted that the disclosures stood "in sharp contrast to the comments [by NVIDIA's executives] at the last earnings call." Another, from Deutsche Bank, stated that the results "call into question what the true growth rate of Gaming was/is," while a reporter told Defendant Huang incredulously, "I . . . thought [cryptocurrency] was never really more than a tenth of your revenue." Another observer was more blunt: "***NVIDIA lied about its cryptocurrency earnings to avoid [a] stock crash***," positing that "***the steep falls [in NVIDIA's stock price] [we]re a strong incentive for Nvidia to mask large fluctuations in revenue***." The remarks echoed those of the former Senior Account Manager in China, who told Lead Counsel, "NVIDIA sure lied to everyone."

20. After the dust cleared, securities analysts sought to probe the extent to which NVIDIA's Gaming revenues had relied on GeForce sales to crypto-miners during the Class Period. In January 2019, for example, RBC Capital Markets ("RBC") produced a report that compared the $602 million in reported Crypto SKU sales in the OEM segment—the ***only*** revenues that Defendants had publicly attributed to crypto-mining—to what it believed the Company really had earned from the crypto-boom. The analysis concluded that NVIDIA had in fact earned $1.95 billion from crypto-mining from February 2017 to July 2018. In other words, RBC found that Defendants understated crypto-related revenue by $1.35 billion.

21. To follow up on these reports, which were supported by the accounts of former NVIDIA employees, Lead Plaintiffs retained Prysm Group, an economic consulting firm specializing in cryptocurrency markets, to conduct an independent analysis of NVIDIA's crypto-related revenues specifically during the Class Period (which was three months shorter than the period analyzed by RBC). The analysis relied on cryptocurrency-specific market share data from an industry research firm that Defendants have called "the leading market research company tracking multimedia and graphics technology," as well as NVIDIA's own internal estimates of its share of crypto-related GPU sales. This analysis confirmed that Defendants had grossly understated its crypto-related revenues. Specifically, Prysm Group economists determined that NVIDIA had earned at least $1.728 billion from sales to miners from May 2017 through July 2018—meaning that Defendants understated NVIDIA's crypto-related GPU sales by ***$1.126 billion*** during the Class Period, ***all*** of which was contained in the Company's ***Gaming*** segment.

22. These results, which are set forth below, confirm that Defendants falsely claimed, quarter after quarter, that the Gaming segment's sales growth resulted from strong organic demand from gamers while misleading the market into believing that NVIDIA's dependence on cryptocurrency-related revenues was "small" and that any exposure to that inherently volatile demand was contained in its Crypto SKU and ancillary OEM segment. In truth, the Company's gains from the crypto-boom had been substantial, due largely to an intense but transient source of demand for NVIDIA's Gaming segment GeForce GPUs that Defendants tracked fastidiously throughout the Class Period, yet chose to hide from investors.

FY 2018[1]			FY 2019		
2Q18	**3Q18**	**4Q18**	**1Q19**	**2Q19**	**Total**
NVIDIA's Reported Revenues for Crypto SKU					
$150m	$70m	$75m	$289m	$18m	**$602m**
Actual Cryptocurrency-Related Revenues					
$349m	$299m	$541m	$364m	$175m	**$1,728m**
Difference Between Reported Revenues for Crypto SKU and Actual Cryptocurrency-Related Revenues					
$199m	$229m	$466m	$75m	$157m	**$1,126m**

23. Through this action, Lead Plaintiffs seek to hold Defendants accountable to NVIDIA's shareholders for their deceit.

II. JURISDICTION AND VENUE

24. This Court has jurisdiction over the subject matter of this action under Section 27 of the Exchange Act, 15 U.S.C. § 78aa. In addition, because this is a civil action arising under the laws of the United States, this Court has jurisdiction under 28 U.S.C. §§ 1331 and 1337.

25. Venue is proper in this District under 28 U.S.C. § 1391(b) and Section 27 of the Exchange Act, 15 U.S.C. § 78aa. NVIDIA is headquartered and conducts business in this District, and many of the acts and transactions that constitute violations of law complained of herein, including the dissemination to the public of untrue statements of material facts, occurred in this District.

26. In connection with the acts alleged herein, Defendants, directly or indirectly, used the means and instrumentalities of interstate commerce, including the mails, interstate telephone communications, and the facilities of a national securities exchange.

III. PARTIES

Lead Plaintiffs

27. Co-Lead Plaintiff Öhman Fonder is a large, independent institutional investor responsible for overseeing approximately $9.2 billion in assets. Founded in 1906, Öhman Fonder is headquartered in

[1] NVIDIA's fiscal year runs from February 1 to January 31. Fiscal year 2018 ran from February 1, 2017, to January 31, 2018; and fiscal year 2019 ran from February 1, 2018, to January 31, 2019.

Stockholm, Sweden. As set forth in the certification attached hereto as Exhibit A, Öhman Fonder purchased NVIDIA stock and suffered damages as a result of the securities law violations alleged herein. By order dated May 2, 2019, the Court appointed Öhman Fonder a Lead Plaintiff in this action.

28. Co-Lead Plaintiff PGB is a multisector pension fund headquartered in Amsterdam, Netherlands. Founded in 1953 by employers and employees from the graphics arts industries, it now provides pensions and benefits for more than 311,000 people and manages approximately $30 billion in assets. As set forth in the previously submitted certification (ECF No. 113, Ex. B), PGB purchased NVIDIA stock and suffered damages as a result of the securities law violations alleged herein. By order dated May 2, 2019, the Court appointed PGB a Lead Plaintiff in this action.

Corporate Defendant

29. Defendant NVIDIA is a multinational technology company that purports to have invented in 1999 the GPU, a type of processor designed "to solve some of the most complex problems in computer science."[2] NVIDIA remains one of the largest participants in the GPU market, with over 80% market share. While NVIDIA sells its GPUs around the world, a majority of its revenues come from China and Taiwan. NVIDIA is incorporated in Delaware and maintains its corporate headquarters at 2788 San Tomas Expressway, Santa Clara, California. Its stock trades on the NASDAQ, under ticker symbol "NVDA." As of November 9, 2018, there were 610 million shares of NVIDIA stock outstanding.

Individual Defendants

30. Defendant Jensen Huang ("Huang") co-founded NVIDIA in 1993; he has since served as the Company's President and Chief Executive Officer and as a member of its Board of Directors. Huang holds undergraduate and master's degrees in electrical engineering and worked in technical capacities at LSI Logic and Advanced Micro Devices prior to co-founding NVIDIA. Throughout the Class Period, Huang signed NVIDIA's filings with the SEC and regularly spoke directly to investors about the details of the Company's performance and the extent to which cryptocurrencies drove it, reassuring the market that "our strategy is to stay very, very close to the market" and "[w]e understand its dynamics really well."

[2] NVIDIA Form 10-K filed February 21, 2019 ("FY 2018 10-K"), at 4.

31. Defendant Colette Kress ("Kress") is, and was at all relevant times, Executive Vice President and Chief Financial Officer of NVIDIA. Prior to joining NVIDIA, Kress held finance positions at Cisco, Microsoft, and Texas Instruments. Throughout the Class Period, Kress signed NVIDIA's SEC filings and repeatedly spoke to investors in detail about NVIDIA's GPU business, including concerning NVIDIA's strategies and results related to cryptocurrency mining.

32. Defendant Jeff Fisher ("Fisher," and together with Huang and Kress, the "Individual Defendants") is currently an Executive Vice President of NVIDIA and has served as NVIDIA's SVP of the GeForce Business Unit since 2008. Besides Huang and Kress, Fisher is NVIDIA's most prominent executive. Described as a "company stalwart" by NVIDIA insiders, Fisher was identified as NVIDIA's "first salesman" in a 2017 *Fortune* article. As Head of Gaming throughout the Class Period and one of five figures who represented the Company at its annual Investor Days (along with Huang, Kress, and the heads of NVIDIA's Automotive and Datacenter segments), Fisher spoke to investors about the performance of the Gaming business. Huang explained at the May 10, 2017 Investor Day that Fisher was "one of NVIDIA's oldest employees," remarking, "Fish and I grew up together." Fisher's office was no more than 100 yards from Huang's office on the same floor at NVIDIA's headquarters in Santa Clara, and he met with Huang weekly.

IV. FORMER EMPLOYEES REFERRED TO IN THE COMPLAINT

33. FE 1 was employed by NVIDIA for over 10 years as a Senior Account Manager in China, leaving the Company in December 2017. As one of approximately four account managers in the China market (NVIDIA's largest), FE 1 managed several large accounts for the Company's "partners" (i.e., the device manufacturers to whom NVIDIA sold most of its products), primarily selling NVIDIA's GeForce Gaming GPUs. FE 1 described his primary responsibilities as negotiating sales contracts, interacting with partner companies, and monitoring GeForce sales, pricing, inventory, and usage in China. FE 1 reported to Senior Sales Director Howard Jiang, who reported to Senior Director for China David Zhang in the United States, who reported to VP Worldwide GeForce Sales John Milner, who reported to EVP/SVP and head of Gaming Jeff Fisher, who reported to CEO Jensen Huang. As detailed below, FE 1 directly, personally, and repeatedly communicated with Jiang, Zhang, Milner, and Fisher about the explosion of

cryptocurrency-related demand for GeForce GPUs and spoke with colleagues who attended meetings at which crypto-related sales data was presented to Huang.

34. FE 2 was a Senior Products Director who worked at NVIDIA in Santa Clara, California. FE 2 worked at NVIDIA from several years before the Class Period began to May 2017. FE 2 was primarily involved in software product management and commercialization, focused particularly on software designed to make hardware run more efficiently and effectively. FE 2 reported first to VP and General Manager Jeff Brown, then to VP and General Manager Bob Pette, both of whom reported directly to CEO Huang. FE 2 personally met with Huang on a monthly basis while at NVIDIA and maintained contact with former senior colleagues after his departure.

35. FE 3 occupied different marketing positions at NVIDIA, working at the company between January 2011 and November 2018, with a nine-month hiatus beginning in July 2013. FE 3 served as a Senior Director of Marketing for the Americas at NVIDIA, then as Senior Director for Consumer Marketing in Latin America. FE 3's responsibilities included marketing and public relations strategy, with a particular focus on promoting GeForce Gaming GPUs. Throughout the Class Period, FE 3 was based in Santa Clara, California.

36. FE 4 worked as a Community Manager in Moscow, Russia, from 2015 through August 2018. FE 4's job was to promote NVIDIA's Gaming products to the Russian market through social media and by hosting promotional events. FE 4 was also responsible for obtaining information about demand for NVIDIA products through conversations with retailers.

37. FE 5 was NVIDIA's Head of Consumer Marketing for South Asia from April 2014 to June 2019. In that role, FE 5 directed consumer marketing for all of South Asia, which, despite its location, was part of NVIDIA's European market and overseen by the Director of Europe. FE 5 was based in Bengaluru, Karnataka, India. FE 5 was included on a weekly email distribution chain with Huang, attended quarterly meetings with regional leaders tasked with preparing summaries of sales data, trends, and forecasts for Huang, and presented GeForce sales data to Huang personally during one of Huang's multiple visits to India.

V. FACTUAL ALLEGATIONS

A. NVIDIA's Core Gaming Segment and GeForce GPU Product Line

38. NVIDIA's primary business is the design of GPUs, a type of processor designed "to solve some of the most complex problems in computer science." GPUs are distinct from the central processing unit ("CPU") of a computer, which handles basic instructions and assigns more complicated tasks to other, more specialized chips. The GPU is able to perform multiple calculations at the same time, acting as a co-processor that accelerates the CPU by performing computationally intensive tasks more efficiently, rendering complex images, animations, and video for display far more quickly than a CPU could alone. Although developed for graphics-rendering and used most frequently in video gaming, GPUs have since expanded to encompass a variety of other applications, including non-graphics tasks requiring repetitive computations.

39. NVIDIA's GPUs are divided among five "specialized markets," which industry analysts frequently refer to as "segments."[3] The five segments are: (1) Gaming (consumer-market chips designed to improve video-game applications, mainly comprised of NVIDIA's flagship "GeForce" GPU line); (2) Original Equipment Manufacturer & IP ("OEM") (including low-end GPUs sold into devices such as tablets and phones, as well as intellectual-property assets); (3) Datacenter (including "Tesla" GPUs, intended for high-end professional and scientific applications); (4) Professional Visualization (including "Quadro" GPUs, serving design and digital-content customers); and (5) Automotive (serving self-driving vehicle developers).

40. Of these segments, Gaming is NVIDIA's most important—by a large margin. In every quarter of the Class Period, Gaming revenues exceeded those of the four other segments combined. GeForce GPUs were the Gaming segment's crown jewel and the product line on which the Company built its reputation.

41. Defendant Jeff Fisher—NVIDIA's EVP and SVP of the GeForce business unit—heads the vital Gaming segment and has served in that capacity since 2008. By NVIDIA's own description, he is

[3] In addition to distributing financial results among these five "specialized markets," NVIDIA also reports revenue between two "business segments" (GPU and Tegra Processor), a distinction of little significance to this dispute. Because industry analysts focus on revenue distribution among the five specialized markets and frequently refer to these different business units as "segments," that convention is maintained here.

"responsible for the positioning and go-to-market strategy of GeForce GPUs, the No. 1 consumer graphics brand." At all times material to this dispute, Fisher reported directly to Huang. One of Fisher's key direct reports was John Milner, whose title throughout the Class Period was VP Worldwide GeForce Sales.

42. With limited exceptions, NVIDIA does not sell its GPUs directly to consumers (i.e., end-users). Instead, it sells them to other device manufacturers, which NVIDIA calls "partners." These partners build NVIDIA's GPUs into their own products, such as graphics cards and computers. The partners then sell these products into their respective distribution channels, which could include wholesalers, retailers, or internet platforms.

43. While NVIDIA typically does not sell its GPUs directly to end-users, its executive team closely monitors the distribution chain of its products, including sales out of its distribution channel (so-called "sellout"). Indeed, as far back as 2007, CEO Jensen Huang was quoted telling securities analysts at an industry conference, "We monitor the inventory in the channel continuously, not only from the guys that buy from us, but where the parts go after that—***who they sell to, and who they sell to***." That close monitoring continued. In 2015, Huang told investors during an earnings call, "***we monitor sellout in the channel literally every day***. And so that's how we manage inventory. We don't manage inventory on selling; we manage inventory on sellout." As described below, Defendants tracked who purchased NVIDIA's GeForce GPUs not only through detailed sales data obtained from NVIDIA's distribution partners, but also through sophisticated software sold with its GPUs that informed Defendants precisely how end-users were utilizing them.

B. Background on Cryptocurrency Mining

44. Blockchain, and the digital currencies that this technology spawned, emerged from the embers of the financial crisis of 2007–2008, when faith in the banking system and its effective regulation was badly shaken. Positing an alternative to the financial institutions that had governed commerce for centuries, Blockchain's founders envisioned a decentralized, global network whose participants would join in peer-to-peer exchanges using novel digital currencies, their transactions facilitated by the internet, and secured by modern cryptology.

45. The fundamental concept at the core of blockchain is its function as a decentralized, immutable ledger. Unlike traditional economies in which central banks or private financial institutions

keep track of transactions, in a blockchain, pending transactions are announced publicly (albeit anonymously) to the entire network, verified by certain network participants, and then recorded on a public ledger.

46. The verifiers fulfill this task by first consolidating and encrypting the data of a group of transactions using the cryptographic technique of "hashing"—applying an algorithm to convert a string of text into an inscrutable, random sequence of numbers and letters, always of the same length. Then, the users compete to solve a difficult mathematical puzzle through laborious trial-and-error work performed by their computers to obtain a qualifying "hash output," which allows the "block" of new transactions to be added to the "chain" of prior transactions (hence the name, "blockchain"). The successful verifier is rewarded with a new issue of some of the network's tokens—the network's version of currency—which provide the critical incentive to ensure that transactions in the network continue to be verified.

47. Because of their underlying reliance on cryptography, the digital tokens circulating on these networks are called "cryptocurrencies." The two most popular of these tokens are Bitcoin and Ether, which are used on the Bitcoin and Ethereum networks, respectively. The laborious work to verify pending transactions—and thereby unearth new currency—is called "crypto-mining" (or simply "mining"), while the verifiers are called "miners."

48. Although mining continually increases the supply of tokens in blockchain networks like Bitcoin and Ethereum, these increases are restricted to set intervals. For instance, a specific number of Bitcoins (6.25 as of May 11, 2020) is released about every 10 minutes. On the Ethereum network, roughly two Ethers are released about every 13 seconds.

49. To keep these intervals constant as new miners join the network, the networks increase the difficulty of the puzzles verifiers have to solve in order to add transactions to the public ledger. When the difficulty level increases, miners must conduct more trial-and-error work to obtain a qualifying hash output. Miners with more computing power, who can perform those calculations more quickly and on a larger scale, typically beat out the rest. This feature of crypto-mining has resulted in a technological arms race and encouraged the consolidation of mining activity among those who can stockpile more and better hardware with which to mine.

50. Indeed, when Bitcoin, Ethereum, and other significant blockchain networks first began, individual miners could mine the new cryptocurrencies using home computers in their basements. Quickly, however, competition increased, and with it more powerful equipment was deployed. As a recent University of Cambridge study noted, "[t]he mining sector has evolved in a short time from a hobby activity performed on personal computers into a professional and capital-intensive industry with its own value chain."

51. This evolution is demonstrated by the exponential growth in the major blockchain networks' "hash rates," which reflect the number of hashing computations performed by an entire network each second. A network's hash rate stands as the best measure of computing power dedicated to mining that network's cryptocurrency, and it provides knowledgeable observers the information needed to estimate how many computers are working on the network. By way of example, the Bitcoin network hash rate grew from approximately 7 million H/s (hashes per second) on January 1, 2010, to about 62 ***quintillion*** hashes per second—nearly a ***trillion*** times as much—by August 2018. Following the release of Ether in July 2015, the Ethereum network hash rate grew from 11.5 billion H/s to 2.5 trillion H/s in just nine months, only to increase further orders of magnitude in the years that followed.

52. Proliferating hash rates were driven as much by rapid advances in mining hardware as anything else. While early crypto-mining was conducted using the CPUs of home computers, miners soon turned to GPUs, which could execute the computationally intensive work of crypto-mining hundreds of times faster. As miners began to buy multiple GPUs and assemble them into "mining rigs" dedicated for that purpose, demand for GPUs skyrocketed. *See infra* Fig. A. Mining "farms"—datacenters housing rows of mining rigs—sprouted up soon after. As each rig contains thousands of dollars in equipment, the start-up costs of mining today are substantial. Mining has therefore become the domain primarily of for-profit business associations able to pool capital.

Figure A. A mining rig comprised of NVIDIA GPUs
Source: NVIDIA Corp.

53. Besides the hardware costs, the single greatest expense in mining cryptocurrency is electricity. The power required to mine cryptocurrencies—and to cool the machines doing that work—is staggering. As *The Economist* reported in 2018, recent studies have estimated the power consumption related to Bitcoin mining ***alone*** at 22 terawatt-hours per year—nearly the same as all of Ireland. Consequently, mining farms have consolidated in particular regions of the world where energy costs are lower and the climate cooler—China, Russia, and the Nordic countries chief among them. *See infra* Figs. B and C.

Figure B. A GPU mining farm in China
Source: NVIDIA Corp.

Figure C. An Ether mining farm in Iceland
Source: Genesis Mining

54. Of course, when cryptocurrency prices fall below a certain point, mining ceases to be profitable, no matter the location. Ignoring the sunk costs of the hardware, miners will compare their rate of return (measured as the number of tokens mined over a certain period multiplied by the prevailing market price for those tokens) with their costs over the same period (most significantly, the price of electricity and equipment storage). When returns exceed costs, miners continue mining; when costs exceed returns, miners stop. Miners of Ether (and other cryptocurrencies that are mined using GPUs) have the added

benefit of being able to recoup some of their sunk costs by selling used GPUs on the secondary market to gamers when mining becomes unprofitable.

55. Because cryptocurrency prices have swung wildly over their short history, the profitability of mining has followed suit. As a result, the demand for mining hardware—including GPUs—has proven extremely volatile.

56. In the early years of Bitcoin mining, GPUs were the hardware of choice.[4] This period coincided with a pronounced bubble in the Bitcoin market in 2013–2014. In early May 2013, Bitcoin was trading at about $91 per token, with a total market capitalization of $1.01 billion. Six months later, it hit its then-all-time high of around $1,200 per token and a market capitalization of over $14 billion.

