

No. 22-1286

IN THE
United States Court of Appeals
FOR THE FEDERAL CIRCUIT

TERADATA CORPORATION, TERADATA OPERATIONS, INC., AND
TERADATA US, INC.,

Plaintiffs-Appellants,

vs.

SAP SE, SAP AMERICA, INC., AND SAP LABS, LLC,

Defendants-Appellees.

APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF CALIFORNIA
No. 3:18-cv-03670-WHO, HON. WILLIAM H. ORRICK

**BRIEF OF *AMICI CURIAE* ECONOMISTS IN SUPPORT OF
PLAINTIFFS-APPELLANTS AND REVERSAL**

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**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

CERTIFICATE OF INTEREST

Case Number 22-1286

Short Case Caption Teradata, et al. v. SAP SE, et al.

Filing Party/Entity Proposed Amici Curiae Economists

Instructions: Complete each section of the form. In answering items 2 and 3, be specific as to which represented entities the answers apply; lack of specificity may result in non-compliance. **Please enter only one item per box; attach additional pages as needed and check the relevant box.** Counsel must immediately file an amended Certificate of Interest if information changes. Fed. Cir. R. 47.4(b).

I certify the following information and any attached sheets are accurate and complete to the best of my knowledge.

Date: 05/25/2022

Signature: /s/ Cory A. Talbot

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FORM 9. Certificate of Interest

Form 9 (p. 2)
July 2020

1. Represented Entities. Fed. Cir. R. 47.4(a)(1).	2. Real Party in Interest. Fed. Cir. R. 47.4(a)(2).	3. Parent Corporations and Stockholders. Fed. Cir. R. 47.4(a)(3).
Provide the full names of all entities represented by undersigned counsel in this case.	Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities. <input checked="" type="checkbox"/> None/Not Applicable	Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities. <input checked="" type="checkbox"/> None/Not Applicable
Aviv Nevo		
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Andrew Sweeting		
Matthew Grennan		
Michael Dinerstein		
Jonathan Williams		
Joseph Harrington		
Thomas Wollmann		
Steve Tadelis		
Heski Bar-Isaac		
Gary Biglaiser		
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 Additional pages attached

FORM 9. Certificate of Interest (Cont.)
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Form

July 2020

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Allan Collard-Wexler		
Stephen Ryan		
Mo Xiao		
Martin Gaynor		
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Jakub Kastl		
Jidong Zhou		
Dr. Jesse David		
Dr. George Korenko		

4. Legal Representatives. List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).

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Anna C. van de Stouwe	Holland & Hart LLP	

5. Related Cases. Provide the case titles and numbers of any case known to be pending in this court or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal. Do not include the originating case number(s) for this case. Fed. Cir. R. 47.4(a)(5). See also Fed. Cir. R. 47.5(b).

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6. Organizational Victims and Bankruptcy Cases. Provide any information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c) (bankruptcy case debtors and trustees). Fed. Cir. R. 47.4(a)(6).

None/Not Applicable Additional pages attached

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STATEMENT OF IDENTITY AND INTEREST¹

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¹ No party's counsel authored this brief in part or in whole. No party or party's counsel contributed money to fund preparing or submitting this brief. No person other than the *amici curiae* or their counsel contributed money that was intended to fund preparing or submitting this brief.

Justice (“DOJ”). As head of the Economic Analysis Group, he supervised the division’s staff of Ph.D. economists and statistical analysts. The group works alongside the division’s legal staff to investigate the likely competitive impact of proposed mergers and acquisitions, as well as to provide economic analysis on civil enforcement and competition advocacy issues.

Professor Nevo has been retained as an expert by the DOJ, U.S. Federal Trade Commission (“FTC”), and numerous private parties in merger and antitrust cases, as well as other antitrust and competition matters. He testified in federal district court as the U.S. government’s economic expert in *United States v. Aetna/Humana*, *FTC v. Wilhelmsen/Drew*, and *United States v. Sabre/Farelogix*.

