How Do Hub-and-Spoke Cartels Operate? Lessons from Nine Case Studies*

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Abstract

Hub-and-spoke collusion is when firms in a market coordinate their conduct by communicating through an upstream supplier or downstream customer. This study examines nine hub-and-spoke cartels towards understanding how they operate: What is the collusive scheme? How do firms achieve mutual understanding regarding that scheme? What is the role played by the hub? How effective is hub-and-spoke collusion? The paper also discusses legal approaches to hub-and-spoke collusion.

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1 Introduction

A cartel is a collection of competitors who seek to coordinate their behavior for the purpose of producing a supracompetitive outcome. Coordination is typically achieved by having cartel members directly and expressly communicate with each other. As an example, consider the citric acid cartel. Its five members initially met to agree on a market allocation in terms of market shares, and then regularly communicated to determine prices and exchange sales data. Over a period of four years, about 25 meetings of the cartel were conducted along with a dozen or so bilateral meetings between some of the cartel members.[1] Through these meetings - whether in-person or over the phone - firms coordinated on a collusive outcome, monitored for compliance with that outcome, implemented punishments when there was evidence of noncompliance, and more broadly dealt with the challenges of running a cartel.

While direct communication between cartel members is typical, and would seem to be the most effective means for delivering a supracompetitive outcome, it is not the only manner in which colluding firms share intentions and observations. In a number of cartels, firms instead communicated through a third party which had a vertical relationship with them. Referred to as a *hub-and-spoke cartel*, the *spokes* are the colluding competitors and the *hub* is an upstream supplier or downstream customer that facilitates collusion by the spokes. The horizontal agreement among the spokes is referred to as the *rim*, for it connects the spokes. Coordination occurs by each spoke communicating with the hub, and the hub sharing information it has learned from one spoke with the other spokes. While this indirect communication may be supplemented with some direct communication between the spokes, the primary avenue for communication is through the hub.

Figure 1 shows two hub-and-spoke cartels in the market for toys. In the U.S. toys case, downstream toy retailer Toys "R" Us was the hub and upstream toy manufacturers like Hasbro, Mattel, and Fisher Price were the spokes.[2] Toys "R" Us orchestrated a group boycott among toy manufacturers against warehouse clubs. So as to achieve mutual understanding regarding the collusive scheme, each manufacturer learned about the intentions of the other manufacturers by communicating through Toys "R" Us. In the UK toys case, the roles were reversed. Upstream toy manufacturer Hasbro was the hub which facilitated collusion among downstream toy retailers Argos and Littlewoods, who were dominant in the London market. Argos and Littlewoods never directly communicated about enacting a common price increase and instead exclusively conveyed their pricing intentions through Hasbro.

The objective of this paper is to investigate hub-and-spoke collusion towards addressing the following questions: What are the types of collusive schemes implemented by hub-and-spoke cartels? Given the lack of direct communication, how difficult was it for firms to achieve some common understanding? Why did firms choose to collude through an upstream supplier or downstream customer? How essential was the hub's role? How effective was collusion? To address these questions, the study's approach is to engage in a series of case studies of hub-and-spoke cartels. These questions will be asked of each of the hub-and-spoke cartels

[1] These details are from Harrington (2006). See that study and Marshall and Marx (2012) for many examples.

[2] The Administrative Law Judge of the Federal Trade Commission concluded that there were 14 toy manufacturers (spokes) involved. On appeal, the Commission reduced the number to seven, which included the three companies cited in Figure 1.

examined, from which we'll seek to identify both variation and commonality across these cartels.

For a case to be included in our study, it must satisfy three criteria. First, there is compelling evidence that there was collusion (e.g., a conviction). Second, communication between competitors was primarily through an upstream supplier or downstream customer. And, third, there is adequate documentation for identifying the collusive scheme and the process by which they coordinated on that collusive scheme. After an extensive search, nine cases have been found that satisfy these criteria: movie exhibition (U.S.), toys (U.S., UK), paints and varnishes (Poland), pharmaceutical products (U.S.), replica football kits (UK), cheese (UK), drugstore, perfumery, and hygiene products (Belgium), and e-books (U.S.). In spite of the small number of cases (which means any conclusions are highly tentative) and the usual sample selection bias associated with cartel studies,[3] I believe the study substantively adds to our understanding of hub-and-spoke collusion.[4]

Hub-and-spoke cartels have long been recognized as a phenomenon in economic and legal circles. Consequently, there have been studies of individual cases which have provided useful insight. What there has not been is a systematic investigation that seeks to identify common elements of hub-and-spoke collusion. Odudu (2011), Sahuguet and Walckiers (2013, 2014), Zampa and Buccirossi (2013), Van Cayseele (2014), and Orbach (2016) raise some of the economic and legal issues regarding hub-and-spoke collusion but do not provide a comparative analysis of hub-and-spoke cartels towards addressing the questions of this paper. There is also a small body of theoretical work on hub-and-spoke collusion which includes Van Cayseele and Miegelsen (2013) and Sahuguet and Walckiers (2017), as well as some papers motivated by the e-books case (which are referenced later). In contrast, the goal of this paper is empirical as we assess how hub-and-spoke collusion works in practice.

Let me summarize some of the study's findings. All nine hub-and-spoke cartels were intended to reduce competition in a retail market. To do so, one of two collusive schemes were deployed: 1) coordinated exclusion by upstream suppliers (spokes) against a rival or class of rivals to a downstream retailer (hub); and 2) collusive price setting among downstream retailers (spokes), often through the imposition of a recommended price by the upstream supplier (hub). When the exclusion strategy was pursued, the downstream hub also threatened exclusion against the upstream suppliers if they did not participate. It is an open question whether collusion benefitted or harmed those upstream firms. When the scheme instead had downstream firms jointly raise their prices, the upstream hub purportedly benefitted in some cases by being able to raise its wholesale prices. In order to achieve mutual understanding with regards to the collusive scheme, the hub typically engaged in extensive back-and-forth bilateral communications with the spokes. These communications went well beyond informing spokes of the scheme, as the hub had to convince each spoke that the other spokes were planning to participate. The critical and essential role of the hub is very clear.

[3] Our sample encompasses discovered and convicted cartels and thus excludes cartels that were not discovered and those which were discovered but the evidence was inconclusive regarding collusion. As a result, ineffective cartels could be undersampled (as they quickly collapsed and avoided discovery) or oversampled (as their ineffectiveness extended to revealing evidence), while effective cartels could be undersampled (as they were skilled at avoiding detection) or oversampled (as they remained active long enough to be discovered).

[4] If the reader is aware of other hub-and-spoke cartels that may satisfy these criteria, I welcome learning about them.

In most cases, it was the hub that initiated collusion. The hub was the key player in both coordinating on a collusive scheme and monitoring for compliance by the spokes with that scheme. The hub performed its own monitoring, collected reports from spokes, and then acted on this information by contacting and working with noncompliant spokes. However, in spite of all of these efforts, hub-and-spoke cartels had relatively short duration compared to average cartel duration. It appears that this short duration is due to them being more easily detected than standard cartels.

Section 2 offers an initial assessment of how hub-and-spoke collusion might differ from when firms collude using direct communication. Section 3 provides the case studies of nine hub-and-spoke cartels, from which some regularities are distilled in Section 4. Section 5 examines the enforcement of competition law with a focus on how to establish that firms have engaged in unlawful hub-and-spoke collusion.

2 An Initial Assessment of Hub-and-Spoke Collusion

Effective collusion requires coordinating on a collusive scheme, monitoring for compliance with that collusive scheme, and, in order to provide incentives to comply, punishment when there is evidence of noncompliance. The participation in a cartel of an upstream supplier or downstream buyer that acts as a conduit for messages between firms can affect all three dimensions. First, communication may be less effective because it goes through a third party. Some information may be lost when a spoke's message is conveyed to the hub who then passes it along to other spokes. Second, communication may be less effective and the collusive scheme could be impacted because the third party is not neutral. As the hub has vertical relations with the spokes, it will be affected by collusion among the spokes and that could influence the hub's conduct. Third, the hub may have information and instruments at its disposal to make monitoring and punishing more effective. Let me briefly elaborate on each of these effects. The case studies will flesh them out.

Collusion requires that competitors achieve some level of mutual understanding that they are constraining competition and how they plan to constrain competition (i.e., the collusive scheme). In a hub-and-spoke cartel, this mutual understanding is achieved by communicating indirectly through the hub. Compared to when competitors directly communicate, indirect communication may be less effective for two reasons. First, messages between spokes may lose information in the process of going through the hub. Collusion requires each firm to achieve some level of trust with the other cartel members so that it is confident that they will abide by the collusive outcome. When involving face-to-face direct communication, it is not just words that may create that trust; it may be influenced by how the words are expressed (emphasis, inflection, hesitation), facial expressions, eye contact, and body language. Experimental research has shown that this extraneous information from direct interaction provides useful cues for cooperation.[5] However, when firms communicate through a third party, all but the words are stripped away. In addition to the loss of those facets of messages, errors may be introduced as the hub may forget to convey something said by a spoke or mistakenly insert something that a spoke did not say. In short, messages communicated through a hub are apt

[5]For example, see Centorrino et al (2015) and Sparks, Burleigh, and Barclay (2016). Manzini, Sadrieh, and Vriend (2009) offers a novel approach to measuring the signaling value of non-verbal gestures.

to be less informative than when conveyed directly, and that could make it more difficult for firms to coordinate on a collusive arrangement.

Second, the hub may intentionally distort messages or otherwise control the conversation between spokes because it is not a neutral third party.[6] The hub will be impacted by collusion and has a different objective than the spokes due to being an upstream supplier or downstream customer. Hence, even if the hub and spokes all prefer collusion, the desired form of collusion could differ between them. Of course, even with direct communication, firms may have an incentive not to tell the truth and try to mislead rival firms.[7] However, as competitors' preferences are likely to be more in line with each other than with an upstream supplier or downstream customer, communication is likely to be less effective with hub-and-spoke collusion than with direct communications between colluding firms.[8] Furthermore, theoretical research has shown that the presence of an intermediary between communicating parties can only reduce the informativeness of those parties' messages.[9]

To elaborate on this second source of message distortion, consider a hub-and-spoke cartel in which a manufacturer is the hub (e.g., Hasbro), retailers are the spokes (e.g., Argos and Littlewoods), and the collusive outcome has retailers raise their prices which will then support a rise in the wholesale price. As is well documented in our case studies, a retailer is very concerned with avoiding a situation in which it raises its price only to find that other retailers did not did not raise their prices; for such an outcome would cause the retailer to suffer a decline in demand and profit. Thus, a compliant retailer incurs a cost for participating in a failed cartel and, critical for the current discussion, this cost is likely to be more severe for a retailer than it is for the manufacturer. With the manufacturer undervaluing the risk that the retailers face, it may try to mislead them in order to enhance the chances of collusion. For example, the manufacturer might tell each retailer that the other retailers have agreed to raise their prices when they have said no such thing. The manufacturer benefits if this tactic succeeds in inducing all retailers to raise their prices, and is only modestly harmed (relative to any complying retailers) if it fails. Such an incentive to mislead could make communication problematic. If the spokes believe the hub is always inclined to say that all other spokes have agreed to collude (whether or not it is true) then the hub's announcements would be uninformative to the spokes; hence, the hub would be unlikely to succeed in achieving mutual understanding among the spokes. Or suppose a retailer communicated to the manufacturer that it would like all retailers to raise prices by 15% but the manufacturer prefers a 10% increase. Given it is the information gatekeeper, the manufacturer could convey to the other retailers that this retailer's pricing intention is to raise price by 10%. More generally, given its strategic position in the communication

[6]Examples in which a neutral third party was hired to assist a cartel include a taxi driver for a bidding ring at stamp auctions (Asker, 2014) and a consulting company, AC Treuhand, for the organic peroxides cartel (Marshall and Marx, 2012). In those cartels, firm directly communicated. The role of the third party was to assist in implementing and monitoring the collusive outcome and organizing meetings among cartel members.

[7]Members of regular cartels often have different preferences regarding the extent of the price increase, the type of market allocation scheme, and, of course, the particular market allocation.

[8]Crawford and Sobel (1982) prove that the informativeness of messages is reduced when the preferences of the sender of a message are less aligned with the preferences of the receiver of the message.

[9]This result is proven in Ambrus, Azevedo, and Kamada (2013), and holds as long as parties do not randomize their actions.

network, the hub may choose to distort communications between the spokes in order to push the collusive outcome in a direction that it favors. As we'll see, there are cases in which the hub used its position to implement an outcome that benefitted it and quite possibly harmed the spokes. In sum, mutual understanding among firms is expected to be more problematic when they indirectly communicate because each firm is not sure what other firms are saying and hearing, and the upstream or downstream firm that is intermediating may have an incentive to engage in acts of omission or deception.

Thus far, our discussion has focused on how hub-and-spoke collusion is less effective than the standard cartel. However, there are ways in which the presence of a hub can make collusion more effective. First, the credibility of a hub's messages may be enhanced due to its relations with a spoke which go beyond participating in a collusive arrangement, and that could act as a countervailing factor to the forces for incredulity just described. From its previous business dealings with a spoke, a hub may have established some credibility which it can draw upon. With regards to future business dealings with a spoke, a hub will want to maintain a reputation for veracity and that will make its messages more credible. In contrast, direct communications between firms in a market is not common in a competitive environment. This means that the members of a standard cartel cannot draw on an existing reputation and incentives for maintaining an reputation when they communicate with each other, while an upstream supplier or downstream buyer can do so in the context of a hub-and-spoke cartel.

Second, as an upstream supplier or downstream customer, the hub may be in a better position to monitor for compliance. In conducting normal business practices, the hub is regularly communicating with the spokes, whether it is to take orders (in the case of an upstream supplier) or to place orders (in the case of a downstream buyer). Those interactions provide opportunities to collect information useful for monitoring. For example, when visiting stores, it would be easy for an upstream supplier to observe the prices that a retailer is charging and thus whether it is setting collusive prices. In addition, if the spokes are engaging in their own monitoring, the hub can collect that information when interacting with the spokes. If a downstream buyer learns from several upstream suppliers that a particular upstream supplier is deviating, that provides a compelling basis for implementing a punishment against that upstream supplier. In sum, given its vertical relations with the spokes, the hub is well situated to observe and collect information relevant to monitoring and, with more effective monitoring, comes more effective collusion.

Finally, the hub may possess instruments to induce spokes to comply with the collusive outcome.[10] One instrument is the refusal to sell or buy from a spoke. If the hub is an upstream supplier, it could threaten to refuse to supply downstream retailers who are undercutting the collusive price. This would help stabilize collusion in two ways. First, the prospect of foregone profit due to not having the supply to sell will help induce retailers to comply. Second, in response to a retailer undercutting the collusive price, compliant firms are inclined to lower their prices to stave off the loss of demand. However, if the deviating retailer doesn't have the supply to fully meet the additional demand then the demand loss to compliant firms is lessened which could induce them to continue to charge the collusive price. Analogously, if the hub is a dominant downstream retailer then it could threaten to

[10] For a broader discussion on how vertical restraints can aid collusion, see Levenstein and Suslow (2014).

refuse to purchase from noncompliant upstream suppliers.[11] A second instrument is the use of side payments to stabilize collusion. The hub could offer monetary transfers to those firms that comply - for example, in the form of rebates - which would provide additional incentives for the spokes to abide by the collusive arrangement. While monetary transfers could occur between firms in a regular cartel, they are more likely to create suspicions than if they were from a supplier or customer.[12]

This section has discussed several reasons for expecting hub-and-spoke collusion to operate differently from when firms directly communicate and do not involve an upstream supplier or downstream buyer. Let us now turn to examining our nine hub-and-spoke cartels and assess to what extent they are different.

3 Cases of Hub-and-Spoke Collusion

Our coverage encompasses nine hub-and-spoke cartels in the markets for movie exhibition (U.S.), toys (U.S., UK), paints and varnishes (Poland), pharmaceutical products (U.S.), replica football kits (UK), cheese (UK), drugstore, perfumery, and hygiene products (Belgium), and e-books (U.S.). For each case, I will describe the market, the collusive scheme, the communication process through which firms coordinated and monitored, and the disposition of the legal case.

3.1 Movie Exhibition

The case concerns the distribution and exhibition of motion pictures.[13] The market for the exhibition of movies included first-run theaters where newly released films were shown, and subsequent-run (or second-run) theaters where those same films were shown for a lower admission price at a later date. Interstate Circuit operated 43 theaters and Texas Consolidated operated 66 theaters, which were a mix of first-run and subsequent-run movie houses. The two chains dominated the cities in which they had theaters, including having a monopoly position in many of them.[14]

As expressed by Interstate to the eight motion picture distributors, the subsequent-run theaters (not owned by Interstate or Texas Consolidated) were competing too aggressively. While the first-run theaters were showing a single film for an admission price of 40 cents, many subsequent-run theaters were charging a vastly lower price and often showing two films.

[11] Let me note that a standard cartel could elicit the assistance of an upstream supplier to enforce a collusive agreement. For example, in *JTC Petroleum Co. v. Piasa Motor Fuels, Inc.*, 190 F.3d 775 (7th Cir. 1999), six road contractors formed a cartel to rig bids at local government tenders and, in the usual manner, directly communicated. One of the contractors, JTC, did not abide by the collusive arrangement, so the cartel enlisted three emulsified asphalt producers to refuse to supply this essential input to JTC. Nevertheless, most standard cartels do not involve upstream or downstream firms and thus lack their assistance in making collusion more effective.

[12] An exception is when competing firms engage in inter-firm sales as part of normal business practice. Such sales allowed firms to consummate transfers in the citric acid, lysine, and vitamins cartels; see Harrington (2006) and Harrington and Skrzypacz (2011).

[13] *Interstate Circuit, Inc., et al. v. United States* 306 U.S. 208 (1939)

[14] *Id.* at 215.

> In seventeen of the eighteen independent [subsequent-run] theatres ...the admission price was less than 25 cents. ... In most of them the admission was 15 cents or less. It was also the general practice in those theatres to provide double bills either on certain days of the week or with any feature picture which was weak in drawing power.[15]

As this stiff competition was eating into admission sales at its first-run theaters, Interstate sought to coordinate the motion picture distributors on a plan to control these independent subsequent-run theaters. Hence, the movie exhibitor was acting as the hub to the movie distributors who were the spokes.

A manager of Interstate initially engaged in bilateral communications with each of the branch managers of the eight distributors. His plan had distributors require subsequent-run theaters to charge no less than 25 cents for admission and to show only one film. If a distributor did not follow that policy then Interstate threatened not to show the distributor's films in its first-run theaters. Clearly, this plan would benefit Interstate, as it would raise the price and lower the quality of rival exhibitors. It is less clear that it would benefit distributors. By raising the prices for subsequent-run theaters, more demand would be generated for first-run theaters which had a higher profit margin. While that is likely to raise total industry profits, it is not immediate that the distributors would end up with more profits. It depends on the relative bargaining positions of the movie exhibitors and the movie distributors. It is important to note here that the distributors' participation does not require that they are collectively made better only. It is sufficient that it is in the best interests of a movie distributor to participate if it believed that the other distributors would participate, and it believed Interstate's threat of punishment for noncompliance. Let us consider a distributor's incentives to go along with the exclusionary plan.

To begin, a distributor would be unlikely to comply unless it thought that sufficiently many of the other distributors were planning to comply. For suppose instead that most distributors did allow subsequent-run theaters to show their films at an admission price less than 25 cents. If a distributor went along with Interstate's scheme and only licensed its films to subsequent-run theaters that charged at least 25 cents, subsequent-run theaters would choose to exhibit the films of other distributors in order to be able to charge a price that was competitive in the market. Hence, a compliant distributor could lose significant demand if the other distributors were noncompliant. Furthermore, the credibility of Interstate's threat of punishment for noncompliance - not showing the distributor's films in its theaters - would be put into question if many distributors did not go along. For Interstate may be willing to go through with that threat against one or a few distributors but it would be very costly for it to do so with many distributors, as then there would be many films it would not be showing in its theaters. Thus, the credibility of Interstate's punishment would be put into question unless a distributor believed many other distributors were to comply. In sum, a distributor would probably not comply if most other distributors did not comply because it would lose significant demand, and Interstate's retaliatory threat would not be credible. However, if all other distributors complied then a distributor would be at no competitive disadvantage from complying, and Interstate's threatened punishment for noncompliance could have been credible.

