

**Before the
COPYRIGHT ROYALTY BOARD
LIBRARY OF CONGRESS
Washington, D.C.**

In re

DETERMINATION OF RATES
AND TERMS FOR MAKING AND
DISTRIBUTING PHONORECORDS
(PHONORECORDS III)

Docket No. 16-CRB-0003-PR (2018-2022)

**EXPERT REPORT OF
MARC RYSMAN, PH.D.**

Witness for Copyright Owners

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I. INTRODUCTION

A. QUALIFICATIONS

1. My name is Marc Rysman and I am a Professor of Economics at Boston University, where I teach courses on industrial organization, econometrics, antitrust, and regulation. I received my Ph.D. in Economics from the University of Wisconsin at Madison in 1999. My research focuses on industrial organization and competition, and the related issues of antitrust and regulation. I have investigated a variety of industries, including telecommunication, Yellow Pages directories, payment cards, and consumer electronics. My research is primarily empirical, ranging from research that is heavily motivated by theory to work that is primarily descriptive.
2. Since 2009, I have been a Visiting Scholar at the Federal Reserve Bank of Boston. I have been a Visiting Associate Professor at MIT (2007-2008), a Visiting Scholar at Harvard University (2003-2004 and 2014-2015), a Visiting Fellow at Northwestern University (2003), and a Visiting Scholar at the Federal Reserve Bank of Minneapolis (2003).
3. I have won numerous teaching and research awards, including the Neu Family Award for Teaching Excellence in Economics (2006 and 2012), Networks, Electronic Commerce and Telecommunications (NET) Institute Grants (2003, 2006, and 2009), National Science Foundation Grants (2001, 2004, 2006, and 2009), and the Christensen Award in Empirical Economics (1997, with Phil Haile).
4. I have published numerous articles in top peer-reviewed journals in the field of Economics, including in the *Journal of Political Economy*, *Review of Economic Studies*, *Journal of Economic Perspectives*, *Journal of Industrial Economics*, *International Journal of Industrial Organization*, and *RAND Journal of Economics*. I am an Editor of

the *RAND Journal of Economics*. A copy of my curriculum vitae, which includes a list of my publications, is attached as Appendix A to this report.

5. I have served as an expert in the Web IV proceedings to determine the appropriate statutory rate for the performance of sound recordings on non-interactive streaming platforms. I have also served as a consultant within other platform industries and for the Federal Communications Commission. A list of cases in which I have testified in the past four years is listed in Appendix B.

B. ASSIGNMENT

6. I have been retained by Counsel for the National Music Publishers' Association ("NMPA") and Nashville Songwriters Association International ("NSAI") (collectively, "Copyright Owners") to opine on the proper rate and terms for compulsory mechanical licenses for making and distributing phonorecords in the United States for the period 2018-2022.
7. I understand that the mechanical license rates and terms to be determined in this proceeding concern not just physical products and permanent digital downloads of music, but also the interactive streaming¹ of music on digital services including Amazon, Apple Music, Google Play, Spotify and numerous other existing and forthcoming services (collectively referred to as "services"). My analysis focuses on rates and terms for interactive streaming in light of the policy objectives of 17 U.S.C. § 801(b)(1).
8. My findings are based on information available to me at the time this report was prepared. Data, documents, testimony, or other materials may become available subsequent to filing this report that could lead me to supplement my conclusions.

¹ The term "interactive streaming" refers to those services that offer interactive streams and/or limited downloads, unless otherwise noted.

9. I am being compensated for the time I spend on this matter at my standard hourly rate. My compensation is not contingent upon the substance of my opinions or the outcome in this matter. I have been assisted by The Brattle Group, Inc., an economic research and consulting firm, whose staff has performed research under my direction.

C. ORGANIZATION OF REPORT

10. After summarizing my opinions in Section II, I lay out the economics of network industries in Section III. In Section IV, I discuss certain problems with a revenue-based royalty rate structure, problems that violate both principles of economics as well as the stated policy objectives and also how per-play and per-user rates are preferred. In Section V, I discuss the reasonableness of the proposed per-play and per-user rates given the policy objectives for this proceeding. In Section VI, I discuss the statutory policy objectives from an economic perspective.

II. SUMMARY OF OPINIONS

11. As discussed in detail in this report, my opinions include the following:
- Numerous economic features of the music streaming market lead streaming services to defer and displace revenue and profits.
 - A rate structure based around a revenue test is deeply unsuited to ensuring a fair return to rightsholders or achieving the policy objectives.
 - A rate structure based on per-play and per-user rate tests is reasonable and suited to the policy objectives.
 - Particularly in a thriving market such as the current interactive streaming market, recent effective per-play rates should be viewed as a floor, as they provide a fair income to services and cannot be considered disruptive to the growing industry that is

seeing numerous major new entrants. Effective royalty rates that have been paid by interactive streaming services provide valuable context and indicate that the Copyright Owners' proposed rates are reasonable.

III. THE ECONOMICS OF NETWORK INDUSTRIES AND DEFERRED PROFITS

12. I have reviewed the current statutory rate structure for mechanical royalties, and I believe that keeping the current structure in place for the coming rate term would not be consistent with my understanding of the statutory policy objectives governing the determination of the mechanical royalty rate that is the subject of this proceeding, or with economic principles.
13. In order to understand my view of the appropriate royalty rate structure for streamed music, it is helpful first to discuss several important economic features of this market, which lead streaming music services to defer and displace revenue and profits. In this report, I discuss four separate features of markets that explain why a firm may conclude that it is rational to charge prices that do not maximize current direct profits, but instead charge lower prices today in order to build a customer base that leads to greater long-run profitability (or greater long-run value) in the music service itself, or greater profitability from selling other products or services to its customers. These features are: (a) network effects, (b) economies of scale, (c) learning about consumers, and (d) switching costs.

A. ECONOMICS OF NETWORK EFFECTS

14. Network effects arise when a consumer's value of a good depends on how many other consumers also buy the good or how frequently other consumers use the good. For example, consumers value e-mail when other consumers also have e-mail accounts. Similarly, the value of YouTube depends on how many videos are uploaded to the

service, and the number of videos uploaded rises as more consumers use the service, thus increasing the value of YouTube as a service. This virtuous circle (or feedback loop) creates network effects, since consumers now care how many other consumers use YouTube, albeit indirectly, through the number of videos available.

15. The market for music streaming is characterized by network effects. Network effects operate through several channels:
 - Streaming services may allow users to follow the listening habits of their friends or of musicians and celebrities.² Spotify was an early adopter of the social media aspect of streaming services. The larger the number of consumers that use a social network, the more valuable it becomes.³
 - Services with more consumers will find it easier to negotiate with alternative delivery platforms,⁴ making their service more ubiquitous and more valuable. For instance, Apple states that “Every major automobile manufacturer has partnered with us in supporting CarPlay.”⁵ Spotify has also partnered with automobile manufacturers and

² The President of the United States, Barack Obama, recently released his personal playlist on Spotify, which became the most listened-to user-generated playlist on Spotify within one day of being released. See, Gardiner Harris, *President Obama’s Emotional Spotify Playlist Is a Hit*, The New York Times, (Aug. 14, 2016), <http://www.nytimes.com/2016/08/15/us/politics/president-obama-spotify-playlist.html>.

Apple iTunes’ website also has a section listing playlists for numerous celebrities. Popular Celebrity Playlist, Apple, <https://itunes.apple.com/WebObjects/MZStore.woa/wa/viewCelebritiesSeeAll?cc=us> (last accessed Oct. 19, 2016).

³ See, [REDACTED]

⁴ Firms that intermediate networked markets by matching buyers to sellers or matching advertisers to viewers, are sometimes called platforms. Music services are examples of platform firms because they match music to listeners. Platform markets often exhibit large firm tendencies, in part because large firms can more fully exploit network effects.

⁵ Apple CarPlay, The ultimate copilot, Apple, <http://www.apple.com/ios/carplay/> (last accessed Sept. 21, 2016).

is integrated into the dashboard controls of some Tesla,⁶ BMW,⁷ and Ford⁸ automobiles. Consumers can link Spotify to their Uber account and control music during their ride.⁹

- Large services tend to be able to negotiate for a wider selection of music. Furthermore, services are sometimes able to negotiate for exclusive rights to play some music. When musicians seek exclusive deals, they tend to favor larger services, since musicians benefit from the widest distribution of their music.¹⁰

B. ECONOMIES OF SCALE

16. Economies of scale exist when the average cost of producing a good declines as the firm produces more of the good. This typically happens when producing a good involves fixed costs. In such cases, large firms with higher output can produce at lower average cost than small firms with lower output.¹¹ Internet (or online) firms (e.g., e-commerce firms like Amazon; financial trading firms like E-Trade) are understood to exhibit

⁶ Spotify & Tesla, Spotify, https://support.spotify.com/us/using_spotify/play_on_stereo_tv_car/tesla/%20 (last accessed Oct. 18, 2016).

⁷ Spotify & BMW, Spotify, https://support.spotify.com/us/using_spotify/play_on_stereo_tv_car/bmw-integration/ (last accessed Oct. 18, 2016).

⁸ Candice Katz, *Hit the Road with Spotify in Ford Vehicles*, Spotify News (June 23, 2015), <https://news.spotify.com/us/2015/06/23/hit-the-road-with-spotify-in-ford-vehicles/>.

⁹ The Spotify Team & Diego Planas Rego, *Your Ride. Your Music*, Spotify (Nov. 17, 2014), <https://news.spotify.com/us/2014/11/17/uber/>.

¹⁰ According to Apple CEO Tim Cook, “Apple Music is the premiere destination for new artists and existing artists to launch their exclusive music.” See, Paul Resnikoff, *Music Industry Asks Apple to Stop Exclusives. Apple Vows to Continue Them...*, Digital Music News (Sept. 7, 2016), <http://www.digitalmusicnews.com/2016/09/07/apple-music-please-stop-exclusives/>.

¹¹ See, e.g., Dennis W. Carlton & Jeffrey M. Perloff, *Modern Industrial Organization* 36-40 (Boston, Pearson Addison Wesley 4th ed., 2005), (“Carlton & Perloff”).

important economies of scale.¹² More generally, platforms tend to have fixed costs, leading to economies of scale.

17. Music services, like many Internet media and other platform markets, exhibit economies of scale. The main costs for an Internet music service are server capacity, web and mobile interface, and access to content, such as music.¹³ Some services also employ a sales force to sell advertisements.¹⁴ A large fraction of these costs are fixed costs, in that they are expenditures to the services regardless of how many consumers the service serves. Besides royalty rates, which are at issue in this proceeding, much of the costs for an Internet music service are fixed.¹⁵ Thus, average cost declines with the number of users, which puts services in a position where growth in their user base is extremely valuable.

C. LEARNING ABOUT CONSUMERS

18. A music service can learn about consumers' individual preferences and behavior through its repeated interactions with those consumers. The more the service learns about a consumer, the better the service can tailor the consumer experience, which increases the service's value to the consumer and increases the stickiness of the consumer to the

¹² See, e.g., Jonathan D. Levin, *The Economics of Internet Markets* 1-2 (National Bureau of Economic Research, Working Paper No. 16852 March 2011).

¹³ Written Direct Statement of Simon Fleming-Wood, ¶ 22, Determination of Royalty Rates and Terms for Ephemeral Recording and Webcasting Digital Performance of Sound Recording, Docket No. 14-CRB-0001-WR (2016-2020) (Oct. 6, 2014), (discussing the time and costs involved in Pandora's roll out of its mobile delivery platform). See also, 2013 Form 10-K for Pandora Media, Inc., at 57-59.

¹⁴ See, e.g., 2013 Form 10-K for Pandora Media, Inc., at 5, 7.

¹⁵

service. The value of this user information enables the service to increase its revenue beyond what would otherwise be possible.¹⁶

19. In what ways does a service learn about consumers? Music services require consumers to sign up for an account. Tracking the usage of the account allows the service to understand the preferences of the users. For instance, a consumer who typically listens to hits from the 1980s is likely different in predictable ways from a consumer who listens to the very latest pop hits, who is again predictably different from someone who listens primarily to classical music. Also, the service can often determine if the person is listening on a computer or a mobile telephone, the time of day, and even location, providing additional actionable information about the consumer. Furthermore, users often provide some demographic information about themselves, such as gender and age.¹⁷
20. Services can use this information in several ways. One is to tailor the offerings of the service to consumers to make the service more valuable to them. For instance, Spotify provides an individualized weekly playlist to users called Discover Weekly that contains a list of new songs for the user to try. The list is determined by the listening habits and other characteristics of the user.
21. An agreement that I understand was produced by [REDACTED] in discovery in this proceeding provides one window into the extent to which data on streaming users are gathered and

¹⁶ Marcus Wohlsen, *Amazon's Next Big Business is Selling You*, Wired, (Oct. 16, 2012) <https://www.wired.com/2012/10/amazon-next-advertising-giant/>.

¹⁷ Speaking of Spotify, John Seabrook writes in *The Song Machine* that “its team has access to the enormous amount of data generated by Spotify users... Spotify knows what time of day users listen to certain songs, and in many cases their location, so programmers can infer what they are probably doing – studying, exercising, driving to work.” John Seabrook, *The Song Machine: Inside the Hit Factory* 288 (W. W. Norton ed., 2015).

mined. [REDACTED] agreement with the major label [REDACTED] shows [REDACTED] reporting of numerous points of data, including:

[REDACTED]

and also

[REDACTED]

22. Another way in which data is used is via advertising. Advertisers are willing to pay more per listener if listeners are well matched to the advertisers' products. To the extent that listening habits and other user-specific information reveal listeners' consumption patterns, services can target advertisements towards certain groups of consumers.¹⁹

Advertisers value the ability to reach targeted groups of consumers. For instance, Spotify

¹⁸ Agreement between [REDACTED].

¹⁹ Hugh McIntyre, *Advertising on Streaming Services is Gradually Getting More Sophisticated*, Forbes (July 25, 2015), <http://www.forbes.com/sites/hughmcintyre/2015/07/25/8844/#209586fc5dbd> ("Spotify recently announced that brands will be able to target people based on their mood or activity . . . [m]usic is an emotional driver for action, and if companies can pitch the right thing at the right time—popcorn for those listening to famous movie songs or perhaps an online course to students needing background noise for studying—they might be able to make a sale down the line.").

Marcus Wohlsen, *Amazon's Next Big Business is Selling You*, Wired, (Oct. 16, 2012), <https://www.wired.com/2012/10/amazon-next-advertising-giant/> ("The opportunity is huge" says Marcus Pratt, director of insights and technologies for Mediasmith, a San Francisco digital ad agency. "With rich data on its users, Amazon is uniquely positioned to match advertisers with shoppers.").

promotes itself to advertisers arguing that it can target consumers based on which playlists they access, when consumers listen, as well as demographic data such as age, gender, location, language, and listening device.²⁰

23. Pandora, a participant in this proceeding which has announced its intention to launch an interactive streaming service in the near future, touts its advertising targeting, which is based on gathering “over 1 billion data points a day”:

Pandora has been personalizing the listening experience for over a decade, developing first-in-class methods to cultivate quality audiences for advertisers. With over 78M active people persistently logged-in on a monthly basis, we observe over 1 billion data points every day. This is the power of our logged-in user base. Our listener data is always informing and updating Pandora’s targeting capabilities. That’s how we ensure our partners are engaging with the most relevant, high-value audiences.

Pandora provides quality, scale and simplicity for reaching audiences. With a 100% registered user base, we combine our rich 1st, 2nd and 3rd-party data to deliver highly engaged target audiences. We have over 1,300 audience segments to date.

Whether you want to reach fitness-driven moms in Atlanta or mobile Gen Z in Sioux Falls, Pandora’s targeting platform allows us to zero in on your audience. This precision targeting, combined with our massive scale, makes your ad dollars go further. So every impression is a smart impression. The proof is in the data. More of who you want.²¹

D. SWITCHING COSTS

24. Switching costs arise if a buyer (a consumer), “will find it costly to switch from one seller to another.”²² In other words, switching costs arise when consumers face an extra

²⁰ See, Targeting, Spotify for Brands, <https://www.spotify.com/us/brands/targeting/> (last accessed Oct. 4, 2016) where Spotify states “Reach in-market purchase intenders and category enthusiasts across a variety of brand verticals. We’ve crafted a suite of behavioral segments by analyzing our users’ streaming habits on Spotify alongside their broader interests, lifestyle, and shopping behaviors, fueled by leading third-party data providers.”

²¹ See, Targeting, Pandora for brands, <http://pandoraforbrands.com/targeting/> (last accessed Oct. 24, 2016).

²² Joseph Farrell & Paul Klemperer, *Coordination and Lock-in: Competition with Switching Costs and Network Effects*, Handbook of Industrial Organization 1967, 1972 (Mark Armstrong & Robert Porter North Holland eds., 2007) (“Farrell & Klemperer”).

cost or barrier to change the product or brand they use. While the physical purchase of a product is itself an investment, consumers can also invest in the product in other ways, such as taking the time to learn how to use the product, establishing a relationship with the service (perhaps through good customer service experiences), or becoming attached (psychologically) to the product or certain characteristics of the product.²³

25. Switching costs lead to consumer lock-in, meaning in instances where switching costs are high, a consumer is more likely to continue to purchase from the same service, rather than switch to another service.²⁴ Services with locked-in consumers are able to extract more revenue from those consumers, perhaps by raising the price or through some other strategy, such as selling add-on products or delivering more advertisements to consumers.²⁵
26. Switching costs can be important to music services. For example, consumers must learn to use a music service, creating a learning cost for consumers who consider switching. Also, services typically allow for consumers to establish their own playlists and list of favorite artists, which they would lose upon switching services. Moreover, consumers

²³ See, e.g., Paul Klemperer, *Competition when Consumers have Switching Costs: An Overview with Applications to Industrial Organization, Macroeconomics, and International Trade*, 62 *Review of Economic Studies* 515, 517-518 (1995).

²⁴ Farrell & Klemperer, at 1972.

²⁵ Catherine Rampell, *Cracking the Apple Trap*, *The New York Times Magazine* (Oct. 29, 2013), <http://www.nytimes.com/2013/11/03/magazine/why-apple-wants-to-bust-your-iphone.html> (noting that switching costs “increase Apple’s incentives to force its existing customers to upgrade by making older models gradually become more dysfunctional.”).

Johnna Montgomerie & Samuel Roscoe, *Owning the consumer—Getting to the core of the Apple business model*, 37 *Accounting Forum* 290 (Dec. 2013), available at <http://www.sciencedirect.com/science/article/pii/S015599821300032X> (“In short, the Apple business model is designed to drive consumers into its ecosystem and then hold them there, which has been hugely successful to date and allowed Apple to wield enormous power in the end-to-end supply chain. This business model gives Apple the unique ability to maintain a low cost sourcing strategy while maintaining high price points and subsequently locking the consumer in through high switching penalties.”).

may have established connections through the social media element of a service that make the service more valuable to them.

E. ECONOMICS OF MUSIC SERVICES: REVENUE DEFERMENT FOR MARKET GROWTH AND REVENUE DISPLACEMENT TO COMPLEMENTARY PRODUCTS AND SERVICES

27. Streaming music services generally create revenue in three different ways. First, services charge a price to consumers for their content. We often see rather simple pricing strategies, such as a single monthly fee for unlimited access, but we could see more complex pricing schemes, such as differentiated usage tiers with monthly caps and overage charges. Second, services may sell advertisements. These may be audio ads that interrupt a stream of songs, or they could be visual ads that appear on whatever device the consumer is using to stream music. Third, which will be discussed in further detail below, particularly for streaming services that are integrated into larger companies, the service may generate revenue from complementary services and products. For services that are not integrated, the prospects for integration can be an important source of potential future revenue.²⁶ For example, Apple purchased the Beats music service for \$3 billion in 2014.²⁷ Apple benefits from this by using the music service to attract and keep consumers in the Apple “ecosystem,” where Apple generates profits in a variety of ways.²⁸ Companies do not necessarily have to merge or be purchased in order to achieve

²⁶ Although the deal did not happen, it was reported in the news that Google tried to buy Spotify in late 2013. Rolfe Winkler & Hannah Karp, *Google Considers Buying Spotify But Finds the Price Too High*, The Wall Street Journal (July 22, 2014), <http://www.wsj.com/articles/google-considers-buying-spotify-but-finds-the-price-too-high-1406061732>.

²⁷ Brian Solomon, *It's Official: Apple Adds Dr. Dre With \$3 Billion Beats Deal*, Forbes (May 28, 2014), <http://www.forbes.com/sites/briansolomon/2014/05/28/apple-brings-dr-dre-on-board-with-official-3-billion-beats-deal/#1e256fc016d2>.

²⁸ Eric Jackson, *Apple Isn't A Hardware Or Software Company – It's An Ecosystem Company*, Forbes (June 3, 2014), <http://www.forbes.com/sites/ericjackson/2014/06/03/apple-isnt-a-hardware-or-software->

the benefits envisioned here. Complementary effects from integration can be achieved by contract. An example of contractual integration is Spotify's functioning with Facebook, where users of Spotify can post playlists to their Facebook profiles, bands can embed their songs in their profiles, and fans can link their profiles to their favorite bands' profiles.

28. The four network industry features discussed above create a benefit to gaining additional customers that is not tied to current revenue, and explains why services may find it attractive to forgo current revenue and profits in order to grow users and market share faster than they otherwise would.²⁹ When these features are present, rational firms will choose to set artificially low prices now in the hopes of being able to realize higher

[company-its-an-ecosystem-company/#5b6544515532](#) (reporting that, “[d]uring yesterday’s [Apple] Worldwide Developer Conference keynote, almost every new feature announcement discussed increasing value to users who used multiple Apple products.”).

29

Apple Music was reported to have attempted to enter the market at an \$8 per month subscription rate in order to undercut other market participants who had a \$10 per month user price. Ben Sisario & Brian X. Chen, *Apple and Beats Developing Streaming Music Service to Rival Spotify*, The New York Times (Mar. 25, 2015), <http://www.nytimes.com/2015/03/26/technology/apple-and-beats-developing-streaming-music-service-to-rival-spotify.html>.

Google Play's family-plan offers unlimited music to up to six family members for only \$14.99. Chris Welch, *Google Play Music Launches \$14.99 Family Plan for up to Six People*, The Verge (Dec. 9, 2015), www.theverge.com/2015/12/9/9878820/google-play-music-family-plan-now-available. Based on an

YouTube's CEO Susan Wojcicki was also recently quoted saying, “We are still in investment mode ... [t]here's no timetable,” when asked a question about profitability. See, Leena Rao, *YouTube CEO Says There's 'No Timetable' For Profitability*, Fortune (Oct. 18, 2016), <http://fortune.com/2016/10/18/youtube-profits-ceo-susan-wojcicki/>.

PwC's Music report states, “All services acknowledge the importance of scale in the longer-term push for profitability and that comes at a price.” PwC Global entertainment and media outlook 2016-2020 – Music, at 4, <http://www.pwc.com/gx/en/industries/entertainment-media/outlook.html>.

returns at some point in the future, either on the service or on related products.³⁰ As a result, short run pricing strategies in markets like this can be dramatic, with prices set below costs, and in some circumstances, with prices set to zero.³¹

29. The previous two paragraphs discuss how these four features—network effects, economies of scale, learning about consumers, and switching costs—might lead a music service to accept low prices or revenue today with the intent of collecting higher revenue through the music service in the future. Further, in many cases, music services may realize the benefits of customer acquisition not through their own music service but through related services that are marketed along with the music service.³² For example, a diverse Internet company such as Google offers suites of services, such as online storage,

³⁰ At its conception, Google, an illustrative example of this strategy, did “not seek to make as much money as it could in the short run.” David A. Vise, *The Google Story* 6 (Delacorte Press ed., 2d ed. 2008). See, also, Michael L. Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 *Journal of Economic Perspectives* 93-115 (Spring 1994) (“Katz & Shapiro”).

³¹ Michael Katz and Carl Shapiro note that “dramatic penetration pricing may emerge as the equilibrium outcome, as each firm seeks to establish an installed base and achieve leadership in a systems market,” Katz & Shapiro, at 107.

³² Nathan McAlone, *Here’s why Amazon’s new music ambitions should scare Apple and Spotify*, *Business Insider* (Sept. 27, 2016), <http://www.businessinsider.com/amazons-new-music-service-should-scare-apple-and-spotify-2016-9> (“‘We get to monetize [our subscription video] in a very unusual way,’ Amazon CEO Jeff Bezos said this summer. ‘When we win a Golden Globe, it helps us sell more shoes. And it does that in a very direct way. Because if you look at Prime members, they buy more on Amazon than non-Prime members, and one of the reasons they do that is once they pay their annual fee, they’re looking around to see, ‘How can I get more value out of the program?’ And so they look across more categories – they shop more. A lot of their behaviors change in ways that are attractive to us as a business. And the customers utilize more of our services.’”).

