Hub-and-Spoke Conspiracies

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In antitrust law, a hub-and-spoke conspiracy is a cartel in which a firm (the hub) organizes collusion (the rim of the wheel or the rim) among upstream or downstream firms (the spokes) through vertical restraints. Such a conspiracy may be illegal per se under antitrust law where the horizontal agreement among the spokes (the rim) is per se unlawful, such as fixing prices or allocating territories or customers among competing spokes.

Hub-and-spoke cartels have drawn considerable attention since the 1930s, long before the conspiracy gained its name. Their architecture reduces the need for coordination among the spokes by centralizing at least some of the cartel functions at the hub. As a result, evidence of agreement among the spokes is often found in vertical coordination between the hub and the spokes, not in horizontal coordination. Yet the question of how to use vertical relationships to infer horizontal conspiracy has proved confusing and deserves clarification. In this article, I explain the analysis of hub-and-spoke cartels under antitrust law, clarify the meaning of the "rim requirement" (proof of an agreement among the spokes), and advocate that courts clearly state why and how they use vertical coordination to infer a horizontal conspiracy.

Cartels Facilitated Through Vertical Relationships

The Reduced Need for Horizontal Coordination. Three key problems influence firms' ability to form and maintain cartels: (1) the problem of selecting and coordinating collusive strategies; (2) the problem of monitoring members and deterring defections; and (3) the problem of preventing entry or expansion of non-members.[1] To address these problems, cartels adopt various mechanisms, including use of third parties to provide certain collusive functions.[2] Such third parties may mitigate the problems cartels face by centralizing those functions and reducing the costs of coordination and monitoring. For example, in *American Column & Lumber*, a trade association appointed a "Manager of Statistics" to serve as a "clearing house of the members, for information on prices, trade statistics, and practices," facilitating an exchange of information among competitors.[3] Similarly, in *Appalachian Coals*, 137 coal producers formed an "exclusive selling agency" that facilitated price fixing.[4]

Hub-and-spoke conspiracies likewise use upstream or downstream firms to produce collusive efficiencies. The hub facilitates and enforces the collusion, or key aspects of the collusion, through

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[1] *See* Margaret C. Levenstein & Valerie Y. Suslow, *What Determines Cartel Success?*, 44 J. Econ. Lit. 43, 44 (2006).

[2] *See* Masaki Aoyagi, *Collusion Through Mediated Communication in Repeated Games with Imperfect Private Monitoring*, 25 Econ. Theory 455 (2005) (discussing the role of third parties in facilitating collusion); Levenstein & Suslow, *supra* note 1, at 69–70 (summarizing cartel studies showing that the reliance on third parties, such as joint sales agencies and trade associations, tends to reduce defections).

[3] Am. Column & Lumber Co. v. United States, 257 U.S. 377, 401 (1921).

[4] Appalachian Coals v. United States, 288 U.S. 344, 357 (1933).

its vertical relationships with the spokes, thereby reducing the need for horizontal coordination. For example, geographic restraints set by the hub may replace negotiations over horizontal market division and resale price maintenance (RPM) policies may replace coordination over price fixing. Enforcement in these cartels is relatively efficient since the hub can terminate and punish spokes that do not comply with its policies. For its services, the hub collects some of the collusive profits and may also strategically use the cartel to raise rivals' costs.[5]

Vertical relationships can be put to the service of a cartel in structures less centralized than a classic hub-and-spoke arrangement as well. For example, in *JTC Petroleum*, Judge Richard Posner examined a cartel of six road contractors that allegedly "enlisted [three] producers in their conspiracy, assigning them the role of policing the [contractors'] cartel by refusing to sell to [a contractor] who defied the cartel."[6] Similarly, in *MM Steel*, two steel distributors conspired to pressure several steel manufacturers to boycott a newly formed steel distributor.[7] The important point is that cartels face organizational challenges that may be mitigated through the use of vertical relationships. Hence, in appropriate circumstances, vertical coordination may provide evidence of the existence of a horizontal conspiracy. The problem is identifying when and how it is appropriate to make that link.

Firms often use similar vertical restraints in their relationships with multiple upstream or downstream trading partners, and those trading partners often respond to the restraints in a similar manner.

The Problem of Ambiguity. Firms often use similar vertical restraints in their relationships with multiple upstream or downstream trading partners, and those trading partners often respond to the restraints in a similar manner. Practices that illustrate this phenomenon include manufacturers' geographic restraints, exclusivity clauses, RPM, most-favored-nation (MFN) clauses, and loyalty discounts.[8] These practices may divide territories among competitors, set retail prices, or require a group of firms not to deal with rivals. For antitrust analysis, the phenomenon of sets of vertical relationships that result in parallel conduct among competitors presents complexities. The arrangements may generate both pro- and anticompetitive effects; also, the arrangements may exist for independent reasons and yet may be consistent with the successful organization of a cartel.[9]

To avoid stifling potentially procompetitive conduct, antitrust law limits the range of permissible inferences that may be drawn from ambiguous conduct.[10] Proof of a set of vertical relationships and any resulting parallel conduct, standing alone, cannot conclusively establish an antitrust violation.[11] Rather, the "correct standard is that there must be evidence that tends to exclude the pos-

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[5] *See* John Asker & Heski Bar-Isaac, *Raising Retailers' Profits: On Vertical Practices and the Exclusion of Rivals*, 104 Am. Econ. Rev. 672 (2014). In their seminal article, Anticompetitive Exclusion, Thomas Krattenmaker and Steven Salop described the "cartel ringmaster" that induces collusion among upstream firms to raise rivals' costs. Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 Yale L.J. 209, 238–40 (1986).

[6] JTC Petroleum Co. v. Piasa Motor Fuels, Inc., 190 F.3d 775, 778 (7th Cir. 1999).

[7] MM Steel, L.P. v. JSW Steel (USA) Inc., 806 F.3d 835 (5th Cir. 2015).

[8] *See, e.g.*, Asker & Bar-Isaac, *supra* note 5; Fiona M. Scott Morton, *Contracts that Reference Rivals*, Antitrust, Summer 2013, at 72.

[9] *See generally* Margaret C. Levenstein & Valerie Y. Suslow, *How Do Cartels Use Vertical Restraints? Reflections on Bork's* The Antitrust Paradox, 57 J.L. & Econ. S33 (2014).

[10] The application of the "false positives theory" in antitrust effectively established a "false positive doctrine." *See, e.g.*, Bell Atl. Corp. v. Twombly, 550 U.S. 544, 554 (2007); Credit Suisse Sec. (USA) LLC v. Billing, 551 U.S. 264, 282 (2007); Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 588 (1986); Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 414 (2004); Monsanto Co. v. Spray-Rite Servs. Corp., 465 U.S. 752, 762 (1984).