[15] *Id.* at 217-8.

For Interstate's scheme to work, it must inform each distributor of its plan *and* have each distributor believe that the other distributors were planning to go along with it. For that purpose, Mr. O'Donnell, the manager of Interstate and Consolidated, sent out a letter to each of the eight distributors with *all of them named as addressees.* That letter described the plan to impose restrictions on Interstate's competing exhibitors and the threatened response of Interstate if a distributor did not participate. Here are some relevant excerpts from that letter:

> Interstate Circuit, Inc. will not agree to purchase produce to be exhibited in its 'A' theatres at a price of 40¢ or more for night admission, unless distributors agree that in selling their product to subsequent runs, that this 'A' product will never be exhibited at any time or in any theatre at a smaller admission price than 25¢ for adults in the evening. In addition to this price restriction, we also request that on 'A' pictures which are exhibited at a night admission price of 40¢ or more - they shall never be exhibited in conjunction with another feature picture under the so-called policy of double-features. ... In the event that a distributor sees fit to sell his product to subsequent runs in violation of this request, it definitely means that we cannot negotiate for his product to be exhibited in our 'A' theatres at top admission prices.[16]

The letter was followed with bilateral meetings between Mr. O'Donnell and each distributor.

The U.S. Supreme Court viewed the letter as instrumental in achieving mutual understanding among distributors.

> The O'Donnell letter named on its face as addressees the eight local representatives of the distributors, and so from the beginning each of the distributors knew that the proposals were under consideration by the others. Each was aware that all were in active competition and that without substantially unanimous action with respect to the restrictions for any given territory there was risk of a substantial loss of the business and good will of the subsequent-run and independent exhibitors, but that with it there was the prospect of increased profits. There was, therefore, strong motive for concerted action, full advantage of which was taken by Interstate and Consolidated in presenting their demands to all in a single document.[17]

The Court concluded there was an unlawful agreement in spite of the lack of direct communication among the movie distributors.

> It was enough that, knowing that concerted action was contemplated and invited, the distributors gave their adherence to the scheme and participated in it. Each distributor was advised that the others were asked to participate; each knew that cooperation was essential to successful operation of the plan. They knew that the plan, if carried out, would result in a restraint of commerce, ... and knowing it, all participated in the plan.[18]

[16] See *Interstate Circuit, Inc., et al. v. United States* 306 U.S. 208, 216 n.3 (1939)
[17] *Id.* at 222.
[18] *Id.* at 227.

In sum, *Interstate* was a case in which collusion was initiated by the downstream (exhibitor) firm in response to aggressive competition from rival downstream firms. The collusive plan was exclusionary in that it proposed the upstream (distributor) firms require Interstate's rival firms to raise their prices and lower their quality as a condition of having the upstream firms' products. An upstream firm would find it optimal to go along only if it believed many other upstream firms were to do so, which then required the downstream firm to achieve mutual understanding of compliance among the upstream firms. In the absence of direct communication between the upstream firms, the downstream firm sought to obtain mutual understanding among them by sending a letter with the collusive plan to all upstream firms while noting in the letter that it was sent to all upstream firms. The letter was supplemented by bilateral verbal communications in order to achieve enough confidence among upstream firms that other upstream firms were likely to comply. The Court found the conduct illegal as it went beyond a vertical contract between one upstream firm and one downstream firm. Rather, the downstream firm sought to have coordinated adoption of the collusive plan by the upstream firms. Informing each upstream firm that the other upstream firms were being asked to comply created a horizontal dimension to this conduct, and was essential for Interstate's plan to succeed because it would not have been in the interest of an upstream firm to comply unless it thought enough other upstream firms were to do so.

3.2 Toys (U.S.)

The dominant U.S. toy retailer in the early-mid 1990s was Toys "R" Us (hereafter TRU) with a 20% national market share.[19] In 18 metropolitan areas, its market share ranged between 35 and 49%, and was over 50% in eight metropolitan areas and Puerto Rico. In the upstream market, the leading toy manufacturers were Mattel (with a U.S. market share of 18%), Hasbro (17%), Tyco (3.2%), and Little Tikes (2.8%). For most of those manufacturers, TRU was its most important customer, as it made up 28% of Mattel's sales, 28% of Hasbro's, 31% of Little Tikes', 35% of Fisher-Price's, and 48% of Tyco's.

At the time, the retail landscape was disrupted by warehouse clubs which sold at lower prices than TRU though in a more sparse, less attractive selling environment. Clubs included Sam's Club (a division of Wal-Mart with 256 stores in 1992), Pace (a division of Kmart with 115 stores), Costco (100 stores), Price Club (94 stores), and BJ's Wholesale (39 stores). The clubs sold fewer toys than TRU though could stock any product of a toy manufacturer. In addition to selling the same products that were found in TRU stores, the clubs also worked with toy manufacturers to create specially-packaged products that sold at a higher total price but a lower unit price, so they provided better value.

With a gross margin of around 25%, TRU had entered the toy market as the low-price retailer when compared to department stores (with gross margins of 40-50%) and small toy stores. It was forced to defend that status against discount department stores like Wal-Mart

[19]Facts are from *In re Toys "R" Us*, 126 F.T.C. 415 (F.T.C. September 25, 1997) (initial Decision, James P. Timony). (hereafter, *Toys "R" Us* 1997); *Toys "R" Us, Inc. v. FTC*, 126 F.T.C. 415 (F.T.C. October 14, 1998) (opinion of the Federal Trade Commission, Chairman Robert Pitofsky) (hereafter, *Toys "R" Us* 1998); and *Toys "R" Us, INC. v. F.T.C.*, 1999 U.S. 7th Cir. Briefs (on Petition for Review of a Final Order of the Federal Trade Commission. Opinion of the Commission: Chairman Robert Pitofsky.) (hereafter, *Toys "R" Us* 1999).

and Kmart, but the clubs were a more serious threat with gross margins of 9-12%.

> By 1989, TRU senior executives were concerned that the clubs presented a threat to TRU's low-price image and its profits. TRU knew that consumers form opinions about a store's relative prices based on a few visible items. TRU referred to these products as "price image" or "price sensitive" items. ... TRU had already lowered the prices of these popular items to meet Wal-Mart's challenge, but the clubs' marketing strategies threatened to bring prices even lower.[20]

As of mid-1992, TRU reported that a warehouse club was within a five-mile radius of 238 of its 497 U.S. stores.

TRU's concern was that a customer, upon comparing the prices of TRU and a club for the same item, would learn that TRU's price was higher; no longer would TRU be seen as the low-price outlet for toys. One strategic response would have been to lower prices, but that would have cut into profit margins and could have fueled a price war with the clubs. An alternative path was for TRU to avoid such price comparisons by preventing clubs from carrying any toy that TRU carried. Of course, implementation of that strategy required the participation of the toy manufacturers.

> In a document drafted around Toy Fair 1993, Greg Staley from TRU's international division summarized TRU's policy as follows: "Our buying is simple - we will not carry an identical item which is sold to a Warehouse Club. If we find an item in both our assortments and those of a Club, we will discontinue carrying that item immediately; and we reserve the right to take clearance markdowns to dramatically accelerate the rate of sale on that item. In summary, the vendor has to make a choice as to whom he sells an item - either us or them."[21]

Thus, the strategy was one of exclusion - harm rival firms by limiting the products they are offered by manufacturers. TRU was going to have manufacturers sell to the clubs only those products that TRU did not stock, and it was going to induce the manufacturers to go along by threatening not to carry their products.

While TRU would clearly be better off with this collusive plan, what about the toy manufacturers? If clubs were paying a lower wholesale price than TRU and the increase in sales from the lower retail price at the clubs was insufficient to offset the lower margins being earned by manufacturers then collusion could be more profitable for the manufacturers. However, if the clubs paid the same, or almost the same, wholesale price as paid by TRU then the manufacturers would be worse off with TRU's plan due to lower total sales from excluding the clubs.

While we do not have the data to address the question of whether TRU's exclusionary plan made the toy manufacturers better or worse off, the documentary evidence reveals that the manufacturers expressed an appeal to selling to the clubs; it was a source of growing sales and made them less dependent on TRU. Playskool's president noted "that his company could not stop doing business with the clubs, and that in view of the consolidation in the

[20] See *Toys "R" Us* 1998 at 427.
[21] See *Toys "R" Us,* 1997 at 436-7.

retail trade it was important for Playskool to have other customers than TRU."[22] If indeed the toy manufacturers liked having the clubs as an outlet for their products, that would pose a challenge to TRU getting those manufactures to exclude the clubs.

A second challenge for TRU is that a toy manufacturer was concerned that it would be at a disadvantage if it restricted its sales to the clubs and many other manufacturers did not.

> The toy companies were afraid of yielding a potentially important new channel of distribution to their competitors. Small changes in sales volumes have a significant effect on toy manufacturers' overall profits, and no retail channel other than the clubs offered similar opportunities for rapid growth. For example, Mattel's sales volume to the clubs increased by 87% between 1989 and 1991. Much of this growth was a result of Sam's emergence as a toy buyer, but sales to BJ's, Costco and Pace also increased at a rapid rate. By comparison, Mattel's overall sales grew by approximately 10% during this period.[23]

Unilaterally restricting sales to clubs was not in the best interests of a toy manufacturer. As argued above, a coordinated restriction of sales by toy manufacturers may not have been in their interests either. What made it sensible for a toy manufacturer to comply with the collusive plan was TRU's threat of exclusion if it did not.

> While most – if not all – of the toy companies disliked having to choose between what they saw as two bad options – (1) sell to TRU and restrict club sales, or (2) sell to the clubs and risk retaliation from TRU – the decision was made easier by the horizontal agreement which took the sting out of reducing sales to the clubs. From the manufacturers' point of view, the boycott was the second-best alternative.[24]

An individual toy manufacturer found it better to comply than not, but only as long as other toy manufacturers complied.

Finally, TRU faced a third obstacle to getting the toy manufacturers on board. It was unclear how credible was TRU's threat to cut off purchases from a toy manufacturer if it did not comply. Doing so would certainly harm TRU in the short run. The credibility of the threat also hinged on most or all toy manufacturers complying. If all other toy manufacturers complied, TRU might find it optimal to cut off one toy manufacturer in order to establish the credibility of its threat and keep other toy manufacturers from breaking ranks. However, if several toy manufacturers did not comply, it would be very costly for TRU not to stock their toys. Thus, a toy manufacturer could well believe that TRU would punish it for not complying only if most or all of the other toy manufacturers were complying.

For all of these reasons, TRU's collusive plan would be implemented by the toy manufacturers only if each believed their rivals had bought into it. Only then would a toy manufacturer not be at a competitive disadvantage from restricting supply to the clubs and only then would it find TRU's exclusionary threat to be credible. The toy manufacturers clearly conveyed the need for assurances that all would be participating.

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[22] *Id.* at 448.

[23] See *Toys "R" Us* 1998 at 552.

[24] *Toys "R" Us, Inc. v. FTC*, 126 F.T.C. 415, 585 n.49 (F.T.C. October 14, 1998)

> Mattel, Hasbro, Tyco, Little Tikes, Fisher-Price and others all wanted to know how competitors were reacting to TRU. The manufacturers wanted assurances from TRU that their competitors were subject to the same rule. They informed TRU that they wanted a level playing field to avoid being placed at a competitive disadvantage.[25]

The challenge to TRU was clear: Convince each toy manufacturer that the other manufacturers were going to restrict sales to the clubs. It met this challenge using bilateral communications with each toy manufacturer and making each aware of its bilateral communications with rival toy manufacturers. There is no evidence that TRU ever communicated to them as a group.

> [TRU] tried to obtain a coordinated response from manufacturers by assuring them that they would not be placed at a competitive disadvantage because TRU was applying its policy to their competitors. ... The manufacturers all were aware that TRU was communicating its policy to everyone and that uniformity was contemplated. And everyone knew that without unanimity regular line product sales to the clubs would recommence.[26]

A key early contact was Hasbro, for whom TRU was its biggest U.S. customer.

> In the fall of 1990, TRU's CEO, Charles Lazarus, met with Hasbro's executives and told them that the clubs were a threat to TRU because of their low prices. He said that if Hasbro continued to aggressively supply the clubs ... that this could affect their business at TRU.[27]

TRU went to each major toy manufacturer with a similar pitch, and each was informed that their rivals were similarly being pressured to restrict sales to the clubs.

> During conversations with manufacturers, TRU did not merely announce that it would refuse to deal with manufacturers selling to the clubs, or inform manufacturers that all manufacturers would be treated equally. Instead, TRU communicated the quid pro quo (i.e., I'll stop if they stop) from manufacturer to manufacturer.[28]
>
> [TRU vice president Roger] Goddu clarified that TRU engaged in these conversations with all the key toy manufacturing firms. "We communicated to our vendors that we were communicating with all our key suppliers, and we did that I believe at Toy Fair 1992. We made a point to tell each of the vendors that we spoke to that we would be talking to our other key suppliers."[29]

Furthermore, TRU would use one toy manufacturer's acceptance to induce others to come on board with the policy.

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[25] See *Toys "R" Us* 1997 at 436-7.
[26] Id. at 430.
[27] *Id.* at 432.
[28] *Id.* at 447.
[29] See *Toys "R" Us* 1998 at 555.

> After Mattel agreed not to sell to the clubs the same products "based on the fact that competition does the same", TRU told Hasbro that Mattel had agreed. ... Before committing not to sell certain products to the clubs, Little Tikes asked TRU what its main competitor in the clubs (Today's Kids) was going to do. Goddu informed Little Tikes that Today's Kids "was going to start doing less business with the warehouse clubs" whereupon Little Tikes committed to restrict its sales. ... Lazarus and Goddu told Sega that TRU had convinced Nintendo to stop selling product to the clubs as part of TRU's effort to convince Sega to do the same. TRU argued that Sega should stop selling because TRU had convinced Nintendo to stop.[30]
>
> Just before or at Toy Fair 1992, Hasbro's then western regional sales manager, James Inane, met with [Hasbro CEO] Verrecchia [who] said that he had just come from a meeting with TRU, that TRU had met with Hasbro's competitors, including Mattel and Fisher-Price, and that they had agreed not to sell promoted products to the clubs. Verrecchia said that because Hasbro's competitors had agreed not to sell promoted products, Hasbro would go along with the agreement. Verrecchia told his staff that Hasbro would not sell promoted products to the clubs and that Hasbro would watch other manufacturers' sales to the clubs. Hasbro would refrain from selling to the clubs until another manufacturer broke the agreement.[31]

As the FTC referred to it, TRU engaged in "shuttle diplomacy" by

> reassuring each toy manufacturer that rivals would fall into line. It was only after assurances were exchanged that the toy manufacturers, overcoming their natural inclination to sell through all potential outlets, became willing to discriminate against the clubs. At that point, a "conscious commitment to a common scheme" was perfected, and a uniform, clearly interdependent, course of conduct came into being.[32]
>
> TRU worked for over a year and surmounted many obstacles to convince the large toy manufacturers to discriminate against the clubs by selling to them on less favorable terms and conditions. The biggest hindrance TRU had to overcome was the major toy companies' reluctance to give up a new, fast-growing, and profitable channel of distribution, and their concern that any of their rivals who sold to the clubs might gain sales at their expense. TRU's solution was to build a horizontal understanding – essentially an agreement to boycott the clubs – among its key suppliers.[33]

While there was some direct communications between the toy manufacturers,[34] it was rare. The almost-exclusive channel for communication between toy manufacturers was

[30] See *Toys "R" Us* 1997 at 432-4.
[31] *Id.* at 449.
[32] See supra note 19, at 586.
[33] *Id.* at 552.
[34] "In May of 1992, at a toy manufacturers' conference, Hasbro's CEO Allan Hassenfeld discussed with Tyco's CEO Richard Grey what each company was doing or not doing with respect to the clubs." See supra note 20, at 450.

through TRU, and it achieved the needed mutual understanding among the spokes. The FTC concluded that many of the toy manufacturers

> required assurances that rivals would sell on discriminatory terms to the clubs, and ... were satisfied with TRU's assurances that such uniform policies would be adopted. Evidence of that exchange of commitments – not necessarily direct communications among the toy manufacturers but clearly through the intermediation of TRU – is present with respect to Mattel, Hasbro, Fisher Price, Tyco, Little Tykes, Today's Kids, and Tiger Electronics.[35]

However, the job was not done. Even though many toy manufacturers had agreed to TRU's plan, they were continuously concerned with possible deviations by rival firms. In response, TRU actively monitored the toy manufacturers for compliance, and the toy manufacturers themselves were instrumental in reporting a rival that supplied clubs outside of the agreement. Figure 2 provides a list of infractions that was part of a memo to the CEO of TRU. It states the noncompliant toy manufacturer and the product that was sold to the clubs, and often offers an explanation for the apparent infraction and a plan to rectify the conduct.

The toy manufacturers had strong incentives to monitor and share any infractions with TRU so that rival firms would be brought into compliance.

> [W]hen Mattel heard rumors that Hasbro and Tyco might be selling regular line to the clubs, the president of Mattel's Boy Division instructed that the clubs be shopped and the information sent to TRU.[36]
>
> TRU promised to "take care of it" after Fisher-Price representatives complained about Playskool product they found in Price Club.[37]
>
> In September 1991, Fisher-Price's regional manager sent [Fisher-Price salesman John] Chase a copy of a TRU shopping report showing products of Hasbro, Fisher-Price and Playskool found in Price Club. He told Chase that a TRU executive had sent the report to Byron Davis, Fisher-Price's vice-president for sales. The words "Byron, you promised this wouldn't happen" were written on the report. After this event, Fisher-Price limited its club sales to special and combination packs.[38]

TRU admitted that it acted as a conduit between firms regarding complaints of noncompliance.

> TRU's President testified: "I would get phone calls all the time from Mattel saying Hasbro has this in the clubs or Fisher Price has that in the clubs.... So that occurred all the time." Goddu explained that, on the many occasions he received these calls, he would "always thank them and tell them we would follow up." ...

[35] See supra note 19, at 575.

[36] See supra note 20, at 431.

[37] *Id.* at 434.

[38] *Id.* at 454.

> TRU would speak to the offending firm and even assure the complainant that the offending firm would be brought into line. Violations of TRU's club policy were thus detected and punished, serving to enforce the horizontal agreement. The toy companies participated in this exchange of complaints, which was frequent and continued over lengthy periods, effectively making their competitors' compliance a part of their agreements with TRU.[39]

In sum, TRU had two sources of information to aid in monitoring for compliance with the collusive scheme. One source was TRU shopping the clubs, and the second was reports from toy manufacturers.

To sum up, let me utilize the FTC's succinct synopsis of the case.

> The record demonstrates that TRU organized and enforced a horizontal agreement among its various suppliers. Despite TRU's 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. To overcome that resistance, TRU gave initial assurances that rival toy manufacturers would commit to comparable sales programs; TRU representatives then 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; toy manufacturers' commitments were carefully conditioned on comparable behavior by rivals; and, after the discriminatory program was in place, TRU and the toy manufacturers worked out a program to detect, bring back into line, and sometimes discipline, manufacturers that sold to the clubs.[40]

The evidence is compelling that TRU's collusive strategy of exclusion was effective in reducing toy manufacturers' sales to the clubs. Mattel and Hasbro's sales to the clubs dropped from $32.5 million in 1991 to $10.7 in 1993.[41] The clubs' share of U.S. toy sales, which had risen from 1.5% to 1.9% during the pre-boycott years of 1991-92, fell to 1.4% by 1995.[42] TRU's internal documents revealed that, while the clubs were a competitive threat as of late 1992, they were not considered as such by 1993:

> In December of 1992, TRU included clubs located near TRU stores when it calculated its [competition] index. TRU explained this decision by noting that "[w]arehouse clubs have been a strong competitive force this season." Clubs were withdrawn from later competition indices in 1993 – after TRU's club policy was put into effect – because clubs were then thought to have "no significant . . . impact on TRU stores."[43]

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[39] See supra note 19, at 558.