During the Q2 2015 Amazon.com Inc. Earnings Call, Brian Olsavsky, CFO of Amazon.com says, “Prime Music ... feed[s] the Prime pipeline and Prime ecosystem ... [it] work[s] great with our devices ... [a]nd [] drive[s] other non-media sales.” Amazon.com Inc. (AMZN) Q2 2015 Results - Earnings Call Transcripts, Seeking Alpha (July 23, 2015), <http://seekingalpha.com/article/3353155-amazon-com-amzn-q2-2015-results-earnings-call-transcript>.

Rachel Reisman, *Apple’s Biggest Bright Spot Is Putting The Heat On Spotify*, *Forbes* (Aug. 1, 2016), <http://www.forbes.com/sites/rachelreisman/2016/08/01/apples-biggest-bright-spot-is-putting-the-heat-on-spotify/#4fade0bc2574> (“Apple Music and Prime Music can lose money as long as they drive user traffic to places like the App Store and Amazon’s shopping sites [I]ucky for Apple, synergies created between the App Store, Apple Music, iTunes and iCloud have added up quite nicely [t]he purchasing power of the 600 million iPhone, iPad and iPod owners leaves Apple in a position of strength. iPhone users are spending \$68 a year on apps, music and other services. . . .”).

e-mail, calendar applications and office productivity software for free. The entry of Apple, Amazon, and Google into music streaming appears to be part of competition between their entire “eco-systems,” rather than just a decision related to music alone.³³ These firms may profit not just from traditional Internet revenue sources such as advertising and consumer data, but also from selling related hardware, such as iPhones, Kindle Fire tablets, Amazon Echo hands-free speakers,³⁴ and Nexus phones.³⁵

³³ Andrew Cunningham, *In 2015, Apple's Ecosystem got larger (and harder to leave) than ever*, ArsTechnica (Dec. 24, 2015), <http://arstechnica.com/apple/2015/12/in-2015-apples-ecosystem-got-larger-and-harder-to-leave-than-ever/> (“As [Apple] broadens and deepens the links between its existing platforms and builds brand-new ones, it makes it more and more appealing for people with Apple products to buy other Apple products. Apple has benefitted from a ‘halo effect’ since the iPod’s heyday, when the popularity of its music players convinced more people to buy Macs. Now the halo has been intentionally baked into all of its products, hardware and software, and the lineup is much larger than it was a decade ago.”).

Micahel deAgonia, Preson Gralla & JR Raphael, *Battle of the media ecosystems: Amazon, Apple, Google and Microsoft*, ComputerWorld (Aug. 2, 2013), <http://www.computerworld.com/article/2483616/personal-technology/battle-of-the-media-ecosystems--amazon--apple--google-and-microsoft.html> (“Amazon appears to have its sights on launching a Spotify-like subscription music service. Reports say that it is in talks with music companies to start one. If that ever happens, Amazon's music ecosystem could become a juggernaut.”).

³⁴ The Amazon Echo product line of devices is controlled by voice commands and allow users to play music from music streaming services. The device is currently sold for \$180 on Amazon.com. See <https://www.amazon.com/Amazon-Echo-Bluetooth-Speaker-with-WiFi-Alexa/dp/B00X4WHP5E> (last accessed Oct. 3, 2016). Google has announced a direct competitor device called “Google Home,” which can currently be pre-ordered for shipment in November 2016, and which provides a six-month free subscription to Google’s YouTube Red video streaming subscription service, which itself includes full subscription access to the Google Play interactive music streaming service.

On October 12, 2016, Amazon launched an unlimited plan to start offering an interactive streaming service, starting at \$3.99 per month exclusively for Amazon Echo users who only stream through the Echo, goes up to \$7.99 per month for Amazon Prime subscribers or \$80 a year (\$6.66 per month), \$9.99 per month for all other users, and \$14.99 for a family plan. See, Ben Sisario, *Amazon Pairs its Speaker with Streaming Music, at a Bargain Price*, The New York Times (Oct. 12, 2016), www.nytimes.com/2016/10/12/business/amazon-music-apple-spotify.html; Julia Love, *Amazon Challenges Apple and Spotify with New Music Streaming Device*, Reuters, (Oct. 12, 2016), www.reuters.com/article/us-amazon-com-music-idUSKCN12C0ML; Mike Flacy, *Amazon's Music Streaming Service may be a lot Cheaper than Spotify*, Digital Trends (Aug. 22, 2016), <http://www.digitaltrends.com/music/amazons-unlimited-music-streaming-service-may-only-cost-5-a-month/>.

³⁵ See, e.g., Hannah Karp, *Tech Giants Boast an Edge in Music Streaming*, The Wall Street Journal (July 24, 2016), <http://www.wsj.com/articles/tech-giants-boast-an-edge-in-music-streaming-1469399991>.

30. For example, in an internal strategy presentation, [REDACTED]
[REDACTED]
[REDACTED]³⁶
31. Each of the four network industry features that I describe above are also present in this environment, and make it more likely that services may forego revenues from streaming in favor of pursuing revenues from complementary products and services. For instance, a form of network effect can exist for a platform that provides multiple complementary products. As the platform attracts more consumers, it will be economical to invest in new features and more products, which further attract more consumers. Similarly, economies of scale can be realized not only within music streaming, but also across different types of Internet content provision, such as video streaming. Naturally, investments in servers or content delivery networks can be amortized across several business units and activities. Services learning about consumers can be particularly powerful across multiple platforms. For example, in *The Song Machine*, John Seabrook notes that Spotify's collaboration with Facebook allows for "Playlists [to] be customized according to an individual user's 'taste profile.'"³⁷ Likewise, Amazon would be able to leverage both shopping behavior and music listening behavior for consumers that use both of its services. Furthermore, one of the implications of these suites of services is that for users that make use of them, the switching costs can be quite large.
32. This dynamic can be seen in how common it is for early stage music services (as well as Internet firms) to be valued far above what their current profitability would imply.

³⁶ [REDACTED]

³⁷ John Seabrook, *The Song Machine: Inside the Hit Factory* 289 (W. W. Norton ed., 2015).

Instead, the valuations of these firms seem to be based almost entirely on future expectations. Amazon is a consumer-facing Internet-commerce and cloud computing company that spent at least nine years focusing on growth and building its network instead of seeking short run profits. The company was founded in 1994, first publicly traded in 1997, and first turned a modest profit in 2003 (*see* Figure 1).³⁸ Amazon spent its early years sustaining billions of dollars in losses in order to build its network.³⁹ The company followed a “get big fast” approach and embarked on initiatives that would sustain short-term losses as an investment in building customer loyalty, collecting customer information, building its base to enjoy future network effects and economies of scale.⁴⁰ Moreover, that strategy has largely paid off for Amazon. It now has a market cap of \$360 billion and is the largest online retail company in the United States.⁴¹

³⁸ Market cap data from Standard & Poor’s Capital IQ. 2006 Form 10-K for Amazon.com Inc., at 22. Amazon first posted a year of positive net income in 2003. *See* Figure 1. Additionally, in 1996, the year preceding its IPO, Amazon posted a net loss of \$6.2 million (*see*, 1998 Form 10-K for Amazon.com, Inc., at 17).

³⁹ Ben Popper, *Amazon expects to lose half a billion dollars in the next three months*, The Verge (July 24, 2014), <http://www.theverge.com/2014/7/24/5934647/amazon-expands-hardware-expects-wider-losses> (“Amazon’s strategy to sell hardware at cost to bring people into its shopping ecosystem ... Kindle VP Dave Limp [says] ‘we want to be really aligned with the customer so that we only make money when they use our products, not when they buy them.’”).

Eric Newcomer, *Uber Loses at Least \$1.2 Billion in First Half of 2016*, Bloomberg Technology (Aug. 25, 2016), <https://www.bloomberg.com/news/articles/2016-08-25/uber-loses-at-least-1-2-billion-in-first-half-of-2016> (“Amazon.com Inc. is famous for losing money while increasing its market value ... its biggest loss ever totaled \$1.4 billion in 2000”).

⁴⁰ Brad Stone, *The Everything Store: Jeff Bezos and the Age of Amazon* (Little Brown, 2013).

⁴¹ Standard & Poor’s Capital IQ, as of September 14, 2016.

Figure 1: Amazon's Market Valuation and Profitability

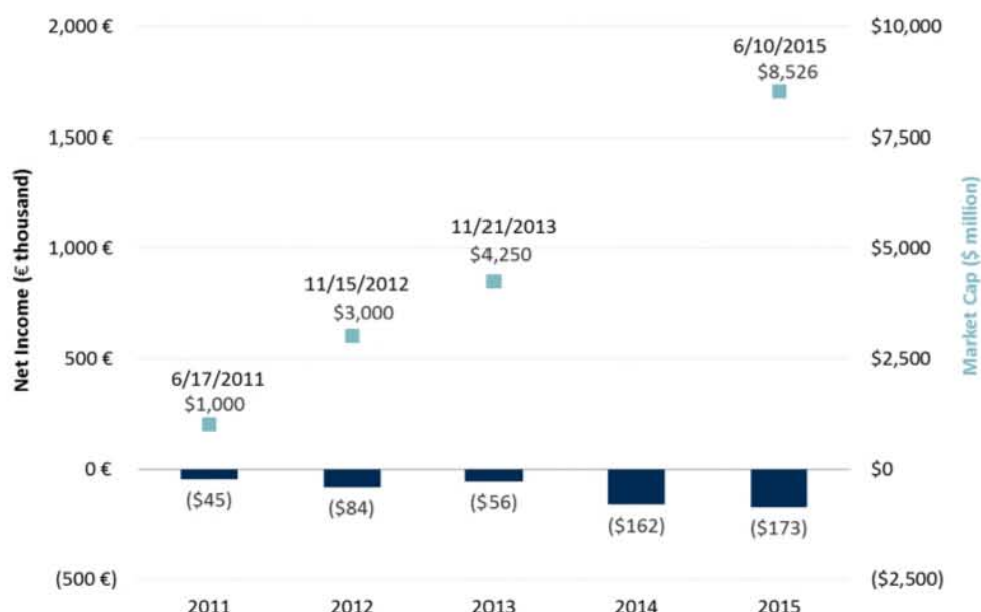
Sources and Notes: Standard & Poor's Capital IQ. Market cap value is of year end.

33. Similarly, Spotify has yet to post a profit and its valuation has increased from \$1.0 billion in June 2011 to \$8.5 billion in June 2015 (*see* Figure 2).⁴² This high valuation is driven both by Spotify's prospects for future revenue enhancement from consumers and advertisers, as well as Spotify's potential for sale to a more diverse Internet services firm (for example, it has been rumored that Spotify might be acquired by Facebook or Google).⁴³

⁴² Brittany Umar, *Spotify's New Funding Round Values Music Streamer at \$8.5 Billion*, The Street (June 10, 2015), <https://www.thestreet.com/story/13182382/1/spotify-s-new-funding-round-values-music-streamer-at-85-billion.html>.

Facebook's growth record also exemplifies this point. In Q3 2012, Facebook posted a net income of negative \$59 million, yet its market cap as of September 30, 2012 was \$46 billion (Standard & Poor's Capital IQ). *See*, 2012 Q3 Form 10-Q for Facebook, at 5.

⁴³ Jill Bederoff, *One of Spotify's owners says it's NOT unlikely that Facebook buys the company*, Business Insider Nordic (Sept. 16, 2016), <http://nordic.businessinsider.com/gp-bullhound-facebook-might-buy-spotify-before-the-ipo-2016-9/>.

Figure 2: Spotify's Implied Valuation and Profitability

Sources and Notes: 2015 Spotify Annual Report, at 8; 2014 Spotify Annual Report, at 8; 2012 Spotify Annual Report, at 1; *see also*, the following sources reporting estimated market cap: Spotify, funderbeam, <https://www.funderbeam.com/startups/spotify?ref=teleport> (last accessed Oct. 24, 2016).

Andrew Ross Sorkin & Evelyn M. Rusli, *Spotify Raises Investments at \$1 Billion Valuation*, The New York Times (Feb. 21, 2011), <http://dealbook.nytimes.com/2011/02/21/spotify-raises-new-investments-at-1-billion-valuation/>.

Tim Bradshaw & Andrew Edgecliffe-Johnson, *Spotify in top league with \$3bn valuation*, Financial Times (Nov. 14, 2012), <https://www.ft.com/content/e11c1344-2e98-11e2-9b98-00144feabdc0>.

Spotify, crunchbase, <https://www.crunchbase.com/funding-round/8fff2ebf58b7d64f75cd1f57a96ff962> (\$4B pre-money + \$250 M raised = \$4.25B valuation).

Lauren Davidson, *Spotify valued at \$8.53bn valuation after fresh funding round*, The Telegraph (June 10, 2015), <http://www.telegraph.co.uk/finance/newsbysector/mediatechnologyandtelecoms/11664186/Spotify-hits-8.53bn-valuation-after-fresh-funding-round.html>.

IV. A ROYALTY STRUCTURE WITH PER-PLAY AND PER-USER TESTS IS MORE APPROPRIATE THAN A STRUCTURE BASED ON A REVENUE TEST

34. As I will detail in this section, there are several problems with a revenue-based payment structure. Per-play and per-user rates, on the other hand, address these issues and provide a useful pricing method.

A. REVENUE-BASED PAYMENTS PROVIDE THE WRONG SIGNALS TO SERVICES ABOUT COSTS AND ARE DIFFICULT TO SET AT APPROPRIATE LEVELS

35. In standard production situations, a firm that purchases an input pays an input price that signals the economic cost of creating that input. The firm then creates its products and sells the output for the price of its choosing. If the firm chooses to cut its price, it will reduce its margin by the size of the price cut. The firm will sell more of the output and thus purchase more of the input, leading to increased revenue to input suppliers, and possibly a higher price for inputs. Particularly under competition, the market will realize the efficient production of outputs and inputs (accounting for demand, the cost of the input, and the cost in transforming the input into the output).
36. If input suppliers are paid a percent of revenue, it is difficult to design a scheme that leads input suppliers to be paid appropriately. That is because when a firm charges lower prices and is willing to forgo current revenue (as is the case in the music streaming industry), the input providers also receive lower revenue. Effectively, the licensee is able to set the per unit price it pays for the inputs unilaterally, without consent or input from the input suppliers. This is an inappropriate signal to send to music services. There is no economic reason why royalty revenue to songwriters and publishers should depend on the pricing model of the service, and thus the price of copyrighted content to services should not depend on the pricing of the service.
37. In thinking about appropriate royalty payments for publishers,⁴⁴ it is useful to consider what would happen in a hypothetical free market in which publishers, labels and music services could efficiently bargain for the contribution to overall revenue. It is natural to

⁴⁴ Throughout this report, I may reference publishers alone as shorthand for mechanical rightsholders, including songwriters. This is done solely to avoid cumbersome wording.

think that if streaming services used more streams, publishers would be able to increase income (and possibly charge higher prices), which would appropriately signal to services the cost of increased streaming of copyrighted music. However, a revenue-based royalty stream typically sends *the opposite* signal. Lower prices that forgo current revenue lead to lower payments to publishers, even though such lower prices will increase streaming either by increasing the number of users or increasing streams per user.

38. In such an environment, it is difficult to choose a revenue-based royalty model that appropriately rewards publishers, and efficiently signals to services the cost of expanding service. For instance, suppose we observe a price and revenue by a service, determine the appropriate level of publisher compensation, and pick a revenue-based royalty rate to deliver that level of royalties from the observed level of service revenues. Under a revenue-based system, the music service would still then have an incentive to maintain lower prices and forgo current revenue or even lower prices further, because doing so not only attracts users but also does not increase costs despite likely using more streams.
39. One might think that rightsholders should be indifferent to different mechanisms for computing royalty payments and care only about the level of payments. However, that line of thinking ignores the fact that services, not rightsholders, control prices, and thus revenue. Any revenue-based payment scheme designed to deliver a particular level of royalty payments is likely to be manipulated by services to reduce payments to rightsholders, as I will further discuss in the following section.
40. In addition, inefficient signals of input costs lead services to choose pricing models that are economically inefficient. For instance, major services offer unlimited streaming for a fixed monthly price. As streaming increases, we would expect a free-market bargaining

outcome to deliver increased revenue to copyright owners, but this is not the case under the current system. In fact, I show below that revenue per-play for publishers has fallen substantially over recent years (*see* Figure 4 and Figure 5). As I argue below, there are many alternative pricing strategies that might be implemented under appropriate cost structures. Currently, publishers share in the business strategies of services in a way that does not reflect costs, bargaining and basic fairness in an economically sound setting.

41. Arguably, revenue-based royalty payments appeared to make sense at the dawn of the streaming industry, when the prospects for streaming were unclear and both publishers and services had an interest in cultivating the industry. However, we are well past such concerns now. Streaming appears to be here to stay, is likely to be the dominant method for distributing music going forward, and has attracted the largest and most dynamic firms. Such “jump-starting” rationales for revenue-based royalty payments may have made sense at one time, but they now are out-of-date and inefficient.

B. REVENUE-BASED PAYMENTS LEAD TO OTHER ACTIVITIES BY SERVICES THAT DEVALUE THE CONTRIBUTION OF RIGHTSHOLDERS

42. In the previous section, I have argued that revenue-based royalty payments send inefficient economic signals to participants in the market for music streaming. In this section, I discuss several more problematic implications, which may be at least as important as the basic signaling issue.

1. Revenue-Based Royalty Calculations Create Important Transparency Issues Between Rightsholders and Services

43. Revenue is more opaque to publishers than the number of consumers or the number of streams.⁴⁵ Many industry observers have expressed concern that services may manipulate revenue calculations in their favor, and that this would be difficult to monitor.⁴⁶
44. In addition, computing royalty payments as a function of revenue incentivizes services to define revenue in opportunistic ways. As an extreme example, [REDACTED]
- [REDACTED]
- [REDACTED].⁴⁷ For Internet giants like Amazon, providing a music streaming service can be but one of the many different ways to attract customers and traffic towards their many other profitable services.⁴⁸ As such it may be extremely difficult, if not impossible, for rightsholders to determine the revenues properly allocated to music streaming. Likewise, it is conceivable that other multi-product firms including

⁴⁵ Consider if the publishers, for example, tried to monitor the services by conducting an independent survey. It would certainly be easier to verify the number of consumers or streams than the amount of revenue.

⁴⁶ In one example, musician and songwriter David Byrne asked Apple Music to explain royalty calculations, only to be rebuked because Apple disclosed such information only to record labels: “I have my own label and own the copyright on some of my albums, but when I turned to my distributor, the response was, ‘You can’t see the deal, but you could have your lawyer call our lawyer and we might answer some questions.’” David Byrne, *Open the Music Industry’s Black Box*, The New York Times (July 31, 2015), <http://www.nytimes.com/2015/08/02/opinion/sunday/open-the-music-industrys-black-box.html>. Byrne also stated that “[p]erhaps the biggest problem artists face today is that lack of transparency. I’ve asked basic questions of both the digital services and the music labels and been stonewalled.” *Id.*

⁴⁷ [REDACTED] Note that in Amazon’s 10-Ks, it is unclear how music streaming revenue from Amazon Prime Music is treated. Amazon states that “Amazon Prime membership fees are allocated between product sales and service sales,” but does not break down its allocation of Amazon Prime revenue or Amazon Prime Music revenue. See, 2014 Form 10-K for Amazon.com, Inc., at 44.

⁴⁸ See *supra*, n.31.

Apple and Alphabet (Google) use their music streaming services as a loss leader, driving sales and traffic towards other parts of their company.

45. In addition, computing royalties based on revenues incentivizes market participants to structure contracts to avoid revenue. For instance, one prong of the current statutory mechanical rate assesses the amount of label revenue. However, contracts between labels and services have also involved equity in addition to direct revenue, and labels may be willing to substitute equity for revenue. These equity deals also impact publisher and songwriter royalties, since the benefits of equity may not be fully or fairly accounted for in monthly income reporting by services, which means that the total content cost (“TCC”) royalty test for mechanical royalties may be insufficiently calculated.

2. Investments Made by Services Today May Not Lead to Increased Revenue to Publishers Even in the Future

46. One might argue that even though current revenue does not reflect long-term value, revenue-based royalty payments will allow publishers to capture their appropriate value over the long-run, as services eventually monetize their customers and increase revenue. In this section, I argue that this assertion is false, and creates significant lost opportunities for publishers and songwriters.
47. As I show above, many services are offered as part of a suite of Internet services by large Internet media firms. These firms may realize revenue in a variety of ways that are not directly linked to consumer streaming. Thus, monetization of current investments may not lead to increased future revenue for the music streaming business at all. In these cases, publishers will never realize payment through revenue-based royalty schemes, because there will never be revenue directly from streaming that captures the value that music streaming provides to Internet media firms.

48. Similarly, stand-alone music services that invest in market share today may instead realize returns through selling the service to a broader Internet firm that values integrating the subscription base into its Internet milieu. This appears to have been the case in Apple's purchase of Beats music. It should be noted that part of Spotify's large valuation is attributed to the possibility that it will be sold to a large firm such as Microsoft, Verizon or Facebook, and not just from its prospects for increased future revenue by utilizing its current business model.⁴⁹ In such a case, there may never be an increased revenue payoff for Spotify, leading publishers to suffer through the service's low revenue today while Spotify's equity holders realize the entire benefit from a future sale.
49. Alternatively, given the intense and growing level of competition in the interactive streaming market,⁵⁰ it is likely enough that many of the services we see in the market today will fail—in which case the discount that copyright owners take in the near-term through a revenue-based royalty model may never be recouped. As is normal in a vibrant industry, some of the interactive streaming services will fail due to unsound practices, overly risky behavior or just bad luck. These failures will result in rightsholders never recouping the foregone royalties from a revenue-based royalty scheme.
50. Moreover, even if some of the investments made today by services realized increase revenues in the future, it is still not an equitable arrangement for the current rightsholders.

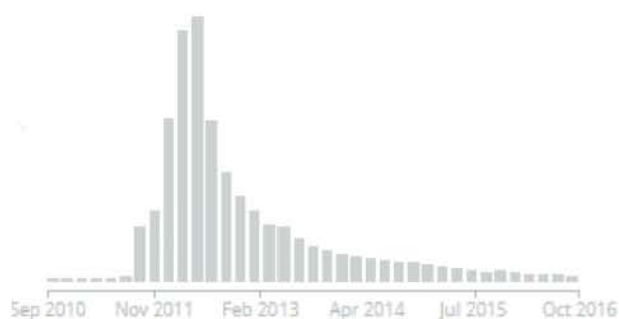
⁴⁹ Jill Bederoff, *One of Spotify's owners says it's NOT unlikely that Facebook buys the company*, Business Insider Nordic (Sept. 16, 2016), <http://nordic.businessinsider.com/gp-bullhound-facebook-might-buy-spotify-before-the-ipo-2016-9/>.

⁵⁰ Madi Alexander and Ben Sisario, *Apple Music, Spotify and a Guide to Music Streaming Services*, The New York Times (Apr. 5, 2015), <http://www.nytimes.com/interactive/2015/06/30/business/media/music-streaming-guide.html>.

Ethan Wolff-Mann, *Amazon to Launch Music Streaming Service to Compete with Spotify, Tidal, Apple, Time (Money)* (June 10, 2016), <http://time.com/money/4364865/amazon-music-streaming-service/>.

Due to the ephemeral popularity of specific tracks and even artists, rightsholders who suffer from short-run revenue suppression from the services are not necessarily the same rightsholders who would benefit in the future from higher revenues. Figure 3 illustrates this point using the example of Gotye, who wrote and released his biggest hit “Somebody That I Used to Know” in January 2012. Although Gotye drove attention to music services in 2012, Gotye will not benefit from revenue created by services in the future, unless Gotye himself manages to release new popular music.

Figure 3: Number of Streams for Gotye over Time as Measured with Last.fm Data



Sources and Notes: Last.fm streaming of Gotye, an Australian-Belgian musician and singer-songwriter. The figure above summarizes monthly aggregate global data for streams as sent to Last.fm over the last six years. See, Listening Trends – Months, <http://www.last.fm/music/Gotye> (last accessed Oct. 26, 2016).