[11] Theatre Enters., Inc. v. Paramount Film Distrib. Corp., 346 U.S. 537, 541 (1954) ("[P]roof of parallel business behavior . . . [has never been held to] conclusively establish[ ] agreement [nor does] such behavior itself constitute[ ] a Sherman Act offense.").

sibility of independent action by the [defendants]."[12] More precisely, there must be direct evidence of communication or indirect evidence that goes beyond parallel conduct.[13]

In reality, even after discovery, plaintiffs rarely can obtain direct evidence of communication. They therefore try to prove conspiracy by showing parallel conduct and "plus factors"—"economic actions and outcomes that are largely inconsistent with unilateral conduct but largely consistent with explicitly coordinated action."[14]

Courts have repeatedly recognized, however, that where a set of vertical relationships may have facilitated a horizontal conspiracy, the necessary plus factors may be found in that vertical coordination even though the vertical relationships themselves are ambiguous.[15] This is because even though "antitrust law [draws] a distinction . . . between agreements that are made between competitors (horizontal agreements) and agreements between manufacturers and customers (vertical agreements)," sometimes "the vertical participants . . . actually join the horizontal conspiracy."[16] Moreover, courts point out that hub-and-spoke cartels demonstrate that the distinction between vertical and horizontal agreements while "sharp in theory" can blur in reality.[17] Stated simply, as the Supreme Court noted in *Leegin*, vertical arrangements may produce "useful evidence for a plaintiff attempting to prove the existence of a horizontal cartel."[18]

The "Rim Requirement"

The Rim. Under antitrust law, the characteristic that separates an unlawful conspiracy facilitated through vertical relationships from a lawful vertical arrangement is proof of a horizontal "agreement" among competitors. In hub-and-spoke conspiracies, this agreement is the "rim" that connects the spokes. Without the rim, an alleged hub-and-spoke cartel is merely a set of vertical relationships (or restraints) that result in parallel conduct and does not establish a horizontal conspiracy.[19]

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[12] *Monsanto*, 465 U.S. at 768; *see also Twombly*, 550 U.S. at 554 ("The inadequacy of showing parallel conduct or interdependence, without more, mirrors the ambiguity of the behavior: consistent with conspiracy, but just as much in line with a wide swath of rational and competitive business strategy unilaterally prompted by common perceptions of the market.").

[13] *Monsanto*, 465 U.S. at 768 ("[T]here must be direct or circumstantial evidence that reasonably tends to prove that the [defendants] had a conscious commitment to a common scheme designed to achieve an unlawful objective.").

[14] *In re* Musical Instrs. and Equip. Antitrust Litig. (*Guitar Center*), 798 F.3d 1186, 1194 (9th Cir. 2015); *see also* City of Tuscaloosa v. Harcros Chems., Inc., 158 F.3d 548, 572 (11th Cir. 1998):

> [In the absence of direct evidence,] the plaintiffs first must produce evidence showing that the defendants engaged in consciously parallel action. Second, the plaintiffs must show "plus factors" that tend to exclude the possibility that the defendants merely were engaged in lawful conscious parallelism. One prominent "plus factor," to which antitrust plaintiffs often take recourse, is a showing that the defendants' behavior would not be reasonable or explicable (i.e. not in their legitimate economic self-interest) if they were not conspiring to fix prices or otherwise restrain trade—that is, that the defendants would not have acted as they did had they not been conspiring in restraint of trade.

See generally William E. Kovacic et al., *Plus Factors and Agreement in Antitrust Law*, 110 MICH. L. REV. 393 (2011).

[15] *See* 1 ABA SECTION OF ANTITRUST LAW, ANTITRUST LAW DEVELOPMENTS 20 (7th ed. 2012) [hereinafter ANTITRUST LAW DEVELOPMENTS] ("[C]ourts have found the existence of horizontal agreement based not on communications among competitors but rather through a series of vertical agreements.").

[16] *MM Steel*, 806 F.3d at 849.

[17] *See, e.g.*, United States v. Apple, Inc. (*The eBook Case*), 791 F.3d 290, 313–14 (2d Cir. 2015), *cert. denied*, No. 15-565, 2016 WL 854227 (U.S. Mar. 7, 2016); *Guitar Center*, 798 F.3d at 1192–93; *see also* Howard Hess Dental Labs. Inc. v. Dentsply Int'l, Inc., 602 F.3d 237, 254–55 (3d Cir. 2010); Cascades Computer Innovation LLC v. RPX Corp., No. 12-cv-1143, 2013 WL 6247594, at *1 (N.D. Cal. Dec. 3, 2013).

[18] Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877, 893 (2007).

[19] With the exception of tying, the legality of all vertical restraints is reviewed under the rule of reason. Tying is supposedly unlawful per se, but in practice the proving of unlawful tying is similar to a rule of reason inquiry. *See* ANTITRUST LAW DEVELOPMENTS, *supra* note 15, at 136, 154, 175–78.

Proving a hub-and-spoke conspiracy thus requires evidence of the rim that connects the spokes. The "rim requirement" is well established under antitrust law, but the question remains how the requirement may be satisfied.

Rimless Wheel Theories. To the extent that any court ever ruled that a rimless hub-and-spoke arrangement can constitute a conspiracy under Section 1, such a decision is inconsistent with the "agreement requirement" of Section 1 and with the overwhelming majority of the decisions.[20] Yet plaintiffs continue to put forward rimless hub-and-spoke conspiracy theories. The primary reason is that "[t]he prospect of establishing a violation per se is much more appealing to plaintiffs than the potential difficulty and costliness of proving a Section 1 claim under the rule of reason."[21] Another reason is for plaintiffs to avoid the considerable, formalistic hurdles to plead conspiracy that do not necessarily correspond to the understanding (or perceptions) of market participants. A final reason is that the hub-and-spoke metaphor itself causes some confusion because the original meaning of a hub-and-spoke conspiracy in general criminal law was a conspiracy in which the only common point of connection was the hub, conspiring with the individual spokes. However, when courts use the metaphor for the purpose of *antitrust* hub-and-spoke conspiracies, they have in mind a wheel enclosed by a rim that connects its spokes.[22]

Proving a hub-and-spoke conspiracy thus requires evidence of the rim that connects the spokes.

