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United States Court of Appeals
Tenth Circuit

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Elisabeth A. Shumaker
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PUBLISH

UNITED STATES COURT OF APPEALS

TENTH CIRCUIT

IN RE: URETHANE ANTITRUST LITIGATION.

DOW CHEMICAL COMPANY,

Appellant,

v.

SEEGOTT HOLDINGS, INC.; INDUSTRIAL POLYMERS, INC.; QUABAUG CORPORATION, (Class Plaintiffs),

Appellees,

and

CHAMBER OF COMMERCE OF THE UNITED STATES and AMERICAN INDEPENDENT BUSINESS ALLIANCE,

Amici Curiae.

No. 13-3215

Appeal from the United States District Court
for the District of Kansas
(D.C. No. 04-MD-01616-JWL-JPO)

Carter G. Phillips, Sidley Austin LLP, Washington, D.C. (Joseph R. Guerra, C. Frederick Beckner III, Kathleen Moriarty Mueller, Jeffrey S. Beelaert, Sidley Austin LLP, Washington, D.C.; and Charles J. Kalil, General Counsel, the Dow Chemical Company, Duncan A. Stuart, Associate General Counsel, the Dow Chemical Company, Midland, MI, on the briefs) for Defendant-Appellant.

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Kathryn Comerford Todd, Tyler R. Green, National Chamber Litigation Center, Inc., Washington, D.C.; Jeffrey L. Kessler, George E. Mastoris, Winston & Strawn LLP, New York, NY; and Gene C. Schaerr, Robert F. Ruyak, William A. Roach, Jr., Winston & Strawn LLP, Washington, D.C., filed an Amicus Curiae brief for the Chamber of Commerce of the United States.

Jonathan D. Selbin, Jason L. Lichtman, Lief Cabraser Heimann & Bernstein, LLP, New York, NY; Jordan Elias, Lief Cabraser Heimann & Bernstein, LLP, San Francisco, CA; and Ian J. McLoughlin, Rachel M. Brown, Shapiro Haber & Urmy, LLP, Boston, MA, filed an Amicus Curiae brief for the American Independent Business Alliance.

Before **LUCERO**, **MURPHY**, and **BACHARACH**, Circuit Judges.

BACHARACH, Circuit Judge.

This antitrust class action stems from an allegation that Dow Chemical Company conspired with competitors to fix prices for polyurethane chemical products. Over

Dow's objection, the district court certified a plaintiff class including all industrial purchasers of polyurethane products during the alleged conspiracy period. The action went to trial, and the jury returned a verdict against Dow. The district court entered judgment for the plaintiffs, denying Dow's motions for decertification of the class and judgment as a matter of law.

Dow appeals, raising four arguments:

- First, Dow contends that class certification was improper because common questions did not predominate over individualized questions. We reject this contention. The district court decided that common questions predominated because: (1) the existence of a conspiracy and impact raised common questions, and (2) these common liability-related questions predominated over individualized questions regarding the extent of each class member's damages. This decision fell within the district court's discretion. Thus, we reject Dow's challenge to class certification.

- Second, Dow argues that the district court should have excluded the testimony of the plaintiffs' expert witness on statistics. According to Dow, the impact and damages models were unreliable because the expert witness inappropriately selected variables and benchmark years based on what would yield the greatest damages. We disagree. The district court acted within its discretion in allowing the testimony, and Dow's arguments relate to the weight of the expert's testimony, not admissibility.

- Third, Dow challenges the sufficiency of the evidence regarding liability. Viewing the evidence in the light most favorable to the plaintiffs, as we must, we conclude that the evidence sufficed on liability.

- Fourth, Dow asserts that the damages award lacked an evidentiary basis and that the resulting judgment violated the Seventh Amendment. These arguments are invalid.

  The award of $400,049,039 was supported by the evidence. Dr. McClave calculated even greater damages ($496,680,486), and the jury had an evidentiary basis for reducing this figure to $400,049,039.

In allocating this award, the court did not violate the Seventh Amendment; and Dow has no interest in the method of distributing the aggregate damages award among the class members.

I. The Polyurethane Market

This appeal involves four categories of urethane chemical products: (1) polyether polyols; (2) toluene diisocyanate (TDI); (3) methylene diphenyl diisocyanate (MDI); and (4) polyurethane systems.[1] These products—collectively, "polyurethanes"—are used in various consumer and industrial components such as mattress foams, insulation, sealants, and footwear.

The polyurethane market comprises a "myriad of products, pricing structures, individualized negotiations, and contracts." AA 413. Buyers negotiate individually with manufacturers regarding price and other terms, sometimes entering into long-term contracts and other times purchasing on a "spot" basis. The price depends on multiple factors, including supply and demand, the balance of bargaining power between the buyer and manufacturer, and the availability of a substitute product to meet the buyer's needs. Apart from price, buyers can negotiate on other terms, such as rebates, most-favored-nation clauses, early payment discounts, and protection from future price hikes.

Prices are set in some of the contracts, but not in others. When there is no set price, a contract typically requires the manufacturer to give the buyer advance notice of price increases. Accordingly, price increases are announced by letter 30 to 45 days in

[1] The litigation initially involved another category of urethane products—polyester polyols—but those defendants settled.

advance. But these announcements did not always result in actual price increases. For example, buyers sometimes avoided price hikes by negotiating with the supplier.

II. The Price-Fixing Claim

The plaintiffs are industrial purchasers of polyurethane products who sued under the Sherman Antitrust Act, 15 U.S.C. § 1, and the Clayton Antitrust Act, 15 U.S.C. § 15(a), alleging that a group of polyurethane manufacturers—Bayer AG, Bayer Corporation, Bayer Material Science, BASF Corporation, Huntsman International LLC, Lyondell Chemical Company, and Dow Chemical Company—conspired to fix prices and allocate customers and markets from January 1, 1999, to December 31, 2004. AA 369. As the case progressed, it underwent three significant changes. First, the plaintiffs settled with all defendants except for Dow. Second, the plaintiffs dropped their allocation theory, leaving the price-fixing theory as the sole basis of the lawsuit. Third, the plaintiffs chose to pursue a shorter conspiracy—one lasting from January 1, 1999, to December 31, 2003—than was initially alleged.

The price-fixing claim arises under § 1 of the Sherman Act, which "prohibits contracts and conspiracies that restrain trade." *Smalley & Co. v. Emerson & Cuming, Inc.*, 13 F.3d 366, 367 (10th Cir. 1993). For a § 1 violation, the class had to prove:

- the existence of an agreement or conspiracy
- among actual competitors
- that had the purpose or effect of raising, depressing, fixing, pegging, or stabilizing prices

- in interstate commerce.[2]

Cayman Exploration Corp. v. United Gas Pipe Line Co., 873 F.2d 1357, 1360 (10th Cir. 1989). Because the plaintiffs sought damages under § 4 of the Clayton Act, 15 U.S.C. § 15(a), they also had to prove antitrust injury, or "impact," which is "'an injury of the type the antitrust laws were intended to prevent and that flows from that which makes defendant's acts unlawful.'" *Elliott Indus. Ltd. v. BP Am. Prod. Co.*, 407 F.3d 1091, 1124 (10th Cir. 2005) (quoting *Reazin v. Blue Cross & Blue Shield of Kan., Inc.*, 899 F.2d 951, 962 n.15 (10th Cir. 1990)).

III. Certification of the Class

The plaintiffs moved for class certification under Rule 23(b)(3) of the Federal Rules of Civil Procedure. Dow opposed the motion, arguing that certification was improper because common questions did not predominate over individualized questions. The district court disagreed, holding that common questions predominated because the key elements of the price-fixing claim—the existence of a conspiracy and impact—involved common questions that were capable of class-wide proof.

The court rejected Dow's argument that the impact element caused individualized questions to predominate, relying in part on a report prepared by the plaintiffs' expert, Dr. John Beyer. Dr. Beyer examined the polyurethane industry and concluded that a price-fixing conspiracy for polyurethane products would affect all buyers. Crediting Dr.

[2] Dow stipulated to the interstate commerce element; accordingly, that issue was not submitted to the jury.