3. Adopting Revenue-Based Payments for Streaming Services Gives Such Services an Advantage Over Download Services

51. A revenue-based royalty rate gives streaming services an unfair competitive advantage over download services at the expense of rightsholders. Although interactive streaming’s displacement of alternative forms of music consumption, such as permanent downloads, is well-documented, the progression from one dominant form of music consumption to another need not be harmful to rightsholders. It is natural to think that the royalty

payment structure should be neutral across distribution technologies, and should not bias the market towards one technology or another. However, in the case of downloads versus streaming, all is not equal when considering royalty payments, since the aggregate royalty payments made by a streaming service are not directly linked to consumption (as they are for permanent download services). Payments are instead linked to revenue, which need not change in response to changes in consumption as shown in Figure 4 and Figure 5. Services can therefore increase the use of licensed music without paying additional royalties (i.e., they can offer their users more consumption without raising the price). Download services cannot operate that way, because they must pay a fee for each download. I believe this dynamic has led to an accelerated displacement of downloads in favor of streaming, further decreasing the per unit compensation earned by rightsholders and creating a misalignment in interests between services and copyright owners.

4. Royalty Rate Tests That are Linked to the Rights Being Licensed, Rather than a Revenue-Based Test, Are Consistent with Prior Rate Decisions for Non-Interactive Streaming

52. In previous proceedings, the Copyright Royalty Board (“CRB”) has recognized the inappropriateness of rate structures that are primarily based on a percent of revenue. For example, in *Webcaster I*, the CRB considered the merits of a percent of revenue rate. Ultimately, it rejected this approach in favor of a per-performance rate for several reasons. First, a percentage of revenue does not directly link to the rights being licensed, whereas a per-performance rate necessarily does.⁵¹ This point is equally germane to the current proceedings. The empirical evidence indicates that as the number of plays per

⁵¹ See, Final Rule, Determination of Reasonable Rates and Terms for the Digital Performance of Sound Recordings and Ephemeral Recordings, Docket No. 2000-9 CARP DTRA 1&2 (“Web I Final Rule”), 67 Fed. Reg. 45239, 45249 (July 8, 2002).

user increases, the revenue per play decreases (*see* Figure 4 and Figure 5). Therefore, a percent-of-revenue structure would only loosely link rates to the rights being licensed.

53. The second reason for the CRB's rejection of a revenue contingent rate structure was that, given the varied business models of the services, the concept of attributable revenue becomes ill-defined.⁵² For example, a webcast service that is part of a larger enterprise may exist simply to drive traffic to a separate revenue stream within that enterprise. In such a case, it would be possible for zero revenue to be considered as allocable to the service, thereby producing no payments to rightsholders for the use of their property. The business models of the relevant services in this proceeding are at least as varied as those in Webcaster I. This implies that defining, calculating, and auditing the attributable revenues of services continues to present the same hindrance and ambiguity that led the Panel to reject a revenue-based approach in 2002.
54. The final reason for the Panel's rejection of a percentage of revenue rate structure in Webcaster I was the fact that webcasters were earning insufficient revenue. Given the low revenue generated by the services, rightsholders would be forced to license their property for little or no compensation.⁵³ While the services affected by the current proceeding may generate more nominal revenue than those in Webcaster I, that revenue should be considered in context. The relevant context here is the relationship between service revenue and the consumption that generates that revenue. As discussed in Section IV.B, services have an incentive to suppress current revenue in order to increase their users, and thus consumption. Given that fact, revenue necessarily underrepresents

⁵² *Id.*

⁵³ *Id.*

consumption. Therefore, the Panel’s logic regarding the level of revenue that led them to reject revenue-based rates in Webcaster I is equally applicable to the current proceeding.

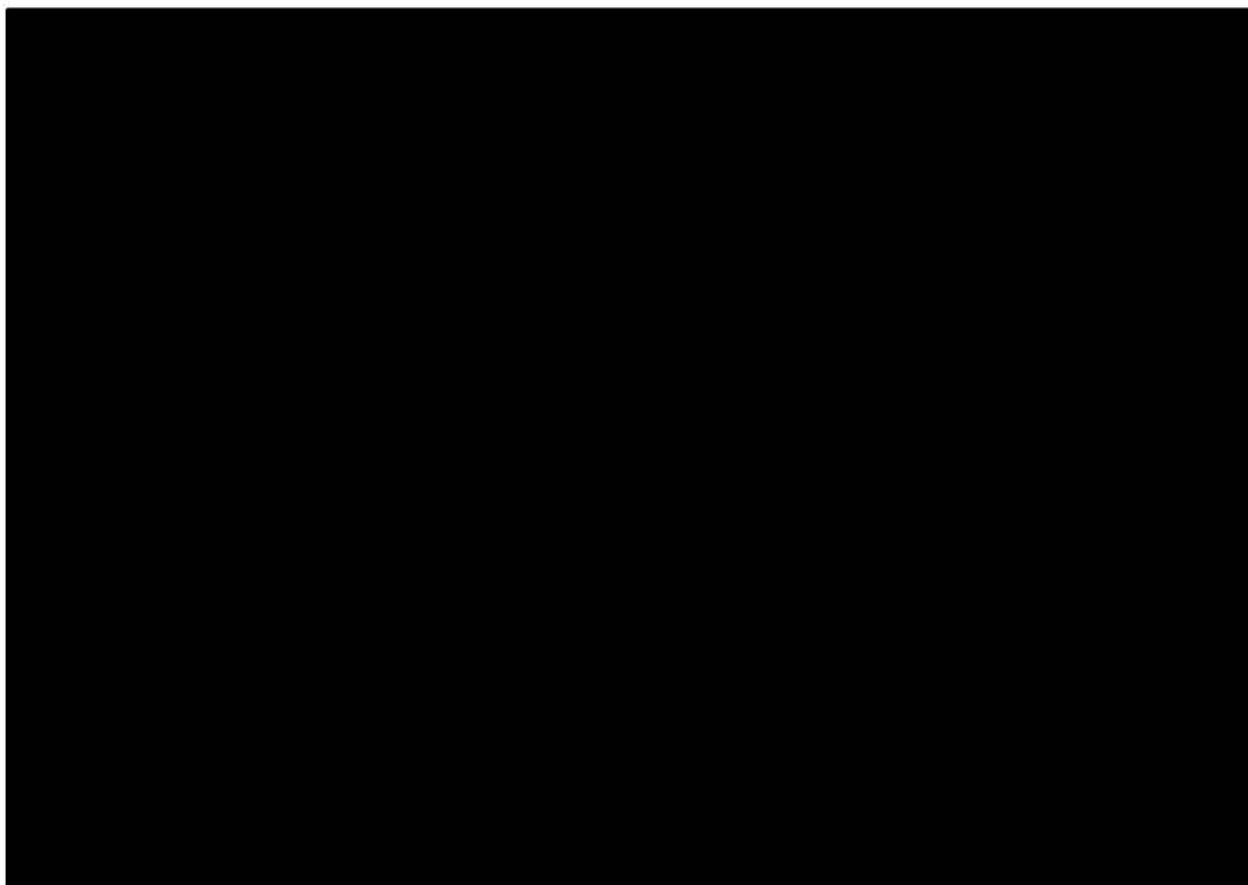
55. Following Webcaster I, the CRB has reaffirmed the appropriateness of per-play rates over percent-of-revenue rates in subsequent Webcaster proceedings. Earlier in 2016, in Webcaster IV, “the Judges [found] that the statutory rate should continue to be set on a per-play basis for commercial webcasters ... [and] reject[ed] the greater-of-approach with a percentage-of-revenue prong.”⁵⁴

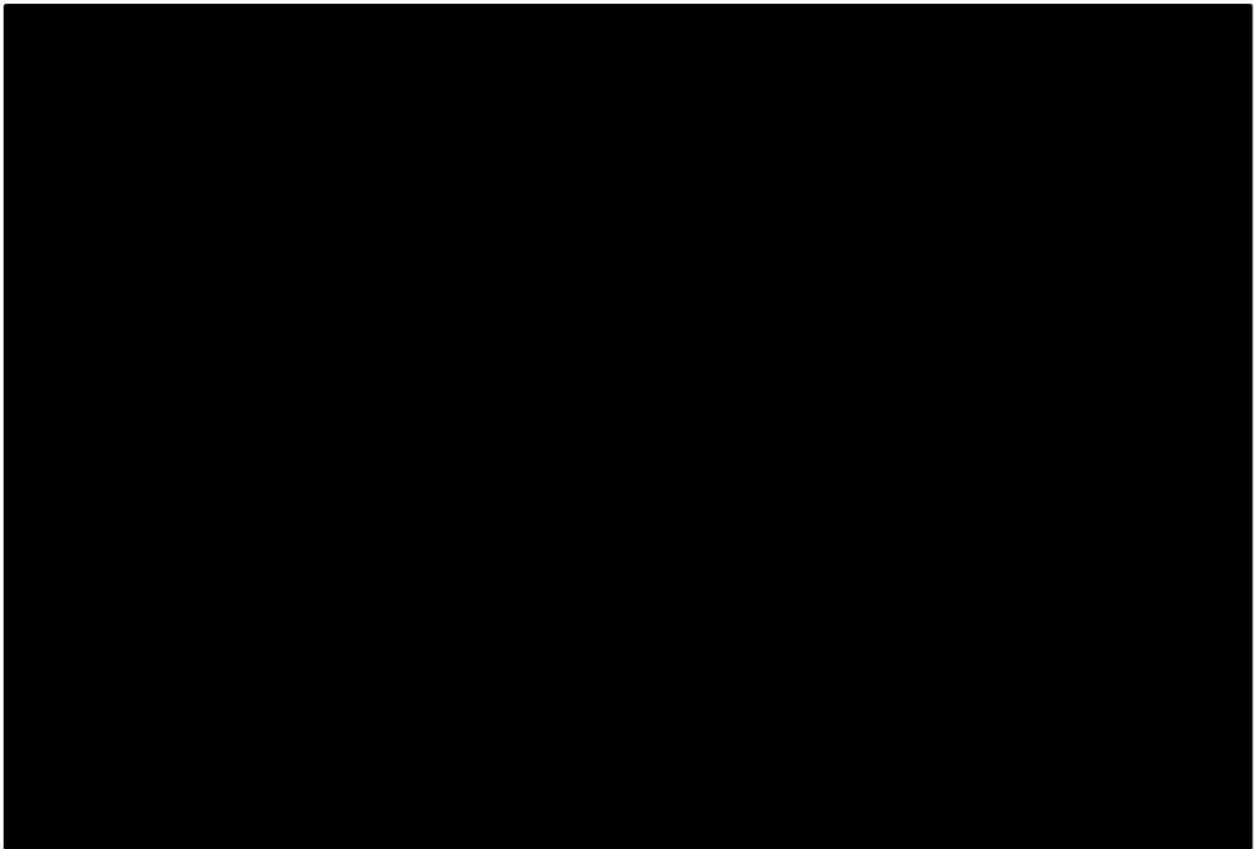
C. PER-PLAY AND PER-USER RATES HAVE ADVANTAGES OVER REVENUE-BASED RATES AND PROVIDE USEFUL PRICING METHODS

56. Unlike revenue-based rates, per-play and per-user rates naturally align with the values inherent in musical works, the value in the actual listening and the value in the option and access to the musical repertoires. A per-play rate signals to services the appropriate cost of increasing streams, whether it is increasing the number of streaming consumers or increasing the number of streams per consumer. Per-play rates reward songwriters for songs that obtain increased usage. Additionally, per-play rates do not tie publishers to the pricing choices of services, except naturally through the quantity of streams. Per-play rates pay songwriters at the time of streaming, regardless of whether or not the service monetizes the stream through subscription pricing, advertising, equity deals, selling out to larger Internet firms, or some other means. The number of streams is much easier to monitor by publishers than service revenue is, and thus cultivates transparency and trust.
57. Per-play rates also address a fundamental problem in the market based on the current rates, namely that while demand for streaming is rising among users, who are demanding

⁵⁴ Final Rule, Determination of Royalty Rates and Terms for Ephemeral Recording and Webcasting Digital Performance of Sound Recordings, Docket No. 14-CRB-0001-WR (2016-2020) (“Web IV Final Rule”), 81 Fed. Reg. 26316, 26325 (May 2, 2016).

to stream more and more music, rightsholders are receiving less and less in effective royalties per-play. (*See* Figure 4 and Figure 5.)





58. In addition, a per-user rate test provides a critical alternative pricing method to per-play rates for several reasons. First, per-user rates align directly with a critical value in the marketplace, namely access to music. Through its history, the marketplace for music has been one of ownership pricing (as opposed to video, for example, for which short-term rental was a dominant pricing model). As I understand it, every current music streaming service is priced to the user as an “all you can eat,” unlimited access service. The user value of having access to music repertoires, separate and apart from whether or how much those repertoires are in fact listened to by the user, seems plain. With value inherent in access, rightsholders would not be expected to provide free interactive access to their entire repertoires with no guaranteed minimum payment.
59. Per-user rates can also potentially protect against opportunistic manipulation arising from future technological developments. It is impossible to forecast all possible future

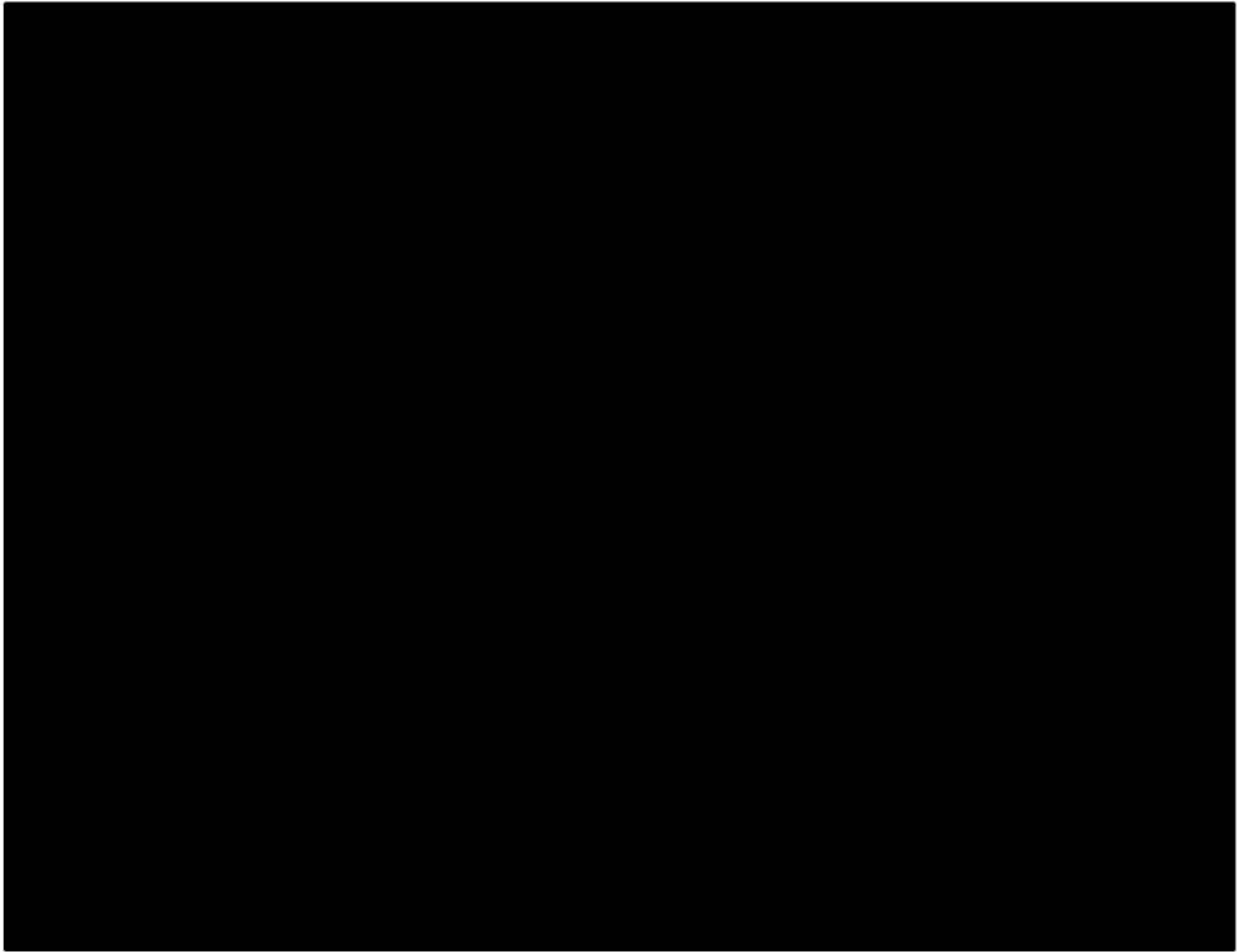
technological developments or issues, and it is conceivable that technologies for access to music will not count streams fully or properly, whether due to data reporting issues, data caching issues, third-party device coding or countless unforeseeable factors.⁵⁵

60. Second, per-user rates can protect against royalty arbitrage from the development of business models that exploit the value access to music without intensive streaming. Per-subscriber rate tests have been important for licensors under the current rate structure. As seen in Figure 6, over the past few years the subscriber rate test has been the binding pricing method for [REDACTED]

[REDACTED]

[REDACTED]

⁵⁵ One example of such is “stream-ripping,” in which listeners exploit sites such as YouTube to convert music videos into a fresh, download-equivalent cache for songs, making it virtually impossible to track their number of streams. Such actions are unlawful and the results are similar to music piracy. See, David Kravets, *RIAA takes on stream-ripping in copyright lawsuit targeting YouTube-mp3*, ArsTechnica (Sept. 26, 2016), <http://arstechnica.com/tech-policy/2016/09/riaa-takes-on-stream-ripping-in-copyright-lawsuit-targeting-youtube-mp3/>. Another recent example of such technology is the “Mighty,” a new type of portable MP3 player which downloads streaming playlists from services like Spotify. The Mighty connects to Spotify accounts through phones, and because it streams music on a secondary device different from registered phones and tablets, it can be hard to track the total amount of streams. See, e.g., Dan Seitz, *Listen To Spotify Offline With ‘The Mighty’ – A New Type of MP3 Player*, Uproxx (Sept. 22, 2016), <http://uproxx.com/technology/spotify-listen-offline/>.



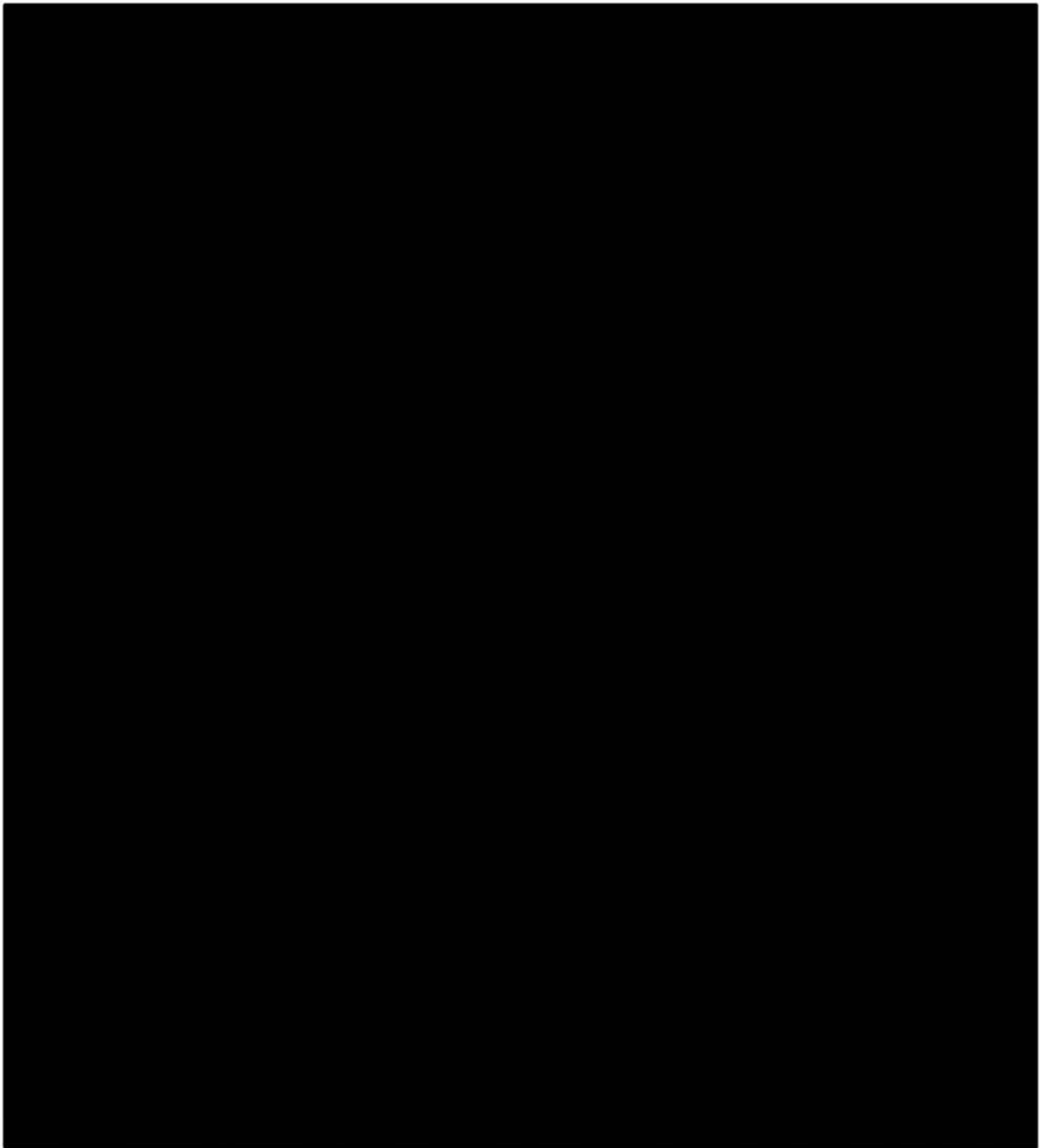
V. Evaluating the Proposed Rates

61. The Copyright Owners' proposed per-play rate is \$0.0015 for mechanical royalties only. I find this rate to be a reasonable choice and one that meets the policy objectives to be discussed in Section VI.
62. There are many ways to assess the economic reasonableness of a fixed rate. I understand that Dr. Eisenach will be analyzing benchmarks, and Professor Gans will be calculating appropriate rates based on an economic model. I will also look at effective per-play royalty rates paid by subscription-based interactive streaming services over the last five years. By "effective per-play rate," I mean the actual amount of money that is to be paid per play for each royalty period, regardless of what royalty prong was used to calculate

the total royalty pool. That is, I first calculate the total mechanical royalty payments due from each streaming service in each year, regardless of whether or not that payment was driven by per-revenue fees, per-user fees, or varied by month.⁵⁶ I then divide this total mechanical royalty payment by the number of streams for that service to find the effective per-play rate. The computation does not include non-royalty payments that were made. Figure 7 calculates effective per-play rates paid by numerous streaming services annually from 2012 to 2015.

63. The dotted red horizontal line that runs through Figure 7 represents the per-play rate proposed by the Copyright Owners. Notably, it shows that [REDACTED], [REDACTED], and the market has seen consistent rapid growth, and even price competition.

⁵⁶ For Spotify, I count only revenue and the number of streams from its paid subscription services, not from the free service that is supported by advertisements. In cases of multiple paid subscription offerings, each is separated out by type (i.e. Spotify's two paid portable subscriptions—Premium and Sprint—are calculated separately from Spotify's paid non-portable S1 subscriptions).