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Amici curiae are economists who focus their work on antitrust and competition. As professors, former leaders of the DOJ Antitrust Division's Economic Analysis Group and the FTC's Bureau of Economics, and respected consulting experts, they have a vested interest in ensuring that antitrust

jurisprudence remains in step with widely recognized principles of antitrust economics.

INTRODUCTION

The economist Professor John Asker provided opinions related to an antitrust tying claim in this case. Those opinions were challenged, and, among other things, the district court excluded Professor Asker’s opinions regarding market definition. We write to address several economic issues that the district court addressed and that this Court will now need to address, as well.

Understanding the relevant markets in an antitrust case is not a one-size-fits-all exercise. The appropriate method for defining the relevant product market of necessity depends on the unique economics of each case and the available data. Focusing on the economic issues in this case, we write to emphasize that (1) qualitative analysis is central to defining relevant markets and (2) aggregate diversion ratio (“ADR”) analysis is an appropriate methodology for implementing the hypothetical monopolist test.

ARGUMENT

1. There are several different ways to define the relevant product market.

Market definition is an integral part of the analysis in antitrust cases. As a result, over time, economists have developed a variety of methods to define relevant product markets. These methods are summarized in the DOJ and FTC’s Horizontal Merger Guidelines (the “Guidelines”) and include both qualitative and

quantitative methods that can be used in tandem or separately depending on the availability of data and information.

Regardless of the method being used to define the market, the Guidelines explain that “[m]arket definition focuses solely on demand substitution factors, i.e., on customers’ ability and willingness to substitute away from one product to another in response to a price increase or a corresponding non-price change such as a reduction in product quality or service.” Fed. Trade Comm’n & U.S. Dep’t of Justice, *Horizontal Merger Guidelines*, § 4 (Aug. 2010). The Guidelines go on to explain that a relevant market need not include all substitutes and indeed “properly defined antitrust markets often exclude some substitutes to which some customers might turn in the face of a price increase even if such substitutes provide alternatives for those customers.” *Id.*, § 4.

This leads to a natural question of whether enough substitute products have been included in the candidate market. To answer this question, economists therefore often start with a candidate market and ask whether there is qualitative evidence—which includes, but is not limited to, the “practical indicia” expressly enumerated in *Brown Shoe Co. v. United States*, 370 U.S. 294 (1962)—to support this candidate market as a relevant product market. To add to the qualitative analysis, economists note that conceptually a market it is too narrow if substitutes outside the candidate market will still discipline prices when all competition within

the candidate market is eliminated. To test whether this is indeed the case, economists often use the hypothetical monopolist test, which has been endorsed by courts.² The test is described by the Guidelines:

[T]he test requires that a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future seller of those products (“hypothetical monopolist”) likely would impose at least a small but significant and non-transitory increase in price (“SSNIP”) on at least one product in the market, including at least one product sold by one of the merging firms.

Horizontal Merger Guidelines, § 4.1.1.

Intuitively, the hypothetical monopolist test evaluates “whether it would be profitable to have a monopoly over a given set of substitutable products.” *H&R Block*, 833 F. Supp. 2d at 51. If the answer is yes, the products “may constitute a relevant market.” *Id.* The purpose of the test is to “ensure[] that markets are not defined too narrowly.” *Id.*

Here, the district court’s decision to exclude portions of Professor Asker’s report focused on his definition of the relevant product market. As we noted, there are several tools at the disposal of antitrust economists and courts to define the

² See, e.g., *FTC v. Sysco Corp.*, 113 F. Supp. 3d 1, 33 (D.D.C. 2015) (identifying the hypothetical monopolist test as a method frequently used by economists to determine a product market); *United States v. Bazaarvoice, Inc.*, No. 13-cv-00133-WHO, 2014 U.S. Dist. LEXIS 3284, at *98 (N.D. Cal. Jan. 8, 2014); *United States v. H&R Block, Inc.*, 833 F. Supp. 2d 36, 51–52 (D.D.C. 2011); *In re Live Concert Antitrust Litig.*, 863 F. Supp. 2d 966, 987 (C.D. Cal. 2012); *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098, 1111–112 (N.D. Cal. 2004).