Beyer's report and his supporting models, the court determined that impact involved a common question susceptible to class-wide proof.

This determination was unaffected by the fact that prices were individually negotiated. The court reasoned that the industry's standardized pricing structure—reflected in product price lists and parallel price-increase announcements—"presumably establishe[d] an artificially inflated baseline" for negotiations. AA 410. Consequently, any impact resulting from a price-fixing conspiracy would have permeated all polyurethane transactions, causing market-wide impact despite individualized negotiations.

The court acknowledged that the determination of damages might be individualized. But the court concluded that:

- class certification was appropriate for resolution of "the more difficult, threshold liability issues," and
- if individualized questions were to overwhelm the damages issue, "'the more appropriate course of action would be to bifurcate a damages phase and/or decertify the class as to individualized damages determinations.'"

Id. at 413-14 (quoting *In re Urethane Antitrust Litig.*, 237 F.R.D. 440, 452 (D. Kan. 2006)).

IV. Dow's Motion to Exclude Expert Testimony

Before trial, Dow moved to exclude the testimony of Dr. James McClave, the plaintiffs' statistical expert. Dr. McClave used a multiple-regression analysis to develop models predicting prices that would have existed in a competitive market. He then

compared these prices to the actual prices during the conspiracy period, estimating overcharges of 15.6% for MDI, 14% for TDI, and 14.9% for polyether polyols. SA 6297. Using these overcharge estimates and sample data from roughly 50% of class sales, Dr. McClave extrapolated damages for the entire class and distilled the calculations into a damages model.[3]

Dr. McClave proposed to testify about these models, and Dow objected on grounds that he picked variables and the time period to get the result that he wanted.

First, Dow accused Dr. McClave of selecting variables based on whether they would produce supra-competitive prices for the conspiracy period. The district court rejected this argument, holding that Dr. McClave had "a basis, beyond statistical fit, rooted in general economic theory and particular documents" for selecting the variables that he did. AA 504. Thus, the court concluded that Dow's argument affected the weight of the testimony rather than its admissibility. *Id.*

Dow's second challenge involved Dr. McClave's decision to move 2004 from the conspiracy period to the competitive/benchmark period. According to Dow, Dr. McClave manipulated the benchmark to generate supra-competitive prices for the conspiracy period. The district court was unpersuaded, reasoning that: (1) Dr. McClave

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[3] Dr. McClave did not create a regression model for systems. Instead, he assumed that prices for systems increased proportionately with increases in the price of MDI, the basic chemical comprising the system. AA 1036, 2087-88. Estimating that MDI constituted approximately 74% of a system, Dr. McClave assumed that all systems were subject to an overcharge equal to 74% of the average overcharge for MDI, resulting in a 7.2% average overcharge for systems. *Id.* at 1036-40.

could have had legitimate reasons to modify the benchmark, and (2) Dow's argument was untimely.

V. The Trial, the Verdict, & the Post-Trial Rulings

At trial, the plaintiffs attempted to prove that Dow had conspired with competitors to fix prices for polyurethane products. The plaintiffs' theory was that the conspiracy had begun in January 1999, when the polyurethane market was depressed. In an effort to turn the industry around, executives allegedly coordinated "lockstep" price-increase announcements and agreed to try to make the price increases stick in individual contract negotiations.

The plaintiffs supported their theory with testimony from industry insiders, evidence that the defendants behaved collusively, evidence that the industry was susceptible to collusion, and evidence that prices exceeded a competitive level.

On the day before the trial was to begin, Dow moved to decertify the class.[4] Nonetheless, the trial proceeded, and the jury ultimately found that: (1) Dow had participated in a price-fixing conspiracy, (2) the conspiracy caused the plaintiffs to pay more for polyurethane products than they would have paid in a competitive market, (3) the injury did not precede November 24, 2000, and (4) the plaintiffs suffered damages of

[4] Dow did not include its motion in the appendix. Because the appeal involves the denial of the motion to decertify the class, Dow had an obligation to include the motion in the appendix. *See* 10th Cir. R. 10.3(D)(2), 30.1(A)(1). But we exercise our discretion to take judicial notice of the motion. *See Guttman v. Khalsa*, 669 F.3d 1101, 1127 n.5 (10th Cir. 2012).

$400,049,039. After trebling the damages and deducting the amounts paid by the settling defendants, the court entered judgment against Dow for $1,060,847,117.

The court then granted the plaintiffs' request to permit allocation of the award according to Dr. McClave's damages model, with a pro rata reduction to reflect the jury's award of a lesser amount. With this ruling, the court rejected the Seventh Amendment challenge, adding that Dow had no interest in the way damages were distributed among the class members.

Over a month after the trial ended, Dow renewed its motion to decertify the class. In its reply brief, Dow relied for the first time on the Supreme Court's then-recent opinion in *Comcast Corp. v. Behrend*, __ U.S. __, 133 S. Ct. 1426 (2013). Invoking *Comcast*, Dow argued that Dr. McClave's models had failed to supply a nexus between:

- the liability theory and
- the impact on class members.[5]

The court held that *Comcast* did not apply and declined to decertify the class.

VI. Dow's Arguments

Dow raises four challenges on appeal, which involve: (1) the certification of a class and refusal to order decertification, (2) the admission of Dr. McClave's testimony, (3) the sufficiency of the evidence, and (4) the damages award.

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[5] Dow raised this argument for the first time in a post-trial brief. The court characterized the argument as "arguably untimely," but addressed the merits "in light of the intervening Supreme Court decision and the fact that plaintiffs were given an opportunity to file a sur-reply addressing the *Comcast* opinion." AA 528.

VII. Certification & the Motion for Decertification

Dow challenges the orders certifying a class and declining to decertify the class. In evaluating these challenges, we review de novo whether the district court applied the correct legal standard. *Carpenter v. Boeing Co.*, 456 F.3d 1183, 1187 (10th Cir. 2006). If the proper standard was applied, we will reverse only for abuse of discretion. *Id.* An abuse of discretion occurs "when the district court bases its decision on either a clearly erroneous finding of fact or conclusion of law or by manifesting a clear error of judgment." *DG ex rel. Stricklin v. Devaughn*, 594 F.3d 1188, 1194 (10th Cir. 2010).

The class was certified under Rule 23(b)(3) of the Federal Rules of Civil Procedure, which requires "that the questions of law or fact common to class members predominate over any questions affecting only individual members." Fed. R. Civ. P. 23(b)(3). Dow maintains that common questions did not predominate and that the district court's contrary rulings run afoul of *Wal-Mart Stores, Inc. v. Dukes*, __ U.S. __, 131 S. Ct. 2541 (2011), and *Comcast Corp. v. Behrend*, __ U.S. __, 133 S. Ct. 1426 (2013).

A. Dow's *Wal-Mart* Arguments

Wal-Mart involved a gender-discrimination claim under Title VII. The plaintiffs, who were female employees, alleged that their supervisors had discriminated in decisions on pay and promotions. For the gender-discrimination claims, the district court certified a class of female employees. *See Wal-Mart*, 131 S. Ct. at 2549. The Ninth Circuit Court of Appeals upheld certification, reasoning that the evidence had raised a common question involving the reason for gender-based disparities on pay and promotion. *See id.*

The Supreme Court disagreed, concluding that the evidence did not show a company-wide policy of discrimination or "a common mode of exercising discretion that pervade[d] the entire company." *Id.* at 2553-55. Thus, there was no "glue" holding together the reasons for the alleged injury, and the district court could not resolve the individual claims "in one stroke." *Id.* at 2551-52. The Court emphasized that "[w]hat matters to class certification . . . is not the raising of common 'questions'—even in droves—but, rather the capacity of a classwide proceeding to generate common *answers* apt to drive the resolution of the litigation." *Id.* at 2551 (quoting Nagareda, *Class Certification in the Age of Aggregate Proof*, 84 N.Y.U. L. Rev. 97, 132 (2009)). The problem for the plaintiffs was that the common question (the reason for the pay and promotion disparities) was incapable of yielding a common answer. Therefore, individual trials were needed to resolve the claims.