[40] *Id.* at 575.

[41] *Toys "R" Us* 1999 at 18.

[42] See supra note 19, at 600.

[43] *Toys "R" Us, Inc. v. FTC*, 126 F.T.C. 415, 539 n.15 (F.T.C. October 14, 1998)

The reduced supply of the clubs translated into higher prices for consumers. Products sold by TRU but not by discounters had margins as high as almost 40%.[44] By expanding the set of products exclusive to TRU, it would have expanded the set of products for which it could set a high margin. For 1993, the FTC "found that the elimination of competitive pressure from the clubs cost consumers as much as an extra $55 million per year on top-selling products purchased at TRU alone."[45] As another measure of effect, TRU and three toy manufacturers settled private litigation for $56 million.[46]

The Administrative Law Judge (ALJ) ruled that TRU and 14 toy manufacturers had engaged in a per se violation of Section 5 of the FTC Act. In response to the increased competition from warehouse clubs, the ALJ noted that "TRU could have announced a unilateral policy by TRU and a refusal to deal with suppliers that did not comply. [T]he issue is whether TRU went further, entering agreements with each manufacturer."[47] The ALJ concluded that "TRU orchestrated a horizontal conspiracy among its suppliers [and t]he major manufacturers knew that TRU was contacting the other manufacturers with the same proposal and that concerted action was invited."[48] TRU appealed the ALJ's decision to the Commission, which was denied. TRU then appealed that decision to the Seventh Circuit Court which affirmed the FTC's decision and, in doing so, viewed the case as more compelling than *Interstate*.

> The Commission's theory, stripped to its essentials, is that this case is a modern equivalent of the old *Interstate Circuit* decision. ... [T]he TRU case if anything presents a more compelling case for inferring horizontal agreement than did *Interstate Circuit*, because not only was the manufacturers' decision to stop dealing with the warehouse clubs an abrupt shift from the past, and not only is it suspicious for a manufacturer to deprive itself of a profitable sales outlet, but the record here included the direct evidence of communications that was missing in *Interstate Circuit*.[49]

In *Interstate*, the key piece of evidence was the letter sent by the hub (Interstate Circuit) to the spokes (movie distributors) which indicated that all spokes were receiving it. A spoke's inference that other spokes were intending to comply would have only been based on knowing that the other spokes had received the letter. With *Toys "R" Us*, there was instead bilateral verbal communications between the hub (TRU) and the spokes (toy manufacturers) which not only encouraged a spoke to participate but made clear that other spokes were similarly being encouraged and that some had already agreed to participate.

> As in *Interstate Circuit*, there was an invitation clearly addressed to all of the participants in the proposed conspiracy. Like the listing of all the film distributors as addressees in the letter sent by Interstate Circuit, TRU, in Goddu's phrase, "made a point of telling" its suppliers that its club "policy" was to be extended

[44] *Id.* at 530.
[45] See supra note 40, at 30. Scherer (2004) provides some of the economic analysis.
[46] Scherer (2004)
[47] See supra note 20, at 147.
[48] *Id.* at 162.
[49] *Toys "R" Us v. FTC*, 221 F.3d 928, 935 (7th Cir. 2000)

> to each and every one of them. Each therefore knew that the others were asked to make a similar decision.[50]

And there was more in *Toys "R" Us*, for the spokes made clear in their communications with the hub that their participation depended on the other spokes participating. We then have express communication by a spoke to the hub that it needed a joint action among manufacturers. That is something which only could only be inferred by the hub in *Interstate*.

3.3 Toys (UK)

The previous two cases had a downstream firm responding to competition in its market by recruiting upstream firms to coordinate on an exclusionary action against rival downstream firms. Coordination was achieved through bilateral communications between the downstream hub and each of the upstream spokes. In *Interstate*, upstream movie distributors imposed higher prices and lower quality on the downstream hub's competitors in the movie exhibition market, and in *Toys "R" Us* upstream toy manufacturers limited their product offerings to warehouse clubs that were competing against downstream retailer Toys "R" Us.

We now turn to a more common form of hub-and-spoke collusion: The hub is an upstream manufacturer or wholesaler, the spokes are retailers, and collusion has the downstream firms raising retail prices. Interestingly, the first case we'll consider is the reverse of *Toys "R" Us* in that a toy manufacturer is the hub and toy retailers are the spokes.

The setting is the London toy retailing market where the top chains are Argos and Littlewoods (which is also referred to as Index).[51] A key upstream firm was Hasbro which was one of the largest toy and game manufacturers in the United Kingdom. Hasbro learned in 1998 that retailers were "unhappy with the margins they were receiving on Hasbro's branded products."[52] A meeting was held among key Hasbro employees in October 1998 to develop initiatives to raise margins. As noted by Hasbro Sales Director David Bottomley: "The listing and pricing initiatives came about as a result of low margins that were a concern across the entire industry and shared by Argos and Littlewoods."[53]

The "pricing initiative" was for retailers to charge the recommended retail price (RRP). The "listing initiative" was for Hasbro to offer rebates to retailers to induce them to continue stocking certain Hasbro products that were in jeopardy of being removed from a toy retailer's offerings. The pricing initiative would clearly benefit retailers. Presumably, the two initiatives must have benefitted Hasbro given that it was the firm responsible for devising and promoting them. These initiatives were developed by Hasbro employees Ian Thomson (Account Manager for Littlewoods) and Neil Wilson (Account Manager for Argos). They were also supported at a senior level by Mike McCulloch, the Head of Marketing and Sales, and Sales Directors David Bottomley and Mike Brighty.

Our focus will be on the pricing initiative for it was the one that required Hasbro to achieve mutual understanding between Argos and Littlewoods. While there were other toy

[50] See supra note 19, at 586.

[51] Ensuring facts are from CA/98/8/2003 Agreements between Hasbro UK Ltd, Argos Ltd & Littlewoods Ltd fixing the price of Hasbro toys and games, [2004] 4 UKCLR 717.

[52] See Argos Ltd & Anor v. Office of Fair Trading [2006] EWCA Civ 1318 [114].

[53] *Id.* at ¶ 98.

retailers in the market, Bottomley of Hasbro felt that "Argos and Littlewoods were key to the success of the pricing initiative since they were the market leaders - if they could be persuaded to maintain prices at RRP then other retailers would follow suit."[54] However, getting both of them to charge the RRP required each being assured the other would do so.

> Argos is generally accepted as the price setter and leader in the market. However, Hasbro considered that Argos would have been very unlikely to make a commitment to follow Hasbro's RRPs unless it was reassured that doing so would not result in its catalogue prices being undercut by those in the Index catalogue [of Littlewoods]. Littlewoods is the main catalogue competitor to Argos. ... Argos and Littlewoods monitor, in particular, each others' prices very closely and produce regular analyses showing how often each undercuts and is undercut by the other. Since both companies offer a price-match guarantee, neither can afford to have prices that are seriously out of step with the other. It was therefore necessary to reassure Argos that Littlewoods would also be committed to RRPs. For its part Littlewoods required the same assurance of commitment by Argos.[55]

This concern of mutual compliance was especially acute with their catalog prices. As catalogs were issued only twice a year, a retailer could find itself at a price disadvantage for six months if it complied with the RRP and the other retailer did not.

> Both Argos and Littlewoods were concerned about undercutting by any retailer, but each had a special concern about undercutting by the other. This was because they were the largest catalogue retailers, directly competing with each other, and because their retailing formats meant that they both had to commit themselves to a price for a forthcoming season without knowledge of the other's intention except for the previous catalogue which was, by definition, out of date. Further, unlike with ordinary retailers where an agreement to price at X could be given public effect on the next day or within a very short space of time, any "agreement" or "understanding" that the other catalogue retailer would price at an agreed price (say RRP) would not be seen to be implemented until much later when it would be too late to change one's own catalogue.[56]

Initially, Hasbro focused the pricing initiative on its core games and Action Man product line. These were high-volume well-advertised products for which pricing had been particularly aggressive. Starting in late 1998, members of Hasbro's sales team were speaking with Argos' buyers about having retailers price at the RRPs. The initial reaction of the retailers was not encouraging.

> Littlewoods was concerned about the feasibility of Hasbro's pricing initiative and in particular expressed doubts about Hasbro's ability to prevent undercutting by Argos. Ian Thomson states in his witness statement: "It was at this point

[54] *Id.* at ¶48.
[55] *Id.* at ¶ 47.
[56] *Id.* at ¶ 96.

> that Mike McCulloch intimated ... that he had been having discussions with the major opposition (Argos) and they were of the same opinion i.e. that they could not agree to the new pricing structure for fear of being undercut. It did need the agreement of both parties in order for the plan to work, but that if Index would agree to go along with it then Mike McCulloch, using this knowledge, was confident that he could persuade them to do the same. John McMahon [of Littlewoods] said that he would play ball and go along with the plan but if they (Argos) reneged on the deal and did not stick to the retail prices in their 1999 Autumn Winter Catalogue and he (Index) did, he would be seriously disadvantaged. If this happened as a result he would do some serious price cutting in the next Index catalogue launch.[57]

Intent on surmounting such skepticism, Hasbro engaged in extensive bilateral communications with Argos and Littlewoods. The goal was for Argos and Littlewoods to commonly believe they would charge the RRPs. These communications also involved finding values for the RRPs that would be acceptable to both retailers.

> Hasbro set the RRPs after separate discussions with Argos, Littlewoods, and other retailers. ... Argos and Littlewoods then selected, independently from each other, the Hasbro products they would include in their catalogues. Neil Wilson, Hasbro's account manager for Argos, describes how the pricing initiative then worked in practice: "When I was given the products selected for the catalogue, I established which were the common products carried by the majority of retailers (not specifically Index) and asked Argos what its price intentions were in relation to each of these products. I did not do this for products that were not common. I informed Argos what the Hasbro RRPs for the common products were and asked them whether any of our RRPs were a problem for them to match. ... Having determined Argos' pricing intentions and passed these on to the other account managers within Hasbro, I received information from those account managers regarding the intentions of other retailers to go with RRPs. I then reverted to Argos and said, without being specific, that it was my belief that the future retail price of a product would or would not be at the RRP. I told Argos which products this related to. I never mentioned the name of the retailer who was involved or quantified exactly the price that retailer would go out at. I simply said to Argos that it was my belief from what retailers told us that this or that product would or would not be at the RRP."[58]

Neil Wilson of Hasbro was communicating with Argos and Ian Thomson of Hasbro was communicating with Littlewoods. The two of them shared information with the common objective of each retailer becoming confident that the other retailer would charge the RPPs on the Hasbro products that they commonly carried.

> [David Bottomley states:] "It is incorrect to suggest that Neil and Ian were acting unilaterally in putting together this proposal: it was based on detailed

[57] *Id.* at ¶ 49.
[58] *Id.* at ¶ 53.

> discussions and conversations that they had with Argos and Littlewoods about pricing at RRPs. Each was aware that similar discussions were taking place with the other and that a big effort was being made to get all retailers to price at RRP." Neil Wilson states: "Argos were fully aware that the pricing initiative involved Hasbro talking to other retailers." ... Ian Thomson states: "There was no doubt that Alan Burgess [Littlewoods's buyer of boys' toys] knew that I was passing on to the Argos account handler (Neil Wilson) the contents of our discussion and that I would confirm the Argos intentions back to him after Neil had concluded his discussions with Argos."[59]

The Office of Fair Trading found "no evidence that Argos and Littlewoods spoke directly" and that "confidential information was exchanged between them with Hasbro acting as the fixer or middleman".[60] In spite of the initial concerns of Argos and Littlewoods that the other would undercut the RRPs and the lack of direct communications between them, Hasbro felt that they achieved the exchange of assurances required for the pricing initiative to work.

> [David Bottomley, Neil Wilson and Ian Thomson made] it clear that there was an informal agreement, understanding or tacit arrangement whereby Argos and Littlewoods co-operated with Hasbro by indicating that they would or might price the particular products in question at or near RRP on the understanding that the other retailer would also do so, at the same time making it clear again and again that if the other reneged, the former would immediately respond.[61] Bottomley ... states that "what existed between Hasbro and Argos and Hasbro and Littlewoods was an understanding that, because of the obvious benefit to everyone in the industry, prices would be at or near RRP."[62]

While the pricing initiative started on a restricted set of products, it was soon extended to other categories because, as conveyed in a meeting at Hasbro, "it was crucial that we maintained retail price stability as far as possible across our key brands so that the initiatives could succeed."[63] With the first pricing initiative having succeeded, there was cautious optimism: "Littlewoods' reaction to Hasbro's proposal was similar to Argo's reaction: it was positive, but also concerned about undercutting."[64] Argos' senior buyer Sue Porritt "felt it was great that Hasbro could help maintain retail price stability, but said that Argos would react if it was undercut in order to remain competitive."[65]

Obtaining a state of common understanding among retailers to implement the proposed collusive strategy was just the starting point to success. A retailer continued to be concerned that its rival would undercut the RRPs, in spite of its announced intention to abide by them (as conveyed by Hasbro). To ensure compliance as well as maintain retailers' confidence in the scheme, Hasbro monitored the retailers' prices. This issue arose at the very first Hasbro meeting on the pricing initiative.

[59] *Id.* at ¶ 97.
[60] *Id.* at ¶ 97.
[61] *Id.* at ¶ 103.
[62] *Id.* at ¶ 140.
[63] *Id.* at ¶ 65.
[64] *Id.* at ¶ 65.
[65] *Id.* at ¶ 65.

> 23 October 1998 meeting - Discussion took place about the listing and the pricing initiatives (under which Hasbro would try to get retailers to list at RRPs). Account managers were briefed to undertake audits of toy retailers and if they found that prices were not at RRPs they were to have conversations with them to try and persuade them to adopt RRPs.[66]

The importance of monitoring was very much recognized by Hasbro.

> Hasbro conducted its own monitoring to detect undercutting by retailers. Ian Thomson states in his witness statement: "The emphasis on price monitoring now was to ensure that our other customers would fall in line so that Argos and Index would be confident that our plan was working throughout the UK. This would reduce the risk of them going back to price cutting in the following catalogues."[67]

Given their concerns about having higher prices than rivals, Argos and Littlewoods were also incentivized to monitor. However, rather than directly contact the deviator, they would inform Hasbro.

> Neil Wilson states: "Argos monitored other retailers' prices. If they found out that a retailer was not at the Hasbro RRP, they contacted me to find out why there was a difference. When Argos called me about the apparently lower price of another retailer, they contacted me to see if Hasbro could do something about it, i.e. get the other retailer to go back to RRP. The understanding was that if Hasbro could give Argos an assurance that the other retailer would put the price back up to the RRP, Argos would also remain at the RRP. If not, Argos would have to make a decision about how it would price the product – usually by matching the competitor's price."[68]

In response to receiving this information, Hasbro would seek to bring the recalcitrant retailer into compliance.

> Neil Wilson describes the process: "[O]nce I had spoken to Argos, I contacted the account manager in Hasbro who dealt with the retailer in question. He or she in turn called the buyer of the retailer who had the lower price. The account manager sought to find out why the price was lower and to persuade the retailer to go back to the RRP. Often the lower price turned out to be a temporary promotion, for instance to clear out stock, or a simple mistake, as most retailers were eager to charge RRPs. I then informed Argos whether we were able to do anything and either provided the reassurance they sought or said that we could do nothing. Argos knew that this was the process that was going on."[69]

[66] *Id.* at ¶ 45.
[67] *Id.* at ¶ 85.
[68] *Id.* at ¶ 86.
[69] *Id.* at ¶ 90.

Hasbro's coordinating and monitoring practices proved successful.

> The Argos and Littlewoods Autumn/Winter 1999 catalogues were the first catalogues for which the Hasbro account managers for Argos and Littlewoods had applied the [pricing initiative]. When the catalogues were published in July 1999, it became clear to Hasbro that Argos and Littlewoods had priced nearly all the Action Man products and core games at the levels they had indicated to Hasbro, normally at Hasbro's RRPs. This had been very different in the three previous catalogues.[70]

At a year-end Hasbro meeting in 1999, it was noted that the "retail pricing initiative has worked."[71] And, as predicted by Hasbro, it was sufficient to get Argos and Littlewoods on board in order for all major London toy retailers to comply. Argos was the price leader and, with the exception of Littlewoods, the "rest of [the] retailers were price followers."[72]

> Other retailers would have been able to see easily from the catalogues that RRPs were being followed. From the statements made by Hasbro employees, it would seem that other retailers broadly followed Argos/Littlewoods pricing practices and that as a result there was little deviation from Hasbro RRPs. Mike McCulloch states: "As far as other retailers [are] concerned, [there was] no need to communicate; they had bought into [the] initiative, and were happy to follow Argos price lead."[73]

In an email on May 18, 2000, Ian Thomson and Neil Wilson (who were the Hasbro Business Account Managers for Littlewoods and Argos respectively) shared their pricing initiative, along with a report of its success, more broadly within Hasbro:

> Neil and I have spoken to our respective contacts at Argos and Index and put together a proposal regarding the maintenance of certain retails within our portfolio. This is a step in the right direction and it is fair to say that both Accounts are keen to improve margins but at the same time are taking a cautious approach in case either party reneges on a price agreement.[74]

In response, they received an effusive email from Hasbro Sales Director Mike Brighty:

> Ian ... This is a great initiative that you and Neil have instigated!!!!!!!!! However, a word to the wise, never ever put anything in writing, its highly illegal and it could bite you right in the arse!!!! suggest you phone Lesley and tell her to trash? Talk to Dave. Mike[75]

[70] *Id.* at ¶ 57.
[71] *Id.* at ¶ 63.
[72] *Id.* at ¶ 55.
[73] *Id.* at ¶ 55.
[74] *Id.* at ¶ 67.
[75] *Id.* at ¶ 73.

The Office of Fair Trading did "bite them in the arse" when they found all three firms to have infringed the Competition Act 1998.

> Hasbro, Argos and Littlewoods have entered into an overall agreement and/or concerted practice to fix the price of certain Hasbro toys and games. This overall agreement included two bilateral price-fixing agreements and/or concerted practices which in themselves constitute infringements: one between Hasbro and Argos and the other between Hasbro and Littlewoods. The agreements were entered into in 1999 and ... came to an end no earlier than 15 May 2001 and no later than 14 September 2001. The OFT takes the view that these agreements... had, as their object and effect, the prevention, restriction or distortion of competition in the supply of certain Hasbro toys and games in the UK.[76]

Penalties of £17.28 million and £5.37 million were levied on Argos and Littlewoods respectively. The penalty for Hasbro was calculated to be £15.59 million, but which it avoided by having received full leniency for cooperating with the OFT. Argos and Littlewoods appealed the OFT's decision to the UK Competition Appeal Tribunal (CAT) which then dismissed the appeal. The CAT's judgment was taken to the Court of Appeal by Argos and Littlewoods on the grounds that there was no communications between the two retailers and such communications were necessary to conclude there was an agreement or concerted practice. The Court of Appeal sided with the CAT:

> Argos must have known or could have reasonably foreseen that its discussion with Hasbro reflected Hasbro's discussions with other retailers. In our view such conduct was a "form of practical coordination" which knowingly substituted practical cooperation for the risks of competition. In particular, those reciprocal contacts reduced uncertainty on Argos' part as to what other retailers' pricing intentions were, and reduced uncertainty on Hasbro's part on what Argos' prices would be. That, in turn, facilitated Hasbro's conversations with other retailers especially Littlewoods, with a view to ensuring that they too priced at RRPs.[77]

In other words, downstream firms can have an exchange of assurances by communicating through an upstream firm.

