

FOR PUBLICATION

UNITED STATES COURT OF APPEALS  
FOR THE NINTH CIRCUIT

IN RE DYNAMIC RANDOM ACCESS  
MEMORY (DRAM) INDIRECT  
PURCHASER ANTITRUST LITIGATION,

INDIRECT PURCHASER PLAINTIFFS,  
*Plaintiff-Appellant,*

v.

SAMSUNG ELECTRONICS Co., LTD.;  
SAMSUNG SEMICONDUCTOR, INC.;  
MICRON TECHNOLOGY, INC.;  
MICRON SEMICONDUCTOR  
PRODUCTS, INC.; SK HYNIX, INC.; SK  
HYNIX AMERICA, INC.,  
*Defendants-Appellees.*

No. 21-15125

D.C. No.  
4:18-cv-02518-  
JSW

OPINION

Appeal from the United States District Court  
for the Northern District of California  
Jeffrey S. White, District Judge, Presiding

Argued and Submitted December 7, 2021  
Pasadena, California

Filed March 7, 2022

Before: William A. Fletcher and Johnnie B. Rawlinson,  
Circuit Judges, and Cathy Ann Bencivengo,\* District  
Judge.

Opinion by Judge Bencivengo

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## SUMMARY\*\*

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### Antitrust

The panel affirmed the district court’s dismissal of an action alleging an antitrust conspiracy under Section 1 of the Sherman Act by manufacturers of dynamic random access memory, a type of semiconductor memory used to store data in digital electronic devices.

The panel held that to state a plausible claim, plaintiffs bringing a Section 1 claim, particularly those relying on evidence of parallel business conduct to establish a conspiracy, must plead “some further factual enhancement” that places their allegations of parallel conduct in a context suggesting a preceding agreement. Plaintiffs based their conspiracy theory on defendants’ parallel business conduct of contemporaneously reducing their DRAM production, as well as various “plus factor” allegations that they claimed further suggested a preceding agreement. Considering eight plus factors identified by plaintiffs, both in turn and

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\* The Honorable Cathy Ann Bencivengo, United States District Judge for the Southern District of California, sitting by designation.

\*\* This summary constitutes no part of the opinion of the court. It has been prepared by court staff for the convenience of the reader.

cumulatively, the panel that plaintiffs' allegations did not amount to the "something more" required to make their claims plausible.

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### COUNSEL

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Harrison (Buzz) Frahn, Simpson Thacher & Bartlett LLP, Palo Alto, California; Abram Ellis and Jonathan D. Porter, Simpson Thacher & Bartlett LLP, Washington, D.C.; for Defendants-Appellees Micron Technology, Inc.; and Micron Semiconductor Products, Inc.

Nathan P. Eimer, Vanessa G. Jacobsen, and Brian Y. Chang, Eimer Stahl LLP, Chicago, Illinois, for Defendants-Appellees SK Hynix, Inc.; and SK Hynix America, Inc.

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## OPINION

BENCIVENGO, District Judge:

The standard for surviving a motion to dismiss under Rule 12(b)(6) is a familiar one: a complaint must contain sufficient factual matter, accepted as true, to state a claim to relief that is plausible on its face. *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009) (quoting *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 570 (2007)). However, for plaintiffs bringing a claim under Section 1 of the Sherman Act—particularly those relying on evidence of parallel business conduct to establish a conspiracy—stating a plausible claim requires something more. Such plaintiffs must plead “some further factual enhancement” that places their allegations of parallel conduct in a context suggesting a preceding agreement. *See Twombly*, 550 U.S. at 557.

Plaintiffs ask us to infer that Defendants, three of the largest global manufacturers of dynamic random access memory (“DRAM”), conspired to coordinate their actions when they contemporaneously reduced their DRAM production in 2016. Plaintiffs base their theory on Defendants’ parallel business conduct and various “plus factor” allegations that they claim further suggest a preceding agreement. While both parties’ explanations for Defendants’ actions are conceivable, Plaintiffs do not allege additional facts that push their theory over “the line between possibility and plausibility.” *Id.* Because Plaintiffs’ allegations do not amount to the “something more” required by our precedent to make their claims plausible, we affirm the judgment of the district court dismissing Plaintiffs’ amended complaint.