relevant market. These include implementing the hypothetical monopolist test, including through a quantitative analysis of diversion and/or reliance on qualitative evidence among others. Which method, or combination of methods, is appropriate for defining the relevant market necessarily depends on the unique economics of each case and the available data.³

2. Qualitative analysis is central to defining the relevant market.

Antitrust economists and courts should tailor their approach to defining the relevant market to the facts of each case. The breadth and quality of available data vary widely, but qualitative evidence—for example, produced in the ordinary course of business by firms—is more readily available and often speaks directly to demand-side substitution factors. “[Q]ualitative evaluation is universally the starting point of any market definition exercise.” Peter Davis & Eliana Garces, *Quantitative Techniques for Competition and Antitrust Analysis* 166 (2010).

Indeed, in some circumstances lay testimony or other factual evidence concerning

³ Courts have recognized that this is the case and have noted that, because “[t]he varying circumstances of each case” warrant different approaches, *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 395 (1956), “there is no requirement to use any specific methodology in defining the relevant market,” *Optronic Techs., Inc. v. Ningbo Sunny Elec Co.*, 20 F.4th 466, 482 (9th Cir. 2021). Because the products, pricing, and data at issue in each antitrust case are unique, “no more definite rule [for defining the relevant market] can be declared than that commodities reasonably interchangeable by consumers for the same purposes make up that ‘part of the trade or commerce,’ monopolization of which may be illegal.” *E.I. du Pont*, 351 U.S. at 377.

the distinctive use and qualities of a product can be sufficient, without more, to define the product market.⁴

The Guidelines echo the emphasis that many courts have placed on qualitative evidence in defining the relevant market. They put qualitative evidence side by side with quantitative evidence in a long list of materials the agencies take into account in assessing the market definition question:

- how customers have shifted purchases in the past in response to relative changes in price or other terms and conditions;
- information from buyers, including surveys, concerning how they would respond to price changes;
- the conduct of industry participants, notably:
 - sellers' business decisions or business documents indicating sellers' informed beliefs concerning how customers would substitute among products in response to relative changes in price;
 - industry participants' behavior in tracking and responding to price changes by some or all rivals;
- objective information about product characteristics and the costs and delays of switching products, especially switching from products in the candidate market to products outside the candidate market;
- the percentage of sales lost by one product in the candidate market, when its price alone rises, that is recaptured by other products in the candidate

⁴ See, e.g., *Bacchus Indus., Inc. v. Arvin Indus., Inc.*, 939 F.2d 887 (10th Cir. 1991); *Worldwide Basketball & Sports Tours, Inc. v. NCAA*, 273 F. Supp. 2d 933, 951 (S.D. Ohio 2003); see also *Nobody in Particular Presents, Inc. v. Clear Channel Commc'ns, Inc.*, 311 F. Supp. 2d 1048, 1082–85 (D. Colo. 2004) (collecting cases which have held that a plaintiff may define a relevant market by presenting sufficient qualitative indicia of market definition, without providing a formal cross-elasticity of demand analysis).

market, with a higher recapture percentage making a price increase more profitable for the hypothetical monopolist;

- evidence from other industry participants, such as sellers of complementary products;
- legal or regulatory requirements; and
- the influence of downstream competition faced by customers in their output markets.

Guidelines, § 4.1.3.

An analysis of DOJ and FTC staff memoranda conducted by antitrust economists further showed that “over half of the demand-side market definitions appear to be based on a technical and/or business-economic understanding of how competition plays out in the market, rather than detailed economic analysis.”