3.4 Pharmaceutical Products

Parke, Davis & Company (hereafter, Parke Davis) manufactured and sold pharmaceutical products to retailers and drug wholesalers (who would then sell them to retailers).[78] The particular retail market of interest was the Washington, D.C. metropolitan area. It had been Parke Davis's policy to have a suggested minimum retail price (SMRP). In early 1956, some

[76] *Id.* at p. 1.

[77] See supra note 51, at ¶ 703.

[78] Ensuing facts are from *United States v. Parke, Davis & Company*, 164 F. Supp. 827 (D.D.C. 1958) (hereafter referred to as *Parke, Davis* (1958)) and *United States v. Parke, Davis & Co.,* 362 U.S. 29 (1960) (hereafter referred to as *Parke, Davis* (1960)).

drug store chains in the DC area started pricing below the SMRP and one retailer - Dart Drug Company - engaged in deep and well-advertised price cuts.

Frustrated with the retail pricing situation, the manager in charge of the DC area devised a strategy after learning he could legally refuse to sell to retailers who priced below the SMRP. He informed retailers of this policy in July 1956, and also told wholesalers that they would be denied supply should they supply retailers who did not respect the SMRP. Nevertheless, five retailers continued with their low prices. Parke Davis cut off their supplies though some retailers were still pricing below the SMRP and selling out of their inventories. Parke Davis then modified its policy in July for some retailers: It would only cut off sales to the retailer (and to the wholesaler who sold to it) if the retailer *advertised* a price below the SMRP. Dart Drug initially respected the advertising policy, in response to which Parke resumed supplies. However, Dart Drug along with other retailers were back to advertising prices below the SMRP by September. At that point, Parke Davis stopped refusing to sell to them because an investigation by the Antitrust Division of the U.S. Department of Justice had been launched in response to a complaint from Dart Drug.

As thus far described, the actions of Parke Davis could well be nothing more then the exercise of its legal right to refuse to supply wholesalers and retailers. Furthermore, the communications it had with them were bilateral; either with a single wholesaler or a single retailer. However, the DOJ argued there was a violation of Section 1 of the Sherman Act. As summarized by the Supreme Court:

> [T]he Government introduced evidence showing that appellee had (1) announced a policy of refusing to deal with retailers who failed to observe appellee's suggested minimum resale prices or who advertised discount prices on appellee's products, (2) discontinued direct sales to those retailers who failed to abide by the announced policy, (3) induced wholesale distributors to stop selling appellee's products to the offending retailers, (4) secured unanimous adherence by informing a number of the retailers that, if each of them would adhere to the announced policy, one of their principal competitors would also do so, and (5) permitted the retailers to resume purchasing its products after they had indicated willingness to observe the policy.[79]

It is item (4) that shifted Parke Davis' actions into unlawful territory.

The credibility of Parke Davis's threat to cut off a retailer's supply for having priced below the SMRP relied on enough retailers complying. If many were charging below the SMRP, implementation of the threat would mean shutting off the supplies of many retailers, and that would significantly harm Parke Davis' market sales. However, if a retailer expected other retailers to be pricing at the SMRP then, should it price below the SMRP, it became far more believable that Parke Davis would go through with the threat and refuse to supply it. To achieve those expectations, Parke Davis not only communicated its plan with wholesalers and retailers but also that it was communicating with other wholesalers and retailers.

> In order to insure that retailers who did not comply would be cut off from sources of supply, representatives of Parke Davis visited the wholesalers and told

[79] *Parke, Davis* (1960), syllabus.

> them, in effect, that not only would Parke Davis refuse to sell to wholesalers who did not adhere to the policy announced in its catalogue, but also that it would refuse to sell to wholesalers who sold Parke Davis products to retailers who did not observe the suggested minimum retail prices. Each wholesaler was interviewed individually, but each was informed that his competitors were also being apprised of this. The wholesalers, without exception, indicated a willingness to go along. Representatives called contemporaneously upon the retailers involved, individually, and told each that, if he did not observe the suggested minimum retail prices, Parke Davis would refuse to deal with him, and that, furthermore, he would be unable to purchase any Parke Davis products from the wholesalers. Each of the retailers was also told that his competitors were being similarly informed.[80]

Of particular concern to retailers was that Dart Drug comply, for it had been pricing well below the SMRP. That it advertised its prices would have heightened this concern among other retailers, for a well-advertised discount to the SMRP price could attract many customers from retailers who were charging the SMRP.

> When interviewed, the president of Dart Drug Company indicated that he might be willing to stop advertising, although continuing to sell at discount prices, if shipments to him were resumed. Each of the other retailers was then told individually by Parke Davis representatives that Dart was ready to discontinue advertising. Each thereupon said that, if Dart stopped advertising, he would also. On August 28, Parke Davis reported this reaction to Dart. Thereafter, all of the retailers discontinued advertising of Parke Davis vitamins at less than suggested minimum retail prices.[81]

The District Court dismissed the DOJ's complaint on the grounds that

> [t]here is no evidence that ... Parke, Davis ever conferred or discussed its sales policies with more than one wholesaler or more than one retailer at a time, nor that it made the enforcement of its policies as to any one wholesaler or retailer dependent upon the action of any other wholesaler or retailer.[82]

It is true that Parke Davis's communications were always one-on-one with a retailer or wholesaler. It never convened a meeting of retailers and wholesalers at which it encouraged collective adoption of prices that respected the SMRP or an agreement not to advertise prices below the SMRP. However, coordinated adoption of a plan can be achieved through a hub-and-spoke arrangement whereby the hub (Parke Davis) communicates with each of the spokes (retailers, like Dart Drug, and wholesalers) and conveys a plan to price at the SMRP *and* that the hub is meeting with other spokes to achieve a joint adoption of this plan. That is how the Supreme Court viewed the matter when it reversed the District Court's judgment. It accepted the DOJ's argument that

[80] *Parke, Davis* (1960), 362 U.S. 33.
[81] *Parke, Davis* (1960), 362 U.S. 35.
[82] *Parke, Davis* (1958), at 55.

> what Parke Davis did here by entwining the wholesalers and retailers in a program to promote general compliance with its price maintenance policy went beyond mere customer selection, and created combinations or conspiracies to enforce resale price maintenance in violation of §§ 1 and 3 of the Sherman Act.[83]

Furthermore, the Supreme Court noted that Parke Davis acted in this manner because: "It was only by actively bringing about substantial unanimity among the competitors was Parke Davis able to gain adherence to its policy."[84]

3.5 Replica Football Kits

The product market comprises authentic reproductions of shirts, shorts, and socks for English football clubs. The supply of these replica football kits required licensing rights from the football club (in this case, Celtic, Chelsea, Manchester United, and Nottingham Forest), production by a manufacturer (Umbro), and marketing and distribution by retailers (Allsports, Blacks, JJB, JD, and Sports Soccer).[85] As a matter of standard practice, Umbro sought to control both the distribution and retail pricing of the replica football kits. MU (which was the parent company of Manchester United) had concerns about maintaining the brand and did not want its kits in supermarkets where it might be sold as a "loss leader." Reflecting MU's preferences, Umbro refused to supply the major supermarkets. Umbro also set a recommended retail price (RRP).

Starting in 1998, Sports Soccer became more aggressive in its pricing in order to establish itself as a major sports retailer. Its business model was to price below Umbro's RRP and sell large volumes.

> Mr. Attfield [Sports Soccer's account manager] states: "Retailers have always complained about Sports Soccer. The complaints, however, became particular[ly] intense from around 1999, when Sports Soccer started to develop as a credible and important competitor to established major retailers, such as JJB. On a number of occasions, JJB made threats to cancel orders because of Sports Soccer's pricing practices."[86]

In mid-1999, JJB announced that it was planning to sell adult replica shirts at or below £40.00, which was about £3 less than Umbros' RRP. At outlets located near those of Sports Soccer, JJB was offering a 20 percent discount on all products including replica kits. As JJB was Umbro's largest customer, other retailers felt a need to respond with lower retail prices and, consequently, they put pressure on Umbro to lower the wholesale price in order for them to maintain their profit margins.

The state of the retail market led JJB to lobby Umbro to quell Sports Soccer's aggressive pricing.

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[83] *Parke, Davis* (1960), 362 U.S. 37, 38.
[84] *Parke, Davis* (1960), 362 U.S. 46.
[85] All facts are from CA/98/06/2003 Price-fixing of Replica Football Kit, 1 August 2003 [2004] CAT 24.
[86] Id. at ¶ 157.

> [T]he starting point is that JJB had been badgering Umbro for some time to do something about the fact that Sports Soccer was already selling England replica kit at a discount, and that a crucial selling period was approaching during which it would be particularly important for JJB that it should not have to face or engage in a price war.[87]

This "crucial selling period" was associated with the Euro 2000 which would substantively increase demand for kits. There was potentially large profit to be earned for retailers like JJB if margins could be raised.

In response to retail prices below RRPs, Umbro lowered its RRPs and, starting in April 2000, sought to have all retailers' price at RRPs.

> Umbro made it clear that it wished retailers to adhere to its RRPs or "high street" prices for the resale of its Replica Kit and that discounting of its key products was detrimental to its brand. For example, JD and First Sport have confirmed that Umbro pursued policies designed to persuade retailers to adhere to its RRPs or "high street" prices and that their own respective policies of generally pricing at Umbro's RRPs were well known to Umbro.[88]

Umbro conducted bilateral communications with each retailer. The message was not just that it should price at or above RRPs, but that other retailers were planning to do so. Such communications could deliver the assurances needed for a retailer to price at RRPs without the risk of another retailer undercutting it.

> Mr Ashley of Sports Soccer has said that during May and/or June 2000 Mr Ronnie of Umbro contacted Mr Ashley, Mr Hughes of Allsports, Mr Knight of Blacks, Mr Sharpe of JJB and possibly Mr Makin of JD. The contact was by telephone to seek agreement that each retailer would price the England home Replica Shirt for the duration of England's participation in Euro 2000 at £39.99. Sports Soccer had agreed to this and had understood from Umbro that Allsports, Blacks, JJB and possibly JD had made similar agreements with Umbro, (Umbro states that Mr Ashley's agreement was conditional upon this).[89]

Representative of these communications and the understanding surrounding them, consider the following triadic relationship between JJB, Umbro, and Sports Soccer.

> Mr. Ronnie [of Umbro] spoke to Mr Sharpe [of JJB] about JJB's pricing intentions, in response to which Mr. Sharpe told him that JJB would sell at High Street prices unless others discounted. ... [I]t must have been apparent to Mr. Sharpe, even if there was no express reference to Sports Soccer, that Mr. Ronnie wanted the information in the context of taking steps to guard against discounting. Mr Sharpe was among those who had spoken to Umbro staff about the Sports Soccer discounting policy. It would be extraordinary to suppose that,

[87] See supra note 51, at ¶ 92.
[88] Id. at ¶ 120.
[89] Id. at ¶ 166.

> when Mr. Ronnie asked him about JJB's own attitude to pricing England replica kit during Euro 2000, it did not occur to Mr. Sharpe that this was connected with the question of discounting by Sports Soccer and attempts to prevent it occurring, which Mr. Sharpe and others at JJB had been asking for over some time past.[90]

With JJB's pricing intention, Umbro then went to speak with Sports Soccer.

> The second stage in the process was Mr. Ronnie's call to Mr. Ashley [of Sports Soccer], to persuade him that he should raise Sports Soccer's prices for the England shirt. It is evident that Mr. Ashley was very reluctant to do so. It required pressure from Umbro by way of veiled or not so veiled threats as regards supplies. It also required an assurance that other retailers would not be discounting the shirts. Mr. Ronnie gave him that assurance. He did not mention any retailer by name, but because JJB was so dominant in the field, any assurance as to retailers must have been taken, and intended to be taken, as including JJB. Mr. Ashley agreed to raise Sports Soccer's prices on that basis, conditionally on the others also raising or maintaining their prices to or at the same level. It seems to us that, in turn, he must have recognised that others concerned would be told of his agreement. He knew, from what Mr. Ronnie told him about other retailers, that Umbro had been in touch with the other retailers about their pricing intentions, and that these had been passed on to him. He must have realised that what he told Mr. Ronnie about Sports Soccer's intentions would, correspondingly, be passed back to the others, including, necessarily, JJB.[91]

Finally, Umbro returns to speaking with JJB in order to assure them about Sports Soccer's pricing.

> Then at the third stage, Mr. Ronnie telephoned Mr. Sharpe again and told him that Sports Soccer had agreed to raise their prices and to sell at High Street prices. He did so in order to make it known to JJB that Umbro had, as asked, "done something" about Sports Soccer's discounting, by securing an agreement that it would come to an end as regards this product. He also needed to make sure that JJB knew of this because of Mr Sharpe having mentioned that JJB might discount if others did, so that JJB should be aware that, at any rate if Sports Soccer kept to their agreement, JJB would not need to discount.[92]

However, this was not a pure hub-and-spoke cartel, however, for there were also direct communications between retailers.

> On 8 June 2000 at about 13.00 hours, Mr Hughes of Allsports, Mr Whelan and Mr Sharpe of JJB and Mr Ashley of Sports Soccer met in Mr Hughes' house. ... [T]he purpose of the meeting was to discuss "the state of the market for

[90] See supra note 51, at ¶ 94.
[91] Id. at ¶ 97.
[92] Id. at ¶ 98.

> replica kit including the crippling price war between" Allsports, JJB and Sports Soccer. Allsports denies that any agreement was reached at the meeting and states that the JJB representatives merely restated JJB's public pricing policy on Replica Kit and that Sports Soccer refused to give an indication as to its future pricing policy. However, Sports Soccer has stated that, at this meeting, it agreed with Allsports and JJB that it would price the MU home adult Replica Shirts at £39.99 at launch and for an unspecified period thereafter.[93]

That Umbro promoted direct communication among the spokes suggests that it did not believe hub-spoke bilateral communications would prove sufficient to deliver the mutual understanding among retailers that they would price at Umbro's RRPs.

> A letter dated 13 July 2000 from Mr Prothero of Umbro to Mr Richards of MU says: "As you know Umbro have worked very hard in agreeing a consensus to the price of the new Manchester United jersey. At one stage we even managed to get Messrs Hughes [of Allsports], Ashley [of Sports Soccer] and Whelan [of JJB] in the same room to agree this issue."[94]
>
> Mr Ashley of Sports Soccer has also confirmed that Umbro had requested it to attend a meeting with Allsports and JJB to discuss retail pricing on the MU home Replica Kit as Sports Soccer's assurances to Umbro regarding its pricing intentions were not sufficient for the other retailers.[95]

Sports Soccer confirmed that "at meetings of this sort it requested and received assurances over the pricing intentions of other retailers,"[96] and the OFT opined that "Sports Soccer would require such information in order to ensure that agreements reached with Umbro on retail pricing did not put it at a disadvantage."[97]

According to Umbro's internal documents, these efforts were successful. From its May 2000 monthly management report:

> There has been a major step forward in the retail price of England [and] the launch of Manchester United. JJB, Sports Soccer, First Sports, JD Sports and all:sports have all agreed to retail their adults shirts at £39.99. This is following England being sold at various retail prices through April and May ranging from £24.99 to £29.99, £32.99 or £32.99 with a free £9.99 cap at JD Sports.[98]

Crucially, Sports Soccer, which had been one of the most aggressive retailers, was in compliance:

> Sports Soccer complied with the agreement in relation to the launches of the Chelsea and Celtic launches in May 2000, when all the relevant retailers sold the Replica Shirts at High Street Prices.[99]

[93] Id. at ¶ 187.
[94] Id. at ¶ 197.
[95] Id. at ¶ 187.
[96] Id. at ¶ 165.
[97] Id. at ¶ 165.
[98] Id. at ¶ 358.
[99] Id. at ¶ 346.

The OFT found the parties had engaged in unlawful agreements from March 2000 to November 2001, and concluded "that at least Allsports, Blacks, and JJB (together with Umbro and Sports Soccer) all agreed, in or around late May to early June 2000, to co-ordinate their pricing of the new MU home Replica Shirt that was launched on 1 August 2000."[100] The OFT recognized that

> RRPs are not unlawful when they simply operate as recommended prices. In this case, however, the OFT is satisfied that RRPs and "high street" prices during the period of the infringement operated as focal points for concerted behaviour. Umbro applied pressure to certain retailers for them to adhere to RRPs or "high street" prices.[101]

The UK Competition Appeal Tribunal (CAT) supported the OFT's decision, which was then affirmed by the Court of Appeal. In its decision, the Court of Appeal succinctly expressed the hub-and-spoke communications that were the basis for JJB and Sports Soccer having a "meeting of minds" that they would both raise their prices:

> [T]he Tribunal was entitled to find that (1) JJB provided confidential price information to Umbro in circumstances in which it was obvious that it would or might be passed on to Sports Soccer in support of Umbro's attempt to persuade Sports Soccer to raise its prices (thereby adopting the pricing policy which JJB explicitly wanted adopted by all significant retailers), (2) Umbro did use the information in relation to Sports Soccer in that way, (3) Sports Soccer did agree to raise its prices in reliance on this information, and foreseeing that others including JJB would be told of its agreement, and later did raise its prices as it had agreed to do, and (4) Umbro did tell JJB of this, thereby making it clear to JJB that it would be able to maintain its prices at their current level, as it did.[102]

The replica football kits case has a number of similar features to the UK toys case. In response to intense retail price competition and complaints from at least one retailer, an upstream manufacturer sought to raise retail prices by engaging in bilateral communications with retailers in order to achieve mutual understanding among them to set prices at the manufacturer recommended level. The replica football kits case differs in that the hub also orchestrated a meeting of the spokes for them to engage in direct communication. Apparently, the hub was not sufficiently convinced that indirect communication would deliver an exchange of assurances among the spokes.

3.6 Cheese

In response to low raw milk prices in the United Kingdom,a group representing farmers - Farmers for Action (FFA) - put pressure on processors - who purchase the raw milk to produce milk and cheese - to support a higher farmgate price.[103] In July 2002, the FFA

[100] Id. at ¶ 451.
[101] Id. at ¶ 125.
[102] See supra note 51, at ¶ 102.
[103] Facts are from Decision of the Office of Fair Trading, CA98/03/2011, Dairy retail price initiatives, 26 July 2011, (Case CE/3094-03).

organized farmers to blockade dairy processing facilities. The FFA also lobbied supermarket chains to raise the retail prices for milk and cheese, on the grounds that it could support a higher wholesale price from the processors which, they hoped, would lead to higher prices for raw milk.

While the initial impetus for raising retail prices came from the farmers, the case is about collusion between the processors and supermarkets. The processors - Dairy Crest, Glanbia, and McLelland - manufactured cheese and other dairy products which they sold to retailers. The involved supermarket chains were Arla Foods, Asda Stores, Sainsbury's Supermarkets, Safeway Stores, and Tesco Stores. The vertical relations were that Dairy Crest supplied Asda, Safeway, Sainsbury's, and Tesco; Glanbia supplied Asda, Safeway, and Sainsbury's; and McLelland supplied Asda, Safeway, Sainsbury's, and Tesco.

The case involved several episodes but our attention will generally be limited to a collusive plan to raise cheese prices. The aim of the 2002 Cheese Initiative "was to financially assist UK dairy farmers by subsidising an increase in the farmgate price through co-ordinated wholesale and retail price increases."[104] This was to be achieved by raising the retail price of cheese by £200 per metric ton "through staggered increases over three weeks starting on 20 October 2002".[105] As is clear from the documentary evidence provided below, critical to its implementation was that retailers jointly consummate this price increase. As both the upstream processors and downstream supermarkets had been approached by the FFA to increase wholesale and retail prices, the thought of raising prices was on their minds even prior to the communications between processors and supermarkets.

Given the multiple channels at work, it is useful to summarize the various communications that were intended to raise cheese prices by the supermarkets. First, there were bilateral communications between a processor and a supermarket, with a processor trying to convince a supermarket that other supermarkets were going to increase prices. Second, there were meetings between a supermarket and several of the processors supplying it. In those meetings, a supermarket expressed a desire to raise its cheese prices but that it was critical that other retailers do so as well. Third, there were bilateral communications between the FFA and a supermarket, whereby the latter expressed the need for a collective price increase and the former shared information about other retailers' price intentions.