The district court held that class-wide liability could be decided based on a sample of class members. *See id.* at 2560-61. This procedure was invalidated by the Supreme Court. *Id.* at 2561. Calling the procedure a "trial by formula," the Supreme Court reasoned that the determination of liability would violate Wal-Mart's right "to litigate its statutory defenses to individual claims." *Id.*

Dow contends that the certification here violated *Wal-Mart* in two ways: (1) by denying Dow the right to show in individualized proceedings that certain class members suffered no injury, and (2) by allowing the class to proceed on the basis of extrapolated impact and damages. We reject both contentions.

1. The Need for Individualized Proceedings

Dow argues that it was entitled to show in individualized proceedings that certain class members could not have been injured by the alleged conspiracy. To support this argument, Dow points to ways that the plaintiffs could have avoided the announced price increases, such as negotiating for a lower price or switching to a substitute product.

It is true that some of the plaintiffs may have successfully avoided damages. But Dow has not shown that the district court abused its discretion in finding that class-wide issues predominated over individualized issues.

The district court determined that common questions predominated because the key elements of the price-fixing claim—the existence of a conspiracy and impact—raised common questions that were capable of class-wide proof. Dow disagrees, contending that impact involved individualized questions because the class members experienced varying degrees of injury, with some avoiding injury altogether.

The district court did not abuse its discretion in determining that impact involved a common question that would override other individualized issues. Under the prevailing view, price-fixing affects all market participants, creating an inference of class-wide impact even when prices are individually negotiated. *E.g.*, *In re Linerboard Antitrust Litig.*, 305 F.3d 145, 151-52 (3d Cir. 2002);[6] *In re Foundry Resins Antitrust Litig.*, 242

[6] In *In re Linerboard Antitrust Litigation*, the Third Circuit Court of Appeals upheld class certification based in part on expert testimony by John Beyer, Ph.D. 305 F.3d at 153-54. There, Dr. Beyer testified that antitrust impact could be proven on a class-wide basis despite variations for particular products or customers. *See id.* This testimony was

F.R.D. 393, 409-10 (S.D. Ohio 2007).[7] The inference of class-wide impact is especially strong where, as here, there is evidence that the conspiracy artificially inflated the baseline for price negotiations. *See In re Rail Freight Fuel Surcharge Antitrust Litig.*, 287 F.R.D. 1, 61 (D.D.C. 2012) (holding that common proof could be used to prove injury by raising the starting point for negotiations), *vacated in part on other grounds*, 725 F.3d 244 (D.C. Cir. 2013); *In re Cardizem CD Antitrust Litig.*, 200 F.R.D. 326, 345-47 (E.D. Mich. 2001) (holding that injury was provable through class-wide evidence involving inflation of the baseline for individual negotiations); *In re Commercial Tissue Prods.*, 183 F.R.D. 589, 595 (N.D. Fla. 1998) (holding that impact of price-fixing was provable through class-wide evidence notwithstanding individualized negotiations for every distributor); *see also In re Scrap Metal Antitrust Litig.*, 527 F.3d 517, 535 (6th Cir. 2008) ("[E]ven where there are individual variations in damages, the requirements of Rule 23(b)(3) are satisfied if the plaintiffs can establish that the defendants conspired to interfere with the free-market pricing structure.").

The district judge certified a class based on the plaintiffs' evidence of an artificially inflated baseline, including parallel issuance of similar product price lists and

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among the evidence relied on by the district court and the appeals court. *Id.* Here, the district court relied on similar testimony by Dr. Beyer.

[7] In *In re Foundry Resins Antitrust Litigation*, the district court relied on Dr. Beyer's testimony in holding that impact could be proven through class-wide evidence notwithstanding the defendants' reliance on "individualized pricing negotiations" and "market competition between the [d]efendants themselves." 242 F.R.D. at 409-10.

price-increase announcements.[8] When the district judge denied the motion for decertification, he had the benefit of the trial testimony. At trial, some of Dow's witnesses acknowledged that price-increase announcements had affected the starting point for price negotiations. *See* SA 4095-4103, 4156-57 (testimony of Richard Beitel); *id.* at 3885-86 (testimony of Robert Wood).

The district judge could reasonably weigh the evidence and conclude that price-fixing would have affected the entire market, raising the baseline prices for all buyers. Based on the reasonableness of this finding, the judge had the discretion to treat impact as a common question that was capable of class-wide proof. *See Blades v. Monsanto Co.*, 400 F.3d 562, 566 (8th Cir. 2005) ("If the same evidence will suffice for each [class] member to make a prima facie showing, then it becomes a common question.").

The presence of individualized damages issues would not change this result. Class-wide proof is not required for all issues. Instead, Rule 23(b)(3) simply requires a showing that the questions common to the class predominate over individualized questions. *Amgen v. Conn. Ret. Plans & Trust Funds*, __ U.S. __, 133 S. Ct. 1184, 1196 (2013).

In price-fixing cases, courts have regarded the existence of a conspiracy as the overriding issue even when the market involves diversity in products, marketing, and

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[8] The appendices do not include the evidence submitted to the district court for or against class certification. But we exercise our discretion to take judicial notice of the evidence presented on the motion for certification. *See Guttman v. Khalsa*, 669 F.3d 1101, 1127 n.5 (10th Cir. 2012).

prices. *In re Flat Glass Antitrust Litig.*, 191 F.R.D. 472, 484-85 (W.D. Penn. 1999); *In re Alcoholic Beverages Litig.*, 95 F.R.D. 321, 327 (E.D.N.Y. 1982); *In re Fine Paper Antitrust Litig.*, 82 F.R.D. 143, 151-53 (E.D. Penn. 1979); *In re Folding Carton Antitrust Litig.*, 75 F.R.D. 727, 734 (N.D. Ill. 1977); *see also In re Scrap Metal Antitrust Litig.*, 527 F.3d 517, 535 (6th Cir. 2008) (stating that "'[p]redominance is a test readily met in certain cases alleging . . . violations of the antitrust laws,' because proof of the *conspiracy* is a common question that is thought to predominate over the other issues of the case" (citation omitted) (quoting *Amchem Prods., Inc. v. Windsor*, 521 U.S. 591, 625 (1997))). Therefore, the district court acted within its discretion by treating common issues (involving the existence of a conspiracy) as predominant over individualized issues (involving negotiated prices). *See Gold Strike Stamp Co. v. Christensen*, 436 F.2d 791, 796 (10th Cir. 1970) ("[W]here the question of basic liability [in antitrust cases] can be established readily by common issues, then it is apparent that the case is appropriate for class action [under Rule 23(b)(3)].").

With this determination, the district court acted within its discretion in certifying the class under Rule 23(b)(3), and nothing in *Wal-Mart* suggests an abuse of that discretion. In *Wal-Mart*, individualized proceedings were necessary because the common questions—the reasons for the pay and promotion disparities—could not yield a common answer "in one stroke." *Wal-Mart*, 131 S. Ct. at 2551-52.

Here, however, there were two common questions that could yield common answers at trial: the existence of a conspiracy and the existence of impact. The district

court reasonably concluded that these questions drove the litigation and generated common answers that determined liability in a single "stroke." *Id.*

2. The Use of Extrapolation Techniques

Dow contends that the district court violated *Wal-Mart* by allowing the plaintiffs to use extrapolations to prove class-wide impact and damages. This contention is based on the plaintiffs' reliance on Dr. McClave's regression models (used to show impact) and his extrapolation models (used to estimate damages). Dow complains that: (1) the use of these models violated *Wal-Mart*'s prohibition against "trial by formula," and (2) the models were defective because Dr. McClave did not use representative sampling. We reject both complaints.

When certifying the class, the district court relied on:

- the report and supporting models of Dr. Beyer, which Dow has not challenged on appeal, and
- the evidence of a standardized pricing structure, including price lists and parallel announcements of price increases.

The court did not even have Dr. McClave's models or any other sort of extrapolation evidence. Thus, the court could not have erred by relying on Dr. McClave's models when the class was initially certified.

But the plaintiffs did present Dr. McClave's models before the district court ruled on Dow's motion to decertify the class. For two reasons, we conclude that the court acted within its discretion when it denied the motion to decertify: (1) the motion was filed late, and (2) liability was not proven through a sampling of class members.