Malcolm B. Coate & Jeffrey H. Fischer, *A Practical Guide to the Hypothetical Monopolist Test for Market Definition*, 4 J. COMPETITION L. AND ECON. 1031, 1032 (Dec. 2008). Agency staff used economic modelling to assist in market definition in only “roughly a quarter of the market definitions studied.” *Id.* And analytical evidence, documentary findings, and customer testimony, i.e., qualitative data, were used in a wide range of market-definition analyses. *See id.*

Many different types of information are helpful to the antitrust agencies and courts in defining the relevant market, including “information about how customers shifted purchases in the past in response to price changes, information (including surveys) from buyers, business documents from sellers or other industry

participants, objective information about product characteristics, or costs and delays in product switching, among other sources.” John E. Kwoka Jr. & Lawrence J. White, *The Antitrust Revolution* 11 (7th ed. 2018). Even when econometric estimates of demand elasticities are readily available, “the agencies analyze documentary evidence and see the views of market participants, including both sellers and their customers, regarding substitutability of products in response to small changes in relative prices.” A.B.A., *Market Power Handbook*, Competition Law and Economic Foundations 86–87 (2nd ed. 2012). Relying on qualitative metrics to assess product substitutability is thus a well-accepted practice that has gained approval from courts and is regularly deployed by the agencies.

3. Aggregate diversion ratio analysis is an appropriate methodology for implementing the hypothetical monopolist test.

With that general framework, we turn to the analyses at issue in this case. First, Professor Asker indicated that he “conduct[ed] a quantitative hypothetical monopolist test using aggregate diversion (‘ADR’) analysis of ‘Customer Relationship Management’ (‘CRM’) data from SAP and Oracle, based on the number of times competitors are mentioned in sales representatives’ sales report[s].” Appx29. The District Court stated that “ADR analysis has rarely been accepted by courts,” Appx30, and rejected Professor Asker’s analysis after distinguishing it from ADR analyses in two other cases, Appx30–32. Yet ADR analysis is a well-accepted economic practice.

A. ADR analysis is a viable and often-used methodology for defining relevant product markets.

To begin, ADR analysis—frequently referred to as critical loss analysis—is a widely used economic tool to apply the hypothetical monopolist test. As described above, that test is commonly used to define a relevant product market by determining “whether a hypothetical monopolist controlling a group of products” could profitably impose a SSNIP on at least one of those products. Michael L. Katz & Carl Shapiro, *Critical Loss: Let’s Tell the Whole Story*, Antitrust 49–50 (Spring 2003). ADR analysis is a quantitative method used to delineate relevant product markets under the hypothetical monopolist test. *Id.* at 50–51. It asks whether the “actual loss” incurred as a result of a SSNIP, that is, “the percentage of unit sales that would be lost as a result of the price increase,” would exceed the “critical loss,” that is, “[t]he maximum percentage of unit sales that can be lost for the price increase to be profitable.” *Id.* at 49. If the actual loss from a SSNIP exceeds the critical loss, the price increase would be unprofitable; however, if the critical loss from SSNIP exceeds the actual loss, the SSNIP is profitable. *Id.* at 49–50. ADR analysis is “a simple approach that uses the ‘aggregate diversion ratio’—the percentage of the total sales lost by a product when its price rises that are captured by all of the other products in the candidate market”—to make greater use of the available market evidence.” *Id.* at 50; *see also, e.g.*, Joseph Farrell & Carl Shapiro, *Improving Critical Loss Analysis*, The Antitrust Source, Feb. 2008, at A1 (“Now

consider the hypothetical monopolist that imposes a uniform SSNIP on all of the products in the candidate market. The hypothetical monopolist will recapture a fraction A [earlier defined as the ADR] of the sales lost by any one product when its price is raised, since those lost sales will be diverted to products owned by the hypothetical monopolist.”).