## I. Background

DRAM is a type of semiconductor memory widely used to store data in digital electronic devices. Defendants Micron Technology, Inc. and Micron Semiconductor Products, Inc. (together, “Micron”), Samsung Electronics Co., Ltd. and Samsung Semiconductor, Inc. (together, “Samsung”), and SK Hynix, Inc. and SK Hynix America, Inc. (together, “SK Hynix”) (collectively, “Defendants”) manufacture and sell DRAM to original equipment manufacturers (“OEMs”), who then incorporate that DRAM into various electronic devices. At all relevant times, Defendants collectively controlled approximately 96% of the global DRAM market, with Samsung holding approximately one-half market share and Micron and SK Hynix each holding approximately one quarter.

Prior to 2016, Defendants competed vigorously to grow their DRAM supply and capture market share, which led to oversupply in the market and declining DRAM prices. In late 2015, Samsung unilaterally attempted to stop this price erosion by stockpiling DRAM to reduce market supply, but its new strategy was unsuccessful and DRAM prices continued to decline. In the third quarter of 2016, Samsung again unilaterally reduced its DRAM output. However, this time Micron and SK Hynix followed suit by cutting their own DRAM production rates the following quarter.

Between June 2016 and December 2017, Defendants continued to increase their DRAM production, but at a rate lower than the increase in demand during that period. Defendants also made various public statements reiterating that they would restrict their DRAM supply growth in line with other industry participants. As a result of Defendants’ constraints on supply, DRAM prices soared and Defendants earned record-high revenues.

In December 2017, China’s antitrust enforcement agency, the National Development and Reform Commission (“NDRC”), announced that it was investigating increased DRAM prices and possible coordinated action among Defendants. On February 1, 2018, it was reported that the NDRC and Samsung signed a Memorandum of Understanding that would moderate DRAM prices, signaling the end of the class period. Throughout the remainder of 2018, Defendants began to increase their DRAM production rate and DRAM prices subsequently fell.

Appellants Indirect Purchaser Plaintiffs (“Plaintiffs”) are a putative class of consumers who purchased electronic devices containing DRAM (“DRAM Devices”) from OEMs or resellers between June 1, 2016 and February 1, 2018. Plaintiffs allege that they overpaid for their DRAM Devices because Defendants’ anticompetitive conduct resulted in supracompetitive DRAM pricing, which was passed on through the distribution chain to consumers.

Plaintiffs’ amended class action complaint asserts claims under Section 1 of the Sherman Act, California’s Cartwright Act, and the laws of six states relating to antitrust, consumer protection, and unfair competition. Defendants moved to dismiss the amended complaint under Federal Rule of Civil Procedure 12(b)(6) for failure to state a conspiracy claim. The district court dismissed Plaintiffs’ claims brought under the Sherman Act, the Cartwright Act, and California’s and Florida’s unfair competition laws with prejudice, finding that Plaintiffs’ allegations failed to raise a reasonable inference of conspiracy. The district court allowed Plaintiffs’ remaining state law claims for antitrust violations to proceed.

The parties later requested entry of judgment on the remaining state law claims, arguing that the district court’s finding that Plaintiffs failed to plead a conspiracy disposed of those claims as well. The district court agreed, entering judgment in favor of Defendants and against Plaintiffs on all remaining claims. Plaintiffs timely filed this appeal.

## II. Discussion

We exercise appellate jurisdiction under 28 U.S.C. § 1291. We review *de novo* the district court’s dismissal of a complaint for failure to state a claim under Rule 12(b)(6). *Dougherty v. City of Covina*, 654 F.3d 892, 897 (9th Cir. 2011). In conducting this review, we accept all nonconclusory facts alleged in the complaint as true and determine whether those allegations “plausibly give rise to an entitlement to relief.” *Iqbal*, 556 U.S. at 679.