First, the court acted reasonably in determining that the motion was late. Dow waited until the day before trial to seek decertification even though it had received Dr. McClave's report 21 months earlier. The court reasonably held that decertification at that juncture would have prejudiced the plaintiffs, who had "prepared for a long and complex trial at great expense" and who would have found it "much more difficult to assert individual claims at [that] time." AA 523-24; *see Davis v. Avco Fin. Servs., Inc*., 739 F.2d 1057, 1062 (6th Cir. 1984) ("Despite the fact that as the case developed individual questions became more prominent *vis a vis* common questions of law and fact, there still were and are significant common questions such that we would not be justified in decertifying the class at this late date."), *overruled on other grounds by Pinter v. Dahl*, 486 U.S. 622, 649-50 & n.25 (1988).

Second, reliance on Dr. McClave's models did not result in a "trial by formula." The *Wal-Mart* Court used this term to describe a novel method of calculating damages, where the district court determined the merits of individual claims by extrapolating from a sample set of class members. *Wal-Mart*, 131 S. Ct. at 2561. This method proved problematic because it displaced the "established . . . procedure for trying pattern-or-practice cases" under Title VII and, in doing so, deprived Wal-Mart of the right "to litigate its statutory defenses to individual claims." *Id.*

Our circumstances are different. The plaintiffs did not seek to prove Dow's liability through extrapolation. Rather, Dow's liability as to each class member was proven through common evidence; extrapolation was used only to approximate damages.

Wal-Mart does not prohibit certification based on the use of extrapolation to calculate damages. *See Leyva v. Medline Indus., Inc.*, 716 F.3d 510, 514 (9th Cir. 2013).

Dow also complains that the models were defective because Dr. McClave did not use representative sampling. But Dow makes no attempt to:

- explain how the allegedly unrepresentative samples caused individualized questions to predominate, or
- tie its unrepresentative-sampling argument to an abuse of discretion by the district court.

We need not consider these issues, however, because Dow did not raise its present argument in the district court.[9] *See, e.g.*, *Walker v. Mather (In re Walker)*, 959 F.2d 894, 896 (10th Cir. 1992).

B. Dow's *Comcast* Argument

Comcast involved a class action based on the antitrust laws. The proposed class had alleged four theories of antitrust impact, three of which were rejected by the district court as incapable of class-wide proof. *See Comcast Corp. v. Behrend*, __ U.S. __, 133 S. Ct. 1426, 1430-31 (2013). The Supreme Court held that the class had not satisfied its burden of proving damages on a class-wide basis. *Id.* at 1434-35.

Class-wide damages were to be proven in *Comcast* solely through the testimony of Dr. McClave. The Court regarded Dr. McClave's model as defective because it had "assumed the validity of all four theories of antitrust impact initially advanced,"

[9] In its brief opposing class certification, Dow argued that systems purchases should be excluded from the class definition. But that argument differs fundamentally from the one Dow is now asserting.

including the three that had been rejected by the district court. *Id.* at 1434. Because the model measured aggregate damages for all of the initial theories, the plaintiffs had no way to prove class-wide damages. And without such proof, the Court concluded, individualized questions would "inevitably overwhelm questions common to the class." *Id.* at 1433.

Dow argues that Dr. McClave's model here suffers from the "precise flaw" that precluded certification in *Comcast:* a "failure to distinguish between the impact and damages attributable to the liability theory [that was] pursued at trial and another liability theory" that was not. Appellant's Opening Br. at 42 (emphasis removed). For the sake of argument, we can assume that Dow is correct.[10] But *Comcast* did not rest on the

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[10] This assumption is generous because Dr. McClave used different types of benchmarks in *Comcast* and the present action.

In *Comcast*, Dr. McClave created a benchmark by constructing a hypothetical market that would have existed in eighteen counties if the defendant had not engaged in four separate types of anticompetitive conduct. *See Comcast*, 133 S. Ct. at 1429 & n.1, 1431, 1434-35; *Behrend v. Comcast Corp.*, 655 F.3d 182, 205 (3d Cir. 2011), *rev'd*, __ U.S. __, 133 S. Ct. 1426 (2013); *Behrend*, 655 F.3d at 217-18 (Jordan, J., dissenting); *see infra* pp. 21-22. But before trial, the district court rejected the claims on three of the four types of anticompetitive conduct. *Comcast*, 133 S. Ct. at 1431; *see infra* p. 22. Though the plaintiffs' claims changed, Dr. McClave's model did not. *Comcast*, 133 S. Ct. at 1431. Thus, Dr. McClave's benchmark in *Comcast* included thirteen counties no longer encompassed in the allegations of anticompetitive conduct. *Id.* at 1433-35; *Behrend*, 655 F.3d at 217-18 (Jordan, J., dissenting).

This defect does not exist in the benchmark that Dr. McClave used here because it was not based on any subsets of the market (such as counties where the alleged misconduct took place). Instead, the benchmark was based on the entire market, with Dr. McClave comparing actual prices to the prices that would have prevailed in a competitive market. Though one theory (customer allocation) dropped from the case, the market

ability to measure damages on a class-wide basis. Instead, the decision was premised on the majority's conclusion that without a way to measure damages on a class-wide basis, individualized questions would "inevitably overwhelm questions common to the class." *Comcast*, 133 S. Ct. at 1433. *Comcast* does not control because: (1) the decision turned on a concession that is absent here, and (2) we know from the actual trial that individualized issues did not predominate.

First, unlike the claimants in *Comcast*, our plaintiffs did not concede that class certification required a method to prove class-wide damages through a common methodology. This distinction was highlighted in the *Comcast* dissent, which explained that the plaintiffs' concession on this point—an "oddity" specific to that case—was outcome determinative. *Id.* at 1436-37 (Ginsburg & Breyer, JJ., dissenting).

Second, the procedural setting in *Comcast* was different. There, the issue was whether the district court could determine before trial that the plaintiffs could prove damages on a class-wide basis. In making that determination, the district court had only Dr. McClave's expert report, which based damages on a comparison between actual prices and a model addressing theories already rejected by the district court. These circumstances are absent here.

Comcast involved a class action against providers of cable television service. *See id.* at 1430. According to the suit, the cable television providers violated the antitrust

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examined by Dr. McClave did not change. Thus, there was no need to adjust the benchmark (as there had been in *Comcast*).

laws by clustering services in a 16-county region. The class proposed 4 theories of damages from the clustering:

1. The clustering created an incentive for the cable operators to withhold sports programming from competitors.

2. The clustering reduced the level of competition from companies building cable networks in areas already being serviced.

3. The clustering reduced the "benchmark" competition that cable customers used to compare prices.

4. The clustering strengthened the cable operators' power to bargain with companies providing content.

See id. at 1430-31. Before trial, the district court rejected three of these theories, holding that the plaintiffs could prove class-wide damage through only a single theory: reduction of competition from companies building cable networks in areas already being serviced. *See id.*

This ruling created a problem of proof for the class. It relied on a pretrial model by Dr. McClave that compared actual prices in the 16-county region to the prices that would have existed if the cable operators had not gained an incentive to withhold sports programming from competitors, reduced competition from companies building rival networks in areas already serviced, reduced price competition from rival cable companies, and strengthened the defendants' bargaining power with companies providing content. *See id.* And the district court had already held that many of these alleged problems could not be used to prove class-wide damage. *See id.* With this ruling, Dr. McClave's benchmarks became useless. *Id.* at 1433-35. And without another way to

prove class-wide damage, all class members would need to prove their own damages. *Id.* at 1433. The necessity of individual determinations on damages proved fatal to certification because the plaintiffs had not questioned the necessity of a methodology capable of measuring damages on a class-wide basis. *Id.* at 1430, 1434-35.

These problems do not exist here because Dow waited until after trial to raise the issue. Thus, by the time Dow presented its argument, Dr. McClave had already testified at trial.

In the trial, Dr. McClave testified "that nearly all class members had been impacted or overcharged" during the pertinent period. AA 940. In light of this testimony, the district court had the discretion to find a "fit" between the plaintiffs' theory of liability (a nationwide conspiracy to fix prices) and the theory of class-wide damages.