The Standards of Proof. Courts typically reject rimless wheel theories on the basis that those theories omit the required element of horizontal agreement,[23] but such attempts to draw a sharp distinction between the rim requirement and rimless wheel theories are misleading. Circumstantial evidence (plus factors) may be used to establish the existence of the rim, and vertical coordination is a critical aspect of that circumstantial evidence. As a result, in their actual practice, going back nearly 80 years, courts have developed an inference standard that permits finding of the existence of the rim from vertical coordination. Nonetheless, this inference standard remains vague and confusing.

The Origins of the Metaphor

The Supreme Court first used the metaphor "hub-and-spoke conspiracy" outside the antitrust context in *Kotteakos v. United States*.[24] The owner of a construction company defrauded the federal government by serving as a broker in securing, for each of several customers, multiple loans in violation of the National Housing Act. The Supreme Court observed that "the pattern was that of separate spokes meeting at a common center though . . . without the rim of the wheel to enclose the spokes."[25] Because the pattern lacked a rim, the Court held that each set of loans constituted a separate conspiracy, between the hub and the individual spokes.

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[20] *See, e.g.*, *The eBook Case*, 791 F.3d at 313–14; *In re* Ins. Brokerage Antitrust Litig., 618 F.3d 300, 327 (3d Cir. 2010); Total Benefits Planning Agency, Inc. v. Anthem Blue Cross & Blue Shield, 552 F.3d 430, 435–36 (6th Cir. 2008); PepsiCo, Inc. v. Coca-Cola Co., 315 F.3d 101, 109–11 (2d Cir. 2002); Dickson v. Microsoft Corp., 309 F.3d 193, 203–05 (4th Cir. 2002); Toys "R" Us, Inc. v. FTC (TRU), 221 F.3d 928, 934–36 (7th Cir. 2000); Orchard Supply Hardware LLC v. Home Depot USA, Inc., 967 F. Supp. 2d 1347, 1355–56 (N.D. Cal. 2013); Impro Prods., Inc. v. Herrick, 715 F.2d 1267, 1279–80 (8th Cir. 1983); Elder-Beerman Stores Corp. v. Federated Dep't Stores, Inc., 459 F.2d 138, 153–54 (6th Cir. 1972); *In re* Nexium (Esomeprazole) Antitrust Litig., 42 F. Supp. 3d 231, 252–58 (D. Mass. 2014); Mylan Labs., Inc. v. Akzo, N.V., 770 F. Supp. 1053 (D. Md. 1991).

[21] *Guitar Center*, 798 F.3d at 1192 n.3.

[22] *Id.* (asking, "for what is a wheel without a rim?").

[23] *See supra* note 20.

[24] Kotteakos v. United States, 328 U.S. 750 (1946).

[25] *Id.* at 755.

What are now called hub-and-spoke cartels in antitrust law existed, of course, long before courts adopted the metaphor and even before Congress enacted the Sherman Act. For example, Elizabeth Granitz and Benjamin Klein showed that, in the 1870s, Standard Oil acquired dominance in the oil industry by serving as "a [railroad] cartel enforcer located at a hub and connected by spokes to a horizontal conspiracy among the railroads along the rim."[26]

The metaphor crept slowly into antitrust as private plaintiffs tried to use *Kotteakos* to advance "rimless wheel" theories of conspiracy. Under these theories, courts could infer from a set of vertical agreements that result in parallel conduct a conspiracy among the spokes in violation of Section 1 of the Sherman Act. Rimless wheel theories interpret *Kotteakos* to allow inference of a single conspiracy where there is no evidence to prove a rim.

Courts, however, have almost unanimously rejected rimless wheel theories,[27] although in 2010, the Third Circuit stated that "[t]here is arguably some support for what amounts to a 'rimless' conspiracy,"[28] citing *Kotteakos* and a 2002 decision of the Fourth Circuit, *Dickson v. Microsoft Corp*.[29] Neither case, however, supports rimless wheel conspiracy theories. *Kotteakos* was not an antitrust case and, thus, cannot offer guidance for the inference of antitrust conspiracy, which is a specific deductive process. Also, *Kotteakos*' ruling provides that, without the rim, there is no conspiracy among the spokes. Likewise, *Dickson* stressed that a rimless hub-and-spoke arrangement consisted of several conspiracies and, therefore, does not permit inference of conspiracy among the spokes:

> A rimless wheel conspiracy is one in which various defendants enter into separate agreements with a common defendant, but where the defendants have no connection with one another, other than the common defendant's involvement in each transaction. . . . In *Kotteakos*, the Supreme Court made clear that a rimless wheel conspiracy is not a single, general conspiracy but instead amounts to multiple conspiracies between the common defendant and each of the other defendants.[30]

The metaphor became a recognized antitrust concept when, in 1998, the FTC successfully challenged the relationships of Toys "R" Us with its suppliers.[31] Cases referring explicitly to a hub-and-spoke arrangement are thus relatively new to antitrust, appearing mostly in cases in the last two decades.[32]

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[26] Benjamin Klein, *The "Hub-and-Spoke" Conspiracy that Created the Standard Oil Monopoly*, 85 S. Cal. L. Rev. 459, 486 (2012). The study reflects a revised version of Elizabeth Granitz & Benjamin Klein, *Monopolization by "Raising Rivals' Costs": The Standard Oil Case*, 39 J.L. & Econ. 1 (1996).

[27] *See, e.g.*, *PepsiCo*, 315 F.3d at 110–11; *Dickson*, 309 F.3d at 198–205; *Impro Products*, 715 F.2d at 1279–80; *Elder-Beerman Stores*, 459 F.2d at 153–54; *Mylan Labs*., 770 F. Supp. 1053.

[28] *Howard Hess*, 602 F.3d at 256.

[29] 309 F.3d at 203.

[30] *Id.* (internal citation omitted).

[31] Toys "R" Us, Inc., 126 F.T.C. 415, 574–75 (1998), *aff'd, TRU*, 221 F.3d 928.

[32] *See, e.g.*, *Impro Products*, 715 F.2d at 1279 n.14 ("There is some question whether the conspiracy provisions of Sections 1 and 2 of the Sherman Act apply to a hub-and-spoke conspiracy. We believe that they do. Two federal courts addressing this question have recognized—at least implicitly—that such a conspiracy is cognizable under the Sherman Act if the plaintiff introduces sufficient evidence to demonstrate that one exists."); Redbox Automated Retail LLC v. Universal City Studios LLLP, Civ. No. 08-766, 2009 WL 2588748, at *5 (Aug. 17, 2009) (finding that the plaintiff sufficiently pleaded that a manufacturer orchestrated a conspiracy among distributors by analogy to classic several hub-and-spoke cases).

