FORMAT WAR, ANTITRUST CASUALTIES: THE SHERMAN ACT AND THE BLU-RAY–HD DVD FORMAT WAR

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ABSTRACT

For several years, HD DVD and Blu-ray competed to replace DVD and become the next-generation movie disc format. The battle was not fought with technological superiority but instead with exclusivity contracts. This Note analyzes whether these contracts violated the Sherman Antitrust Act ("Sherman Act").

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I. INTRODUCTION

You pick out your first high-definition television from your favorite electronics store. Eager to watch movies that fully utilize the capabilities of your new television, you ask the salesperson about the new high-definition movie technologies: Blu-ray and HD DVD. Your eagerness quickly turns into frustration, as you realize that an investment in either of the new, competing formats brings with it the risk that the expensive technology will soon be obsolete. You also learn that as long as the formats continue to compete with each other, no matter which of the competing technologies you pick, you will be unable to purchase certain movies—each format has exclusive movie studio support. Disappointed, you leave the store with the television and a few standard DVDs.

The development of both Blu-ray and HD DVD was announced in 2002,[1] and despite several attempts, the format consortia[2] were unable to create a unified standard and avert a "format war."[3] During the ensuing

1. *See infra* notes 26, 40 and accompanying text.

2. This Note will refer to those who control Blu-ray as the Blu-ray Disc Association ("BDA") or the "backers of Blu-ray." This Note will refer to those who control HD DVD as the "HD DVD Promotion Group" or the "backers of HD DVD." In general, this Note will refer to these groups as "format consortia," as the associations are often comprised of many corporations.

3. *See infra* Part II.B. This Note will refer to the competition between Blu-ray and HD DVD as

format war, each side attempted to garner support from as many computer companies, electronics companies, and movie studios as possible.[4] Consumers, fearing that they would purchase the "losing" format, often chose to purchase neither product, opting instead to wait for the end of the format war.[5] Those consumers who did purchase one of the competing products were foreclosed from acquiring certain movies in the format they chose, as each format was supported exclusively by at least two movie studios throughout the entire format war. This Note is primarily concerned with these exclusivity agreements between the format consortia and movie studios.

For a period of time, a format war seemed unlikely. As both formats began releasing movies in the first half of 2006,[6] the market quickly saw products being released that would allow the competing formats to "play nicely." At the Computer Electronics Show in January 2007, LG introduced a player that was capable of playing both HD DVD and Blu-ray movies.[7] Just a few days later at the same conference, Warner Home Video announced a "Total Hi Def" disc: one side of the disc contained movies in HD DVD, while the other side had them in Blu-ray.[8] However, this path of peaceful coexistence failed to fully materialize.

Movie studio exclusive support came in three major phases. Initially, before a single HD DVD or Blu-ray movie hit the shelves, each of the formats had exclusive support from three of the six major studios: Blu-ray had support from Sony Pictures, 20th Century Fox, and Walt Disney Pictures, while HD DVD had support from Paramount Pictures, Warner Brothers, and Universal Studios.[9] Details regarding how and why these initial exclusive relationships were formed are not available.

Then, in August 2007, the HD DVD Promotion Group entered into an

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the "format war" or the "high-definition media format war."

4. *See infra* Part II.B.2.

5. Ken Belson, *TECHNOLOGY: Video Marches On, Without a Standard*, N.Y. TIMES, June 20, 2005, at C6.

6. *See* Antone Gonsalves, *Sony Ships First Blu-ray DVD Titles*, INFO. WK., June 20, 2006, http://www.informationweek.com/news/personal_tech/showArticle.jhtml?articleID=189501148 (Blu-ray); Jennifer Netherby, *Uni Delivers Serenity to HD DVD*, VIDEO BUS., Apr. 10, 2006, http://www.videobusiness.com/article/CA6323662.html (HD DVD).

7. David Katzmaier, *LG Debuts a Combination Blu-ray and HD DVD Player*, CNET REVS., Jan. 7, 2007, http://reviews.cnet.com/8301-12760_7-9672294-5.html.

8. Press Release, Warner Home Video, Warner Home Video Announces Creation of Total Hi Def Disc (Jan. 9, 2007), *available at* 1/10/07 BWIRE 02:00:00 (Westlaw).

9. Paul Sweeting & Scott Hettrick, *Fox Turns Blu in Disc War*, DAILY VARIETY, Aug. 1, 2005, at 1.

agreement with Paramount Pictures and DreamWorks Animation.[10] In exchange for $150 million in financial incentives, the movie studios agreed to produce movies exclusively in the HD DVD format.[11] The agreement was not absolute; it lasted only eighteen months and did not include movies directed by Steven Spielberg.[12] The financial incentives were to come "in a combination of cash and promotional guarantees."[13]

Finally, in January 2008, Warner Brothers announced that it would produce its movies exclusively in Blu-ray.[14] Although specifics of the agreement were not publicized, those close to the deal stated that Warner Brothers received marketing support from Sony as part of the agreement.[15] In addition, the agreement expired on an undisclosed future date.[16] Prior to this, Toshiba had offered substantial incentives to Warner Brothers to support HD DVD exclusively.[17]

This Note will analyze whether the above actions of the format consortia violated the Sherman Antitrust Act ("Sherman Act").[18] For the purposes of determining whether a Sherman Act violation has occurred, the relevant market must be established to determine the effective area of competition. Although currently made up mainly of aficionados, the consumer base for high-definition media formats will become broader and more general over time; simultaneously, digital streaming options will become cheaper and more user friendly. As this happens, consumers will be more willing to substitute in alternative products in response to a price increase. Thus, the relevant market should include both standard DVDs and streaming options.

Assuming the format consortia have sufficient levels of market power,[19] the initial exclusivity arrangements entered into with movie studios were likely procompetitive restraints of trade that did not violate the Sherman Act. These agreements, at such an early stage of technological

10. Brooks Barnes, *Two Studios to Support HD DVD over Rival*, N.Y. TIMES, Aug. 21, 2007, at C1. Because DreamWorks is part of the Paramount Motion Pictures Group, this Note will refer to both studios as "Paramount" for simplicity.

11. *Id.*

12. *Id.*

13. *Id.*

14. Sarah McBride, *Blu-ray Lands a Big Fish: Warner*, WALL ST. J., Jan. 5, 2008, at A3.

15. *Id.*

16. *Id.*

17. Brooks Barnes, *Warner Sides with Blu-ray DVDs, a Clinching Vote for Sony's Format*, N.Y. TIMES, Jan. 5, 2008, at C1.

18. Antitrust liability under any other applicable statutes is outside the scope of this Note.

19. *See infra* Part IV.B.

and industry development, served the legitimate production and developmental needs of both the format consortia and the movie studios, promoting vigorous technological development and competition between the formats. The subsequent agreements, however, probably violated the Sherman Act. While these agreements are somewhat competitively justified when considering the long-term movie market and looming competition from digital streaming services, they operated primarily to foreclose part of the market in an effort to eliminate the rival format.

Part II of this Note introduces high-definition video, as well as the HD DVD and Blu-ray Disc formats, and describes the format war. Part III summarizes current Sherman Act jurisprudence, with specific emphasis on defining the relevant market and exclusive dealing arrangements. The Sherman Act requires a defendant to possess either "market power" or "monopoly power"; determination of the level of power requires first defining the relevant market in which the defendant competes. Exclusive dealing arrangements must be closely analyzed as well; although they often promote competition and efficiency, they may also act to foreclose the market, leaving other competitors without buyers. Part IV defines the relevant market and analyzes whether the format war included any conduct that violated the Sherman Act, taking into consideration factors unique to high-technology markets and innovation. Part V concludes that while the initial exclusive dealing arrangements were likely legal, procompetitive restraints of trade, the later agreements likely operated primarily to foreclose the market to competition, violating the Sherman Act.

II. BACKGROUND

With the increased prominence of high-definition televisions, the development of a movie disc format capable of fully utilizing high-definition's increased resolution was a natural next step. Because of the licensing fees involved in producing movie discs, the company or consortium that developed the next-generation format would be in a very lucrative position; the Blu-ray Disc Association ("BDA") and the HD DVD Promotion Group both vied to fill this position. The format war between these two consortia began long before the release of a single high-definition movie and included computer, electronics, studio, and video game console alliances.

A. THE FORMATS

1. Video Quality[20]

Video quality is typically measured in terms of resolution: the number of pixels that make up the image on the screen. A pixel is a tiny dot of light; a screen that contains only a few dozen pixels displays much less detail compared to another screen with millions of pixels.[21] There are several resolutions that are classified as high-definition: 720p, 1080i, and 1080p.[22] These designations are shorthand names that refer to the number of vertical pixels in a certain resolution: 720p corresponds to 1280 × 720, while 1080i and 1080p correspond to 1920 × 1080.[23] In order to view content in high-definition, however, a consumer must have both a high-definition signal and a high-definition television. Thus, consumers who purchase the most expensive high-definition televisions on the market, but fail to upgrade their cable service to high-definition, will still be viewing video content in standard-definition.[24]

2. Blu-ray Disc

Blu-ray Disc, also known as "Blu-ray," is an optical disc storage format.[25] Sony Corporation first announced the development of Blu-ray on February 19, 2002.[26] Spearheaded by Sony, eight other companies took part in developing and founding the format: Hitachi, Ltd., LG Electronics Inc., Matsushita Electric Industrial Company, Ltd. (now Panasonic

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20. For an overview of video resolution, see HDTV Info Port, HDTV-Resolution and TV Picture Quality, http://www.hdtvinfoport.com/HDTV-Resolution.html (last visited Nov. 19, 2009).

21. No current device uses resolutions with only dozens of pixels. Considering this extreme example, however, helps one to understand the difference between resolutions with millions of pixels and those with merely hundreds of thousands. For a discussion of pixels, see RUDOLF F. GRAF, MODERN DICTIONARY OF ELECTRONICS 569 (7th ed. 1999).

22. HDTV Info Port, *supra* note 20. The "i" designator stands for "interlaced," and the "p" designator stands for "progressive." The meaning of these terms, while technologically relevant, is not relevant to this Note. In addition, while there are arguments as to whether 720p or 1080i is preferable, 1080p is superior to both. All three resolutions are grouped into the term "high-definition."

23. *See id.* Resolution designations are in the form Horizontal Pixels × Vertical Pixels. Thus, 1280 × 720 means there are 1280 pixels horizontally and 720 pixels vertically, for a total of 921,600 pixels. This Note will refer to the shorthand names of the resolutions.

24. *See* Comcast FAQs: High Definition TV (HDTV), http://www.comcast.com/Customers/FAQ/FaqDetails.ashx?Id=177 (last visited Nov. 19, 2009) ("In order to experience Comcast's HD service, you need an HD cable box that enables you to receive and watch HD programs. Comcast will provide this box for an additional money fee.").

25. This Note will refer to the disc format as "Blu-ray," "Blu-ray Disc," or the "Blu-ray format."

26. Press Release, Sony Corp., Large Capacity Optical Disc Video Recording Format "Blu-ray Disc" Established (Feb. 19, 2002), *available at* http://www.sony.net/SonyInfo/News/Press_Archive/200202/02-0219E.

Corporation), Pioneer Corporation, Royal Philips Electronics, Samsung Electronics Company, Ltd., Sharp Corporation, and Thomson Multimedia.[27] Originally labeled the "Blu-ray Disc Founders," this group was renamed the "Blu-ray Disc Association" to allow other organizations "with an interest in creating, upholding and/or promoting the [Blu-ray] formats" to join the organization.[28] As of August 2009, there were over 180 members in the BDA.[29] Blu-ray's physical specifications were completed in 2004,[30] and the first Blu-ray movies were released in mid-2006.[31]

Like both CDs (compact discs) and DVDs (digital video/versatile discs),[32] the Blu-ray physical medium is a twelve-centimeter disc.[33] Blu-ray technology uses a more focused, 405-nanometer blue laser,[34] which allows data to be stored on the disc much more densely than data on standard DVDs or CDs. This allows for more information to be stored on a Blu-ray disc than on a DVD, despite being the same physical size.[35] Thus, a single-layer Blu-ray disc can store twenty-five gigabytes, and a dual-layer disc can store fifty gigabytes; this is approximately five times the capacity of a standard DVD.[36] This is the main appeal of Blu-ray over standard DVD: a larger storage capacity not only enables Blu-ray discs to store films in a significantly higher resolution, but also allows for the inclusion of more special features and extra scenes on each disc.[37] Additional Blu-ray development has increased the theoretical storage capacity of a single Blu-

27. *Id.*

28. Blu-ray Disc, General Info, http://www.blu-raydisc.com/en/association/GeneralInfo.html (last visited Nov. 19, 2009). See *infra* notes 71–75 and accompanying text for a discussion of standard setting by multiple companies, as opposed to development by a single company.

29. *See* Blu-ray Disc, Supporting Companies, http://www.blu-raydisc.com/en/about/SupportingCompanies.html (last visited Nov. 19, 2009).

30. Martyn Williams, *New Blu-ray Details Emerge*, PC WORLD, Aug. 5, 2004, http://www.pcworld.com/article/117242/new_bluray_details_emerge.html.

31. Gonsalves, *supra* note 6.

32. This Note will refer to DVDs as "standard," "original," or "traditional" DVDs.

33. Williams, *supra* note 30.

34. Indeed, this is the source of the name "Blu-ray."

35. Blu-ray Disc, BD Key Characteristics, http://www.blu-raydisc.com/en/about/WhatisBlu-rayDisc/BDKeyCharacteristics.html (last visited Nov. 19, 2009).

36. *See id.*; Blu-ray Disc, BD vs. DVD, http://www.blu-raydisc.com/en/about/WhatisBlu-rayDisc/BDvsDVD.html (last visited Nov. 19, 2009). At this point, a brief overview of storage capacities is useful. The term gigabyte ("GB") technically means 1000^3 bytes. In certain contexts, however, it can also refer to 1024^3 bytes, which is technically one gibibyte. *See, e.g.*, Declan McCullagh, *Gigabytes vs. Gibibytes Class Action Suit Nears End*, CNET NEWS BLOG, Dec. 4, 2007, http://news.cnet.com/8301-10784_3-9829266-7.html. The question of which of these is actually used by the high-definition media formats is purely academic; the relative capacities between different disc formats, however, is important.

37. Blu-ray Disc, BD Key Characteristics, *supra* note 35.

ray disc to 400 gigabytes of data, and developers believe they can further increase this capacity to one terabyte (approximately 1000 gigabytes) by 2013.[38] Although the Blu-ray format does not require backward compatibility with standard DVD and CD formats, the BDA recommends that manufacturers of Blu-ray players build in this functionality.[39]

3. HD DVD

HD DVD (high-definition/density digital versatile disc) is another optical disc storage format. In August 2002, Toshiba Corporation and NEC Corporation announced that they were developing an optical disc format, also using a blue laser.[40] The DVD Forum, founded in 1997, "is an international association of hardware manufacturers, software firms, content providers and other users of [DVDs]."[41] In 2003, the DVD Forum, chaired by Toshiba, adopted Toshiba and NEC's project as its official, next-generation optical disc format.[42] The HD DVD Promotion Group was then formed in late 2004[43] to "exchange views and thoughts to help promote the HD DVD format based contents and products into the marketplace."[44] Toshiba led this group as the chair company, and as of September 2007, there were 129 general and associate members.[45] Toshiba released the first HD DVD player on April 18, 2006, which coincided with the release of the first HD DVD movies by Universal Studios.[46]

HD DVD shares many of its technical specifications with Blu-ray, discussed above. Like CD, standard DVD, and Blu-ray technology, HD

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38. Jimmy Hsu & Adam Hwang, *Pioneer Showcases 16-Layer 400GB Optical Disc*, DIGITIMES SYSTEMS, Dec. 1, 2008, http://digitimes.com/news/a20081201PD212.html.