Consistent with a standard hub-and-spoke cartel, a processor (hub) was disseminating pricing intentions of supermarkets (spokes) in order to provide assurances to a supermarket that it could raise price knowing that its competitors would do likewise. On September 17, 2002, Dairy Crest's Senior Account Manager for supermarket Asda met with Asda's Category Manager for Dairy. At that meeting, Dairy Crest's manager provided a slide presentation titled "Asda Briefing Document Raw Milk Pricing" which demonstrated "that Dairy Crest proposed to Asda that it should participate in an initiative to subsidise a farmgate price increase through retail price increases on dairy products in addition to milk."[106] One slide stated: "Move Cheese Prices at retail up by £200 per tonne.", and another stated: "Action - Move the whole market forward."[107] which the OFT appropriately interpreted as Dairy Crest informing Asda "that it was not being expected to increase its cheese retail prices

[104] Id. at ¶ 5.14.
[105] Id. at ¶ 5.158.
[106] Id. at ¶ 5.122.
[107] Id. at ¶ 5.122.

unilaterally, but as part of a wider market move which also involved the implementation of retail price increases by its competitors."[108] On the same day, Dairy Crest made a "virtually identical presentation" to another retailer.[109] These communications are consistent with an upstream processor promoting an increase in retail cheese prices with each of its customers, while conveying to those customers that it was part of a plan for all supermarkets to raise prices. Such was clearly expressed in a note by Dairy Crest's Commercial Director for its Tesco account which stated that Dairy Crest "[p]roposed to Asda that by early November all accounts would have followed the market moves... Asda - Tesco - Sainsbury's - Safeway - [a retailer] - [a retailer]."[110] If Asda were to raise its retail prices, it would not be alone.

There were also documented communications in which a processor conveyed the explicit pricing intentions of one supermarket to another supermarket, which would have led to mutual understanding among the supermarkets regarding price increases.

> On 4 November 2002, [Dairy Crest's Category Manager (Cheese and Spreads) for its Tesco account] sent an e-mail and attached spreadsheet entitled "Suggested RSP" to [Tesco's Senior Cheese Buyer]. The e-mail reads as follows: "I have attached a spreadsheet which shows the suggested rsp's [retail selling prices] of cheese lines that we supply Asda following the price increase. My understanding is that Asda will be applying £200 per tonne."[111]

In an interview with the OFT, that Dairy Crest employee explained:

> By sending this email, I was showing [Tesco's Senior Cheese Buyer] that the suggested price of cheese was the same across the board and not specific to Tesco. The prices mentioned were only suggested prices and not guaranteed prices. In my view it was not a definitive statement that Asda's prices would go up by the amount listed; I stated that it was "My understanding" that they would do so rather than stating that they definitely would.[112]

Thus, Dairy Crest was not sharing the actual prices of Asda but rather its intended prices, and presumably doing so with the goal of affecting Tesco's prices. Similarly, processor McLelland sent an email on October 21, 2002 to Tesco which conveyed the pricing intentions of rival retailer Sainsbury: "I have provided the recommended Retail going forward plus the position to protect your own margin. ... Sainsbury are confirming that the new retails on Branded pre-pack will be in place Tuesday this week."[113]

In addition to the bilateral communications that McLelland conducted with its customers, it also utilized a public forum to promote mutual understanding among retailers. An article in the *Dairy Industry Newsletter* stated:

[108] Id. at ¶ 5.171.
[109] Id. at ¶ 5.127.
[110] Id. at ¶ 5.171.
[111] Id. at ¶ 5.332.
[112] Id. at ¶ 5.335.
[113] Id. at ¶ 5.251.

> SUPERMARKETS AGREE £200/tonne PRICE INCREASE Apparently, as of this week, all the major UK supermarkets are to implement an across-the-board £200/tonne increase in cheese prices as from next month. Asda were the last of the major chains to 'come on board'. Sainsbury led the initiative, followed by [a retailer], [a retailer] and [a retailer]. Tesco, initially reluctant, have agreed to a price increase. It is understood that Sainsbury are putting retail prices up this week, the others will follow.[114]

McLelland shared this article with Sainsbury, which would have helped shore up Sainsbury's belief that other supermarkets would be raising prices. In addition, McLelland may have provided the information for the article.

> On 24 September 2003, [McLelland's National Account Manager for its Sainsbury's account] e-mailed a copy of an article taken from the Dairy Industry Newsletter website of the same date to [Sainsbury's Senior Cheese Buyer]. ...[The] covering e-mail suggests that McLelland may have played a role in providing information for the article: "Please read the below feature on the retail move. As you can see, we have positioned you favourably in terms of moving the price forward, and as the Dairy Industry News is the 'Bible' of the dairy farming community, this has been viewed as a very favourable move by Sainsbury's."[115]

A public announcement of a market-wide increase in retail prices could have gone a long way to providing the assurances that the supermarkets needed.

Though the FFA was not prosecuted by the OFT, it also engaged in communications to promote common expectations among retailers about higher cheese prices. When the FFA was lobbying supermarkets for a price hike, some supermarkets clearly expressed that there needed to be a market-wide movement in prices:

> On 4 October 2002, [Sainsbury's General Manager for Dairy and Cheese] wrote to [an official at FFA] and informed him of the status of discussions between Sainsbury's and its processors regarding a cheese price increase. The letter reads as follows: "With regards to cheese we are still discussing the implementation of cost price increases with all our processors. It is intended that we will pass on an increase in our buying prices by £200/tonne in approx 3 weeks, for all our standard cheese range, provided other retailers also accept this. I must stress that if others do not generally support this initiative, I will have to withdraw my support for cheese, if I find I am uncompetitive in the wider market place."[116]

Though not associated with the 2002 Cheese Initiative, the FFA had shared pricing intentions between supermarkets for fresh liquid milk (FLM), around the same time. Tesco had received letters from the FFA which had been sent

[114] Id. at ¶ 5.510.
[115] Id. at ¶ 5.510.
[116] Id. at ¶ 5.231.

to [an FFA official] by Safeway and [a retailer's] representatives, following an approach by FFA. In the letters, these retailers expressed support for an increase in retail prices for FLM in order to pass back monies up the supply chain to farmers (to achieve an increase in the farmgate price for raw milk), provided that competing retailers would also increase their retail prices. FFA was circulating these letters between retailers.[117]

It is quite possible that the FFA also engaged in such practices for cheese.

The final documented channel was between a supermarket and several of its suppliers. A meeting on September 13, 2002 involved Tesco and its two suppliers, Dairy Crest and McLelland. Based on a processor's employee's notes from the meeting,

> [i]t is also evident that [Tesco's Category Manager for Dairy] gave a clear and direct indication that Tesco was contemplating increasing its cheese retail prices as part of any price initiative with the note recording him as stating that: "Cheese and spread values have crashed over the last 3 years and Tesco has been selling them at a loss. Cautiously optimistic that Tesco can now start to move retail prices forward in this area but ... very difficult to move out of line with other competitors. ... [Tesco's manager] senses there is a mood to move some of these prices forward."[118]

The OFT commented in its decision that

> [i]n disclosing that it was prepared to increase its cheese retail prices ... to its supplying processors in the context of discussions which had as their purpose the co-ordination of a market-wide cheese retail price increase, Tesco may be taken to have intended and did, in fact, foresee that its supplying processors would make use of that information to influence conditions on the cheese retail market by passing it to other retailers in order to facilitate further and wider retail price increases.[119]

The message from these communications are clear: A supermarket is willing to raise its cheese prices as long as competing supermarkets are planning to do so. In order to achieve that common course of actions, there were various forms of communications utilized to deliver the required mutual understanding among supermarkets. By conveying its pricing intentions to a processor like Dairy Crest and to the FFA, a processor and FFA could share those pricing intentions with other supermarkets. If a supermarket anticipated such sharing, which is reasonable given that other supermarkets' pricing intentions were being shared with them, then these retailers could have achieved the exchange of assurances necessary to consummate a rise in retail cheese prices. As summarized by the OFT:

> The type of information disclosed by retailers chiefly consisted of expressions of willingness to increase retail prices on condition that their competitors either

[117]Id. at ¶ 2.70.
[118]Id. at ¶ 5.80.
[119]Id. at ¶ 5.119.

led or followed the retail price increase and information concerning future retail price increases (such as the levels of the retail price increases and the dates on which those increases would be implemented).[120]

With regards to the legal case, the OFT found Asda, Dairy Crest, Glanbia, McLelland, Safeway, Sainsbury's, and Tesco to have participated "in a single overall concerted practice which had as its object the prevention, restriction or distortion of competition in respect of cheddar and British territorial cheese retail prices in 2002."[121] All but Tesco admitted their guilt. As a result of these practices, the OFT concluded that retail prices rose for cheddar and British territorial cheeses. Tesco appealed the OFT's decision to the Competition Appeal Tribunal which overturned the judgment regarding conduct in 2002 but affirmed Tesco's guilt for behavior in 2003.

3.7 Paints and Varnishes

In the early 2000s, the Do-It-Yourself (DIY) market grew in Poland and with it came increased competition among DIY retail chains.[122] Of particular note was a decline in the retail prices of paint and varnishes. The reduced retail price margins were not just a concern for the retail chains but also the upstream manufacturers. With rising prices for raw materials, the upstream manufacturers wanted to raise the wholesale prices of paints and varnishes but were finding resistance from the downstream retailers, who were concerned that it might mean yet smaller margins.

In response to this situation, paint and varnish manufacturer Polifarb Cieszyn Wrocław (PCW) created a program to induce retailers to set higher retail prices. Referred to as a "price stabilizing system," PCW put forth recommended retail prices for its ten best-selling products and encouraged retailers to price no lower than the recommended level. To induce compliance, PCW created a rebate system:

> Stores that maintain PCW suggested prices as their retail prices will be receiving an additional stabilizing rebate in their invoice as a bonus for price compliance. If a given store does not comply with the prices suggested by PCW, all supplies of all products will be stopped and the stabilizing rebate will be put on hold until prices are brought back to the suggested level.[123]

A chain would be considered out of compliance if just one store priced below the recommended price.

If PCW had independently negotiated such a policy with each chain, there would not have been collusion. However, as with *Hasbro*, the retail chains were concerned that other chains may not comply by pricing below PCW's recommended prices. If that were to occur, a retailer in compliance would lose market share. In light of the recent history of aggressive pricing, it was natural for the retailers to be skeptical about compliance.

[120] Id. at ¶ 5.45.
[121] Id. at ¶ 7.2.
[122] The ensuing facts are from Bolecki (2011).
[123] *Id.* at 32.

> The compliance by all major DIY chains ... with the prices set by the suppliers was the key to the success of the price stabilization program. A deviation by one of the retailers generally caused an immediate reaction from other DIY store chains – the latter would either lower or threaten to lower their retail price so as to remain competitive with each other.[124]

The Polish competition authority - Office of Competition and Consumer Protection (or Urząd Ochrony Konkurencji i Konsumentów or UOKIK) - found no evidence of any communications between the downstream retail chains. What they did find was a very engaged upstream manufacturer intent on assuring that all retailers adopt the policy. The UOKIK determined that

> PCW had played the role of a "mediator" who would "appease disputes", explain price differences, and inform retailers about how quickly would the prices of their competitors return to the agreed level. The manufacturer would notify retailers of all price changes of their competitors (most often increases), no matter how small, so as to prevent price changes by other trading partners.[125]

It was PCW's efforts in support of a *coordinated* adoption of its price-stabilizing program among retailers that turned a resale price maintenance program into hub-and-spoke collusion.

In addition to monitoring current prices for compliance, there were at least two other avenues through which a upstream manufacturer could learn about a retail chain's future prices:

> 1) Price information associated with ... joint marketing campaigns organised by the supplier and its retailers. ... The campaign would be commissioned by the given DIY chain but the manufacturer would usually participate in its costs. ... [W]hen sending the draft for a supplier's approval, retailers would often disclose at the same time that product's intended retail price. If the price shown on the draft was lower than the price recommended by the supplier, the latter would try to persuade the DIY chain to raise it, for example by threatening to withdraw the co-financing of the campaign. 2) Suppliers would obtain information from retailers on their intended retail prices in the course of standard conversations or e-mail contacts.[126]

PCW's success was not lost to other paint and varnish manufacturers, who were also finding resistance to wholesale price increases due to shrinking retail margins. Soon manufacturers Akzo Nobel and Tikkurila formed their own hub-and-spoke cartels in order to raise the retail prices for their paints and varnishes. As the UOKIK noted:

> Akzo Nobel was transmitting to its retailers information on price changes intended by their competitors. As shown by the collected evidence, the company was not doing that at the request of the chains but rather to convince them that

[124] *Id.* at 33.
[125] *Id.* at 32.
[126] *Id.* at 36.

the given participant in the agreement would indeed comply with the arrangements. Such assurances would give the supplier more certainty as far as the compliance with the arrangements by those participating in the agreement.[127]

The UOKIK found no evidence of any communication among the three upstream manufacturers. Though these were then three separate hub-and-spoke conspiracies, they were not independent occurrences for Akzo Nobel and Tikkurila were imitating the success of PCW's hub-and-spoke cartel.

3.8 Drugstore, Perfumery and Hygiene Products

From 2002 to 2007, a hub-and-spoke cartel raised prices for drugstore, perfumery, and hygiene (DPH) in supermarkets throughout Belgium. Seven retailers were involved - Carrefour, Colruyt, Cora, Delhaize, Intermarché, Makro, and Mestdagh - and 11 suppliers - Beiersdorf, Belgium Retail Trading, Bolton, Colgate, DE HBC, GSK, Henkel, L'Oreal, Procter & Gamble, Reckitt, and Unilever. The cartel was discovered due to Colgate applying for leniency. All 18 companies settled and the Belgian Competition Authority imposed an aggregate fine of 174 million euros.[128]

The objective of the cartel was "to increase and stabilize the selling prices of domestically produced DPH products to consumers at similar or near similar levels at the [retailer] level."[129] Each upstream supplier, such as Unilever, ran its own hub-and-spoke cartel with its downstream suppliers. While there was no evidence of any communication among suppliers, the simultaneity of these hub-and-spoke cartels and the similarity of their practices suggest otherwise.[130] The documented communications between a supplier's account manager and a retailer's purchasing agent or department manager took the form of emails, telephone calls, and conversations in stores. There was no evidence of communications between retailers.

Presumably with the cooperation of its leniency awardee, the Belgian Competition Authority provided a detailed description of how a round of collusive price setting was conducted.[131] It had four stages that are labelled initial, negotiation and consultation, implementation, and control. The initial phase had either the supplier (hub) or a retailer (spoke)

[127] *Id.* at 39.

[128] Facts are based on a Google translation of Autorite Belge de la Concurrence, Décision n° ABC-2015-I/O-19-AUD du 22 juin 2015, Affaire CONC-I/O-06/0038 – Hausses coordonnées des prix de vente de produits de parfumerie, d'hygiène et de droguerie (which translates as: Belgian Authority of Competition, Decision No. ABC-2015-I / O-19-AUD of June 22, 2015, Case CONC-I / O-06/0038 - Coordinated increases in the selling prices of perfumery, hygiene and drugstore products). Other references are "Belgian Competition Authority settles its first cartel case," www.elexica.com/en/legal-topics/antitrust-and-merger-control/29-belgian-competition-authority-settles-its-first-cartel-case (downloaded 05/22/2018); and Mattioli (2016).

[129] Google translation of Belgian Authority of Competition, Decision No. ABC-2015-I / O-19-AUD of June 22, 2015, Case CONC-I / O-06/0038 - Coordinated increases in the selling prices of perfumery, hygiene and drugstore products, para. 20.

[130] Like with the Paints and Varnishes case in Poland, it is possible that one of the suppliers implemented a hub-and-spoke cartel and, upon learning about its success, other suppliers imitated it by creating their own.

[131] The description in Mattioli (2016, p. 262) confirms the translation of Autorite Belge de la Concurrence, Décision n° ABC-2015-I/O-19-AUD du 22 juin 2015, Affaire CONC-I/O-06/0038 – Hausses coordonnées des prix de vente de produits de parfumerie, d'hygiène et de droguerie.

contact the other to propose a price increase for certain products. The hub then informed all of its spokes that a coordinated price increase was in the works. During the negotiation and consultation phase, the supplier would discuss with its retailers what should be the magnitude of the price increase, the date at which it should be implemented, and which retailers were to participate. The information that a supplier received from a retailer was then conveyed to the other retailers. Once an agreement had been reached, the supplier informed each retailer of the products, the new retail prices, the implementation dates, and the participating retailers.

The communications conducted by a supplier during the negotiation and consultation phase served to achieve mutual understanding among the retailers regarding the price increases for certain products. The implementation phase was also crucial for dispelling retailers' concerns that other retailers would not comply. It was during the implementation phase that retailers were to adopt the new prices, which might take a week for all retailers to do. Some retailers would not raise their prices until the supplier showed them transaction receipts from rival retailers documenting that they were indeed charging the new prices. Also critical to ensuring continued compliance was the control phase which had the supplier monitoring the stores to ensure that the new prices were in place. The information acquired through store inspection would be shared by the supplier with the participating stores. Retailers would also monitor, and then share with the supplier any evidence of noncompliance, and ask them to intervene with the deviant retailer.

The Belgian Competition Authority concluded that the hub-and-spoke cartel had mixed success in that some agreed-upon price increases were implemented, while others were not.

3.9 e-books

In the book publishing market, the traditional pricing strategy was to initially release a book in hardcover at a high price and then, at a later time, release a paperback version at a lower price. Referred to as "windowing," it allowed a publisher to generate higher profits through intertemporal price discrimination. Compared to charging a constant price over time, higher margins were earned on those consumers who most valued the product - and thus bought it early at the high price - while still selling to the broader market (who valued it less) through its lower-priced paperback edition.

e-books (also known as digital or electronic books) presented a new format for publishers. Introduced by Amazon in 2007 with the Kindle, Amazon chose a pricing strategy that was a disruptive departure from the windowing strategy. For New Releases and New York Times bestsellers, Amazon charged a retail price of \$9.99, which was significantly below the typical \$30 price of a hardcover book.[132] \$9.99 was at or slightly below the wholesale price Amazon paid to the publishers. Amazon's pricing strategy was focused more on promoting adoption of the Kindle platform than making money on e-book sales. Amazon dominated the e-book

[132] Facts are from Complaint, *United States v. Apple, et al.*, No. 12 CV 2826, 2012 WL 1193205 (S.D.N.Y. Apr. 11, 2012); *United States v. Apple Inc.*, 952 F. Supp. 2d 638 (Opinion and Order, Southern District Court of New York, Judge Denise Cote, July 10, 2013) (referred to as *Apple* 2013) and *United States v. Apple, Inc.*, 791 F.3d 290 (2d Cir. 2015) (referred to as *Apple* 2015). For some analyses of the case, see Gilbert (2015) and Klein (2017).

market with a market share of almost 90%.

The publishing industry for "trade" books (i.e., general interest fiction and non-fiction books) was dominated by the "Big Six" - Hachette, HarperCollins, Macmillan, Penguin, Random House, and Simon & Schuster. Their market share of New York Times Bestsellers exceeded 90%, and they sold almost 50% of e-books. For several reasons, the Big Six "saw Amazon's $9.99 pricing strategy as a threat to their established way of doing business."[133] First, e-books at a retail price of $9.99 were taking sales away from their more profitable hardcover sales. Second, the low e-book price might create increasing resistance from consumers to the hardcover price, which would force publishers to reduce the wholesale price for hardcover books. Third, while Amazon was currently selling e-books at or below the wholesale price it was paying publishers, it might eventually use its dominant position in the e-book market to demand a lower wholesale price in order for Amazon to have positive margins at a retail price of $9.99. "As Hachette's [Chairman and CEO David] Young put it, the idea of the 'wretched $9.99 price point becoming a de facto standard' for e-books 'sickened' him."[134]

Starting as early as September 2008, the CEOs of the Big Six publishers were privately meeting about once a quarter to discuss industry matters, including Amazon's e-book retailing practices. Since publishers competed over authors and agents rather than prices, they "felt no hesitation in freely discussing Amazon's prices with each other and their joint strategies for raising those prices."[135] Some of the policies debated including raising the wholesale price for e-books and creating their own e-book platform as an alternative to Amazon's.