Section 1 of the Sherman Act prohibits “[e]very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations.” 15 U.S.C. § 1. To state a claim under Section 1, a plaintiff must allege facts showing “(1) a contract, combination or conspiracy among two or more persons or distinct business entities; (2) by which the persons or entities intended to harm or restrain trade or commerce . . . ; (3) which actually injures competition.” *Kendall v. Visa U.S.A., Inc.*, 518 F.3d 1042, 1047 (9th Cir. 2008). The “crucial question” prompting Section 1 liability is “whether the challenged anticompetitive conduct ‘stems from [lawful] independent decision or from an agreement, tacit or express.’” *Twombly*, 550 U.S. at 553 (quoting *Theatre Enter., Inc. v. Paramount Film Distrib. Corp.*, 346 U.S. 537, 540 (1954)). Therefore, a claim brought under Section 1 must contain sufficient factual matter, taken as true, to

plausibly suggest that an illegal agreement was made. *Id.* at 556.

Plaintiffs relying on allegations of parallel conduct to establish a Section 1 claim face an additional burden when defending against Rule 12(b)(6) motions. Generally, when a plaintiff alleges facts consistent with both the plaintiff's and the defendant's explanation, and both explanations are plausible, the plaintiff survives a motion to dismiss under Rule 12(b)(6). *See Starr v. Baca*, 652 F.3d 1202, 1216 (9th Cir. 2011). However, in the antitrust context, allegations of conspiracy often arise from parallel conduct among business competitors "that could just as well be [lawful] independent action." *Twombly*, 550 U.S. at 557. Therefore, to state a plausible Section 1 claim, plaintiffs must include additional factual allegations that place that parallel conduct in a context suggesting a preceding agreement. *Id.* In other words, plaintiffs must allege something more than conduct merely consistent with agreement in order to "nudge[] their claims across the line from conceivable to plausible." *Id.* at 570. This higher standard is warranted by practical considerations in antitrust cases, where proceeding to discovery "frequently causes substantial expenditures and gives the plaintiff the opportunity to extort large settlements even where he does not have much of a case." *Kendall*, 518 F.3d at 1047.

### **A. Parallel Conduct**

Plaintiffs purport to establish an unlawful conspiracy by alleging parallel business conduct among Defendants and additional plus factors discussed below. The district court found that Plaintiffs adequately established parallel conduct by alleging that Defendants contemporaneously restricted their DRAM production during the class period, and neither party disputes this finding on appeal. Rather, the parties

focus on whether the amended complaint alleges sufficient plus factors to plausibly suggest that Defendants' parallel conduct arose from an agreement rather than independently.

## **B. Plus Factors**

In the absence of direct evidence of an agreement, certain plus factors may elevate allegations of parallel conduct to plausibly suggest the existence of a conspiracy. *See In re Musical Instr. and Equip. Antitrust Litig.*, 798 F.3d 1186, 1194 (9th Cir. 2015). Plus factors are often “economic actions and outcomes that are largely inconsistent with unilateral conduct but largely consistent with explicitly coordinated action.” *Id.* Under the *Twombly* standard, plus factors serve as the “something more” to place parallel conduct “in a context that raises a suggestion of a preceding agreement.” *Twombly*, 550 U.S. at 557.

Plaintiffs identify eight plus factors that they contend place Defendants' parallel conduct in a context suggesting conspiracy: (1) price signaling; (2) complex, simultaneous, and historically unprecedented decreases in capital investment; (3) supply cuts against Defendants' self-interest; (4) public statements encouraging supply cuts; (5) changed conduct between the start and end of the class period; (6) information exchanges between Defendants regarding future supply and demand; (7) high market concentration; and (8) prior criminal convictions for price fixing.<sup>1</sup> The district court found that these allegations suggest Defendants' conduct arose not from agreement, but rather

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<sup>1</sup> At oral argument, Plaintiffs identified four of these purported plus factors—the second through fifth factors listed here—as being most indicative of conspiracy.

from lawful conscious parallelism.<sup>2</sup> We consider each purported plus factor in turn and cumulatively to determine whether Plaintiffs' allegations amount to stating a plausible claim under Section 1.