39. Blu-ray Disc Format, http://www.blu-raydisc.com/en/Technical/FAQs/Blu-rayDiscFormat.html (last visited Nov. 19, 2009).

40. Martyn Williams, *Toshiba, NEC Share Details of Blue-Laser Storage*, PC WORLD, Aug. 29, 2002, http://www.pcworld.com/article/104570/toshiba_nec_share_details_of_bluelaser_storage.html.

41. DVD Forum's Mission, http://www.dvdforum.org/about-mission.htm (last visited Mar. 17, 2009).

42. Andy Patrizio, *DVD Forum Approves Next-Gen DVD*, IGN, Dec. 1, 2003, http://dvd.ign.com/articles/442/442505p1.html.

43. Press Release, Toshiba Corp., New HD DVD Promotion Group to Expedite Commercialization of HD DVD Hardware and Software (Sept. 27, 2004), *available at* http://www.toshiba.co.jp/about/press/2004_09/pr2702.htm.

44. *Microsoft and Intel Back HD DVD as Next-Generation High-Definition DVD Format of Choice*, INDEPENDENTFILM.COM, Sept. 27, 2005, http://www.independentfilm.com/technology/microsoft-and-intel-back-.shtml.

45. HD DVD Promotion Group, http://www.afterdawn.com/glossary/terms/hd_dvd_promotion_group.cfm (last visited Nov. 19, 2009).

46. Jennifer Netherby & Susanne Ault, *HD DVD Tiptoes into Retail Stores*, VIDEO BUS., Apr. 17, 2006, at 5.

DVD uses the standard-size twelve-centimeter disc.[47] Like Blu-ray, HD DVD uses a more focused blue laser.[48] Data can thus be stored more densely than on a standard DVD, giving HD DVD a storage capacity of fifteen gigabytes (thirty gigabytes for a dual-layer disc).[49] This large capacity also allows for the storage of higher-definition video and more special features, resulting in a better picture and experience for video consumers (as compared to standard DVD). HD DVD's thirty-gigabyte capacity, however, is significantly smaller than Blu-ray's fifty-gigabyte capacity.

Because HD DVD shares a common disc structure with standard DVD, all HD DVD players are backward compatible.[50] In addition, HD DVD allows for a hybrid disc technology, allowing a single disc to contain both HD DVD and standard DVD versions of a movie.[51]

4. Competitive Comparison

Although similar in many ways, each of the two high-definition formats has unique features and qualities that provide competitive advantages. As discussed below, HD DVD's strengths lie mostly in its lower costs, compatibility with standard DVD, and complete technological development. Blu-ray's strengths are its larger storage capacity, tougher antipiracy measures, and stronger industry support.

The HD DVD format has several competitive advantages over Blu-ray. HD DVD was developed to share a common disc structure with standard DVD, meaning that data on the disc are organized and stored in a similar manner. This allows HD DVD players to easily provide cross-compatibility, enabling consumers to play their standard DVD movies as

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47. HD DVD—The Look and Sound of Perfect, Tech Specs, http://web.archive.org/web/20080118021640/www.thelookandsoundofperfect.com/techspecs.html (last visited Nov. 19, 2009). The Internet Archive Wayback Machine is a service that preserves websites as they existed on a certain date, even when the websites no longer exist or have been modified. The hyperlink to the Wayback Machine contains both the original location of the website (at the end) and the date that the webpage was archived (a numerical string in the format YYYYMMDD). For example, the website listed in this footnote was originally located at www.thelookandsoundofperfect.com/techspecs.html and was archived on January 18, 2008.

48. *Id.*

49. *Id.*

50. HD DVD—The Look and Sound of Perfect, HD DVD FAQ, http://web.archive.org/web/20071227184638/www.thelookandsoundofperfect.com/faq.html (last visited Nov. 19, 2009).

51. *See* Susan B. Shor, *Microsoft, Intel Back Toshiba's HD-DVD*, E-COM. TIMES, Sept. 27, 2005, http://www.ecommercetimes.com/story/n6BNgaGjf2Pdrz/Microsoft-Intel-Back-Toshibas-HDDVD.xhtml.

well.[52] Because the Blu-ray technology does not share a common structure with standard DVD, Blu-ray players must be specifically built with this compatibility, likely increasing their cost.[53] HD DVD's similar disc structure also allows disc manufacturers to produce HD DVD movies with only minor modifications to their existing equipment, reducing the price at which HD DVD movies can be offered in the marketplace.[54] Moreover, the HD DVD format had a completed and fully functioning interactive software layer upon market release, while Blu-ray's was still evolving even after movies were released.[55] The interactive software layer is the part of the disc format that allows consumers to interact with the movie's special features and add-ons.[56] For example, Internet connectivity (for downloading extras and trailers) was part of the HD DVD format upon release, while Blu-ray added this feature later.[57] The "beta," or developing, nature of Blu-ray's technology meant that those first adopters who purchased early Blu-ray players would be unable to take advantage of features that were subsequently developed.[58]

Blu-ray also has noteworthy advantages. Although both high-definition formats can hold many times the data of a standard DVD, Blu-ray has a significantly larger storage capacity: it can hold 67 percent more data than HD DVD.[59] This increased storage capacity means that content publishers are able to include more detail, extras, and special features on a single disc. Also, technological improvements to Blu-ray, prior to its release, drastically reduced the cost of producing a Blu-ray disc.[60] Another advantage of the Blu-ray format is BD+, a digital rights management system designed to prevent piracy.[61] Indeed, Fox specifically cited this feature in its decision to support Blu-ray.[62] In addition, a major advantage

52. *See* HD DVD—The Look and Sound of Perfect, HD DVD FAQ, *supra* note 50.

53. *See* Blu-ray Disc Format, *supra* note 39.

54. Penelope Patsuris, *The Battle of the DVD*, FORBES, Dec. 9, 2004, http://www.forbes.com/2004/12/09/cx_pp_ii_1209dvdwar.html.

55. *See, e.g.*, Rob Mead, *Why Paramount Switched to HD DVD*, TECHRADAR.COM, Nov. 14, 2007, http://www.techradar.com/news/digital-home/home-networking/why-paramount-switched-to-hd-dvd-174770.

56. *Id.*

57. *Id.*

58. *See id.*

59. *See supra* notes 36, 49–51 and accompanying text.

60. Press Release, Sony Corp., TOPPAN and Sony Successfully Develop 25GB Paper Disc (Apr. 15, 2004), *available at* http://www.sony.net/SonyInfo/News/Press_Archive/200404/04-0415E/.

61. Susanne Ault, *BD+ Closer to Reality: Discs Using Added Protection Forecast by End of Year*, VIDEO BUS., Apr. 16, 2007, at 6.

62. *See id.* Ironically, this antipiracy feature was circumvented. *See* SlySoft AnyDVD HD, http://www.slysoft.com/en/anydvdhd.html (last visited Nov. 19, 2009) (software program that removes

of Blu-ray is not a feature of the format itself, but rather who *supports* the format. Because major computer companies Apple, Hewlett Packard ("HP"), and Dell all backed Blu-ray, computer consumers were much more likely to adopt Blu-ray.[63] HP believed that Blu-ray was "the most consumer-friendly technology choice," while Dell stated that "[t]he significant storage capacity the Blu-ray Disc format provides combined with broad industry support from both [consumer electronics] and PC manufacturers and large entertainment companies make it an obvious choice for next generation optical storage."[64] Lastly, video game players are automatically capable of watching Blu-ray movies after purchasing a Playstation 3, while those who purchase an Xbox 360 must pay an additional $200 to purchase the HD DVD add-on.[65]

B. The High-Definition Media Format War

1. Introduction and History

The concept of a format war is not unique to the competition between HD DVD and Blu-ray. During the late 1940s and early 1950s, backers of seven-inch vinyl records competed against backers of twelve-inch records to become the industry standard.[66] In the late 1970s and early 1980s, JVC's VHS (video home system) competed against Sony's Betamax.[67]

On the one hand, format wars can provide market benefits in some instances. Through fierce competition, prices decrease as each side of the war attempts to increase its market share. Further, each side is highly motivated to improve its technology and gain widespread market acceptance. This results in higher quality products and technology for consumers.[68] On the other hand, format wars have many negative effects as well. Consumers are often compelled to "wait out" the format war for fear of adopting a technology that will soon become obsolete.[69] Movie retailers

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BD+ protection from Blu-ray titles).

63. *See* Paul Kallender, *Apple Joins Blu-ray Consortium*, INFOWORLD DAILY, Mar. 10, 2005, *available at* 2005 WLNR 3752820.

64. Press Release, PRNewswire, BDF Announce Next Steps in Establishing Blu-ray Disc as the Next Generation Optical Disc Format (Jan. 8, 2004), *available at* http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/01-08-2004/0002086145.

65. *See infra* Part II.B.3.

66. *See* Steven Schoenherr, Recording Technology History (July 6, 2005), *available at* http://history.sandiego.edu/GEN/recording/notes.html.

67. Michael I. Krauss, *Regulation vs. Markets in the Development of Standards*, 3 S. CAL. INTERDISC. L.J. 781, 803–05 (1994).

68. *See infra* Part III.E.

69. Belson, *supra* note 5.

are forced either to provide extra training for their workforce and make shelf space available for the competing formats or to risk alienating certain customers by choosing to offer only a single format. Further, retailers face potential animosity from customers that choose the losing format.[70]

Standard setting, as opposed to a format war, has its own set of pros and cons. According to Sean Gates, standards are beneficial if they lower transaction costs by quickly conveying information and by "giving consumers assurances of minimum quality," increase efficiency through economies of scale, and increase externalities by increasing demand for complementary goods and services.[71] Standard setting may negatively affect the market by increasing barriers to entry, facilitating tacit collusion, and negatively affecting innovation.[72]

Innovation, however, does not necessarily result in a battle between vying technologies. During the development of what eventually became the original DVD, Toshiba and Sony were again in opposing camps, competing to become the industry standard.[73] In this case, however, the two groups were able to agree on a unified technology and prevent a format war through the use of standard setting.[74] Such an agreement was procompetitive "because it (1) encourage[d] manufacturers to enter the disk player market by allaying fears of obsolescence, (2) alleviate[d] the risk of producing videodisks because the single standard ensure[d] consumer acceptance, and (3) expand[ed] markets for other complementary products such as high resolution displays."[75]

2. Computer, Electronics, and Studio Alliances

The high-definition media format war was fought mostly through alliances between the format consortia and computer, electronics, and motion picture companies. In addition to the nine companies that originally formed the BDA,[76] by May 2004, Dell, HP, Mitsubishi, and TDK were

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70. Erica Ogg, *Amazon.com Feels Bad You Bought an HD DVD Player, So Here's $50*, CNET NEWS BLOG, Apr. 19, 2008, http://news.cnet.com/8301-10784_3-9915375-7.html (describing efforts by Amazon.com, Best Buy, and Wal-Mart to regain goodwill from consumers who purchased HD DVD devices).

71. Sean P. Gates, *Standards, Innovation, and Antitrust: Integrating Innovation Concerns into the Analysis of Collaborative Standard Setting*, 47 EMORY L.J. 583, 598–99 (1998).

72. *Id.* at 601.

73. Andrew Pollack, *International Business: Big Makers Agree on Single Format for Multi-Use Disk*, N.Y. TIMES, Sept. 16, 1995, at 1.

74. *Id.*

75. Gates, *supra* note 71, at 599.

76. *See supra* notes 26–27 and accompanying text.

added to form the thirteen founding members.[77] The HD DVD Promotion Group included as members other arguably comparable electronics companies, such as Toshiba, NEC, Sanyo, Kenwood, and Memory-Tech Corporation, with nonexclusive support from Acer, HP, Hitachi Maxell, Onkyo, and Alpine.[78] In June 2005, Microsoft announced an agreement with Toshiba to "develop high-definition DVD players together and cooperate in designing new models of mobile personal computers."[79] Microsoft also criticized Blu-ray for its potential compatibility issues with personal computers,[80] and in August 2005, Microsoft and Intel officially announced their support for HD DVD.[81] Microsoft cited manufacturing ease, cost, and managed copying features for their support, while Intel did not explain its reasoning.[82]

As electronics companies continued to split support between the two formats, the backers of both Blu-ray and HD DVD attempted to come to an agreement and avoid a format war. Early in 2005, the two format consortia entered into negotiations to compromise on the next-generation format.[83] Discussions focused mainly on the interactive software layer[84] that would be used.[85] Blu-ray pushed for the BD-Java interactive engine, designed by Sun Microsystems, while HD DVD supported iHD, created by Microsoft.[86] Despite these negotiation efforts, it was announced in August that talks had broken down.[87] In October 2005, in a last-ditch effort to create a compromise between the formats, HP threatened to shift its support from Blu-ray to HD DVD if the BDA did not institute iHD and "mandatory managed copy" in the Blu-ray format.[88] Although the BDA did add support

77. Press Release, BDA, Blu-ray Disc Founders Open the Door for Blu-ray Disc Association to Welcome New Members (May 18, 2004), *available at* 5/18/04 BWIRE 22:17:00 (Westlaw).

78. *See* HD DVD Promotion Group, *supra* note 45.

79. David Cohn, *Microsoft, Toshiba Gear Up*, WIRED, June 27, 2005, http://www.wired.com/techbiz/media/news/2005/06/68009.

80. Cliff Edwards, Peter Burrows & Roland Groves, *Daggers Drawn over DVDs*, BUS. WK., Oct. 17, 2005, at 92.

81. Shor, *supra* note 51.

82. *Id.*

83. Junko Yoshida, *Sides Close to Deal on HD Disk Format*, EE TIMES, Apr. 15, 2005, http://www.eetimes.com/news/latest/showArticle.jhtml?articleID=160901475 ("Opposing camps in the high-definition disk format battle are close to a compromise on key components of their competing standards based on blue laser technology.").

84. *See supra* notes 55–58 and accompanying text.

85. Yoshida, *supra* note 83.

86. Paul Sweeting, *Micro-Managed Copies*, VIDEO BUS., Nov. 7, 2005, at 10.

87. Nozomi Toyama, *Sony, Toshiba Fail to Unify DVD Format—Report*, FORBES, Aug. 22, 2005, http://www.forbes.com/feeds/afx/2005/08/22/afx2188394.html.