Several courts have observed that the metaphor could be confusing, especially because it contributes to rimless wheel theories.[33] The metaphor, however, has served the development of antitrust law by allowing courts to identify a specific type of cartel, learn its unique characteristics, and develop adequate standards for finding a violation.

The Inference Standard: Supreme Court's Landmarks

Between 1939 and 1966, the Supreme Court handed down five decisions that courts now identify as precedents for antitrust hub-and-spoke conspiracies: *Interstate Circuit*, *Masonite*, *Klor's*, *Parke Davis*, and *General Motors*.[34] In these cases, the Court inferred a horizontal conspiracy from sets of vertical relationships. The five opinions were written before the Supreme Court drew a clear distinction between vertical and horizontal restraints.[35] But as already noted, in the context of hub-and-spoke conspiracies, the distinction is misleading. Further, the Court has not overruled any of these decisions and, in fact, has expressly endorsed all five of them in the modern era.[36] Thus, although the decisions are old, courts still apply the inference standard that they outline for evaluating hub-and-spoke conspiracies.

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Interstate Circuit (1939). *Interstate Circuit* is understood to involve three key aspects: (1) a monopolist movie exhibitor communicated simultaneously to eight movie distributors a demand to set minimum admission prices and prohibit "double features" (offering two movies for the price of one); (2) each distributor knew that the demand was communicated to the other distributors and accepted it; and (3) the Supreme Court held that the acceptance established a conspiracy under Section 1 of the Sherman Act. Today, courts interpret *Interstate Circuit* to say that a conspiracy may be inferred where (1) two or more competitors enter into vertical agreements with a single upstream or downstream firm; (2) the vertical agreements could benefit each competitor only if its rivals enter into similar agreements; and (3) the firm that facilitates all the vertical agreements persuades each competitor that its competitors will take a similar action.[37] Courts, however, have chosen to disregard the broader language of *Interstate Circuit* stating that "an unlawful conspiracy

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[33] *See, e.g.*, *The eBook Case*, 791 F.3d at 314 n.15 ("[T]he 'hub-and-spoke' metaphor is somewhat inaccurate—the plaintiff must also prove the existence of a 'rim' to the wheel in the form of an agreement among the horizontal competitors."); *Guitar Center*, 798 F.3d at 1192 ("Of course, homespun metaphors for complex economic activities go only so far.").

[34] Interstate Circuit v. United States, 306 U.S. 208 (1939); United States v. Masonite Corp., 316 U.S. 265 (1942); Klor's, Inc. v. Broadway-Hale Stores, Inc., 359 U.S. 207 (1959); United States v. Parke, Davis & Co., 362 U.S. 29 (1960); United States v. Gen. Motors Corp., 384 U.S. 127 (1966).

[35] Cont'l T.V., Inc. v. GTE Sylvania Inc., 433 U.S. 36 (1977); Bus. Elecs. Corp. v. Sharp Elecs. Corp., 485 U.S. 717 (1988); *Leegin*, 551 U.S. 877.

[36] *See, e.g.*, *Business Electronics*, 485 U.S. at 735 (stressing that *Parke Davis* and *General Motors* involved horizontal conspiracies and should not be understood as cases of vertical restraints); Brown v. Pro Football, Inc., 518 U.S. 231, 241 (1996) (noting that *Interstate Circuit*, *Masonite*, and *General Motors* illustrate that "[a]ntitrust law . . . sometimes permits judges or juries to premise antitrust liability upon little more than uniform behavior among competitors, preceded by conversations implying that later uniformity might prove desirable, . . . or accompanied by other conduct that in context suggests that each competitor failed to make an independent decision.") (internal citations omitted); NYNEX Corp. v. Discon, Inc., 525 U.S. 128, 134 (1998) (describing the facts of *Klor's*, noting that "undisputed evidence" showed that an agreement between a retailer and distributors "hurt only one competitor," and explaining that "this evidence was beside the point" because such agreements are illegal per se.).

[37] *See, e.g.*, *TRU*, 222 F.3d. at 935–36; *The eBook Case*, 791 F.3d at 319–20.

may be and often is formed without . . . agreement on the part of the conspirators."[38]

Masonite (1942). *Masonite* involved licensing agreements between a patent holder and wallboard manufacturers that set prices of the final products. The agreements were negotiated while the patent holder resolved infringement disputes with some of the licensees. The Supreme Court found that each licensee "acted independently of the others, negotiated only with [the patent holder], desired the agreement regardless of the action that might be taken by any of the others, did not require as a condition of its acceptance . . . an agreement with any of the others, and had no discussions with any of the others."[39] Yet, the Court applied *Interstate Circuit*, holding that it was "not clear at what precise point of time each [licensee] became aware of the fact that its contract was not an isolated transaction but part of a larger arrangement. But it [was] clear that as the arrangement continued each became familiar with its purpose and scope."[40] *Masonite*, therefore, reaffirmed *Interstate Circuit*'s inference standard.

Klor's (1959). In *Klor's*, a relatively prominent California retailer required several suppliers "either not to sell . . . or to sell . . . [on] highly unfavorable terms" to a store that operated next to one of its branches.[41] The suppliers agreed to limit their dealing with that rival. The Supreme Court concluded that the "allegations" disclosed a "concerted refusal to deal," that the "defendants did not dispute these allegations," and that the allegations involved "a wide combination consisting of manufacturers, distributors and a retailer."[42] Such a conspiracy, the Court held, was illegal per se.

Today, courts cite *Klor's* for the rule that a group boycott is illegal per se and to illustrate unlawful hub-and-spoke conspiracies. The reliance on *Klor's* should be qualified, however. The Court inferred conspiracy in *Klor's* when the defendants for their own reasons did not challenge the allegations and instead only argued that their conduct did not cause harm to competition. The allegations themselves depicted an ambiguous pattern of a set of vertical restraints organized by a single firm, which resulted in parallel conduct. In essence, this arrangement is equivalent to a rimless wheel conspiracy. Modern courts are unlikely to apply this inference standard.

Parke, Davis & Co. (1960). In *Parke, Davis*, the Supreme Court held that a horizontal agreement may be inferred where the acceptance of a policy involved active exchanges between a manufacturer and downstream firms.[43] Parke, Davis, a pharmaceutical company, was troubled by discounters that sold its products below its suggested retail prices (MSRP). It informed its wholesalers that it would terminate any wholesaler that sold its products to discounters, and enforced this policy. Additionally, the company discussed the policy with its wholesalers and retailers to secure adherence, brokered an agreement among retailers not to advertise products at prices below MSRP, and amended its policy to reflect the negotiations.