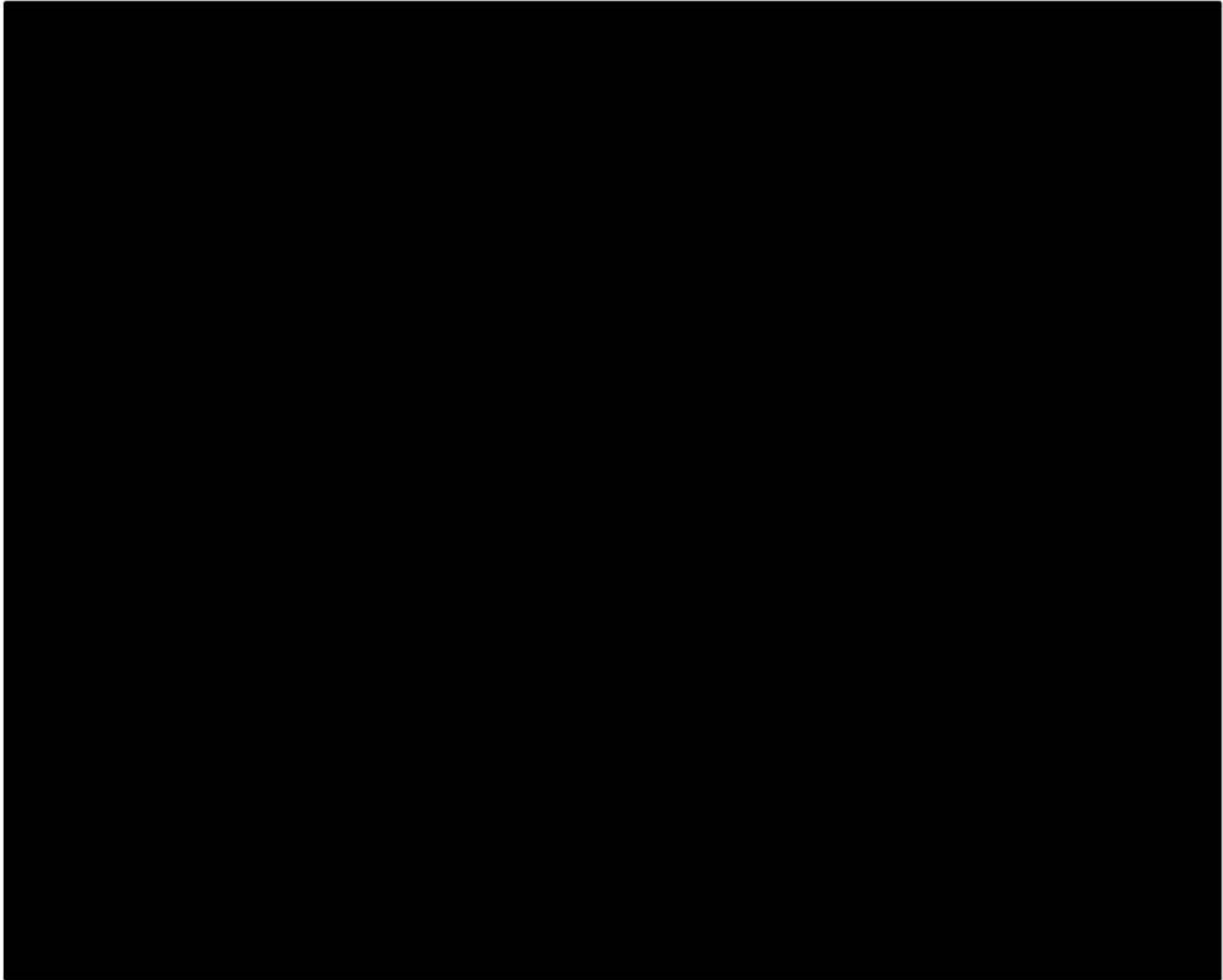
64. In Table 1, I highlight some of the larger services and historical effective per-play rates.

[REDACTED]

[REDACTED]

[REDACTED], and new entrants continue

to flood the market. It thus appears that the market for streaming services can function well at this rate, and can even attract significant entry.



65. I also find the case of Rhapsody notable. Rhapsody is a relatively large “pure play” participant in the market, has a high number of plays per user, has maintained a price of about \$10 per month, is not known to be influenced by equity deals with labels to pursue aggressive discounting and has deals with all the major labels.⁵⁷ Even ten years into its

⁵⁷ As of 2015, at least 86% of Rhapsody is owned by two shareholders (believed to be RealNetworks and Columbus Nova). See, Todd Bishop, *Filing: Investors loan Rhapsody \$10M as losses deepen at pioneering music service*, GeekWire (May 7, 2015), <http://www.geekwire.com/2015/filing-investors-loan->

operations (which began in 2001), Rhapsody paid an [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

66. I also understand that Copyright Owners have proposed a monthly per-user rate of \$1.06.

I note that this rate is consistent with the proposed \$0.0015 per-play rate at current user stream intensities. Subscribers of [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

VI. Policy Objectives of the Proposed Rates

67. I understand that, according to the guiding statute, the rates and terms to be determined in this proceeding are to be calculated to achieve the following objectives:

1. To maximize the availability of creative works to the public;
2. To afford the copyright owner a fair return for creative work and the copyright user a fair income under existing economic conditions;

[rhapsody-10m-as-losses-deepen-at-pioneering-music-service/](#); Todd Bishop, *Shakeup: Rhapsody cuts 15% of workforce, president out as new investor arrives*, GeekWire (Sept. 16, 2013), <http://www.geekwire.com/2013/shakeup-rhapsody-cuts-15-workforce-president-jon-irwin-investor-arrives/>. [REDACTED]

3. To reflect the relative roles of the copyright owner and the copyright user in the product made available to the public with respect to relative creative contribution, technological contribution, capital investment, cost, risk, and contribution to the opening of new markets for creative expression and media for their communication; and
 4. To minimize any disruptive impact on the structure of the industries involved and on generally prevailing industry practices.⁵⁸
68. In what follows, I will discuss these policy objectives individually, focusing on how they apply to interactive streaming. I consider these objectives in light of the proposed rates and terms, which include a rate structure with a rate of \$0.0015 per-play and a per-user rate of \$1.06. As I show above in Figure 7, the rate of \$0.0015 [REDACTED], and thus would be uncontroversial from the perspective of these criteria. In other circumstances, the proposal could represent an effective rate increase, and thus much of my discussion in what follows is about the impact of a rate increase.

A. MAXIMIZE THE AVAILABILITY OF CREATIVE WORKS TO THE PUBLIC

69. I understand that the CRB has noted in the past, in considering this factor, that “an effective market determines the maximum amount of product availability consistent with the efficient use of resources.”⁵⁹ Thus, the CRB must set royalty rates in this market to optimally achieve product availability and the efficient use of resources. Central to achieving the continued creation of creative works is to assure that copyright owners are fully compensated for their efforts. Creation of additional works is an ongoing process that requires ongoing investment that will be made only if there are sufficient returns to

⁵⁸ 17 U.S.C. § 801(b)(1).

⁵⁹ Final Rule, Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services, Docket No. 2006-1 CRB DSTRA (“SDARS I Final Rule”), 73 Fed. Reg. 4080, 4095 (Jan. 24, 2008).

record companies, publishers, songwriters, and performers. The market exit of songwriters due to lower royalty rates would undoubtedly lead to a situation that does not maximize the availability of creative works. By contrast, increasing the royalty rate would increase the amount and quality of music, all else equal. Higher royalty rates induce songwriters to write more songs and more appealing songs. Higher royalty rates may induce songwriters to leave other professions, part-time or full-time, and devote more time to writing songs.⁶⁰

70. In contrast, even if a change in royalty rate structure, despite its likely limited impact, somehow led some services to reduce investment, or even to exit the market entirely, it would not reduce the creative works available to the public. As long as some services are making these investments, consumers are well served. This market is supplied by several large and dynamic players, such as Spotify, Apple, Amazon, and Google, as well as many smaller firms such as Tidal, Rhapsody, and Deezer. Moreover, Pandora and iHeartRadio—two music streaming platforms that have over 150 million subscribers combined—have recently announced plans to launch interactive streaming services.⁶¹ These services are available on the Windows and Mac operating systems, as well as on iOS, Android, and Windows mobile platforms.⁶² When a service exits the market, the

⁶⁰ In the “Copyright and the Music Marketplace” report, the Register of Copyrights says about reforms: “Perhaps most concerning is that many deeply talented songwriters and developing artists now question whether a career in music is realistic under the current regime.” See, U.S. Copyright Office, Copyright and the Music Marketplace, at 12 (Feb. 2015).

⁶¹ When Pandora announced its plans to enter, it received a “Buy” rating from stock analysts. See, Tiernan Ray, *Pandora: Buy on Prospect of Deals with Major Labels, Says SunTrust*, Tech Trader Daily (Sept. 12, 2016), <http://blogs.barrons.com/techtraderdaily/2016/09/12/pandora-buy-on-prospect-of-deals-with-major-labels-says-suntrust/>.

⁶² See, e.g., Madi Alexander and Ben Sisario, *Apple Music, Spotify and a Guide to Music Streaming Services*, The New York Times (Apr. 5, 2016),

remaining services will increase their market share to fill the void, causing no lasting effect on the overall availability of musical works to the public. Overall, I would expect a rise in streaming mechanical royalty rates to increase the availability of creative works as creation of works will be incentivized, while the quality and ubiquity of service platforms ensures that the full range of works will be served to the public with the full range of access options.

B. AFFORD THE COPYRIGHT OWNER A FAIR RETURN FOR CREATIVE WORK AND THE COPYRIGHT USER A FAIR INCOME UNDER EXISTING ECONOMIC CONDITIONS

71. The language of this factor includes a policy objective to afford the copyright user “a fair income under existing economic conditions.”⁶³ I interpret this language to mean that royalty rates should *provide an opportunity* for the copyright user to earn a fair income.⁶⁴ This objective should not be interpreted as a guarantee of profits to all copyright users.⁶⁵ Affording services the opportunity to earn a fair income under existing conditions (which is what the market would do unfettered) helps attract users to the market and makes good

<http://www.nytimes.com/interactive/2015/06/30/business/media/music-streaming-guide.html>; Features, Deezer, <https://www.deezer.com/features> (last accessed Oct. 18, 2016).

⁶³ 17 U.S.C. § 801(b)(1).

⁶⁴ I also understand that this interpretation is set forth in prior precedent. In *Rates and Adjustments of Rates, Adjustment of Royalty Payable Under Compulsory License for Making and Distributing Phonorecords*, the CRB discuss this policy objective and noted that the determined rate will “afford record companies the *opportunity* to earn a fair income,” and does not “fail to afford...an *opportunity* to earn a fair income,” 46 Fed. Reg. 10466, 10480 (Feb. 3, 1981) (emphasis added).

⁶⁵ In Web II, the CRB noted: “It must be emphasized that, in reaching a determination, the Copyright Royalty Judges cannot guarantee a profitable business to every market entrant. Indeed, the normal free market processes typically weed out those entities that have poor business models or are inefficient. To allow inefficient market participants to continue to use as much music as they want and for as long a time period as they want without compensating copyright owners on the same basis as more efficient market participants trivializes the property rights of copyright owners. Furthermore, it would involve the Copyright Royalty Judges in making a policy decision rather than applying the willing buyer/willing seller standard of the Copyright Act.” Final Rule, Digital Performance Right in Sound Recordings and Ephemeral Recordings, Docket No. 2005-1 CRB DTRA (“Web II Final Rule”), 72 Fed. Reg. 24084, 24088, n.8 (May 1, 2007).

economic sense. Whereas the unqualified guarantee of profits to services without regard for their individual business strategy or operational competence would be done at the expense of rightsholders.⁶⁶

72. I do not interpret this policy objective as a guaranteed return to everyone who wishes to be a songwriter or publisher. However, it does seek to guarantee a fair return to rightsholders in proportion to the demand and consumption of a given musical work. In that respect, the current rate and rate structure fall short. As stated in Section IV, it is particularly unlikely that revenue-based payments lead to fair rates of return. That is because in this market, current revenue is not an accurate indicator of the value being created, because the value may be realized only in the future, in a complementary product, or through “non-revenue” channels such as selling the service to a larger firm. Also, as discussed above, services can manipulate revenue.⁶⁷
73. I interpret a fair rate of return to mean that when a copyright is used more intensively, the copyright owners should see increased returns. The CRB has previously noted the natural connection between increased usage and an increase in fair returns, stating that:

⁶⁶ I understand that the CRB has recognized this point: “Affording copyright users a fair income is not the same thing as guaranteeing them a profit in excess of the fair expectations of a highly leveraged enterprise. Nor is a fair income one which allows the SDARS to utilize its other resources inefficiently. In both these senses, a fair income is more consistent with reasonable market outcomes.” Final Rule, Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services, (“SDARS I Final Rule”), Docket No. 2006-1 CRB DSTR, 73 Fed. Reg. 4080, 4095 (Jan. 24, 2008).

⁶⁷ Relatedly, any lack of short-run profits for a service is not a reliable indicator of a lack of opportunity for fair income. First, given the revenue-suppressing strategies of the services discussed in Section III and Section IV above, short-run losses do not imply the absence of profitable opportunity. In this case, short-run losses likely represent a conscious trade-off between current revenue and future returns. Second, a service’s lack of profits may be due to inefficient operation or business strategy. An economic interpretation of the purpose of this policy objective is to ensure that a fair income opportunity is available to services, not to ensure that all services capitalize on that opportunity. I view the recent and continuing extensive investment in this industry by sophisticated firms such as Apple, Google, Amazon, Spotify, Pandora, and iHeartMedia as evidence that sufficient opportunities to earn a fair income must exist.

Dramatically expanded usage without a corresponding expectation of increased compensation suggests an upward adjustment to the existing statutory rate is warranted ... [the copyright user's] planned increase in usage...argues in favor of an increase in the rates going forward to fairly compensate the licensors for the additional performance.⁶⁸

74. However, under a system in which services charge a single fixed fee for unlimited monthly consumption, the number of plays per user grows substantially and there is no increase in mechanical royalties.
75. As discussed above in Section IV, under the typical business model of the services, revenue-based rate structures fail to adequately link royalty payments to the level with which a musical work is consumed. Whether or not it is possible to calibrate the specific revenue-based rate that ensures a fair return at a given time, such a rate will quickly fall out of synch as the market and technology change. To ensure against this, it is necessary to set objective metrics that are tied to the values at issue—in this case, the repertoire access value and the listening experience value—that will be indifferent to changes in the size or structure of the market over time. Per-play and per-user rates best meet the goal of delivering a fair return, based on the criteria articulated by the CRB.
76. One final point to bear in mind when considering fair return and fair income is the fact that the effects of price fixing are asymmetric with regard to licensees and licensors. The services have a great deal of control over the amount of profits that they earn given any particular mechanical royalty rate. For the licensee, a statutory rate sets the price that they must pay for just one input to the production of their service, and mechanical royalties amount to a small portion of overall costs, indeed a fraction of what is paid to

⁶⁸ Final Rule, Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services, Docket No. 2011-1-CRB PSS/Satellite II (“SDARS II Final Rule”), 78 Fed. Reg. 23053, 23060 (Apr. 17, 2013).

record labels alone (even more so when also considering equity grants to the labels). There are no controls on the costs of other inputs nor are there any limits on ability to generate revenue through consumer pricing. Licensors have but one means by which to generate revenue from the interactive streaming of the sound recording of their musical works, and that means is determined by this proceeding. In short, licensees can affect control over the return that they earn, whereas licensors are solely dependent on the royalty rate. It follows that the ultimate ability of licensors to earn a fair return is more sensitive to the statutory rate than is the ability of licensees to earn a fair income. It is thus more likely to satisfy this policy objective with a higher rate that protects licensors, while licensees remain protected by their business and market operations.

77. On this last point, I find a prior rate determination illuminating. In the 1998 proceeding for determining royalties for the Digital Performance of Sound Recordings, the Librarian of Congress noted that:

Congress, fully recognizing the threat that interactive services pose to the record companies, crafted the law so that they were ineligible for the compulsory license. The result of this decision is that record companies have an opportunity to negotiate an appropriate marketplace rate for a digital performance license with these services.⁶⁹

78. The determination then quoted the following passage from the Senate legislative history:

Interactive services, which allow listeners to receive sound recordings ‘on-demand’ pose the greatest threat to traditional record sales, as to which sound recording copyright owners (of sound recordings) must have the right to negotiate the terms of licenses granted to interactive services.⁷⁰

⁶⁹ Determination of Reasonable Rates and Terms for the Digital Performance of Sound Recordings, Docket No. 96-5 CARP DSTR, 63 Fed. Reg. 25394, 25409 (May 8, 1998).

⁷⁰ *Id.* at 25409.

79. The market threat from interactive streaming services is just as existential to songwriters and publishers as it would be to the record companies. The market fairness inquiry that led Congress to conclude that sound recording rightsholders “must have the right to negotiate the terms of licenses granted to interactive services” should lead to precisely the same conclusion with respect to music composition copyright owners. The Registrar of Copyright has further noted the incongruity of the compulsory mechanical rate:

Viewed in the abstract, it is almost hard to believe that the U.S. government sets prices for music. In today’s world, there is virtually no equivalent for this type of federal intervention—at least outside of the copyright arena ... Compulsory licensing removes choice and control from copyright owners who seek to protect and maximize the value of their assets.⁷¹

80. In my opinion, the stated policy objectives allow for the setting of a royalty rate that emulates a free market, which may be accomplished by setting a rate high enough to protect the music composition copyright owners, the one group that is currently deprived of the fairness protections offered by a free market. The Copyright Owners’ proposed rates are well within the range of historical payments rates and reasonableness, and will afford a more fair return without affecting the opportunity of services to earn a fair income.

C. THE RELATIVE ROLES OF THE COPYRIGHT OWNER AND THE COPYRIGHT USER

81. As discussed above, both copyright owners and copyright users have distinct roles in the distribution of musical works. Songwriters, facilitated by publishers, produce creative intellectual property. Copyright users (i.e. the services) build a user interface and license and aggregate that property in order to distribute it to consumers.

⁷¹ U.S. Copyright Office, Copyright and the Music Marketplace, at 145, 148 (Feb. 2015).

82. This third policy objective calls for rates and terms that:

Reflect the relative roles of the copyright owner and the copyright user in the product made available to the public with respect to relative creative contribution, technological contribution, capital investment, cost, risk and contribution to the opening of new markets for creative expression and media for their communications.⁷²

83. In the analysis of this policy objective during the determination of the rate that XM Radio and Sirius Satellite Radio would pay for sound recordings in 2007 in SDARS I, it was noted that any creative contribution by Sirius “is certainly subsidiary to and dependent on the creative contribution of the record companies and artists to the making of the sound recordings that are the primary focus of those music channels.”⁷³
84. In addition to this statement by the CRB which clearly recognizes the important relative contribution of rightsholders, I offer an alternative approach that supports this conclusion. The way an economist would likely measure the relative contribution of the two sides in this situation is to examine what prices would be in a hypothetical free and well-functioning market. As noted above, I understand that NMPA has retained an expert who will perform and discuss such analyses. I will add to this discussion at a conceptual level.
85. An economist would think of the relative roles of rightsholders and rights users in terms of their contribution to the overall value being created. It is difficult to observe a product like online streaming of music and determine the relative contribution of different elements of the production. For perspective on this, it is helpful to consider what the outcome would be if all sides could bargain over the economic value (called “surplus” by economists) that their product creates in a well-functioning (or frictionless) market.

⁷² 17 U.S.C. § 801(b)(1).

⁷³ SDARS I Final Rule, at 4096.

Standard economic models of bargaining are based on the idea that bargaining should lead participants to obtain their relative contribution to a project, and so in this sense, the outcome of a bargaining framework provides perspective on these criteria.

86. While we cannot know for sure what would happen if music rightsholders and users bargained in this way, we can search for similar situations outside of online music streaming to provide a benchmark for comparison. A useful benchmark is subscription online video streaming, such as offered by Netflix. This market is similar to the online music streaming market in a number of ways. Both stream creative content to consumers over the Internet for entertainment purposes. Both were uncertain when they started, and disrupted previous methods of distribution (such as CD sales, download sales, and DVD sales). In both markets, distributors have invested heavily in distribution. For instance, Netflix has developed its applications for mobile phones and televisions. Netflix's position is somewhat analogous to Spotify's, in that it was an early market leader, and now faces competition not only from pure-play services such as Hulu but also Amazon, Google, and Apple.
87. In this market, content costs have risen significantly over the last 10 years. Netflix, for example, reports that it spent \$300 million dollars on content in 2010, and had about 20 million subscribers at the end of the year, or \$15 per subscriber. In 2013, Netflix had 44.4 million subscribers and incurred approximately \$2.2 billion in content costs, or \$49.45 per subscriber. In 2016, these numbers are 86.7 million subscribers and \$4.4

billion on content costs, or \$50.84 per subscriber.⁷⁴ These costs are mostly attributable to licensed programming rather than original programming.⁷⁵

88. While content-providers were willing to experiment with low prices in the early days of interactive video streaming, the current recognition of the viability and value of streaming, perhaps as well as the entry of new services, has led content providers to raise prices.⁷⁶ Based on this example, I would expect content providers in the interactive streaming space to also raise prices to services if this market operated as an efficient free market.
89. Separately from a rate increase, we can consider how an emphasis on per-play and per-user rates supports the objective of rewarding the relative role of songwriters. These types of rates place a value on the use of copyrighted work that does not depend on the pricing models of services, which, as discussed above, are often subject to incentives for revenue deferment to the future, or revenue displacement to other products or through other means.

⁷⁴ Netflix 2010 Q4 Letter to Shareholders, Netflix, at 1, 16 (Jan. 26, 2011), <http://files.shareholder.com/downloads/NFLX/3068971525x0x437075/925E81C4-3D5D-44B6-AE5E-A70C91251131/Q410%20Letter%20to%20shareholders.pdf> (last accessed Oct. 21, 2016); Netflix 2013 Q4 Letter to Shareholders, Netflix, at 1, 12 (Jan. 22, 2014), <http://files.shareholder.com/downloads/NFLX/3004589463x0x720306/119321BC-89C3-4306-93AC-93C02DA2354F/Q4%2013%20Letter%20to%20shareholders.pdf> (last accessed Oct. 27, 2016); Netflix 2016 Q3 Letter to Shareholders, Netflix, at 1, 9 (Oct. 17, 2016), http://files.shareholder.com/downloads/NFLX/3004589463x0x912075/700E14FD-12BE-4C3A-9283-9A975C7FE549/FINAL_Q3_Letter.pdf. Content costs calculated as the sum of the “amortization of streaming content assets” and “amortization of DVD content costs” lines on the statement of cash flows. The content costs for 2016 were calculated using data from the last-twelve months.

⁷⁵ In a letter to investors in April 2013, Netflix states: “The vast majority of our spending is on movies and prior-season TV shows from other networks.” *See Netflix Long Term View*, Netflix at 6 (Apr. 25, 2013), http://files.shareholder.com/downloads/nflx/2446738440x0x656145/e4410bd8-e5d4-4d31-ad79-84c36c49f77c/iroverviewhomepageletter_4.24.13.pdf. It is possible that the share of spending on original content has increased since 2013, but at least part of the explanation for Netflix’s investment in original content is the rising cost of licensed content.

⁷⁶ Referring to competition for licensing serialized television shows, Netflix states: “[W]e’ve pushed the price up considerably.” *Id.*

D. MINIMIZE ANY DISRUPTIVE IMPACT ON THE STRUCTURE OF THE INDUSTRIES INVOLVED AND ON GENERALLY PREVAILING INDUSTRY PRACTICES

90. An important criterion for evaluating any proposed licensing structure is whether or not it causes disruption to the industry. In the SDARS I proceeding, the Copyright Royalty Judges offered one interpretation of that mandate:

[A rate] can be disruptive ... if it directly produces an adverse impact that is substantial, immediate and irreversible in the short-run because there is insufficient time for either [the copyright users] or the copyright owners to adequately adapt to the changed circumstances produced by the rate change and, as a consequence, such adverse impacts threaten the viability of the music delivery service currently offered to consumers under this license.⁷⁷

91. While the CRB's statement may be illustrative, an economist may think of market disruption in broader terms. For example, it is well understood that market disruption can be a slow and incomplete process—it need not be sudden and all-embracing.⁷⁸ I will therefore address the potential for disruption with respect to the narrow and contextual interpretation offered in SDARS I and with respect to a broader sense of the concept. In either respect, the effect of the rate proposed by rightsholders in this proceeding will not lead to a disruption of business for the streaming service providers. At the same time, the current rates have been disruptive for rightsholders.

1. For Services, the Impact of the Proposed Rates Will Not Lead to Market Disruption

92. The economics of music streaming implies that the overall value of a service is far greater than what might be indicated by current revenue or profitability as discussed in Section III. That in turn implies that current profitability is a poor indicator of whether or

⁷⁷ SDARS I, at 4097.