57. At the time, GPUs made by AMD, NVIDIA's chief rival, were viewed as the gold standard in Bitcoin mining. Demand for AMD GPUs skyrocketed alongside Bitcoin prices during the second half of 2013, with processors that usually sold for $200–300 per unit selling for $600–800 at the height of the bubble.

58. While it experienced a temporary boon, AMD soon saw the downside of crypto-mania. As the price of Bitcoin dropped more than 70% in the five months after its peak, so, too, did demand for AMD's GPUs—a problem compounded by miners dumping used AMD GPUs on the secondary market at steep discounts. As one analyst covering AMD noted, "I talked to miners who said[,] 'The moment the price collapsed and the economics went against mining, I just immediately sold all of my stuff on eBay at whatever price I could get.'" AMD's revenues suffered as its crypto-related sales evaporated.

59. In 2016, signs of a new bubble appeared. The price of Bitcoin rallied from about $230 per coin in September 2015 to nearly $1,000 by the end of 2016. Meanwhile, an array of new coins came online by way of "initial coin offerings" (capital raises by which an entrepreneurial technologist pitches an

[4] Bitcoin miners ultimately moved on from GPUs to application specific integrated circuits ("ASICs") designed specifically for executing that network's specific hashing algorithm. GPUs, however, retained their dominance in mining Ether and certain other cryptocurrencies, for which ASICs could not be used. Because this dispute involves sales of NVIDIA GPUs, the focus is on the mining of Ether, the largest of the "altcoins" for which GPU mining is still profitable, although others, such as Z-Cash and Monero, affected demand for NVIDIA's products as well.

idea for a blockchain-based venture, solicits funding, and in return grants investors some quantity of the venture's digital token).

60. The most significant of these new cryptocurrencies was the Ethereum network and its cryptocurrency, Ether, which rose from $0 to over $10 per token in the several months following its July 2015 launch. Then, in the spring of 2017, Ether began a meteoric climb that temporarily peaked at over $400 per token in June, with a 24-hour trading volume exceeding $3.1 billion. Several months later, in January 2018, Ether peaked at over $1,400 per token—an increase of more than 13,000% in a single year. Other cryptocurrencies mined with GPUs witnessed similarly dramatic increases in value. These skyrocketing valuations made mining enormously profitable, and once again caused a massive surge in demand for GPUs.

61. During this run up in GPU-mined cryptocurrency prices, miners turned to NVIDIA—specifically, its enormously popular line of GeForce Gaming GPUs—and began to purchase GeForce GPUs in droves. Favorites were the GeForce GTX 1060, 1070, 1070Ti, and 1080Ti models.

62. As cryptocurrency prices rose in the months before and during the early part of the Class Period, Defendants made a concerted effort to publicly soothe investor concerns that NVIDIA's extraordinary Gaming-segment results were actually being driven by cryptocurrency mining. As detailed below, they did so in three primary ways, which the market accepted. First, Defendants represented to investors that revenues from sales of its products to cryptocurrency miners were insignificant overall. Second, Defendants asserted that NVIDIA's soaring Gaming revenues indeed resulted from sales "for gaming"—not cryptocurrency mining. And third, Defendants represented that NVIDIA's cryptocurrency-related revenues were contained primarily in the Company's OEM reporting segment, when in fact, almost ***two-thirds*** of such revenue came from GeForce sales recorded in its Gaming segment. These representations were materially false and misleading and concealed from investors the enormous risk to NVIDIA's financial results posed by the Company's outsized exposure to crypto-mining.

C. Defendants Repeatedly Denied the Importance of Sales to Cryptocurrency Miners in Driving NVIDIA's Revenues

63. Throughout the Class Period, NVIDIA reported skyrocketing revenues in its core Gaming segment. For example, on May 9, 2017, NVIDIA reported first quarter sales for its Gaming segment of

$1.02 billion—representing a 49% year-over-year increase and 52.8% of total revenues. The Company reported similarly spectacular numbers each quarter for the next year, including on May 10, 2018, when it announced that Gaming-segment revenues were $1.723 billion—a 68% year-over-year increase, and approximately 2.5 times the revenue for that segment two years prior.

64. Although they were impressed with the growth in Gaming revenues, investors and analysts alike questioned whether those revenues truly derived from GeForce GPU sales to gamers or, rather, were from sales of GeForce GPUs to cryptocurrency miners, whose demand was at risk of disappearing if the economics of mining turned negative.

65. To better understand the riskiness of NVIDIA's reported Gaming revenues, and whether the explosive growth in those numbers was sustainable, analysts pressed Defendants for assurances that the surge in sales was ***not*** being driven by cryptocurrency-mining demand for GeForce GPUs. For example, during the Company's September 6, 2017 presentation at the Citi 2017 Global Technology Conference, Citigroup analyst Atif Malik asked Kress to describe "what steps NVIDIA [has] taken to avoid cannibalization of the core gaming market" as a result of increased demand from cryptocurrency miners. During NVIDIA's November 9, 2017 earnings call, the same analyst asked Huang and Kress to explain "why should we think that crypto won't impact the gaming demand in the future?"

66. Defendants assuaged these concerns by repeatedly telling investors throughout the Class Period that they were closely monitoring the cryptocurrency market's effect on NVIDIA and that what Defendants' learned through that careful monitoring was that cryptocurrency-related sales contributed only a "small" portion to the Company's overall revenues. For example, in response to an analyst question during NVIDIA's August 10, 2017 earnings call asking how Huang planned to manage the volatility of the cryptocurrency market, Huang told investors that "our strategy is to stay very, very close to the market. ***We understand its dynamics really well . . . . We stay very close to the market. We know its every single move and we know its dynamics***." Then, when *VentureBeat* noted on November 10, 2017, that "[i]t seemed like people had the impression that cryptocurrency is driving all of your success," Huang called the impression "***wrong***" and stated that cryptocurrency's effect on NVIDIA's sales was "***small but not zero. . . It's going to remain small for us***."

67. Huang reiterated those assurances in an interview published in *Barron's* the day after NVIDIA's February 8, 2018 earnings call. In the interview, Huang discussed cryptocurrencies at length with the reporter and again downplayed the significance of cryptocurrencies for NVIDIA's financial performance. Specifically, the author of the article explained that "[w]hen I asked Huang if he wanted to point out anything in particular about the report and outlook, Huang began, 'Clearly there's been a lot of talk about crypto,'" then proceeded to assert that the portion of NVIDIA's business related to cryptocurrency had been "small, overall" the prior quarter.

68. Huang doubled-down on those claims during a March 29, 2018 appearance on the CNBC show *Mad Money*. When host Jim Cramer asked Huang about analysts' concerns that NVIDIA's "cryptocurrency risks are growing," Huang responded by minimizing the effect of cryptocurrency-related activities on NVIDIA's performance, claiming that the "core growth drivers" for the Company's revenue results were other areas of the business—Gaming, Professional Visualization, Datacenter, and Automotive—and that "cryptocurrency just gave it that extra bit of juice." When Cramer asked Huang to confirm that "if people think [cryptocurrency] is that important, they're gonna miss the bigger picture," Huang responded, "Absolutely." He again minimized NVIDIA's cryptocurrency-related revenue, contrasting it with the Company's "core" businesses.

69. These representations had the desired effect on investors and analysts, with several analysts crediting Defendants' claims that robust revenue growth was being driven by gamers, not crypto-miners, and that NVIDIA's cryptocurrency exposure was small overall. For example, in a report issued August 11, 2017, JPMorgan reported that crypto-mining-related sales were "not a significant portion of NVIDIA's business" and that NVIDIA "remain[ed] focused on continued growth drivers in AI, autonomous driving and gaming." Similarly, in a report published on November 10, 2017, BMO Capital Markets reported that "the [C]ompany . . . continues to believe there is only a small amount of GeForce cards that is used for cryptocurrency mining."

70. Further, when identifying the "primary drivers" of its Gaming segment growth, Defendants consistently identified sales to gamers—***not*** sales to crypto-miners. For example, at NVIDIA's May 10, 2017 Investor Day conference, the Individual Defendants took turns touting the Gaming segment's strong fundamentals, with Defendant Fisher identifying "PC gaming, eSports, competitive gaming, AAA gaming,

[and] notebook gaming" as the key drivers of Gaming's growing revenues, saying nothing about demand from crypto-miners. Defendants made similar statements throughout the Class Period, reiterating the supposedly strong demand for GeForce Gaming GPUs from gamers while failing to disclose that much of the demand for these GPUs came from crypto-miners.

71. Here, too, analysts bought Defendants' story. For example, in reports issued on November 10, 2017, JPMorgan lauded NVIDIA's "strong gaming fundamentals," Susquehanna expressed its "surprise[] [at] the strength in Gaming," and BMO Capital Markets reported that "the company noted broadbased strength in the gaming community[.]" Similarly, in a report issued February 9, 2018, SunTrust Robinson Humphrey raved about NVIDIA's gaming results, following Defendants' lead in making no mention of cryptocurrency whatsoever:

> NVDA's CQ4 results & CQ1 guidance beat (destroyed) consensus. Gaming continues to exceed expectations . . . . Gaming rev was ~13% above consensus . . . with secular growth from eSports, new AAA gaming titles boosting demand for Pascal processors, and continued success of the Nintendo [] Switch platform.

72. Defendants also misled analysts and investors into believing that nearly all the cryptocurrency-related GPU revenues that NVIDIA earned were reported ***not*** in the Company's all-important Gaming segment, but rather in its far less significant OEM segment. NVIDIA had begun selling the Crypto SKU, a GPU designed specifically for cryptocurrency mining, in the summer of 2017. Crypto SKU sales appeared only in the OEM segment, not the core Gaming segment. This conspicuous segregation of the Crypto SKUs from Gaming was by design: it allowed Defendants to publicly claim that its mining-related sales were cordoned off in OEM, ostensibly isolating NVIDIA's cash-cow Gaming business from cryptocurrency-related volatility while capitalizing on frenzied demand for the hardware needed for mining. Defendants repeatedly and falsely assured investors and analysts that NVIDIA met virtually all of crypto-miners' demand for its GPUs through sales of the Crypto SKU, ignoring or obscuring the fact that most of the Company's crypto-related sales—***almost two-thirds***—came from its flagship GeForce Gaming GPU line.

73. For example, on August 10, 2017, when NVIDIA reported "record revenue" for the second quarter of fiscal 2018 of $2.23 billion driven largely by $1.19 billion in revenues from the Company's Gaming segment, Defendant Huang reassured investors that cryptocurrency mining was not driving the

quarter's Gaming revenues. He claimed that "***we serve the vast . . . majority of the cryptocurrency demand out of that specialized product [the Crypto SKU]***" in the OEM segment, which had recorded just $150 million in cryptocurrency-related sales. Two days later, in a published interview, Huang stated that ***all*** of NVIDIA's sales to crypto-miners "represented only a couple hundred million dollars, maybe $150 million or so." This comment that the "$150 million or so" that NVIDIA earned in Crypto SKU sales comprised all of the Company's crypto-related sales misleadingly indicated to investors that NVIDIA sold ***virtually zero*** GeForce GPUs to crypto-miners. Huang gave a similarly misleading statement the next quarter when, in a November 9, 2017 interview with *VentureBeat*, he stated that NVIDIA's crypto-related sales were "[m]aybe $70 million"—precisely the same figure that NVIDIA had disclosed that day as its third-quarter Crypto SKU sales, again misleadingly assuring investors that the Company's sales to crypto-miners were contained almost exclusively in its ancillary OEM segment.

74. Similarly, at a Credit Suisse Technology, Media and Telecom Conference on November 29, 2017, Kress acknowledged that while "there probably is some residual amount or some ***small amount*** in terms of" cryptocurrency-related sales in the Gaming GPU segment, she stressed that "***the majority [of cryptocurrency-related sales] does reside in terms of our overall crypto card*** [i.e., the Crypto SKU]."

75. Analysts again credited these statements, taking at face value Defendants' claims that crypto-related sales were captured in the OEM segment, separated from Gaming. For example, an August 10, 2017 report from Oppenheimer noted that "[c]rypto mining was ~$150M in 2Q"—a figure that matched NVIDIA's reported Crypto SKU sales in the OEM segment that quarter—and mentioned no additional crypto-related revenues in Gaming. Likewise, in a report issued May 11, 2018, SunTrust Robinson Humphrey explained that "crypto revenue showing up in the crypto SKU significantly mitigates what we see as the biggest near-term risk in NVDA, which is that older gaming GPUs sold to crypto-miners could flood the secondary market and sink gaming revenue."

D. Unknown to Investors at the Time, Defendants Knew That Cryptocurrency Miners Were Driving NVIDIA's Gaming Revenues Throughout the Class Period

76. Contrary to Defendants' repeated assurances to investors and analysts, NVIDIA's crypto-related revenues were *not* limited to the specialized Crypto SKU, and revenues for the Company's Gaming segment were *not* driven primarily by "gamers." Rather, the Gaming segment's remarkable sales growth

during the Class Period was driven largely by sales to cryptocurrency miners, and NVIDIA's total sales to miners were anything but "small." Numerous sources, including NVIDIA's former executives, securities analysts, and Lead Plaintiffs' experts, have confirmed that miners fueled NVIDIA's reported surge in Gaming revenues.

77. Moreover, former senior employees from various regions and functions have confirmed that NVIDIA's top leadership—including Defendants Huang, Fisher, and Kress—fully understood that crypto-miners were behind the booming GeForce GPU sales numbers even before the Class Period began. Indeed, FE 3, a Senior Director for Consumer Marketing from 2014 through the Class Period, stated that everyone at NVIDIA was engaged, to some degree, in talks about cryptocurrency mining's impact on the Company's sales. According to accounts of these former employees, Defendants discussed, studied, tracked, and actively sought to bolster sales of NVIDIA's flagship GeForce line to miners—all while assuring investors that its Gaming business was protected from the volatility inherent in cryptocurrency-related demand.

1. Huang Maintained Access to NVIDIA's Centralized Sales Database, Which Reflected Surging Demand for GeForce GPUs from Crypto-Miners

78. Throughout the Class Period, Huang maintained access to a centralized internal sales database that consolidated GeForce sales data from around the world and identified GeForce sales to crypto-miners. Former employees from multiple regions have confirmed that this granular data identified crypto-specific GeForce sales and was provided to NVIDIA by the Company's partners, which were given financial incentives for such reports. The sales data made clear that miners, not gamers, were driving the rapid increase in GeForce revenues during the Class Period.

79. FE 1 described how the process of gathering detailed sales data from NVIDIA's partners worked. FE 1 worked in the Company's critical China market (encompassing mainland China, Taiwan, and Hong Kong). The China market was NVIDIA's largest by far, accounting for more revenues than the Company's four other regions combined.[5] As one of approximately only four account managers in NVIDIA's China market at the time, FE 1 had close relationships with several of the Company's largest

[5] A 2015 study by Goldman Sachs concluded that NVIDIA derived 54% of its revenue from the China market (including Taiwan and Hong Kong). According to FE 1, the region was also crucial for the Gaming segment, providing 40% to 50% of NVIDIA's worldwide GeForce sales in 2017.

partners, including Colorful (China's largest graphics-card brand), ZOTAC (a major Macau-based hardware manufacturer), and Inno3d (a popular Hong Kong-based card maker). Beginning in late 2016, FE 1 began receiving regular reports from these companies that demand for GeForce from miners was "exploding."

80. FE 1 explained that NVIDIA kept meticulous track of who was buying its GPUs—not simply directly from the Company, but also from its partners and others down the distribution chain as well. FE 1 described how NVIDIA required FE 1's customers—the device manufacturers that NVIDIA called "partners"—to submit order sheets to NVIDIA identifying who was buying the partners' completed products. These order sheets specifically described the purchaser, product, and quantity of the device containing NVIDIA's GPU being sold by the partner submitting the order sheet. By at least late 2016, these order sheets ***expressly identified purchases by crypto-miners***, who had started to purchase GeForce GPUs by the thousands at a time.

81. FE 1 explained that the account managers took the order sheets from partners and posted the transaction data, including information about the partners' purchasers, to one of NVIDIA's regional operations centers. The regional operations center for the Asia-Pacific region was located in Hong Kong. The operations center then forwarded the data to the global operations center at NVIDIA's corporate headquarters in Santa Clara, California. This process of consolidating sales data and forwarding it to NVIDIA's headquarters occurred in every region in which NVIDIA operated. FE 1 gave the example of sales people in North America sending their sales data to a regional operations center in North America. Once the sales data was received from the regional operations centers, employees at NVIDIA's headquarters consolidated data from the various regions into a global sales spreadsheet in Excel, complete with full worldwide data, for distribution to high-level executives at headquarters.

82. FE 5 confirmed that this process of obtaining granular sales data from the distribution channel occurred in other regions. FE 5, who worked in the Company's European division, explained that NVIDIA obtained sales reports both from partners and from distributors and retailers further down the distribution chain—so-called "sell-in/sell-out" data. This "sell-in/sell-out" data recorded sales throughout the distribution chain and allowed NVIDIA to determine the percentage of GeForce GPUs sold to crypto-miners. FE 5 explained that NVIDIA's partner companies were given a financial incentive to report this

detailed sales information to NVIDIA, specifically, money for marketing campaigns, called "Marketing Development Funds." FE 5 said that NVIDIA's Head of Sales for each country gathered this sales data and inputted it into NVIDIA's system, which the regional director (for FE 5, the Director of Europe) then accessed and sent to the Company's headquarters in California.

83. FE 1 explained that managers from all regions collected this sales data and inputted it into NVIDIA's centralized global sales database, called the "channel support system." The sales database aggregated the order-sheet data and allowed NVIDIA executives to track sales trends across an entire region or down to a particular customer and product. FE 1 stated that the centralized sales database, like the order sheets from which its data was drawn, expressly identified crypto-miners as purchasers of large blocks of GeForce GPU products.

84. FE 1 explained that the GeForce executive team in the United States, including Defendant Fisher, VP Worldwide GeForce Sales John Milner, and U.S.-based Senior Director for China David Zhang, had ready access to the centralized sales database. FE 1 stated that, in addition to the GeForce executive team, Huang and Kress were both authorized to access the sales database and in fact had actual access to this data. Additionally, FE 1 stated that Huang and Kress could direct VPs (such as Fisher and Milner) to forward the data to them.

85. FE 2, a Senior Products Director based in NVIDIA's Santa Clara headquarters who personally met with Huang on a monthly basis, confirmed that Huang personally reviewed NVIDIA's sales data through the centralized sales database. As an example, FE 2 described a Company-produced video shown at a Quarterly Business Review or all-hands meeting that FE 2 attended in 2017. FE 2 stated that the video showed Shanker Trivedi (SVP of Enterprise Business, based at NVIDIA's Santa Clara headquarters) inputting sales information into the centralized sales database described above. The video then switched frames, showing Huang looking at the sales data in the database and, after noting what appeared to be a spike in sales based on Trivedi's reporting, sending Trevedi an email congratulating him on the increased sales. FE 2 stated that the message of the video was that Huang personally reviewed the sales data. That message was consistent with FE 2's recollection that Huang was "the most intimately involved CEO he had ever experienced" and always knew everything that was occurring in the Company,

a sentiment that FE 2 stated was widely shared. "Everybody talked about it among the different business groups," FE 2 recalled.

86. FE 1 described the U.S. executive team as "obsessed" with this sales data, which explicitly identified and quantified crypto-miners' burgeoning demand for GeForce GPUs throughout the Class Period. FE 1 reported that, throughout 2017, this data reflected that ***60% to 70%*** of NVIDIA's GeForce revenue in its most critical market, China, came from sales to crypto-miners. Given the significance of the China market to NVIDIA's Gaming revenues and overall performance, these figures revealed that approximately ***25% to 35%*** of NVIDIA's ***worldwide*** GeForce Gaming-segment revenues were coming from sales to crypto-miners ***just in China***. *See supra* note 5 (noting China market provided 40% to 50% of worldwide GeForce sales). Yet as various other data sources streaming into the Company's California headquarters made clear, the crypto phenomenon was not limited to a single region or market; rather, miners were buying up GeForce GPUs in bulk all over the globe, comprising a far larger percentage of NVIDIA's worldwide Gaming revenues.