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[38] *Interstate Circuit*, 306 U.S. at 227. For a warning, see 6 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 1426, at 200 (3d ed. 2010):

> [T]he *Interstate Circuit* case continues to fascinate the cognoscenti and to mislead the unwary. The fascination lies in working one's way through the conspiracy finding. Equally intriguing and potentially misleading is the Court's language that traditional conspiracy is unnecessary for a Shearman Act Section 1 violation.

[39] *Masonite*, 316 U.S. at 275.

[40] *Id.*

[41] *Klor's*, 359 U.S. at 209.

[42] *Id.* at 209–10, 212–13.

[43] *Parke, Davis*, 362 U.S. 29.

The Supreme Court found that Parke, Davis "sought assurances of compliance and got them, as well as the compliance itself."[44] It, therefore, held that "[i]t was only by actively bringing about substantial unanimity among the competitors that Parke Davis was able to gain adherence to its policy."[45] Thus, while unilateral refusals to deal are protected by the *Colgate* doctrine,[46] the Court ruled that "Parke Davis went beyond the limits of the *Colgate* doctrine."[47]

***General Motors* (1966).** *General Motors* involved an organized effort of rival dealers to address the problem of discounters by securing from a manufacturer RPM and assistance in enforcing the RPM policies against the price cutters. The defendants argued that the arrangement was a set of separate vertical agreements that were necessary to protect "the franchise system of distributing automobiles."[48] The Court rejected the argument, finding that the individual dealers did not act "independently or separately" and that "[t]he dealers collaborated . . . among themselves and with [the manufacturer] both to enlist the aid of [the manufacturer] and to enforce dealers' promises to forsake the discounters."[49] The Court further emphasized that the manufacturer did not "confine its activities to the contractual boundaries of its relationships with individual dealers."[50]

The conspiracy in *General Motors* sought to address a free-riding problem. The manufacturer's warranty required "franchise dealers" to service new cars regardless of where they were purchased, and the discounters did not provide such services. The Court expressly rejected the justifications for the conspiracy. The case, therefore, emphasizes that, where vertical relationships facilitate a conspiracy, their procompetitive effects are irrelevant to the legality of the horizontal agreement.

Summary of the Inference Standard as Crafted by the Supreme Court. Between 1939 and 1966, before the "hub-and-spoke-conspiracy" metaphor entered the antitrust lexicon, the Supreme Court examined such conspiracies in five landmark decisions. These decisions permit inference of a per se unlawful horizontal agreement from an arrangement of vertical relationships. With the exception of *Klor's*—a decision that is somewhat perplexing—the decisions emphasize that it is not the vertical relationships themselves but the totality of the communication and circumstances that may provide circumstantial evidence (namely, the plus factors) proving a conspiracy.

The Inference Standard: Modern Hub-and-Spoke Cases

In the modern era, since antitrust endorsed the distinction between vertical and horizontal restraints, five hub-and-spoke conspiracy cases stand out: *Toys "R" Us v. FTC* (*TRU*), *Dickson v. Microsoft*, *PepsiCo v. Coca-Cola Co.*, *United States v. Apple* (*The eBook Case*), and *In re Musical Instruments and Equipment Antitrust Litigation* (*Guitar Center*). These cases are important for the following reasons: *TRU* articulated the legal standards for and popularized the use of the concept of a hub-and-spoke conspiracy; *Dickson* and *PepsiCo* firmly rejected "rimless wheel" conspiracy claims; *The eBook Case* challenged the law of hub-and-spoke conspiracies; and *Guitar Center* illustrated the ambiguity of the rim requirement.

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[44] *Id.*

[45] *Id.* at 46.

[46] United States v. Colgate & Co., 250 U.S. 300 (1919).

[47] *Parke, Davis*, 362 U.S. at 46; *see also Business Electronics*, 485 U.S. at 735 (emphasizing that *Parke, Davis* included vertical interactions that went beyond termination threat).

[48] *General Motors*, 384 U.S. at 142.

[49] *Id.* at 143.

[50] *Id.*

Toys "R" Us (7th Cir. 2000). In the 1980s, TRU was the largest toy retailer in the United States. Responding to the emergence of low-priced warehouse clubs, in the late 1980s TRU started aggressively negotiating vertical agreements with toy manufacturers pressing them not to deal with warehouse clubs. The FTC determined that these vertical agreements violated Section 1.[51] It also concluded that "TRU organized and enforced a horizontal agreement among its various suppliers."[52] Although TRU held "considerable market power, key toy manufacturers were unwilling to refuse to sell to or discriminate against the clubs unless they were assured that their competitors would do the same."[53] The FTC found that TRU "acted as the central player in the middle of what might be called a hub-and-spoke conspiracy, shuttling commitments back and forth between toy manufacturers and helping to hammer out points of shared understanding."[54]

The Seventh Circuit affirmed, holding that the case was "a modern equivalent of the old *Interstate Circuit* decision."[55] Quite importantly, the Seventh Circuit also affirmed the FTC's determination that a hub-and-spoke conspiracy may be illegal per se, though the court did not use the term "hub-and-spoke" itself. Considering the negotiations between the alleged hub and spokes, *TRU* shares more similarities with *Parke Davis* than with *Interstate Circuit*.

Dickson (4th Cir. 2002)* and *PepsiCo (2d Cir. 2002). *Dickson* and *PepsiCo*, decided a few weeks apart, involved high-profile alleged hub-and-spoke conspiracies, in which the plaintiffs invoked rimless wheel theories. Relying on well-established antitrust principles, the Second and Fourth Circuits emphasized that proof of hub-and-spoke conspiracy requires evidence of the rim that connects the spokes.

In *Dickson*, a software manufacturer argued that the distribution agreements between Microsoft and three original equipment manufacturers (OEMs)—Compaq, Dell, and PB Electronics—established a conspiracy among the OEMs. The district court granted the defendants' motion to dismiss, holding that "a rimless wheel antitrust conspiracy is not actionable."[56] The Fourth Circuit upheld, firmly rejecting the proposition that rimless wheel theories may establish antitrust conspiracies.[57]

PepsiCo was similar in many ways. Coca-Cola's vertical agreements with distributors included loyalty clauses that forced distributors to decide between the company and PepsiCo. PepsiCo challenged the legality of these clauses by arguing that they established a hub-and-spoke conspiracy, among other things. The district court granted summary judgment for Coca-Cola[58] and the Second Circuit upheld that decision, stressing the rim requirement.[59]

The eBook Case (2d Cir. 2015). In 2009, when preparing for the release of the iPad, Apple decided to enter into new digital content distribution markets. The market for ebooks appeared

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[51] *Toys "R" Us*, 126 F.T.C. at 569–74. The determination, followed by a consent order, imposed restrictions on TRU's relationships with suppliers. In April 2014, the FTC relaxed some of the restrictions as TRU's market position weakened. Toys "R" Us Inc., FTC Docket No. 9278, 2014 WL 1630469 (Apr. 11, 2014).