### 1. Price Signaling

Plaintiffs allege that in early 2016, Samsung attempted to signal to the other Defendants that it was raising its prices on DRAM. Plaintiffs claim that a Samsung executive instructed another executive to leak that Samsung was raising DRAM prices, intending that Samsung's competitors would learn of its plan and follow suit. Plaintiffs allege that the information was leaked to an industry analyst, and DRAM prices began to rise shortly thereafter.

Plaintiffs' price signaling allegations do not support a plausible inference of conspiracy. Plaintiffs claim that Defendants conspired to restrict their DRAM supply growth (with the eventual effect of higher DRAM prices), not to increase DRAM prices. Leaked information about raising prices does not reasonably signal to competitors to reduce DRAM production. Moreover, Plaintiffs do not allege that Micron or SK Hynix saw Samsung's leaked information and acted on it. Only concerted activity is actionable under Section 1. 15 U.S.C. § 1. Thus, even if Samsung intended to signal the other Defendants to raise prices, Samsung's unilateral action does not suggest a conspiracy under the Sherman Act.

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<sup>2</sup> Conscious parallelism occurs when two or more firms in a concentrated, interdependent market base their actions in part on the anticipated reactions of their competitors, and thus "arrive at identical decisions independently, as they are cognizant of—and reacting to—similar market pressures." *Musical Instr.*, 798 F.3d at 1193.

## 2. Contemporaneous Decreases in Capital Investment

“[C]omplex and historically unprecedented changes in pricing structure made at the very same time by multiple competitors, and made for no other discernible reason . . . support a plausible inference of conspiracy.” *Twombly*, 550 U.S. at 556 n.4. Plaintiffs contend that this plus factor is met because Defendants reduced their capital expenditures (“capex”) toward DRAM supply growth within a few months of each other, which was unprecedented amidst high profitability in the industry. Specifically, Plaintiffs allege that in April 2016, first Samsung and then SK Hynix stated on quarterly earnings calls that industry capex would decline that year. The following month, Micron’s CEO stated that news of competitors’ decreased capex was “relatively encouraging” and that he expected “slowing bit growth” in the industry, implying that Micron, too, would decrease its DRAM capex.

Defendants’ alleged actions are more consistent with conscious parallelism than with the plus factor recognized by the *Twombly* court. SK Hynix and Micron’s capex cuts following Samsung’s announcement align with a “follow the leader” theory of conscious parallelism,<sup>3</sup> as they could have independently and rationally reached the same decision to follow market leader Samsung. We have recognized that “[e]ven assuming that the progressive adoption of similar policies across an industry constitutes simultaneity, that fact

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<sup>3</sup> Under a “follow the leader” theory, if one firm in an interdependent market makes a risky business move and its competitors follow, all firms will benefit and “supracompetitive prices and other anticompetitive practices, once initiated, can spread through a market without any prior agreement.” *Musical Instr.*, 798 F.3d at 1195.

does not reveal anything more than similar reaction to similar pressures within an interdependent market, or conscious parallelism.” *Musical Instr.*, 798 F.3d at 1196. Thus, Plaintiffs have not established that Defendants’ capex changes were “made for no other discernible reason” than collusion. *Twombly*, 550 U.S. at 556 n.4.

Nor have Plaintiffs plausibly alleged that Defendants’ capex changes were “complex” or “historically unprecedented.” *See id.* Plaintiffs provide no evidence showing that capex reductions were complex for Defendants to implement. The amended complaint only includes statements from Samsung and SK Hynix indicating that *increasing* DRAM supply would be difficult. Further, while Plaintiffs contend that Samsung and SK Hynix’s capex cuts were unprecedented because the industry was highly profitable at the time, this argument is contradicted by their allegation that DRAM prices “declined steadily and precipitously” until May 2016.