Though the publishers did not settle on any policy, their meetings yielded a common understanding that Amazon's pricing model had to be changed and that could only happen if the publishers adopted a unified front. As noted by President and CEO Carolyn Reidy of Simon & Schuster:

> We've always known that unless other publishers follow us, there's no chance of success in getting Amazon to change its pricing practices [and] without a critical mass behind us Amazon won't "negotiate," so we need to be more confident of how our fellow publishers will react if we make a move.[136]

This point resonated with a Penguin executive in a report made to the Penguin Group Board of Directors:

> [It] will not be possible for any individual publisher to mount an effective response [to Amazon] because of both the resources necessary and the risk of retribution, so the industry needs to develop a common strategy.[137]

At the same time that the publishers were in the midst of searching for an alternative to the current arrangement with Amazon, Apple was preparing to launch the iPad on January 27, 2010. Apple's goal was to have a well-stocked iBookstore from which iPad users could

[133] *Apple* 2015 at 299.
[134] *Id.* at 300.
[135] *Id.* at 300.
[136] *Apple* 2013 at 651.
[137] *Id.* at 650.

purchase and download e-books by the time of the launch. Hence, Apple needed to work out an arrangement with the Big Six publishers, and it knew that they wanted to raise the e-book price above $9.99. As a result, Apple and the publishers were natural allies; Apple wanted to effectively compete with Amazon in the e-book market, and the publishers wanted to have an alternative e-book platform to reduce the market power of Amazon.[138]

As director of Apple's digital content stores, Eddy Cue was in charge of negotiations with the Big Six. The pricing arrangement with Amazon (which was referred to as the "wholesale model") had the publisher charge a fixed wholesale price for each e-book sold by Amazon, with Amazon setting the retail price (which was $9.99). Cue proposed a wholesale model but with higher price points. Hachette (and later HarperCollins) suggested instead an "agency model" in which the publishers set the retail prices and the publisher and Apple shared the revenues. While initially resistant, Cue soon embraced it though with Apple retaining some control over retail prices.

> Apple settled on an agency model with a 30% commission, the same commission it was using in its App Store. Agency would give the Publishers the control over e-book pricing that they desired, and ensured that Apple would make a profit from every e-book sale in its iBookstore without having to compete on price. Apple realized, however, that in handing over pricing decisions to the Publishers, it needed to restrain their desire to raise e-book prices sky high. It decided to require retail prices to be restrained by pricing tiers with caps.[139]

Apple proposed retail price caps of $14.99, $12.99, and $9.99, depending on the book's hardcover price.

However, this strategy would not solve the publishers' problem if Amazon continued to sell e-books at $9.99, for then the publishers would be forced to set the iBookstore retail price close to $9.99, in order to remain competitive with Amazon. In that situation, publishers would be making 70% of $9.99, while it was receiving the wholesale price of $9.99 (or larger) from Amazon. Recognizing that the agency model needed to be augmented with a plan to control price competition between Apple and Amazon, Apple devised a two-prong strategy. First, the publishers would force Amazon to adopt the agency model. Second, Apple would add a Most Favored Nation (MFN) clause to their contracts with publishers.

By moving Amazon to the agency model, the publishers would regain control over the retail price and thus could set a higher price. The MFN clause mandated that:

> If, for any particular New Release in hardcover format, the ... Customer Price [in the iBookstore] at any time is or becomes higher than a customer price offered by any other reseller . . . , then [the] Publisher shall designate a new, lower Customer Price [in the iBookstore] to meet such lower [customer price].[140]

[138] "As [Apple Senior Vice President] Cue saw it, Apple's most valuable bargaining chip came from the fact that the publishers were desperate 'for an alternative to Amazon's pricing policies and excited about . . . the prospect that [Apple's] entry [into the ebook market] would give them leverage in their negotiations with Amazon.'" (*Apple* 2015 at 659)

[139] *Apple* 2013 at 659.

[140] *Apple* 2015 at 304.

Thus, if a publisher offered a lower price for its e-book at Amazon (perhaps due to pressure from Amazon), it would be contractually bound to lower its price at the iBookstore to that same level. An MFN clause would weaken the incentive for Amazon to bargain for a lower retail price - since it would not result in a price advantage over Apple - and strengthen the incentive of a publisher to resist a lower retail price - as it would be forced to lower the retail price at the iBookstore, too.

Apple's scheme would not necessarily make e-books sales more profitable for publishers. For example, consider a hardcover book priced at $25. Apple would cap the retail price at $12.99 and, if that is the price at which a publisher sold the e-book, it would earn 70% of $12.99 or $8.75, which is less than the wholesale price Amazon was paying. For some publishers, e-book gross revenue was expected to decline by 17%.[141] Nevertheless, Apple's pricing scheme appealed to the publishers for several reasons. First, higher e-book prices would raise hardcover sales, which had a higher margin. Second, regaining control over retail prices could prove more profitable in the long run if Apple raised the price caps, which would be quite likely once the e-book market became better established. Third, it would allow Apple to effectively enter the market and that would weaken the position of Amazon when bargaining with the publishers.

Summarizing, and as argued by the DOJ in its complaint,[142] the adoption of the Apple Agency Agreements would raise e-book prices by taking away retail pricing authority from the retailers, having e-books prices set according to the Apple price caps, and resulting in higher retail prices for other retailers (specifically, Amazon) through their adoption of the agency model and an MFN clause which would ensure the price caps would not be less than those set by Apple. In addition to this anti-competitive effect, the plan was exclusionary in that it sought to use the combined market power of the publishers to force Amazon to switch from wholesale pricing to the agency model. An interesting wrinkle is that Amazon was dominant in the e-book retail market in which case the coordinated actions of the publishers could be viewed as a countervailing force to Amazon. Indeed, the mutual interests of the publishers and Apple resided in reducing Amazon's market dominance.

Having devised this plan, Apple now had to get publishers to accept it. Apple quickly learned that it would not succeed if each negotiation with a publisher was conducted in isolation of the negotiations with other publishers. Publishers were willing to go along with Apple's plan - which involved higher retail prices and pressuring Amazon to accept the agency model - only if all or almost all publishers were on board.

> Each Publisher Defendant required assurances that it would not be the only publisher to sign an agreement with Apple that would compel it either to take pricing authority from Amazon or to pull its e-books from Amazon. The Publisher Defendants continued to fear that Amazon would act to protect its ability to price e-books at $9.99 or less if any one of them acted alone. Individual Publisher Defendants also feared punishment in the marketplace if only its e-books suddenly became more expensive at retail while other publishers continued to allow retailers to compete on price. As Mr. Cue noted, "all of them were very concerned about being the only ones to sign a deal with us." Penguin explicitly

[141] *Apple* 2013 at 667.
[142] *Apple* 2012 at 91.

> communicated to Apple that it would sign an e-book distribution agreement with Apple only if at least three of the other "major" publishers did as well.[143]

Beginning in December 2009, Cue's strategy was to negotiate with a publisher while keeping it apprised of what the other publishers were intending to do. Cue would be the hub communicating between the spokes, who were the CEOs of the Big Six. He began by meeting with each of the Big Six in New York City over December 15-16, 2009. In the following week, he met again with executives from three publishers and

> explained that he had met with all of the Big Six the preceding week, and had come to the conclusion that the way forward would involve four components. First, the e-book "industry" needed to move to the agency model, which would allow the Publishers to set the prices and introduce what Cue euphemistically termed "some level of reasonable pricing." Second, Apple would need a 30% margin on e-books sold through Apple. Third, he proposed setting prices for New Release e-books at $12.99, that is, $3 over Amazon's $9.99 price. Finally, to remove all retail price competition, the Publishers would have to adopt the agency model for all of their e-tailers.[144]

Critical is that Apple was telling each of those publishers that *all* publishers had to get Amazon to change its pricing policy. Over January 4-5, 2010, Cue wrote essentially identical emails to each of the publishers and, for the three that he did not meet in late December, he began with: "After talking to all the other publishers and seeing the overall book environment, here is what I think is the best approach for e-books."[145] On January 11th, each publisher received from Apple its proposed e-book Agency Distribution Agreement and each was assured that all publishers were getting the same terms.

The goal was to get all publishers under contract prior to the iPad launch on January 27th. Though, as of January 16th, Apple did not have a single contract signed, they soon started falling like dominoes. Simon & Schuster was the first to sign, which led Cue to send "substantively identical e-mails to Macmillan and Penguin stating that Apple had completed its first agency agreement and was 'very close' on two more."[146] On January 22nd, Cue informed Apple CEO Steve Jobs

> that he had commitments from Hachette, S&S, Macmillan, and Penguin that they would sign. At this point, Penguin required assurance that three other Publishers were also signing Agreements. As Cue admits, in these final days the Publishers needed reassurance that they would not be alone in signing an agency agreement with Apple because they feared Amazon's reaction, reassurance that Cue readily provided.[147]

Come January 26th, five of the Big Six had signed, with Random House deciding it would stick with the wholesale model. As the District Court noted:

[143] *Id.* at ¶ 69.
[144] *Apple* 22013 at 660.
[145] *Id.* at 661.
[146] *Id.* at 674.
[147] *Id.* at 674.

> [I]n less than two months, Apple had signed agency contracts with five of the six Publishers, and those Publisher Defendants had agreed with each other and Apple to solve the “Amazon issue” and eliminate retail price competition for e-books. ... This would not have happened without Apple’s ingenuity and persistence. Apple’s task had not been easy, but it had succeeded. As Reidy acknowledged in an email to Cue on January 21, working with the Publishers had been like “herding ... cats.”[148]

There were also direct communications among the publishers during this period as "[d]uring their negotiations with Amazon, the Publisher Defendants shared their progress with one another."[149] Of particular note is how the publishers joined forces when Amazon retaliated against Macmillan. When Macmillan CEO John Sargent met with Amazon, he told Amazon that they could either adopt the agency model or not receive the Kindle versions of its new releases for seven months (which was the length of time that these books were classified as "new releases" under the contract with Apple). Amazon responded by removing the buy buttons at its web sites for Macmillan print and Kindle versions; the books were listed at Amazon but a customer could not buy them. Macmillan expected the support of the other publishers, for Sargent wrote:

> The deal that 5 of us did with Apple meant someone was gonna have to do it [first]. ... The optics make it look like I stood alone, but in the end I had no doubt that the others would eventually follow.[150]

And indeed they did.

> Hachette’s Nourry [wrote] to Sargent: “I can ensure you that you are not going to find your company alone in the battle” with Amazon. The next day, Penguin’s Makinson similarly wrote, “[j]ust to say that I’m full of admiration for your articulation of Macmillan’s position on this. Bravo.” Internally, Hachette’s Nourry told Young that he wanted to “enter in the battle as soon as possible,” and in an allusion to Macmillan’s small size, that he was “thrilled to know how A[mazon] will react against 3 or 4 of the big guys.” Over the weekend, it became obvious to Amazon that its strategy had failed. The feedback was mixed, but included intense criticism of Amazon by customers and publishers.[151]

On January 31st, Amazon announced that it would adopt the agency model with Macmillan, and had also done so with Hachette, HarperCollins, and Simon & Schuster by March 2010. Though the key retailer to convert was Amazon, the five publishers also switched other retailers - such as Barnes & Noble (which had its Nook e-book reader) and Google’s e-bookstore - to the agency model.

In sum, Apple proved to be an effective hub in coordinating the adoption of the agency model between five of the Big Six publishers and e-book retailers Apple and Amazon. The District Court summarized well the coordinating role played by Apple.

[148] *Id.* at 678.
[149] *Id.* at 681.
[150] *Id.* at 680.
[151] *Id.* at 680.

> A chief stumbling block to raising e-book prices was the Publishers' fear that Amazon would retaliate against any Publisher who pressured it to raise prices. Each of them could also expect to lose substantial sales if they unilaterally raised the prices of their own e-books and none of their competitors followed suit. This is where Apple's participation in the conspiracy proved essential. It assured each Publisher Defendant that it would only move forward if a critical mass of the major publishing houses agreed to its agency terms. It promised each Publisher Defendant that it was getting identical terms in its Agreement in every material way. It kept each Publisher Defendant apprised of how many others had agreed to execute Apple's Agreements. As Cue acknowledged at trial, "I just wanted to assure them that they weren't going to be alone, so that I would take the fear awa[y] of the Amazon retribution that they were all afraid of."[152]

The evidence shows that the adoption of the agency model by Apple and Amazon caused e-book prices to rise.[153] To begin, e-book prices were generally set at Apple's price caps.

> In the five months that followed [the opening of the iBookstore], the Publisher Defendants collectively priced 85.7% of their New Release titles sold through Amazon and 92.1% of their New Release titles sold through Apple within 1% of the price caps. This was also true for 99.4% of the NYT Bestseller titles on Apple's iBookstore, and 96.8% of NYT Bestsellers sold through Amazon.[154]

Figure 3 was offered by one of Apple's economic experts at trial. After the iBookstore opened in April 2010, Amazon's e-book prices went up for all publishers (except Random House which did not adopt the agency model). A statistical analysis by an expert witness for the DOJ found that the average price of e-books rose by 16.8% in the six months after Amazon adopted the agency model compared to six months before (see Table 1). Finally, a study has tracked e-book prices after publishers switched back to the wholesale model over September 2012 to September 2013 as part of their settlement with the DOJ (De los Santos and Wildenbeest, 2017). With retailers gaining control of prices at that point, Amazon's e-book prices fell by 18%. In sum, e-book prices rose when publishers adopted the agency model in 2010 and fell when they moved away from the agency model over 2012-13. The evidence is compelling that Apple's hub-and-spoke cartel had an anti-competitive effect on prices.

In response to the civil suit filed against the five publishers and Apple by the DOJ and 33 states and territories, all five Publisher Defendants eventually settled. Apple chose to go to trial where it was found guilty of violating Section 1 of the Sherman Act.[155] It lost on appeal to the Second Circuit Court,[156] which resoundingly supported the judgment of the District

[152] *Id.* at 692-3.

[153] For recent theories exploring the rationale for and implications of the agency model in the context of a market like ebooks, see Gaudin and White (2014), Foros, Kind, and Shaffer (2017), and Johnson (2017). De los Santos and Wildenbeest (2017) offers a test of these various theories.

[154] *Apple* 2013 at 682.

[155] *United States v. Apple Inc.*, 952 F. Supp. 2d 638 (Opinion and Order, Southern District Court of New York, Judge Denise Cote, July 10, 2013)

[156] *United States v. Apple, Inc.*, 791 F.3d 290 (2d Cir. 2015)

Court, and the Supreme Court denied Apple's petition for certiorari. Both the District and Circuit courts found Apple to have committed a per se violation and even commented that it would have been found guilty under the rule of reason.

> Because this conspiracy consisted of a group of competitors - the Publisher Defendants - assembled by Apple to increase prices, it constituted a "horizontal price-fixing conspiracy" and was a per se violation of the Sherman Act. It concluded, moreover, that even if the agreement to raise prices and eliminate retail price competition were analyzed under the rule of reason, it would still constitute an unreasonable restraint of trade in violation of § 1. In the district court's view, Plaintiffs' experts persuasively demonstrated that the agreement facilitated an "across-the board price increase in e-books sold by the Publisher Defendants" and a corresponding drop in sales. Apple, on the other hand, failed to show that "the execution of the Agreements," as opposed to the launch of the iPad and "evolution of digital publishing more generally" (which were independent of the Agreements), "had any pro-competitive effects."[157]

As vertical agreements are a feature of hub-and-spoke cartels, it should be emphasized that the those agreements are typically legal. Exemplified in the current case, the Apple Agency Agreement was lawful. What was unlawful was Apple coordinating publishers so that they would collectively adopt it with Apple and Amazon. Nevertheless, a remedy for the horizontal agreement could mean prohibiting the associated vertical agreement, which is what happened in the *e-books* case.

4 An Analysis of Hub-and-Spoke Collusion

Though most collusion occurs in intermediate goods markets, all of the cases of hub-and-spoke collusion had the object of reducing competition in a retail market. Collusion took one of two forms. In six of the nine cases, it was standard price fixing: Retailers coordinated on a higher common price, with an upstream manufacturer as the hub and downstream retailers as the spokes. In two cases - movie exhibition and U.S. toys - the collusive scheme was exclusionary. A dominant downstream retailer (hub) coordinated upstream suppliers (spokes) in harming a class of rivals to the hub. The e-books case is a hybrid of the two schemes. It had an exclusionary component - in that it harmed Amazon which was a downstream rival Apple (hub) - and it was designed to raise downstream retail prices, which it did.

4.1 Properties of Collusive Schemes

4.1.1 Exclusion of Downstream Firms

The exclusionary scheme implemented in the markets for movie exhibition and toys (U.S.) was motivated by the aggressiveness of a class of competitors to a dominant retailer. With low prices and high quality (in the form of showing two films), second-run theaters were

[157] *Id.* at 312.

taking demand from dominant movie theater chain Interstate. Warehouse clubs were taking demand from toy retailer Toys "R" Us through lower prices, and threatening Toys "R" Us' reputation as the lowest-price retailer. Rather than respond with lower retail prices, these two dominant retailers chose to harm their rivals with the assistance of upstream suppliers. Interstate had upstream movie distributors make as a condition for them to supply second-run theaters that those theaters raise their prices and only show one film per admission. Toys "R" Us had upstream toy manufacturers not supply any products to warehouse clubs that they supplied to Toys "R" Us.

The participation of the downstream retailer is easy to understand. It was the firm that devised the collusion plan and it would clearly benefit from excluding a class of rival retailers. More challenging is explaining the participation of the upstream suppliers. To shed light on this issue, we ask two related questions. First, does collusion raise upstream suppliers' profits compared to competition? If it does then upstream suppliers have an incentive to make collusion work. There is still the issue of accomplishing that goal because it requires coordination; each upstream supplier's participation relies on it believing that the other suppliers will also participate. Second, is it an equilibrium for upstream firms to participate? That is, if the other upstream firms complied with the collusive plan, would it be in the best interests of an upstream firm to comply? While collusion may be easier to implement when it benefits all involved parties, that condition need not be satisfied for collusion to occur. It is enough that, given all other firms collude, each firm's profits are higher by also colluding.

In evaluating whether exclusion against a class of downstream retailer raised upstream suppliers' profits, there are some opposing forces at play. On the one hand, more intense downstream competition can benefit upstream suppliers by raising downstream, and thereby upstream, demand. On the other hand, this class of downstream competitors caused demand to shift from high-margin sales (at first-run theaters and Toys "R" Us) to low-margin sales (at subsequent-run theaters and warehouse clubs).[158] As a result, total profits for the vertical chain may have fallen. What the implication of such a decline is for upstream firms' profits depends on how profit sharing between the upstream and downstream firms is impacted by exclusion. If more intense downstream competition increases the bargaining power of the upstream manufacturers then they might receive a larger share of profits without exclusion which could yield more upstream profits in spite of lower total profits for the vertical chain. Related to this point, an upstream toy manufacturer commented that the warehouse clubs made it less dependent on TRU, and a natural consequence of that is more bargaining power. It is then possible that competition from this class of downstream firms could have led to a rise in upstream suppliers' demand and an improvement in their bargaining position with the dominant downstream retailer, and that might have them better off. In that case, the upstream suppliers would have been worse off under a coordinated strategy of exclusion.

In light of these countervailing forces and the absence of appropriate data and empirical analysis, it remains an open question whether the upstream spokes were made better or worse off with the exclusionary scheme promoted by the downstream hub. However, some indirect evidence can be brought to bear. An argument in favor of them having been made better off is that an upstream firm could have reported the scheme to the authorities and thereby

[158]This effect is emphasized in Klein (2017).

prevented its implementation. However, that tactic does come with a potential cost in the form of retaliation by the downstream dominant retailer. Souring a key vertical relation might have made the upstream supplies compliant even if they were harmed by the collusive scheme.