88. Sweeting, *supra* note 86; Ken Young, *HP Calls for Changes to Blu-ray*, VNUNET.COM, Oct. 20, 2005, http://www.vnunet.com/vnunet/news/2144325/hp-calls-changes-blu-ray (stating that

for mandatory managed copy, it refused to abandon BD-Java in favor of iHD.[89]

Movie studio exclusivity was the biggest factor in tipping the scales in favor of one format over the other. By late 2005, each of the six major film studios had agreed to produce high-definition movies in only one of the formats: Blu-ray had support from Sony Pictures, 20th Century Fox, and Walt Disney Pictures, while HD DVD had support from Paramount Pictures, Warner Brothers, and Universal Studios.[90] This even division, however, did not last long. In October 2005, Warner Brothers and Paramount announced that they would add support for Blu-ray, producing movies in both formats.[91]

Then, in August 2007, Paramount Pictures announced exclusive support for HD DVD, reversing its decision to support both formats.[92] The studio cited lower manufacturing costs and stronger technology as reasons for its decision.[93] It was confirmed, however, that Paramount received over $150 million in financial incentives from HD DVD in a combination of cash and advertising guarantees.[94] Although being outsold by Blu-ray almost two to one in the United States,[95] HD DVD appeared to have a solid future, with exclusive support from Paramount and Universal Studios and nonexclusive support from Warner Brothers, the largest movie studio.[96]

This all changed on January 4, 2008, however, when Warner Brothers announced that it would cease its support for HD DVD and would instead exclusively support Blu-ray.[97] While Warner publicly cited Blu-ray being the "clear consumer winner" as the reason for its decision,[98] sources close

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mandatory managed copy "allows users to copy high-definition movies onto PCs from discs and distribute them on home networks").

89. Sue Zeidler, *Blu-ray, HP at Odds over High-Def DVD Launch Plan*, CRN (Austl.), Nov. 18, 2005, http://www.crn.com.au/News/21107,bluray-hp-at-odds-over-highdef-dvd-launch-plan.aspx.

90. Sweeting & Hettrick, *supra* note 9.

91. Ronald Grover, Peter Burrows & Cliff Edward, *A Warner Bros. Green Light for Blu-ray?*, BUS. WK., Oct. 5, 2005, http://www.businessweek.com/technology/content/oct2005/tc2005105_6128_tc024.htm.

92. Barnes, *supra* note 10.

93. Press Release, Viacom Inc., Paramount and DreamWorks Animation Each Declare Exclusive Support for HD DVD (Aug. 20, 2007), *available at* http://www.viacom.com/news/pages/newstext.aspx?rid=1042073.

94. Barnes, *supra* note 10.

95. *Blu-ray DVDs Outsell HD-DVDs*, L.A. TIMES, Oct. 24, 2007, at 7, *available at* 2007 WLNR 20871979.

96. *See infra* tbl.1.

97. Barnes, *supra* note 17.

98. Staci D. Kramer, *Warner Bros. Goes Exclusive with Sony's Blu-ray*, FORBES, Jan. 4, 2008, http://www.forbes.com/2008/01/04/warner-sony-bluray-tech-cx_pco_0104paidcontent.html.

to the deal reported that Warner received financial incentives in the form of marketing support.[99] Warner did confirm, however, that the backers of HD DVD had previously offered "substantial incentives" to support HD DVD exclusively.[100] On January 13, 2008, Toshiba responded by cutting the price of its HD DVD players by 40 to 50 percent, hoping to attract additional consumers and win back the movie studios.[101]

In the retail market, Blockbuster and Target had already announced exclusive support for the Blu-ray format in June and July 2007, respectively. Warner Brothers' decision caused a further chain reaction within the retail market: on February 11, 2008, Best Buy announced that it would begin recommending Blu-ray as the preferred next-generation format;[102] on the same day, Netflix announced that it would discontinue support of HD DVD;[103] and four days later, Wal-Mart announced that it would also discontinue carrying HD DVD products.[104]

3. Video Game Console Support

Sony's Playstation 3, which launched in the United States on November 17, 2006, included Blu-ray support out of the box.[105] In November 2006, Microsoft, one of the strongest supporters of HD DVD, released an HD DVD player add-on made by Toshiba for its Xbox 360 video game console.[106] Microsoft's Xbox 360 add-on, however, did not sell very well.[107] By the beginning of 2008, 10.5 million Playstation 3 consoles had been sold, while Toshiba had sold only 1 million HD DVD players (including the Xbox 360 add-on).[108]

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99. McBride, *supra* note 14.

100. Barnes, *supra* note 17.

101. Yinka Adegoke, *Toshiba Cuts HD Player Prices in Blu-ray Fight*, REUTERS, Jan. 15, 2008, http://www.reuters.com/article/industryNews/idUSN1441663320080115.

102. Press Release, Best Buy Co., Best Buy to Recommend Blu-ray as the Customer's Digital Format Choice (Feb. 11, 2008), *available at* 2/11/08 BWIRE 20:31:00 (Westlaw).

103. Press Release, Netflix, Inc., Netflix, Citing a Clear Signal from the Industry, Will Carry High-Def DVDs Only in Blu-ray Format (Feb. 11, 2008), *available at* http://netflix.mediaroom.com/index.php?s=43&item=265.

104. Press Release, Wal-Mart Stores, Inc., Wal-Mart Moving Exclusively Toward Blu-ray Format Movies and Players (Feb. 15, 2008), *available at* http://walmartstores.com/FactsNews/NewsRoom/7944.aspx.

105. *See* Playstation 3 System Features, http://www.us.playstation.com/PS3/Features (last visited Mar. 18, 2009).

106. Steven Levy, *Technology: Are Hi-Def Discs for You?*, NEWSWEEK, Dec. 4, 2006, at 71.

107. Will Smale, *How the PS3 Led Blu-ray's Triumph*, BBC NEWS, Feb. 19, 2008, http://news.bbc.co.uk/1/hi/business/7252506.stm.

108. *Id.*

4. End of the War

On February 19, 2008, Toshiba, the company that spearheaded the HD DVD Promotion Group, as well as the DVD Forum, announced that it would "no longer develop, manufacture and market HD DVD players and recorders."[109] The format war had ended. Looking back, analysts identified several key factors that led to Blu-ray's victory. The proliferation of the Playstation 3 provided significant support in the war, as Blu-ray's sales steadily increased starting in mid-November 2006, which coincided with the Playstation 3's release.[110] Experts also noted that Blu-ray had an important advantage in garnering support from the main movie studios, as Sony spearheaded the Blu-ray format and was itself one of the six major movie studios.[111]

In 2005, each format had exclusive support from three major film studios; in 2007, the HD DVD Promotion Group paid $150 million for exclusive support from Paramount Pictures; in 2008, the BDA provided financial incentives in exchange for exclusive support from Warner Brothers. Were these exclusive arrangements anticompetitive and thus prohibited by the Sherman Act? Or did the agreements further legitimate business needs and act to promote competition?

III. SHERMAN ACT JURISPRUDENCE

The Sherman Act was passed in 1890.[112] As declared by the Supreme Court, the purpose of the Sherman Act is

> not to protect businesses from the working of the market; it is to protect the public from the failure of the market. The law directs itself not against conduct which is competitive, even severely so, but against conduct which unfairly tends to destroy competition itself. It does so not out of solicitude for private concerns but out of concern for the public interest.[113]

The Sherman Act has two main provisions: Section 1 pertains to conduct between multiple parties, while Section 2 relates to the unilateral conduct of a monopolist.

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109. Press Release, Toshiba Corp., Toshiba Announces Discontinuation of HD DVD Businesses (Feb. 19, 2008), *available at* 2/19/08 BWIRE 08:00:00 (Westlaw).

110. Mark Hachman, *Making Sense of the High-Def DVD Numbers*, PCMAG.COM, Feb. 9, 2007, http://www.pcmag.com/article2/0,1895,2093290,00.asp. The Playstation 3, which included Blu-ray support, launched on November 17, 2006. *Id.*

111. Smale, *supra* note 107.

112. Act of July 2, 1890, ch. 647, 26 Stat. 209 (codified at 15 U.S.C. §§ 1–7 (2006)).

113. Spectrum Sports, Inc. v. McQuillan, 506 U.S. 447, 458 (1993).

A. SECTION 1

Section 1 of the Sherman Act, in relevant part, states: "Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal."[114] Section 1 is not intended to reach ordinary business contracts, but instead only those "agreement[s] or mutual commitment[s] to engage in a common course of anticompetitive conduct."[115]

"Market power" is a "prerequisite to being able to restrain trade unreasonably."[116] The Department of Justice and the Federal Trade Commission's merger guidelines define market power as "the ability profitably to maintain prices above competitive levels for a significant period of time."[117] "Without market power, consumers shop around to find a rival offering a better deal."[118] The amount of power an actor has depends on how the market is defined; the relevant market, therefore, must first be established.[119]

Because all contracts and agreements, by definition, restrain trade in some way, strict application of Section 1 would outlaw every contract regarding trade or commerce. Thus, Section 1 has been interpreted to apply only to *unreasonable* restraints of trade.[120] In analyzing whether certain conduct is unreasonable and thus illegal under Section 1, courts have developed two standards: per se illegality and the rule-of-reason standard. An activity is per se illegal when "the activity on its face seems to be such that it would always or almost always restrict competition and decrease output instead of being designed to increase economic efficiency and make the market more rather than less competitive."[121]

The per se rule not only increases certainty for potential actors, but also removes the need to have a lengthy economic analysis at trial.[122] The Court has specifically identified price fixing, division of markets, group

114. 15 U.S.C. § 1.

115. Greyhound Rent-a-Car, Inc. v. City of Pensacola, 676 F.2d 1380, 1383 (11th Cir. 1982).

116. Jack Walters & Sons Corp. v. Morton Bldg., Inc., 737 F.2d 698, 702 (7th Cir. 1984).

117. HORIZONTAL MERGER GUIDELINES § 0.1 (U.S. Dep't of Justice & Fed. Trade Comm'n, rev. ed. 1997), *available at* http://www.usdoj.gov/atr/public/guidelines/hmg.pdf [hereinafter MERGER GUIDELINES].

118. SCFC ILC, Inc. v. Visa USA, Inc., 36 F.3d 958, 965 (10th Cir. 1994).

119. For relevant market jurisprudence, see *infra* Part III.C.

120. Standard Oil Co. of N.J. v. United States, 221 U.S. 1, 87 (1911) (Harlan, J., concurring in part, dissenting in part).

121. Nat'l Elec. Contractors Ass'n v. Nat'l Constructors Ass'n, 678 F.2d 492, 500 (4th Cir. 1982).

122. N. Pac. Ry. v. United States, 356 U.S. 1, 5 (1958).

boycotts, and tying arrangements as practices that fall under the rule of per se illegality.[123]

Under the rule-of-reason standard, "[t]he true test of legality is whether the restraint imposed is such as merely regulates and perhaps thereby promotes competition or whether it is such as may suppress or even destroy competition."[124] Since most agreements not covered by per se illegality are at least partly procompetitive, there is a presumption in favor of the rule-of-reason standard; thus, most cases have been analyzed under it.[125] The inquiry is factually heavy, and a court must consider all factors, including the nature of the business before and after the restraint, the nature of the restraint and its actual and probable effects, the history of the restraint, and the purposes of the restraint.[126] While a procompetitive purpose will not insulate an actor from liability, knowledge of such a purpose will assist a court in interpreting facts and predicting consequences; thus, it is relevant in the rule-of-reason analysis.[127]

B. SECTION 2

Section 2 of the Sherman Act makes it an offense to "monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations."[128] Although not codified in the Sherman Act, the Court has developed a two-prong test to prove a Section 2 claim: "(1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident."[129] Unlike Section 1, Section 2 does not require a combination, conspiracy, or contract; thus, a single actor's unilateral conduct can violate Section 2.

The first step in proving a Section 2 claim is showing "monopoly power." As under Section 1, an actor's power depends on how broadly the market is defined; thus, in order to show that a defendant possesses monopoly power, the relevant market must first be defined.[130] Monopoly

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123. *Id.*
124. Bd. of Trade of Chi. v. United States, 246 U.S. 231, 238 (1918).
125. Bus. Elecs. Corp. v. Sharp Elecs. Corp., 485 U.S. 717, 726 (1988).
126. *Bd. of Trade of Chi.*, 246 U.S. at 238.
127. *Id*.
128. 15 U.S.C. § 2 (2006).
129. United States v. Grinnell Corp., 384 U.S. 563, 570–71 (1966).
130. For relevant market jurisprudence, see *infra* Part III.C.

power within this relevant market requires "something greater" than Section 1's requirement of market power.[131] An actor possesses monopoly power if it has "a power of controlling prices or unreasonably restricting competition."[132] In determining whether monopoly power exists, a court must consider the strength of competition, the probable development of the industry, consumer demand, and the market share of the actor.[133]

Being a monopoly is not condemned by Section 2; it is the act of monopolizing that the statute forbids. Once an actor is determined to have monopoly power within a relevant market, a court must decide whether that power was acquired or maintained willfully, or instead obtained via natural growth or development. This willfulness determination can be made in two ways. First,

> [w]here the defendant has utilized practices that are in themselves illegal under a different provision of the antitrust laws ([for example], exclusionary boycotts, horizontal market allocations, tying agreements, exclusive dealing agreements that foreclose competitors from a substantial portion of the market, and anticompetitive acquisitions of competitors), the courts have readily labeled these practices as being willful.[134]

Second, when the conduct itself is not illegal, courts have used an analysis virtually identical to the rule-of-reason standard under Section 1.[135] One court has stated that "[a] monopolist willfully acquires or maintains monopoly power when it competes on some basis other than the merits."[136] Thus, a valid business justification is a relevant factor.[137] The willfulness requirement ensures that an actor using the same methods available to a smaller competitor is not punished purely for being dominant in the market.

C. RELEVANT MARKET

A Section 1 claim requires that the defendant possesses market power;[138] a Section 2 claim requires that the unilateral actor possess

131. Eastman Kodak Co. v. Image Technical Servs., Inc., 504 U.S. 451, 481 (1992).
132. Hayden Publ'g Co. v. Cox Broad. Corp., 730 F.2d 64, 68 (2d Cir. 1984) (quoting United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 389 (1956)).
133. *Id.* at 68–69.
134. WILLIAM C. HOLMES, ANTITRUST LAW HANDBOOK: 2008–2009 EDITION § 3:5 (2008).
135. *Id.*
136. LePage's Inc. v. 3M, 324 F.3d 141, 147 (3d Cir. 2003) (citing Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 605 n.32 (1985)).
137. *See* Eastman Kodak Co. v. Image Technical Servs., Inc., 504 U.S. 451, 483 (1992).
138. *See supra* note 116 and accompanying text.

monopoly power.[139] In order to determine how much power any given competitor has, it is necessary to first define the relevant market. This is basically the big fish/small pond versus small fish/big pond concept: increasing the size of the relevant market includes more competitors, necessarily reducing the power of any individual actor. "The definition of the relevant market is basically a fact question dependent upon the special characteristics of the industry involved . . . ."[140]

"The relevant market inquiry has two dimensions. First, it is necessary to identify the cluster of products or services with which the defendant's product or service effectively competes, termed the 'relevant product market.'"[141] In determining whether two products are in the same relevant product market, a court looks at whether they are "readily substitutable for one another" and at their "cross-elasticity of demand."[142] This is determined from the point of view of the consumer.[143] In examining the first issue, the more easily two products can be substituted for the same use, the more likely they are in the same relevant product market. This judgment takes into consideration "the price, characteristics and adaptability of the competing commodities."[144] Cross-elasticity of demand further gauges substitutability by looking at how a price change in one product affects the demand for another product.[145] As cross-elasticity of demand increases, consumers are more likely to switch to another product in response to a price increase; thus, where cross-elasticity is high, the two products are more substitutable for each other and more likely to be in the same relevant market.[146]

Under the second dimension of the relevant market inquiry, "it is necessary to identify the geographic area within which the defendant practicably competes in marketing its product or service, termed the

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139. *See supra* note 129 and accompanying text.