Plaintiffs’ allegations reflect that Defendants reduced their capex toward DRAM supply growth independently in response to market pressures, and Plaintiffs point to nothing about these reductions suggesting a preceding agreement. This purported plus factor is more suggestive of lawful conscious parallelism than conspiracy.

### **3. Supply Cuts Against Self Interest**

Next, Plaintiffs allege that Defendants’ supply cuts were “so perilous in the absence of advance agreement that no reasonable firm would make the challenged move without such an agreement,” which we have previously recognized as a plus factor. *Musical Instr.*, 798 F.3d at 1195. Plaintiffs claim that Samsung’s unilateral production cuts in the third quarter of 2016 “would have been irrational without

knowledge that [Samsung’s] rivals would . . . also decrease output.” By restricting its production, Samsung allegedly lost \$47 million in immediate profits and five percent of total market share. Plaintiffs also allege that Micron and SK Hynix’s subsequent production cuts were against their self-interest, “as they would have gained market share and significant profits” if they had maintained or increased their output following Samsung’s announcement. Plaintiffs state that “Micron and [SK] Hynix sacrificed respectively \$30 million and \$27 million in lost profits by failing to maintain their output growth rate.”

The plausibility of Plaintiffs’ theory is undercut by other allegations in the amended complaint. First, Plaintiffs allege that Samsung unilaterally—without prior agreement—first restricted its market supply in late 2015. Although this attempt to stop price erosion was unsuccessful, Samsung still remained the DRAM market leader, showing that restraining supply without an agreement was not as perilous as Plaintiffs claim. Second, Plaintiffs allege that Samsung again unilaterally restricted supply growth in the third quarter of 2016, but Micron and SK Hynix did not follow suit until the next quarter. The timing of Micron and SK Hynix’s actions are more indicative of the “follow the leader” theory than an advance agreement to restrain production simultaneously. *See Musical Instr.*, 798 F.3d at 1195. Micron’s CEO’s comment that it would be “foolish [for Micron] to be the first ones to take capacity off” further reflects that as a non-leader in the industry, it would be economically wise for Micron to follow the market leader’s actions.

Moreover, while Plaintiffs claim that it would have been in Micron and SK Hynix’s best interest to capture Samsung’s lost market share, it was also economically rational for the two smaller manufacturers to follow

Samsung's lead and focus on profitability. Prior to the class period, Defendants' vigorous competition on market share had caused DRAM supply to exceed demand and prices to decline, affecting all Defendants' profitability. However, once Samsung lowered its DRAM production and the other Defendants followed suit, market demand for DRAM exceeded its growth rate. As a result, Plaintiffs allege that DRAM prices increased and Defendants' revenue from DRAM sales "skyrocketed" to record-high levels.

The amended complaint also includes statements from industry analysts that reflect the economic rationality of production cuts. For example, in March 2016, an analyst asked Micron's CEO: "Pricing is going to continue to be weak until Micron and the DRAM industry overall cuts production. So . . . what will it take for that to happen?" Similarly, in June 2016, an analyst from Deutsche Bank reported that they were "encouraged" by Defendants' strategy of decreasing DRAM capex and emphasizing the "importance of profitability."

Plaintiffs have not established that Defendants' supply cuts were the "extreme action against self-interest" contemplated by this circuit as a plus factor. *See Musical Instr.*, 798 F.3d at 1195. Rather, Plaintiffs' allegations demonstrate that it was economically rational for Samsung to reduce its supply growth below demand levels and for Micron and SK Hynix to maintain production commensurate with the market leader. Without some further factual allegations to suggest a preceding agreement, this purported plus factor does not plausibly support a conspiracy claim.