2. Huang Reviewed Crypto-Related GeForce Sales Data at Quarterly Meetings

87. Huang also attended meetings at which sales data detailing GeForce sales to crypto-miners was presented to him during the Class Period. FE 1 recounted that, every quarter, a group of NVIDIA Vice Presidents and other managers met with Huang at "higher hierarchies" meetings to review the Company's performance. FE 1 stated that emails were circulated within his department in advance of these quarterly meetings. FE 1 also discussed these meetings with his manager (Senior Sales Director Howard Jiang) and other colleagues. The GeForce business unit's U.S.-based leadership—including Zhang, Milner, and Fisher—were among those who attended these meetings with Huang.

88. FE 1 stated that NVIDIA Vice Presidents presented sales data reflecting GeForce sales to miners at the quarterly meetings with Huang in 2017. FE 1 learned this fact directly from Zhang or Jiang. FE 1 explained that the Vice Presidents presented this information to Huang at the meetings to generate confidence that their sales targets would be met. FE 1 further stated that business opportunities involving sales to crypto-miners were a topic of conversation at these meetings with Huang. For example, in 2017, Huang and the other attending executives discussed a large sales deal with Genesis, a European company well known in the cryptocurrency mining arena.

89. FE 5 also stated that FE 5 attended regional Quarterly Business Review meetings for multiple regions, including Europe. The regional Quarterly Business Reviews were held online and involved managers from sales and marketing departments. During these meetings, the managers presented analyses breaking down the sales data geographically for the regional heads, and the regional heads would report that information directly to Huang. FE 5 explained that the "sell-in/sell-out" data that reflected the percentage of GeForce sales going to crypto-miners was included in the quarterly reviews. FE 5 explained that these quarterly meetings were designed to provide Huang insight into how each region was doing and provide him with a complete view of the Company's sales performance on a monthly basis.

90. FE 5 stated that crypto-mining and its effect on GeForce demand was a "hot topic" at these meetings for different regions during the second half of 2017 and first half of 2018. FE 5 gave the Director of Sales for Europe as an example of one executive who discussed crypto-related demand for GeForce GPUs at these gatherings. Attendees also discussed forecasting predictions, including forecasts of GPU demand from cryptocurrency miners. FE 5 recalled that, beginning in the summer of 2018, the Quarterly Business Review meetings involved discussion of the decline in mining-related demand, which was negatively affecting GeForce sales. FE 5 explained that the sales data and forecasts presented at the regional meetings, including cryptocurrency-related demand, was then ***sent directly to Huang***.

91. FE 5 also stated that Huang traveled to India on multiple occasions, where he reviewed sales data from the region. For example, FE 5 recalled personally presenting sales data to Huang at a meeting in 2017, attended by approximately ten others. The meeting, held in Mumbai, focused on NVIDIA's sales performance and marketing strategies and the performance of NVIDIA's channel partners. FE 5 stated that GeForce sales data was included in the first slide of the presentation. FE 5 described Huang as "very hands-on," with a prodigious memory.

92. FE 2, who attended some of these quarterly meetings at the Company's Santa Clara headquarters, confirmed that Huang reviewed GeForce sales data at quarterly reviews at that location as well. Indeed, FE 2 stated that Huang reviewed everybody's sales data in detail at these meetings, which FE 2 described as "proctology exams." FE 2 further stated that Huang closely reviewed the GeForce data at these events because GeForce revenues were larger than that of any other group. As FE 2 recalled,

"Jensen is a micromanager. He micromanages everything—very little gets done without him being involved."

93. Huang also explicitly discussed the effect of cryptocurrency-related demand on GeForce sales. FE 2 stated that Huang brought up miners' preference for GeForce GPUs during at least two different Quarterly Business Reviews at NVIDIA's Santa Clara headquarters in 2017, which FE 2 attended with Huang and other business unit, sales, marketing, and product management leaders. Specifically, Huang acknowledged that NVIDIA could not get the cryptocurrency miners to buy the professional and more expensive Quadro and Tesla cards because miners did not care about "what the pro card stands for" and were only interested in raw cost and "cranking out algorithms at the lowest cost." FE 2 also recalled that when Huang stated that miners were buying GeForce GPUs instead of the professional cards, the information came as no surprise to FE 2 or any of the other NVIDIA executives in the room.

3. Huang Received Weekly "Top 5" Emails Highlighting the Impact of Crypto-Related Demand on GeForce Sales Around the World

94. Throughout the Class Period, Huang also received continuous reports of crypto-related GeForce sales in an internal reporting system that he had created called "Top 5" emails. FE 5 explained that the Top 5 emails were a system that Huang had implemented by which senior sales and marketing personnel from all of NVIDIA's regions sent reports of recent achievements, perceived challenges, market conditions, and ongoing trends to everyone on the distribution list, including Huang, on a weekly basis. The system was designed to give executives all over the world—most of all, Huang—an understanding of what was occurring in each of the Company's various markets. For example, if the Head of Sales in Europe wrote about sales in the European market, that information would go to NVIDIA's executives and managers globally, including Huang. FE 5, as Head of Consumer Marketing for South Asia, was on the distribution list and thus privy to the contents of the weekly Top 5 emails at all relevant times. FE 5 therefore saw the information that went to Huang each week by way of this reporting system.

95. FE 5 further explained that the convention was for senior sales and marketing personnel to send the "Top 5" emails to Huang and the other executives on the distribution list on Fridays. It was understood that Huang set aside time on Sundays to review the Top 5 emails each week, at which time he would review them and often reply directly to the senders, posing follow-up questions. Then, first thing

Monday morning of each week, the individuals who received follow-up questions from Huang would answer them. FE 5 stated that Huang read the Top 5 emails because he was "very hands-on," and the Top 5 system was his idea; Huang wanted to know what was happening across all regions of the Company, and this was the way by which he did so.

96. FE 2 was also on the Top 5 distribution list. FE 2 confirmed that Huang had initiated the Top 5 reporting system in 2014 or 2015, that it required senior managers to send their reports by email every Friday, and that Huang personally reviewed the Top 5 emails sent by these senior managers. FE 2 further stated that Huang made a point of telling employees that he had "super user" status on NVIDIA's IT system and would use it to review all the Top 5 emails.

97. FE 5 stated that the effect of cryptocurrency mining on demand for GeForce GPUs was discussed regularly in the Top 5 reporting system during the Class Period and that this discussion came from managers in "many" regions. Indeed, FE 5 recalled that virtually every salesperson on the distribution chain talked about crypto-related GeForce sales in these weekly emails to Huang and other executives and that almost all communications from the sales force pertained to crypto-mining during the cryptocurrency bubble of 2017 and 2018. FE 5 explained that emails from the sales force contained both sales data reflecting the growth in GeForce demand and accounts of conversations with resellers, partners, and distributors who reported demand from cryptocurrency miners to assess the demand created by crypto-mining. FE 5 stated that the sales force knew that crypto-miners were buying GeForce GPUs in "bunches" (i.e., bulk orders of hundreds or thousands of GPUs) and these bulk orders took off during the Class Period. Specifically, FE 5 stated that known crypto-miners began reaching out to salespeople at NVIDIA directly to place bulk GPU orders. FE 5 reiterated that the Top 5 emails to Huang and other top executives explicitly discussed crypto-related sales, bulk ordering, and assessments of crypto-related demand.

98. The weekly Top 5 emails to Huang and the rest of the leadership team also frequently discussed another aspect of the crypto-mining trend: shortages in GeForce GPUs inventory caused by the mounting crypto-related demand. FE 5 gave the Director of Sales for Europe as an example of one manager who discussed crypto-related demand in the Top 5 emails and the shortages that it created in the marketplace among gamers, along with bulk orders from crypto-miners. FE 5 emphasized, however, that

shortages in GeForce GPU inventory was not limited to Europe and that managers from multiple regions regularly reported on this crypto-mining phenomenon in their weekly reports to Huang.

4. Huang and Kress Received GeForce Experience Data Confirming That the Majority of GeForce Sales Were to Crypto-Miners

99. In addition to regularly receiving sales data and reports reflecting rapidly rising GeForce sales to miners, Defendants knew, or were deliberately reckless in not knowing, that crypto-miners were buying the Company's GeForce GPUs for mining in substantial quantities because of their access to technical usage data collected through NVIDIA's GeForce Experience software.

100. GeForce Experience software is bundled with the graphics drivers for GeForce GTX Gaming graphics cards. In addition to automatically checking for and installing updated driver software, GeForce Experience software purports to optimize graphics settings to improve graphics performance while gaming. It also allows users to stream and share what they do on their computers with others, including NVIDIA itself. Defendant Fisher has called GeForce Experience "the heart of our gaming platform."

101. This software was widely used. NVIDIA has publicly claimed that "mid-to-high 90%" of its users use the GeForce Experience software. In November 2016, NVIDIA reported 80 million users of GeForce Experience. In July 2017, the Company announced that the GeForce Experience software was available in its all-important China market. Fisher reported at the Company's annual Investor Days that user figures had grown to 90 million by May 2017 and 100 million by March 2018.

102. By NVIDIA's own account and those of former employees, the data gathered from users of GeForce Experience tracked how GeForce GPUs were being used. The "GeForce Experience FAQ" on NVIDIA's website from the summer of 2017 stated:

> ***The application collects data*** needed to recommend the correct driver update and optimal settings, including hardware configuration, operating system, language, installed games, game settings, ***game usage***, game performance, and current driver version. If a user is signed into an NVIDIA account, the data is identifiable. All data collected is protected by NVIDIA's privacy policy.

103. FE 1 confirmed that NVIDIA was aware of exploding cryptocurrency-related demand for GeForce GPUs through the GeForce Experience data. FE 1 explained that the software enabled the

Company to monitor usage of GeForce GPUs and informed it whether those GPUs were being used for gaming or mining.

104. FE 1 emphasized that NVIDIA's top managers regularly analyzed the GeForce Experience data and that they understood the market change—specifically, the increased demand—brought on by cryptocurrency mining. "***We actually know this data***," FE 1 said. Indeed, FE 1 recalled David Zhang, the U.S.-based Senior Director for China, explicitly discussing how GeForce Experience data allowed NVIDIA to track mining usage. Of Defendants' later claims that they could not determine whether GeForce GPUs were being used for mining, FE 1 scoffed, "***NVIDIA sure lied to everyone***."

105. FE 5 confirmed that the GeForce Experience software informed NVIDIA about how GeForce GPUs were being used, including when they were being used for mining. FE 5 explained that GeForce Experience captures information regarding the use of the PC on which it is installed, including what games were played on it, how the computer performed, and other data. NVIDIA used this data for marketing purposes and to determine what games were being played in different regions around the world. FE 5 stated that NVIDIA knew the percentage of GeForce GPU sales going to miners by examining the GeForce Experience data.

106. FE 5 stated that NVIDIA maintained the GeForce Experience usage data in a central database. FE 5 explained that regional managers compiled monthly reports of the GeForce Experience data, which were then sent directly to Huang. FE 5 had access to these reports. FE 5 stated that the usage data contained in these reports showed that ***over 60%*** of GeForce GPU sales during the Class Period were to miners. FE 5 also stated that his superiors informed FE 5 at the regional Quarterly Business Review meetings attended by FE 5 that Huang personally reviewed the GeForce Experience data for each region.

107. Kress also repeatedly and publicly acknowledged that NVIDIA monitored end-users' utilization of their GeForce GPUs through the GeForce Experience software. For example, during the Company's presentation at the Credit Suisse 20th Annual Technology Media Teleconference on November 30, 2016, Kress stated:

> [W]e have designed a set of key drivers and software for every gaming card that goes out there. ***We can see you light up***. GeForce Experience . . . that allows you the latest driver for the next game that comes out. We want you online and gaming in seconds. But ***we can see the games that you're playing***.

108. Similarly, during NVIDIA's presentation at the Morgan Stanley Media Telecom Conference on March 1, 2017, Kress stated, "***[W]e can actually see [users] through our GeForce Experience***, sign on, download the drivers for games. ***So we have an ability to actually look to say, 'Yes, the intended use of those overall gaming platforms are actually being used for gaming***.'" As discussed above, this GeForce Experience data reflected that the dramatic spike in NVIDIA's GeForce GPU sales during the Class Period was attributable to sales to miners, ***not*** gamers.

5. Fisher and Other Top U.S. Executives Received Detailed Accounts of GeForce Sales to Miners Throughout the Class Period

a. Weekly Sales Reports and Sales Forecasts Quantifying GeForce Sales to Miners

109. The GeForce sales force also regularly reported miners' swelling demand for GeForce products to the GeForce leadership team at NVIDIA's U.S. headquarters. FE 1 reported that near the end of 2016 or early 2017, FE 1's supervisor, Senior Sales Director Howard Jiang, told FE 1 that "it would be good to support GeForce" sales by specifically targeting and selling the GeForce GPUs to miners. Consequently, Jiang directed FE 1 and the other account managers in China to specifically track GeForce sales to miners, which the account managers began doing.

110. FE 1 further explained that the China account managers were required to send weekly GeForce sales reports by email to NVIDIA executives in the United States, a practice that began before the crypto-bubble started to expand in late 2016 and continued throughout FE 1's time with NVIDIA. NVIDIA's China team sent these weekly reports to, among others, Defendant Fisher, VP Worldwide GeForce Sales Milner, Taiwan-based Asia-Pacific Market Director Andy Hsu, China-based Product Marketing Manager Li Pu, and U.S.-based Senior Director for China David Zhang. The reports provided weekly updates on the preceding week's GeForce sales numbers, sales drivers, customers, inventory issuers, competitors, and other issues relevant to the China market. FE 1 personally drafted these emails.

111. After FE 1 discussed the growing demand for GeForce GPUs from crypto-miners in one of these emails in late 2016, FE 1's boss, Jiang, instructed FE 1 to write a report on crypto-mining in China. Then, at the end of 2016, FE 1 was asked to put together a presentation on the crypto-mining market for GPUs in China. The presentation contained an introduction to crypto-mining, how it worked, the hardware needed to do it, and an overview of the market. FE 1 sent this presentation to Jiang and Zhang.

112. After FE 1 submitted the report and presentation, the weekly sales emails that FE 1 and other managers drafted were modified to contain a separate section presenting crypto-related GeForce GPU sales based on data gathered from NVIDIA's customers in China. Defendant Fisher (Huang's direct report) and key members of his Gaming segment executive team thus received weekly updates on the number of GeForce GPUs being sold to crypto-miners in its most critical market, China, throughout 2017. FE 1 also commented regularly on the trend in these weekly updates, highlighting the significance of cryptocurrency mining to GeForce demand alongside the quantitative crypto-related GeForce sales data. Throughout 2017, Fisher, Milner, Zhang, and others received these weekly reports quantifying the impact of crypto-mining demand on GeForce sales in China, which alone comprised approximately 25% to 35% of NVIDIA's worldwide GeForce revenues.

113. FE 1 explained that the China sales team also sent quarterly spreadsheets to the U.S.-based GeForce executive team, including Fisher, Milner, and Zhang. These spreadsheets presented data about the preceding quarter's transaction data, market share, and GeForce GPU sales to crypto-miners in China.

114. In addition to assiduously tracking sales to miners in its centralized sales database and providing the weekly sales reports to the U.S.-based leadership, NVIDIA's sales force included cryptocurrency-related sales of GeForce GPUs in its sales projections for important markets. During the second half of 2017, FE 1 and his team worked on formulating 2018 GeForce sales projections for the China market. FE 1 stated that the continuing increase in crypto-mining demand for GeForce GPUs was the primary reason why NVIDIA was internally forecasting 2018 GeForce sales to rise ***60%*** over 2017 levels. FE 1 and his sales team specifically discussed the increased demand from crypto-mining as driving the increased 2018 GeForce sales projections in forecasting calls, emails, and weekly reports involving Fisher, Milner, and Zhang. Furthermore, FE 1 reported that, in conjunction with these forecasts, NVIDIA planned to increase inventory to support the anticipated increase in GeForce sales driven by mining.

b. March 2017 Presentation to Fisher and Other Top Gaming Executives

115. FE 1 also warned key members of NVIDIA's executive team of the rapid rise in demand for GeForce GPUs by crypto-miners during an in-person meeting shortly before the Class Period began. In March 2017, two months before the start of the Class Period, Defendant Fisher, Milner, and Zhang

visited China to meet with the Company's sales team there.[6] During the March 2017 visit, FE 1 gave a presentation to Fisher, Milner, Zhang, and Jiang in which FE 1 emphasized the explosion of crypto-related sales of GeForce GPUs in China. FE 1 specifically reported that ***sales to miners had caused GeForce sales to almost double in a short period***. FE 1 told Fisher and the other NVIDIA executives in attendance that FE 1's customers (NVIDIA's partners) were reporting that sales to crypto-miners were driving GeForce revenues in China and stated that the mining market was very important. FE 1 also cautioned the group that NVIDIA had to "take care," given the growing reliance on crypto-miners, which Defendant Fisher called "***dangerous***" during the meeting.

116. Three months later, in June 2017, FE 1 met with Milner and other NVIDIA executives at a computing expo and again discussed the issue of cryptocurrency-related GeForce sales. FE 1 reiterated the impact of crypto-mining on GeForce revenues and recounted conversations that FE 1 had recently had with a customer in Taiwan about the rise in mining. This discussion only underscored for Milner and the other NVIDIA executives what the weekly reports and quarterly spreadsheets documenting massive sales of GeForce GPUs to crypto-miners had been telling them for months.

117. After FE 1's presentation to Fisher, Milner, Zhang, and Jiang in March 2017 (¶ 115) and FE 1's commentary about cryptocurrency mining's impact on GeForce revenues in the weekly sales reports sent to Fisher, Milner, and Zhang (¶¶ 109–12), Milner contacted FE 1 directly to discuss the China market.

118. During the second half of 2017, FE 1 emailed directly with Milner one to two times a month. FE 1 stated that the emails with Milner focused on the impact of mining on GeForce sales. FE 1 stated that Milner, who was well-versed in the subject due to the weekly email reports and FE 1's March 2017 presentation, often asked technical questions about how graphics cards employing GeForce GPUs were used to mine cryptocurrency. FE 1 also recalled the pair discussing the shortage of GeForce GPUs in China that resulted from the crypto-related demand, which FE 1 raised repeatedly throughout 2017.

[6] FE 1 stated that this was the fifth or sixth time that FE 1 had met Defendant Fisher, the first being approximately ten years before.

c. September 2017 Study of Crypto-Related GeForce Sales in China, Commissioned by Fisher

119. FE 1 further described how, in August 2017, U.S.-based Senior Director for China David Zhang instructed the China team to complete an internal study on crypto-mining's effect on GeForce sales in China, which had been requested by Defendant Fisher. *See infra* Fig. D. Over the next few weeks, senior members of the China sales team completed five drafts of a PowerPoint presentation, entitled "Cryptocurrency/Mining Update, China." FE 1 circulated these drafts to Zhang and Jiang, who provided feedback and edits through the revision process. In September, FE 1 sent the presentation to Zhang, Jiang, Asia-Pacific Market Director Andy Hsu, Product Marketing Manager Li Pu, and other senior managers.

Figure D. Sept. 2017 NVIDIA China Cryptocurrency Study
Source: NVIDIA Corp.

120. The presentation to the Company's executives contained a trove of internal data and other information reflecting NVIDIA's tracking of crypto-related GeForce sales in China and the Company's intention to target crypto-miners as a substantial source of additional GeForce (and therefore Gaming segment) revenue. For example, the second slide of the presentation, entitled "China Mining Market Share High in Global," highlighted China's prominent role in fueling the increasing interest in crypto-mining worldwide. The slide explicitly addressed the "[m]ining impact to GeForce business," reporting "1.5M [GeForce] GTX sitting in mining." *See infra* Fig. E. FE 1 confirmed that this slide reflected that, ***between***

January and September 2017, NVIDIA had sold 1.5 million GeForce GTX units to cryptocurrency miners in China. Based on the conservative price point of $150 per unit (GTX GPUs sell for as high as $800 per unit, depending on the model), this sales number translated into a minimum of ***$225 million*** in GeForce revenues from the China market alone.

Figure E. Sept. 2017 NVIDIA China Cryptocurrency Study
Source: NVIDIA Corp.

121. Another slide in the cryptocurrency study, titled "China April-July Mining Sellout Data," detailed monthly internal sales data concerning GeForce sales to crypto-miners. *See infra* Fig. F. The slide stated that NVIDIA had sold a remarkable 800,000 GeForce GTX GPUs to miners in China during the period of May 2017 through July 2017 (corresponding with NVIDIA's 2Q18 reporting period), and provided detailed sales data on a monthly basis. Again using the conservative price point of $150 per unit, this internal data translated into ***$120 million*** in undisclosed sales of GeForce GPUs to miners just in the China market during 2Q18. The slide also revealed NVIDIA's internal estimate that it was capturing ***more than 70% of the crypto-related GPU market in China***—a figure that, as described below, was ***nearly identical*** to multiple third-party estimates of NVIDIA's global market share of crypto-related GPU sales. *See infra* Section V(F).