140. Twin City Sportservice, Inc. v. Charles O. Finley & Co., 676 F.2d 1291, 1299 (9th Cir. 1982).

141. HOLMES, *supra* note 134, § 3:4 (citing Standard Oil Co. of N.J. v. United States, 221 U.S. 1, 61 (1911)).

142. Broadcom Corp. v. Qualcomm Inc., 501 F.3d 297, 307 (3d Cir. 2007) (citing Brown Shoe Co. v. United States, 370 U.S. 294, 325 (1962)). *Brown Shoe* defined "relevant market" under the Clayton Act. *Brown Shoe*, 370 U.S. at 325. The Supreme Court has, however, imported *Brown Shoe*'s relevant market analysis into Sherman Act jurisprudence.

143. *See* Eastman Kodak Co. v. Image Technical Servs., Inc., 504 U.S. 451, 481–82 (1992) ("The relevant market for antitrust purposes is determined by the choices available to Kodak equipment owners.").

144. United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 380–81 (1956).

145. *See, e.g.*, United States v. Engelhard Corp., 126 F.3d 1302, 1305 (11th Cir. 1997).

146. *See id.*

'relevant geographic market.'"[147] "[T]he area of effective competition in the known line of commerce must be charted by careful selection of the [geographic] market area in which the seller operates, and to which the purchaser can practicably turn for supplies."[148] A court must consider whether consumers are willing to travel to a more distant location in response to a local price change; if so, the relevant geographic market includes this more distant location.[149]

> This trade area is identified by such practical considerations as the area within which the parties actually market their products, the size, cumbersomeness and perishability of the products, regulatory requirements impeding the free flow of competing goods into the area, shipping limitations inherent in the cost of transporting the products, the area within which the defendant and its competitors view themselves as competing, and other factors bearing upon where customers might realistically look to buy the product or service if faced with a not insignificant increase in price.[150]

Thus, the approach is not mechanical and must take the realities of the market into consideration.

Illustrative of the relevant market analysis is the Department of Justice and the Federal Trade Commission's "small but significant and nontransitory increase in price" ("SSNIP") test.[151] Under the SSNIP test

> [a] market is defined as a product or group of products and a geographic area in which it is produced or sold such that a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future producer or seller of those products in that area likely would impose at least a "small but significant and nontransitory" increase in price, assuming the terms of sale of all other products are held constant.[152]

Although this approach was designed for horizontal mergers, it has also been used in non-merger cases for defining the relevant market.[153] If it would be profitable for a hypothetical monopolist to impose a SSNIP on a product, the relevant product market includes just that product. If

147. HOLMES, *supra* note 134, § 3:4 (citing Standard Oil Co. of N.J. v. United States, 221 U.S. 1, 61 (1911)).

148. Tampa Elec. Co. v. Nashville Coal Co., 365 U.S. 320, 327 (1961).

149. *See* Delco LLC v. Giant of Md., LLC, No. 07-3522 (JBS), 2007 WL 3307018, at *3 (D.N.J. Nov. 8, 2007).

150. HOLMES, *supra* note 134, § 3:4.

151. MERGER GUIDELINES, *supra* note 117, § 1.0.

152. *Id.*

153. *See, e.g.,* Theme Promotions, Inc. v. News Am. Mktg. FSI, 546 F.3d 991, 1002 (9th Cir. 2008).

customers respond to a SSNIP by purchasing substitute products, the relevant product market also includes those substitutes.[154] Similarly, if customers responded to a SSNIP by looking for products in other geographic locations, those locations should be added to the relevant geographic market. The agencies consider all relevant evidence, including, but not limited to, the following:

> (1) evidence that buyers have shifted or have considered shifting purchases between products in response to relative changes in price or other competitive variables;
>
> (2) evidence that sellers base business decisions on the prospect of buyer substitution between products in response to relative changes in price or other competitive variables;
>
> (3) the influence of downstream competition faced by buyers in their output markets; and
>
> (4) the timing and costs of switching products.[155]

In most contexts, a 5 percent price increase is used as the SSNIP.[156] The analysis focuses on whether consumers "likely would" take certain actions based on their own economic interest.[157] The SSNIP analysis operates practically as a test of cross-elasticity of demand[158] in order to gauge substitutability, similar to the approach used by courts. The relevant product market and relevant geographic market combine to create the "relevant market."

D. EXCLUSIVE DEALING

The language in Section 1 does not refer to a specific type of contract but instead to a result of the contract: "restraint of trade." Section 2 similarly prohibits "monopolization" while failing to define specifically prohibited actions. As such, various types of agreements and acts can satisfy the Sherman Act's broad language. The courts, however, have identified certain types of conduct that tend to have anticompetitive effects; one such type of conduct is exclusive dealing.

"Exclusive dealing arrangements are essentially requirements contracts, whereby the buyer agrees to purchase exclusively the product of the contracting supplier."[159] The antitrust problem with exclusive dealing is

154. *Id.*
155. MERGER GUIDELINES, *supra* note 117, § 1.11.
156. *Id.*
157. *Id.* § 0.1.
158. *See Theme Promotions*, 546 F.3d at 1002.
159. Servicetrends, Inc. v. Siemens Med. Sys., Inc., 870 F. Supp. 1042, 1064 (N.D. Ga. 1994).

that such conduct can act to "foreclose the relevant product market to other sellers, who may be unable to find buyers for their competing goods or services."[160] Exclusive dealing arrangements also have many recognized positive features: "in many circumstances they may be highly efficient—to assure supply, price stability, outlets, investment, best efforts or the like—and pose no competitive threat at all."[161] Thus, exclusive dealing is not one of the categories of conduct that is illegal per se, and it is analyzed under the rule-of-reason standard.[162]

Illustrative is *United States v. Microsoft Corp.*, in which Microsoft was accused, under Section 2 of the Sherman Act, of using several different types of conduct to maintain its monopoly in the Intel-compatible Windows operating system market.[163] Among this conduct was a set of agreements with Internet Access Providers ("IAPs").[164] Microsoft extended valuable promotional treatment to some of the most important IAPs in exchange for those IAPs promoting and distributing Internet Explorer to the exclusion of Navigator.[165] The court found that, through exclusive contracts with these IAPs, Microsoft foreclosed rivals in the browser market from a "substantial percentage of the available opportunities for browser distribution" and that the agreements had a "significant effect in preserving [Microsoft's] monopoly."[166] Thus, Microsoft violated the Sherman Act.

In *Tampa Electric Co. v. Nashville Coal Co.*, Tampa Electric entered into a requirements contract in which Nashville Coal agreed to furnish Tampa Electric's coal requirements for twenty years.[167] The Court noted that an exclusive dealing contract is prohibited only if it "will foreclose competition in a substantial share of the line of commerce affected" such that "the opportunities for other traders to enter into or remain in that market must be significantly limited."[168] The contract was found to be valid under the Sherman Act because the amount of coal at issue represented less than 1 percent of the relevant market, which was insufficient foreclosure to harm competition.[169]

160. *Id.*
161. E. Food Servs., Inc. v. Pontifical Catholic Univ. Servs. Ass'n, 357 F.3d 1, 8 (1st Cir. 2004).
162. *See* Cont'l T.V., Inc. v. GTE Sylvania Inc., 433 U.S. 36, 57–59 (1977); Tampa Elec. Co. v. Nashville Coal Co., 365 U.S. 320, 327 (1961); Beltone Elecs. Corp., 100 F.T.C. 68, 197 (1982).
163. United States v. Microsoft Corp., 253 F.3d 34, 45 (D.C. Cir. 2001).
164. *Id.* at 67.
165. *Id.*
166. *Id.* at 71.
167. *Tampa Elec.*, 365 U.S. at 322–23.
168. *Id.* at 327–28.
169. *Id.* at 332–35.

In *LePage's Inc. v. 3M*, the defendant, 3M, was a monopolist of the transparent tape market.[170] LePage's accounted for 88 percent of sales in the private label tape market, which was a small portion of the overall transparent tape market.[171] In response to growth in this private label tape market, 3M entered the business in the early 1990s.[172] 3M offered cash payments to some of LePage's customers in exchange for exclusivity;[173] to other LePage's customers, 3M offered rebates, discounts, and rewards.[174] The court found that 3M's exclusive dealing, as magnified by its discount practices, operated to foreclose the market to its competitors because it "cut LePage's off from key retail pipelines necessary to permit it to compete profitably."[175] The conduct violated Section 2 of the Sherman Act.

E. INNOVATION AND TECHNOLOGY

1. High-Technology Markets

"[H]igh-technology markets are characterized by rapid rates of technological change, high fixed costs of research and development relative to the variable costs of production, knowledge spillovers, and (sometimes) strong 'network effects.'"[176] Due to the high costs of research and development, the traditional model of competition, in which prices equal marginal production costs, may not apply; "market power . . . is *necessary* to the survival of many high-technology industries."[177] Some high-tech markets also have strong "network effects," whereby the value of a product increases as more consumers purchase the product and more businesses provide complimentary products and services.[178] Each of these high-technology market characteristics can affect the analysis of both the relevant market and the reasonableness of exclusive dealing arrangements.

Richard Gilbert and Willard Tom argue that these special characteristics of technology markets create a difficulty for antitrust policy. On the one hand, high market concentration may be both natural and necessary for high-technology markets, suggesting a more limited role for

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170. LePage's Inc. v. 3M, 324 F.3d 141, 144 (3d Cir. 2003).

171. *Id.*

172. *Id.*

173. *Id.* at 157.

174. *Id.* at 158.

175. *Id.* at 159–60.

176. Richard J. Gilbert & Willard K. Tom, *Is Innovation King at the Antitrust Agencies? The Intellectual Property Guidelines Five Years Later*, 69 ANTITRUST L.J. 43, 45 (2001).

177. *Id.* at 46.

178. *Id.*

antitrust policy.[179] On the other hand, concern for innovation could support increasing antitrust vigilance "on the theory that the potential for high rates of technological change and network effects magnify the harm from conduct that slows down such change or distorts the competition to become the dominant standard."[180]

The rapid rate of technological change requires additional inquiries in the Sherman Act analysis. A typically reasonable restraint of trade may become unreasonable if it acts to somehow suppress the rate of technological advances. A court must balance this, however, with the fact that competitors may be unable to remain in the market without ensuring some degree of market power through exclusive dealing.[181] High rates of technological change also cause markets to be highly dynamic; this affects how the antitrust analysis should analyze the relevant market.[182] As new technologies become more widely adopted, the fixed costs of acquiring the new product will decrease. With this comes a broadening of the consumer group; no longer made up mainly of aficionados, this consumer group will place less value on the esoteric technological qualities of the new product. Because of this, the consumer group will, over time, be more willing to substitute in other products in response to a SSNIP. The relevant market analysis thus should be more willing to include these other products in the relevant market.

Developing a new technology is a hugely expensive endeavor, and this natural barrier to entry must be considered in the reasonableness analysis. On the one hand, exclusive dealing contracts may promote innovation by ensuring that companies will be able to license the technology and recoup research and development costs when the technology finally goes to market. On the other hand, exclusive dealing may prevent *new* competitors from entering the market; if 80 percent of the market's buyers are locked into exclusive arrangements, it is likely that a potential entrant will view the market as entirely foreclosed and choose not to enter. Absent exclusive dealing contracts, consumers may end up with a product superior to any offered by a company currently in the market.

Network effects are also an important consideration in high-technology markets. In a market with strong network effects, consumers place a higher value on a specific technology as the number of consumers

179. *Id.* at 46–47.
180. *Id.* at 47.
181. *Id.* at 46.
182. *Id.* at 45.

and businesses using and supporting that technology increases.[183] For example, email is much less valuable if only a handful of people use it; as one's friends, family, and business contacts begin to use email, the technology as a whole grows in value to the user. "When there are strong network effects and little functional difference between two incompatible standards, one of the standards typically takes over the entire market, while the other is orphaned."[184] While network effects can benefit consumers in creating economies of scale, they can also operate to create a monopoly in an otherwise competitive market. The presence of these strong network effects suggests increased scrutiny of exclusive dealing contracts. An exclusive dealing arrangement that forecloses part of the market is much more significant in a market with strong network effects. A relatively small foreclosure can have a chain reaction: consumers will place more value on the product due to the exclusive support, causing more retailers and associated business entities to also support the technology, leading to even greater consumer support. Thus, the presence of network effects must be factored into the Sherman Act's reasonableness analysis.

2. Special Considerations in Licensing Intellectual Property

Intellectual property licenses are, in significant ways, very different from tangible goods such as medicine and marine anchors. How, then, is the antitrust analysis affected? In the 1995 *Antitrust Guidelines for the Licensing of Intellectual Property* (the "*IP Guidelines*"), the U.S. Department of Justice and Federal Trade Commission (collectively, "the Agencies") noted that "the same general antitrust principles [apply] to conduct involving intellectual property [as] to conduct involving any other form of tangible or intangible property."[185] The *IP Guidelines* go on to state that intellectual property has "important characteristics" that "can be taken into account by standard antitrust analysis."[186] This is practically a restatement that all relevant considerations should be factored into the rule-of-reason analysis.[187]

Indeed, the Agencies are starting to put more emphasis on innovation

183. David Dranove & Neil Gandal, *Surviving a Standards War: Lessons Learned from the Life and Death of DIVX* 9 (Ctr. for Econ. Pol'y Research, Discussion Paper No. 3935, 2004), *available at* http://ssrn.com/abstract=432681.

184. *Id.*

185. ANTITRUST GUIDELINES FOR LICENSING OF INTELLECTUAL PROP. § 2.1 (U.S. Dep't of Justice & Fed. Trade Comm'n 1995), *available at* http://www.usdoj.gov/atr/public/guidelines/0558.pdf [hereinafter IP GUIDELINES].