#### 4. Public Statements Encouraging Supply Cuts

Plaintiffs next allege that Defendants made various public statements throughout the class period encouraging each other to restrain DRAM supply and reassuring each other following supply cuts. Plaintiffs first characterize Micron’s statement on March 30, 2016, that it would “be foolish [for Micron] to be the first ones to take capacity off” as inviting the other Defendants to cut production, coupled with a “clear reassurance that Micron would not try to take DRAM market share” if they did. Plaintiffs allege that both Samsung and SK Hynix responded to this invitation within a month when they publicly stated that they would decrease their DRAM capex in 2016. Plaintiffs also point to various other statements made by Defendants—mostly during investor calls, presentations to industry groups, and/or in response to investor and analyst questions—regarding market predictions and strategies as support for this claimed plus factor.

Defendants’ statements reproduced in the amended complaint are largely consistent with unilateral conduct in an interdependent market. If no conspiracy existed, Defendants would likely make the same public statements about their observations, predictions, and strategies for the future, particularly in response to investor and analyst questions. For example, Micron’s March 2016 statement that it would “be foolish [for Micron] to be the first ones to take capacity off” was made in response to an analyst’s question about the possibility of supply cuts in the DRAM industry.<sup>4</sup>

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<sup>4</sup> Micron’s CEO’s statements were made in response to an investor analyst who asked, “Pricing is going to continue to be weak until Micron

Plaintiffs allege that Micron’s statements in May and June 2017 about the benefits of exercising “capital discipline” were intended to encourage its competitors to continue restraining production. However, Plaintiffs point to nothing suggesting that Samsung or SK Hynix were influenced by Micron’s praise. In January 2016—long before Micron’s statements at issue—Samsung stated that it would grow its supply “at market growth levels” and that its main focus for the year would be “on profitability rather than increasing volume.” Samsung reiterated its intent to follow this approach in late 2016 and throughout 2017.<sup>5</sup> Samsung’s supply reductions were thus consistent with its unilateral statements of intent made both before and after Micron’s alleged invitation. As for SK Hynix, Plaintiffs merely allege that SK Hynix made a general observation following Samsung’s announcement regarding capex reductions that “DRAM suppliers’ capex execution is projected to decrease” in 2016. SK Hynix then commented in January 2017 that it was “planning for a DRAM bit shipment growth that [was] on par with the market for this year.” These statements are consistent with participants in an oligopolistic market employing similar strategies in reaction to the same market events. *See Musical Instr.*, 798 F.3d at 1196.

Defendants’ public statements are largely consistent with independent business conduct in a concentrated market,

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and the DRAM industry overall cuts production. So . . . what will it take for that to happen?”

<sup>5</sup> For example, Plaintiffs allege that on October 27, 2016, Samsung executive Sewon Chun stated on a quarterly earnings call: “[W]e are expecting our growth rates to come down and be in line with market bit growth in DRAM next year. . . . Once again, as we have always mentioned, regarding DRAM, our focus is not to increase our market share but to maximize our profits.”

and Plaintiffs have not alleged facts suggesting otherwise. This plus factor does not support a plausible inference of conspiracy.

### **5. Changed Conduct from Start to End of Conspiracy Period**

Plaintiffs' fifth purported plus factor claims that Defendants' conduct changed between the start and end of the alleged conspiracy. Plaintiffs allege that before the class period, Defendants engaged in "vigorous supply and price competition," but during the class period they began coordinating their actions and limiting market supply. Plaintiffs also assert that Micron repeatedly predicted that DRAM supply and growth rates would be about equal in 2015, but began forecasting lower supply than demand in 2016. Finally, Plaintiffs claim that DRAM prices drastically increased once Defendants began coordinating their supply decisions, but increases "abruptly stopped in early 2018" after the NDRC announced that it reached an agreement with Samsung.

Plaintiffs' allegations regarding Defendants' behavior at the start of the class period are consistent with conscious parallelism in an interdependent market. Samsung unilaterally announced its intent to stop competing on market share and begin focusing on profitability prior to the class period. Samsung then publicly reaffirmed its intent to focus on profitability over supply growth throughout the next two years. The other Defendants, as smaller players in the DRAM market, followed Samsung's lead and stopped competing on market share. Micron's comments regarding DRAM market conditions only reflect this industry-wide change in strategy.