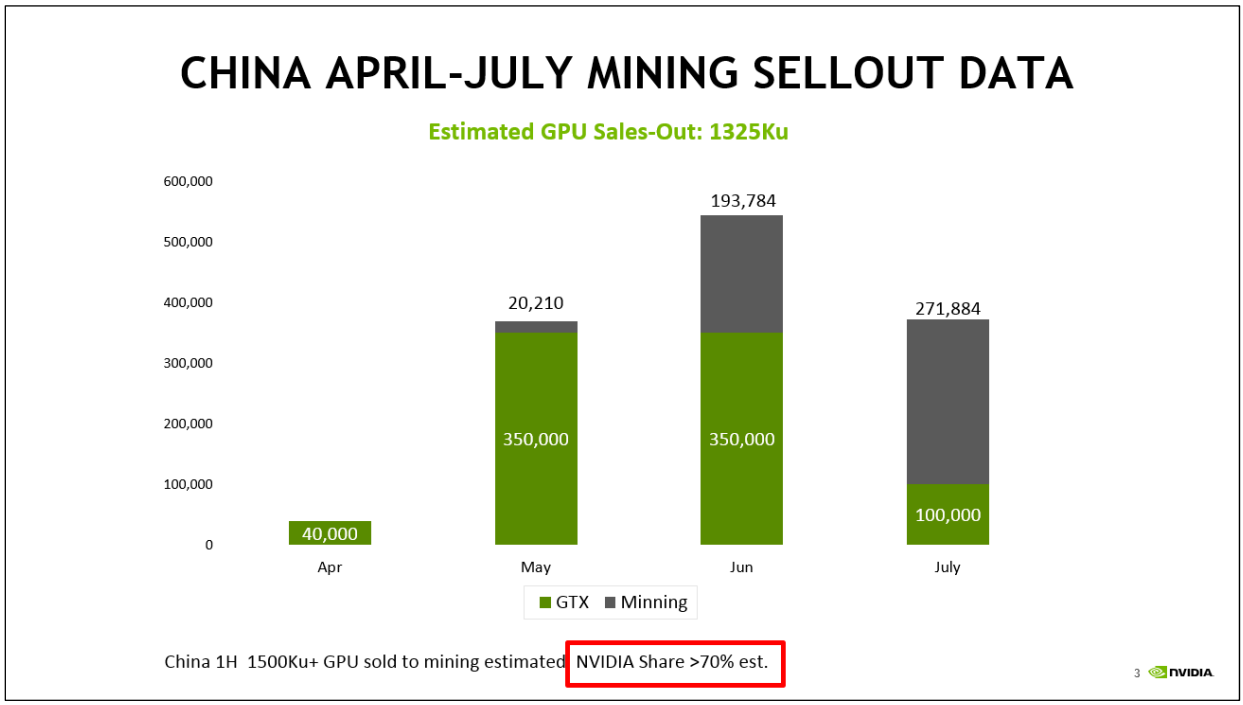

Figure F. Sept. 2017 NVIDIA China Cryptocurrency Study
Source: NVIDIA Corp.

122. An additional slide in the presentation explained that "China currently Mining GPU run-rate of @200Ku/month"—meaning that NVIDIA estimated that it was selling 2.4 million units for cryptocurrency mining annually in China alone, translating into ***$360 million in additional crypto-related GPU sales annually just in China***.

123. The study warned of "***[d]emand fluctuation***" associated with these sales and described adverse developments in the China crypto-mining market that posed a risk to GeForce sales in the country. The presentation also reported that sales were not limited to Chinese miners, explaining that "China Mining Systems are also shipped to overseas."

124. Another slide, titled "New Market, New Business Model," detailed how NVIDIA would exploit the crypto-mining market to boost GeForce sales. *See infra* Fig. G. It expressly noted that "Cryptocurrency/Mining (Block-Chain Technology) biz [would] continue increasing" but again warned that "[t]he cryptocurrency market [came] with ***high risk and severe fluctuation***." According to the same slide, the plan was to "Build up Mining Eco System" by effectively connecting with, among others, "***Top Miners***." Another slide described the new market as "Dynamic, Risky, Concentrated," but nevertheless stated that selling to crypto-miners "becomes long-term business with connection to top miners."

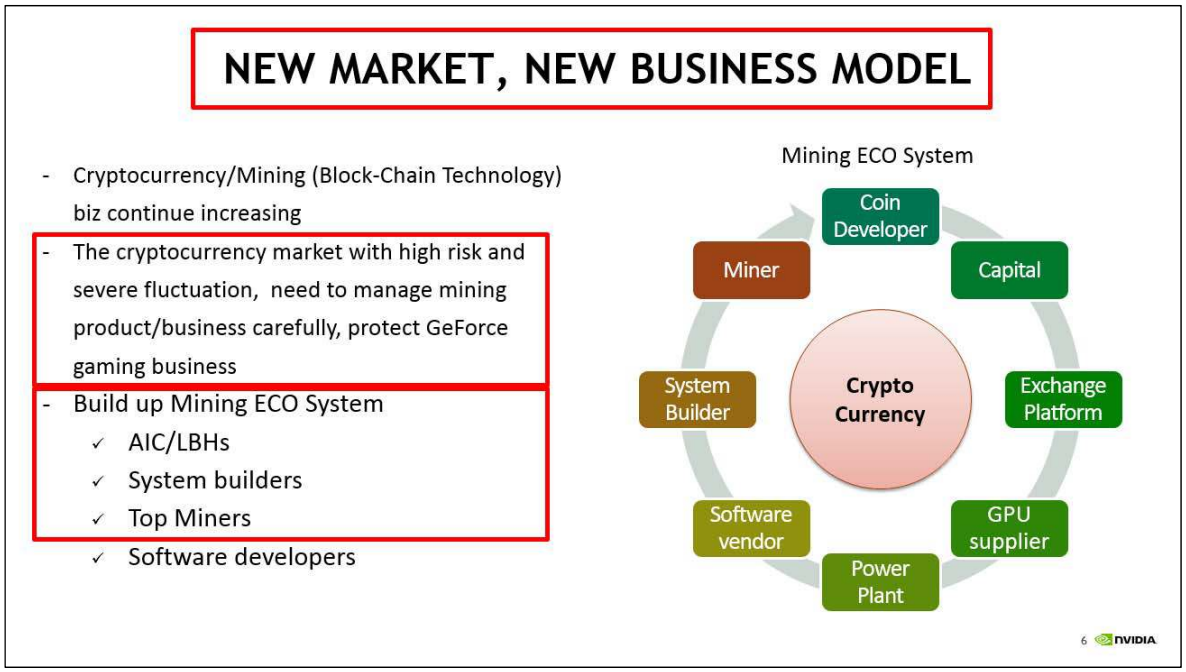

Figure G. Sept. 2017 NVIDIA China Cryptocurrency Study
Source: NVIDIA Corp.

125. The presentation also contained a slide highlighting the importance of China to worldwide Ethereum mining, noting that China Ethereum mining pools (large-scale operations in which capital is pooled to finance crypto-mining) accounted for 40% of the world's share.[7] A separate slide outlined what NVIDIA intended to adopt as a "solid plan" for tapping this rich new market, which FE 1 explained involved the Company preparing for large mining customer orders in excess of 100,000 GPUs per order. The next slide described how NVIDIA would "***Direct[ly] Engage Top 10-20 miners***," using them to develop mining-related sales forecasts and making miners NVIDIA's "***supply priority***." *See infra* Fig. H.

[7] China's proportion of the global Ethereum mining market was roughly similar to China's proportion of the global GeForce market. *See supra* note 5 (FE 1 recounting that the China market typically supplied 40% to 50% of NVIDIA's GeForce sales).

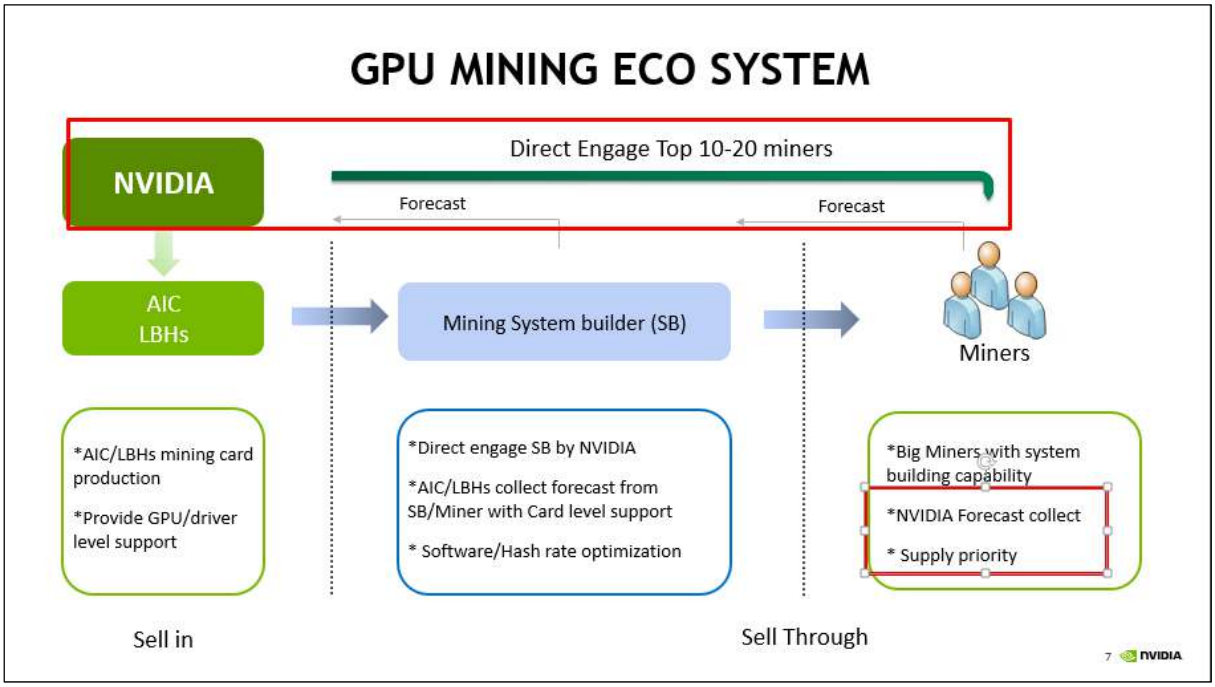

Figure H. Sept. 2017 NVIDIA China Cryptocurrency Study
Source: NVIDIA Corp.

126. Reflecting NVIDIA's eagerness to exploit the new cryptocurrency boom's effect on GeForce sales, a slide near the end of the presentation listed ten large commercial mining firms operating in China by name, next to which was the mine owner's name, cell phone number or email address, existing mining GPUs, and "Monthly demand & forecast (Units)," which FE 1 confirmed was NVIDIA's internal estimate of the number of GPUs each firm would buy each month. *See infra* Fig. I. While most of the firms on the list bore Chinese names, it also included Genesis Mining, the European-based mining firm that Huang had discussed targeting for a large sale of GeForce GPUs at a meeting with other NVIDIA executives in 2017. *See supra* ¶ 88.

Mining Owner Name	Cell Phone	Installation Base (Units) already Had (ASIC and GPU Mining Both)	Monthly demand & Forecast (Units)
王亮	13956087041	30,000	1,000
郭伟城	18207553323	50,000	8,000
黎志文	18958027323	40,000	4,000
Genesis	contact@genesis-mining.com	25,000	4,000
曲涛	13205712110	24,000	4,000
李斐	13882296581	18,000	3,000
李自立	无	15,000	1,000
(俄罗斯SI) 颜邠	13318748168	10,000	5,000
魏中兴	15852022265	10,000	2,000
刘军	13668118575	9,000	6,000

Figure I. Sept. 2017 NVIDIA China Cryptocurrency Study
Source: NVIDIA Corp.

6. Reports of Global Shortages Resulting from Crypto-Miners' Bulk Purchases of GeForce GPUs Circulated Widely Within NVIDIA

127. In addition to the mountains of internal data documenting torrid cryptocurrency-related GeForce sales building up at NVIDIA's headquarters, reports of bulk purchases by miners across the globe from NVIDIA sales personnel further confirmed the phenomenon. FE 1 recounted that, beginning in 2016 and continuing through 2017, mining enterprises placed huge orders for GeForce GPUs from NVIDIA's partners, often in quantities of 50,000 or 100,000 units per order. Such bulk purchases are not made by gamers, who buy only single GeForce GPUs at a time for gaming. FE 1 explained that these bulk orders were deployed to build mining rigs, which each contained eight GeForce cards. FE 1 reported that the bulk purchases by miners were "common knowledge" at the Company's China offices and that there was "no question [that] NVIDIA was concerned" that if cryptocurrency-mining demand fell, it would have a material impact on revenues.

128. The same pattern was occurring in the United States. FE 2, the Senior Director one direct-report removed from Huang, stated that GeForce Gaming GPUs were the clear favorite among crypto-miners. FE 2 further stated that "[i]t was common knowledge in the [C]ompany" that crypto-miners were

buying GeForce GPUs over NVIDIA's higher-end and more expensive Quadro and Tesla processors. Indeed, since GeForce was cheaper, miners purchased it "9 out of 10" times.

129. FE 2 explained that about two times per month, miner groups would come directly to NVIDIA's headquarters looking to purchase cheap Gaming graphics cards in bulk amounts for crypto-mining. Each time that occurred, a GPU Product Manager was called in to upsell the miners a professional product like the Quadro or Tesla. When the miners learned of the cost of the higher-end processors, they would flatly refuse. FE 2 stated that NVIDIA then referred the miners to a third-party distributor. FE 2 reported that he had conversations with Product Managers about these incidents, which provided the Company with ample evidence that its GeForce Gaming GPUs were being bought up by miners *en masse*.

130. Miners' repeated attempts to make bulk purchases of GeForce GPUs directly from the Company in Santa Clara were reported up the executive chain through multiple NVIDIA business units. FE 2 attended meetings with Defendant Fisher (head of the GeForce business unit), Bob Pette (VP and General Manager of the Quadro business unit), and Ian Buck (VP and General Manager of the Tesla business unit) in 2017 during which this trend was repeatedly discussed. Huang expressly acknowledged this trend at multiple Quarterly Business Reviews held at the Company's Santa Clara headquarters in 2017.

131. FE 4 observed this same trend of widespread bulk purchases by miners in Russia. FE 4 was responsible for social media promotion of NVIDIA gaming GPUs in Russia before and during the Class Period. FE 4, who frequently discussed GPU demand and sales with retailers in his professional capacity, learned through those direct conversations with the retailers that miners were purchasing NVIDIA Gaming GPUs in bulk. FE 4 observed a huge percentage of Gaming GPUs being sold to cryptocurrency miners, and not gamers, in late 2017. For example, one Moscow retailer sold 2,000 NVIDIA GPU units to a single customer during this period, all for cryptocurrency mining. FE 4 estimated that, by the first half of 2018, ***50% of all NVIDIA Gaming GPUs being sold in Russia were to miners***. As a result, shortages grew so great that retailers in Moscow began limiting the number of GPUs that customers could buy.

132. FE 5 similarly reported that bulk purchases by miners in India produced acute shortages in that country, which NVIDIA treated as part of its European market during the Class Period. FE 5, the Head of Marketing for South Asia at the time, recalled that GeForce sales grew approximately 40% in South Asia during the Class Period. FE 5 explained that mining farms began purchasing GeForce GPUs

directly from distributors in the "tens of hundreds" of units at a time, order sizes that were unheard of before the cryptocurrency boom of 2017 and 2018. This trend was most pronounced during the second half of 2017. FE 5 estimated that at the height of the crypto-bubble, approximately ***90%*** of GeForce GPUs sold in India went to crypto-miners; during the Class Period overall, FE 5 estimated that ***more than 60%*** of GeForce GPUs sold in India were to miners. FE 5 stated that the surge in demand was "unprecedented" and that FE 5 had "never seen anything like it." FE 5 recalled that the marketing team expended little effort or marketing funds to achieve the leap in sales due to the demand from miners, and that the dramatic increase, and then decrease, in GeForce sales, with little if any corresponding changes in marketing effort, made the relationship between GeForce sales and cryptocurrency mining even more obvious internally.

133. FE 5 stated that the rapid increase in demand for GeForce GPUs from miners produced a protracted shortage in which gamers were able to buy only a small fraction of those sold, paying a premium of 20% to 30% for the GPUs they could purchase. As noted above, these shortages and the surge in sales to crypto-miners that led to them were routinely discussed in "Top 5" emails sent directly to Huang at Huang's request during the Class Period.

7. NVIDIA Revised Its GeForce End User Licensing Agreement to Accommodate Commercial Miners

134. NVIDIA attempted to control how its GeForce GPU product line was used through its End User Licensing Agreement ("EULA"). The EULA governed how end-users were permitted to use their GeForce GPUs, violation of which would void the products' warranties.

135. On January 1, 2018, NVIDIA issued a revised GeForce EULA. The revision was directed at corporate datacenters, which are large groups of networked computer servers that businesses use for remote storage and data processing. The new EULA, however, contained an important carve-out. This carve-out not only acknowledged, but ***encouraged***, the continued use of GeForce GPUs (not the Crypto SKU) for large-scale cryptocurrency mining in datacenters.

136. The revised GeForce EULA expressly prohibited end-users from deploying GeForce GPUs in datacenters. As NVIDIA's Quadro Senior Director of Product Management Scott Fitzpatrick, its Head of Sales, and other former colleagues later confirmed to FE 2, the revision was motivated by the Company's desire to prevent corporate datacenters (i.e., non-miners) from using lower-priced GeForce GPUs (which

cost several hundred dollars each), forcing them instead into NVIDIA's costlier "professional" Quadro and Tesla GPUs (which cost several thousand dollars each).

137. Defendants knew, however, that crypto-miners were different: miners could not be pushed into the more expensive professional GPU products, as the economics of mining would not support it. As FE 2 recalled, NVIDIA salespersons regularly failed to upsell miners on the higher-end professional Quadro and Tesla GPUs. FE 2 stated that "9 out of 10 times" miners would purchase the cheaper GeForce Gaming GPU. ¶ 128. Huang had himself repeatedly acknowledged this fact, observing at multiple internal meetings that NVIDIA could not get the cryptocurrency miners to buy Quadro or Tesla GPUs because miners were only interested in raw cost and "cranking out algorithms at the lowest cost." ¶ 93.

138. Defendants also knew that they could not afford to lose out on the massive revenues that NVIDIA was earning from the crypto-boom. Thus, recognizing that commercial miners would not buy the more expensive Quadro and Tesla GPUs, Defendants inserted an important carve-out in the new EULA, which continued to allow GeForce GPU users to conduct cryptocurrency mining in datacenters. The provision read: "No Datacenter Deployment. The software is not licensed for datacenter deployment, ***except that blockchain processing in a datacenter is permitted***." In other words, NVIDIA would no longer allow industrial-scale GeForce GPU use in datacenters***—unless it was for crypto-mining***. This explicit carve-out for crypto-miners demonstrated that Defendants understood both that large-scale commercial mining farms were driving the rise in GeForce sales and that miners were relying substantially on GeForce GPUs, not the Crypto SKU, to power their mining operations. As FE 2 put it, "***they knew GeForce was being used for crypto***, and there was no way they could convince [miners] to use a pro GPU, so they carved it out."

E. Post-Class Period Reports of Securities Analysts Corroborate NVIDIA's Dependence on Crypto-Related GeForce Sales During the Class Period

139. Consistent with the accounts of NVIDIA's former employees, research analysts published reports after the Class Period showing that, contrary to Defendants' public representations to investors during the Class Period, much of NVIDIA's rising revenues in its Gaming segment were not from GeForce sales to gamers, but rather from GeForce sales to crypto-miners.

140. In January 2019, for example, RBC produced a report seeking to analyze what the true effect of cryptocurrency-related sales had been on NVIDIA's revenue from February 2017 to July 2018. The report concluded that NVIDIA had "generated $1.95B in total revenue related to crypto/blockchain." The report pointedly noted that "[t]his compares to [the] company's statement that it generated ~$602M over the same time period" in the OEM segment. In other words, RBC's analysis indicated that ***NVIDIA had understated its cryptocurrency-related revenue by $1.35 billion*** over an 18-month period that overlapped with the Class Period. Put differently, Defendants had disclosed only ***30.8%*** of its cryptocurrency-related sales, ***all*** of which it had reported in its OEM segment, while Defendants did not specifically report ***any*** cryptocurrency-related sales in its Gaming segment.