⁷⁸ Maxwell Wessel & Clayton M. Christensen, *Surviving Disruption*, Harvard Business Review (Dec. 2012), <https://hbr.org/2012/12/surviving-disruption>.

not music services could adapt to a change in licensing fees. My opinion is that the Copyright Owners' rate proposal will not be disruptive and will hardly be noticed within such a dynamic industry. This conclusion is based on two facts. First, the services have the ability to quickly adapt and change strategy (if they decide it is necessary) to offset the impact of the proposed rates. Second, given the robust state of the industry and the strong prospects for the future, it is not clear that services would even find it necessary to implement any change in response to a change in royalty rates, even those services that face a rate increase.

a) Services Have Strategic Options to Offset the Impact of Changes To Rates

93. As stated above, the musical works that services license from rights owners are one of several inputs to production. The statutory rate is then the price of that one input, and the proposed change to the statutory rate is a change in this input price. This is not an uncommon occurrence nor is it detrimental to production in and of itself. Producers of goods and services can adapt to higher input prices by increasing revenue, reducing other costs or allowing the firm's capital to absorb the increased input cost. Below I will discuss several of these options that would be available to streaming services today. It should also be noted that several of these business strategies are already being considered or have been implemented. For those that have been implemented, the benefits are often just starting to have a financial impact and may require more time to be fully realized. The ultimate point, however, is that whatever the nominal impact of a change in mechanical royalty rates, the final impact on services will be significantly mitigated.

(1) Revenue Enhancement Options

94. With regard to paid subscription platforms, the industry as a whole could increase the rates charged to consumers in order to generate more revenue per subscriber.⁷⁹ A change in market-wide royalty rates such as this would affect all participants in a similar way. Collectively the services could pass through the rate change to consumers without affecting their price points relative to each other.⁸⁰
95. Services could raise revenue by introducing price discrimination through a tiered subscription pricing system. Consumers would pay a price more closely related to their level of consumption and willingness to pay.⁸¹ When effectively implemented, price discrimination is a well-understood economic strategy to increase revenue, profits, and overall social welfare. These types of plans often lead to reductions in price for the lowest tier.
96. With regard to ad-supported platforms, services could choose to increase the number of ads per hour. The fact that Pandora produces far more advertisements per hour than does

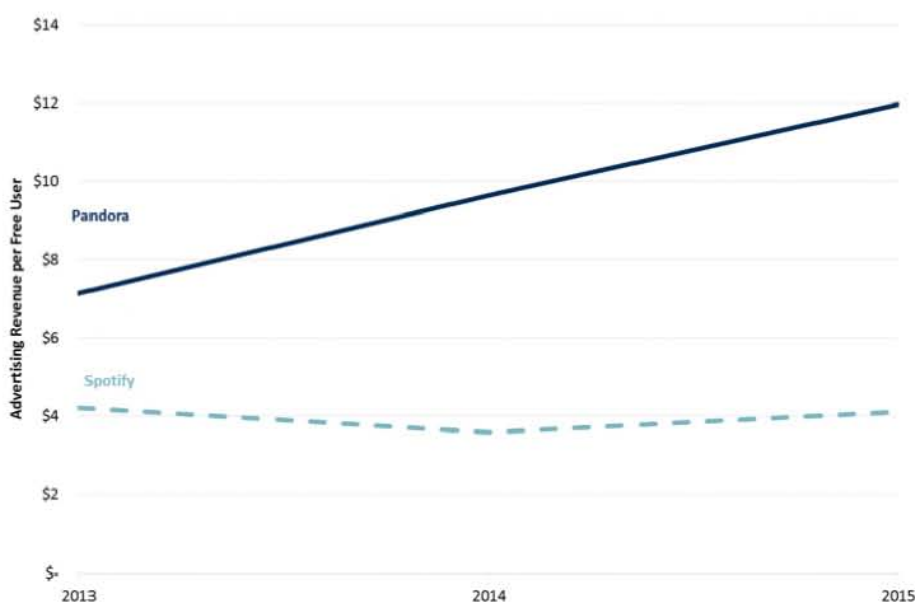
⁷⁹ In an interview concerning Pandora's forthcoming entry into the interactive streaming market, Pandora's chief strategy officer Sara Clemens stated that "One of the things that the industry has done to its detriment over the years is create this \$120 price cap irrespective of how much people love music," referring to the yearly price tag affixed to all-you-can-stream services like Spotify. Clemens went on to note, "If I look at the gaming industry for example, people are willing to spend thousands if they're a superfan." John Paul Titlow, *Inside Pandora's Plan To Reinvent Itself – And Beat Back Apple And Spotify*, Fast Company (Apr. 26, 2016), <https://www.fastcompany.com/3058719/most-innovative-companies/inside-pandoras-plan-to-reinvent-itself-and-beat-back-apple-and-sp>.

⁸⁰ On April 14, 2009, Apple raised the price of top popular downloads from 99 cents to \$1.29 – a 30% price hike overnight. Within days, Amazon and other services were following that price lead. Matt Rosoff, *Amazon follows Apple to \$1.29*, CNET (Apr. 15, 2009), <https://www.cnet.com/news/amazon-follows-apple-to-1-29/>.

⁸¹ As an example, cell phone carriers currently offer different prices for different tiers for monthly data plans, setting higher prices for users with a higher willingness to pay while still offering lower tiered plans for those with lower-paying preferences.

Spotify suggests that Spotify could sustain more (and in fact has made efforts to do so).⁸² As the number of ads presented to Spotify listeners represents a time cost to those listeners, it would eventually be limited by competition with other services and the dynamic incentives of potential network effects. However, a change in royalty rates would, again, affect all services and the competitive equilibrium that exists would be preserved even with an increase in the number of ads per hour.

Figure 8: Revenue per Ad-Supported User



Sources and Notes: Standard & Poor's Capital IQ; Spotify 2015 Annual Report, at 3, 26; Spotify 2014 Annual Report, at 2; Spotify 2013 Annual Report, at 4; Spotify 2012 Annual Report, at 1; 2015 Form 10-K for Pandora Media, Inc., at 46, 50; 2014 Form 10-K for Pandora Media, Inc., at 39, 45; Pandora Media, Inc.'s 2012 subscribers from statista. See, Number of Pandora's paying subscribers from 2008 to 2022 (in millions), statista, <https://www.statista.com/statistics/253850/number-of-pandoras-paying-subscribers/> (last accessed Oct. 24, 2016).

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97. Increasing the number of ads per hour would potentially have three effects by which to offset a change in royalty rate. First, as seen in Figure 8, ad revenue per user may increase. Second, more advertisements per hour may increase the subscription conversion rate, by encouraging non-subscription users to purchase a subscription in order to circumvent those advertisements. A shift in the distribution of Spotify's users to Spotify's subscription platform from its ad-supported platforms would generate more revenue, because the subscription service generates higher per-user revenue margins. Third, more advertising means fewer songs per hour being streamed by each user and therefore fewer royalty payments that need to be made.

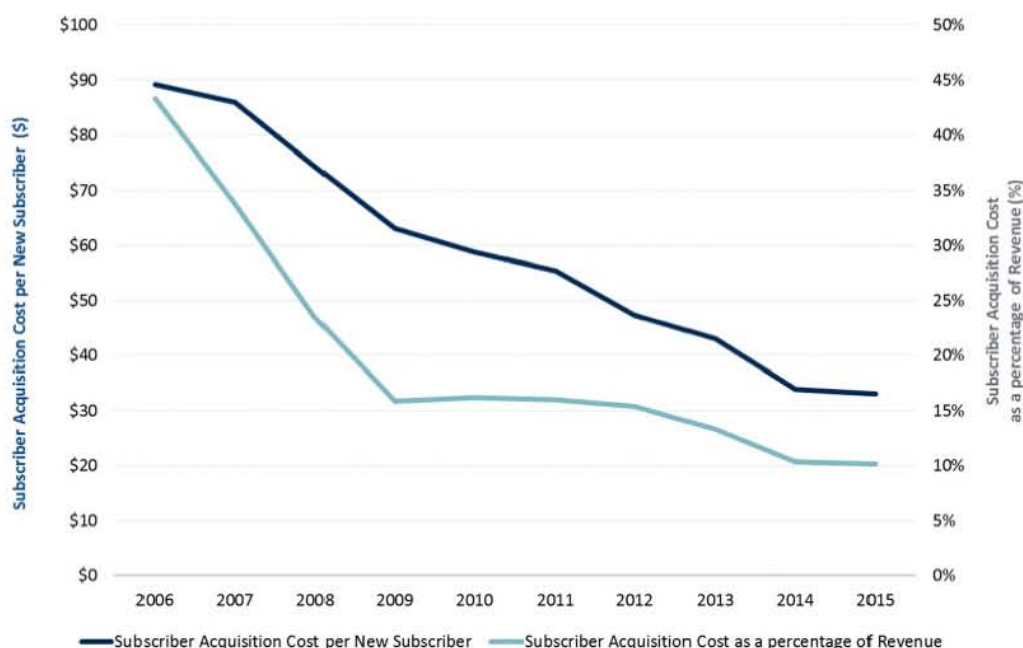
(2) Cost Reduction Options

98. As mentioned above, mechanical royalty payments are only one of the many expenses incurred by services. To offset the increase in royalty expenditures, services can also take advantage of favorable trends in other expense lines and metrics. Consider the case of Sirius XM. The company's financial lows between 2007 and early 2009 were not indicative of future returns and the CRB increased Sirius XM's rate. Back in 2007, neither Sirius nor XM as separate entities had been profitable, and combined, they had operating losses of \$1.025 billion.⁸³ The financial crisis had severely damaged the auto industry, and due to satellite radio's heavy reliance on partnerships with many car manufacturers, Sirius XM was heavily impacted as well. Sirius XM then claimed in CRB

⁸³ 2009 Form 10-K for Sirius XM Radio Inc., at 33.

proceedings that it had mounting losses in a fixed-cost industry, suggesting a bleak future for Sirius XM would lie ahead.⁸⁴

Figure 9: Sirius XM Customer Acquisition as a Percentage of Revenue



Sources and Notes: 2015 Sirius XM Radio Inc. Form 10-K, at 23, 40.; 2014 Sirius XM Radio Inc. Form 10-K, at 23, 44; 2013 Sirius XM Radio Inc. Form 10-K, at 24, 45; 2012 Sirius XM Radio Inc. Form 10-K, at 23, 45; 2011 Sirius XM Radio Inc. Form 10-K, at 26, 51; 2010 Sirius XM Radio Inc. Form 10-K, at 47, 52; 2009 Sirius XM Radio Inc. Form 10-K, at 33, 56; 2008 Sirius XM Form 10-K, at 35, 55.

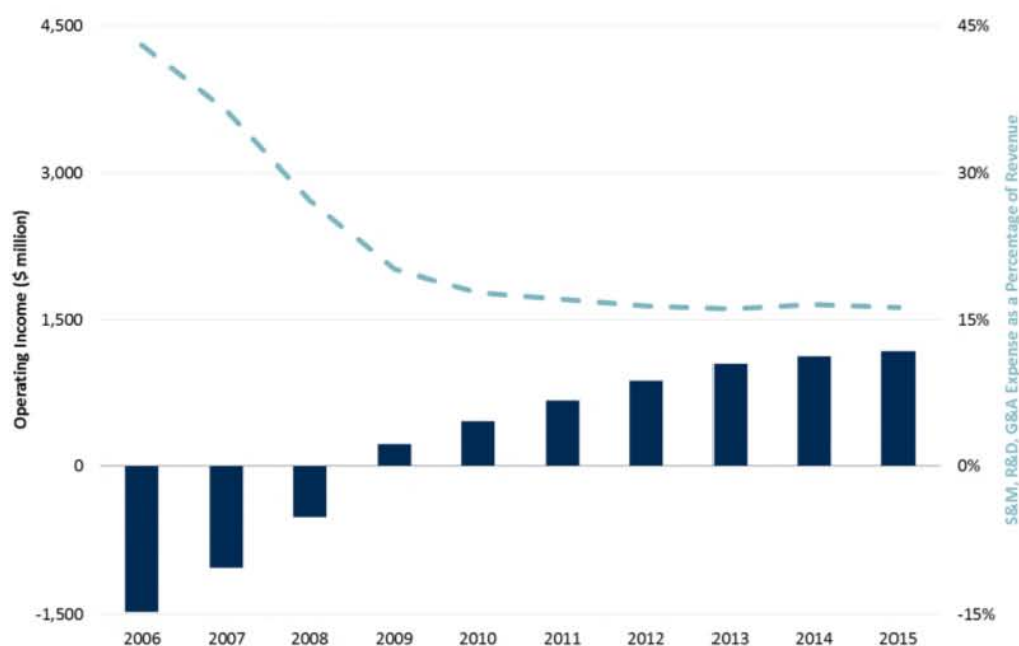
Sirius Satellite Radio and XM Satellite Radio merged in 2008 – pro-forma data from 2006 to 2008 is taken.

99. During this period, however, Sirius XM’s expenses like subscriber acquisition costs (“SAC”) fell sharply as a percentage of revenue, as seen in Figure 9. By year-end 2009, Sirius was able to post its first year of positive profit off of the recovering auto industry

⁸⁴ See, e.g., Sirius XM Radio Inc.’s Proposed Findings of Fact, at 10, Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services, Docket No. 2011-1-CRB PSS/Satellite, in SDARS II (Oct. 1, 2012).

and declining operating expenses. As the company matured, operating expenses such as Research & Development (“R&D”), General & Administration (“G&A”), and Sales & Marketing (“S&M”) continued to fall per customer and as a percentage of revenue. *See* Figure 10. By 2015, Sirius XM posted annual operating income of over \$1 billion from \$4.6 billion in revenue and grew their subscriber base out from 19 million in 2009 to 30 million in 2015.

Figure 10: Sirius XM S&M, R&D, and G&A Expense as a Percent of Revenue vs. Operating Income: 2006 - 2015



Sources and Notes: 2015 Sirius XM Radio Inc. Form 10-K, at 23; 2014 Sirius XM Radio Inc. Form 10-K, at 23; 2013 Sirius XM Radio Inc. Form 10-K, at 24; 2012 Sirius XM Radio Inc. Form 10-K, at 23; 2011 Sirius XM Radio Inc. Form 10-K, at 26; 2010 Sirius XM Radio Inc. Form 10-K, at 52; 2009 Sirius XM Radio Inc. Form 10-K, at 33; 2008 Sirius XM Radio Inc. Form 10-K, at 35.

Operating income and expenses for 2008 taken from adjusted post-merger pro-forma values in 2010 10-K. Operating income is taken due to large variances in net income throughout the years as a result of one-off items such as goodwill impairment and deferred tax asset realizations. For more detail, *see* 2008 Sirius XM Radio Inc. Form 10-K, at 32, and 2012 Sirius XM Radio Inc. Form 10-K, at 29.

100. Not unlike Sirius XM's experience in the late 2000s, several of Spotify's metrics are also now trending in the right direction. Over the last few years, Spotify's R&D, G&A, and S&M expenditures decreased from approximately 30% of revenue in 2012 - 2014 to 26% in 2015.⁸⁵ Due to the fixed nature of many of these expenses (as discussed in Section III), it is anticipated that as the revenue and the user growth continue, such promising trends will continue.

(3) Cost Absorption by Services

101. As mentioned in Section III, the services are not yet in the profit-seeking phase of their development. Therefore, a reasonable response to increased production costs would be for services to simply absorb the costs at this time without passing them through to consumers or offsetting expense reductions elsewhere.⁸⁶ The effect of such a strategy would be to increase the rate at which services use the capital available to them.

b) The Industry is Robust

102. The streaming industry is not a struggling market fraught with fragility and uncertainty. Instead, we see large growth both in individual service providers and in the broad market. Major tech firms are entering the market and investors are eager to invest their money.

⁸⁵



⁸⁶ One example is how Apple Music was able to absorb the cost of lowering its subscription price by 18% (a \$99 annual subscription price instead of \$10 per month). This signals that since it can take such a cut from its revenue, a similar rate increase should not cause any disruption in its operations. See, Dawn Fleming, *Apple Music Get Spotify-Like Features and Slashes Membership to Just \$8.25 per Month*, iTechPost (Sept. 6, 2016), <http://www.itechpost.com/articles/27762/20160906/apple-music-get-spotify-like-features-and-slashes-membership-to-just-8-25-per-month.htm>.

This is meaningfully related to the issues of disruption presently considered by the CRB.

The industry is strong and robust; a rate change is not going to disrupt the market.

103. The number of paid subscribers has grown from 3 million in 2011 to 39 million in August 2016, which is equal to a compound annual growth rate (“CAGR”) of over 73%.⁸⁷ The number of audio streams has grown from 49 billion in 2013 to 145 billion in 2015 which is equal to a CAGR of approximately 72%.⁸⁸
104. In addition, the implied market value of Spotify has increased from \$250 million in August 2009 to \$8.5 billion in June 2015 which is equal to a CAGR of about 80%.⁸⁹ All these metrics point to a strong and growing music service industry.
105. Spotify has generated a significant amount of investor interest, as evidenced by its ability to raise more than \$2 billion through several rounds of both debt and equity funding.⁹⁰ In March 2016, Spotify was able to raise \$1 billion in convertible debt from investors with features that were designed to encourage the company to sell itself (via an IPO or

⁸⁷ Lisa Yang, et al. *Music in the Air – Stairway to Heaven*, Goldman Sachs, at 41 (Oct. 4, 2016), at 41. The CAGR was calculated using data from January 2016 through August 2016, and annualized.

⁸⁸ 2014 Nielsen Music U.S. Report, Nielsen, at 1, <http://www.nielsen.com/content/dam/corporate/us/en/public%20factsheets/Soundscan/nielsen-2014-year-end-music-report-us.pdf> (last accessed Oct. 21, 2016); 2015 Nielsen Music U.S. Report, Nielsen, at 8, <http://nck.pl/media/attachments/317410/2015%20Nielsen%20music%20U.S.%20reportdf.pdf> (last accessed Oct. 21, 2016).

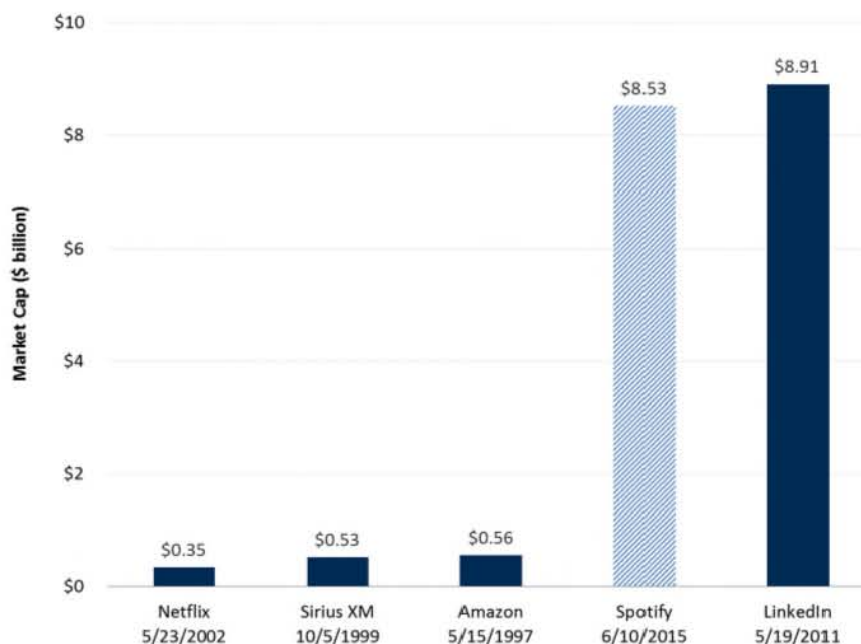
⁸⁹ Douglas MacMillan, et al., *Spotify Raises \$1 Billion in Debt Financing*, The Wall Street Journal (Mar. 29, 2016), <http://www.wsj.com/articles/spotifyraises1billionindebtfinancing1459284467>; Lionel Laurent, *Li Ka-shing Confirms Spotify Stake*, Forbes (Aug. 20, 2009), <http://www.forbes.com/2009/08/20/spotify-li-hutchison-markets-equities-technology.html>.

⁹⁰ See, e.g., Douglas MacMillan, et. al., *Spotify Raises \$1 Billion in Debt Financing*, The Wall Street Journal (Mar. 29, 2016), <http://www.wsj.com/articles/spotify-raises-1-billion-in-debt-financing-1459284467>; Lauren Davidson, *Spotify Valued at \$8.53bn valuation after fresh funding valuation after fresh funding round*, The Telegraph (June 10, 2015), <http://www.telegraph.co.uk/finance/newsbysector/mediatechnologyandtelecoms/11664186/Spotify-hits-8.53bn-valuation-after-fresh-funding-round.html>.

privately).⁹¹ Up from \$4.25 billion in November 2013, Spotify was valued at \$8.5 billion based on a recent round of funding with an anticipated IPO slated for 2017. If it were to engage in a successful IPO with its current valuation, Spotify would be large enough to be a member of the S&P 500, and it would have a market cap greater than that of several other successful subscription based companies at the time of their IPO announcement dates, as seen in Figure 11.⁹²

⁹¹ Specifically, terms of the debt included a 5% annual coupon that escalates by 1% every 6 months if Spotify does not go public (up to a maximum of 10%), starting 1 year after issuance. In addition, the investors hold a 20% IPO equity conversion discount should Spotify go public, and that discount also escalates by 2.5% every 6 months if the company does not go public, also starting 1 year after issuance. See Douglas MacMillan, et. al., *Spotify Raises \$1 Billion in Debt Financing*, The Wall Street Journal, (Mar. 29, 2016) <http://www.wsj.com/articles/spotify-raises-1-billion-in-debt-financing-1459284467>.

⁹² Note that while several of the aforementioned subscription based companies had their IPO in the late 1990s and early 2000s, Spotify's current valuation is still well above the median IPO deal size for the past decade, and would lie at least in the 90th percentile of all IPOs by offering size compared to all 2012-2014 IPOs. See, 2015 IPO Report, Wilmer Hale 2015, at 2-3, https://www.wilmerhale.com/uploadedFiles/Shared_Content/Editorial/Publications/Documents/2015-WilmerHale-IPO-Report.pdf (last accessed Oct. 21, 2016).

Figure 11: Market Cap at Time of IPO Comparison

Sources and Notes: Bloomberg.

Lauren Davidson, *Spotify Valued at \$8.53bn valuation after fresh funding round*, The Telegraph (June 10, 2015),

<http://www.telegraph.co.uk/finance/newsbysector/mediatechnologyandtelecoms/11664186/Spotify-hits-8.53bn-valuation-after-fresh-funding-round.html>.

106. A private sale (as opposed to an IPO) would also be a potential option for Spotify and is something that has been in the news lately. A recent report cited Joakim Dal, an analyst at the Swedish investment company GP Bullhound:

We think a US IPO in 2017 is likely but also don't discard the possibility of a sale to Facebook. Historically, building social networks around its offer has been a weak spot for Spotify. In that sense, a deal with Facebook would be something positive. It would also make Spotify stronger against Apple, as Apple doesn't have a social network connected to its offer ...⁹³

⁹³ Jill Bederoff, *One of Spotify's owners says it's NOT unlikely that Facebook buys the company*, Business Insider Nordic (Sept. 16, 2016), <http://nordic.businessinsider.com/gp-bullhound-facebook-might-buy-spotify-before-the-ipo-2016-9/>.

Such investor interest is not only about Spotify, but also suggests a strong and robust streaming industry, not one which is struggling and uncertain.

107. Another indication of the strong prospects for the future of the streaming industry is the market entry of three of the most successful and high profile companies in the world—Alphabet (Google), Amazon, and Apple. Alphabet has been in the market since late 2011 with Google Play Music, and recently re-launched its paid streaming service in late 2015, adding YouTube Red, a complementary product offering to Google Play Music.⁹⁴ Amazon launched its ad-free music streaming service as part of its universal Amazon Prime subscription in 2014⁹⁵ and has recently launched an unbundled interactive streaming service.⁹⁶ Apple made its entry in June 2015 with Apple Music, its \$9.99 per month interactive streaming service, and to date has accumulated 17 million subscribers.⁹⁷
108. Even beyond these giants is the recently announced upcoming launch of new interactive streaming services by iHeartMedia and Pandora, two platforms that currently have over 150 million subscribers combined in the non-interactive streaming space.

⁹⁴ Tim Ingham, *YouTube Red: 13 things you need to know*, Music Business Worldwide (Oct. 22, 2015), <http://www.musicbusinessworldwide.com/youtube-red-13-things-you-need-to-know/>.

⁹⁵ Glenn Peoples, *One-Fifth of a Percent? A Closer Look at Amazon's Prime Music Launch*, Billboard (June 24, 2014), <http://www.billboard.com/biz/articles/news/digital-and-mobile/6128803/amazon-prime-music-launch>.