186. *Id.*

187. *See id.* § 3.4.

factors, as evidenced by the increased number of cases in which the Agencies identified innovation effects as a reason to challenge conduct under antitrust law.[188] According to Gilbert and Tom, innovation concerns were decisive in some cases and led to broader remedies in other cases.[189]

The *IP Guidelines* outline several concepts that apply specifically to high-technology markets, which Gilbert and Tom argue have been fairly well followed by the Agencies.[190] Delineating "technology markets" in addition to relevant product markets allows the antitrust analysis to consider the technology used to make a product separately from the product itself.[191] If an arrangement may affect competition to develop new or improved goods or processes, the Agencies may also define an "innovation market."[192] Each of these market definitions allows the antitrust analysis to pay particular attention to special anticompetitive effects that can occur in high-technology markets. Delineation of these additional markets is for simplification and clarity only, as the same result can be accomplished instead by considering these technological and innovation effects as additional competitive effects of the relevant product market.[193]

Licensing provides several procompetitive benefits. Owners of intellectual property must combine their technology with other necessary production factors to realize its commercial value.[194] "This integration can lead to more efficient exploitation of the intellectual property, benefiting consumers through the reduction of costs and the introduction of new products."[195]

Licensing limitations, such as exclusive dealing contracts, may serve procompetitive ends as well. They can be used to incentivize a licensee to invest in the commercialization and distribution of products incorporating the technology and to develop additional applications for the intellectual property.[196] Exclusive dealing can also protect the licensee by preventing free riding from other potential licensees.[197] Finally, licensing limitations may protect the licensor from competition in a market niche that the

188. *See* Gilbert & Tom, *supra* note 176, at 44.
189. *Id.*
190. *See id.* at 84–86.
191. *See* IP GUIDELINES, *supra* note 185, § 3.2.2.
192. *Id.* § 3.2.3.
193. *See id.*
194. *Id.* § 2.3.
195. *Id.*
196. *Id.*
197. *Id.*

licensor dominates.[198]

In determining whether an exclusive licensing arrangement is anticompetitive, one should consider "the extent to which the arrangement (1) promotes the exploitation and development of the licensor's technology and (2) anticompetitively forecloses the exploitation and development of, or otherwise constrains competition among, competing technologies."[199] One should remember that these considerations are in addition to, and not instead of, the factors usually considered under a rule-of-reason analysis.[200] The *IP Guidelines* further recognize that "[a] restraint that may be justified by the needs of a new entrant, for example, may not have a procompetitive efficiency justification in different market circumstances."[201]

IV. SHERMAN ACT APPLICATION

The key concern during the relevant market analysis is substitutability.[202] In the current movie market, there are several other products that are functionally similar to high-definition media formats. Distinct customers, distinct price points, technological loyalty, and inelastic demand, however, suggest that the other options in the market may not be truly substitutable. Thus, high-definition media formats may be in their own relevant market. But, because this market is characterized by high rates of technological change, it is likely appropriate to consider standard DVDs and streaming services to be part of the relevant market.

In determining whether an exclusive dealing arrangement is reasonable under the rule-of-reason analysis, all relevant factors should be taken into consideration. Assuming the format consortia are found to have sufficient levels of market power,[203] the initial exclusivity arrangements between the format consortia and the movie studios were likely procompetitive restraints of trade that served the legitimate development and production needs of the format consortia and movie studios. The subsequent agreements, however, although partially procompetitive when considering the long-term competition against digital streaming services, likely operated primarily to foreclose the market to competition and thus violated the Sherman Act.

198. *Id.*
199. *Id.* § 5.4.
200. *See id.*
201. *Id.* § 4.2.
202. *See supra* Part III.C.
203. *See infra* Part IV.B.

A. RELEVANT MARKET

In order to determine the relevant market, it is first important to understand exactly what the format consortia sell. Blu-ray Disc and HD DVD are high-definition media formats. The technology is licensed to movie studios that, in combination with movie content, create the end product that is sold to consumers. Movie studios also disseminate their motion pictures through several other formats: movie theaters, VHS tapes, cable and satellite, standard DVDs, and Internet streaming services.

1. Movie-Viewing Options in the Marketplace[204]

Both HD DVD and Blu-ray offer movies in high-definition at 1080p. These formats are not the only way, however, that a consumer can view a movie.

Cable providers often have significant options for viewing high-definition movies in 1080i, including premium channels such as HBO and content-on-demand features.[205] Satellite cable providers, such as DIRECTV and Dish Network, have similar options as well, often offered in 1080p high-definition.[206] One major downside to these offerings, however, is that movies may be released via these services after they have been released on standard DVD, HD DVD, and Blu-ray, and are not always offered in high-definition. Also, movies purchased through these services are only rentals; after the rental period expires, a consumer can no longer view the movie without repurchasing it. The pricing for these services varies and comes in both pay-per-view and monthly fee varieties.

Apple TV is a service that offers, among other features, digital rentals and purchases of 720p movies.[207] Amazon Video On Demand offers a service comparable to Apple's, with both purchases and rentals available,

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204. This list is not intended to be exhaustive; indeed, based on the development rate of new streaming services, it is entirely possible that a new service will be developed while this Note is being published. This Note, however, is designed to show the types of options that a consumer in the marketplace currently has.

205. *See, e.g.*, Time Warner Cable, Answers, http://www.timewarnercable.com/socal/site.faqs/Cable/HDTVTermin/What-is-480i-720p-and-1080i (last visited Nov. 19, 2009) (showing available HD resolution on Time Warner Cable); Time Warner Cable, We Are the Home of Free HD, http://www.timewarnercable.com/SoCal/learn/cable/hdtv.html (last visited Nov. 19, 2009) (showing Time Warner Cable's high-definition offerings).

206. *See, e.g.*, DIRECTV: HD Overview, http://www.directv.com (follow "HD" hyperlink) (last visited Nov. 19, 2009) (showing DIRECTV's high-definition offerings).

207. Apple TV: Tech Specs, http://www.apple.com/appletv/specs.html (last visited Nov. 19, 2009); What's on Apple TV: Movies, http://www.apple.com/appletv/whatson/movies.html (last visited Nov. 19, 2009).

although Amazon does not yet provide for high-definition purchases.[208] Unlike cable and satellite, movies can be permanently purchased through these services. Movies are downloaded via these services through a user's Internet connection.

Netflix offers movie streaming through several different methods, such as TiVO, Xbox 360, Roku player, and even devices that are also capable of playing Blu-ray movies.[209] Unlike Apple's and Amazon's services, which allow movies to be purchased and saved to a device's hard drive, streaming requires an active Internet connection to view the video. Although the streaming service is included for free in many of Netflix's subscription plans, content is limited and contains very few new releases.[210] In addition, consumer tests have uncovered problems with the consistency and quality of high-definition streaming, concluding that it is "certainly not Blu-ray."[211]

Finally, there are the more "traditional" ways that a consumer can view a movie. While movie theaters are still popular in current society,[212] movies are only shown in theaters for limited periods of time. While consumers may still have players capable of playing VHS tapes, movie studios and suppliers have ceased supporting VHS.[213] Standard DVD movies are currently one of the most prevalent options for viewing movies at home. Although they are not natively high-definition, it is possible to achieve near-high-definition images through the use of an "upconverting" DVD player.[214] While it is not possible to match the quality of true high-definition content, upconverting does provide a better picture than standard DVD.[215]

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208. Amazon Video On Demand: Frequently Asked Questions, http://www.amazon.com/gp/help/customer/display.html?nodeId=3748 (last visited Nov. 19, 2009) (noting that high-definition is available for rentals but not purchases).

209. Netflix Instant Devices, http://www.netflix.com/NetflixReadyDevicesList (last visited Nov. 19, 2009).

210. *See* Netflix Instant Answers, http://www.netflix.com/NetflixReadyDevicesFAQ (last visited Nov. 19, 2009).

211. Posting of Nilay Patel to Engadget, http://www.engadget.com/2009/01/19/do-not-time-netflix-hd-streaming-shootout/ (Jan. 19, 2009, 14:08 EST).

212. *See* Michael Cieply & Brook Barnes, *Americans Flock to the Movies, Seeking a Silver-Screen Lining*, N.Y. TIMES, Mar. 1, 2009, at A1.

213. Geoff Boucher, *VHS Era Is Winding Down*, L.A. TIMES, Dec. 22, 2008, at A1.

214. David Carnoy, *Upconverting HDMI DVD Players: Fact vs. Fiction*, CNET REVS., Apr. 18, 2008, http://reviews.cnet.com/4520-6449_7-6859904-1.html.

215. *See id.* Indeed, it has been argued that, depending on the quality of the image, size of the image, and the viewer's distance from the screen, users are often unable to tell the difference between various resolutions. *See, e.g.*, *1080p Does Matter—Here's When (Screen Size vs. Viewing Distance vs. Resolution)*, CARLTONBALE.COM, Nov. 15, 2006, http://www.carltonbale.com/2006/11/1080p-does-

2. Relevant Product Market[216]

In determining the relevant product market, two main factors are examined: substitutability of use and cross-elasticity of demand. From the point of view of a consumer, movie theaters, standard DVDs, cable and satellite streaming, and Internet streaming services, in general, serve the same functional use: viewing a motion picture. This is not the end of the analysis, however, as other factors may suggest that these products belong in different relevant product markets.

Distinct price points, distinct customers, brand loyalty, and inelastic demand can cause two products that are functionally similar to be in different relevant product markets.[217] In *Geneva Pharmaceuticals Technology Corp. v. Barr Laboratories, Inc.*, one manufacturer of generic warfarin sodium sued another manufacturer of the same generic drug under the Sherman Act.[218] The court found that the relevant product market for antitrust purposes was the market for generic warfarin sodium only, excluding the name-brand version from the relevant market.[219] Despite the fact that the drugs were functionally substitutable, the court concluded that the relevant product market included only the generic versions of the drug for four main reasons: price differential, inelastic demand for the name-brand drug, different distribution chains, and industry recognition of noncompetition between generics and name-brand versions.[220] Similarly, *U.S. Anchor Manufacturing, Inc. v. Rule Industries, Inc.* involved manufacturers and suppliers of generic, light-weight anchors for boats.[221] The court there first noted that the premium-brand anchors were "functionally interchangeable" with the generic anchors.[222] Notwithstanding, the court held that the relevant product market included only generic anchors because the premium name-brand anchors had "distinctly higher prices, a distinct group of customers, strongly inelastic demand, and limited substitution of supply."[223] The court also specifically

matter.

216. Much of the analysis in this subsection focuses on the behavior of consumers with respect to Blu-ray movies. This focus is because HD DVD movies no longer exist in the current market. During the format war, the same considerations presumably would have applied to HD DVD as well.

217. Geneva Pharms. Tech. Corp. v. Barr Labs. Inc., 386 F.3d 485, 496–98 (2d Cir. 2004); U.S. Anchor Mfg., Inc. v. Rule Indus., Inc., 7 F.3d 986, 996 (11th Cir. 1993).

218. *Geneva*, 386 F.3d at 489.

219. *Id.* at 496.

220. *Id.* at 496–98.

221. *U.S. Anchor*, 7 F.3d at 989.

222. *Id.* at 995.

223. *Id.* at 996.

noted extremely strong brand loyalty for the name-brand anchors.[224]

Based on the factors from *Geneva* and *U.S. Anchor*, it is possible that standard DVDs may be excluded from the relevant product market containing high-definition media formats. In *Geneva*, name-brand drugs were in a different market from generic drugs due, in part, to the distinctly higher price of name-brand drugs; in *U.S. Anchor*, higher prices for premium anchors contributed to a finding that they were in a different market than generic anchors. Similarly here, high-definition movies often have distinct price points: a consumer can expect to pay a significant premium for both new release[225] and non–new release[226] high-definition movies. This distinct price differential supports putting high-definition media formats in their own relevant product market.

Moreover, the nature of Blu-ray at this point may support a finding that high-definition movie formats have distinct customers with technological preference and inelastic demand. First, Blu-ray players can be very expensive.[227] In addition, the increased quality of a Blu-ray movie can only be seen on large, high quality televisions,[228] further increasing the fixed costs required to appropriately adopt Blu-ray. Second, Blu-ray sales currently make up a small share of movie sales, while sales of standard DVDs account for somewhere between 90 and 97 percent of those sales.[229] With such a minority position in the movie sales market and high fixed costs of adoption, it is likely that most Blu-ray sales are made to movie enthusiasts. These enthusiasts represent a distinct customer group with strong technological loyalty to Blu-ray's high-definition content over

224. *Id.* at 997–98.

225. *See, e.g.*, Amazon.com, http://www.amazon.com (search "All Departments" for "I Love You, Man") (last visited Nov. 8, 2009) (showing movie prices for *I Love You, Man*: $14.99 for DVD, $24.99 for Blu-ray); *id.* (search "All Departments" for "The Soloist") (showing movie prices for *The Soloist*: $18.49 for DVD, $26.99 for Blu-ray). The Blu-ray premium for *I Love You, Man* is approximately 67 percent over the DVD. The Blu-ray premium for *The Soloist* is approximately 46 percent over the DVD.

226. *See, e.g.*, Amazon.com, *supra* note 225 (search "All Departments" for "Dumb and Dumber") (showing movie prices for *Dumb and Dumber*: $8.99 for DVD, $11.49 for Unrated New Line Platinum Series DVD, and $18.49 for Unrated Blu-ray). The Blu-ray premium for *Dumb and Dumber* is approximately 106 percent over the DVD and approximately 61 percent over the Unrated New Line Platinum Series DVD.

227. *See, e.g.*, Best Buy, Blu-ray Players, http://www.bestbuy.com/site/olspage.jsp?id=abcat0102003&type=category (last visited Nov. 19, 2009) (showing Blu-ray players ranging in price from $139.99 to $1,899.98).

228. *See supra* note 215 and accompanying text.

229. *Total Packaged Media-Sales Revenue*, HOME MEDIA MAG., Mar. 2–8, 2009, at 1; Marc Chacksfield, *VOD to Overtake Blu-ray by 2017, Reveals Report*, TECHRADAR.COM, Feb. 5, 2009, http://www.techradar.com/news/video/blu-ray/vod-to-overtake-blu-ray-by-2017-524723.

standard DVD. Moreover, the demand of such customers for high-definition movies is likely inelastic: in response to a SSNIP, a consumer who made a large investment in an expensive player and television is unlikely to purchase a standard DVD without high-definition capabilities. These factors support high-definition media formats having their own relevant product market.

Other factors support including standard DVD in the relevant product market. With such high fixed costs to adopt Blu-ray, many consumers will continue purchasing standard DVDs rather than "making the switch." If individual Blu-ray movies are too expensive, consumers will also forgo adopting Blu-ray. In this sense, there is some cross-elasticity of demand, and standard DVDs are closer substitutes. In addition, this market is characterized by high rates of technological change and thus is highly dynamic.[230] As Blu-ray becomes more widely adopted, its price will decrease, resulting in more consumers acquiring it. As this happens, the consumer group will become less distinct and will include more consumers who place little value on the technological superiority of Blu-ray over standard DVD. For example, a nonenthusiast consumer that cares little about the Blu-ray technology may choose to purchase a player capable of playing both Blu-ray and standard DVD movies rather than one that plays only standard DVDs, because it is only marginally more expensive.[231] As this happens, Blu-ray's consumer group will become more sensitive to price changes, and cross-elasticity of demand will increase. A consumer who placed a very low value on the improved resolution and technology of Blu-ray and paid low fixed costs to adopt Blu-ray is more likely to switch back to purchasing standard DVDs from Blu-ray movies in response to a SSNIP. Despite the preferences of current customers, the highly dynamic nature of this technology supports finding that standard DVDs are in the same market as high-definition media formats.

Movie streaming services (both Internet and cable/satellite) may also be excluded from the relevant product market containing high-definition movie formats, despite being functionally equivalent, for many of the same reasons as above. The streaming services described in Section A.1 of this part require the purchase of a streaming device. Even a movie enthusiast is unlikely to purchase two expensive movie viewing devices, such as a Blu-ray player and Apple TV, when both technologies provide the same set of

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230. *See supra* note 176 and accompanying text.