[52] *Toys "R" Us*, 126 F.T.C. at 574.

[53] *Id.*

[54] *Id.*

[55] *Toys "R" Us*, 221 F.3d at 935.

[56] *In re* Microsoft Corp. Antitrust Litig., 127 F. Supp. 2d 728, 733 (D. Md. 2001), *aff'd*, *Dickson*, 309 F.3d 193.

[57] *Dickson*, 309 F.3d at 203–05.

[58] PepsiCo, Inc. v. Coca-Cola Co., 114 F. Supp. 2d 243 (S.D.N.Y. 2000), *aff'd*, *PepsiCo*, 315 F.3d 101.

[59] *PepsiCo*, 315 F.3d at 110–11.

particularly promising, but entry into this market required recruitment of the large publishers. The titles of the six largest publishers (the Big Six) accounted for the overwhelming majority of best-sellers in the United States. Amazon sold over 90 percent of the ebooks of these publishers. The horizontal relationships among the Big Six were uncomfortably close from an antitrust perspective: their CEOs met a few times a year "in the private dining rooms of New York restaurants . . . to discuss common challenges . . . [and] felt no hesitation in freely discussing Amazon's prices . . . and their joint strategies for raising those prices."[60]

Apple approached the Big Six and was able to enlist five of them to enter into agency distribution agreements with MFN clauses.[61] Under the agreements, the publishers retained the right to set prices of ebooks, but committed to caps at $14.99, $12.99, and $9.99, depending on the book's hardcover price. The pricing structure created strong incentives to increase prices and, indeed, the publishers raised prices. The MFN clauses, in turn, required the publishers to change their relationships with other retailers to avoid losses.

Apple challenged the law of hub-and-spoke conspiracies, including the established inference standard that permits finding a horizontal agreement based on vertical coordination.

At trial, Apple challenged the law of hub-and-spoke conspiracies, including the established inference standard that permits finding a horizontal agreement based on vertical coordination. Although the company's "defense . . . somewhat shifted over time," it primarily focused on "the Supreme Court's decision in *Monsanto* . . . to assert that . . . the evidence [did] not 'tend to exclude' the possibility that Apple [had] acted in a manner consistent with its lawful business interests."[62] In *Monsanto*, the Supreme Court held that a firm may have "legitimate reasons" to be interested in a policy that advances parallel conduct among its distributors (or suppliers).[63] The district court, however, found that the evidence unambiguously demonstrated that Apple orchestrated a cartel among the publishers.[64] The court, therefore, condemned Apple's arrangement with the publishers as a per se unlawful hub-and-spoke conspiracy, rejecting Apple's arguments that the per se rule should not apply to schemes with vertical agreements and that the ruling would deter innovation.[65] The Second Circuit upheld. The judges on the panel disagreed about the applicability of the per se rule to hub-and-spoke conspiracies but agreed that it was appropriate to infer a conspiracy from vertical coordination.[66] As discussed below, the dissenting judge argued that the rule of reason should apply to cartels facilitated through vertical restraints.

Guitar Center (9th Cir. 2015). Guitar Center is the largest retail seller of musical instruments in the United States. It pressured the five leading guitar manufacturers to set the lowest prices at which any retailer could advertise their products, and the manufacturers adhered to this minimum-advertised-price (MAP) policy. The policy apparently intended to address free-riding problems that Guitar Center faced. The policy was also supported by the trade association of musical instrument manufacturers, which, a few years earlier, had negotiated industrywide MAP policies

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[60] *The eBook Case*, 791 F.3d at 300.

[61] *Id.* at 302–04. In the agency model, the publisher sets the price and pays a commission to the retailer, whereas in the wholesale model the retailer sets the retail price and the publisher receives its designated wholesale price for each book.

[62] United States v. Apple Inc., 952 F. Supp. 2d 638, 694, 695 (S.D.N.Y. 2013) (*SDNY eBook Case*), *aff'd*, *The eBook Case*, 791 F.3d 290 (internal citation omitted).

[63] *Monsanto*, 465 U.S. at 762–63.

[64] *The SDNY eBook Case*, 952 F. Supp. 2d at 694–99.

[65] *Id.* at 706–07.

[66] *Compare The eBook Case*, 791 F.3d at 319, 323–29 (rejecting Apple's argument that "each piece of evidence standing alone [was] 'ambiguous' and therefore insufficient to support an inference of conspiracy" and applying the per se rule), *with id.* at 340, 345–48 (Jacobs, J., dissenting) (accepting the findings of fact of the district court, but rejecting application of the per se rule).

that it agreed to abandon in a consent decree with the FTC.[67] Guitar Center introduced its policy shortly thereafter. The plaintiffs saw a classic hub-and-spoke conspiracy, but the district court and the Ninth Circuit disagreed.

The plaintiffs did not have direct evidence of horizontal conspiracy, but instead alleged as plus factors that "the MAP policies were similar and adopted around the same time (tending to negate independent action); . . . the MAP policies were against [the] manufacturers' individual self-interest and would succeed only if all manufacturers participated; [the] manufacturers' key decision-makers met at summits or trade shows; and . . . show announcements and open discussions were designed to signal, announce, and police compliance."[68]

[T]he argument that the rule of reason should apply to hub-and-spoke conspiracies is fundamentally flawed . . .

The district court applied the *Twombly* pleading standard to the alleged hub-and-spoke conspiracy and ruled that the complaint did not "answer the basic questions: who, did what, to whom (or with whom), where, and when?"[69] The Ninth Circuit recognized that "the line between horizontal and vertical restraints can blur" in hub-and-spoke conspiracies, but rejected the plaintiffs' argument that the circumstances of the adoption of and compliance with the MAPs was sufficient to plead an actionable rim under *Twombly*.[70] Thus, although the court recognized that hub-and-spoke conspiracies blur the distinction between vertical and horizontal agreements, in effect the court was unwilling to recognize that vertical restraints reduce the need for horizontal coordination. Instead, the Ninth Circuit made the error of trying to break the alleged conspiracy "into its constituent parts, the respective vertical and horizontal agreements."[71] The court's analysis, therefore, would seem to demand that plaintiffs offer at the pleading stage evidence of direct horizontal coordination, yet doing so provides something of a free pass to hub-and-spoke conspiracies where vertical communications may have dispensed with the need for such horizontal coordination.