The Guidelines recognize the value of ADR analysis. Quoting those guidelines, one commentator observed that “one piece of useful evidence is ‘the percentage of sales lost by one product in the candidate market, when its price alone rises, that is recaptured by other products in the candidate market,’ and they note that ‘a higher recapture percentage’ (aggregate diversion ratio) makes ‘a price increase more profitable for the hypothetical monopolist.’” Gregory J. Werden, *The Hypothetical Monopolist Test in Sysco: A Litigation Muddle Needing Analytic Clarity*, 12 J. COMP. L. & ECON. 341, 345 (2016). Not surprisingly, then, basic economic and antitrust literature confirms that ADR analysis is a commonly used and accepted approach: “Now consider how, as a practical matter, one might implement the Merger Guidelines’ approach to defining markets. . . . The largest percentage reduction in sales such that this price increase [the SSNIP] is barely profitable is referred to as the ‘critical loss,’ L. . . . Katz and Shapiro define the aggregate diversion ratio D for a given product as the fraction of the overall sales lost by that product that are captured by (diverted to) any of the other products in

the candidate product market.” Louis Kaplow & Carl Shapiro, *Antitrust*, Handbook of Law and Economics, Vol. 2, 1173–1174 (2007 ed.).

With that background, while the District Court says that “ADR analysis has rarely been accepted by courts,” Appx30, it is, in fact, widely accepted by economists. Moreover, commentators confirm that “courts and agencies often rely on Critical Loss Analysis.” Farrell & Shapiro, *Improving Critical Loss Analysis*, at 1.⁵ Thus, to the extent Professor Asker’s analysis was rejected based on a broader rejection of ADR analysis, that rejection was inconsistent with accepted economic methodology and practice.

B. ADR analysis does not require pricing data.

The District Court criticized Professor Asker’s analysis because “[h]is evaluation of CRM data did not and cannot consider pricing because the CRM data does not measure customer responses to changes in price.” Appx31–32. But that is often the case. For instance, the economists in *Wilhelmsen* and *Bazaarvoice* each

⁵ For example, in addition to the two cases cited in the Order below—*FTC v. Sysco Corp.*, 113 F. Supp. 3d 1, and *FTC v. Wilh. Wilhelmsen Holding ASA*, 341 F. Supp. 3d 27 (D.D.C. 2018)—Judge Orrick himself accepted an ADR analysis in *United States v. Bazaarvoice, Inc.*, 2014 U.S. Dist. LEXIS 3284, at *104 (“Dr. Shapiro noted, ‘the smaller the number of customers who would shift from products in the candidate market to products outside that market in response to a SSNIP imposed on products in the candidate market, the more likely that market will satisfy the test.’ The hypothetical monopolist will impose a SSNIP on a product if the profit gained from the SSNIP outweighs the total profit lost from customers who will no longer purchase the product at the higher price and will not switch to another product in the market.”).

implemented an ADR analysis using CRM data, not price data. *Wilhelmsen*, 341 F. Supp. 3d at 57 (observing that, “[f]or aggregate diversion, Dr. Nevo used three kinds of data – revenue information . . . , . . . salesforce data, and . . . win-loss data”); *Bazaarvoice*, 2014 U.S. Dist. LEXIS 3284, at *104 (“Dr. Shapiro estimated various possible recapture rates and proxies for the recapture rate and determined that all variations were substantially larger than 17 percent.”). This is also consistent with well-accepted economic application of ADR analysis, which recognizes that “[t]he evidence collected” to “estimate[e] the actual loss” in an ADR analysis “varies depending on the availability of data” and that, as a result, “qualitative information or experience can be used” American Bar Ass’n, *Market Definition in Antitrust*, ch.I.C.1.a (2012); see also, e.g., Carl Shapiro, *The 2010 Horizontal Merger Guidelines: From Hedgehog to Fox in Forty Years*, 77 *Antitrust L. J.* 49, 80 (2010) (noting that ordinary-course “documents of merging parties can be informative regarding diversion ratios and margins.”); Yongmin Chen & Marius Schwartz, *Churn Versus Diversion in Antitrust: An Illustrative Model*, 83 *Economica* 564 (2016). Accordingly, ADR analysis may, and frequently does, involve the use of CRM data as opposed to pricing data.