231. It is important to note that most Blu-ray players can play standard DVDs as well. *See* Best Buy, *supra* note 227 (showing that most Blu-ray players for sale support standard DVD).

movies in high-definition. Because movies can be streamed through cable and satellite devices that a consumer may already own for watching television, however, there is the possibility that these consumers could respond to a SSNIP for Blu-ray movies by switching to these streaming devices. Many of the streaming services, such as cable and Netflix, do not always provide newly released movies or high-definition versions of these movies.[232] A consumer who can be classified as a movie enthusiast, such as those who currently purchase high-definition movies, is unlikely to use an additional streaming device that cannot even stream newly released movies. For those Internet streaming services that do provide newly released movies in high-definition, a user must have a high-speed Internet connection in order to view the movies in high-definition.[233] Even with this Internet connection, the ability to receive quality high-definition content has been mixed.[234] Finally, many of these streaming services, such as cable and Netflix, only provide streaming in rental form; the consumer can only view the movie for a limited period of time. This is another drawback of streaming products that may decrease how readily they may be substituted for high-definition media formats.

Moreover, there is a laundry list of reasons why physical media are currently superior to digital downloads: a user can loan a movie to a friend, does not have to worry about technical problems corrupting or deleting a movie, and can resell a movie that is no longer desired.[235] Further, not all movie consumers are comfortable with technology. Consumers who may be movie enthusiasts, but not technology enthusiasts, can easily pick up a Blu-ray movie from their local retailer and place it in a player. The same consumers may have problems learning how to operate a high-tech streaming service correctly,[236] just as many consumers are much more comfortable operating a television than a computer. Finally, digital download and streaming services are currently having their own version of a format war; several services have sprung up in a short period of time, and consumers may fear investing in any particular streaming product until a clear winner emerges, just as with the high-definition media format wars. Thus, it is possible that Internet and cable streaming devices should be excluded from the relevant product market.

232. *See* Netflix Instant Answers, *supra* note 210.

233. Apple TV: Tech Specs, *supra* note 207.

234. *See supra* note 211 and accompanying text.

235. Mehar Gill, *10 Reasons Why Physical Media Owns!*, FORMAT WAR CENT., Dec. 12, 2008, http://formatwarcentral.com/2008/12/12/10-reasons-why-physical-media-owns.

236. *See supra* note 211 and accompanying text.

Looking at the market dynamically, however, calls for a different conclusion. As discussed above, the fixed costs for adopting Blu-ray will decrease as the technology becomes more prevalent. As this happens, the group of distinct buyers, currently made up mostly of movie enthusiasts, will begin to shift to a more general group of consumers who place less value on the technological advantages of Blu-ray. At the same time, Internet streaming options, which are fairly new, will become more user friendly and decrease in price. High-speed Internet will continue to proliferate and increase in speed. In addition, the number of devices capable of multiple functions, such as playing Blu-ray movies and streaming, will continue to increase.[237] As this happens, Internet streaming services will become more substitutable for both standard DVD and high-definition media formats. Indeed, Netflix has recently stated that it has started seeing shifts in rental behavior from physical DVD to streaming,[238] and some analysts expect that physical media options, such as Blu-ray and DVD, will be overtaken by digital options by 2017.[239] Because the relevant market is delineated to establish the effective zone of competition, taking future competitors into consideration is appropriate. While streaming options may not currently be major competition with respect to sales numbers, Blu-ray is, in a sense, already competing with them for longevity *as a technology*. Thus, due to the rapid rate of technological change, streaming services should likely be included in the relevant product market.

Although functionally similar, movie theaters are significantly different from at-home high-definition media such that they should be excluded from the relevant product market. First, a particular movie is not simultaneously available in both at-home options (such as DVD and Blu-ray) and movie theaters. Thus, a consumer cannot respond to an increase in the price of a desired Blu-ray movie by going to the movie theater. In addition, at-home options and movie theaters provide greatly different viewing experiences. At home, a consumer can start, stop, and rewind a movie at will. Viewing a movie at a movie theater, however, is more of an

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237. *See* Netflix Instant Devices, *supra* note 209.

238. Posting by Jacqui Cheng to Ars Technica, http://arstechnica.com/media/news/2009/01/streaming-video-cannibalizing-dvd-rentals-says-netflix.ars (Jan. 27, 2009, 13:20 EST) (quoting Netflix CEO Reed Hastings from a quarterly earnings call that Netflix is "seeing early signs of less DVD usage with some subscribers who are also watching instantly as compared to subscribers who only receive DVDs").

239. Chacksfield, *supra* note 229 (stating that research firm SNL Kagan expected digital movie services to become dominant in 2017). *See also Blu-ray to Win Format War?*, BUS. WK., Oct. 21, 2005, http://www.businessweek.com/innovate/content/oct2005/id20051021_469296.htm (predicting that because the future of media technology is digital, the outcome of the physical media format war may not matter in the long run).

event: the movie starts at a certain time, may require waiting in line, and is displayed in its entirety. These two different experiences, in combination with the fact that movies are not available concurrently in movie theaters and at-home options, are enough to exclude movie theaters from the relevant product market.

Therefore, despite strong arguments on both sides, the relevant product market should likely contain streaming services, standard DVDs, and high-definition media formats. Although current consumers have inelastic demand and strong loyalty to the Blu-ray technology, the dynamic nature of the market suggests including both standard DVD and streaming as well.

3. Relevant Geographic Market

The relevant geographic market is the effective physical area of competition. HD DVD, Blu-ray, standard DVD, and streaming services are sold globally. Sales of all of these products are made in traditional brick-and-mortar retail establishments, as well as through online retailers. A consumer who faces increased prices at their closest retailer can quickly go online and purchase from a seller located anywhere in the world. Although Blu-ray does include support for region coding,[240] this is not a significant obstacle in considering the relevant geographic market for Blu-ray movies to be global. First, most Blu-ray movies are released "region free," meaning they are unrestricted.[241] Further, because there are only three region codes, even if studios strictly adhered to region coding, the region code covering a certain consumer would be available in a significant number of other countries.[242] Finally, many Blu-ray players are multiregion such that they can play Blu-ray movies with multiple region codes.[243] Moreover, because of the ubiquity of the Internet, streaming options can be accessed from almost anywhere on the planet.

Because customs laws and delivery costs may be prohibitive, however, it is more likely that the relevant geographic market is the United States. A few dollars of increased shipping costs usually result in a double-

240. Region coding allows movie studios to limit what regions of the world a certain movie disc will play in. This can prevent piracy and allow region-specific information to be included on discs (such as specific languages).

241. *See* Blu-ray Region Code Info, http://bluray.liesinc.net (last visited Nov. 19, 2009) (showing that most Blu-ray movies are region free).

242. *See* Blu-ray Disc for Video, http://www.blu-raydisc.com/en/Technical/FAQs/Blu-rayDiscforVideo.html (last visited Mar. 17, 2009).

243. *See, e.g.*, Planet Omni, Multiregion Blu-ray Players, http://www.planetomni.com/Prod_BLURAY.shtml (last visited Nov. 19, 2009) (showing multiregion Blu-ray players for sale).

digit percent increase in the cost of a movie; this would likely prevent consumers from looking overseas for movies in response to a price increase in the United States.

Although the relevant geographic market is likely the United States, as discussed above, the determination of the relevant geographic market is, ironically, probably irrelevant. Determining the relevant geographic market is necessary to prove market power under Section 1 of the Sherman Act and to determine monopoly power under Section 2. This is because movie formats compete equally and thus have approximately equal market power in every geographic market. For example, in the Los Angeles market for movies, Blu-ray and DVD each have some level of market power. If you expand the geographic market to the entire United States, Blu-ray and DVD each have the same amount of market power that they had in the Los Angeles market. This is due to the nature of the product. In determining the relevant geographic market for supermarket products, for example, consideration must be given to whether consumers are willing to travel to more distant supermarkets in response to a price change.[244] Similar considerations do not exist in the market for movies, however, as movies are not perishable and can easily be transported to distant locations, either physically or via the Internet.

B. MARKET POWER

Market power is required in order to unreasonably restrain trade under Section 1 of the Sherman Act.[245] Similarly, to be liable under Section 2 of the Sherman Act, a unilateral actor must possess monopoly power.[246] Section A of this part concluded that the relevant market likely included both standard DVDs and streaming options. In this larger "at-home movie formats" relevant market, the high-definition media formats represent a small market share, as standard DVDs represent at least 90 percent of this market.[247] With such a small market share, it is unlikely that either format consortium would be found to have market power.[248] This would be fatal to

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244. Delco LLC v. Giant of Md., LLC, No. 07-3522 (JBS), 2007 WL 3307018, at *3 (D.N.J. Nov. 8, 2007) ("[I]f a hypothetical monopolist in that geographic region were to institute a SSNIP, 'consumers would accede to such price increase or instead would make such increase unprofitable by taking their business to supermarkets at more distant locations.'").

245. *See supra* notes 116–19 and accompanying text.

246. *See supra* notes 130–33 and accompanying text.

247. *See supra* note 229 and accompanying text.

248. *See* Retina Assocs., P.A. v. S. Baptist Hosp. of Fla., Inc., 105 F.3d 1376, 1384 (11th Cir. 1997) (holding that 15 percent of the relevant market was "insufficient, as a matter of law, to establish market power").

any Sherman Act claim.

Section A noted that strong arguments existed on both sides, and it is possible that a court could determine that HD DVD and Blu-ray belong in their own "high-definition media format" relevant market. Thus, the remainder of this Note will assume that the relevant market is the market for high-definition media formats. Within this relevant market, the HD DVD Promotion Group and the BDA, as the only two licensors, certainly have market power. Further, since the BDA currently occupies the entire relevant market, it currently possesses monopoly power.

C. THREE PHASES OF EXCLUSIVE DEALING

Exclusivity over the course of the format war came in three key phases. First, before there was a single HD DVD or Blu-ray movie on the shelves, each of the formats had exclusive support from three major studios: Blu-ray had support from Sony Pictures, 20th Century Fox, and Walt Disney Pictures, while HD DVD had support from Paramount Pictures, Warner Brothers, and Universal Studios.[249] Second, in August 2007, the HD DVD Promotion Group entered into an exclusive agreement with Paramount Pictures and DreamWorks Animation.[250] Third, in January 2008, Warner Brothers agreed to produce its movies exclusively in Blu-ray.[251] The phases of exclusivity are analyzed in the subsections below.

Did any of this conduct violate the Sherman Act?[252] As a starting point, it is useful to note that the HD DVD Promotion Group is not in the same legal position as the BDA with respect to the Sherman Act. Shortly after Warner Brothers abandoned HD DVD, support for the format was terminated. Section 2 of the Sherman Act applies only to monopolization; since the HD DVD Promotion Group's efforts were ineffective, they never obtained monopoly power and thus cannot be liable under Section 2. Blu-ray, however, currently occupies the entire market for high-definition media formats. As monopolists in this relevant market, they are subject to both sections of the Sherman Act.

249. Sweeting & Hettrick, *supra* note 9.

250. *See supra* notes 10–13 and accompanying text.

251. *See supra* notes 14–17 and accompanying text.

252. The analysis under the Sherman Act is heavily factual. Because the purposes for and the results of the exclusive dealing contracts were typically not made public, most of the analysis that follows is based on hypothetical business and efficiency effects. This analysis is not intended to be conclusive, but instead, is designed to create a framework under which the actual competitive effects can be considered. Further, based on the relative positions of the format consortia and movie studios, the hypothetical effects in this Note are the ones most likely to be presented.

An exclusive dealing arrangement[253] between a movie studio and a specific format consortium can be thought of most succinctly as a requirements contract in which the movie studio agrees to purchase all licenses to create high-definition movie discs from only one of the format consortia. This is analogous to a retailer agreeing to purchase all tape products from only a single manufacturer.[254] The dangers of such an arrangement are the same as the dangers of a typical exclusive dealing arrangement: such conduct may act to foreclose the market to other potential competing sellers by locking up potential buyers.[255]

The customers of the format consortia are the movie studios, who license the format technology to distribute a movie. For example, a movie studio that represents 30 percent of the movie market also purchases approximately 30 percent of the format licenses. Thus, an exclusive dealing contract with this studio prevents the rival format from licensing to 30 percent of the market's potential licensees. The market for licensing formats, thus, can be approximated by the market for motion pictures. Table 1 shows the U.S. movie market shares for the six biggest movie studios, in gross revenue, from 2005 to 2008. Tables 2 and 3 incorporate the data from table 1 to show the market shares of HD DVD and Blu-ray, with respect to the six biggest movie studios, over the course of the format war. To reiterate, these tables do not represent market shares in terms of sales numbers; instead, they represent each format's strength with respect to the six largest movie studios.

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253. This arrangement, on the exterior, is vertical in nature, as the format consortia do not compete with the movie studios. This is partially a fiction, however, as the movie studios are members of the controlling board for each of the formats. In this sense, the parties are *both* vertical *and* horizontal. The law on this is not entirely settled. *See* HOLMES, *supra* note 134, § 2:14. Because the agreement is not designed to affect competition between the movie studios, this Note will consider the arrangement to be vertical in nature.

254. *See, e.g.*, LePage's Inc. v. 3M, 324 F.3d 141, 147 (3d Cir. 2003).

255. *See supra* Part III.D.

TABLE 1. Major Movie Studio Market Shares

Studio	*2005 Percent Share*[256]	*2006 Percent Share*[257]	*2007 Percent Share*[258]	*2008 Percent Share*[259]
Warner Brothers[260]	20.4	14.3	19.7	18.4
Paramount	9.4	10.3	15.5	16.4
Disney[261]	12.5	16.2	15.3	10.5
Sony/Columbia[262]	10.4	18.6	12.9	13.2
Universal[263]	11.4	10.2	12.2	12.4
Fox[264]	15.3	17.0	11.9	12.7
Totals	79.4	86.6	87.5	83.6

256. Box Office Mojo, Market Share and Box Office Results by Movie Studio, http://www.boxofficemojo.com/studio/ (follow "2005" hyperlink) (last visited Nov. 19, 2009).

257. *Id.* (follow "2006" hyperlink).

258. *Id.* (follow "2007" hyperlink).

259. *Id.* (follow "2008" hyperlink).

260. "Warner Brothers" includes New Line for the 2005, 2006, and 2007 data.

261. "Disney" is also known as "Buena Vista" and includes Miramax for the 2005 and 2007 data.

262. Throughout this Note, the data representing Sony and Columbia will be referred to as "Sony."

263. "Universal" includes Focus Features for the 2006 and 2008 data and Rogue Pictures for the 2007 data.

264. "Fox" refers to 20th Century Fox and includes Fox Searchlight for the 2006, 2007, and 2008 data.