Defendants' alleged change in conduct at the end of the class period is also consistent with conscious parallelism. Plaintiffs claim that in February 2018, Samsung agreed to increase its DRAM manufacturing capacity as part of its agreement with the NDRC. Two months later, SK Hynix announced that it was adding six to seven percent wafer capacity per year to meet demand, and in November 2018, a third-party firm reported that the "DRAM market has just entered oversupply." While Defendants' change in conduct could conceivably have resulted from the NDRC uncovering a conspiracy, it is also consistent with Samsung increasing its DRAM production either for some business reason or as required by its agreement with the NDRC, and the other Defendants again following suit. Mere speculation is not enough to move Plaintiffs' theory of preceding agreement from conceivable to plausible. This purported plus factor, standing alone, is insufficient to establish a plausible conspiracy.

## **6. Information Exchanges Regarding Supply and Demand**

Plaintiffs next allege that Defendants had two opportunities to exchange information regarding their supply plans: first through their participation in the same trade associations, and second through communications with third-party research firms that produced industry trend reports. Plaintiffs claim that Defendants each sent leadership teams to trade organization meetings several times a year, which "provided an ideal setting for Defendants to discuss future business plans." Plaintiffs also allege that third-party research firms interviewed Defendants' employees to prepare their industry reports, which were read by SK Hynix and presumably the other Defendants.

Plaintiffs do not allege facts demonstrating that Defendants actually communicated or exchanged information at these trade association meetings, much less that they entered an agreement to coordinate supply decisions while there. Further, we have recognized that “trade associations often serve legitimate functions,” and courts are reluctant to infer conspiracy from “[g]athering information about pricing and competition in the industry” at such meetings. *In re Citric Acid Litig.*, 191 F.3d 1090, 1098 (9th Cir. 1999). As for the research firms, Plaintiffs have not alleged that Defendants had any control over what was included in their industry reports or that the other Defendants read them. Accordingly, this plus factor does not support a plausible inference of conspiracy.

## 7. High Market Concentration

Next, Plaintiffs claim that the structure of the DRAM market makes it conducive to conspiracy. Plaintiffs assert that the DRAM market is highly concentrated with high barriers to entry, which makes collusive agreements “easier to implement and sustain when there are only a few firms controlling a large portion of the market.”

Extreme market concentration may suggest conspiracy, particularly when accompanied by other plausible plus factor allegations. *See Musical Instr.*, 798 F.3d at 1197 n.14 (noting that conspiracy was plausible where top players in highly concentrated market implemented identical and complex pricing structures simultaneously). However, extreme market concentration also makes conscious parallel behavior more likely, as firms are “cognizant of—and reacting to—similar market pressures.” *Id.* at 1193. On balance, this factual allegation is consistent with both parties’ explanations. Because “allegations that are merely consistent with conspiracy are not enough,” Plaintiffs must

allege some factual support in addition to the DRAM market's structure to plausibly suggest conspiracy. *Id.* at 1197 n.13 (citing *Twombly*, 550 U.S. at 557).

## 8. Historic Price Fixing Behavior

Finally, Plaintiffs point to Defendants' prior criminal convictions for price fixing as "context that raises a suggestion of a preceding agreement." *Twombly*, 550 U.S. at 557. Plaintiffs allege that Defendants and other DRAM manufacturers held a meeting in fall 2001 where they each agreed to reduce their DRAM production in order to raise prices. In 2005, the Department of Justice brought criminal charges against Defendants for participating in the price fixing conspiracy, resulting in guilty pleas, custodial time, and large criminal fines for Samsung and SK Hynix. Plaintiffs also claim that "many of the same executives involved in the prior conspiracy continue to hold senior positions" at Defendants' companies.<sup>6</sup>

District courts in this circuit have found prior conspiracy convictions to support an inference of subsequent conspiracy, particularly when the prior conspiracy and the alleged subsequent conspiracy have factual overlap or involve the same actors. *See In re Flash Memory Antitrust Litig.*, 643 F. Supp. 2d 1133, 1149 (N.D. Cal. 2009); *see also In re SRAM Antitrust Litig.*, 580 F. Supp. 2d 896, 903 (N.D. Cal. 2008). While the prior conspiracy among Defendants occurred approximately twenty years ago, the present allegations involve the same alleged coordination and actors.