⁹⁶ On October 12, 2016, Amazon launched an unlimited interactive streaming service with several price points, including a \$3.99/month plan that works only with an Amazon Echo device, a \$7.99/month or \$79/year plan for Amazon Prime subscribers, and a \$9.99/month plan for all other users. Ben Sisario, *Amazon Pairs Its Speaker With Streaming Music, at a Bargain Price*, The New York Times (Oct. 12, 2016), www.nytimes.com/2016/10/12/business/amazon-music-apple-spotify.html; Julia Love, *Amazon Challenges Apple and Spotify With New Music Streaming Service*, Reuters (Oct. 12, 2016), www.reuters.com/article/us-amazon-com-music-idUSKCN12C0ML.

⁹⁷ Tim Ingham, *Apple Music now has 17 Million Subscribers, after Securing 70 Exclusives*, Music Business Worldwide (Sept. 7, 2016), <http://www.musicbusinessworldwide.com/apple-music-now-has-17-million-subscribers-after-securing-70-exclusives/>.

109. Regardless of the ultimate effect that this additional competition will have on existing streaming services, the entry of such high-profile companies is a positive sign for the industry. The participation of these three entities alone dispels any notion that the music streaming industry has no investment opportunities.⁹⁸

2. Disruption to Rightsholders

110. In contrast, the current mechanical royalty structure may have been disruptions to the publishing and songwriting industry. As I mentioned earlier, the effects of disruption need not be instantaneous or comprehensive. The fact that the songwriting industry has not yet collapsed does not imply that the current rates have not been disruptive. Nor does it imply that the current rates are capable of sustaining songwriters especially as the market transitions from ownership to access.
111. When the current rate structure was put into place in 2008 and 2012, interactive streaming was a nascent industry without any defined price structure, and with an unknown future. The rapid growth of interactive streaming—particularly free, ad-supported interactive streaming—has displaced other forms of music consumption,⁹⁹ and changed the way that rightsholders are paid. This has further led to complaints that the free availability of on-demand music streaming (in part because interactive streaming services have been focused on building a customer base and market share) has put

⁹⁸ Claire Atkinson, *iHeartMedia to launch paid music-streaming service:sources*, New York Post (Sept. 20, 2016), <http://nypost.com/2016/09/20/iheartmedia-to-launch-spotify-music-streaming-competitor/>; James Geddes, *Pandora Readying On Demand Subscription Service to Compete With Spotify And Apple Music*, Tech Times (Apr. 30, 2016), <http://www.techtimes.com/articles/154842/20160430/pandora-readying-on-demand-subscription-service-to-compete-with-spotify-and-apple-music.htm>.

⁹⁹ Omar Sheikh et. al., *Global Music*, Credit Suisse, Apr. 4, 2016.

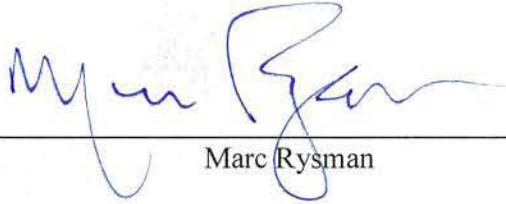
consumers “into the habit of not paying much, if anything at all, for music.”¹⁰⁰ and that the current structure of royalty rates has made it more difficult to make a living as a songwriter.¹⁰¹ The aspects of market economics that I have discussed in this report are consistent with the perception among rightsholders that the industry has experienced disruption.

¹⁰⁰ “*Pandora’s Big Bet. Consumers Will Pay Big Money For Music Again*,” Radio Ink (Oct. 25, 2016), <https://radioink.com/2016/10/25/pandoras-big-bet/>.

¹⁰¹ See, e.g., Darby Maloney, *Hello, Spotify! Goodbye, songwriters?* Southern California Public Radio (May 19, 2016), <http://www.scpr.org/programs/the-frame/2016/05/19/49009/hello-spotify-goodbye-songwriters/>.

I declare under penalty of perjury that the foregoing testimony is true and correct to the best of my knowledge, information and belief.

Dated: October 28, 2016



Marc Rysman

Appendix A: Curriculum Vitae of Marc Rysman

MARC RYSMAN

July, 2016

Department of Economics	mrysman@bu.edu
Boston University	sites.bu.edu/mrysman/
270 Bay State Road	(617)353-3086 (office)
Boston, MA 02215	

Citizenship: United States

EDUCATION

University of Wisconsin-Madison, PhD, Economics, 1999.

Columbia University, BA, Economics, 1992.

PRIMARY ACADEMIC APPOINTMENTS

Professor, Boston University, 2011 to present.

Associate Professor, Boston University, 2006 to 2011.

Assistant Professor, Boston University, 1999 to 2006.

VISITING POSITIONS

Visiting Scholar, Center for Consumer Payments Research, Federal Reserve Bank of Boston, 2009 to present.

Visiting Scholar in Economics, Harvard University, 2014-2015.

Visiting Associate Professor, Economics Department, Massachusetts Institute of Technology, 2007-2008.

Visiting Scholar in Economics, Harvard University, 2003-2004.

Visiting Fellow, Center for Studies in Industrial Organization, Northwestern University, May-June 2003.

Visiting Scholar, Federal Reserve Bank of Minneapolis, July 2003.

Research Assistant, Brookings Institution, 1992-1994.

EDITORIAL POSITIONS

Editor, RAND Journal of Economics, July 2014 to present.

Editor, Review of Network Economics, 2010-2015.

Associate Editor, Journal of Industrial Economics, 2010-2014.

Associate Editor, The RAND Journal of Economics, 2007-2014.

Associate Editor, International Journal of Industrial Organization, 2005 to 2014.

Co-editor, Journal of Economics and Management Strategy, 2007-2010.

OTHER PROFESSIONAL SERVICE

President, Industrial Organization Society, 2016 to present.

Vice-President, President-Elect of Industrial Organization Society, 2014-2015.

Organizing Committee, International Industrial Organization Conference 2008-2014.

Organizer, Standards, Innovation and Patents Conference in Tucson. Sponsored by the NBER and USPTO. February 2012. Editor for special issue in IJIO.

Organizing Committee, European Association for Research in Industrial Economics (EARIE) conference, Stockholm, 2011.

Local Organizer, Summer Meetings of the North American Econometric Society, Boston University, 2009.

INVITED LECTURES (SELECTED)

Antitrust in Digital Industries, Public Lecture organized by the Japanese Federal Trade Commission, Tokyo, March, 2014.

Estimating Price-Cost Margins in a Dynamic Environment, Invited Lecture, European Association for Research in Industrial Economics (EARIE), Munich, September 2015.

Payment Networks, Academic Consultants Conference for the members of the Board of Governors, Federal Reserve Bank, October 2011.

Estimating Network Effects in a Dynamic Environment, Invited Lecture, European Association for Research in Industrial Economics (EARIE), Stockholm, September 2011.

Adoption and Use of Payment Instruments by US Consumers, Keynote speech at conference entitled Payments Markets: Theory, Evidence and Policy, Granada, Spain. June, 2010.

Platform Pricing at Sportscard Conventions, Plenary speech at conference entitled Platform Markets: Regulation and Competition Policy. Mannheim, Germany, May, 2010.

Empirical Analysis of Payment Card Usage, Plenary session at Conference on Two-Sided Markets, Institut D'Economie Industrielle, Toulouse, January 2004.

INVITED SHORT COURSES

"Static and Dynamic Demand Estimation," for joint PhD program among Berlin universities, August 2014.

"Network Effects, Two-Sided Markets and Standard Setting," Fordham Competition Law Institute Training for Agency Economists. (I taught one section of a week-long training for competition authority economists from many countries.) June, 2007-June, 2013.

"Structural Econometrics in Industrial Organization," Hitotsubashi University, February 2009.

PUBLICATIONS

- Rysman, M. and Schuh, S. (In Press). New innovations in payments. In Lerner, J. and Stern, S., editors, *Innovation Policy and the Economy*, volume 16. University of Chicago Press.
- Falls, C., Friedman, P., and Rysman, M. (2016). The impact of the internet on distribution. In Banks, T., Langenfeld, J., and Wittrock, Q., editors, *Antitrust Law and Economics of Product Distribution*, chapter 10, pages 475–495. American Bar Association, second edition.
- Rysman, M. (2016). Empirics of business data services. Appendix B of *Business Data Services Federal Notice of Proposed Rulemaking*, FCC 16-54.
- Koulayev, S., Rysman, M., Schuh, S., and Stavins, J. (2016). Explaining adoption and use of payment instruments by US consumers. *RAND Journal of Economics*, 47:293–325.
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- Rysman, M. and Wright, J. (2014). The economics of payment cards. *Review of Network Economics*, 13:303–353.
- Greene, C., Rysman, M., Schuh, S., and Shy, O. (2014). Costs and benefits of building faster payment systems: The U.K. experience and implications for the United States. Federal Reserve Bank of Boston Current Policy Perspectives 14-5.
- Rysman, M. (2013). Exclusionary practices in two-sided markets. In Hawk, B. E., editor, *Proceedings of the 39th Fordham Competition Law Institute International Conference on Antitrust Law and Policy*, pages pp. 537–564, New York. Juris.
- Gowrisankaran, G. and Rysman, M. (2012). Dynamics of consumer demand for new durable goods. *Journal of Political Economy*, 120:1173–1219.
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- International Payment Policy Conference*, pages 61–81. Federal Reserve Bank of Kansas City.
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- Rysman, M. and Simcoe, T. (2008). Patents and the performance of voluntary standard setting organizations. *Management Science*, 54:1920–1934.
- Rysman, M. (2007). Empirical analysis of payment card usage. *Journal of Industrial Economics*, 60:1–36.
- Greenstein, S. and Rysman, M. (2007). Coordination costs and standard setting: Lessons from 56k modems. In Greenstein, S. and Stango, V., editors, *Standards and Public Policy*, pages 123–159. Cambridge University Press.
- Rysman, M. and Simcoe, T. (2007). The performance of standard setting organizations: Using patent data for evaluation. *Journal of IT Standards and Standardization Research*, 5:25–40.
- Augereau, A., Greenstein, S., and Rysman, M. (2006). Coordination vs. differentiation in a standards war: 56k modems. *RAND Journal of Economics*, 37:887–909.
- Rysman, M. and Simcoe, Timothy, .G. (2006). Measuring the performance of standard setting organizations. In *International Standardization as a Strategic Tool: Commended Papers from the IEC Centenary Challenge 2006*,. IEC Press, Geneva.
- Akerberg, D. A. and Rysman, M. (2005). Unobservable product differentiation in discrete choice models: Estimating price elasticities and welfare effects. *RAND Journal of Economics*, 36:771–788.
- Busse, M. and Rysman, M. (2005). Competition and price discrimination in Yellow Pages advertising. *RAND Journal of Economics*, 36:378–390.
- Rysman, M. and Greenstein, S. (2005). Testing for agglomeration and dispersion. *Economics Letters*, 86:405–411.
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- Rysman, M. (2004). Competition between networks: A study of the market for Yellow Pages. *Review of Economic Studies*, 71:483–512.
- Rysman, M. (2002). Review of the book: The economics of network industries, by Oz Shy. *Journal of Economic Literature*, 40:556–557.
- Rysman, M. (2001). How many franchises in a market? *International Journal of Industrial Organization*, 19:519–542.

WORKING PROJECTS

- McCalman, P. and Rysman, M. (2016). Airline services agreements: A structural model of network formation. Unpublished Manuscript, Boston University.
- Rysman, M., Simcoe, T., and Wang, Y. (2016). Differentiation in adoption of environmental standards: LEED from 2000-2010. Unpublished Manuscript, Boston University.
- Cohen, M., Rysman, M., and Wozniak, K. (2016). Payment choice with consumer panel data. Unpublished Manuscript.
- Gowrisankaran, G., Park, M., and Rysman, M. (2014). Measuring network effects in a dynamic environment. Unpublished Manuscript, Boston University.
- Gowrisankaran, G., Rysman, M., and Yu, W. (2013). Computing price-cost margins in a durable goods environment. Unpublished Manuscript, Boston University.
- Rysman, M. (2003). Adoption delay in a standards war. Unpublished manuscript, Boston University.
- Rysman, M. (2000). Competition policy as strategic trade. Industry Studies Project Working Paper, #100, Boston University.

GRANT ACTIVITY

- Estimation and Computation of Dynamic Oligopoly and Network Effects Models, with Gautam Gowrisankaran. National Science Foundation, SES-0922629, 2009-2013.
- Dynamic Demand for New Durable Goods: An Empirical Model and Applications to Pricing and Welfare, with Gautam Gowrisankaran. National Science Foundation, SES-0551348, 2006-2009.
- Discrete adjustment costs, investment dynamics, and productivity growth: Evidence from Chilean manufacturing plants, with Simon Gilchrist. National Science Foundation, SES-0351454, 2004-2006.
- Empirical Studies of Network Effects, National Science Foundation, SES-0112527, 2001-2002.

COURSES TAUGHT

- EC333 Market Organization and Public Policy (Antitrust and Regulation): Fall 1999, Fall 2000, Spring 2002-2003, Spring 2005-2011, Fall 2008-2011, Spring 2016.
- EC732 Topics In Industrial Organization (Graduate Empirical IO): Spring 2000-2001, Fall 2001, Spring 2003, Fall 2004, Spring 2005-2013, Spring 2016.
- EC711 Topics in Econometrics: Spring 2010-2011.
- EC709 Advanced Econometrics II: Fall 2006, Fall 2015.
- EC201/303 Intermediate Microeconomics: Fall 2001, Fall 2002, Fall 2005.
- EC903 Graduate Student Seminar: Fall 1999, Fall 2000.

AWARDS

Neu Family Award for Teaching Excellence in Economics, 2012.

Networks, Electronic Commerce and Telecommunications (NET) Institute Grant, 2009.

Professor of the Year, 2006-2007, awarded by Boston University Fraternities and Sororities

Neu Family Award for Teaching Excellence in Economics, 2006.

Networks, Electronic Commerce and Telecommunications (NET) Institute Grant, 2005.

Networks, Electronic Commerce and Telecommunications (NET) Institute Grant, 2003.

Gerald M. Gitner Award for Excellence in Undergraduate Teaching, 2000.

Christensen Award in Empirical Economics, 1997 (with Phil Haile).

GRADUATE STUDENTS FOR WHICH I SERVED AS PRIMARY ADVISOR (AND FIRST PLACEMENT)

Martino De Stefano (Charles River Associates)

Minsoo Park (KISDE - Korean research institute)

Firat Inceoglu (Sabanci University)

Justin Lenzo (Kellogg School of Management)

Gustavo Vincentini (Analysis Group)

Pasquale Schiraldi (London School of Economics)

Hernando Roman (University de los Andes)

Chun-Yu Ho (Georgia Tech)

Haizhen Lin (Kelly School of Management)

David Rapson (UC Davis)

Calixte Ahokposs (IMF)

Ben Tomlin (Bank of Canada)

Ana Mier Y Teran (Bank of Mexico)

Jessica Calfee Stahl (Board of Governors, FRB)

Yun Mi Nam (KISDE)

Naoaki Minimahashi (Bank of Canada)

Caixia Shen (Shanghai University of Finance and Economics)

Chien-Yuan Sher (National Sun Yat-sen University, Taiwan)

Nilay Yilmaz (Cambridge Health Alliance, Harvard Medical School)

Hyo-Youn Cho (Kyunghee University)

Myongjin Kim (University of Oklahoma)

Yanfei Wang (Capital University of Economics and Business, Beijing)

Yang Li (Bank of Santander)

Grace Wei Yu (Charles River Associates)

Yanghsin Park (Korea Institute for Industrial Economics & Trade “KIET”)

Jiaxuan Li (Amazon.com)

UNIVERSITY SERVICE

Department Liaison to the Scientific Computing and Visualization Center, 2012-present

Merit and Equity Advisory Committee, 2001, 2002, 2009, 2014, 2016.

Advisor to Second-year Graduate Students, 2013-2014, 2008-2009.

Director, Junior Recruiting Committee, 2006-2007, 2009-2010, 2013-2014.

Department newsletter. 2013.

Chair, Academic Promotion and Tenure, College of Arts and Sciences, 2012-2013.

Academic Promotion and Tenure, College of Arts and Sciences, 2011-2012.

Discussion Facilitator in the Program in Responsible Conduct of Research for Graduate Students and Postdoctoral Researchers on March 31, 2011

College Teaching Prize Committee, Spring, 2011

Committee on Conflicts of Interest, 2008-2011

Co-director, Junior Recruiting Committee 2000-2001.

Social Science Curriculum Committee, 2005-2007.

Representative to CAS Reg-Prep (Registration Preparation)

Acting Director, Industry Studies Program, 2001-2002, 2009-2010

Summer Orientation Academic Advising, 2001, 2002, 2004, 2005

Junior Recruiting Committee 1999-2005.

Undergraduate Studies Committee 1999-2005.

Appendix B: Prior Testimony

1. Expert Report of Marc Rysman in Determination of Royalty Rates and Terms for Ephemeral Recording and Digital Performance of Sound Recordings, Docket No. 14-CRB-0001-WR (2016-2020).
2. Deposition Testimony, *Sharon Cobb, et al v. BSH Home Appliances*, Case No. SACV 10-711, United States District Court for the Central District of California, July, 2014.
3. Deposition Testimony, *Grant/Seebeck International, LLC. v. First Data Merchant Services Corporation*, AAA Case No. 32 199 00799, June, 2013.
4. Trial Testimony, *Grant/Seebeck International, LLC. v. First Data Merchant Services Corporation*, AAA Case No. 32 199 00799, March, 2013.
5. Deposition Testimony, *Elizabeth Beninati v. Steven Borghi et al.*, Case #2012-1985-BLS2 and #2013-1772-BLS2 (Consolidated), Suffolk Superior Court for the State of Massachusetts, September, 2013.
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Before the
UNITED STATES COPYRIGHT ROYALTY JUDGES
Library of Congress
Washington, D.C.

In re

**DETERMINATION OF ROYALTY RATES
AND TERMS OF MAKING AND
DISTRIBUTING PHONORECORDS
(Phonorecords III)**

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) Docket No. 16-CRB-003-PR
) (2018-2022)
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EXPERT REPORT OF JEFFREY A. EISENACH, PH.D.

Expert Witness for Copyright Owners

October 31, 2016

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I. INTRODUCTION AND SUMMARY OF FINDINGS

1. My name is Jeffrey A. Eisenach. I am a Managing Director and Co-Chair of the Communications, Media and Internet Practice at NERA Economic Consulting (“NERA”).

A. Instructions

2. I have been engaged by the National Music Publishers’ Association (“NMPA”) and Nashville Songwriters Association International (“NSAI”) (together referred to as “Copyright Owners”) to provide my expert economic opinion regarding the appropriate rates and terms for the compulsory licenses for Mechanical and Digital Phonorecords pursuant to Section 115 of the Copyright Act, which are at issue in this proceeding. Specifically, I have been asked to analyze the rates and terms for Interactive Streaming and Limited Downloads presently addressed in 37 C.F.R. Part 385 Subpart B and the rates and terms for Limited Offerings, Mixed Service Bundles, Music Bundles, Paid Locker Services and Purchased Content Locker Services presently addressed in 37 C.F.R. Part 385 Subpart C. In my testimony I sometimes refer to these rights collectively as the “Section 115 Rights,” and to the main categories as “Subpart B rights” and “Subpart C rights.”

3. I have been asked by the Copyright Owners to provide my independent expert opinion on economic issues in this proceeding, as detailed further below. I am being paid for my participation in this matter at my standard hourly rate, as are the NERA staff members who have assisted me in preparing this report. My compensation is not dependent upon my findings or on the outcome of this proceeding.

4. The analyses and conclusions contained herein are based on information available to me at the time this report was prepared. A list of documents which I reviewed in creating this report is attached as Attachment A. I understand that discovery in this matter is incomplete and

ongoing. Should additional information come to light through discovery or otherwise which causes me to modify my findings, I reserve the right to do so.

B. Qualifications

5. I am a Managing Director at NERA and Co-Chair of NERA's Communications, Media and Internet Practice. I also serve as an Adjunct Professor at George Mason University Law School and as a Visiting Scholar at the American Enterprise Institute. I have more than 25 years of experience performing economic analyses of competition, regulatory and public policy issues, and have served in senior policy positions at the U.S. Federal Trade Commission ("FTC") and the White House Office of Management and Budget ("OMB"). I have also served on the faculties of Harvard University's Kennedy School of Government and Virginia Polytechnic Institute and State University. Immediately prior to joining NERA, I served as a Managing Director at Navigant Economics.

6. I have authored or co-authored numerous expert reports in litigation matters as well as in regulatory proceedings before the Federal Communications Commission, the FTC, state public utility commissions, and other regulatory agencies. I have testified before Congress on multiple occasions, including on digital copyright issues. I have also testified before the Australian Copyright Tribunal as an expert witness on digital copyright issues. A list of legal proceedings in which I have testified is annexed as Attachment B. I am the author or co-author of eight books, including *The Digital Economy Fact Book* and *The Telecom Revolution: An American Opportunity*. In addition, I have edited or co-edited five books, including *Communications Deregulation and FCC Reform: What Comes Next?* and *Competition, Innovation and the Microsoft Monopoly: Antitrust in the Digital Marketplace*. My articles have appeared in scholarly journals such as the *Review of Network Economics* and

Telecommunications Policy, as well as in such popular outlets as *Forbes*, *Investor's Business Daily*, *The Wall Street Journal*, *The Washington Post*, and *The Washington Times*. I also serve on the boards of directors of the Information Technology and Innovation Foundation and the Economic Club of Washington.

7. I hold a Ph.D. in economics from the University of Virginia and a B.A. in economics from Claremont McKenna College. My complete CV is at Attachment C.

C. Summary of Findings and Opinions

8. My primary findings include the following:

- It is important in assessing appropriate rates to evaluate relevant contextual information, such as information regarding market performance. I note that the music industry has undergone (and continues to undergo) transformational change, but that music continues to be highly valued by consumers and to generate substantial economic benefits for many participants in the music industry value chain. Yet, while there is evidence that music consumption is increasing, it does not appear that current royalty structures have produced commensurate gains for publishers and songwriters. Conversely, the rapid pace of entry into the interactive streaming business suggests that, under current royalty structures, interactive streaming is generating economic profits.
- One economically valid approach for assessing the value of intellectual property rights which are subject to compulsory licenses is to examine market-based valuations of reasonably comparable benchmark rights – that is, fair market valuations determined by voluntary negotiations. In doing so, it is important to take into account factors such as differences between the rights being valued and the rights being used as benchmarks and the possibility that the outcomes of negotiated bargains are affected by the “shadow” of regulatory intervention.
- In this matter, I adopt a straightforward and robust benchmarking approach that involves two main steps. The first step is to recognize that license terms for the sound recording rights utilized by the services at issue here are negotiated freely between record labels and the services. These licenses represent market-based benchmarks for rights which are directly comparable to the musical works rights at issue here in all respects but one: they are for sound recordings rather than for musical works.¹ Data on the royalties paid under these licenses is available and allows me to estimate the

¹ My analysis also takes into consideration the distinction between mechanical and performance rights.

rates actually being paid by the services to the labels for sound recordings on both a per-play and a per-user basis.

- The second step is to adjust the rates paid for sound recordings to reflect the relative value of the sound recordings and musical works. While the sound recording right and the musical works right are perfect complements from an economic perspective, royalty rates for sound recording rights have historically, in most cases, exceeded royalty rates for corresponding musical works rights. I examine a variety of markets in which sound recording and musical works rights are both required in order to ascertain the relative value of the two rights as actually reflected in the marketplace. Some of the benchmarks I examine, such as the ratios embodied in the current Section 115 licenses, are affected by the shadow of a statutory license, while others, such as direct licenses involving Pandora (for non-interactive services), YouTube (for user-posted content) and synch licenses, are negotiated in a partially or entirely free-market context.
- My examination of these benchmarks allows me to establish upper and lower bounds for the relative value of sound recording and musical works rights, which I estimate to be between 1:1 and 4:76:1, and also to determine that the most reliable evidence indicates that the ratio lies near the center of this range.
- Applying this range of ratios for the relative value of the sound recording and musical works rights to my estimate of the royalties actually paid for sound recordings for the services at issue here yields a range of reasonable rates for the Subpart B and Subpart C licenses. Copyright Owners' proposed mechanical rate of the greater of \$0.0015 per play and \$1.06 per user falls well within, and indeed towards the lower end, of that range. I therefore conclude that Copyright Owners' proposed terms for mechanical rights for interactive streaming and limited download services are reasonable and consistent with the requirements set forth in Section 801(b)(1) of the Copyright Act.
- The structure of the licenses at issue in this matter is such that the rates and terms established in this proceeding will serve as ceilings on the rates and terms that can be received by licensors, but not as floors. That is, if the rates and terms established in this proceeding provide for values above those that would result from market-based negotiations, the parties are both legally free and economically incentivized to negotiate a more economically efficient outcome, but the converse is not true: If the rates are set too low, there is no incentive for licensees to negotiate terms more favorable to licensors, and the resulting rates could serve to disrupt the industry. The result is that the risks associated with regulatory error – setting rates either too high or too low – are asymmetric: if rates are set too high, they are subject to correction in the marketplace; if they are set too low, they are not.