Beyond Proof of the Rim

The discussion thus far has focused on the existence of the rim requirement and the inference standard that permits the use of vertical coordination as plus factors. Plaintiffs have a separate burden to show that a conspiracy constitutes a violation. Where the restraint is unlawful per se, the plaintiff need only to prove that the defendants colluded. But where the restraint is evaluated under the rule of reason, the plaintiff must also prove anticompetitive effects.

In cases of alleged hub-and-spoke conspiracies (and any other cartels facilitated through vertical relationships), defendants have incentives to argue that the rule of reason applies because analysis under the rule of reason is disproportionately favorable for defendants. However, the argument that the rule of reason should apply to hub-and-spoke conspiracies is fundamentally flawed in several ways.

First, the five Supreme Court landmark cases involving alleged hub-and-spoke conspiracies unequivocally established that the per se rule applies to horizontal agreements facilitated through vertical relationships. Most recent hub-and-spoke conspiracy decisions continue to state that such arrangements are unlawful per se.[72] As the Sixth Circuit explained:

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[67] *In re* Nat'l Ass'n of Music Merchants, Inc., No. 1-0203, 2009 WL 641814 (FTC Mar. 4, 2009).

[68] *In re* Nat'l Ass'n of Music Merchants, Musical Instrs. and Equip. Antitrust Litig., MDL No. 2121, 2012 WL 3637291, at *3 (S.D. Cal. Aug. 20, 2012), *aff'd*, *Guitar Center*, 798 F.3d 1186.

[69] *Id.* (quoting Kendall v. Visa U.S.A., Inc., 518 F.3d 1042, 1048 (9th Cir. 2008)).

[70] *Guitar Center*, 798 F.3d at 1192.

[71] *Id.*

[72] *The eBook Case*, 791 F.3d at 321–29; Big Apple BMW, Inc. v. BMW of North Am., Inc., 974 F.2d 1358, 1376–77 (3d Cir. 1992); Rossi v. Standard Roofing, Inc., 156 F.3d 452, 461–65 (3d. Cir. 1998); *see also Toys "R" Us*, 126 F.T.C. at 569, 589–91.

> There is no special exception for applying per se status just because there is a hub and spoke conspiracy; the complaint still must show some horizontal relationship [among the spokes]. . . . [T]he critical issue for establishing a per se violation with the hub and spoke system is how the spokes are connected to each other.[73]

Second, *GTE Sylvania*, *Business Electronics*, and *Leegin*—the opinions that mark the adoption of the distinction between vertical and horizontal agreements—apply the rule of reason to vertical agreements but recognize that when vertical agreements facilitate a horizontal conspiracy the per se rule may apply.[74] Specifically, in *Business Electronics*, the Court emphasized that the per se rule applied in *Klor's*, *General Motors*, and *Parke, Davis* because they involved horizontal conspiracies.[75]

Arguments in favor of applying the rule of reason to hub-and-spoke conspiracies disregard the exceptions recognized by the Supreme Court. Instead, some proponents of the rule of reason find support in a passage from *Leegin* stating:

> A horizontal cartel among competing manufacturers or competing retailers that decreases output or reduces competition in order to increase price is, and ought to be, per se unlawful. . . . To the extent a vertical agreement . . . is entered upon to facilitate [a] cartel, it . . . would need to be held unlawful under the rule of reason.[76]

This passage, however, does not bear the weight given it by proponents of using the rule of reason. *Leegin* concerned the analysis of RPM arrangements under antitrust law, not cartels facilitated through vertical agreements. In this dictum, the Court recognized that vertical agreements may facilitate cartels.[77] The proposition that with one line in this dictum the Court implicitly overruled established precedents is somewhat radical.[78] Nevertheless, a 2008 Third Circuit decision interpreted the dictum to provide that "the rule of reason analysis applies even when . . . the purpose of the vertical agreement . . . is to support illegal horizontal agreements."[79] It is far from clear that the Third Circuit is committed to this interpretation, since at least two more recent decisions of the Third Circuit held that hub-and-spoke conspiracies may be unlawful per se, emphasizing the "long history [of hub-and-spoke conspiracies] in antitrust jurisprudence."[80] Another decision of the Third Circuit even suggests that there may be support for rimless wheel theories.[81] The Second and

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[73] *Total Benefits*, 552 F.3d at 435–36.

[74] *See GTE Sylvania*, 433 U.S. at 58 n.28 ("There may be occasional problems in differentiating vertical restrictions from horizontal restrictions . . . but we do not regard the problems of proof as sufficiently great to justify a per se rule."); *Business Electronics*, 485 U.S. at 734–35 (explaining the ruling in light of *Klor's*, *Parke Davis*, and *General Motors*); *Leegin*, 551 U.S. at 892–94 (describing how RPM may be used to facilitate collusion).

[75] *Business Electronics*, 485 U.S. at 734–35.

[76] *Leegin*, 551 U.S. at 893.

[77] *Id.* at 893–94.

[78] *See, e.g.*, *The eBook Case*, 791 F.3d at 324 ("This position relies on a single sentence from [*Leegin*]. . . . If the Supreme Court meant to overturn *General Motors* and *Klor's*—precedents that it has consistently reaffirmed—this cryptic sentence was certainly an odd way to accomplish that result."); *MM Steel*, 806 F.3d at 849 ("We decline to hold that [in *Leegin*] the Supreme Court silently overruled [a] line of cases by stating that vertical agreements to regulate prices that facilitate horizontal agreements to regulate prices 'too, would need to be held unlawful under the rule of reason.'").

[79] Toledo Mack Sales & Serv., Inc. v. Mack Trucks, Inc., 530 F.3d 204, 224–25 (3d. Cir. 2008).

[80] *Insurance Brokerage*, 618 F.3d at 327; *Total Benefits*, 552 F.3d at 435–36.

[81] *Howard Hess*, 602 F.3d at 256; *see supra* notes 28–30 and accompanying text.

Fifth Circuits have expressly rejected the view that *Leegin* intended to apply the rule of reason to cartels facilitated through vertical relationships, such as hub-and-spoke conspiracies.[82]

Third, rule of reason is often described as an elaborate balancing process of evaluating competitive effects, in which "the factfinder weighs all of the circumstances of a case in deciding whether a restrictive practice should be prohibited as imposing an unreasonable restraint on competition."[83] In practice, however, a rule of reason inquiry typically does not involve evaluation of net competitive effects.[84] As antitrust evolved, the application of the rule of reason analysis to vertical restraints effectively came to mean that these restraints are presumptively lawful.[85] Thus, considering how antitrust jurisprudence has developed in recent decades, claims that alleged hub-and-spoke conspiracies should be evaluated under the rule of reason effectively mean that this type of alleged conspiracy should be assessed under a presumption of legality. Stated differently, these claims imply that cartels facilitated through vertical relationships tend to be procompetitive, since this is the meaning of the legality presumption.