Indirect evidence in favor of the upstream suppliers having been worse off under collusion is that the downstream hub found it necessary to use the threat of exclusion against any upstream firm that did not comply. For suppose collusion did make an upstream firm worse off. In that case, an upstream firm would prefer to destabilize any collusion and, as a result, would do what is in its own best short-run interests. In the absence of an exclusionary threat from the downstream retailer, an upstream firm's short-run best interests are not to comply with the collusive plan, and that is irrespective of what other upstream firms are expected to do. For if other upstream firms were expected not to comply then an upstream firm would obviously not want to comply as evidenced by its conduct under competition. If they were expected to comply then the a noncompliant upstream firm's demand would be even higher, in which case it would have a stronger incentive to supply those downstream firms in violation of the collusive plan. For example, if all other toy manufacturers did not supply the warehouse clubs with their best-selling products then a toy manufacturer would have even stronger demand from warehouse clubs. Similarly, if the other movie distributors restricted theaters to set higher admission prices and show only one film then a movie distributor would face stronger demand from those theaters if it did not place those restrictions on them. Thus, if collusion did harm the upstream suppliers and given the unilateral incentives not to comply, it would seem the downstream retailer would fail in implementing its plan to exclude rival retailers. This would then provide a motivation for the downstream retailer to alter the incentives faced by upstream suppliers by, for example, threatening exclusion against them: If an upstream firm did not comply then the downstream firm would not buy the upstream firm's products (either not leasing their films or purchasing their toys). While a threat of exclusion against an upstream firm for not abiding by the collusive plan is not inconsistent with collusion benefitting upstream firms, a threat of exclusion (or something like it) is required if collusion does harm upstream firms.

Let us now turn to the second question: Is it an equilibrium for upstream firms to participate in the collusive plan? If collusion resulted in higher profits for upstream firms than were earned under competition, an upstream firm would find it optimal to comply if it expected all (or enough) other upstream firms to comply and the increase in long-run profits from collusion is sufficient to deter a firm from any short-gain it might receive from deviating (and most likely causing a subsequent return to competition). In that situation, an upstream firm would comply if it believed other upstream firms would comply and collusion was sufficiently more profitable than competition. If instead collusion resulted in *lower* profits for upstream firms than were earned under competition, an upstream firm would find it optimal to comply only if exclusion by the downstream retailer was sufficiently harmful and credible. For the Toys "R" Us case, "sufficiently harmful" means that an upstream firm preferred making fewer sales to warehouse clubs (as part of the collusive plan) to fewer sales to Toys "R" Us (as part of the exclusionary punishment for deviating from the collusive plan). Given that it would be very costly for the downstream retailer to cut off purchases from multiple upstream suppliers, the credibility of this exclusionary threat relied on each upstream firm believing that the other upstream firms would collude. In that case, noncompliance by an

upstream supplier would only require the downstream retailer to exclude that one upstream supplier. As long as collusion is sufficiently profitable for the upstream firms or the threat of exclusion was sufficiently harmful for the upstream firms, their participation in the collusive plan would be optimal if each upstream firm believed that the other upstream firms were complying with the collusive plan. It is then critical for the success of collusion that the downstream hub convince the upstream spokes that they are all planning to comply with the collusive plan.

There are several points made for when collusion involved exclusion against a class of downstream retailers. First, the dominant downstream retailer (hub) formulated this plan and was made better off with its implementation. Second, it is unclear whether the upstream suppliers (spokes) were better off. Third, it is unnecessary for upstream suppliers to be better off with collusion; all that is needed is that it is in each upstream supplier's interests to collude given other upstream suppliers are expected to collude. Fourth, critical to providing upstream suppliers with the incentive to collude is a threat of exclusion against them if they don't, and that threat is credible only if an upstream supplier believes others will comply.

4.1.2 Price Fixing by Downstream Firms

The more common collusive scheme was for an upstream manufacturer (hub) to coordinate downstream retailers (spokes) in raising their prices. With the exception of the UK cheese case, the upstream manufacturer established a recommended (or minimum suggested) retail price to which all retailers were to adhere. Generally, the motivation for collusion was low retail margins. In some cases, it was the retailers who complained to the manufacturer, as when London toy retailers lamented to Hasbro about the low margins on Hasbro's toys in their stores. With the replica football kits case, retailer JJB complained to manufacturer Umbro about Sports Soccer's low prices.[159] In contrast, the instigation for collusion apparently came from the upstream manufacturers in the Polish paints and varnishes and U.S. pharmaceutical products cases.

In general, retailers can be expected to benefit from a collusive scheme which results in a common price increase (though exceptions are discussed below). Less obvious is that upstream manufacturers would benefit. Higher retail prices mean lower retail demand and, therefore, lower demand for the manufacturers' products. As manufacturers do not receive those higher prices charged in the retail market, manufacturers' profits would seem to decline from this brand of hub-and-spoke collusion.

A common rationale for a manufacturer desiring higher retail prices such as through resale price maintenance (whereby a manufacturer requires retailers to set some minimum price) is that it promotes competition among retailers in non-price dimensions (such as sales personnel and advertising) which can raise demand for the manufacturers' products.[160] However, there was no documentary evidence in the six cases that this consideration was relevant, and it was definitely not an explicit part of the collusive scheme that retailers

[159] JJB was the leading retailer and Sports Soccer was a smaller firm intent on growing its market share through low prices. Thus, the situation is similar to the movie exhibition and U.S. toys cases. That JJB did not act as a hub and pursue an exclusionary response to Sports Soccer is likely due to it being less dominant than Interstate and Toys "R" Us.

[160] See, for example, chapter 6.2 in Motta (2004).

engage in more demand-promoting activities. In two cases, documents state that higher retail prices benefitted upstream firms by allowing them to raise *their* prices. In the paints and varnishes cases, the upstream manufacturer was finding retailers resistant to accepting a higher wholesale price because competition among retailers had compressed margins. Thus, the manufacturer saw higher retail prices as a necessary first step to raising its own prices. The UK cheese case began with the objective of raising the price of raw milk. If supermarkets raised retail prices then processors could raise the prices they charged to supermarkets which would then allow processors to raise the prices they paid to farmers for raw milk. In the UK toys case, Hasbro could have benefitted as part of a quid pro quo arrangement. In exchange for supporting the pricing initiative which raised retail prices, retailers would support the listing initiative that resulted in Argos and Littlewoods continuing to stock certain Hasbro toys that were in jeopardy of being dropped by the retailers.

In two cases, there was some evidence that not all retailers benefitted because they were discontent with the current market allocation. At the time of collusion, Dart Drug in the pharmaceutical products case and Sports Soccer in the replica football kits case had been pricing below their competitors with the apparent goal of increasing market share. Sports Soccer had that as an explicit goal, while Dart Drug's policy of advertising products at deep discounts is supportive. The most compelling evidence that those two companies preferred not to collude is that investigations were begun because they filed complaints with the competition authority. It is also interesting that upstream manufacturer Parke, Davis threatened to exclude supplies to any retailer that did not comply with the collusive scheme. Such a policy is consistent with a need to alter the incentives of some retailers in order to get them to raise their prices.[161]

With UK toys, replica football kits, and pharmaceutical products, there was one hub-and-spoke cartel. The exclusive manufacturer of a product - Hasbro, Umbro, and Parke, Davis respectively - coordinated their retailers. In the Polish paints and varnishes and the Belgian drugstore, perfumery, and hygiene (DPH) products cases, several hub-and-spoke cartels were operating simultaneously. Each of the three leading manufacturers of paints and varnishes had its own hub-and-spoke cartel with downstream retailers. The various manufacturers of DPH products - such as Colgate, Proctor & Gamble, and Unilever - ran hub-and-spoke cartels with an overlapping set of retailers, such as Carrefour, Delhaize, and Intermarché.[162] How did it come about that several upstream firms all formed hub-and-spoke cartels? In the paints and varnishes cases, there was no evidence of communication between the manufacturers. Could retailers have shared information with other manufacturers regarding its collusion with another manufacturer? Could information had flowed so easily between manufacturers and retailers that the presence of a hub-and-spoke cartel had become widely known?

There are several takeaways. First, downstream retailers (spokes) generally benefit by collusion that raises retail prices. Second, there are exceptions to that rule when a downstream retailer is interested in growing its market share (and, indeed, it is that desire for growth which may have led it to set low prices and could have been the reason for collusion).

[161] For an economic analysis showing the effect of threatening exclusion on collusive prices, see Van Cayseele and Miegielsen (2013).

[162] The UK cheese case also involved multiple hub-and-spoke cartels with the hubs being the three processors which shared some retailers. However, multiple cartels was probably necessary because the processors supplied a homogeneous product.

Third, it is not immediately obvious how the upstream supplier (hub) benefits from higher retail prices though in some cases it was apparently intended to allow them to raise their wholesale prices.

4.2 Communications to Achieve Mutual Understanding

There were some real challenges in getting all spokes on board with a collusive scheme. First, a spoke would not comply unless it thought enough other spokes were going to comply. In U.S. toys, UK toys, and e-books, it is particularly well documented that a spoke needed the assurance that the other spokes were going to comply. As a result, a hub could not pursue a strategy of sequentially getting spokes on board over an extended length of time; there must be coordinated adoption. Second, in a few cases, it is arguable that some spokes did not want to comply even if other spokes complied, and they went along only because of the threat of exclusion. Presumably, that made the hub's task harder, for it would seem more challenging to shift firms to an equilibrium that makes them all (or at least some) worse off.

Achieving mutual understanding among spokes that all would be abiding by the collusive arrangement required extensive bilateral communication between the hub and each spoke. These communications involved more than sharing the intentions of other spokes. The hub had to *convince* each spoke that others would indeed go through with their intentions. Though, by design, we have focused on cases in which the hub played the primary role in coordination, it is still notable how little direct communication there was among the spokes. There was some in the e-books case, where direct communication among publishers preceded the arrival of Apple, and the hub in the replica football kits case organized a meeting among the spokes. Still, by and large, direct communication was absent.

Crucial to the effectiveness of collusion is monitoring for compliance. If a firm does not anticipate being monitored then it is likely to cheat. Here, monitoring also served to assure a spoke that other were complying, and that may have been crucial for a spoke to continue to comply. The hub actively monitored spokes for compliance, and this is well documented in U.S. toys, UK toys, paints and varnishes, and DPH products. Spokes also monitored each other - as documented in U.S. toys and UK toys - and conveyed their findings to the hub, upon which the hub would contact a deviant spoke and seek to get it back into compliance.

Whether it was related to coordination or monitoring, spokes generally did not directly communicate with each other. They almost exclusively communicated through the hub; whether it was to convey pricing intentions or report that another spoke was not complying. This lack of direct communication could be due to the sufficiency of indirect communication for effective collusion. It could also reflect the recognition that direct communication was more dangerous from a legal perspective. While communications between an upstream firm and a downstream firm are to be expected in a competitive market, communications between competitors are not.[163]

[163] As the competition authority had strong incentives to document direct communications between the spokes, it is unlikely that spokes did directly communicate and there was a failure to find evidence of it.

4.3 Role of the Hub

One of the most compelling regularities for these cases is the crucial role played by the hub. To begin, it was often the hub that had object. Collusion was initiated by the hub in the cases involving movie exhibition, U.S. toys, replica football kits, paints and varnishes, and pharmaceutical products. In the UK toys and e-books cases, the spokes might have voiced complaints for which collusion could be a response, but it was the hub that was entrepreneurial in developing a collusive plan. Only in cheese (for which object originated with farmers) and DPH (for which there is a lack of evidence as to who initially had object) can one not say that the hub was the primary source of object.

As described above, the hub was essential in achieving mutual understanding. It was the hub that went back and forth between spokes to obtain their intentions and then share them with the other spokes. The proposition that the hub could facilitate an agreement inadvertently - for example, by incidentally mentioning a retailer's pricing intention to another retailer - is contrary to the extraordinary effort that went into convincing spokes. That was the case whether the hub was Toys "R" Us, Umbro, or Apple.[164]

Finally, the hub was pivotal in monitoring. It performed its own monitoring, collected reports from spokes, and then acted on this information by contacting and working with non-compliant spokes. As noted by the Polish competition authority in the paints and varnishes case with regards to hub PCW,

> PCW had played the role of a "mediator" who would "appease disputes", explain price differences, and inform retailers about how quickly would the prices of their competitors return to the agreed level.[165]

It is natural to ask with hub-and-spoke cartels, why the spokes did not just directly communicate. While that is an option, the multiple and crucial roles played by the hub suggests that collusion would not have occurred but for the hub's intervention. The hub was the entrepreneur when it came to forming a cartel, and its strategic location at the nexus of a communication network made it highly effective in coordinating and monitoring.

4.4 Effectiveness of Collusion

Two key metrics of the effect of collusion are the overcharge (how much higher is price) and duration (the length of time during which prices are higher). As the case material generally does not have overcharge estimates (with e-books being an exception), our attention will focus on duration.

Considering all cartels, and not just hub-and-spoke cartels, most data sets report a mean duration of (discovered) cartels between 5 and 8 years.[166] As reported in Table 3, what is

[164] This property could be the product of sample selection bias. Perhaps collusion that occurred with only minimal communications from the hub was less likely to be detected and prosecuted.

[165] Bolecki (2011), p. 32.

[166] A survey of several studies (Levenstein and Suslow, 2006) finds mean duration of discovered cartels between 4.5 and 7.5 years. Taking account of selection bias with having been discovered, Harrington and Wei (2017) finds, for a data set with a mean duration of discovered cartels of 5.8 years, a mean duration of (discovered and undiscovered) cartels in the range of 5.3 to 6.8 years.

striking about hub-and-spoke cartels is their brevity. These cartels had mean and median duration of around 2 years with a maximum duration of 4.5 years.

Table 3: Cartel Detection and Duration

Market	Country	Time until detection	Duration (of effect)
Movie exhibition	U.S.	?	1 year
Toys	U.S.	2 years	3 years
Toys	U.K.	1.5 years	1.5 years
Paints and varnishes	Poland	?	3 years
Pharmaceutical products	U.S.	3 months	3 months
Replica football kits	U.K.	6 months	1 year
Cheese	U.K.	2 years	2 years
Drugstore, perfumery,	Belgium	4 years	4.5 years
and hygiene products			
e-books	U.S.	2 years	3 years

The short duration reflects the rapidity with which the cartel was detected.[167] In the movie exhibition and U.S. toys cases, it is possible that the exclusionary action inflicted on a class of competitors to the hub resulted in them reporting it, though there is no evidence of such. In the replica football kits case, Sports Soccer complained to the Office of Fair Trading, while Dart Drug from the pharmaceutical products case complained to the U.S. Department of Justice. Recall that both were low-priced firms seeking to expand their market share prior to cartel formation, and apparently were recalcitrant spokes.

More speculative is that detection was due to "leaky" information flows. With a standard cartel among rival firms, the cartel members strive to keep their communications confidential because they know that revealing any such communications creates a high likelihood of prosecution and conviction. That is not the case with a hub-and-spoke cartel, for an upstream firm and downstream firm regularly communicate under competition. Furthermore, it is perfectly reasonable for a retail firm to convey its pricing intentions to an upstream supplier. Perhaps it is the normalcy of those communications that led members of a hub-and-spoke cartel not to be as diligent in keeping it confidential, which could then result in other parties learning that an upstream supplier is sharing the pricing intentions of one retailer with another retailer. The widespread flow of such information is consistent with the presence of simultaneous hub-and-spoke cartels as occurred in paints and varnishes, DPH, and cheese.

5 Hub-and-Spoke Collusion and the Enforcement of Competition Law

Having examined how hub-and-spoke cartels operate, let us turn to the enforcement of competition law. After briefly reviewing relevant U.S. jurisprudence, approaches are discussed

[167] The time of detection is the earliest time for which there is evidence that a competition authority suspected collusion, as reflected in receiving a complaint, requesting information from a cartel member, opening an investigation, or having a leniency application.

for establishing when firms have engaged in illegal hub-and-spoke collusion.[168]

Hub-and-spoke collusion involves an information exchange in which a firm (hub) collects and disseminates information on price or supply intentions among its upstream suppliers or downstream customers (spokes) for the purpose of restraining competition. An immediate enforcement challenge is that many vertical information exchanges are lawful due to having procompetitive justifications. It is standard business practice for an upstream supplier and a downstream customer to communicate, and that includes a downstream retailer expressing its pricing intentions to an upstream supplier. The law also gives considerable discretion to upstream and downstream firms in laying out the terms of their arrangement, which could include a downstream firm agreeing not to buy from another upstream supplier or an upstream firm agreeing not to sell to another downstream firm. As noted in *Toys "R" Us* (1998):

> We find that TRU's conduct violates Section 5 of the FTC Act. In doing so, we do not intrude on the right of a trader unilaterally to announce terms on which it will deal with suppliers, even if those terms disadvantage a rival. That is a company's long-recognized right under *United States v. Colgate & Co.*, 250 U.S. 300 (1919), reaffirmed by the Supreme Court in 1984 in *Monsanto Co. v. Spray-Rite Servs. Co.*, 465 U.S. 752 (1984).[169]

Clarifying when vertical information exchanges crossover into illegal territory, the FTC in *Toys "R" Us* (1998) went on to say: "What a firm cannot do is to coordinate with rival firms on the terms of that arrangement."[170] It is the presence of a rim - a horizontal agreement among the spokes - that moves vertical agreements into illegal territory. Multiple vertical agreements between a hub and spokes that do not connect the spokes through an agreement (and thus are "rimless") is not actionable.

Though vertical agreements - such as resale price maintenance and tying - are considered under the rule of reason in the U.S., hub-and-spoke cartels are per se illegal according to the same standards as regular cartels; it is a per se offense when there is evidence of communication sufficient to establish a horizontal agreement among the spokes.[171] Per se illegality clearly applies to the spokes, for they are the ones with the horizontal agreement. In implicating the hub, "plaintiffs must demonstrate both that a horizontal conspiracy existed, and that the vertical player was a knowing participant in that agreement and facilitated the scheme."[172] Having done that, per se illegality applies to the hub as well; it is seen to be as culpable as the spokes.

While per se illegality pertains to the horizontal agreement, it is not applied to the individual vertical agreements. Nevertheless, the court may choose to prohibit certain vertical agreements as part of a remedy, as it did in the e-books case. While the Apple Agency

[168] This discussion has been informed by the analysis in Orbach (2016) for the U.S., Odudu (2011) for the UK, and Prewitt and Falls (2015) for the EU.

[169] See supra note 19, at 1.

[170] *Id.* at 1.

[171] The per se illegality of hub-and-spoke cartels was affirmed in *Toys "R" Us, Inc.,v. Federal Trade Commission*, Appellee. No. 98–4107, U.S. Court of Appeals for the Seventh Circuit 221 F.3d 928, August 1, 2000.

[172] *United States v. Apple, Inc.*, 952 F. Supp. 2d 638, 690–91 (pp. 112-3)

Agreement was lawful, the Second Circuit prohibited its adoption because publishers had illegally coordinated a near-industry-wide adoption of it.