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<sup>6</sup> Plaintiffs identify three SK Hynix employees and one Micron employee who were involved in the 2001 price fixing scheme and were still employed by their respective employers during the class period.

Accordingly, this plus factor circumstantially supports Plaintiffs' theory.

### **C. Holistic Analysis of Plaintiffs' Allegations**

Plaintiffs' proffered plus factors must be evaluated holistically to determine whether they state a conspiracy claim. *See Cont'l Ore Co. v. Union Carbide & Carbon Corp.*, 370 U.S. 690, 699 (1962) ("The character and effect of a conspiracy are not to be judged by dismembering it and viewing its separate parts, but only by looking at it as a whole."). While the factual overlap between Defendants' prior criminal conduct and the present allegations supports Plaintiffs' theory, the totality of Plaintiffs' allegations does not suggest anything more than conscious parallelism. The four plus factors that Plaintiffs contend are most indicative of conspiracy—simultaneous capex decreases, "perilous" supply cuts, public statements about the market forecast, and changed conduct between 2016 and 2018—are all consistent with Defendants, as competitors in a highly concentrated market, reacting to the same market pressures and taking parallel action to serve their interests. Plaintiffs' remaining allegations regarding price signaling, information exchanges, and the DRAM market structure do not provide convincing support for their claims for the reasons discussed above.

We recognize that “circumstantial evidence is the lifeblood of antitrust law.” *United States v. Falstaff Brewing Corp.*, 410 U.S. 526, 534 n.13 (1973). Plaintiffs bringing a claim under Section 1 often must rely on such circumstantial evidence of parallel conduct and plus factors to sustain a case past the pleading stage. Nevertheless, a single plausible plus factor allegation that weakly tips in the plaintiffs’ favor, without some further factual support, is not enough to open the floodgates to discovery in antitrust cases. *See Twombly*, 550 U.S. at 559 (“[I]t is only by taking care to require allegations that reach the level suggesting conspiracy that we can hope to avoid the potentially enormous expense of discovery in cases with no ‘reasonably founded hope that the [discovery] process will reveal relevant evidence’ to support a § 1 claim.”) (quoting *Dura Pharm., Inc. v. Broudo*, 544 U.S. 336, 347 (2005)).

Plaintiffs’ allegations of parallel conduct that could just as well be independent action, combined with Defendants’ criminal history from twenty years ago, do not provide a context suggesting unlawful agreement. *See id.* at 557. Rather, Defendants’ actions are “more likely explained by lawful, unchoreographed free-market behavior” in a concentrated industry. *Iqbal*, 556 U.S. at 680 (citing *Twombly*, 550 U.S. at 567). Accordingly, Plaintiffs fail to state a plausible claim under Section 1 based on a conspiracy to coordinate DRAM supply decisions.

### **III. Conclusion**

Plaintiffs’ factual allegations do not amount to the “something more” required to support a plausible inference of conspiracy. Dismissal of Plaintiffs’ claims premised on

an alleged agreement between Defendants was therefore proper.<sup>7</sup>

**AFFIRMED.**

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<sup>7</sup> Plaintiffs' remaining state law claims were not raised in this appeal and thus are not reviewed here. *See Greenwood v. F.A.A.*, 28 F.3d 971, 977 (9th Cir. 1994) ("We review only issues which are argued specifically and distinctly in a party's opening brief."). Nevertheless, Plaintiffs' claims brought under California's Cartwright Act, Unfair Competition Law, and the antitrust laws of five other states are all premised upon the existence of an antitrust conspiracy, and therefore rise and fall with the Sherman Act claim. Accordingly, the district court properly dismissed Plaintiffs' remaining claims for failure to plead an antitrust conspiracy.