Finally, the application of the per se rule to cartels facilitated through vertical relationships has a very narrow meaning: it condemns only those aspects of the arrangement that facilitate a conspiracy among upstream or downstream firms, but may not reach to the vertical relationships themselves. For example, where a manufacturer facilitates a cartel among its distributors through an MFN or RPM policy, antitrust law may condemn the facilitating policy but not the vertical relationships between the manufacturer and its distributors. Thus, the application of the per se rule to cartels facilitated through vertical relationships, such as hub-and-spoke conspiracies, does not compromise the ability of firms to take advantage of the procompetitive effects that vertical agreements may offer.

The eBook Case illustrates how the argument for the application of the rule of reason may confuse courts. In June 2015, the Second Circuit upheld the district court's ruling that Apple's arrangement with book publishers was illegal per se and, therefore, proof of competitive effects was not needed. The split among the judges on the panel, however, demonstrates continuing confusion regarding the application of the per se rule to hub-and-spoke conspiracies. The majority judges agreed that price-fixing hub-and-spoke conspiracies are unlawful per se and that the per se rule was appropriate to the arrangement that Apple set up.[86] They disagreed, however, over the question of whether an abbreviated rule of reason (quick look) may apply as well.[87] The dissenting judge rejected the application of the per se rule to hub-and-spoke conspiracies, writing that "[a] vertical relationship that facilitates a horizontal price conspiracy does not amount to a *per se* violation."[88] He reached this conclusion using the (misguided) premise that "every challenged restraint is . . . classified as either horizontal or vertical"[89] and the premise that vertical restraints

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82 *See The eBook Case*, 791 F.3d at 324; *MM Steel*, 806 F.3d at 849.

83 *GTE Sylvania*, 433 U.S. at 49.

84 *See* Barak Orbach, *Antitrust Stare Decisis*, ANTITRUST SOURCE, Oct. 2015, at 6–8 (describing the structural analysis under the rule of reason and explaining why it is considerably more favorable to defendants), http://www.americanbar.org/content/dam/aba/publishing/antitrust_source/oct15_orbach_10_19f.authcheckdam.pdf.

85 *See, e.g.*, Douglas H. Ginsburg, *Vertical Restraints: De Facto Legality Under the Rule of Reason*, 60 ANTITRUST L.J. 67 (1991).

86 *The eBook Case*, 791 F.3d at 321–25, 329–30; *id.* at 339–40 (Lohier, J., concurring).

87 *Id.* at 329–30 (plurality opinion as to Part II.B.2 applying the rule of reason).

88 *Id.* at 345 (Jacobs, J., dissenting).

89 *Id.* at 346.

are likely to be procompetitive even when they facilitate cartels: "the vertical nature of [an] agreement is its salient feature . . . [and, therefore,] influence of a vertical arrangement on a horizontal cartel . . . does not render the vertical arrangement *per se* unlawful."[90] In March 2016, the Supreme Court denied Apple's petition for certiorari.[91]

The proposition that proof of hub-and-spoke conspiracies requires showing of competitive effects where the underlying horizontal restraint is unlawful per se presses antitrust formalism to the extreme: it insists that there is a sharp distinction between vertical and horizontal arrangements and that vertical arrangements are likely to be procompetitive even when they facilitate cartels.[92] For good reasons, most courts have rejected this proposition.

Conclusion

A hub-and-spoke-conspiracy has four elements: (1) a "hub," which is the facilitating firm; (2) "spokes," which are upstream or downstream firms; (3) vertical restraints that connect the hub and the spokes; and (4) the "rim" that connects the spokes. Properly understood, these conspiracies have a narrow meaning that refers to the practices that facilitate the collusion among the spokes at the rim, not to the arrangement of vertical relationships between the hub and the spokes.

Courts . . . still grapple with the meaning of the rim requirement . . .

Hub-and-spoke conspiracies are well recognized in antitrust jurisprudence and, overall, their analysis under antitrust law has been relatively stable during the past eight decades. Although courts sometimes get distracted on these issues, the rim requirement and the per se rule have applied to hub-and-spoke conspiracies since *Interstate Circuit*. Courts, however, still grapple with the meaning of the rim requirement or, more precisely, with the inference of the rim derived from circumstantial evidence. Courts have always intuitively recognized that vertical relationships may facilitate horizontal conspiracies and may be used to reduce the need for and even replace horizontal coordination. The case law of hub-and-spoke conspiracies reflects this understanding, but courts have not yet expressly articulated why and how to use vertical arrangements as plus factors to infer a horizontal conspiracy.

The analysis of hub-and-spoke conspiracies seems in tension with certain aspects of the Supreme Court's antitrust jurisprudence, since it rejects drawing a sharp distinction between vertical and horizontal agreements and it focuses on anticompetitive effects of vertical relationships, rather than on procompetitive ones.[93] But that tension does not arise from a disregard of developments in antitrust law in recent decades. Instead, it stems from recognition that the antitrust jurisprudence of vertical restraints is too rigid and inadequate for cartels facilitated through vertical relationships. In this sense, the analytical framework courts use to analyze hub-and-spoke conspiracies, underscores some of the limits of the antitrust jurisprudence of vertical restraints.

Arrangements of vertical relationships that result in parallel conduct among competitors are a common phenomenon that often promotes efficiency but may also facilitate cartels. What distinguishes a potentially efficient and permissible arrangement from unlawful conspiracy is a conscious horizontal agreement; such horizontal agreement may be facilitated and find expression in

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[90] *Id.*

[91] Apple, Inc. v. United States, No. 15-565, 2016 WL 854227 (U.S. Mar. 7, 2016).

[92] *See generally* Barak Orbach, *The Durability of Formalism in Antitrust*, 100 Iowa L. Rev. 2197 (2015) (analyzing the limits of antitrust formalism).

[93] *See id.* (analyzing the limits of antitrust formalism).

vertical relationships. The "rim requirement" reflects this economic insight: proof of a hub-and-spoke conspiracy requires evidence of a horizontal agreement. At least since the late 1930s, courts have been willing to infer a horizontal agreement from vertical arrangements and the circumstances under which those arrangements come into existence. Courts can and should expressly acknowledge this inference standard; they not only have been using it for eight decades, but it best fits with modern economic theory as to the actual character of hub-and-spoke cartels. ●