141. Industry press seized on the RBC analysis immediately, producing headlines such as "Analyst says ***Nvidia lied about its cryptocurrency earnings to avoid stock crash: They may have concealed revenue to mask shrinking demand***" (TechPost); "Analyst Finds Nvidia Earned $1.35 Billion More in Total Crypto Revenue Than Stated" (Yahoo! Finance); "RBC Capital Markets Analyst Investigates NVIDIA Earnings, Discovers ***Over $1 Billion More Than Stated***" (Bitcoin Exchange Guide); and "Chipmaker NVIDIA Could Have ***Masked Revenue Figures***, Says Royal Bank of Canada Analyst" (Blokt). TechPost observed that "***the steep falls [in NVIDIA's stock price, including at the end of the Class Period] [we]re a strong incentive for Nvidia to mask large fluctuations in revenue***."

142. As Defendants themselves tacitly conceded after the Class Period, their prior statements that Gaming demand had been strong, that only a "small amount" of GeForce sales had gone to miners, and that the "vast majority" of crypto-related demand had been satisfied by the Crypto SKU were false:

> We are still working through the excess channel inventory that we have ***in gaming***. We indicated back in November that we felt that would take about 1 to 2 quarters to work through. . . . We look at [Gaming revenue over the next year] to be flat to slightly down. . . . We took this opportunity after overall cryptocurrency to find a quarter that was ***not tainted with cryptocurrency*** to come up with, what we believe is, a normalized run rate for overall gaming. . . . [W]e're still working through that excess inventory [in Gaming].

F. Independent Expert Analysis Confirms That NVIDIA Vastly Understated Crypto-Related Sales Throughout the Class Period

143. To confirm the accounts of the former employees detailed above and the post-mortem estimates of observers such as RBC, Lead Plaintiffs retained an economic consulting firm with specific

expertise in the cryptocurrency markets to conduct an independent analysis of NVIDIA's true reliance on crypto-related revenues during the Class Period. This analysis confirmed that Defendants grossly understated NVIDIA's crypto-related sales, misleading investors into believing that growth in NVIDIA's all-important Gaming segment was due to traditional demand from gamers instead of crypto-miners.

144. Prysm Group is an economic consulting firm based in New York and Los Angeles that specializes in distributed ledger and blockchain technology. Prysm Group is led by Drs. Cathy Barrera and Stephanie Hurder, aided by a team of analysts.

145. Dr. Barrera received her PhD in Business Economics from Harvard University. She was previously a former tenure-track Professor of Economics at the S.C. Johnson School of Management at Cornell University and the Chief Economist at ZipRecruiter. Her research on the economics of blockchain has been presented at the Defense Advanced Research Projects Agency (DARPA), the Federal Reserve, Harvard University, and Stanford University.

146. Dr. Hurder also holds a PhD in Business Economics from Harvard University. She previously served as a Visiting Scholar at the Center for Cyber-Physical Systems and the Institute of Technology at the University of Southern California and is a former management consultant with the Boston Consulting Group. She has led seminars on the economics of blockchain for groups including IBM Blockchain Accelerator, Polychain Capital, and Tech Coast Angels.

147. Prysm Group designed and performed a rigorous demand-side analysis to determine the amount of NVIDIA revenues attributable to crypto-related sales from May 2017 through July 2018. The analysis measured the additional computing power appearing on major GPU-mined blockchain networks, estimated the total number of GPUs needed to account for that additional computing power, then calculated the number of units and corresponding revenues captured by NVIDIA based on its share of cryptocurrency-related GPU sales. The data employed in this analysis was derived from NVIDIA's own financial statements and internal documents, independent financial analysts, and third-party data sources recognized as credible and upon which Drs. Barrera and Hurder regularly rely as blockchain-focused economists.

148. Specifically, Drs. Barrera and Hurder examined the top three GPU-mined cryptocurrencies during the Class Period (Ether, Z-Cash, and Monero) for changes in each currency's hashrate, which measures how much computational power is being used by the network for mining. Drs. Barrera and

Hurder analyzed these three cryptocurrency networks because they were the three most popular GPU-mined cryptocurrencies during the Class Period according to cryptocurrency industry sources such as cointelligence.com and coinmarketcap.com, which are reliable sources of cryptocurrency information on which Drs. Barrera and Hurder regularly rely in their work.[8] The most popular cryptocurrency network, the Bitcoin network, was not included in the Prysm Group's analysis because that network was mined with ASICs, not GPUs, by the time the Class Period began, as mining Bitcoin with GPUs had already become unprofitable. *See supra* note 4. In contrast, Ether, Monero, and Z-Cash were resistant to ASICs mining and were instead mined with GPUs. Had additional GPU-mined cryptocurrency networks been included in the Prysm Group's analysis, the resulting estimates of crypto-related NVIDIA GPU sales and revenues would have been even higher. Accordingly, inclusion of only the three most popular GPU-mined cryptocurrencies reflects the conservative nature of Drs. Barrera and Hurder's approach.

149. For each of the three cryptocurrency networks examined, Drs. Barrera and Hurder first calculated the quarter-over-quarter change in the network's hashrate (i.e., the processing power devoted to mining the network's cryptocurrency). All hashrate data was obtained from bitinfocharts.com and whattomine.com, two of the most widely used sources of network hashrate data in the blockchain community. The quarter-by-quarter increase in the hashrate was computed using the maximum hashrate during each quarter and subtracting the maximum from the previous quarter, thus assuming that any GPUs used at the network's peak during the prior quarter were available for use during the subsequent quarter, producing a conservative calculation.[9] The increase in the average daily hashrate from May 2017 to June 2018 was 269 THz/s for Ethereum, 714 MHz/s for Zcash, and 990 MHz/s for Monero.

150. After calculating the new hashing power added to these three cryptocurrency networks during the Class Period, Drs. Barrera and Hurder determined the total units of various popular GPUs required to provide that increase in computational power. The five most popular NVIDIA GPUs used for

[8] The RBC report discussed above similarly examined only Ether, Z-Cash, and Monero. *See* ¶ 140.

[9] The total number of GPUs sold for mining in a given quarter would include both (1) GPUs accounting for the increase in hashing power that quarter, and (2) GPUs purchased to replace old stock that had become obsolete. Because Drs. Barrera and Hurder had no ready source of reliable data regarding the number of GPUs that became obsolete each quarter, their analysis calculated only the number of GPUs necessary to account for the increase in network hashing power. This resulted in a conservative estimate of NVIDIA's crypto-related GPU sales during the Class Period.

cryptocurrency mining during the Class Period were the GeForce GTX 1060, the GeForce GTX 1070, the GeForce GTX 1070 TI (introduced in November 2017), the GeForce GTX 1080, and the GeForce GTX 1080 Ti.[10] During the summer of 2017, NVIDIA also introduced two models of the Crypto SKU, the P104-100 and the P106-100.[11] Of all these products used for mining, the GeForce GTX 1060 was both the least expensive and the most economical in the computational power it delivered relative to its cost (i.e., it produced the most Hz/s per dollar). Drs. Barrera and Hurder conservatively employed the price and hashrate parameters of the GeForce GTX 1060, as this produced the lowest revenue estimate of any of NVIDIA's GPUs. Based on the GeForce GTX 1060's hashing power, the hashrates per GPU on each of the three cryptocurrency networks under examination were 22.5 MHz/s per GPU on the Ethereum network, 300 Hz/s per GPU on the Zcash network, and 390 Hz/s on the Monero network. Using these conservative hashrate estimates, Drs. Barrera and Hurder estimated that approximately 16.9 million units were sold industry-wide to cryptocurrency miners during the Class Period.

151. To determine the revenues that NVIDIA received for each GeForce GPU unit sold to miners, Drs. Barrera and Hurder relied on manufacturer's suggested retail prices ("MSRPs") of GeForce GTX 1060 models, then applied a retail markup to discount the MSRP to an appropriate estimate of the revenue that NVIDIA received from sales into its distribution channels. While the MSRP of the most popular GeForce GTX 1060 model, which had 6GB of RAM, was approximately $250, a less popular but less expensive 3GB GeForce GTX 1060 model was also available, which had an MSRP of approximately $200. Again electing to utilize conservative estimates, Drs. Barrera and Hurder used the $200-per-unit MSRP. Further, Drs. Barrera and Hurder applied a conservative 33% retail markup estimate, resulting in wholesale revenues to NVIDIA of $150 per unit.[12] Drs. Barrera and Hurder conservatively applied this

[10] Miners' preference for these GeForce models was confirmed through reports in coincentral.com and other industry sources.

[11] According to various industry news sources and tech-focused blogs such as *Yahoo! News, Steem*, and *TechPowerUp*, the P104-100 and P106-100 were "variants" of the GeForce GTX 1060 with virtually identical processing power and performance to the GeForce GTX 1060 but which sold for an equal or higher price point than the GeForce GTX 1060.

[12] Prominent computing industry analyst and media owner Linus Sebastian reports that the retail markup for GPUs is less than 10%, underscoring the conservativeness of Drs. Barrera and Hurder's application of a 33% markup.

$150-per-unit metric to all of NVIDIA's Class Period GeForce GPU sales, even though the other popular NVIDIA GPU models favored by miners during this period sold for hundreds of dollars more per unit.[13]

152. To estimate the number of NVIDIA's GPU sales to miners and its corresponding revenues, Drs. Barrera and Hurder determined that NVIDIA maintained a cryptocurrency-specific market share of approximately 69%. While NVIDIA has not publicly disclosed its own estimate of global GPU sales to miners, Drs. Barrera and Hurder based their 69% crypto-market share parameter on data from both third-party sources and NVIDIA itself. These include the following:

a. Jon Peddie Research Global Market Share Data for the Crypto-Miner Market. Jon Peddie Research, a prominent computer industry research firm, provides commercially available market share data and analysis of the GPU market, using proprietary analytic models to estimate NVIDIA's market share in this product category. These estimates are used by major investment firms throughout the financial industry to analyze market dynamics. Moreover, Defendants themselves regularly cite Jon Peddie Research reports as a reliable source of industry

[13] Had Drs. Barrera and Hurder assumed a product mix that included higher-end units (such as the GeForce GTX 1080 Ti), the resulting analysis would have produced an estimate of lower unit sales but *higher* revenues. Applying the GeForce GTX 1060's specifications to *all* GPUs during the Class Period resulted in a conservative estimate of NVDIA's revenues from sales to miners during the Class Period.

data, including market share estimates.[14] In 2018, Jon Peddie Research published a study that analyzed NVIDIA's market share of sales specifically for cryptocurrency mining. The report analyzed crypto-specific GPU sales from calendar-year 2015 (when such sales were negligible) through the fourth quarter of calendar-year 2017 (when they exploded) and estimated NVIDIA's market share to have been approximately 69.4% in 3Q17 and 68.6% in 4Q17 (both calendar year).

b. RBC Global Market Share Data for the Crypto-Miner Market. The January 2019 RBC report discussed in Section V(E) estimated that NVIDIA's crypto-specific global GPU market share from February 2017 to July 2018 was 75%. *See* ¶ 140. RBC's estimate is roughly in line with the crypto-specific GPU market share estimate calculated by Jon Peddie Research noted above. Nevertheless, Drs. Barrera and Hurder's parameter of 69% is significantly more conservative than RBC's estimate.

[14] NVIDIA publicly relies on Jon Peddie Research as a reliable source of industry market share data. *See, e.g.*, May 8, 2014 1Q15 NVIDIA Earnings Conference Call Tr. ("Unless otherwise noted, all references to market research and ***market share numbers*** throughout the call come from Mercury Research or ***Jon Peddie Research***."); Aug. 7, 2014 2Q15 NVIDIA Earnings Conference Call Tr. (same). Indeed, NVIDIA has publicly described Jon Peddie Research as "***the leading market research company tracking multimedia and graphics technology***." Press Release, *NVIDIA Launches the GeForce4 GPUs*, NVIDIA (Feb. 6, 2002), https://www.nvidia.com/object/IO_20020205_6195.html; *see also* Greg Estes, *Is the Democratization of Graphics a Good Thing?*, NVIDIA Blogs (July 24, 2013), https://blogs.nvidia.com/blog/2013/07/24/democratization/ (describing Jon Peddie Research as "***one of the premier market research firms in the computer graphics industry***"); Alan Tiquet, *Startups Talk About Their Not-So-Secret Weapon: GPUs*, NVIDIA Blogs (Sept. 28, 2016), https://blogs.nvidia.com/blog/2016/09/28/startups-deep-learning/ (calling Jon Peddie "the eminence gris of industry analysts"). Defendants have also cited Jon Peddie Research as a reliable source of other industry data in a variety of contexts and media, including NVIDIA Investor Day presentations, press releases, publicly issued white papers, and Company blog posts. *See, e.g.*, May 20, 2017 NVIDIA Investor Day Tr. (citing Jon Peddie Research's estimates of the total addressable markets for software and hardware); Press Release, *Reinvents Computer Graphics With Turing Architecture*, NVIDIA (Aug. 13, 2018), https://nvidianews.nvidia.com/news/nvidia-reinvents-computer-graphics-with-turing-architecture (quoting Jon Peddie for analysis of ray tracing in computer graphics market); White Paper, *NVIDIA Grid Virtual PC and Virtual Apps* (Dec. 2019), https://www.nvidia.com/content/dam/en-zz/Solutions/design-visualization/solutions/resources/documents1/NVIDIA_GRID_vPC_Solution_Overview.pdf (citing Jon Peddie Research estimate of productivity effect of multiple displays); Will Park, *Shock and Awe: What the Experts Are Saying About NVIDIA Tegra X1*, NVIDIA Blogs (Jan. 4, 2015), https://blogs.nvidia.com/blog/2015/01/04/what-experts-saying-tegra-x1/ (quoting Jon Peddie assessment of Tegra X1 processor); Brian Burke, *10 Ways NVIDIA Makes VR a Reality*, NVIDIA Blogs (Mar. 16, 2016), https://blogs.nvidia.com/blog/2016/03/16/nvida-vr-gaming/ (quoting "veteran industry watcher Jon Peddie").

c. NVIDIA's Internal Study of Cryptocurrency-Related GPU Demand in China. The September 2017 study of cryptocurrency-related GeForce GPU demand in China commissioned by Defendant Fisher and other top NVIDIA executives asserted that NVIDIA was capturing more than 70% of mining-driven GPU sales in China. *See* ¶ 121. As noted earlier, the China market was NVIDIA's largest by far, accounting for more revenues than the rest of the world combined. ¶ 79. Drs. Barrera and Hurder's crypto-market share parameter of 69% is thus very close to, but more conservative than, NVIDIA's own estimate of its crypto-specific market share in the region that accounted for greater than half of the Company's sales.

153. Applying the methodology described above, Prysm Group concluded that NVIDIA earned cryptocurrency-mining-driven revenue of ***$1.728 billion*** over this period. Prysm Group's data-rich computation contrasts materially with the $602 million in crypto-related sales disclosed by NVIDIA, all of which resided in the Company's Crypto SKU in the OEM segment.[15] The difference in figures means that ***Defendants understated NVIDIA's crypto-related GPU sales by $1.126 billion from May 2017 to July 2018***.

154. Prysm Group's comparison of reported-versus-actual crypto-related GPU sales is set forth below and demonstrates that Defendants consistently understated their true crypto-related revenue—by an average of $225.2 million per quarter:

[15] RBC's estimate of NVIDIA's crypto-related GPU revenue was $1.95 billion, approximately 12% higher than the Prysm Group's estimate. This slight variance is explained by, most notably, the fact that the RBC analysis spanned 18 months (February 2017 to July 2018), compared to the Prysm Group's analysis of 15 months (May 2017 to July 2018). Second, as explained above, Drs. Barrera and Hurder relied on a more conservative analysis that produced a correspondingly more conservative estimate of NVIDIA's crypto-related revenues. For example, RBC estimated NVIDIA's revenue at $220 per GPU and estimated that NVIDIA captured 75% of the cryptocurrency-related market, whereas Drs. Barrera and Hurder estimated NVIDIA's revenue at $150/GPU to account for distributors' profit margins on GPUs, and estimated that NVIDIA captured 69% of the cryptocurrency-related market.

FY 2018			FY 2019		
2Q18	**3Q18**	**4Q18**	**1Q19**	**2Q19**	**Total**
NVIDIA's Reported Revenues for Crypto SKU					
$150m	$70m	$75m	$289m	$18m	**$602m**
Actual Cryptocurrency-Related Revenues					
$349m	$299m	$541m	$364m	$175m	**$1,728m**
Difference Between Reported Revenues for Crypto SKU and Actual Cryptocurrency-Related Revenues					
$199m	$229m	$466m	$75m	$157m	**$1,126m**

G. The Truth Emerges

1. August 16, 2018: With Demand from Crypto-Miners Gone and Inventory Ballooning, Defendants Falsely Assure Investors That They Are "Masters" of Managing NVIDIA's Channel

155. Investors first began to learn about the extent of NVIDIA's true dependence on sales to cryptocurrency miners on August 16, 2018, when the Company lowered its revenue guidance by approximately 2.2% for 3Q18 and revealed that it no longer expected a meaningful contribution from cryptocurrency miners for the remainder of the year. Kress stated that while the Company "had previously anticipated cryptocurrency to be meaningful for the year, we are now projecting no contributions going forward." The Company's revised earnings forecast—which "includ[ed] no contribution from crypto"—was significantly lower than the market had expected. When asked by analysts for more detail about NVIDIA's revised forecast, Kress admitted that "over the last several quarters, we have seen the impacts of crypto and what that can do to elevate our overall gross margins." Kress further explained, "We believe we have reached a normal period as we're looking forward to essentially no cryptocurrency as we go forward." For his part, Huang conceded that "probably . . . ***a great deal***" of cryptocurrency miners had bought NVIDIA's GeForce gaming cards, partially exposing the truth that NVIDIA's cryptocurrency-related exposure was not contained almost exclusively in the reported revenues for the OEM segment. Separately, the Company revealed that ***inventories had ballooned more than 36% from $797 million in 2Q19, to $1.09 billion in 3Q19***.

156. On the news of NVIDIA's lowered guidance and swelling inventory, the price of NVIDIA's stock fell by 4.9%, from a close of $257.44 per share on August 16, 2018, to a close of $244.82 per share on August 17, 2018.

157. Investors and the financial press immediately connected the share price decline to NVIDIA's guidance revision and soft results from its cryptocurrency sales. In an early-morning August 17, 2018 article entitled "Nvidia stock drops as crypto-mining decline overshadows earnings beat," *Reuters* reported that NVIDIA's shares "fell as much as 5 percent in after-hours trading on Thursday after the chip maker said cryptocurrency-fueled demand had dried up and it forecast sales below Wall Street targets, overshadowing quarterly results that otherwise beat expectations." Similarly, in an article entitled "NVIDIA Earnings Soar 91%, but Cryptocurrency Bust Spooks the Market," financial press outlet *The Motley Fool* posited that "[t]he culprit [for NVIDIA's stock price decline] was third-quarter revenue guidance coming in lower than Wall Street was expecting, due to the company anticipating that sales to the cryptocurrency market will continue to decline significantly."

158. NVIDIA's August 16, 2018 disclosure partially corrected Defendants' prior materially misleading misstatements and omissions, which had falsely minimized the impact of cryptocurrency-related sales on NVIDIA's financial performance, by demonstrating that cryptocurrency-related sales were in fact a substantial and significant driver of the Company's revenues and, specifically, its Gaming segment revenues. Notwithstanding that partially corrective information, Defendants did *not* disclose that (1) beginning in 2017, NVIDIA had built up its inventory of GeForce GPUs in order to satisfy anticipated continued demand from crypto-miners (*see* ¶ 114); (2) there was insufficient organic gaming demand for GeForce GPUs to mitigate the loss of cryptocurrency-related demand; and (3) the Company's glut of unsold GeForce GPUs would in fact persist and negatively impact the Company's financial performance because gamers could not replace the demand from crypto-miners. In fact, Huang downplayed concerns about the rapid growth of NVIDIA's inventory:

> We're expecting the channel inventory to work itself out. ***We are masters at managing our channel, and we understand the channel very well***. As you know, the way that we go to market is through the channels around the world. ***We're not concerned about the channel inventory***. As we ramp Turing, any—whenever we ramp a new architecture, we ramp it from the top down. And so we have plenty of opportunities as the—as we go back to the back-to-school and the gaming cycle to manage the inventory, so we feel pretty good about that.