D. Structure of this Report

9. The remainder of this report is structured as follows. In Section II, I describe the institutional and legal context for my opinions, including the nature of the parties, the rights at issue, and the statutory criteria which I understand govern the Board's decision. In Section III, I explain the methodological approach I utilize to conduct my analysis. In Section IV, I discuss the structure and performance of the music business, focusing on the transformational changes that have occurred, and continue to occur, as a result of technological change and the Internet. In Section V, I present evidence on the relative values of sound recording rights and mechanical works, which forms the basis for part of my benchmarking analysis. In Section VI, I present my analysis of the appropriate rates and terms for interactive streaming and limited downloads and related configurations (Subparts B and C). Section VII presents a brief conclusion.

II. INSTITUTIONAL CONTEXT

10. This section describes the relevant institutional features of the market for Section 115 rights. First, it describes the parties, i.e., the licensors and licensees for Section 115 licenses. Second, it describes the mechanical right itself and places it in context among the various forms of musical copyrights. Third, it discusses the Section 801(b)(1) statutory criteria for setting rates and terms. Fourth, it describes how Section 115 licensing operates in practice and explains that licenses are often negotiated directly and contain rates and terms that deviate from the statutory rates and terms. Finally, it discusses why as a matter of economics the Section 115 license operates as a ceiling but not a floor on Section 115 royalties, and the implications of this fact for the statutory rate.

A. The Parties

11. NMPA is the trade association representing American music publishers and their songwriting partners. Its mission is to protect, promote, and advance the interests of music’s creators on the legislative, litigation, and regulatory fronts. NSAI is a trade organization dedicated to serving songwriters of all genres of music. NSAI advocates for the legal and economic interests of songwriters, who derive income from licensing their copyrighted works. NSAI includes songwriter members who directly publish and license their own music.

12. The interactive streaming services (collectively, the “services”) participating in this rate proceeding are Apple, Inc. (“Apple”), Google Inc. (“Google”), Amazon Digital Services LLC (“Amazon”), Spotify USA Inc. (“Spotify”) and Pandora Media, Inc. (“Pandora”).

B. The Rights at Issue

13. The “mechanical” rights at issue in this proceeding allow licensees to reproduce and distribute musical works, which are the various musical elements – lyrics, melody, harmony, rhythm, tempo, structure, and more – which comprise musical compositions. Musical works are distinct from sound recordings, which constitute the embodiment of a work in a particular performance which is fixed in a recording medium such as a digital file.²

14. Owners of copyrights in musical works have exclusive rights that include a reproduction right and a public performance right. The reproduction right (previously limited to sheet music) was expanded in the Copyright Act of 1909 to include products that create a

² See U.S. Copyright Office, Copyright and the Music Marketplace, at 18 (Feb. 2015), *available at* <http://www.copyright.gov/policy/musiclicensingstudy/copyright-and-the-music-marketplace.pdf> (last accessed Oct. 24, 2016) (“CMM”) (“[A] musical recording encompasses two distinct works of authorship: the musical work, which is the underlying composition created by the songwriter or composer along with any accompanying lyrics, and the sound recording, which is the particular performance of the musical work that has been fixed in a recording medium such as CD or digital file.”).

“mechanical” reproduction of the musical work – originally via piano rolls used in player pianos, but more recently including such media as vinyl records, CDs and digital phonorecord deliveries (“DPDs”).³ Mechanical rights now constitute the right to reproduce and distribute copies of musical works in phonorecords, which rights belong exclusively to the copyright owners of the musical works. *See* Sections 106(1) and (3) and 102(a)(2) of the current Copyright Act.⁴ Section 115 of the Copyright Act limits these exclusive rights by establishing a compulsory license for making and distributing phonorecords (including DPDs) embodying musical works.

15. In addition to mechanical (reproduction and distribution) rights, musical works copyright owners also have the exclusive right to publicly perform their musical works. *See* Section 106(4) of the Copyright Act. While the public performance right in musical works is not subject to a statutory compulsory license, the rates for most such licenses are nevertheless set under government oversight, as the majority of licenses are administered by the two main performing rights organizations (ASCAP and BMI), both of which are subject to consent decrees under which royalty rates are overseen by federal courts.

16. Sound recordings – which are the “fixed sounds that make up the recording” of a particular musical work⁵ – are also protected under several sections of the Copyright Act: 17 U.S.C. § 102 (7) (copyright in sound recordings); 17 U.S.C. § 106 (6) (exclusive right to perform sound recordings publicly by means of digital audio transmission); 17 U.S.C. § 112 (ephemeral recordings); 17 U.S.C. § 114 (statutory right to perform sound recording publicly by non-

³ *See* CMM at 17-18.

⁴ In 1995, Congress clarified that this right includes the making of digital phonorecord deliveries (“DPDs”). *See* Digital Performance Right in Sound Recordings Act of 1995, Pub. L. No. 104-39 § 4, 109 Stat. 336 and 344-348 (“DPRSRA”); *see also* 17 U.S.C. § 115(c)(3)(A).

⁵ *See* CMM at 18.

interactive streaming services, among others). There is no compulsory license to reproduce a sound recording, so that right remains exclusive to the sound recording copyright owner, who can freely bargain for a fee to license such right. As discussed further below, there is, however, a compulsory license to perform the sound recording publicly by means of a non-interactive streaming transmission. *See* Section 114 of the Copyright Act.

17. The Section 115 mechanical right as currently structured covers three categories of uses, covered (as noted briefly above) by Subparts A, B, and C of 37 C.F.R. Part 385.

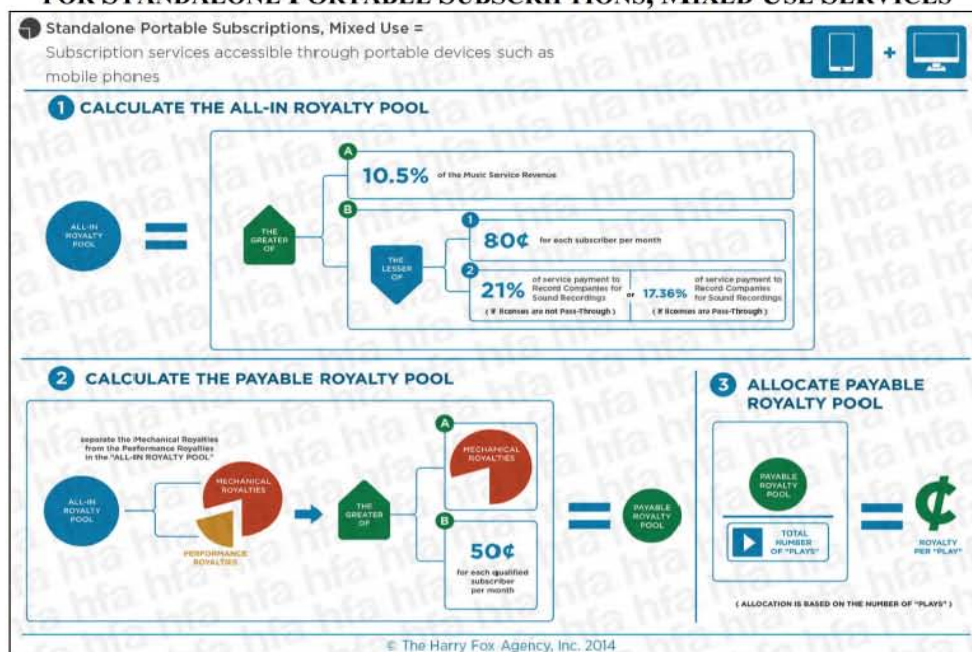
18. Subpart A covers the licensing of musical works embodied in permanent purchases of recorded music through physical or digital means. Subparts B and C cover the licensing of interactive streaming in its various incarnations, i.e., services which – like purchases of physical products or permanent digital downloads – provide consumers with the practical ability to listen to the songs of their choice at the time and place of their choosing.

19. The current statutory rates for interactive streaming are based on complicated formulas with multiple rate prongs and use greater-than and lesser-than comparisons. The current rate structures were the result of settlements between copyright owners and services in the last two rate proceedings. As I understand it, these settlements occurred when the music streaming industry was embryonic, and the parties agreed to set up various discounted rate structures, many customized to specific envisioned business models, in an acknowledged effort to “jump-start” these novel music business models.⁶

⁶ Luiz Augusto Buff & Nicholas Spanos, *New Five-Year Standards for Mechanical Licenses*, 7 Berklee College Music Business Journal 14, 14 (July 2012), available at <http://www.thembj.org/2012/07/a-bundle-of-mechanicals/> (last accessed Oct. 18, 2016).

20. Useful charts outlining the ten different Subparts B and C rate tests have been created by the Harry Fox Agency. Two particular categories have risen to be dominant. The first is termed “Standalone Portable Subscriptions, Mixed Use,” and includes paid subscriptions to music streaming services which can be accessed via a variety of devices, including mobile devices. See Figure 1. Each of the five services in this case either offers this type of service, or has publicized an intention to offer one in the coming months.

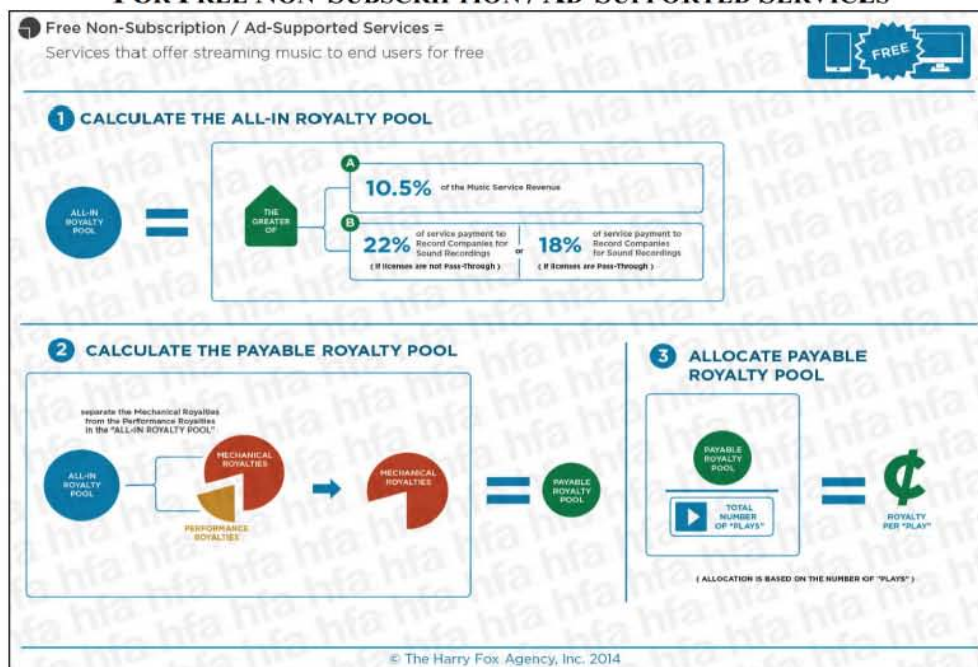
**FIGURE 1:
MECHANICAL RIGHT RATE CALCULATION
FOR STANDALONE PORTABLE SUBSCRIPTIONS, MIXED USE SERVICES**



Source: "Rate Charts," Harry Fox Agency, available at https://www.harryfox.com/documents/rate_charts/s_p_s_mu.pdf (last accessed Oct. 14, 2016).

21. The second category is termed “Free Non-Subscription/Ad-Supported Services,” and includes the free interactive music streaming service offered by Spotify. See Figure 2.

**FIGURE 2:
MECHANICAL RIGHT RATE CALCULATION
FOR FREE NON-SUBSCRIPTION / AD-SUPPORTED SERVICES**



Source: "Rate Charts," Harry Fox Agency, available at https://www.harryfox.com/documents/rate_charts/f_ns_ad_s.pdf (last accessed Oct. 14, 2016).

C. The Statutory Criteria for the Section 115 License

22. Section 801(b)(1) of the Copyright Act requires that the rates and terms to be determined in this proceeding be calculated to achieve four objectives: (1) maximize the availability of creative works to the public; (2) provide copyright owners a fair return for their creative works and copyright users a fair income; (3) recognize the relative roles of the copyright owners and users; and (4) minimize any disruptive impact on the industries involved.⁷

23. Because rates themselves cannot be derived directly from the Section 801(b)(1) policy factors, determination of a reasonable mechanical rate should "begin with a consideration and analysis of the benchmarks and testimony submitted by the parties, and then measure the rate

⁷ 17 U.S.C. §§ 801(b)(1)(A)-(D).

or rates yielded by that process against the statutory objectives [of Section 801(b)] to reach [a] decision.”⁸ The Judges have recognized in prior proceedings that a good starting point for the determination of the parameters of a reasonable range of rates encompassing the four policy factors is to focus on comparable marketplace royalty rates as “benchmarks.”⁹

24. I note that the first three Section 801(b)(1) factors generally dovetail with the concept of fair market value, as a rate set at the fair market value by definition provides fair returns and incomes to both the licensee and licensor and does so in a way that corresponds to each party’s contributions to the end product. Because such a rate reflects the value to which licensors and licensees would agree in the market, it also necessarily balances the long-run availability of creative works (by providing a “fair return” to the copyright holders) and the short-run availability of creative works (by allowing service providers to earn a “fair income”).

25. As a matter of policy, the appropriateness of the fourth factor of the 801(b)(1) standard – the instruction to “minimize any disruptive impact on the structure of the industries involved and on generally prevailing industry practices” – is somewhat controversial, as, to the extent that it might weigh in favor of a rate other than one that would emerge from voluntary negotiations in a free market, it necessarily conflicts with the other three factors, which counsel otherwise. However, I note that the Board has embraced a constrained interpretation of the “non-disruption” standard, finding that “‘disruption’ typically refers to an adverse impact that is substantial, immediate and irreversible in the short-run because there is insufficient time for the industry participants to adequately adapt to the changed circumstances and, as a consequence,

⁸ Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services, Docket No. 2006-1 CRB DSTRA (“SDARS I”), 73 Fed. Reg. 4080, 4084 (Jan. 24, 2008).

⁹ See SDARS I at 4088.

such adverse impacts threaten the viability of the music delivery currently offered under the license in question.”¹⁰

D. Section 115 Licensing in Practice

26. Mechanical licenses typically are issued by the Harry Fox Agency (“HFA”), which was established by NMPA in 1927 to act as an information source, clearinghouse, and monitoring service for licensing musical copyrights.¹¹ HFA currently has over 48,000 music publisher affiliates for which it collects mechanical royalties, and also allows non-affiliate publishers to register songs with HFA in order to receive mechanical royalties that are due as a result of sound recordings being distributed in the U.S.¹²

27. I understand that the licenses granted by HFA typically deviate slightly from the terms of the statutory license, generally adopting the statutory rates but including different payment terms. Also, with respect to Subpart B and C licenses, music publishers often grant direct licenses to streaming services, with terms relating to payment schedules and audit structures modified from the “compulsory” terms. For example, some of the direct licenses produced by parties to this proceeding [REDACTED]

[REDACTED]

¹⁰ See Final Rule, Mechanical and Digital Phonorecord Delivery Rate Determination Proceeding, Docket No. 2006-3 CRB DPRA (“Phonorecords I”), 74 Fed. Reg. 4510, 4516 (Jan. 26, 2009), citing SDARS I, 73 Fed. Reg. at 4097.

¹¹ See, e.g., What does HFA Do?, Harry Fox Agency, available at https://www.harryfox.com/publishers/what_does_hfa_do.html (last accessed Oct. 12, 2016); see also Brian T. Yeh, Cong. Research Serv., RL33631, Copyright Licensing in Music Distribution, Reproduction, and Public Performance (Sept. 22, 2015), at 6, available at <https://www.fas.org/sgp/crs/misc/RL33631.pdf> (last accessed Oct. 12, 2016). In 2015, the NMPA sold HFA to the performing rights organization SESAC.

¹² See Why Affiliate with HFA?, Harry Fox Agency, available at https://www.harryfox.com/publishers/why_affiliate.html (last accessed Oct. 12, 2016); see also Song Registration, Harry Fox Agency, available at https://www.harryfox.com/publishers/song_registration.html (last accessed Oct. 12, 2016).

[REDACTED]

[REDACTED].¹³ My understanding is that the use of licenses which deviate from the terms of the Section 115 statutory license – including as to terms for payment schedules, late fees, audit rights, etc. – has been common practice for some time.¹⁴

28. I further understand that at times the parties negotiate direct licenses which deviate from the statutory license with respect to rates as well as terms. For example, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹³ [REDACTED]

¹⁴ See CMM at 31, 107-08; see also Al Kohn & Bob Kohn, *Kohn on Music Licensing*, 3rd Ed. (Aspen Publishers, 2000) at 683-84. (“ . . . [N]early all mechanical licenses are negotiated directly between the copyright owners and the licensees and do not strictly reflect the terms of the compulsory license provisions of the law.”).

¹⁵ [REDACTED]

¹⁶ [REDACTED]

¹⁷ [REDACTED]

¹⁸ [REDACTED]

¹⁹ [REDACTED]

E. The Statutory Rate Is a Ceiling, Not a Floor

29. Under the Section 115 compulsory license, rightsholders are not permitted to withhold a license from a licensee who is prepared to pay the statutory rates. Licensees, on the other hand, have the option of not taking a license. The practical effect of this aspect of the compulsory license is that, if the rates and terms in the statutory license establish a higher value for the license than licensees are willing to pay, licensees have the legal right to walk away from the statutory rate and force a renegotiation of terms. In this circumstance, both parties would have an incentive to agree to a lower but still mutually beneficial rate. By contrast, if the statutory rate is set “too low,” licensors have an incentive to negotiate different terms, but they lack legal standing to force a renegotiation. As the Copyright Office puts it, “while copyright owners and users are free to negotiate voluntary licenses that depart from the statutory rates and terms, in practical effect the CRB-set rate acts as a ceiling for what the owner may charge.”²¹

30. Further, the fact (discussed immediately above) that licensors and licensees already negotiate direct licenses for mechanical rights that make mutually-acceptable

²⁰

²¹ CMM at 29; *see also* at 31 (“... [T]he terms of the statutory license act as a ghost in the attic, effectively establishing the maximum amount a copyright owner can seek under a negotiated mechanical license.”).

adjustments to the statutory provisions demonstrates that, in the event a statutory rate proves unacceptable to licensees, re-negotiation is realistic in practice as well as in theory.

31. Thus, the risk of regulatory error – that is, of setting, either for lack of accurate information or as a result of unexpected market developments during the license term, rates that differ from 801(b)(1)-style rates meant to maximize the availability of works, provide a fair return, recognize the roles of rightsholders and licensees, and minimize disruptions – is not symmetric. Instead, if the statutory rate is set too low, there is no market recourse: the inevitable result is that rightsholders receive an uneconomically low return, reducing the incentive to develop new works and potentially causing serious disruption in the industry. If the statutory rate is set too high, the parties have both the incentive and the ability to establish economic rates through voluntary negotiation.

32. To be clear, I am not arguing that the statutory rate can or should be set arbitrarily high or that it should be set above the rate that would be obtained in the market absent a compulsory license regime. Instead, the goal should be to determine rates that are consistent with market rates and with the 801(b)(1) statutory standard, including the requirement to avoid disruption. Because no endeavor to fix prices for a five-year period can perfectly predict the future, especially in the rapidly evolving music marketplace, accomplishing this goal requires giving weight to the greater potential for disruption that could result from setting rates too low as opposed to too high.

III. METHODOLOGICAL APPROACH

33. From an economic perspective, the task of assessing the market value of copyrights subject to compulsory licenses, like the ones at issue in this proceeding, is a challenging one.²² Economists have applied a variety of approaches, including benchmarking, various game theoretic models, and economic models borrowed from public utility regulation. In my opinion, the appropriate approach depends on the evidence available and other contextual factors, and it is often appropriate to apply multiple approaches. However, when the evidence is available to do so, in my opinion one useful approach is to analyze market-based benchmarks – that is, agreements for comparable rights reached in comparable circumstances through voluntary negotiations in an unconstrained market.²³ As I explain below, in this instance I have concluded that it is possible to arrive at a reasonable estimated range of the value of the rights at issue through a benchmark analysis, confirmed and supported by an assessment of contextual economic factors affecting the music business overall and the particular markets at issue. This is the approach I take in this report.

A. The Use of Benchmarks in Establishing Statutory Rates

34. The desirability of the benchmarking approach is that it is grounded in real market transactions between market participants, and thus reflects the value attached to the good by

²² See generally David Strickler, “Royalty Rate Setting for Sound Recordings by the United States Copyright Royalty Board: The Judicial Need for Independent Scholarly Economic Analysis,” *Review of Economic Research on Copyright Issues* 12(1/2) (2015) 1-15 (“Strickler (2015)”).

²³ See, e.g., Strickler (2015) at 9-10 (“The Judges have long held that an otherwise appropriate benchmark reflects the actual market behavior of rational actors . . . Further, an otherwise appropriate benchmark is also deemed to provide sufficient revenue for the licensor to recover at least a sufficient proportion of its costs and its normal profit while also requiring payment from the licensee that is not so large as to prevent the licensee from engaging in the webcasting business.”) While these comments were made in the context of assessing analysis under Section 114’s “willing buyer, willing seller” standard, I believe they are relevant in this Section 115 context as well, since the policy objectives here are generally best vindicated by market-consistent rates.

actual suppliers and users – i.e., the interplay between supply and demand which results in a market price or “fair market value” for the good in question. One authoritative text defines “fair market value” as follows:

A widely used description of fair market value is the cash equivalent value at which a willing and unrelated buyer would agree to buy and a willing and unrelated seller would agree to sell . . . when neither party is compelled to act, and when both parties have reasonable knowledge of the relevant available information.²⁴

When appropriate comparable bargains are available, the use of benchmarks – properly adjusted to account for differences between the benchmark rates and the target rates – can often provide direct evidence of fair market value. The use of benchmark agreements to assess the fair market value of rights at issue and determine appropriate royalty rates has been embraced in a number of section 801(b)(1) proceedings, dating back to 1980.²⁵ In general, the Board has assessed benchmark analyses based on a variety of criteria, with the overall proviso that “the key

²⁴ Robert W. Holthausen & Mark E. Zmijewski, *Corporate Valuation: Theory, Evidence and Practice*, 1st Ed. (Cambridge Business Publishers, 2014) at 4.

²⁵ See 1980 Adjustment of the Royalty Rate for Coin-Operated Phonorecord Players, 46 Fed. Reg. 884, 888 (decided Jan. 5, 1981), appealed to the D.C. Circuit and decided in *Amusement and Music Operators Ass’n v. Copyright Royalty Tribunal*, 676 F.2d 1144 (D.C. Cir. 1982); Adjustment of Royalty Payable Under Compulsory License for Making and Distributing Phonorecords; Rates and Adjustment of Rates, 46 Fed. Reg. 10,466, 10,480 (decided Feb. 3, 1981), appealed to the D.C. Circuit and decided in *Recording Indus. Ass’n of America v. Copyright Royalty Tribunal*, 662 F.2d 1, 9 (D.C. Cir. 1981); Determination of Reasonable Rates and Terms for the Digital Performance of Sound Recordings, 63 Fed. Reg. 25,394, 25,396-98, 25,400-05 (decided May 8, 1998), appealed to the D.C. Circuit and decided in *Recording Indus. Ass’n of America v. Librarian of Congress*, 176 F.3d 528 (D.C. Cir. 1999); SDARS I, 73 Fed. Reg. at 4,088-94, appealed to the D.C. Circuit and decided in *SoundExchange, Inc. v. Librarian of Congress*, 571 F.3d 1220 (D.C. Cir. 2009); Phonorecords I, 74 Fed. Reg. 4,517-22; appealed to the D.C. Circuit and decided in *Recording Indus. Ass’n of America v. Librarian of Congress*, 608 F.3d 861 (D.C. Cir. 2010); and Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services, 78 Fed. Reg. 23,054, 23,055-58, 23,061-66 (decided Apr. 17, 2013) (“SDARS II”), appealed to the D.C. Circuit and decided in *Music Choice v. Copyright Royalty Board*, 774 F.3d 1000 (D.C. Cir. 2014).

characteristic of a good benchmark” is the comparability of the proposed benchmark to the rights and participants at issue in the proceeding.²⁶

35. More specifically, it is important when utilizing benchmarks to consider various factors that might make the licensed rights more or less valuable by comparison to the target rights, and thus require an adjustment to the rates paid for the benchmark rights. These factors may include: differences in the nature of the rights at issue; differences in underlying market factors (e.g., different geographic markets); differences in the term or time period covered by the agreements; differences in factors affecting the relative bargaining power of the parties (possibly including the presence of the shadow of compulsory licensing); and differences in the services being offered. The greater the differences between the markets represented by commercial benchmarks and the market at issue, the more complex the adjustments necessary to achieve “comparability.”