This "fit" had been missing in *Comcast*. Without any other evidence of class-wide damages, the Supreme Court predicted that "[q]uestions of individual damage calculations [would] inevitably overwhelm questions common to the class." *Comcast*, 133 S. Ct. at 1433.

This problem was absent here. The district court did not need to predict what would predominate at trial because by the time Dow raised this issue, the trial had already taken place. And because Dow did not request individualized determinations on

damages,[11] the plaintiffs presented only class-wide evidence of damages. As a result, the district court knew from the actual trial that common issues of damages had predominated.

Dow complains that this approach masks a "disconnect" between Dr. McClave's expert report and his theory of damages. But the expert report was never introduced in evidence. In *Comcast*, the district court had to rely on Dr. McClave's expert report because the trial had not taken place. Here, the district court had the benefit of seeing what ultimately took place at trial. The court had no need to make a prediction based on

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[11] At oral argument, counsel for Dow argued that it had sufficiently requested individualized damages calculations in its objection to class certification. Oral Arg. 15:34. But this objection did not constitute a *request* for individualized findings.

In the objection, Dow argued that the plaintiffs had failed to show that common evidence could be used to measure damages "for each putative class member." ASA 126. The district court overruled the objection, but suggested a willingness to bifurcate the trial and decertify the class to obtain individualized findings on damages. AA 413-14.

Even with this suggestion by the district court, Dow never asked for individualized findings on damages. Instead, Dow asked for a single finding on class-wide damages. *See, e.g.*, Dow's Proposed Verdict Form & Written Questions at 2 (Jan. 17, 2013) (Doc. 2696-1) ("The *total damages* sustained by the members of the Class caused by that conspiracy were $_____." (emphasis added)); Dow's Proposed Jury Instructions at 50-51 (Jan. 14, 2013) (Doc. 2690-2) ("Dow does not object to the proposed [damages] jury instruction with the proposed modifications."); Dow's Memorandum in Support of Dow's Proposed Verdict Form at 6-7 (Jan. 17, 2013) (Doc. 2696) ("If the jury answers "YES," then in response to Question 2(d) the jury must specify the total damages Class members sustained as a result of that conspiracy.").

When questioned about the failure to seek individualized findings on damages, Dow's counsel asserted that the district court had limited discovery to the named plaintiffs. Oral Arg. 16:00-16:08. We are not persuaded. Dow did not raise this excuse in its appellate briefs, and it has not pointed us to any such order limiting discovery.

the expert report. Instead, the district court could see that common issues of liability had predominated over individualized issues. In these circumstances, the court did not abuse its discretion by declining to decertify the class.

VIII. The Admissibility of Dr. McClave's Testimony

Dow also argues that the district court erroneously allowed Dr. McClave's expert testimony. We disagree.

A. Standard of Review

"We review de novo whether the district court applied the proper standard in determining whether to admit or exclude expert testimony." *Norris v. Baxter Healthcare Corp.*, 397 F.3d 878, 883 (10th Cir. 2005). If the proper standard was applied, we will reverse only for abuse of discretion. *Id.* An abuse of discretion occurs when a ruling is "'arbitrary, capricious, whimsical or manifestly unreasonable or when we are convinced that the district court made a clear error of judgment or exceeded the bounds of permissible choice in the circumstances.'" *Id.* (quoting *Dodge v. Cotter Corp.*, 328 F.3d 1212, 1223 (10th Cir. 2003)).

B. Admissibility Requirements

Expert testimony is admissible only if it is relevant and reliable. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999). To ensure reliability, district courts play an essential "gatekeeping" role. *Id.* at 141. This role requires assessment of the expert witness's qualifications and the reliability of the opinions. *Ralston v. Smith & Nephew Richards, Inc.*, 275 F.3d 965, 969 (10th Cir. 2001).

C. Dow's Arguments

Dow argues that Dr. McClave's testimony was unreliable because of flaws in his multiple-regression analysis. Multiple-regression analysis is a statistical tool used to determine the relationship between an unknown variable (the "dependent" variable) and one or more "independent" variables that are thought to impact the dependent variable. Saks, Michael J., et al., *Reference Manual on Scientific Evidence* 179, 181 (2d ed. 2000).

The dependent variable in Dr. McClave's models was market price. To identify the independent variables driving prices in a competitive market, Dr. McClave chose a benchmark period and tested various independent variables to find the combination that would accurately predict prices during the benchmark period. That combination of variables was then applied to the conspiracy period to calculate the prices that would have existed but for the conspiracy. Dr. McClave testified that when he compared the prices expected in a competitive market and the actual prices, he detected overcharges for the relevant products and attributed the overcharges to "something other than competition." AA 1072-73, 1119.

Dow argues that the testimony was inadmissible because Dr. McClave manufactured supra-competitive prices through "variable shopping" and "benchmark shopping." We disagree.

1. "Variable Shopping"

In Dow's view, Dr. McClave engaged in "variable shopping" by choosing variables based on whether they would generate supra-competitive prices. This argument bore on the weight of Dr. McClave's opinions, not their admissibility.

a. The Need to Include the Major Factors

The validity of a regression analysis depends on selection of the appropriate independent variables. *E.g.*, *Segar v. Smith*, 738 F.2d 1249, 1261 (D.C. Cir. 1984). Consequently, the exclusion of major variables or the inclusion of improper variables may diminish the probative value of a regression model. *Bazemore v. Friday*, 478 U.S. 385, 400 (1986). But such defects do not generally preclude admissibility, and courts allow use of a regression model as long as it includes the variables accounting for the major factors. *See id.* ("Normally, failure to include variables will affect the [regression] analysis' probativeness, not its admissibility."); *see also Koger v. Reno*, 98 F.3d 631, 637 (D.C. Cir. 1996) ("Following *Bazemore*, courts have taken the view that a defendant cannot undermine a regression analysis simply by pointing to variables not taken into account that might conceivably have pulled the analysis's sting.").

Dow challenges Dr. McClave's exclusion of: (1) domestic demand variables for TDI, and (2) various demand variables for MDI and polyether polyols.

b. TDI

The district court reasonably concluded that Dr. McClave had a reliable evidentiary foundation to tie TDI exports to price. Dow challenges the exclusion of

domestic demand variables, but does not question the relevance of TDI exports. The exclusion of domestic demand variables was not fatal because Dr. McClave had no need to consider every measurable factor—just the "major" ones. *Bazemore*, 478 U.S. at 400. The district court reasonably found that Dr. McClave had accounted for the major factors affecting demand, and Dow's arguments bore on the weight of Dr. McClave's opinions, not their admissibility.

Dow argues that Dr. McClave mistakenly selected variables based on the data instead of picking variables that "made economic sense." Appellant's Opening Br. at 46. This argument does not invalidate the district court's contrary finding.

For this argument, Dow relies on a law review article by Franklin Fisher. Franklin M. Fisher, *Multiple Regression in Legal Proceedings*, 80 Colum. L. Rev. 702 (1980). There, Dr. Fisher states that in multiple regression, the analyst "specifies the major variables that are believed to influence the dependent variable," then tests the accuracy of the chosen variables. *Id.* at 705-06, 715. According to Dow, Dr. McClave did the opposite, picking variables based on his own data rather than picking variables based on what he would have expected.