These remarks echoed Huang's earlier claims that any decline in crypto-related demand would be absorbed by demand from gamers, NVIDIA's "core business."

159. Analysts credited Defendants' reassuring statements. For example, on August 16, 2018, Evercore expressed the view that Defendants' "commentary on inventory suggests a relatively well-managed channel," noting that "the company suggested that the channel inventory was at the low end of the range[.]" The next day, CFRA Equity Research reported that "[w]e think NVDA has de-risked its portfolio from crypto"; MKM Partners reached the same conclusion in a report entitled "Crypto De-risked, Inventory Normalization is Next Step"; and UBS reported that "***crypto has now fully reset*** to make things simpler going forward[.]" Also on August 17, 2018, Morgan Stanley discussed the increase in inventory, reporting Defendants' statements on the earnings call and that "[i]n our callback, the company expressed confidence that this would be ***a smooth channel transition, and that inventories are not out of line***." MKM Partners' report echoed Huang's claim about inventory, stating that "we believe that ***lower end GPU product will likely work itself through by the end of the October quarter***." The same day, JPMorgan summarized, "the demand environment remains strong in the current quarter on continued blockbuster gaming titles/e-sports strength."

2. November 15, 2018: Investors Learn New Information Regarding NVIDIA's Reliance on Crypto-Miners, Exposing a Glut of Unsold GeForce Inventory

160. Defendants' false assurances aside, the news soon got significantly worse. On November 15, 2018, investors received a more complete picture of NVIDIA's dependence on crypto-mining demand when the Company issued financial results for 3Q19, announcing a nearly 2% revenue miss. Moreover, NVIDIA announced that it was expecting revenues of only $2.7 billion in 4Q19, a ***7% decline*** year-over-year.

161. In her prepared remarks, Kress acknowledged the full extent to which the Company's Gaming revenues had been dependent on cryptocurrency-related demand: "***Gaming was short of expectations as post crypto channel inventory took longer than expected to sell through***. Gaming card prices, which were elevated following the sharp crypto falloff, took longer than expected to normalize." This, of course, could not have been the case had Kress's prior assurances that the "vast majority" of crypto-related demand was met by the Crypto SKU been true. Nevertheless, Kress stated:

> Let's continue with our gaming business. . . . Although the cryptocurrency wave has ended, the channel has taken longer than expected to normalize. . . . [O]n midrange Pascal [GeForce] gaming cards, both channel prices and inventory levels remained higher than expected.

Kress also noted gross margin results "below our outlook . . . following the sharp falloff in crypto demand."

162. Of equal significance, Defendants disclosed that this problem—excess Gaming GPU inventory following the disappearance of crypto-miners—would persist for at least 12 weeks, which Huang admitted would amount to about $600 million in lost revenue. The Company's 8-K confirmed that the disappointing "gaming revenue outlook for the fourth quarter of fiscal 2019 [was] impacted by the expected work-down of Pascal [GeForce] mid-range gaming card inventory in the channel . . . [and] assumes no meaningful shipments of mid-range Pascal GPUs during the quarter." Defendants' purported "mastery of the channel" had been a fiction; to the contrary, they had flooded the channel with GeForce inventory to meet crypto-miners' demand just as that demand began its inevitable decline. Without the throngs of gamers waiting to buy up these products as Defendants had promised, NVIDIA was forced to wait until the inventory could be burned off, recognizing no new revenue for new shipments for at least a full quarter.

163. During the question-and-answer session that followed, virtually every question focused on NVIDIA's inventory problem, with analysts expressing their surprise at the disclosures in light of Defendants' prior statements. For example, an analyst at BofA Merrill Lynch queried, "[W]hat needs to happen to work down this midrange Pascal inventory? . . . Because the thinking was that this could be cleared within the October quarter, but it hasn't." Huang responded, "[W]e came into Q3 with excess channel inventory post the crypto hangover."

164. A Sanford C. Bernstein & Co. analyst observed that the Company's revelations did not square with Defendants' assurances earlier in the Class Period:

> [T]he last several quarters, you've been saying, like on this call, that you guys felt like you had a really good handle on the channel, and yet it seems like maybe that wasn't exactly the case. . . . Like what happened? Because this tone is a little different from what we've heard over the last few earnings calls from you.

165. Huang again had to concede that the supposed pent-up demand for the Company's Gaming GPUs was not real, stating that "***[t]he crypto hangover lasted longer than we expected***."

166. The day after the call, analysts from BMO questioned Defendants' credibility: "[t]he large shortfall in guidance due to a bloated channel due to crypto-currency is in ***sharp contrast to the comments around channel inventory from the company at the last earnings call***," noting also that "there is a high likelihood that NVIDIA will not grow next year." BMO concluded that "***NVIDIA's growth in gaming over the last year and half was aided in a large part due to a 1x event [cryptocurrency] which is not coming back***, at least not any time soon."

167. Analysts at Deutsche Bank reported the same day, "***Gaming does not appear to be as compelling an example of growth as many previously believed***," observing that "NVDA finally stumbled as the fall-off in crypto demand and the resulting ballooning of inventory impacted its quarter and more severely impacted the guidance." Deutsche Bank concluded, "we expect the inventory adjustment to reset Gaming segment expectations to a meaningfully lower level and ***call into question what the true growth rate of Gaming was/is***." Similarly, Macquarie noted that the "[m]agnitude of the weakness suggests that ***the crypto benefit was much higher than previously thought, and could raise questions about Gaming growth***."

168. Also on November 16, 2018, Morgan Stanley also questioned the veracity of Defendants' prior assurances. Its analysts first predicted, "[t]he stock will likely not bounce back right away, given the severity of the miss post management voicing confidence throughout the quarter that the litany of cautious data points did not signal a potential problem in gaming." Morgan Stanley continued:

> The implication of [Defendants'] commentary is that a larger portion of demand in late 2017/early 2018 was for crypto than they had initially indicated, and that an end to the crypto bubble caused a channel refill which overshot. As a result, in the January quarter, the company will literally ship almost no Pascal product into the channel, to allow inventory to clear. Pascal product is about one-third of the total gaming business.

Morgan Stanley indicated that the Company's 3Q19 revelations gave reason to doubt Defendants' prior statements regarding the supposedly strong demand from gamers:

> ***There is also the question of where end demand actually has been, ex-crypto***; the gaming business peaked at $1.7 bn per quarter, but given that we now have to burn off more than $500 mm worth of channel inventory, end demand was probably closer to $1.5 bn.

The report concluded, "the stock isn't likely to snap back right away, as investors that we talked to are certainly asking some tougher questions."

169. Under the heading, "Our Conclusion—Frustrating," a November 15, 2018 Wells Fargo report focused on Defendants' contradictory statements about the Company's inventory:

> While we can appreciate that NVIDIA's weak F4Q19 outlook is impacted by a 1-2 quarter work-down of Pascal mid-range gaming card inventory in the channel (~$600M; assuming no sell-in in F4Q19 as crypto-related dynamics flush through the channel), coupled with a seasonal decline in game console builds, ***we think investors will be frustrated by NVIDIA's comments exiting F2Q19 that: "***. . . ***we [NVIDIA] see inventory at the lower-ends of our stack . . . inventory is well positions for back-to-school and building season that's coming up on F3Q19*** . . ." (quotations and modifications in original).

The two sets of statements could not be squared.

170. The news media was equally surprised by the revelation that NVIDIA's revenues had been driven by unsustainable cryptocurrency mining. On November 17, 2018, *VentureBeat* published an interview it had conducted with Huang shortly after NVIDIA's disastrous November 15 announcements. The interviewer explained: "***I . . . thought [cryptocurrency] was never really more than a tenth of your revenue***. It does surprise me that it can come back and have this bigger effect." Underscoring the surprise, he asked:

> How do we get to larger numbers that actually affect the quarterly results, though? ***Again, it seemed, in the past, that it was described as a small part of revenue***, and now it's something that can affect one or two quarters worth of inventory. It's hard for me to understand why it makes a big difference.

When Huang tried to explain away NVIDIA's results as being driven by AMD's excess inventory, the interviewer expressed disbelief, stating, "I'm just trying to understand how this comes back to cause a $20 billion swing in a stock price."

171. On the news, NVIDIA's stock price plummeted 28.5% over two trading sessions, from a close of $202.39 per share on November 15, 2018, to close at $144.70 per share on November 19, 2018.

172. Defendants made materially false and misleading statements during the Class Period about (1) the supposedly strong continued demand for GeForce GPUs from gamers, rather than crypto-miners; (2) NVIDIA's supposed satisfaction of "most" or the "vast majority" of its crypto-related demand through the Crypto SKU reported in the OEM segment's revenue, as opposed to the Gaming segment's revenue;

(3) NVIDIA's capacity to easily absorb volatility in crypto-related demand; and (4) Defendants' ability to manage fluctuations in inventory resulting from crypto-related demand volatility. These materially false and misleading statements caused NVIDIA's common stock to trade at artificially inflated prices. Before Defendants revealed the truth through the disclosures on August 16, 2018, and November 15, 2018, the market believed NVIDIA's statements to investors. The disclosure of previously misrepresented and concealed facts about these and other matters caused the price of NVIDIA's common stock to decline markedly, wiping out billions of dollars in shareholder value.

173. It was entirely foreseeable that concealing from the public, among other things, that: (1) a substantial portion of NVIDIA's recent growth in its Gaming segment—the Company's largest—was due to sales to crypto-miners, not gamers; (2) NVIDIA's exposure to crypto-related volatility was not mostly contained in its significantly smaller OEM segment; (3) demand from gamers was insufficient to compensate for the decline in crypto-related sales when cryptocurrency prices declined; and (4) Defendants could not properly manage the glut of GeForce GPU inventory left over when crypto-related demand declined, would artificially inflate the price of NVIDIA's securities. It was also foreseeable that the disclosure of this information and the materialization of concealed risks associated with Defendants' misconduct would cause the price of NVIDIA securities to decline as the inflation caused by Defendants' earlier misrepresentations and omissions was removed from the price of NVIDIA's securities. The timing and magnitude of the price declines, and associated market commentary, negate any inference that the losses suffered by Lead Plaintiffs and the Class were caused by facts unrelated to Defendants' misrepresentations and omissions. Accordingly, the conduct of Defendants, as alleged herein, proximately caused foreseeable losses for Lead Plaintiffs and the Class, who purchased NVIDIA securities during the Class Period.

VI. DEFENDANTS' MATERIALLY FALSE AND MISLEADING STATEMENTS[16]

174. Defendants made materially false and misleading statements to investors during the Class Period in violation of Sections 10(b) and 20(a) of the Exchange Act and Rule 10b-5 promulgated thereunder. Among other things:

(i) Defendants represented that cryptocurrency mining was, at most, a small, immaterial driver of NVIDIA's overall revenues, when in fact cryptocurrency mining drove a significant amount of NVIDIA's revenues throughout the Class Period;

(ii) Defendants represented that revenues "for gaming" were driving revenue growth, when in fact a material portion of revenues through NVIDIA's purported "Gaming" segment were actually revenues from sales to cryptocurrency miners, not gamers; and

(iii) Defendants represented that a majority of NVIDIA's cryptocurrency-related revenues originated from sales of its Crypto SKU and were reported in its "OEM" segment, when in fact a majority—over 65%—of its Class Period cryptocurrency-related revenues were obtained through its purported "Gaming" segment. By reporting revenues for the Crypto SKU but ***not*** reporting the cryptocurrency-related revenues for the GeForce GPUs in the Gaming segment, Defendants understated NVIDIA's exposure to and dependence on cryptocurrency-related demand by roughly ***$1.13 billion*** over the course of the Class Period.

175. Defendants also omitted material facts when speaking to investors during the Class Period in violation of Sections 10(b) and 20(a) of the Exchange Act and Rule 10b-5 promulgated thereunder. Among other things, Defendants misled investors by omitting that cryptocurrency-related revenues were a material driver of NVIDIA's overall and Gaming-segment results, and by omitting that NVIDIA's cryptocurrency exposure extended to revenues categorized within its purported "Gaming" segment. Once Defendants chose to tout NVIDIA's Gaming-segment and overall revenues and explain key drivers of those results and guidance, and to soothe investor concerns about cryptocurrency-related risks by identifying NVIDIA's limited exposure via its Crypto SKU, they were required—but failed—to do so in a manner that would not mislead investors, including by disclosing that cryptocurrency mining was a

[16] In accordance with the Court's March 16, 2020 Order (ECF No. 146), attached hereto as Exhibit B is a summary chart of the false and/or misleading statements and omissions alleged below; the speakers, date, and medium of each statement or omission; the reasons why each statement or omission was false and/or misleading when made; and the facts giving rise to a strong inference of scienter as to each statement or omission.

material driver of NVIDIA's overall and Gaming-segment revenues and that NVIDIA faced revenue risk from cryptocurrency-related revenues manifesting not just in its Crypto SKU, but also in its Gaming segment.

A. May 10, 2017 NVIDIA Annual Investor Day

176. On May 10, 2017, Defendants Huang, Kress, and Fisher participated in NVIDIA's Annual Investor Day. During the presentation, Defendant Fisher identified the purported "fundamental" drivers for Gaming revenues as "eSports, competitive gaming, AAA gaming, [and] notebook gaming."

177. Defendant Fisher's statement was materially misleading because it identified the purported "fundamental" drivers of NVIDIA's Gaming-segment revenues without mentioning that "Gaming" segment revenues actually were being driven significantly by cryptocurrency mining. Indeed, during second-quarter fiscal 2018, when Defendant Fisher made this statement, $199 million (or 17%) of NVIDIA's Gaming-segment revenues were actually derived from cryptocurrency mining (not gaming). ¶ 154.

178. Fisher's statement was also materially misleading because it omitted that (1) sales to cryptocurrency miners were one of the greatest drivers of the Company's Gaming revenues at the time (¶ 154); (2) the Company's GeForce Experience data reflected the revenues derived from miners, showing that over 60% of GeForce sales were, in actuality, to miners (¶ 106); and (3) sales to miners accounted for 60% to 70% of GeForce revenues in NVIDIA's largest market, China, and amounted to at least $120 million in 2Q18 in that market alone. ¶¶ 86, 121.

B. August 10, 2017 Earnings Call

179. On August 10, 2017, Defendants Huang and Kress hosted NVIDIA's second-quarter fiscal year 2018 earnings call. When Goldman Sachs analyst Toshiya Hari specifically questioned whether cryptocurrency drove NVIDIA's $250 million second-quarter earnings beat and increased third-quarter guidance, Defendant Huang responded that the Company's Crypto SKU accounted for just $150 million of second-quarter revenues, and that "we serve the vast . . . majority of the cryptocurrency demand out of that specialized product."

180. Defendant Huang's statements identified in paragraph 179 were materially false and misleading because the majority of the cryptocurrency-related revenues during second-quarter fiscal

2018—$199 million, or 57%—was obtained through NVIDIA's Gaming segment, ***not*** the Crypto SKU. ¶ 154.

181. It was also materially false and misleading for Huang to respond to an analyst's question about whether cryptocurrency drove NVIDIA's earnings beat by stating that the Company's Crypto SKU accounted for just $150 million of second-quarter revenues when, in fact, cryptocurrency-related sales accounted for $349 million in revenues that quarter—i.e., over two times the $150 million represented and almost one-and-a-half times the entire $250 million earnings beat. ¶ 154.

182. Huang's statement was also materially misleading because it omitted that (1) sales to cryptocurrency miners were one of the greatest drivers of the Company's Gaming revenues at the time (¶ 154); (2) the Company's GeForce Experience data reflected the revenues derived from miners, showing that over 60% of GeForce sales were, in actuality, to miners (¶ 106); and (3) sales to miners accounted for 60% to 70% of GeForce revenues in NVIDIA's largest market, China, and amounted to at least $120 million in 2Q18 in that market alone. ¶¶ 86, 121.

C. August 12, 2017 *VentureBeat* Interview

183. On August 12, 2017, the website *VentureBeat* published an article containing a transcript of an interview of Defendant Huang conducted shortly after the Company's August 10, 2017 earnings call. During the interview, the interviewer asked Huang: "Did you say a hallelujah for cryptocurrency?" In response, Huang stated that cryptocurrency mining "represented . . . maybe $150 million or so" and that "our core business is elsewhere."

184. Defendant Huang's statements identified in paragraph 183 were materially false and misleading because cryptocurrency actually contributed $349 million to NVIDIA's revenues for second quarter fiscal 2018—$150 million through NVIDIA's Crypto SKU, and another $199 million through NVIDIA's Gaming segment—*not* the "maybe $150 million or so" Huang claimed. ¶ 154.

185. Huang's statement also created the false and misleading impression that all of NVIDIA's cryptocurrency-related revenues for the quarter were captured in the Crypto SKU, when, in fact, the majority of such revenues—$199 million, or 57%—were received through the Gaming segment (not the Crypto SKU). ¶ 154. It was also materially false and misleading for Huang to state that NVIDIA's "core business is elsewhere"—i.e., not related to cryptocurrencies—when in fact NVIDIA was reaping

extraordinary revenues from that very source, including $349 million in crypto-related revenues in 2Q18 alone—an amount that was 16% of NVIDIA's entire 2Q18 revenue and exceeded the revenue generated by each of three of NVIDIA's five reporting segments. *Id.*

186. Huang's statement was also materially misleading because it omitted that (1) sales to cryptocurrency miners were one of the greatest drivers of the Company's Gaming revenues at the time (¶ 154); (2) the Company's GeForce Experience data reflected the revenues derived from miners, showing that approximately 60% of GeForce sales were, in actuality, to miners (¶ 106); and (3) sales to miners accounted for 60% to 70% of GeForce revenues in NVIDIA's largest market, China, and amounted to at least $120 million in 2Q18 in that market alone. ¶¶ 86, 121.

D. August 23, 2017 Form 10-Q

187. On August 23, 2017, NVIDIA filed with the SEC its Form 10-Q for second-quarter fiscal 2018, which was signed by Defendants Huang and Kress. In the Management's Discussion and Analysis section, which announced a 59% increase of $701 million in GPU business revenue year-over-year, Defendants represented that the increase "was due primarily to increased revenue from sales of GeForce GPU products ***for gaming***."

188. It was materially false and misleading for NVIDIA, Huang, and Kress to state that the increase in GPU business revenue year-over-year "was due primarily to increased revenue from sales of GeForce GPU products ***for gaming***" when, in fact, approximately 50% of the $701 million increase in Gaming revenues—$349 million—came from sales for cryptocurrency mining, not gaming. ¶ 154.

189. Huang, Kress, and NVIDIA's statement was also materially misleading because it omitted that (1) sales to cryptocurrency miners were one of the greatest drivers of the Company's Gaming revenues at the time (¶ 154); (2) the Company's GeForce Experience data reflected the revenues derived from miners, showing that approximately 60% of GeForce sales were, in actuality, to miners (¶ 106); and (3) sales to miners accounted for 60% to 70% of GeForce revenues in NVIDIA's largest market, China. ¶ 86.

E. September 6, 2017 Citi Global Technology Conference

190. On September 6, 2017, Defendant Kress spoke on behalf of NVIDIA at the Citi Global Technology Conference. During the conference, Citigroup analyst Atif Malik asked Kress: "[W]hat steps

has NVIDIA taken to avoid cannibalization of core gaming market from these cards?" In response, Kress stated, "we covered most of cryptocurrency with our cryptocards [Crypto SKU] that we had developed[.]"

191. Defendant Kress's statement that "we covered most of cryptocurrency with our cryptocards that we had developed" identified in paragraph 190 was materially false and misleading because the majority of cryptocurrency-related demand was not being satisfied through NVIDIA's cryptocurrency-specific cards, but rather through the Company's GeForce gaming GPUs. Indeed, in second quarter fiscal 2018, 57% of NVIDIA's cryptocurrency revenues (or $199 million) were realized through the Gaming segment, not through the Crypto SKU, while in third-quarter fiscal 2018, 77% of NVIDIA's cryptocurrency revenues (or $229 million) were realized through the Gaming segment, not through the Crypto SKU. ¶ 154.