4. A reliable cross-elasticity analysis requires sufficient data.

Although the district court faulted Professor Asker for not conducting a formal econometrics study of cross-price elasticity, such an analysis is often not

feasible based on the available data and, as such, cannot reasonably be required in all cases where a relevant antitrust market needs to be analyzed. Where the data does not lend itself to quantitative analysis of diversion or cross-price elasticity, both courts and the agencies have instead relied more heavily on available qualitative data to define the product market. Professor Asker asserted that he considered both quantitative and qualitative data in reaching his conclusions.

In situations where the available data cannot support a proper quantitative assessment of cross-price elasticity, it is appropriate for courts to allow experts to rely more heavily on qualitative metrics such as those described above to define the relevant market. As long as a plaintiff provides “sufficient evidence of other indicia of market definition,” courts should permit the plaintiff to define the relevant market without providing a quantitative study of cross-price elasticity of demand—particularly “when economic analysis of cross-elasticity of demand is infeasible based on pricing data.” *Nobody in Particular Presents*, 311 F. Supp. 2d at 1082. Factual information “obtained from cited documents, deposition testimony and interviews,” especially when combined with the hypothetical monopolist test, is sufficient to accurately define the product market. *See Christou v. Beauport, LLC*, No. 10-cv-02912-RBJ-KMT, 2013 U.S. Dist. LEXIS 9034, at *11–12, *19–20 (D. Colo. Jan. 23, 2013).

The agencies have likewise turned to qualitative tools when data on relevant elasticities are not available. In practice, they often “informally” apply the hypothetical monopolist test to create a rough sketch of market competition. Davis & Garces, at 201. Even in the absence of relevant quantitative data, “[t]he conceptual framework of the test provides a useful methodological tool for gathering and analyzing evidence pertinent to customer substitution and to market definition.” Guidelines, § 4.1.3. In addition, agencies rely on qualitative data such as consumer surveys, business documents, and objective information about product characteristics and costs, *see supra* at 13–15, all of which can provide “[a] qualitative analogue to the estimation of demand elasticities,” Jonathan B. Baker & Timothy F. Bresnahan, *Economic Evidence in Antitrust: Defining Markets and Measuring Market Power*, in Paolo Buccirossi, STANFORD LAW SCHOOL, JOHN M. OLIN PROGRAM IN LAW AND ECONOMICS, WORKING PAPER NO. 328 1, 11 (2006). Relying on qualitative metrics is undoubtedly a well-accepted practice, and one that is necessary when appropriate data for conducting a formal cross-elasticity analysis is unavailable.

Ultimately, “all available evidence, whether quantitative or qualitative,” is important in antitrust decision-making. Baker & Bresnahan, at 4. Discounting the role that qualitative evidence plays in defining markets—especially in the absence of appropriate quantitative data to study cross-elasticity—is at odds with the

prevailing understanding among antitrust economists that both types of evidence are essential to properly defining the market. *See id.* (“[W]e give qualitative and quantitative evidence equal attention below when we discuss identification with respect to the market definition and market power inquiries.”).

CONCLUSION

The District Court’s economic analysis incorrectly discounted the central role that qualitative evidence plays in defining markets, including in its criticism of ADR analysis. *Amici curiae* respectfully request that the Court reject the district court’s reasoning and reverse the decision below.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on May 25, 2022, a copy of the foregoing Brief of Amicus Curiae was filed electronically with the Clerk of Court using the CM/ECF system, which will send notifications to all CM/ECF participants.

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CERTIFICATE OF COMPLIANCE

1. This brief complies with the type-volume limitation of Federal Circuit rules 29(b) and 32(b)(1). This brief contains 4,768 words, excluding the parts of the brief exempted by Federal Rule of Appellate Procedure 32(f) and Federal Circuit Rule 32(b)(2).

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