The next issue is how one proves that firms have a hub-and-spoke conspiracy; that is, firms have a horizontal agreement, even though they did not directly communicate, and it was facilitated by an upstream or downstream firm. *Interstate* (1939) set a key precedent when it stated:

> It was enough that, knowing that concerted action was contemplated and invited, the distributors gave their adherence to the scheme and participated in it. Each distributor was advised that the others were asked to participate; each knew that cooperation was essential to successful operation of the plan. They knew that the plan, if carried out, would result in a restraint of commerce, ... and knowing it, all participated in the plan.[173]

It is argued that the current interpretation of *Interstate* (1939) is that vertical relations comprise illegal hub-and-spoke collusion when:

> (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.[174]

This legal perspective captures some forms of hub-and-spoke collusion, but not all. For example, suppose retailer A is charging the manufacturer's recommended price (MRP) and complains to upstream supplier B about retailer C pricing below the MRP. Firm B relays this complaint to retailer C and, subsequently, C raises its price to the MRP. As there is no reason for firm A to complain to firm B unless it is to solicit B's assistance in raising firm C's price, the intent of firm A's communication is to facilitate coordination between retailers A and C. That is presumably firm B's intent as well when it passes the complaint along to firm C. When firm C receives the complaint, it could take it as an invitation to coordinate on the MRP, and firm C accepts that invitation when it raises its price to the MRP. All of the essential elements of an unlawful horizontal agreement are present, but there are no vertical agreements. It would seem to be an unnecessary fiction, and a bit of a stretch, to view upstream supplier B passing along the complaint of firm A to firm C as an agreement between firms A and B or between B and C.[175]

The UK's Competition Appeal Tribunal developed an approach referred to as the "A to B to C" test. Hub-and-spoke collusion is said to exist if

[173] *Interstate Circuit, Inc., et al. v. United States* 306 U.S. 208, 226 (1939)

[174] Orbach (2016), p. 6.

[175] One should not attach any significance to the collusive price being the MRP; the MRP only serves as a focal point. If there is a "conventional" retail price (e.g., a price that all retailers have charged in the recent past), that could take the place of the MRP and thereby remove any role of the upstream firm with regards to the price level.

> (i) retailer A discloses to supplier B its future pricing intentions in circumstances where A may be taken to intend that B will make use of that information to influence market conditions by passing that information to other retailers (of whom C is or may be one), (ii) B does, in fact, pass that information to C in circumstances where C may be taken to know the circumstances in which the information was disclosed by A to B, and (iii) C does, in fact, use the information in determining its own future pricing intentions, then A, B, and C are all to be regarded as parties to a concerted practice having as its object the restriction or distortion of competition.[176]

Alternatively stated, the conditions are: (i) spoke A discloses intentions on future conduct (such as prices) to hub B for which A intends that B will pass onto spoke C; (ii) B passes information to C, where C knows it was passed on with A's understanding; and (iii) C uses the information in determining its own conduct (such as pricing). In its contribution to an OECD report on information exchanges, the UK summarized this test by stating that "the provision of, receipt of or passing on of information between competitors through an intermediary in circumstances where it can be taken for one to have intended to influence the market conduct of the other is anticompetitive".[177]

The relevance of that test for the U.S. is not immediate because the law in the UK is more expansive than that in the U.S.. Like the EU, the UK prohibits "concerted practices" which is a category of practices that falls short of an agreement. A concerted practice could be an information exchange that, by reducing uncertainty between firms, results in supracompetitive prices, but does not go so far as to form an agreement. This means plaintiffs could prove there is a violation of Chapter I of the UK Competition Act 1998 (or Article 101 of the Treaty on the Functioning of the European Union) without showing there is an agreement, which must be done to establish a violation of Section 1 of the Sherman Act.

In light of the differences in the law, let me reformulate the "A to B to C" test from the perspective of U.S. jurisprudence. The issue is when do communications between vertically related firms form a per se illegal horizontal agreement. Consider a vertical information exchange between firm A (spoke) and firm B (hub) and between firm C (spoke) and firm B where firms A and C are competitors and firm B is either an upstream supplier or downstream buyer to firms A and C. A horizontal agreement has two elements to it: firm A invites firm C to collude, and firm C accepts that invitation. In the context of a hub-and-spoke cartel, I propose that firm A invites firm C to collude when: 1) the information conveyed by firm A to firm B would have facilitated a horizontal agreement had it been conveyed directly to firm C; and 2) when conveying the information to firm B, firm A could have reasonably foreseen that firm B would convey the information to firm C.

In determining when these two conditions are satisfied, there is considerable jurisprudence regarding condition (1). As to condition (2), here are four methods for substantiating that a spoke could have reasonably foreseen that the hub would share the information without another spoke.

[176] See supra note 51, at ¶ 141.

[177] OECD, "Information Exchange Between Competitors under Competition Law," DAF/COMP(2010)37, 2010, pp. 286-7

First, the hub expresses to spoke A that it intends to share A's expressed intention with spoke C. While it is possible that spoke A may not believe the hub, the burden should be on the spoke to convince the court why the hub should not have been believed.

Second, the hub provides information from spoke C to spoke A that is of a similar type to the information that spoke A provided to the hub. In concluding that condition (2) is satisfied, one is drawing the inference that spoke A understands the information exchange is reciprocal. If hub B conveys the pricing intention of spoke C to spoke A then, when spoke A conveys its pricing intentions to hub B, it is reasonable for spoke A to expect that hub B will convey spoke A's pricing intentions to spoke C. This makes sense because if it is optimal for the hub to share such information from spoke C to spoke A, it is likely to be optimal for the hub to share similar information from spoke A to spoke C.[178] However, one does want to be careful, for spoke A might have provided its pricing intentions to B without any intent of it being shared by B to C, and it was purely on B's own initiative that B collected C's pricing intentions and conveyed them to A. In that instance, B might be culpable but A is not. The following requirement should suffice to deal with that situation: If A shares its pricing intentions with B *after* having received C's pricing intentions from B then A could reasonably foresee that the pricing intentions it shared with B will be passed on to C.

Third, it is in the hub's best interests to share a spoke's information with other spokes, and it is reasonable for a spoke to be aware that it is in the hub's best interests to share it. A spoke's own conduct can serve to satisfy this requirement. Suppose the hub is better off if all spokes choose some common course of action (e.g., raising prices), and suppose a spoke conveys to the hub that it is willing to adopt that action *if and only if all other spokes do so* (e.g., it is willing to raise price if all other spokes raise their prices). It would then be in the best interests of the hub to share the spoke's intention with the other spokes and, furthermore, the spoke would be cognizant of it because its message to B is implicitly a request for it to do exactly that.[179]

Fourth, it is in the spoke's best interests to convey this information to the hub only if the information is shared with other spokes or, more to the point, it will influence the conduct of other spokes. An example is when A complains to B about C's low prices. There is little point in A sharing this information unless it hopes B would act on it by getting C to stop charging low prices. Or suppose a retailer (spoke) expresses to the hub its intent to raise price. If this information was not to be shared with other spokes (and thus was not to be used to enact a coordinated rise in retail prices) then it might not be in the best interests of the retailer to share this information for it could be the basis for the upstream firm to raise its wholesale price to the retailer (knowing that the retailer could maintain its current margin given it is raising its retail price). If instead the pricing intention was shared with

[178] "When A not only gives commercially sensitive information to B, but also receives commercially sensitive information from B originating from C, i.e. there is a bidirectional flow of information, A can reasonably assume that information it provides to B will or is likely to be passed on to C." Odudu (2011), p. 234

[179] "[P]roblematic vertical information exchanges often occur when suppliers are attempting to cajole retailers into accepting the case for higher wholesale prices as a result of higher costs. A retailer may individually accept the case for higher prices but might take the view that it will only move its prices if the "market" moves too. By sharing information on individual retailers' willingness to increase prices, the supplier can manipulate market sentiment and facilitate the wider acceptance of the case for a price increase." Prewitt and Fails (2015), p. 69

other retailers then it could lead them to all raise their prices. Thus, by this argument, a spoke would share its intention to raise price only if it expected the hub to share it with other spokes.

If any of the four conditions are satisfied, it should be sufficient to conclude that firm A invited firm C to collude. That would be a violation of Section 5 of the FTC Act. For there to be an agreement (in violation of Section 1 of the Sherman Act), U.S. law also requires acceptance of A's invitation by C. Evidence of such an acceptance could be market conduct by C which is consistent with its acceptance. For example, A told B that A and C should enact a common price increase (or A complained to B that C was pricing too low), B conveys that information to C, and C subsequently raises its price. A second avenue to concluding that A and C have an agreement is that the previously mentioned conditions to substantiate an invitation to collude by A to C also apply for C to A. That is, firm C also conveyed information to firm B which, had it been conveyed directly to firm A, would have facilitated a horizontal agreement, and firm C could have reasonably foreseen that firm B would convey the information to firm A. If that condition holds with regards to C's communications with B (as well as A's communications with B) then we can conclude that firms A and C have the requisite "meeting of minds." When both firms extend invitations to collude, there is an agreement.

6 Concluding Remarks

Hub-and-spoke collusion is a common method that firms have used to restrain competition in retail markets. In most cases, the hub is the instigator of collusion. Communicating indirectly through an upstream supplier or downstream buyer poses challenges in achieving mutual understanding among firms. Where one meeting among all firms may be sufficient to achieve a "meeting of minds" in a standard cartel, it can take many back-and-forth bilateral communications between the hub and each spoke for the spokes to reach an agreement. The documentary evidence is rife with spokes expressing concerns that other spokes will not comply with the collusive plan, and it is almost exclusively the hub's responsibility to alleviate those concerns. At the same time there are these communication challenges, the involvement of an upstream supplier or a downstream buyer can facilitate collusion. Given its interaction with the spokes as part of normal business practices, the hub has access to information relevant to monitoring for compliance with the collusive scheme. It may also have instruments for punishing noncompliant firms, such as refusal to buy or sell, and for rewarding compliant firms, such as rebates. Turning to the bottom line, it appears that hub-and-spoke cartels are less effective than standard cartels as reflected in shorter duration.

There are a number of open questions. It is not always clear how upstream firm(s) benefit by restraining competition in the downstream market. When the hub is a dominant downstream retailer, do upstream suppliers benefit when the collusive outcome excludes a class of downstream retailers and, if so, how? When the hub is an upstream manufacturer, does it benefit when the collusive outcome is supracompetitive retail prices and, if so, how? When does a hub-and-spoke cartel form rather than a standard cartel among retailers? Finally, why are hub-and-spoke cartels less effective than standard cartels?

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Figure 1a: Toys (U.S.)

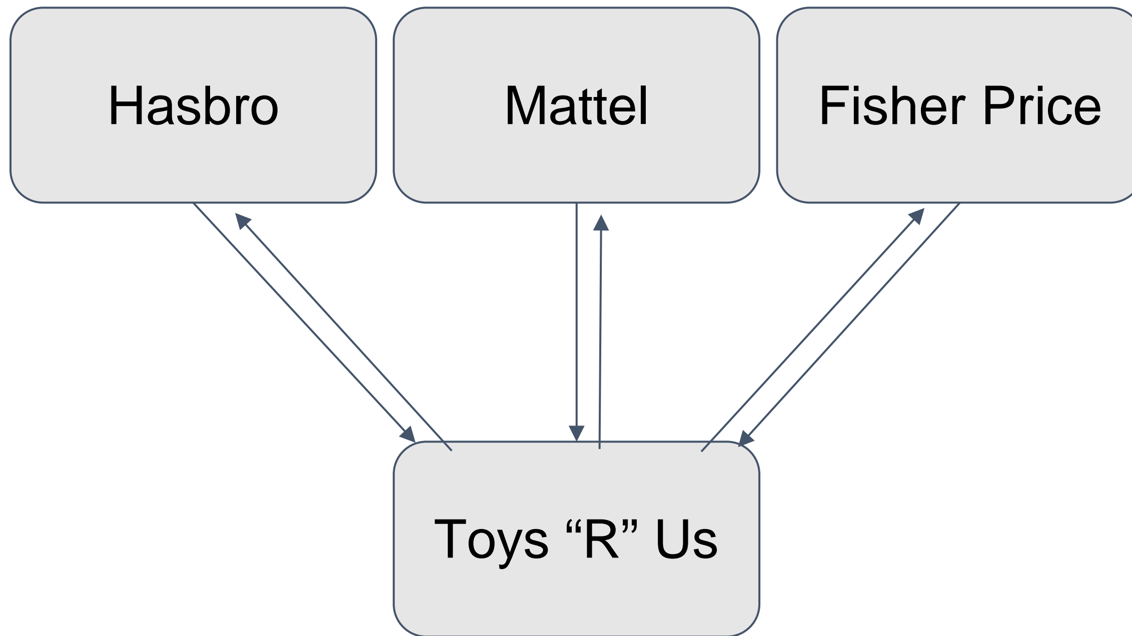


Figure 1b: Toys (UK)

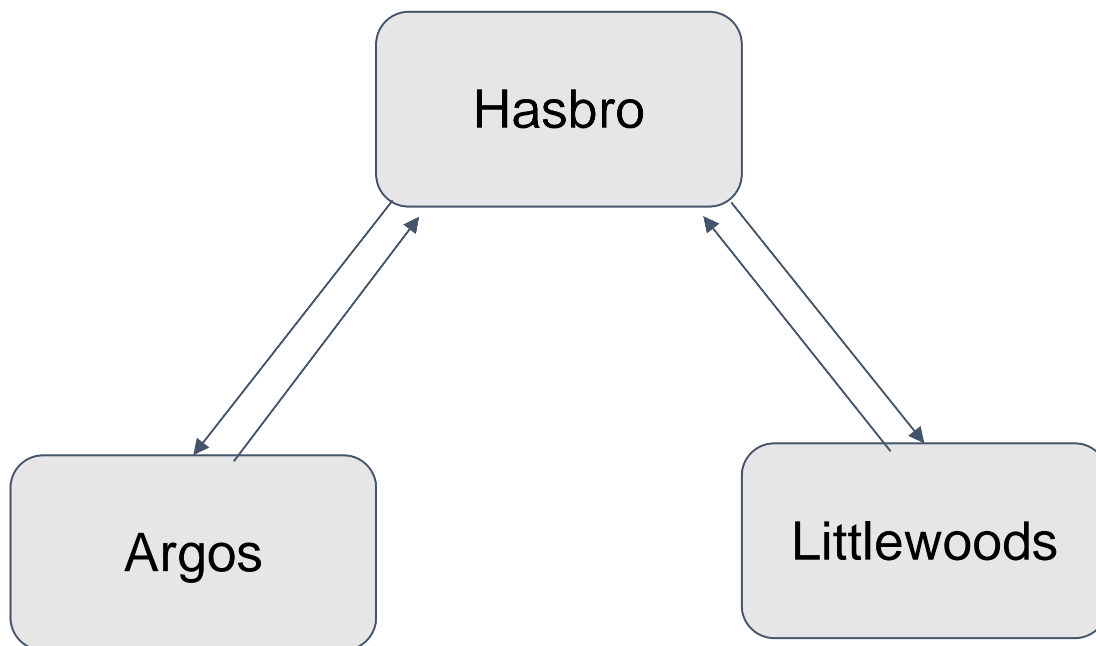
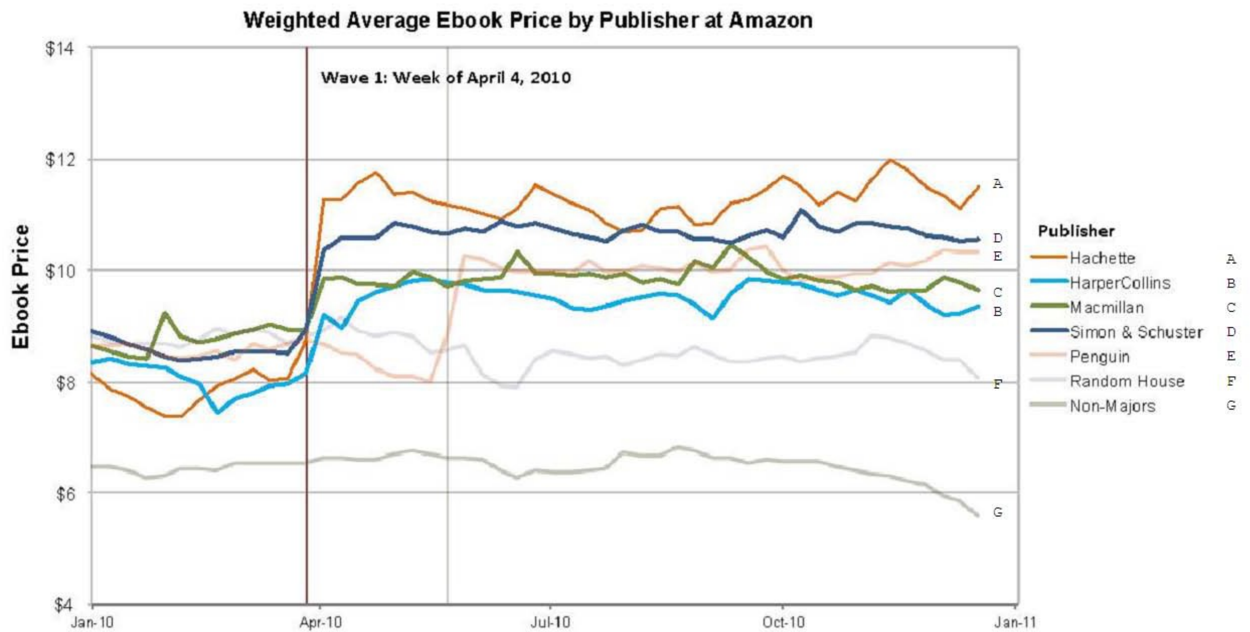


Table 2: List of Noncompliance Episodes Reported to Toys "R" Us

Manufacturer	Description	COMMENTS
Hasbro	Puppy Surprise	Shipped early. No more will be shipped to warehouses.
Binney & Smith	[various]	Per Brent Blaine: Understood our concern. Going forward they will offer special packs only for '93. Commitments already made for '92.
Mattel	Barbie Dream House	Sold LY mdse. Will not sell again.
Huffy sports	Graphite Ultra Pak	Per Dave Allen, VP Sales: They admit their mistake. Effective immediately only special Backboards will be sold to clubs.
Playtime (Div. of Tyco)	Super Saturator	Per Howard Abrams. SVP Sales: Pleaded ignorance. He's now aware and other than some prior commitment, they will only sell club "special" items or items we don't carry.
Today's Kids	Activity Rocker Little Golfer All Star Baseball	Per Jim Stephens: They needed the business but fully understand our position. They will sell special items going forward.
Tyco	123 Firehouse Blocks Deluxe Set Magnadoodle DB Nursery/Playground	Per Ken Shumaker: These are goods shipped last year – prior to their new "no ship" policy on current goods we carry.
Century	Elite Car Seat	Vendor will stop shipping BJ's.
Fisher-Price	Nursery Monitor	They have agreed to stop selling this item to the clubs.
Safety 1st	Swivel Bath Seat	They have agreed to stop selling the clubs this item.
Playskool Baby (a Hasbro Div.)	Nighttime Feeder	We have reached a corporate agreement on the sale of this item to the club stores.
Kransco	Swim Seater	Will not be selling like items to them next year. Will change graphics/packaging to differentiate item in future
Morey Boogie	Sting Ray Board	Admitted they screwed up – will not happen again. Will continue to sell them but in a "completely" different packaging and graphics on the boards.
Nintendo	Asst.	"Not getting it from Nintendo" per Randy. They will "look into."
Sega	Asst.	Will continue to sell as long as Nintendo is in Warehouse Clubs.

Source: In the Matter of Toys "R" Us, FTC Docket No. 9273, Initial Decision, James P. Timony, Administrative Law Judge, September 25, 1997, pp. 21-22.

Figure 2: Impact of Collusion on ebook Prices



Source: United States v. Apple Inc., Opinion and Order, Southern District Court of New York, Judge Denise Cote, July 10, 2013, pp. 95.

Table 2: Impact of Collusion on ebook Prices

Amazon Weighted Average Price Increases

Publisher	All eBooks	New Releases	NYT Bestsellers	Backlist
Hachette	33.0%	14.1%	37.9%	37.5%
HarperCollins	13.6%	12.5%	44.0%	15.2%
Macmillan	11.6%	14.0%	-	11.2%
Penguin	18.3%	19.5%	43.6%	17.6%
Simon & Schuster	18.0%	15.1%	28.7%	19.8%
Defendant Publishers	18.6%	14.2%	42.7%	19.6%
Random House	0.01%	1.9%	0.2%	0.3%
Non-Majors	-0.2%	-0.9%	1.1%	0.1%

Source: United States v. Apple Inc., Opinion and Order, Southern District Court of New York, Judge Denise Cote, July 10, 2013, pp. 96.