192. Kress's statement was also materially misleading because it omitted that (1) sales to cryptocurrency miners were one of the greatest drivers of the Company's Gaming revenues at the time (¶ 154); (2) the Company's GeForce Experience data reflected the revenues derived from miners, showing that approximately 60% of GeForce sales were, in actuality, to miners (¶ 106); and (3) sales to miners accounted for 60% to 70% of GeForce revenues in NVIDIA's largest market, China. ¶ 86.

F. November 9, 2017 Earnings Call

193. On November 9, 2017, Defendants Huang and Kress hosted NVIDIA's third-quarter fiscal 2018 conference call. During the call, Citigroup analyst Atif Malik asked Huang and Kress to "quantify how much crypto was in the October quarter [third-quarter fiscal 2018] and expectations in the January quarter directionally" and explain "why should we think that crypto won't impact the gaming demand in the future." In response, Kress stated that NVIDIA's "specific crypto [cards] equated to about $70 million of revenue, which is the comparable to the $150 million that we saw last quarter."

194. Defendant Kress's statement identified in paragraph 193 was materially misleading and omitted material facts. It was materially misleading for Kress to respond to a question about "how much crypto was in the October quarter" by stating that NVIDIA's "specific crypto [cards] equated to about $70 million of revenue, which is the comparable to the $150 million that we saw last quarter" when, in fact, 77% of NVIDIA's total cryptocurrency-related revenues (i.e., $229 million) were from sales to cryptocurrency miners through the Gaming segment, not the OEM segment's Crypto SKU. ¶ 154.

195. Kress's statement was also materially misleading because it omitted that (1) sales to cryptocurrency miners were one of the greatest drivers of the Company's Gaming revenues at the time (¶ 154); (2) the Company's GeForce Experience data reflected the revenues derived from miners, showing that approximately 60% of GeForce cards were, in actuality, being used for crypto-mining (¶ 106); and (3) sales to miners accounted for 60% to 70% of GeForce revenues in NVIDIA's largest market, China. ¶ 86.

G. November 10, 2017 *VentureBeat* Interview

196. On November 10, 2017, *VentureBeat* published a transcript of an interview conducted with Huang shortly after NVIDIA's November 9, 2017 earnings call. During the interview, *VentureBeat* questioned whether "cryptocurrency is driving all of your success." Defendant Huang responded by stating that, for NVIDIA, cryptocurrency was "small but not zero . . . . It's large for somebody else. But it is small for us." Huang also stated that cryptocurrency-related revenue was "[m]aybe $70 million"—the amount NVIDIA had attributed to the Crypto SKU the day before.

197. It was materially false and misleading for Huang to state that cryptocurrency was "small" and "small for us" during third-quarter fiscal 2018 when, in fact, cryptocurrency-related revenues totaled $299 million for that quarter—which alone was more revenue than three of NVIDIA's four non-Gaming segments. ¶ 154.

198. Huang's statement was also materially misleading because it omitted that (1) sales to cryptocurrency miners were one of the greatest drivers of the Company's Gaming revenues at the time (¶ 154); (2) the Company's GeForce Experience data reflected the revenues derived from miners, showing that approximately 60% of GeForce cards were, in actuality, being used for crypto-mining (¶ 106); and (3) sales to miners accounted for 60% to 70% of GeForce revenues in NVIDIA's largest market, China. ¶ 86.

199. It was also materially false and misleading for Huang to state that cryptocurrency-related revenue was "[m]aybe $70 million"—the amount NVIDIA booked through the Crypto SKU—when, in fact, NVIDIA's cryptocurrency-related revenue was $299 million during the quarter, and 77% of NVIDIA's total cryptocurrency-related revenues (i.e., $229 million) were from sales to cryptocurrency miners through the Gaming segment, not the OEM segment's Crypto SKU. ¶ 154.

H. November 21, 2017 Form 10-Q

200. On November 21, 2017, NVIDIA filed with the SEC its Form 10-Q for third-quarter fiscal 2018, which was signed by Defendants Huang and Kress. In the Management's Discussion and Analysis section, NVIDIA stated that the 31% increase of $520 million in GPU business revenue year-over-year "was due primarily to increased revenue from sales of GeForce GPU products ***for gaming***."

201. It was materially false and misleading for NVIDIA, Huang, and Kress to state the $520 million year-over-year increase in GPU revenues "was due primarily to increased revenue from sales of GeForce GPU products ***for gaming***" when $648 million of NVIDIA's GPU revenues in the second quarter and third quarter of fiscal 2018—representing well over 100% of the Company's entire $520 million year-over-year increase in GPU revenues—was due to sales of GPUs for cryptocurrency mining, ***not*** gaming. ¶ 154.

202. Huang, Kress, and NVIDIA's statement was also materially misleading because it omitted that (1) sales to cryptocurrency miners were one of the greatest drivers of the Company's Gaming revenues at the time (¶ 154); (2) the Company's GeForce Experience data reflected the revenues derived from miners, showing that approximately 60% of GeForce cards were, in actuality, being used for crypto-mining (¶ 106); and (3) sales to miners accounted for 60% to 70% of GeForce revenues in NVIDIA's largest market, China. ¶ 86.

I. November 29, 2017 Credit Suisse Technology, Media and Telecom Conference

203. On November 29, 2017, Defendant Kress represented NVIDIA at the Credit Suisse Technology, Media and Telecom Conference. When Credit Suisse analyst John William Pitzer asked about the impact of cryptocurrency-related demand on NVIDIA's gaming revenues, Kress stated that "there probably is some residual amount or some small amount" but that "the majority does reside in terms of our overall crypto card [Crypto SKU], which is the size of about $150 million in Q2."

204. It was materially false and misleading for Kress to state that there was only "some residual amount or some small amount" of cryptocurrency-related demand impact to Gaming revenues when, in fact, Gaming-segment revenues from sales to crypto-miners (and not gamers) were $229 million for the quarter. ¶ 154.

205. It was also materially false and misleading for Kress to state that "the majority" of cryptocurrency-related demand was being satisfied by NVIDIA's "crypto card," when, in fact: during second-quarter fiscal 2018, 57% of NVIDIA's cryptocurrency-related sales ($199 million) were made through the Company's Gaming segment and only 43% ($150 million) were made through its Crypto SKU; and during third-quarter fiscal 2018, 77% of NVIDIA's cryptocurrency-related sales ($229 million) were made through the Gaming segment and only 23% ($70 million) through its Crypto SKU. ¶ 154.

206. Further, Kress's statement was materially misleading because it omitted that (1) sales to cryptocurrency miners were one of the greatest drivers of the Company's Gaming revenues at the time (¶ 154); (2) the Company's GeForce Experience data reflected the revenues derived from miners, showing that approximately 60% of GeForce cards were, in actuality, being used for crypto-mining (¶ 106); and (3) sales to miners accounted for 60% to 70% of GeForce revenues in NVIDIA's largest market, China. ¶ 86.

J. February 9, 2018 *Barron's* Article

207. On February 9, 2018, financial news magazine *Barron's* published an article detailing an interview Defendant Huang gave to a reporter following the February 8, 2018 NVIDIA earnings call. In the article, the author explained that "[w]hen I asked Huang if he wanted to point out anything in particular about the report and outlook, Huang began, 'Clearly there's been a lot of talk about crypto.'" Huang then stated that cryptocurrency represented a "small, overall" "part of our business this past quarter."

208. It was materially false and misleading for Huang to state that cryptocurrency was only a "small" "part of our business this past quarter" when, in fact, cryptocurrency-related revenues in fourth quarter fiscal 2018 comprised $541 million—nearly 20% of NVIDIA's entire fourth quarter fiscal 2018 revenues across all business segments. ¶ 154.

209. Huang's statement was also materially misleading because it omitted that (1) the Company's GeForce Experience data reflected the revenues derived from miners, showing that approximately 60% of GeForce cards were, in actuality, being used for crypto-mining (¶ 106); and (2) sales to miners accounted for 60% to 70% of GeForce revenues in NVIDIA's largest market, China. ¶ 86.

K. March 26, 2018 *TechCrunch* Article

210. On March 26, 2018, the industry publication *TechCrunch* published an interview with Defendant Huang. In the interview, in response to questions about NVIDIA's documented supply problems, Defendant Huang stated that "he still attribute[d] crypto's demands as a small percentage of Nvidia's overall business."

211. It was materially false and misleading for Huang to state that "crypto's demands [were] a small percentage of [NVIDIA]'s overall business" when, in fact, cryptocurrency-related revenues in fourth-quarter fiscal 2018 totaled $541 million—i.e., nearly 20% of NVIDIA's entire fourth-quarter fiscal 2018 revenues. ¶ 154.

212. Huang's statement was also materially misleading because it omitted that (1) the Company's GeForce Experience data reflected the revenues derived from miners, showing that approximately 60% of GeForce cards were, in actuality, being used for crypto-mining (¶ 106); and (2) sales to miners accounted for 60% to 70% of GeForce revenues in NVIDIA's largest market, China. ¶ 86.

L. March 29, 2018 *Mad Money* Appearance

213. On March 29, 2018, Defendant Huang appeared on the CNBC show *Mad Money*. During Huang's appearance, Jim Cramer, the host of *Mad Money*, asked Huang about a Wells Fargo analyst report stating that NVIDIA's "cryptocurrency risks are growing" and a JPMorgan report suggesting that "it's not possible to maintain the cryptocurrency $250 million run rate and so therefore we must be concerned about the stock of NVIDIA." In response, Huang stated that the "core growth drivers" for the Company's revenue results were other areas of the business—Gaming, Professional Visualization, Datacenter, and Automotive—and that "cryptocurrency just gave it that extra bit of juice." When Cramer asked Defendant Huang to confirm that "if people think [cryptocurrency] is that important, they're gonna miss the bigger picture," Huang responded, "Absolutely," and again contrasted NVIDIA's cryptocurrency-related business to the Company's "core" businesses including Gaming.

214. Defendant Huang's statements identified in paragraph 213 were materially false and misleading. It was materially false and misleading for Huang to state that crypto-currency mining revenues were "[a]bsolutely" not "important" to NVIDIA and that other areas of NVIDIA's business were the Company's "core growth drivers" when, in fact, cryptocurrency-related revenues in fourth quarter fiscal

2018 comprised $541 million—i.e., nearly 20% of NVIDIA's entire fourth-quarter fiscal 2018 revenues across all business segments. ¶ 154.

215. Huang's statements were also materially misleading because they omitted that (1) sales to cryptocurrency miners were one of the greatest drivers of the Company's Gaming revenues at the time (¶ 154); (2) the Company's GeForce Experience data reflected the revenues derived from miners, showing that approximately 60% of GeForce cards were, in actuality, being used for crypto-mining (¶ 106); and (3) sales to miners accounted for 60% to 70% of GeForce revenues in NVIDIA's largest market, China. ¶ 86.

M. August 16, 2018 Earnings Call

216. On August 16, 2018, Defendants Huang and Kress hosted NVIDIA's second-quarter fiscal 2019 earnings call, during which Defendants disclosed that cryptocurrency-related demand had dried up. NVIDIA's Form 8-K filed the same day disclosed that the Company had seen its inventory balloon by 37% the previous quarter, and several analysts asked questions about the glut during the call. Matthew Ramsay of Cowen and Company asked Huang and Kress if they "could talk a little bit about the gaming channel in terms of inventory, how things are looking in the channel as you guys see it." Attempting to assuage concerns about the glut of inventory that had resulted from the disappearance of crypto-mining demand, Huang stated: "We are masters at managing our channel, and we understand the channel very well. . . . [W]e have plenty of opportunities as the—as we go back to school and the gaming cycle to manage the inventory."

217. Defendant Huang's statements identified in paragraph 216 were materially false and misleading. It was materially false and misleading for Huang to state that Defendants were "masters at managing [their] channel," "underst[oo]d the channel very well," and had "plenty of opportunities . . . [including] the gaming cycle to manage the inventory" when, in fact: (i) throughout the Class Period, the overwhelming majority of NVIDIA's cryptocurrency-related revenues—$1.13 billion, or more than 65%—was made through the Gaming segment, not through the OEM segment's Crypto SKU, as Defendants repeatedly represented (¶ 154); and (ii) the Company had a massive glut of unsold GeForce GPUs that NVIDIA had amassed to satisfy the anticipated demand, which no longer existed, from crypto-miners. ¶¶ 114, 158, 160–62.

VII. SUMMARY ALLEGATIONS OF SCIENTER

218. A host of facts support a strong inference that NVIDIA and the Individual Defendants knew or were deliberately reckless in not knowing the true facts concerning the impact of cryptocurrency-related demand on NVIDIA's financial performance when making the misleading statements and omitting the facts discussed above.

219. *First*, Defendants were directly informed about and had access to copious sales and technical usage data showing the dramatic surge in cryptocurrency-related sales during the Class Period. This data included: (a) crypto-specific GeForce sales data in a centralized database that Huang and other top executives had access to; (b) quarterly meetings at which this data was presented to Huang and others; (c) weekly "Top 5" emails sent to Huang at his request reporting on miners' demand for GeForce GPUs; (d) GeForce Experience usage data, sent in monthly reports to Huang and received by Kress, which confirmed that well more than a majority of GeForce sales during the Class Period were to miners (not gamers); (e) sales reports detailing crypto-specific GeForce sales sent to Fisher and the GeForce executive team every week; and (f) an internal study commissioned by Fisher measuring GeForce sales to crypto-miners on a monthly basis.

220. **Centralized Sales Database.** FE 1 reported that, beginning in late 2016 or early 2017, NVIDIA's China sales team began meticulously tracking GeForce sales to crypto-miners, which was inputted into the Company's centralized sales database. ¶¶ 78–81, 83. That NVIDIA was able to quantify crypto-specific sales is proven by an internal Company document that provided monthly sales of GeForce sales to miners in China during the spring and summer of 2017. ¶¶ 120–21. FE 5 confirmed that a similar process of obtaining sales data allowing NVIDIA to determine how much of its GeForce sales were crypto-related was used in the Company's European market, explaining that NVIDIA gave its partners marketing funds in exchange for detailed order data. ¶ 82. FE 1 reported that the sales data showed that ***60% to 70%*** of GeForce sales in China—the source of more than half of NVIDIA's revenues—were going to crypto-miners throughout 2017. ¶ 86. An internal presentation containing GeForce sales data from the China market showed that NVIDIA sold 800,000 GeForce GTX GPUs during the Company's 2Q18 reporting period (amounting to at least $120 million in that one market alone).

221. Multiple former employees confirmed that Defendants had access to this data. For example, FE 1 said that Huang and the rest of the U.S. executive team all had access to the centralized sales database which contained crypto-specific GeForce sales data, and that the executive team was in fact "obsessed" with the sales data. ¶¶ 84, 86. FE 2 also stated that Huang personally accessed the centralized sales database, recounting a Company-produced video showing Huang reviewing the centralized sales data base and corresponding with an employee about sales data that the employee had just entered. ¶ 85.

222. **Quarterly Senior Management Meetings.** FE 1 described how sales data quantifying GeForce sales to miners was presented directly to Huang, Fisher, Milner, Zhang, and other top executives at the Company's quarterly meetings in 2017. ¶¶ 87–88. At these meetings, Huang and his executive leadership discussed ways to capitalize on this trend, including a prospective deal in 2017 involving Genesis, one of the world's largest mining farms. ¶ 88. FE 2 confirmed that Huang reviewed sales data at quarterly meetings with business unit, sales, marketing, and product management leaders, recalling that Huang focused especially heavily on GeForce sales data because GeForce revenues were the largest of any group at NVIDIA. ¶ 92. FE 2 stated that during 2017, Huang repeatedly acknowledged that miners were purchasing GeForce GPUs instead of more powerful—but more expensive—professional cards because miners were preoccupied with "cranking out algorithms at the lowest cost." ¶ 93. FE 5 corroborated these accounts, stating that Huang received crypto-specific sales and forecasts of GPU demand from crypto-miners compiled by NVIDIA's regional leaders and sent to Huang directly on a quarterly basis. ¶ 90. Huang received presentations from NVIDIA managers detailing GeForce sales data in multiple regions around the world. ¶¶ 87, 91, 92.

223. **Weekly "Top 5" Reports.** Throughout the Class Period, Huang received reports from sales and marketing managers from NVIDIA's various markets detailing the surge in crypto-related GeForce sales through the "Top 5" internal reporting system. ¶¶ 94–98. These emails, sent to Huang and other top executives on a weekly basis throughout the Class Period, explicitly discussed crypto-related sales, bulk ordering, and assessments of crypto-related demand. ¶¶ 94, 97. The Top 5 reporting system had been Huang's idea, and Huang personally reviewed these emails on Sundays, often responding directly to the senders seeking additional information. ¶¶ 94–96. During the second half of 2017 and the first half of

2018, virtually every Top 5 report addressed the explosion of crypto-related demand for GeForce GPUs. ¶¶ 90, 97.

224. **GeForce Experience Data.** Defendants were also informed of the true amount of cryptocurrency mining usage through data generated by NVIDIA's GeForce Experience software. *See* ¶¶ 99–108. As discussed above, GeForce Experience is telemetry software that is bundled with the drivers for GeForce GTX graphics cards. ¶ 100. NVIDIA has publicly claimed that more than 90% of its users use GeForce Experience, and its own website explained that the software collects a rich set of information concerning a user's hardware configuration, operating system, installed games, game settings, game usage, and game performance. ¶¶ 101–02. Kress publicly confirmed that NVIDIA could determine how its GeForce GPUs were being used through the GeForce Experience software, stating shortly before the Class Period began, "***[W]e have an ability to actually look to say, 'Yes, the intended use of those overall gaming platforms are actually being used for gaming***.'" ¶ 108; *see also* ¶ 107. Former NVIDIA employees have corroborated Kress's remarks, reporting that the data collected through GeForce Experience allowed NVIDIA to track cryptocurrency-mining usage. For example, FE 1 stated, "We actually know this data," saying that "NVIDIA sure lied to everyone" in representing that they could not determine whether GeForce GPUs were being used for mining. ¶ 104. FE 5 confirmed that GeForce Experience data informed NVIDIA how many of its GeForce GPUs were being used for mining and that the usage data, which was stored in a central database, was also ***reported directly to Huang*** on a monthly basis. ¶¶ 105–06. Huang personally reviewed this usage data. ¶ 106. FE 5 stated that the GeForce Experience data showed that ***more than 60%*** of GeForce GPU sales during the Class Period went to miners. *Id.*

225. **Reports from NVIDIA's Primary Market.** Fisher and other U.S. executive team members routinely received detailed reports and presentations quantifying crypto-related sales of GeForce GPUs. As discussed above, China accounted for 40% to 50% of worldwide GeForce sales, meaning that cryptocurrency sales in China amounted to approximately 25% to 35% of NVIDIA's revenues—before considering any other regions whatsoever. *See* ¶ 86. FE 1 stated that the China team sent weekly GeForce sales reports to NVIDIA executives in the United States throughout 2017, including Fisher (who reported directly to Huang), Milner, and Senior Director for China David Zhang. ¶¶ 110–12. The reports provided

weekly updates on GeForce sales numbers, sales drivers, customers, inventory issuers, competitors, and included a separate section expressly quantifying GeForce sales to crypto-miners from the week before. ¶ 110. The U.S. executives also received spreadsheets detailing these sales on a quarterly basis. ¶ 113. These reports prompted Milner (Fisher's direct report) to begin corresponding directly with FE 1 by email about crypto-related GeForce sales in China. ¶¶ 117–18.

226. FE 1 recounted giving a presentation in March 2017 to other high-level NVIDIA executives—including Fisher, Milner, and Zhang—that emphasized the explosion of crypto-related sales of GeForce GPUs in China and reported that sales to crypto-miners had caused GeForce sales to almost double in a short period. ¶ 115. At this meeting, Fisher called crypto-related demand "***dangerous***." *Id*. Similarly, FE 1 reported meeting with NVIDIA executives in June 2017 and both discussing the issue of cryptocurrency-related GeForce sales and underscoring the impact of crypto-mining on GeForce revenues. ¶ 116. FE 1 created a PowerPoint presentation in September 2017 reporting that 1.5 million GeForce GTX GPU units had been sold to miners during the first nine months of the year alone. ¶¶ 119–20. This study had been requested by the U.S. GeForce management team, including Fisher. ¶ 119. The presentation noted that NVIDIA was capturing more than 70% of crypto-related GPU sales in China, a percentage in line with third-party estimates of NVIDIA's global share of crypto-related sales. ¶ 121. The presentation further showed that NVIDIA had reaped hundreds of millions of dollars in revenues from cryptocurrency miners in China and expected to do so in the future. ¶¶ 120–22.