But the district court could reasonably infer that Dr. McClave followed the protocol urged by Dow. Dr. McClave stated under oath that for TDI, he tested variables that best explained the changes in price, then tested how well these variables served to predict price changes. AA 2081, 2085. With this explanation, the district court concluded that TDI exports could reliably be used as a proxy for demand. *Id.* at 503. In

drawing this conclusion, the court pointed out that none of Dow's experts had questioned the sufficiency of a relationship between TDI exports and demand. *Id.* Even now, Dow does not refer to any such evidence.[12]

Instead, Dow argues that Dr. McClave should have considered other independent variables addressing domestic demand. But Dr. McClave tested domestic demand variables and concluded they did not bear a statistically significant relationship to price. *Id.* at 2221. He explains that when he tested domestic demand variables, price decreased as demand increased. *Id.* at 2161. Dr. McClave regarded this finding as a "nonsensical negative sign[]," which made domestic demand unusable as an independent variable affecting TDI prices. *Id.*

Dr. McClave pointed to other evidence substantiating his statistical conclusions that domestic demand proved less significant than exports. For example, a 2004 Bayer document identified exports as a driver of TDI prices. And the plaintiffs' economic expert (John Solow, Ph.D.) opined that "the marginal demand driver for TDI was not

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[12] In district court, Dow appeared to criticize Dr. McClave's inclusion of TDI exports as a variable. Dow's Mot. to Exclude Dr. McClave's Test. at 20 (Aug. 17, 2012) (Doc. 2391) (stating that it was improper for Dr. McClave to use TDI exports rather than measures of U.S. demand). But on appeal, Dow appears to retract its criticism of Dr. McClave's decision to include TDI exports as a demand variable. Dow's Reply Br. at 15-16 ("The problem . . . is not the *inclusion* of TDI exports as a demand variable . . . .").

domestic demand . . . but rather expert demand"). Corrected Solow Report at 22 n.71 (June 16, 2011).[13]

Dr. McClave's treatment of domestic demand is open to debate. But the district court had the discretion to accept Dr. McClave's explanation for omitting variables addressing domestic demand. Thus, the district court did not abuse its discretion in concluding that Dow's complaints bore on the weight of Dr. McClave's testimony rather than its admissibility.

c. MDI and Polyols

In its opening brief, Dow devotes two sentences to the choice of variables for MDI and polyether polyols: "In specifying his MDI and polyols models, in contrast, Dr. McClave used only *domestic* demand variables and did not include a variable for exports. He continued his results-oriented approach in the MDI and polyols models by selectively picking and choosing among the variables used as a proxy for domestic demand." Appellant's Opening Br. at 46-47 (citations omitted). Dow followed the two sentences with a chart comparing Dr. McClave's proxies for domestic demand with a report of the top uses in 2002. *Id.* at 47.

We question whether the two sentences and the chart fairly develop a claim challenging the use of variables for MDI and polyols. *See Thompson R2-J Sch. Dist. v. Luke P., ex rel. Jeff P.*, 540 F.3d 1143, 1148 n.3 (10th Cir. 2008). But even if we were to

[13] Dr. Solow's report was omitted from the appendices. But the report was filed in district court as an attachment and is subject to judicial notice. *See Guttman v. Khalsa*, 669 F.3d 1101, 1127 n.5 (10th Cir. 2012).

construe these sentences and the chart as a separate appeal point, it was not raised in Dow's motion to exclude Dr. McClave's testimony. *See* Dow's Mot. to Exclude Dr. McClave's Test., *passim* (Aug. 17, 2012) (Doc. 2391). Thus, if Dow has presented an appeal point for MDI and polyols, we would confine our review to the plain-error standard. *See McKenzie v. Benton*, 388 F.3d 1342, 1350-51 (10th Cir. 2004).

Dow's brief assertions do not show an obvious error in Dr. McClave's choice of variables for MDI or polyols. As a result, even if we were to construe Dow's brief references to MDI and polyols as a separate argument, it would not warrant reversal under the plain-error standard. *See, e.g.*, *Royal Maccabees Life Ins. Co. v. Choren*, 393 F.3d 1175, 1181-82 (10th Cir. 2005) (stating that the plain-error standard requires demonstration of an error "that is plain or obvious under existing law").

2. "Benchmark Shopping"

Dow also argues that Dr. McClave engaged in "benchmark shopping," arguing that he moved 2004 from the conspiracy period to the competitive/benchmark period in order to manufacture supra-competitive prices during the conspiracy period. The plaintiffs maintain that this decision was made for legitimate reasons. But even if Dow could prove otherwise, its benchmark-shopping argument does not implicate the reliability of Dr. McClave's methodology.

Reliability "is primarily a question of the validity of the methodology employed by an expert, not the quality of the data used in applying the methodology or the conclusions produced." *Manpower, Inc. v. Ins. Co. of Penn.*, 732 F.3d 796, 806 (7th Cir.

2013). Accordingly, a district court must admit expert testimony as long as it is based on a reliable methodology. It is then for the jury to evaluate the reliability of the underlying data, assumptions, and conclusions. *Id.* at 806-08.

Dow argues that Dr. McClave skewed the results by including 2004 data in the prices for the benchmark period. This argument involves a swearing match. Dow asserted to the district court that Dr. McClave had moved 2004 to the "benchmark" period in order to maximize damages. The plaintiffs disagreed, presenting Dr. McClave's explanation that he had included 2004 as part of the benchmark period based on test results reflecting that 2004 prices "were more consistent with competition than collusion." AA 2081, 2215. The district court resolved this swearing match in favor of the plaintiffs. SA 498. We have no basis to regard this resolution as an abuse of discretion. *See Hollander v. Sandoz Pharm. Corp.*, 289 F.3d 1193, 1204 (10th Cir. 2002).

IX. Sufficiency of the Evidence

Dow also challenges the sufficiency of the evidence regarding liability, arguing that the district court erred in denying the motion for judgment as a matter of law. We reject this challenge.

A. Standard of Review

We engage in de novo review of the district court's denial of judgment as a matter of law, applying the same standard as the district court. *Myklatun v. Flotek Indus., Inc.*, 734 F.3d 1230, 1233-34 (10th Cir. 2013). This standard requires us to determine whether the evidence allowed a verdict for the plaintiffs. *See Wolfgang v. Mid-Am. Motorsports, Inc.*, 111 F.3d 1515, 1522 (10th Cir. 1997). In applying this standard, we view the evidence and related inferences in the light most favorable to the plaintiffs. *See Myklatun*, 734 F.3d at 1234. Judgment as a matter of law should not be granted "[u]nless the proof is all one way or so overwhelmingly preponderant in favor of the movant as to permit no other rational conclusion." *Greene v. Safeway Stores, Inc.*, 98 F.3d 554, 557 (10th Cir. 1996).

This evidence, viewed in the light most favorable to the plaintiffs, was sufficient for a finding of liability.

B. Dow's Arguments

Dow argues that: (1) there was insufficient evidence that the alleged price-fixing agreement was effectively implemented, (2) there was insufficient evidence of a conspiracy involving Lyondell, and (3) the jury necessarily rejected Dr. McClave's models, leaving insufficient evidence of impact and damages. We reject each argument.

1. Implementation of the Conspiracy

Dow does not dispute:

- the existence of an agreement to coordinate price-increase announcements and try to make them stick, or

- the existence of evidence involving coordination in announcing price increases.

Rather, Dow questions the existence of evidence that the conspirators followed through with the agreement by requiring suppliers to make the price increases stick. Without evidence of follow-through, Dow argues, the price-fixing claim fails as a matter of law. We reject Dow's argument.

a. Parallel Announcements of Price Increases

The argument rests on a purported distinction between two categories of price-fixing conspiracies: (1) those involving an agreement to set prices directly, and (2) those involving an agreement to announce price increases and try to make them stick. Conspiracies falling into the second category, Dow submits, require an evidentiary link between the price-increase announcements and subsequent prices. According to Dow, this evidentiary link is necessary because parallel price-increase announcements do not prove a conspiracy.

For the sake of argument, we can assume that evidence of parallel price-increase announcements would not establish a price-fixing conspiracy. But the plaintiffs did more than show parallel announcements. The evidence included admissions by industry insiders, collusive behavior, susceptibility of the industry to collusion, and setting of prices at a supra-competitive level.

For example, the plaintiffs presented testimony by Ms. Stephanie Barbour (Dow), who admitted that Dow had participated in a price-fixing conspiracy. Ms. Barbour

directly implicated at least three Dow executives in the conspiracy: Mr. Marco Levi, Mr. David Fischer, and Mr. Peter Davies.

Another key witness for the plaintiffs was Mr. Lawrence Stern (Bayer), who recounted numerous conversations he had had with his counterparts at Dow, BASF, and Huntsman. Mr. Stern described these conversations as "inappropriate," for they pertained to future pricing and "the possibility of raising prices." SA 912-14. Mr. Stern added that he had:

- discussed prices with David Fisher (Dow) on eight to fifteen occasions, and
- exchanged confidential pricing information with competitors to spur industry-wide price increases.