TABLE 2. Studio Support for HD DVD[265]

Year	*Studio Supporters*	*Exclusive Supporters*	*Total Percent Share*	*Exclusive Percent Share*
2005 (Oct.)[266]	Warner, Paramount, Universal	Warner, Paramount, Universal	41.2	41.2
2005 (End)	Warner, Paramount, Universal	Universal	41.2	11.4
2006	Warner, Paramount, Universal	Universal	34.8	10.2
2007 (Aug.)[267]	Warner, Paramount, Universal	Universal	47.4	12.2
2007 (End)	Warner, Paramount, Universal	Paramount, Universal	47.4	27.7
2008 (Jan.)[268]	Warner, Paramount, Universal	Paramount, Universal	47.2	28.8
2008 (End)	Paramount, Universal	Paramount, Universal	28.8	28.8

265. These data are based on statistics from table 1. Market shares in tables 2 and 3 do not total 100 percent because these tables include data from only the six biggest movie studios.

266. This period extends until October 2005, when Warner and Paramount announced they would support both formats. *See supra* note 91 and accompanying text.

267. This period extends until August 2007, when Paramount agreed to exclusively support HD DVD. *See supra* note 92 and accompanying text.

268. This period extends until January 4, 2008, when Warner Brothers agreed to exclusively support Blu-ray. *See supra* note 97 and accompanying text.

TABLE 3. Studio Support for Blu-ray[269]

Year	*Studio Supporters*	*Exclusive Supporters*	*Total Percent Share*	*Exclusive Percent Share*
2005 (Oct.)[270]	Disney, Sony, Fox	Disney, Sony, Fox	38.2	38.2
2005 (End)	Disney, Sony, Fox, Warner, Paramount	Disney, Sony, Fox	68.0	38.2
2006	Disney, Sony, Fox, Warner, Paramount	Disney, Sony, Fox	76.4	51.8
2007 (Aug.)[271]	Disney, Sony, Fox, Warner, Paramount	Disney, Sony, Fox	75.3	40.1
2007 (End)	Disney, Sony, Fox, Warner	Disney, Sony, Fox	59.8	40.1
2008 (Jan.)[272]	Disney, Sony, Fox, Warner	Disney, Sony, Fox	54.8	36.4
2008 (End)	Disney, Sony, Fox, Warner	Disney, Sony, Fox, Warner	54.8	54.8

269. These data are based on statistics from table 1.

270. This period extends until October 2005, when Warner and Paramount announced they would support both formats. *See supra* note 91 and accompanying text.

271. This period extends until August 2007, when Paramount agreed to exclusively support HD DVD. *See supra* note 92 and accompanying text.

272. This period extends until January 4, 2008, when Warner Brothers agreed to exclusively support Blu-ray. *See supra* note 97 and accompanying text.

1. Initial Exclusivity

In 2005, when each format had exclusive support from three of the studios, HD DVD's supporters represented 41.2 percent of the movie market, and Blu-ray's supporters represented 38.2 percent of the market.[273] The details regarding these arrangements are not available. The HD DVD Promotion Group faces potential liability under Section 1 of the Sherman Act, while the BDA may be liable under both Section 1 and Section 2.

Under a Section 1 analysis, the first issue that an antitrust plaintiff must face is showing that the movie studios and format consortia entered into a common course of anticompetitive conduct.[274] It is possible that exclusivity was not the result of an agreement but instead of an independent, nonbinding pledge from the movie studios. Possible motivation for such self-limiting behavior includes attempting to garner support for one of the formats in order to avoid a format war or perceiving some competitive advantage of one of the formats. A unilateral choice by a movie studio[275] cannot be grounds for Sherman Act liability for a format consortium—Section 1 requires a "contract, combination . . . or conspiracy,"[276] while Section 2 cannot impose liability on a format consortium for the unilateral acts of a nonmonopolist movie studio. It is also possible that the movie studios explicitly agreed to produce their movies in only one of the rival formats—this is a contract to engage in a common course of anticompetitive conduct that Section 1 is designed to deal with.

If it is shown that the format consortium and movie studio did commit to a common course of anticompetitive conduct, a court would then determine whether the conduct unreasonably restrained trade.[277] Because exclusive dealing is not per se illegal, the analysis would be performed under the factually intensive rule-of-reason standard.[278] Initially, as shown in the "2005 (Oct.)" row of tables 2 and 3,[279] the exclusive dealing contracts foreclose "the roughly 40% or 50% share usually required in order to establish a [Section 1] violation."[280] This is not conclusive,

273. *See supra* tbls.2 & 3.

274. *See supra* note 115 and accompanying text.

275. A horizontal agreement among movie studios to support a specific format could support antitrust liability for the studios; this, however, is not the subject of this Note.

276. 15 U.S.C. § 1 (2006).

277. *See id.*

278. *See supra* note 162 and accompanying text.

279. *See supra* tbls.2 & 3 (showing exclusive movie studio support for HD DVD and Blu-ray at 41.2 percent and 38.2 percent, respectively).

280. United States v. Microsoft Corp., 253 F.3d 34, 70 (D.C. Cir. 2001) (citing Dennis W.

however, and several factors will have to be considered.[281] A court will also look at the nature of the business before and after the restraint, as well as the restraint's probable effects. The purpose in adopting the restraint will also be relevant.[282] In this case, the exclusive dealing arrangements had both procompetitive and anticompetitive factors that affect whether the format consortia are liable under Section 1.

Since Section 1 is not designed to prevent contracts, combinations, or conspiracies that increase efficiency or promote competition, procompetitive factors will be highly relevant. These exclusive dealing contracts existed in 2005; the first movies in either format were not released until the middle of 2006. At such an early stage in the development process, both the format consortia and the movie studios had significant, procompetitive reasons for entering into such contracts.

A movie studio would benefit in many ways by agreeing to produce movies in a single format. First, it would be able to affect the development of the format. By agreeing to exclusively support a format early in its development, the movie studio would have a greater chance of incorporating a specifically desired feature into the format. For example, Disney may have wanted interactive trivia games for children to become part of the Blu-ray format; exclusively supporting the format in the development stages would increase the chance of this feature being added. Second, movie studios could prepare their own manufacturing, supplier, and distribution efforts. While the process of producing HD DVDs may share common characteristics with that of standard DVDs, producing Blu-ray was an entirely new process.[283] Exclusively supporting the format at an early stage would allow movie studios to prepare their own manufacturing processes so they could begin selling high-definition discs as soon as the format was complete. Third, the high-definition media formats included interactive features, such as downloadable content, that were entirely new. Movie studios would benefit from acquiring information about these features with enough time to fully integrate them into their products.

The format consortia would also benefit from such an exclusive arrangement. Like many high-technology industries, the process of developing a new media format is extremely expensive. Acquiring

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Carlton, *A General Analysis of Exclusionary Conduct and Refusal to Deal—Why* Aspen *and* Kodak *Are Misguided*, 68 ANTITRUST L.J. 659 (2001)).

281. *See supra* note 126 and accompanying text.

282. *See supra* note 127 and accompanying text.

283. *See supra* Part II.A.4.

exclusive supporters would help ensure that the format consortia would be able to recoup their expensive research and development costs once the format went to market. Without this ability, the format consortia would be less likely to fully and rigorously develop the formats. Further, the high-definition movie market is characterized by high fixed costs and strong network effects.[284] Consumers must make a significant investment in order to adopt one of the next-generation formats. Exclusive support from movie studios provides confidence to consumers that an adequate amount of content will be available for purchase, helping to cost-justify their expensive investment.

These exclusive dealing arrangements had anticompetitive effects as well. As noted in Part III.E, high-technology markets are characterized by rapid rates of change. Antitrust policy must carefully consider this when determining whether a restraint is reasonable. At such an early stage in development, it is possible that a new entrant into the market would try to become the industry standard; indeed, the market saw products that would allow the formats to be compatible with each other in 2007.[285] The exclusive dealing arrangements may have operated to suppress the rate of technological advance by preventing new products from being developed. Also, an antitrust plaintiff would argue that the exclusive dealing arrangements, like those in *LePage's*, operated to "cut [competitors] off from key . . . pipelines necessary to permit [them] to compete profitably."[286] Locking up potential licensees in the market would prevent the rival format from successfully licensing its product. Further, the anticompetitive effect of such agreements was magnified by the network effects of the market. While no movie studio possesses more than approximately 20 percent of the movie market, a contract locking up even a single studio significantly affects the market. Such exclusivity causes consumers and companies to place more value on a format, which in turn is likely to cause even more support for the format, without regard to any actual technological advantage. This could greatly hinder the development of competing technologies.

The format consortia would counter that the agreements here were structured to avoid many of these anticompetitive effects. Even before the exclusive dealing arrangements with the movie studios, most major computer and electronics companies had already declared support for one

284. *See supra* Part III.E.1.
285. *See supra* notes 6–8 and accompanying text.
286. LePage's Inc. v. 3M, 324 F.3d 141, 160 (3d Cir. 2003).

of the formats. Combined with the high research and development costs, this natural barrier to entry makes it unlikely that a new format developer would have the ability to adequately enter the market and introduce a new product. Also, the agreements were structured to minimize the harm on the rate of technological advance. While the exclusive dealing agreements prevented movie studios from producing in the rival high-definition media format, they did not affect other movie-viewing options such as Internet streaming or cable. Thus, the agreements did not hamper technological advances in the physical media market because a new entrant was unlikely to appear, nor did they affect the rate of technological advance of digital movie-viewing options.

On balance, these exclusive dealing arrangements were likely procompetitive agreements that did not violate Section 1 of the Sherman Act. The agreements did have some negative effects on the rate of technological advance as magnified by network effects. At such an early point in the market's life, however, the arrangements allowed the format consortia to guarantee that they would recoup their high research and development costs and allowed the movie studios to provide input on the development of the format. Further, many of the negative effects on innovation were avoided by the structure of both the agreements and the market. Thus, both format consortia would likely escape liability under Section 1.

The BDA's liability under Section 2 depends, to some degree, on the result of the Section 1 claim. If it is found that the exclusive dealing contracts were a procompetitive, reasonable restraint of trade, the Section 2 claim can be summarily dismissed. This is because, as stated by the Ninth Circuit, "if conduct alleged in support of [a] Section 1 claim is not deemed anticompetitive, [the] same conduct alleged in support of [a] Section 2 claim must also fail."[287] If the Section 1 claim fails because no commitment to an anticompetitive purpose is found, however, the conduct can still support a Section 2 claim, as Section 2 can be violated by unilateral conduct. In determining whether the conduct violates Section 2, a court will have to determine whether the BDA "willfully" acquired monopoly power.[288] This analysis raises basically the same considerations that were factored in during the above rule-of-reason analysis; thus, the BDA will likely also escape liability under Section 2 of the Sherman Act.

287. Sicor Ltd. v. Cetus Corp., 51 F.3d 848, 856 (9th Cir. 1995) (citing Williams v. I.B. Fischer Nev., 999 F.2d 445, 448 (9th Cir. 1993)).

288. *Id.* at 855.

2. HD DVD's Agreement with Paramount Pictures

By the latter part of 2007, the market had significantly changed. Blu-ray was outselling HD DVD by almost two to one.[289] Blu-ray also had a substantial market share lead with respect to movie studios; Paramount Pictures and Warner Brothers had added support for Blu-ray while continuing to support HD DVD, and no exclusive supporters of Blu-ray had added support for HD DVD. Blu-ray was supported by 75.3 percent of the movie studios and exclusively supported by 40.1 percent; HD DVD's shares were 47.4 percent and 12.2 percent, respectively.[290] In August 2007, the HD DVD Promotion Group entered into an exclusivity agreement with Paramount Pictures in which Paramount would cease its support of Blu-ray.[291] This agreement helped to even out the race to some extent, leaving Blu-ray with 59.8 percent (40.1 percent exclusive) and HD DVD with 47.4 percent (27.7 percent exclusive) at the end of 2007.[292]

As described above, because HD DVD failed, the HD DVD Promotion Group cannot be liable for monopolization under Section 2. Thus, the format consortium's liability for the contract between it and Paramount is limited to violations for unreasonable restraints of trade under Section 1 of the Sherman Act. A Section 1 plaintiff would not have the same difficulty in showing a commitment to a common course of anticompetitive conduct, as was discussed in Section C.1 of this part; both parties publicly acknowledged an exclusive dealing contract.

Because exclusive dealing is not a per se violation, the analysis of whether the restraint is unreasonable is again performed under the rule-of-reason approach.[293] Initially, the degree of market foreclosure is highly relevant; indeed, this is one of the main antitrust concerns with exclusive dealing contracts. The agreement between HD DVD and Paramount locked up 15.5 percent of the market, bringing HD DVD's total exclusive support to 27.7 percent; this is far below the 40 to 50 percent usually required to support a Section 1 violation.[294] This is not the end of the analysis, however, as the rule-of-reason standard is flexible and takes all relevant factors into consideration.

In *Continental T.V., Inc. v. GTE Sylvania Inc.*, Sylvania adopted a new

289. *See Blu-ray DVDs Outsell HD-DVDs*, *supra* note 95.
290. *See supra* tbls.2 & 3.
291. *See supra* notes 10–13 and accompanying text.
292. *See supra* tbls.2 & 3.
293. *See supra* note 162 and accompanying text.
294. United States v. Microsoft Corp., 253 F.3d 34, 70 (D.C. Cir. 2001) (citing Carlton, *supra* note 280).

product distribution system in response to a decline in its market share to only 1 or 2 percent.[295] In an effort to attract more aggressive and competent retailers, Sylvania began to sell its products to a smaller and more select group of retailers that would sell only Sylvania products.[296] The Court articulated several ways that vertical agreements, such as this one, can promote competition:

> Vertical restrictions promote interbrand competition by allowing the manufacturer to achieve certain efficiencies in the distribution of his products. These "redeeming virtues" are implicit in every decision sustaining vertical restrictions under the rule-of-reason. Economists have identified a number of ways in which manufacturers can use such restrictions to compete more effectively against other manufacturers. For example, new manufacturers and manufacturers entering new markets can use the restrictions in order to induce competent and aggressive retailers to make the kind of investment of capital and labor that is often required in the distribution of products unknown to the consumer. Established manufacturers can use them to induce retailers to engage in promotional activities or to provide service and repair facilities necessary to the efficient marketing of their products.[297]

While these reasons were fact specific to the particular arrangement in the case, they demonstrate some of the "redeeming virtues" that can save a seemingly restrictive vertical agreement, such as the exclusive dealing contracts that are the subject of this Note.

Under the rule-of-reason standard, there are several factors that support a finding that the agreement between HD DVD and Paramount was anticompetitive. First, unlike the procompetitive benefits created by the initial exclusivity agreements, such as developmental harmony and preparation for production and distribution efforts, the agreement here lacks such benefits. The technology was already finalized; Paramount could do nothing to affect development or incorporate desired features. Paramount's manufacturing and distribution efforts were already established and operating, so exclusivity did not help prepare them to go to market as it did with the initial agreements. Unlike the products sold in *Barry Wright Corp. v. ITT Grinnell Corp.*, which needed to be purchased significantly ahead of time due to legitimate production and inventory concerns,[298] the products here are intangible licenses that require no such

295. Cont'l T.V., Inc. v. GTE Sylvania Inc., 433 U.S. 36, 38 (1977).

296. *Id.*

297. *Id.* at 54–55 (citation omitted).