227. Meanwhile, the China team's 2018 forecasts, based on existing sales data and assembled during the second half of 2017, anticipated a 60% rise in GeForce sales based largely on expected demand from crypto-miners. ¶ 114. These estimates were sent to Fisher, Milner, and Zhang, who discussed them with FE 1 and others in calls and by email. *Id*. NVIDIA increased its GeForce inventory to meet the anticipated growth in cryptocurrency-related demand in 2018. *Id.*

228. Huang and Kress had ready access to Fisher, whose office was no more than 100 yards from Huang's, who met with Huang on a weekly basis, and who, as described above, received detailed crypto-specific GeForce sales data on a weekly and quarterly basis, traveled to China to review the effect of crypto-related demand on GeForce sales, and commissioned a study that quantified sales to miners on a monthly basis in China and addressed how NVIDIA could exploit the trend. ¶¶ 32, 110–13, 115, 119–26.

It is absurd to think that Fisher did not relay this data to Huang or otherwise discuss the effect of crypto-related demand—which he deemed "dangerous"—on the Gaming segment, which was NVIDIA's most important business unit and the source of more than half of the Company's revenues.

229. **GeForce Shortages Due to Crypto-Mining Demand.** Acute shortages of GeForce GPUs around the world that the Company's sales and marketing forces explicitly attributed to demand from miners were also reported back to NVIDIA's headquarters, including to Huang himself. FE 1 explained that, beginning in 2016 and in 2017, the Company had trouble meeting GeForce demand in China because of the burgeoning mining sales, that mining firms placed huge orders for GeForce GPUs, often in quantities of 50,000 or 100,000 units per order, and that all of FE 1's superiors in China knew of these bulk GeForce orders by miners. ¶ 127. FE 2 similarly reported regular contacts with miner groups looking to make bulk purchases of GeForce GPUs in the United States. ¶ 129. When NVIDIA Product Managers tried to upsell the miners a professional product, the miners would flatly refuse. *Id.* FE 2 reported that FE 2 had conversations with Product Managers about these incidents, which provided the Company with ample evidence that its Gaming GPUs were being bought up by miners *en masse*—and not gamers. *Id.* Miners' attempts to make bulk purchases were reported up the executive chain through multiple business units, and Huang acknowledged the trend at multiple internal meetings at NVIDIA's headquarters. ¶ 130. FE 4 and FE 5 recalled that the same phenomenon was evident in Russia and India, respectively, where skyrocketing demand from miners produced widespread shortages in GeForce GPUs. ¶¶ 131–32. FE 5 stated that these shortages, along with discussion of the broader trend of exploding cryptocurrency-related demand for NVIDIA's GPUs, were conveyed to Huang and other executives directly by way of the Top 5 internal reporting system that Huang had conceived. ¶¶ 97–98, 133.

230. *Second*, Defendants knew that investors were acutely focused on how much of NVIDIA's revenues were based on cryptocurrency-mining. Analysts asked specific questions about the subject during each of the Company's earnings calls during the Class Period, and Defendants were called upon to speak about it at numerous conferences and in several interviews. *See, e.g.*, ¶¶ 179, 183, 190, 193, 196, 203, 207, 210, 213. In addition, shareholders specifically asked Huang several questions about cryptocurrency-related effects on NVIDIA finances, including at the Company's May 2018 Annual Meeting of Stockholders. Moreover, in an interview published February 11, 2018, in *VentureBeat*, when the

interviewer asked Huang "how [he felt] about all the cryptocurrency questions" he had been fielding from analysts and investors, Huang replied: "You can't not care about cryptocurrency. It's a global and social and economic phenomenon."

231. Indeed, many of the misstatements were made in direct response to pointed analyst questions about the effects of cryptocurrency-related sales. For example, during NVIDIA's second-quarter fiscal 2018 earnings call on August 10, 2017, when an analyst asked whether cryptocurrency drove NVIDIA's second-quarter earnings beat, Huang stated that sales of the Company's cryptocurrency SKU accounted for only $150 million of second-quarter sales, and that NVIDIA served "the vast . . . majority of the cryptocurrency demand" using the Crypto SKU. ¶ 179. Similarly, during the Citi Global Technology Conference on September 6, 2017, Citigroup analyst Atif Malik asked Kress, "[W]hat steps has NVIDIA taken to avoid cannibalization of core gaming market from these cards?" Kress stated in response, "we covered most of cryptocurrency with our cryptocards [Crypto SKU] that we had developed[.]" ¶ 190. Knowing that analysts and investors were acutely focused on the question of cryptocurrency's impact on NVIDIA's revenues from having fielded questions on the subject continuously throughout the Class Period, it was deliberately reckless, at minimum, for Huang and Kress to give answers to such questions without reviewing the relevant data.

232. *Third*, Defendants' statements about the amount of GPUs that NVIDIA was selling to crypto-miners indicated that Defendants had in fact reviewed the Company's internal crypto-specific sales data. Specifically, Huang's statements that NVIDIA served "the vast . . . majority of the cryptocurrency demand" through the Crypto SKU (¶ 179) and that 2Q18 crypto-related sales totaled "maybe $150 million or so" (¶ 183), Kress's statements that NVIDIA "covered most of cryptocurrency with our cryptocards" (¶ 190), and Huang's and Kress's statements that 3Q18 crypto-related sales were "about" or "maybe" $70 million" of revenue (¶¶ 193, 196) constituted quantitative representations of NVIDIA's GPU sales to miners. These statements could not have been made truthfully and accurately had Defendants *not* reviewed NVIDIA's crypto-specific sales data. Hence, before making these quantitative assessments of NVIDIA's crypto-related sales, Huang and Kress either (i) ***had*** reviewed NVIDIA's internal crypto-related sales data to inform their statements, or (ii) were deliberately reckless in issuing these statements ***without*** having reviewed that data, as their statements thus lacked any reasonable basis in fact.

233. *Fourth*, Defendants repeatedly assured investors that they personally paid close attention to the cryptocurrency market's impact on NVIDIA, who was buying NVIDIA's GPUs, and the Company's revenue drivers. For example, in response to an analyst question asking how Huang planned to manage the volatility of the cryptocurrency market, Huang told investors during NVIDIA's August 10, 2017 earnings call that "our strategy is to stay very, very close to the market. We understand its dynamics really well . . . . ***We stay very close to the market***. ***We know its every single move and we know its dynamics***." ¶ 66.

234. Defendants repeatedly assured investors that they closely monitored (and had visibility into) the ultimate purchasers of their products. As far back as 2007, Huang told securities analysts that "[w]e monitor the inventory in the channel continuously, not only from the guys that buy from us, but where the parts go after that—***who they sell to, and who they sell to***." ¶ 43. In 2015, Huang again confirmed NVIDIA's close monitoring of sales out of NVIDIA's distribution channel to end consumers, telling investors during an earnings call, "***we monitor sellout in the channel literally every day***. And so that's how we manage inventory. We don't manage inventory on selling; we manage inventory on sellout." *Id.* And Huang repeated these representations during the Class Period: during NVIDIA's August 16, 2018 earnings call, Huang emphasized that "[w]e are masters at managing our channel, and we understand the channel very well." ¶ 158. FE 5 confirmed that NVIDIA monitored sell-out from the distribution channel on a monthly and quarterly basis, that NVIDIA's Head of Sales received that data, and that the data was discussed at Quarterly Business Reviews during the Class Period. ¶¶ 82, 89. Defendants' personal attention to NVIDIA's sales and repeated assurances that they were knowledgeable about these subjects demonstrate their knowledge or, at minimum, deliberate recklessness.

235. *Fifth*, Defendants not only knew that GeForce revenues were largely being driven by sales to crypto-miners during the Class Period, they actively sought to exploit that trend to increase GeForce revenues even more, further supporting a strong inference of scienter. By the beginning of 2017, GeForce executives had observed the spiking GeForce sales to crypto-miners and directed managers to "support GeForce" by tracking and targeting sales to miners. ¶ 109. Fisher commissioned a study of the cryptocurrency market in China, which included a table identifying top mining operations by name, contact information, and projected GPU demand, signaling NVIDIA to contact the mining firms to sell to them

directly. ¶¶ 119–26. Meanwhile, Huang discussed business opportunities involving direct sales to large miners at quarterly meetings (including Genesis Mining, a large European mining firm that was included in the list of targets identified in Fisher's study). ¶¶ 88, 126. NVIDIA then accommodated large crypto-mining firms in its January 1, 2018 revision of the GeForce EULA. *See* ¶¶ 134–38. By prohibiting datacenters from using GeForce GPUs ***unless they were used for crypto-mining***, Defendants demonstrated their knowledge that demand from crypto-miners was propping up NVIDIA's Gaming sales and their intent to facilitate large mining operations' continued purchases of GeForce GPUs.

236. *Sixth*, multiple former employees confirm that Huang was intimately involved with NVIDIA's daily operations—particularly its GeForce business. FE 2, who met with Huang monthly, stated that Huang was "the most intimately involved CEO he had ever experienced" and Huang always knew everything that was going on at the Company. ¶ 85. FE 2 likened Huang's review of sales data at quarterly leadership meetings at NVIDIA's headquarters to "proctology exams." ¶ 92. As FE 2 recalled, "Jensen is a micromanager. He micromanages everything—very little gets done without him being involved." *Id.* FE 5 echoed these assessments, recalling from a presentation FE 5 gave to Huang in 2017 that Huang was "very hands-on" and had a prodigious memory. ¶ 91, 95. FE 5 also explained that the detailed weekly "Top 5" emails were Huang's idea and that Huang directly corresponded with the senders, typically posing follow-up questions within 48 hours of receipt. ¶¶ 94–95. FE 5 further described how the quarterly regional business review meetings were designed to provide Huang personally with a comprehensive view of NVIDIA's sales performance in each of the Company's operating regions and that Huang would receive presentations of GeForce sales data during regular trips to the Company's different regions. ¶¶ 89–91.

237. *Seventh*, that Defendants' misstatements and omissions concerned NVIDIA's primary business of selling GPUs further strengthens the scienter inference. Indeed, statements made by Defendants during the Class Period demonstrate that GPU sales constituted the core of NVIDIA's business. As Defendant Kress explained at the Credit Suisse Technology, Media and Telecom Conference on November 29, 2017: "We began our business focused on still what we're focused on today. We focus on the GPU." Similarly, at the Morgan Stanley Technology, Media & Telecom Conference on February 26, 2018, Kress stated: "The company is really based on one single product in terms of a GPU." Meanwhile, NVIDIA's GPU sales represented approximately 85% of the Company's revenues, and during

the Company's 2018 Annual Meeting of Stockholders, Huang explained that "[o]ur GPUs have been the segment with the highest revenue."

238. *Eighth*, the enormity of NVIDIA's undisclosed cryptocurrency-related revenues further supports the inference that Defendants knew, or were deliberately reckless in not knowing, of its true impact. NVIDIA earned at least $1.7 billion in cryptocurrency mining revenues during the Class Period. Cryptocurrency-related revenues thus accounted for approximately 83% of NVIDIA's total GPU business growth from fiscal 2018 to fiscal 2019. ¶ 154. At the same time, Defendants made statements indicating that NVIDIA's crypto-related revenues were limited to the Crypto SKU.

239. *Ninth*, as analysts and the financial press recognized at the time, NVIDIA continued to conceal and misrepresent the true impact of cryptocurrency mining on its financial results even *after* it was forced to reveal on August 16, 2018, that cryptocurrency mining was a major driver of the Company's revenues. For example, the financial press noted that "NVIDIA lied about its cryptocurrency earnings to avoid [a] stock crash," explaining that "the steep falls [in NVIDIA's stock price, including at the end of the Class Period] [we]re a strong incentive for Nvidia to mask large fluctuations in revenue." ¶ 141.

240. The foregoing facts, particularly when considered collectively, as they must be, support a strong inference of Defendants' scienter.

VIII. PRESUMPTION OF RELIANCE

241. At all relevant times, the market for NVIDIA's common stock was efficient for the following reasons, among others:

1. NVIDIA's stock met the requirements for listing, and was listed and actively traded on the NASDAQ Stock Market, a highly efficient and automated market;

2. As a regulated issuer, NVIDIA filed periodic reports with the SEC and the NASDAQ Stock Market;

3. NVIDIA regularly communicated with public investors via established market communication mechanisms, including through regular dissemination of press releases on the national circuits of major newswire services and through other wide-ranging public disclosures, such as communications with the financial press and other similar reporting services; and

4. NVIDIA was followed by numerous securities analysts employed by major brokerage firms who wrote reports which were distributed to those brokerage firms' sales force and certain customers. Each of these reports was publicly available and entered the public market place.

242. As a result of the foregoing, the market for NVIDIA's common stock reasonably promptly digested current information regarding NVIDIA from all publicly available sources and reflected such information in the price of NVIDIA's common stock. All purchasers of NVIDIA common stock during the Class Period suffered similar injury through their purchase of NVIDIA common stock at artificially inflated prices, and a presumption of reliance applies.

243. A class-wide presumption of reliance is also appropriate in this action under the United States Supreme Court holding in *Affiliated Ute Citizens of Utah v. United States*, 406 U.S. 128 (1972), because the claims asserted herein against Defendants are predicated upon omissions of material fact for which there is a duty to disclose.

IX. INAPPLICABILITY OF THE STATUTORY SAFE HARBOR

244. The statutory safe harbor or bespeaks caution doctrine applicable to forward-looking statements under certain circumstances does not apply to any of the false and misleading statements pleaded in this Complaint. None of the statements complained of herein was a forward-looking statement. Rather, they were historical statements or statements of purportedly current facts and conditions at the time the statements were made, including statements about NVIDIA's GPU sales, associated revenues, and inventory levels, among other topics.

245. To the extent that any of the false and misleading statements alleged herein can be construed as forward-looking, those statements were not accompanied by meaningful cautionary language identifying important facts that could cause actual results to differ materially from those in the statements. As set forth above in detail, then-existing facts contradicted Defendants' statements regarding NVIDIA's GPU sales, associated revenues, and inventory levels, among others. Given the then-existing facts contradicting Defendants' statements, any generalized risk disclosures made by NVIDIA were not sufficient to insulate Defendants from liability for their materially false and misleading statements.

246. To the extent that the statutory safe harbor does apply to any forward-looking statements pleaded herein, Defendants are liable for those false forward-looking statements because at the time each of those statements was made, the particular speaker knew that the particular forward-looking statement was false, and the false forward-looking statement was authorized and approved by an executive officer of NVIDIA who knew that the statement was false when made.

X. CLASS ACTION ALLEGATIONS

247. Lead Plaintiffs bring this action as a class action pursuant to Fed. R. Civ. P. 23(a) and 23(b)(3) on behalf of a Class consisting of all those who purchased or otherwise acquired the common stock of NVIDIA between May 10, 2017, and November 14, 2018, inclusive, and who were damaged thereby. Excluded from the Class are Defendants, the officers and directors of NVIDIA at all relevant times, members of their immediate families and their legal representatives, heirs, agents, affiliates, successors or assigns, Defendants' liability insurance carriers, and any affiliates or subsidiaries thereof, and any entity in which Defendants or their immediate families have or had a controlling interest.

248. The members of the Class are so numerous that joinder of all members is impracticable. Throughout the Class Period, NVIDIA shares were actively traded on the NASDAQ Stock Market. As of November 9, 2018, there were 610 million shares of NVIDIA stock outstanding. While the exact number of Class members is unknown to Lead Plaintiffs at this time and can only be ascertained through appropriate discovery, Lead Plaintiffs believe that there are at least hundreds-of-thousands of members of the proposed Class. Class members who purchased NVIDIA common stock may be identified from records maintained by NVIDIA or its transfer agent(s), and may be notified of this class action using a form of notice similar to that customarily used in securities class actions.

249. Lead Plaintiffs' claims are typical of Class members' claims, as all members of the Class were similarly affected by Defendants' wrongful conduct in violation of federal laws as complained of herein.

250. Lead Plaintiffs will fairly and adequately protect Class members' interests and have retained competent counsel experienced in class actions and securities litigation.

251. Common questions of law and fact exist as to all Class members and predominate over any questions solely affecting individual Class members. Among the questions of fact and law common to the Class are:

a. whether the federal securities laws were violated by Defendants' acts and omissions as alleged herein;

b. whether the Defendants made statements to the investing public during the Class Period that were false, misleading or omitted material facts;

c. whether Defendants acted with scienter; and

d. the proper way to measure damages.

252. A class action is superior to all other available methods for the fair and efficient adjudication of this action because joinder of all Class members is impracticable. Additionally, the damage suffered by some individual Class members may be relatively small so that the burden and expense of individual litigation make it impossible for such members to individually redress the wrong done to them. There will be no difficulty in the management of this action as a class action.

XI. CLAIMS FOR RELIEF UNDER THE EXCHANGE ACT

COUNT I

For Violations of Section 10(b) of the Exchange Act and SEC Rule 10b-5 Promulgated Thereunder (Against All Defendants)

253. Lead Plaintiffs repeat, incorporate, and reallege each and every allegation set forth above as if fully set forth herein.

254. During the Class Period, Defendants carried out a plan, scheme, and course of conduct which was intended to and, throughout the Class Period, did: (i) deceive the investing public, including Lead Plaintiffs and other Class members, as alleged herein; and (ii) cause economic harm to Lead Plaintiffs and other members of the Class.

255. Defendants: (i) employed devices, schemes, and artifices to defraud; (ii) made untrue statements of material fact and/or omitted to state material facts necessary to make the statements not misleading; and (iii) engaged in acts, practices, and a course of business which operated as a fraud and deceit upon the purchasers of the Company's stock in violation of Section 10(b) of the Exchange Act and Rule 10b-5 promulgated thereunder.

256. Defendants, individually and in concert, directly and indirectly, by the use, means or instrumentalities of interstate commerce and/or of the mails, engaged and participated in a continuous course of conduct to conceal adverse material information about the Company's financial well-being, operations, and prospects.

257. During the Class Period, Defendants made the false statements specified above, which they knew or recklessly disregarded to be false or misleading in that they contained misrepresentations and

failed to disclose material facts necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading.

258. Defendants had actual knowledge of the misrepresentations and omissions of material facts set forth herein, or recklessly disregarded the true facts that were available to them. Defendants engaged in this misconduct to conceal NVIDIA's true condition from the investing public and to support the artificially inflated prices of the Company's stock.

259. Lead Plaintiffs and the Class have suffered damages in that, in reliance on the integrity of the market, they purchased NVIDIA stock and were harmed when the truth about NVIDIA negatively impacted the price of those securities. Lead Plaintiffs and the Class would not have purchased NVIDIA stock at the prices they paid, or at all, had they been aware of the truth about NVIDIA.

260. As a direct and proximate result of Defendants' wrongful conduct, Lead Plaintiffs and the other members of the Class suffered harm in connection with their respective purchases of the Company's stock during the Class Period.

261. By virtue of the foregoing, Defendants violated Section 10(b) of the Exchange Act and Rule 10b-5 promulgated thereunder.

COUNT II

For Violations of Section 20(a) of the Exchange Act (Against the Individual Defendants)

262. Lead Plaintiffs repeat, incorporate, and reallege each and every allegation set forth above as if fully set forth herein.

263. The Individual Defendants acted as controlling persons of NVIDIA within the meaning of Section 20(a) of the Exchange Act. By virtue of their high-level positions, participation in and/or awareness of the Company's operations, direct involvement in the day-to-day operations of the Company, and/or intimate knowledge of the Company's actual performance, and their power to control public statements about NVIDIA, the Individual Defendants had the power and ability to control the actions of NVIDIA and its employees. By reason of such conduct, the Individual Defendants are liable pursuant to Section 20(a) of the Exchange Act.

XII. PRAYER FOR RELIEF

WHEREFORE, Lead Plaintiffs pray for relief and judgment as follows:

A. Declaring the action to be a proper class action pursuant to Rule 23(a) and (b)(3) of the Federal Rules of Civil Procedure on behalf of the Class defined herein;

B. Awarding all damages and other remedies available under the Exchange Act in favor of Lead Plaintiffs and all members of the Class against Defendants in an amount to be proven at trial, including interest thereon;

C. Awarding Lead Plaintiffs and the Class their reasonable costs and expenses incurred in this action, including attorneys' fees and expert fees; and

D. Such other and further relief as the Court may deem just and proper.

XIII. JURY DEMAND

Lead Plaintiffs demand a trial by jury.

Dated: May 13, 2020

Respectfully submitted,

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