Id. at 896-97, 905.

Mr. Stern also testified that he had taken "unusual steps" to conceal his conversations with Bayer's competitors. *Id.* at 881. For instance, he would use pay telephones instead of calling from his office and would use a prepaid phone card. *Id.* Other times, Mr. Stern met with competitors at off-site locations, such as coffee shops or hotels. Commenting on these secretive communications, the plaintiffs' expert econometrician told the jury that "economists associate secrecy with collusion." *Id.* at 2688.

Testimony about a conspiracy also came from others, such as:

- Mr. Edward Dineen (Lyondell), who implicated Mr. Jean Pierre Dhanis (BASF) and Mr. Robert Wood (Dow) in the conspiracy,

- Mr. Robert Kirk (Bayer), who confirmed Mr. David Fischer's (Dow) involvement, and

- two Bayer executives (Ms. Michelle Blumberg and Mr. Gerald Phelan) who had grounds to suspect their colleague, Mr. Wolfgang Friedrich, of price-fixing.

The jury also heard from the plaintiffs' expert, Dr. John Solow, who testified about: (1) collusive conduct he had observed in the polyurethane industry, and (2) the industry's susceptibility to collusion.

Dr. Solow had observed four types of collusive conduct.

First, the defendant companies had issued "a series of . . . lockstep price increase announcements," which came within weeks of each other, communicated the same or similar price increases, and were to take effect at about the same time. *Id.* at 2678-79, 2682.

Second, Dr. Solow noticed "a widespread pattern of communication" among the top executives of the defendant companies. *Id.* at 2679. Dr. Solow was struck not only by the frequency and secrecy of these communications but also by their timing, for the contacts frequently occurred within days of a lockstep price-increase announcement. *Id.* at 2706-09. This proximity suggested that the price-increase announcements had been coordinated. *Id.*

Third, Dr. Solow detected a "price over volume strategy," where the companies would stick to their list prices even if it meant walking away from opportunities to earn business or make sales at lower, but still profitable, prices. *Id.* at 2679. In Dr. Solow's

view, these actions would not take place in a competitive market and the companies were acting contrary to their interests. *Id.* at 2711-12.

Fourth, the defendant companies monitored one another to prevent cheating and to discipline any supplier that was found cheating. *Id.* at 2723.

Dr. Solow also testified that the polyurethane industry was "ripe for collusion" based on six features:[14]

1. Sales of polyurethane products were "concentrated in the hands of only a handful of firms" during the conspiracy period;[15]

2. the market had high barriers to entry;[16]

3. polyurethane products are homogenous;[17]

4. there were no close product substitutes available to customers;[18]

5. there was excess capacity for MDI, TDI, and polyether polyols during the conspiracy period, meaning that the companies could "produce more output than the customers actually want[ed] to buy," putting a "strong downward pressure on prices;"[19] and

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14 SA 2675.

15 *Id.* at 2644.

16 *Id.* at 2645.

17 *Id.* at 2646.

18 *Id.* at 2649.

19 *Id.* at 2651-52.

6. the industry has several trade associations, which provided "an opportunity to engage in price fixing behavior."[20]

The evidence also included testimony by Dr. McClave. He testified that class members had been overcharged for polyurethane products because of "something other than competition." AA 1072-73, 1119; SA 6297.

The evidence, viewed favorably to the plaintiffs, goes beyond parallel announcements of price increases.

b. Announcements of Price Increases v. Actual Price Increases

Dow argues that even if a conspiracy existed, it did not work because the plaintiffs could not tie the announcements to actual price hikes. But the plaintiffs had no reason to connect the two, for they were not trying to prove that the price-increase announcements *caused* supra-competitive prices. Instead, the plaintiffs were trying to prove that the supra-competitive prices were caused by the conspiratorial agreement; the price-increase announcements were merely an instrument used to effectuate that agreement.

The jury could have inferred that the announcements proved successful, for the trial included testimony that: (1) manufacturers sometimes used the announcements to avoid price decreases,[21] and (2) some of the announcements were partially or fully

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[20] *Id.* at 2660-61.

[21] SA 1964 (testimony of Mr. Jean-Pierre Dhanis).

accepted.[22] From this testimony, the jury could have inferred that a conspiracy existed and that it caused prices to be higher than they would have been in a marketplace free of collusion.

2. Involvement of Lyondell

Dow argues the evidence was insufficient regarding Lyondell's involvement in the conspiracy. This argument fails legally and factually.

The argument fails legally because even if the evidence had not shown Lyondell's involvement, Dow would not have been exonerated. A defendant can incur liability for a conspiracy under § 1 of the Sherman Act so long as the defendant did not act unilaterally. *See Copperweld Corp. v. Independence Tube Corp.*, 467 U.S. 752, 768 (1984). And, for the reasons discussed above, there is sufficient evidence of a conspiracy between Dow and the other defendant companies, regardless of Lyondell's involvement.

Dow's argument also fails factually because the evidence allowed a reasonable fact-finder to infer Lyondell's participation in the conspiracy. The inference was possible based on evidence that: (1) Lyondell and Dow communicated before three price hikes,

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[22] SA 892-93 (testimony of Mr. Larry Stern); *id.* at 4156 (testimony of Mr. Richard Beitel that price increases were fully paid for 40-50% of the announcements); *id.* at 299-300 (Bayer memorandum stating that "the price increases [are] becoming effective and being paid"); *id.* at 304 (Bayer memorandum stating that announcements of price increases allowed Bayer to benefit from the full impact); *id.* at 341-42 (Dow e-mails acknowledging that Dow had obtained "the full increases"); *id.* at 482 (Dow announcement in connection with pricing, stating "Its [sic] Working!!!!!!!"); *id.* at 3438, 3502-03 (testimony of Dr. McClave that prices exceeded competitive levels from 1999 to 2003); *id.* at 2732 (testimony of Dr. Solow that the alleged conspiracy succeeded because nearly all class members had to pay the higher prices).

(2) other conspirators discussed collusion in front of Lyondell's representative, and (3) other manufacturers colluded.

First, the plaintiffs presented evidence that Mr. Mario Portela (Lyondell) had communicated with Mr. Marco Levi (Dow) immediately before at least three lockstep price-increase announcements. *See* SA 3147-51, 3224-30; AA 1772-92.

Second, the evidence included testimony by Mr. Edward Dineen (Lyondell), who told the jury that: (1) he had attended a dinner with Mr. Jean-Pierre Dhanis (BASF) and Mr. Robert Wood (Dow), and (2) during the dinner, Mr. Dhanis made "comments regarding pricing and market conditions for urethanes" that made Mr. Dineen feel "uncomfortable from an antitrust perspective." SA 1984-85. The fact that Mr. Dhanis felt comfortable discussing prices in front of Mr. Dineen suggests the involvement of one or more Lyondell executives.

Finally, the evidence suggested participation by virtually every large manufacturer. This evidence could have led the jury to infer participation by Lyondell. *See In re Flat Glass Antitrust Litig.*, 385 F.3d 350, 363 (3d Cir. 2004) ("If six firms act in parallel fashion and there is evidence that five of the firms entered into an agreement, . . . it is reasonable to infer that the sixth firm acted consistent with the other five firms' actions because it was also a party to the agreement.").

3. Effect of the Jury Verdict on Dr. McClave's Models

The jury found no injury for the 23-month period preceding November 24, 2000. AA 513-14. From this finding, Dow infers that the jury partially rejected Dr. McClave's

models. With this inference, Dow argues that Dr. McClave's models are invalid; and without valid models, Dow continues, the plaintiffs lack sufficient evidence of impact and damages. This series of inferences does not allow us to disturb the jury's unequivocal findings on impact and damages.

We conclude that:

- the plaintiffs' failure to prove a conspiracy for part of the alleged conspiracy period does not invalidate the finding of liability for part of this period, and
- we have no reason to believe that the jury rejected Dr. McClave's models in their entirety.