298. Barry Wright Corp. v. ITT Grinnell Corp., 724 F.2d 227, 237 (1st Cir. 1983).

lead time. Further, because HD DVD was already an established product, the agreements were not designed to "induce competent and aggressive retailers to make the kind of investment of capital and labor that is often required in the distribution of products unknown to the consumer."[299] Moreover, because Paramount Pictures was already supporting the HD DVD format prior to this agreement, the agreement did little to assist the backers of HD DVD in recouping research and development costs. Finally, as discussed above, the anticompetitive effect of this agreement was magnified by the strong network effects of the high-definition media format market.

There are some factors, however, that may support finding the agreement was procompetitive. In *Continental T.V.*, the exclusive dealing arrangement was designed to build a group of retailers that would aggressively market Sylvania products in order to regain lost market share.[300] Similarly, the backers of HD DVD would argue that exclusivity with Paramount was established so that Paramount would use best efforts in HD DVD promotional activities to boost HD DVD's consumer acceptance. Further, these exclusive dealing arrangements, in combination with the market's network effects, helped solidify market share for the format such that consumers would be willing to invest in the expensive HD DVD player; without a minimum threshold of exclusive content, consumers would have little incentive to adopt HD DVD.

The HD DVD Promotion Group would emphasize that the exclusive dealing contracts foreclosed only a small portion of the market, insufficient to significantly affect competition, like the contract in *Nashville Coal*.[301] The peculiarities of the high-definition media format market, however, weaken this argument. As discussed above, the strong network effects in this market magnify the anticompetitive effects of any exclusivity agreement. An agreement that locks up even a small percentage of the market can have significant ramifications as additional consumers and business entities place a higher value on the product. Thus, while the specific percentage foreclosed may typically be too small to affect competition, this argument is likely to fail in this market.

The HD DVD Promotion Group would also have a strong argument for considering the dynamic, fast-paced nature of the market. Even if HD DVD's agreement with Paramount was designed solely to knock Blu-ray

299. *Cont'l T.V.*, 433 U.S. at 55.
300. *Id.* at 38.
301. Tampa Elec. Co. v. Nashville Coal Co., 365 U.S. 320, 323–24 (1961).

out of the market, it may be *procompetitive* when considering the growing field of Internet streaming services. Internet streaming services are predicted to become the dominant product in the market. If HD DVD and Blu-ray had continued to battle, neither format may have gained enough consumer support to compete effectively against this impending threat. The agreement thus ensured that one of the high-definition media formats would exist to compete within the future market in which Internet streaming would be a viable competitor.

Paramount publicly announced that the motivation for exclusively supporting HD DVD was lower manufacturing costs and HD DVD's superior technology.[302] Its purpose for entering into the agreement is relevant: "This is not because a good intention will save an otherwise objectionable regulation or the reverse; but because knowledge of intent may help the court to interpret facts and to predict consequences."[303] It is possible that Paramount's reported motivations were legitimate and that sound business judgment supported a decision to exclusively support HD DVD. The Sherman Act would not necessarily condemn this. Why then, one may ask, was the decision made only in exchange for $150 million in incentives from the backers of HD DVD? Even if product superiority did affect Paramount's decision, a fact-finder could easily determine that they were also motivated by financial and exclusionary reasons.

The agreement here was anticompetitive in that it lacked many of the developmental and production efficiencies present in the initial agreements discussed in Section C.1 of this part. There are procompetitive strengths here as well, however, as the agreement incentivized Paramount to use best efforts in promotion and allowed HD DVD to gain strength for the upcoming competition with Internet streaming. On balance, though, the agreement between HD DVD and Paramount was probably an unreasonable restraint of trade and thus illegal under Section 1 of the Sherman Act.

3. Blu-ray's Agreement with Warner Brothers

The beginning of 2008 saw the formats fairly close to each other in terms of market share: Blu-ray was supported by 54.8 percent of the movie studios (36.4 percent exclusive), and HD DVD was supported by 47.2 percent (28.8 percent exclusive).[304] In early January, however, Warner

302. *See* Press Release, Viacom Inc., *supra* note 93.
303. Bd. of Trade of Chi. v. United States, 246 U.S. 231, 238 (1918).
304. *See supra* tbls.2 & 3.

Brothers agreed to exclusively support Blu-ray, drastically turning the tide of the war.[305] Blu-ray was now exclusively supported by Disney, Sony, Fox, and Warner Brothers (54.8 percent); HD DVD was exclusively supported by Paramount and Universal (28.8 percent).[306]

Although the motivations and details of the Warner Brothers and Blu-ray agreement were not publicly disclosed, it is virtually identical to the one between the backers of HD DVD and Paramount. Warner Brothers stated that it chose Blu-ray because it was the "clear consumer winner," while insiders reported that Warner Brothers received financial incentives in the form of marketing.[307] If Warner was simply supporting the format chosen by the public, why was any agreement or incentive necessary? Warner Brothers could likely predict that their decision would end the format war, and economic self-interest would dictate ending a damaging format war and supporting the format that consumers had "clearly" chosen, independently of any incentives offered by the format consortium. Motivations are relevant to the analysis, however, only insofar as they affect the economic effects of the agreement.

Under Section 1 of the Sherman Act, the rule-of-reason analysis of Blu-ray's liability is virtually identical to that of the agreement between HD DVD and Paramount discussed in Section C.2. Indeed, the case against Blu-ray is even stronger, as their exclusive dealing contracts aggregated to foreclose 54.8 percent of the market from competitors.[308] To put the final nail in the proverbial coffin, the anticompetitive effect of this agreement is clear, as the HD DVD format was abandoned only six weeks later.[309]

Because Blu-ray is now the only format within the high-definition movie format market, it has attained monopoly status; thus, it is also subject to Section 2 of the Sherman Act.[310] Blu-ray's monopoly power within the relevant market satisfies the first prong of a Section 2 violation. Under the second prong, a plaintiff must show "willful acquisition . . . of that power as distinguished from growth or development as a consequence

305. *See supra* notes 97–100 and accompanying text.

306. *See supra* tbls.2 & 3.

307. *See supra* notes 98–99 and accompanying text.

308. *See* United States v. Microsoft Corp., 253 F.3d 34, 70 (D.C. Cir. 2001) (citing Carlton, *supra* note 280) (stating that foreclosure of 40 to 50 percent is usually required). Further, the Supreme Court has supported aggregation of the effects from multiple contracts. *See* Standard Oil Co. of Cal. v. United States, 337 U.S. 293, 308–09 (1949). One could argue that aggregation is particularly appropriate in a market such as this one, in which no individual movie studio makes up more than 20 percent of the market.

309. *See* Press Release, Toshiba Corp., *supra* note 109.

310. 15 U.S.C. § 2 (2006).

of a superior product, business acumen, or historic accident."[311] In determining willfulness, courts consider factors similar to those under the rule-of-reason analysis.[312] Thus, if the court were to find that the agreement was an unreasonable restraint of trade under Section 1, it would have little trouble finding that the BDA willfully acquired its monopoly power, violating Section 2 as well.

An antitrust plaintiff will argue that the BDA's conduct here is closely analogous to the conduct in *LePage's* and *Microsoft*. In *LePage's*, 3M's exclusionary conduct prevented competitors from dealing with essential retailers needed to be profitable;[313] in *Microsoft*, Microsoft's conduct foreclosed to rivals a "substantial percentage of the available opportunities for browser distribution."[314] Similarly, the BDA's exclusionary conduct locked up a majority of the potential licensees in the market, preventing HD DVD from gaining enough market share to be profitable. In *LePage's*, the anticompetitive effect was clear: 3M's sales increased, while LePage's dropped significantly.[315] In *Microsoft*, the conduct's effect was to keep the usage of any competing browser below the "critical level" needed to threaten Microsoft's monopoly.[316] Here, the exclusive dealing arrangements, in combination with the market's strong network effects, caused the BDA's almost-immediate monopolization of the high-definition media format market, pushing out the only other competitor.

The BDA would counter with many of the arguments discussed above in Section C.2. Moreover, the transparent tape market is very different from the high-tech market: it lacks fast-paced technological change and an impending threat of competition. Here, the BDA would argue that the market for high-definition media formats would soon face significant competition from digital streaming options. Because of this, the BDA's exclusionary conduct actually increased consumer welfare by allowing Blu-ray to gain enough market strength and consumer acceptance to successfully compete with the impending threat of digital streaming.

The BDA was already the market leader in the high-definition media formats market, and it is highly likely that they would have won the format war even without entering into this exclusive dealing contract. This would not be a violation, however, because Section 2 does not prevent

311. United States v. Grinnell Corp., 384 U.S. 563, 570–71 (1966).

312. *See supra* notes 134–37 and accompanying text.

313. LePage's Inc. v. 3M, 324 F.3d 141, 159–60 (3d Cir. 2003).

314. United States v. Microsoft Corp., 253 F.3d 34, 70 (D.C. Cir. 2001).

315. *LePage's*, 324 F.3d at 161–62.

316. *Microsoft*, 253 F.3d at 71.

"acquisition . . . as a consequence of a superior product, business acumen, or historic accident."[317] The BDA's conduct, however, was likely "willful" and thus a violation of Section 2 of the Sherman Act.

D. Anticompetitive Effect

At the end of the day, what harm was done? While the format war was in full swing, consumers were hesitant to purchase either technology for fear that it would become obsolete.[318] The use of exclusive dealing contracts, one may say, simply expedited the end of a war that would eventually come naturally due to strong network effects and the market's winner-takes-all nature. The market and consumers, thus, were arguably better off in finally being able to confidently purchase the next-generation high-definition media format.

What harm was the Sherman Act designed to prevent? Eleanor Fox presents two different theories reflected in American jurisprudence. Prior to the 1970s, "antitrust law was a mechanism to preserve the competitive functioning of the market, to minimize privilege and power, and to safeguard competition on the basis of merit."[319] Another view of anticompetitive effect, which she states has greater support today, is one supported by Timothy Muris: "the ability to raise price and restrict output," reducing consumer surplus.[320] Fox argues that courts are not always clear which of the two theories of anticompetitive effect they are using. For example, in *Microsoft*, while some language supports the consumer surplus view,[321] Fox argues that the court suggests that "unreasonable and unjustified exclusionary conduct by a dominant firm is anticompetitive," without regard to direct surplus effects.[322]

Which view is more appropriate? As one court stated: "The antitrust laws are concerned with the competitive *process*, and their application does not depend in each particular case upon the ultimate demonstrable consumer effect. A healthy and unimpaired competitive process is

317. United States v. Grinnell Corp., 384 U.S. 563, 570–71 (1966).

318. *See supra* notes 69–70 and accompanying text.

319. Eleanor M. Fox, *What Is Harm to Competition? Exclusionary Practices and Anticompetitive Effect*, 70 ANTITRUST L.J. 371, 376–77 (2002) (quoting Timothy J. Muris, *The FTC and the Law of Monopolization*, 67 ANTITRUST L.J. 693, 696 (2000)).

320. *Id.* at 380–82.

321. *Microsoft*, 253 F.3d at 58 ("The challenge for an antitrust court lies in stating a general rule for distinguishing between exclusionary acts, *which reduce social welfare*, and competitive acts, which increase it." (emphasis added)).

322. Fox, *supra* note 319, at 391.

presumed to be in the consumer interest."[323] Further, "the public [can] only benefit from free competition, 'even though that competition be an elimination bout.'"[324]

Consumers benefit from the *process* of competition, even in the absence of surplus effects, especially when innovation and technology factors are present. Because of the winner-takes-all, high-network-effects nature of the market, one of the formats was going to end up dominating the entire market. Which format became the necessary monopolist should have been determined by the merits of the formats; instead, it was based on exclusive dealing arrangements. Protecting the process of competition in this case would have led to consumer benefits while still resulting in the market being occupied by a single format. If competition was based on the formats' merits, each format consortium would have had incentive to (1) improve its format and increase the number of features; (2) strive for cheaper development and manufacturing processes, resulting in cheaper products for the consumer; and (3) create a hybrid disc containing both formats. Any short-term consumer surplus resulting from the expedited end of the format war may be outweighed by these long-term innovation harms.[325]

V. CONCLUSION

The Blu-ray and HD DVD technologies are likely acquired mainly by movie enthusiasts. These enthusiasts are willing to make the significant investment associated with adopting the technology: purchasing a pricey player, as well as a large, high-definition television. Because of this, these consumers are unlikely to respond to a small price increase by switching to standard DVDs. Moreover, Internet and cable streaming services are currently inadequate; services often offer low-definition content, provide rentals only, or lack newly released movies. Thus, one may conclude that high-definition media formats should be in their own relevant market. Considering the fast-paced, dynamic nature of this technology market, however, leads to a different conclusion. Over time, the fixed costs of adopting Blu-ray and HD DVD will go down. Simultaneously, streaming options, currently in their infancy, will improve greatly in quality and user experience. The consumer group purchasing high-definition media formats

323. Fishman v. Estate of Wirtz, 807 F.2d 520, 536 (7th Cir. 1986).

324. *Id.* at 537–38 (quoting Union Leader Corp. v. Newspapers of New England, Inc., 284 F.2d 582, 584 n.4 (1st Cir. 1960)).

325. *See* Gilbert & Tom, *supra* note 176, at 61 ("[C]onsumers may benefit in the short run, but the practice can have adverse impacts in the long term that more than offset the near-term benefits.").

will become more general, placing less value on the technological advantages of the formats. As this happens, customers will become much more likely to respond to a price increase by purchasing standard DVD or streaming products. Thus, these products are appropriately included in the relevant market.

Assuming the format consortia are found to have sufficient levels of market power, the initial agreements likely promoted competition and thus did not violate the Sherman Act. At such an early stage of development, before the formats had even been finalized, the agreements allowed movie studios to participate in the development process and affect each format's feature list. Also, the movie studios could prepare their own content development and manufacturing efforts, such that movies would be ready for release upon completion of the format. Further, while the agreements may have stifled innovation in a market already burdened with high natural barriers to entry, they left other technological development, like Internet streaming, free to develop.

The latter agreements, however, lacked many of these procompetitive effects and probably violated the Sherman Act. The agreements, both between the HD DVD Promotion Group and Paramount Pictures, and between the BDA and Warner Brothers, came long after the formats had been completely developed; thus, the developmental efficiencies of the initial exclusivity agreements did not exist. Instead, the agreements operated primarily to foreclose a portion of the market's potential licensees from the rival format in an effort to control the market.

High-technology markets are characterized by high research and development costs, strong network effects, and high rates of technological change. As discussed in this Note, it is important for antitrust jurisprudence to adequately weigh these factors in determining whether an actor's conduct promotes or harms competition. In certain circumstances, high market concentration is both natural and necessary in order to recover research costs, suggesting a more circumspect role for antitrust policy. At other times, conduct that threatens to reduce the rate of technological change and innovation, as magnified by the market's network effects, suggests increased antitrust vigilance.

Without the exclusive dealing agreements discussed in this Note, there is no telling how the format war would have ended. Movie studios could have supported HD DVD, as it was the first mover and its technology was fully developed upon market release. Movie studios could have supported Blu-ray, as it had superior storage capacity and tougher antipiracy measures. These technological and competitive advantages, however, were practically irrelevant; initial agreements were made before specifications were even finalized, and subsequent agreements were made based on financial incentives. This is not the competition on the merits that the Sherman Act was designed to protect.