As the district court recognized, the jury may have fully credited Dr. McClave's models, but found the evidence insufficient to find an injury before November 24, 2000.

Citing *In re Rail Freight Fuel Surcharge Antitrust Litigation*, Dow contends that the models are invalid because they "detect[] injury where none could exist." Appellant's Opening Br. at 51 (quoting *In re Rail Freight Fuel Surcharge Antitrust Litig.*, 725 F.3d 244, 252 (D.C. Cir. 2013)). This case does not apply.

In *In re Rail Freight*, an expert witness found damages for plaintiffs who were bound by rates agreed to before the alleged conspiracy. 725 F.3d at 252. Thus, the plaintiffs could not have been harmed by the conspiracy. *Id.* And, under *Comcast*, the D.C. Circuit Court of Appeals regarded certification as questionable because damages might not be provable through class-wide evidence. *Id.* at 252-53. This analysis does not apply here for two reasons.

First, *In re Rail Freight* involved a certification challenge decided on interlocutory review; at that stage, the Court of Appeals could only predict whether common issues would predominate for purposes of class certification. Here, we have the benefit of knowing what happened at the trial: Common issues predominated over individualized issues. Thus, the D.C. Circuit's concern lacks any bearing on whether common issues predominated here.

Second, Dr. McClave's model does not suffer from the same flaw identified in *In re Rail Freight*. There, the appeals court could not credit the expert's opinion because his methodology yielded damages for a time period in which prices had been freely set. Thus, the expert found damages for plaintiffs who could not possibly have suffered injury. Here, by contrast, Dow has not identified a single class member for whom injury was impossible.

Rather, Dow asks us to infer a flaw based on the jury's finding of no damages for a specific time period. We cannot draw that inference, for the jury could have limited the time period for the conspiracy based on Dow's explanation for prices before November 24, 2000. Thus, the jury might have limited the conspiracy period while agreeing with Dr. McClave's analysis of pricing after November 24, 2000.

For both reasons, the flaw in *In re Rail Freight* does not exist here, and the jury's finding does not imply a failure to prove impact or damages after November 24, 2000.

X. The Damages Award

Dow's final challenge involves the award of damages. Dow argues that: (1) the damages award had no evidentiary basis, and (2) the resulting judgment violated the Seventh Amendment.

A. Evidentiary Support for the Award

The jury assessed damages of $400,049,039 even though Dr. McClave had calculated damages of $496,680,486. AA 514. Dow contends that the jury's assessment was speculative because it deviated from Dr. McClave's figure and lacked any other evidentiary support. We reject this contention.

In evaluating this argument, we must view the evidence in the light most favorable to the plaintiffs,[23] upholding the jury's damages award unless it is "clearly, decidedly or overwhelmingly against the weight of the evidence."[24]

In entering judgment based on the damages award, the district court reasoned that the jury might have discounted Dr. McClave's figure based on:

- Dow's arguments regarding systems,
- skepticism about Lyondell's involvement in the conspiracy, or
- a belief that the conspiracy had a shorter duration than Dr. McClave assumed.

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23 *Snyder v. Moab*, 354 F.3d 1179, 1187-88 (10th Cir. 2003).

24 *Black v. Hieb's Enters.*, 805 F.2d 360, 363 (10th Cir. 1986).

Id. at 537. Dow does not question these possibilities. Instead, Dow insists that the jury had no evidentiary basis for a smaller amount because the plaintiffs had not "introduce[d] the underlying calculations or provide[d] the jury with the information necessary to adjust [Dr.] McClave's . . . damages figures if they disagreed with any of his assumptions." Appellant's Opening Br. at 63. We reject Dow's argument.

Dow assumes that the jury could not adjust Dr. McClave's damages figure without his "underlying calculations" or some other "tool." *Id.* at 63-64. This assumption is incorrect, for a jury can reduce an expert's calculations on damages even when unable to "run the exact numbers and calculations of [a damages] model with 'mathematical certainty.'" *MedCom Holding v. Baxter Travenol Labs., Inc.*, 106 F.3d 1388, 1400-01 (7th Cir. 1997); *see Russo v. Ballard Med. Prods.*, 550 F.3d 1004, 1018 (10th Cir. 2008) (rejecting the defendant's argument that the jury's award "exceeded what the record evidence could support" when the jury awarded an amount lying "somewhere in between the extremes suggested by the evidence received at trial"); *see also In re Scrap Metal Antitrust Litig.*, 527 F.3d 517, 533-34 (6th Cir. 2008) (rejecting the defendant's argument that "the jury must have resorted to speculation" to arrive at a damages award of $11.5 million, when the expert calculated damages of $20.9 million); *Tuf Racing Prods., Inc. v. Am. Suzuki Motor Corp.*, 223 F.3d 585, 591 (7th Cir. 2000) (rejecting the defendant's argument that the jury's award should be set aside as "'speculative'" when the plaintiff's expert calculated damages of $1.2 million, but "the jury awarded only a bit more than 10 percent of that").

B. The Seventh Amendment

Dow also challenges the district court's decision to permit allocation of the damages award according to Dr. McClave's damages model. According to Dow, this method of distribution violates the Seventh Amendment by taking from the jury "the question of liability and the extent of the injury by an assessment of damages." *Dimick v. Schiedt*, 293 U.S. 474, 486 (1935). We disagree.

Because this argument implicates a constitutional question, our review is de novo. *J.R. Simplot v. Chevron Pipeline Co.*, 563 F.3d 1102, 1115 (10th Cir. 2009).

According to Dow, the Seventh Amendment problem arises not from the use of Dr. McClave's model to distribute damages, but from the application of a pro rata reduction to reflect the jury's award of a lesser amount. The court's across-the-board reduction is problematic, Dow says, because the reason for the jury's reduction is unknown. Dow argues that: (1) the reduction was based on a finding that certain class members suffered no injury, and (2) as a result, Dow was unable to have a jury determine which class members had suffered less damage than Dr. McClave had figured. Appellant's Opening Br. at 65.

We reject this argument because Dow has no interest in the method of distributing the aggregate damages award among the class members. *See Allapattah Servs., Inc. v. Exxon Corp.*, 333 F.3d 1248, 1258 (11th Cir. 2003) ("[A] defendant has no interest in how the class members apportion and distribute a[n] [aggregate] damage [award] among themselves."); *Six (6) Mexican Workers v. Ariz. Citrus Growers*, 904 F.2d 1301, 1307

(9th Cir. 1990) ("Where the only question is how to distribute the damages, the interests affected are not the defendant's but rather those of the silent class members."). And Dow cannot complain about the uncertainties inherent in an aggregate damages award because Dow never requested individualized findings on damages. *See supra* pp. 23-24 & note 11.

Dow claims an interest in the allocation of damages to ensure that all class members are bound by the judgment. But Dow fails to identify any threat to the binding effect of the judgment. The three cases that it cites are inapplicable.

In *Phillips Petroleum Co. v. Shutts*, the defendant challenged the trial court's jurisdiction over the class plaintiffs, raising a legitimate concern that the judgment would not bind all class members. 472 U.S. 797, 805 (1985).

Carrera v. Bayer Corp. likewise involved a class-wide judgment with an uncertain binding effect. 727 F.3d 300, 310 (3d Cir. 2013). The class there had been decertified because there was insufficient evidence of an ascertainable class. As a result, the class members could argue that they were not bound by the judgment. *Id.*

Dimick v. Schiedt was a case about additur. 293 U.S. 474 (1935). There, the Supreme Court held that the Seventh Amendment is violated when a court "assess[es] an additional amount of damages" beyond that found by the jury. *Id.* at 486-87.

Unlike the defendants in *Phillips* and *Carrera*, Dow has not identified any reason to believe that the judgment here would fail to bind all class members. And the district

court reduced the jury's damages award, rather than add to it as in *Dimick*. Accordingly, these cases do not apply.

We conclude that Dow has not established a Seventh Amendment violation.

XI. Conclusion

We affirm, rejecting Dow's challenges to the order for class certification, the refusal to decertify the class, the admission of Dr. McClave's testimony, the sufficiency of the evidence, and the award of damages.