36. In this matter, a straightforward and robust benchmarking approach, which relies on rights that are directly comparable to the target rights at issue, presents itself. It involves two steps.

37. First, the sound recording rights corresponding to the musical works rights at issue in this proceeding are not subject to a compulsory license or other formal rate regulation: they are freely negotiated in an unconstrained marketplace. Furthermore, the sound recording rights are perfect complements to the musical works rights: both licenses are required to engage the interactive streaming services covered in Subparts B and C. In all other significant respects – the relationships of the parties, the geographic coverage of the markets, etc. – the sound

²⁶ SDARS I, 73 Fed. Reg. at 4,092; SDARS II, 78 Fed. Reg. at 23,058.

recording rights are well suited to serve as a benchmark for the corresponding musical works right. Accordingly, as explained in Section VI below, I have gathered and assessed available information – covering a substantial portion of the market – on the royalties paid by interactive services to record labels for sound recording rights.

38. Second, while the sound recording right and the musical works right are perfect complements from an economic perspective, royalty rates for sound recording rights have historically, in most cases, exceeded royalty rates for corresponding musical works rights. Thus, in order to use the sound recording benchmark to estimate the value of the corresponding musical works rights for interactive services, it is necessary to estimate the relative value of the two rights. This task can be accomplished by gathering and analyzing evidence about how the sound recording and musical works rights are valued in other instances in which both rights are required. As I explain in Section V below, such information is available for several markets, including markets for synchronization rights, non-interactive streaming services, ringtones and the YouTube service. My analysis of this data provides a robust estimate of the range of relative values of the sound recording and musical works rights. That range of ratios allows me to adjust the value of the sound recording right for interactive services to arrive at what in my opinion is a robust and reasonably precise estimate of the range of reasonable values of the Subpart B and Subpart C rights at issue here.

B. The Importance of Considering Contextual Evidence

39. To supplement the benchmarking exercise and to ensure it remains closely tied to the commercial and practical realities of the relevant markets, it is also important to assess various types of contextual information. Examples of such information include the potential influence of rate setting bodies or other regulatory activities on the relative bargaining power of

the parties (and resulting outcomes), economic or technological trends that affect supply and demand in relevant markets, institutional or transaction cost factors that may affect economic conduct and valuations, and the effects of customary and ordinary business practices – i.e., the way business is done.

40. I consider such evidence in this testimony in a number of ways. For example, I described relevant aspects of the institutional context in Section II above; in the section immediately below, I assess technological and market factors that are transforming the music business; I address other relevant contextual factors (e.g., the significance of the “partial withdrawal” issue associated with recent agreements involving non-interactive rights) as appropriate throughout my testimony.

IV. THE TRANSFORMATION OF THE MUSIC BUSINESS

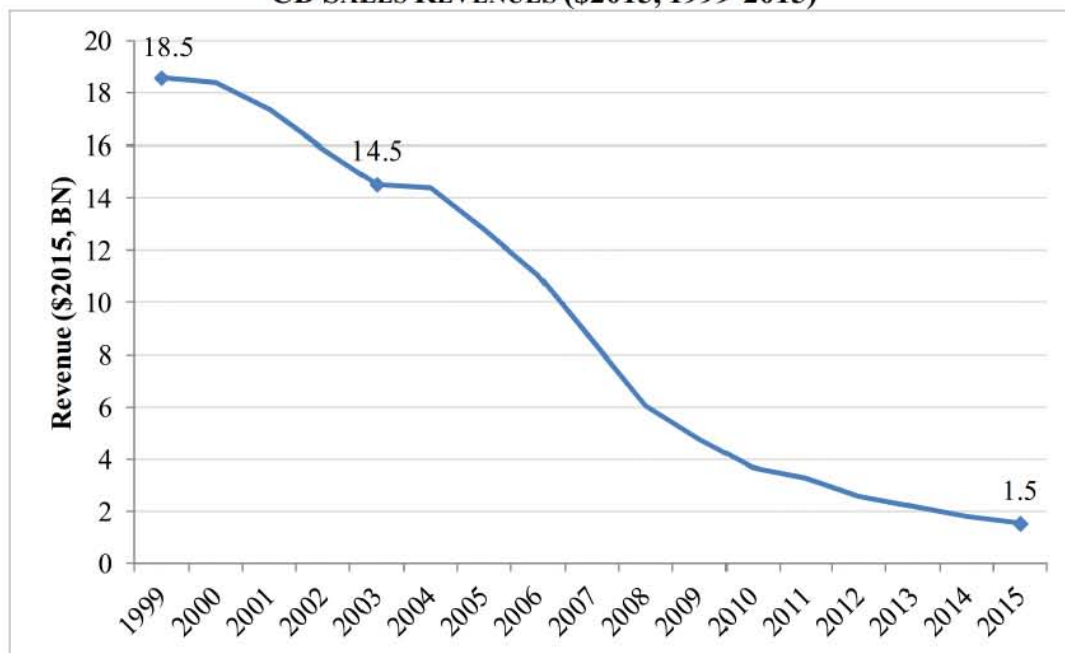
41. In order to understand the appropriate value of the mechanical rights at issue in this proceeding – which were last set in a 2012 resolution which largely carried over rates set in 2008 – it is important to understand how the music industry has changed over the past several years. In particular, as I describe in more detail in the remainder of this section, the industry has moved away from the sales of physical media (sold generally as albums which bundled a number of tracks together) to the sales of digital media (sold increasingly as unbundled tracks) and, more recently, to the use of subscription and non-subscription based streaming and limited download services, which do not require listeners to purchase the music they wish to access on-demand. These changes have profoundly affected the ways in which music is distributed and consumed, disrupted traditional business models, and reduced overall revenues. While revenues have declined, however, there is no evidence that the demand for music has declined. Rather, the amount of time U.S. consumers spend listening to music has increased.

A. The Shift from Physical to Digital Distribution

42. The first major shift began in the 1990s with the shift from physical to digital formats as the primary mechanism for music distribution. Music industry revenues peaked in the late 1990s, with CD sales making up by far the largest source of retail sales revenues. However, with the growth of the personal computer and portable digital music players, consumption of music via computer files (MP3s and the like) grew. The lack of a well-developed retail market for music in digital file formats contributed to a significant decline in music industry revenues as listeners moved from physical to digital formats, aided by digital music piracy, which filled the digital retail vacuum with the availability of digital music files through peer-to-peer file sharing services such as Napster.²⁷ As shown in Figure 3, U.S. revenues from CD sales declined from \$18.5 billion in 1999 to \$1.5 billion in 2015.

²⁷ See Richard Nieva, “Ashes to Ashes, Peer to Peer: An Oral History of Napster,” *Fortune* (Sept. 5, 2013), available at <http://fortune.com/2013/09/05/ashes-to-ashes-peer-to-peer-an-oral-history-of-napster/> (last accessed Oct. 12, 2016). For a contemporaneous assessment of the impact of online music distribution, see also William A. Adkinson and Jeffrey A. Eisenach, *The Debate Over Digital Online Content: Understanding the Issues* (The Progress & Freedom Foundation, Apr. 2002), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1260377 (last accessed Oct. 12, 2016).

FIGURE 3:
CD SALES REVENUES (\$2015, 1999-2015)



Sources: RIAA U.S. Sales Database, RIAA ("RIAA U.S. Sales Database"), available at <https://www.riaa.com/u-s-sales-database/> (last accessed Oct. 12, 2016). Note: [1] CD sales include RIAA categories CD and CD Single. [2] Data show the retail value equivalent of wholesale sales.

43. The music industry reacted to digital piracy by creating licensed outlets for digital music distribution. Most notable of the digital music stores was the Apple iTunes store, which launched in 2003 with the backing of the major music labels.²⁸ Digital downloads were paired with the Apple iPod, which facilitated a limited level of music portability and was a precursor to today's mobile music streaming over smartphones and other mobile electronics.²⁹ The creation of legitimate retail markets for digital music led to the gradual decline of digital music piracy. As I discuss below, digital music distribution also enabled the unbundling of the music album:

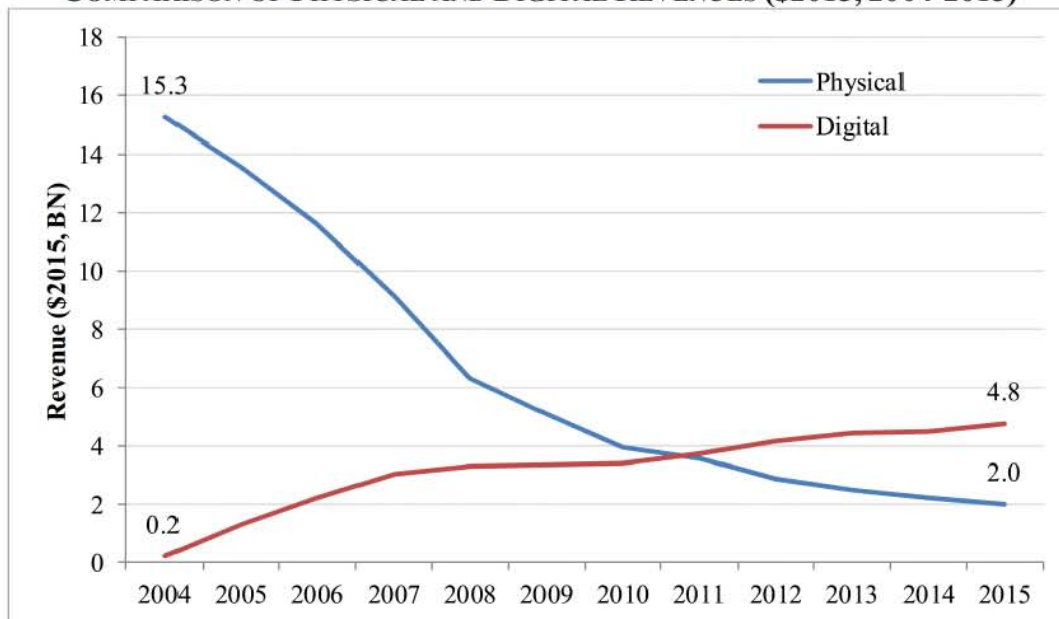
²⁸ See Nathan Ingraham, "iTunes Store at 10: How Apple Built a Digital Media Juggernaut," The Verge (Apr. 26, 2013), available at <http://www.theverge.com/2013/4/26/4265172/itunes-store-at-10-how-apple-built-a-digital-media-juggernaut> (last accessed Oct. 12, 2016).

²⁹ *Id.*

music consumers could for the first time more conveniently download singles from albums instead of the entire album.

44. The growing popularity of digital formats is illustrated in Figure 4, which shows that between 2004 (when the RIAA began tracking revenues for digital formats) and 2015, revenues from physical sales declined by 87 percent, from \$15.3 billion to \$2 billion. While digital revenues increased from \$230 million to approximately \$4.8 billion, a 19-fold increase, that increase was still far too small to offset the decline in physical sales. Note that these figures represent the revenues for the record labels, the owners of the sound recording copyrights, who negotiate licenses for their reproduction rights in the free market, not subject to compulsory licensing.

FIGURE 4:
COMPARISON OF PHYSICAL AND DIGITAL REVENUES (\$2015, 2004-2015)



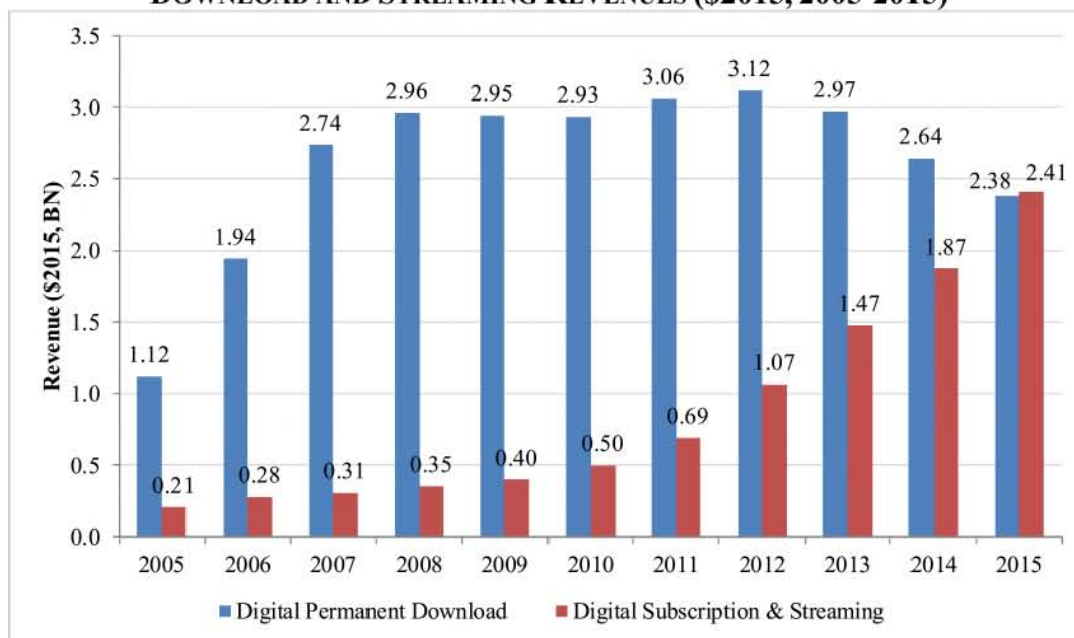
Sources: RIAA U.S. Sales Database. Note: [1] Physical formats include LP/EP, Vinyl Single, CD, CD Single, Music Video, DVD Audio and SACD. Digital formats include Download Single, Download Album, Kiosk, Download Music Video, Ringtones and Ringbacks, Paid Subscriptions, SoundExchange Royalties and Ad-Supported On-Demand Streaming. [2] 2004 was the first year that RIAA began tracking digital media. [3] Data show the retail value equivalent of wholesale sales. Services with no retail value equivalent are included at wholesale value.

45. The next major transformation of the music industry occurred with the shift from digital downloads to both interactive and non-interactive streaming services.³⁰ As shown in Figure 5, music streaming revenues have increased steadily since 2005, while download revenues began declining in 2012. In 2015, total revenues from streaming surpassed download revenues for the first time, with streaming revenues of approximately \$2.41 billion compared to \$2.38 billion for downloads. The figure also illustrates that the growth of streaming did not accelerate until after the 2012 settlement that established the current Section 115 rates. Again,

³⁰ See, e.g., Micah Singleton, “Streaming Music Edged Out Digital Downloads for the First Time in 2015,” *The Verge* (Mar. 22, 2016), available at <http://www.theverge.com/2016/3/22/11284932/streaming-music-riaa-music-labels-youtube> (last accessed Oct. 12, 2016).

note that these are figures for the record labels, whose reproduction rights are not subject to compulsory licensing.

**FIGURE 5:
DOWNLOAD AND STREAMING REVENUES (\$2015, 2005-2015)**



Sources: RIAA U.S. Sales Database. Note: [1] Digital Permanent Download includes Download Single, Download Album, Kiosk, Download Music Video, Ringtones and Ringbacks. Digital Subscription and Streaming includes Paid Subscriptions, SoundExchange Royalties and Ad-Supported On-Demand Streaming. [2] 2005 was the first year that RIAA began tracking streaming subscription revenue. [3] Note the total for digital in Figure 4 above (4.8) is rounded and does not match the total in this figure ($2.38 + 2.41 = 4.79$). [4] Data show the retail value equivalent of wholesale sales. Services with no retail value equivalent are included at wholesale value.

B. Music Streaming Services

46. The music streaming industry, especially the market for interactive or on-demand services, is highly dynamic, characterized by rapid innovation and the entry of new firms. There are two primary categories of music streaming services: *non-interactive streaming services* (like the one offered by Pandora), which do not allow listeners to listen to songs on-demand; and *interactive streaming services*, which allow on-demand streaming. As noted above, the Subpart B and Subpart C licenses at issue in this proceeding apply to interactive services.

47. Below, I briefly describe non-interactive streaming services, and then discuss the market for interactive streaming services.³¹

48. The non-interactive streaming category covers services which provide a spectrum of functionalities. On one end of the spectrum, some services provide a programmed stream of music that cannot be altered – in effect, digital radio. On the other end of the spectrum are services that have customizable streams and allow users to skip songs. Many broadcast radio stations provide streaming simulcasts that allow listeners to stream linear radio broadcasts over the Internet. Aggregation services like iHeartRadio³² and TuneIn³³ aggregate simulcasts for radio stations, allowing listeners access to myriad stations all across the country. Other music streaming services allow for a customized music stream where listeners are able to choose a genre or influence the songs that are played on the stream by liking or disliking songs. Pandora's non-interactive music streaming service utilizes a music curation algorithm based on its Music Genome Project database that plays songs based on a listener's preference as determined by songs that were liked previously.³⁴

49. Interactive streaming services such as Apple Music, Amazon, Google Play Music, Rhapsody and Spotify give listeners unlimited access to a library of music; that is, users are able to choose a specific sound recording and listen to it at the time of their choosing. These products

³¹ My references to interactive streaming services throughout this report include services offering interactive music streaming and/or limited downloads.

³² See "Welcome to iHeartRadio," iHeart,, available at <http://www.iheart.com/news/welcome-to-iheartradio-6906244/> (last accessed Oct. 12, 2016). Note that iHeartRadio has also recently announced its plans to launch an interactive streaming service in the coming months. See "Introducing iHeartRadio All Access," iHeart,, available at <http://blog.iheart.com/Pages/introducing-iheartradio-all-access.aspx> (last accessed Oct. 21, 2016).

³³ See "About TuneIn," TuneIn,, available at <http://tunein.com/about/> (last accessed Oct. 12, 2016).

³⁴ See "About the Music Genome Project," Pandora, available at <https://www.pandora.com/about/mgp> (last accessed Oct. 12, 2016).

are differentiated by the size of the music library available to the users, the types of additional service options available, and other features. There is substantial variation in the size of these services' catalogs. Apple Music, Google Play, Rhapsody, and Spotify each have over 30 million songs available. Amazon's new Music Unlimited service touts "tens of millions" of songs, while Amazon's Prime Music service has a significantly smaller catalogue of over a million songs.³⁵ Along with catalog size, interactive services also differentiate themselves by exclusive audio content that is not available on other platforms, such as Tidal Music's exclusive streaming deals for Beyoncé's album "Lemonade" and Kanye West's album "The Life of Pablo."³⁶ These deals provide incentives for listeners to choose one service over another in order to hear content from popular artists before it is made available through wide release.

50. Interactive streaming companies primarily monetize their services using monthly subscriptions that allow unlimited streaming (sometimes referred to as "all you can eat" plans). Table 1 below summarizes monthly prices for subscription plans from select interactive services. Some services offer free versions of their service, although most of these free versions do not offer true on-demand access, but rather offer access to non-interactive streaming services such as internet radio stations of playlists (or, in the case of SoundCloud, a limited catalog of popular music). Spotify, which has become the dominant service provider in the industry in terms of

³⁵ See Madi Alexander and Ben Sisario, "Apple Music, Spotify and a Guide to Music Streaming Services," *The New York Times* (Apr. 5, 2016), available at http://www.nytimes.com/interactive/2015/06/30/business/media/music-streaming-guide.html?_r=0 (last accessed Oct. 12, 2016); Dan Seifert, "Amazon's Full On-Demand Streaming Music Service Launches Today," *The Verge* (Oct. 12, 2016), available at <http://www.theverge.com/2016/10/12/13244158/amazon-music-unlimited-launch-echo-availability-price> (last accessed Oct. 17, 2016).

³⁶ Xiomara Blanco, "Drake's 'Views' to Exclusively Roll Out on Apple Music, iTunes," *CNET* (Apr. 28, 2016), available at <https://www.cnet.com/news/drakes-views-from-the-six-exclusively-rolls-out-on-apple-music-itunes/> (last accessed Oct. 12, 2016)

user base, offers a fully-functional free, ad-supported desktop version of its service as well as a free, mobile version with restrictions. Spotify offers certain additional features for subscription members in addition to advertisement-free streaming, including full mobile device access. Most services charge \$9.99 per month for their subscriptions, with a family plan available for \$14.99 per month that provides access to up to six people.³⁷ Some services offer different variations on subscriptions. For example, Tidal offers a Tidal HiFi tier for \$19.99 a month that provides lossless content in CD quality as well as a Premium tier for \$9.99 that is restricted to “high quality” streaming.³⁸ Amazon historically bundled its Prime Music service, which has a very limited catalog, as a free feature of its Prime subscriptions. Amazon has also just launched an on-demand streaming pricing program taking aim at the standard industry models. Amazon Music Unlimited launched in October 2016, and offers a \$3.99 per month service that only streams through Amazon’s proprietary Echo device, as well as a discounted \$7.99 per month (or \$79 per year, which works out to \$6.58 per month) service for subscribers to its Prime program (which has been estimated to have 60 to 80 million subscribers),³⁹ along with the standard \$9.99 per month for other individuals and \$14.99 per month for families.⁴⁰

³⁷ See e.g., Membership, Apple Music, available at <http://www.apple.com/apple-music/membership/> (last accessed Oct. 21, 2016).

³⁸ See “HiFi vs. Premium Subscriptions,” Tidal, available at <https://support.tidal.com/hc/en-us/articles/202722972-HiFi-vs-Premium-Subscriptions-> (last accessed Oct. 12, 2016).

³⁹ See Tom DiChristopher, “Prime Will Grow Amazon Revenue Longer Than You Think: Analyst,” CNBC (Sept. 11, 2015), available at <http://www.cnbc.com/2015/09/11/prime-will-grow-amazon-revenue-longer-than-you-think-analyst.html> (last accessed Oct. 18, 2016).

⁴⁰ See Dan Seifert, “Amazon’s Full On-Demand Streaming Music Service Launches Today,” The Verge (Oct. 12, 2016), available at <http://www.theverge.com/2016/10/12/13244158/amazon-music-unlimited-launch-echo-availability-price> (last accessed Oct. 17, 2016).

**TABLE 1:
SELECT INTERACTIVE STREAMING SERVICES - SERVICE TIERS
(JUNE 2016)**

Service	Free/ Ad-Supported Tier	Monthly Fee Range (\$)
Amazon Music Unlimited		3.99/14.99
Apple Music		9.99/14.99
Deezer		9.99/14.99
Google Play Music		9.99/14.99
Microsoft Groove		9.99/14.99
Rhapsody		4.99/9.99
Spotify	X	9.99/14.99
Tidal		9.99/19.99

Sources: Economics of Mobile Music, SNL Kagan 2016 Edition (July 19, 2016) at 9 ("SNL Economics of Mobile Music"); Dan Seifert, "Amazon's Full On-Demand Streaming Music Service Launches Today," The Verge (Oct. 12, 2016), available at <http://www.theverge.com/2016/10/12/13244158/amazon-music-unlimited-launch-echo-availability-price> (last accessed Oct. 17, 2016). Note: Services with a range of monthly fees have multiple service tiers at varying prices.

51. It is significant that the interactive music business is experiencing rapid entry.

Table 2 below shows examples of major entrants into the U.S. market from 2001 to the present.

TABLE 2:
SELECT ENTRANTS INTO INTERACTIVE MUSIC STREAMING
(U.S. MARKET; 2001-PRESENT)⁴¹

Service	Launch
Napster (Formerly Rhapsody)	December 2001
Slacker Premium Radio	May 2011
Spotify	July 2011
Groove Music (Formerly Xbox Music)	October 2012
Google Play All Access	May 2013
Amazon Prime Music	June 2014
Tidal Music	October 2014
Apple Music	June 2015
SoundCloud Go	March 2016
Deezer	July 2016
Amazon Unlimited Music	October 2016
Pandora Interactive Streaming	Q4 2016
iHeartRadio All Access	January 2017
Playster	TBD

⁴¹ Napster (Formerly Rhapsody): Gwendolyn Mariano, "Listen.com Launches Rhapsody Service," ZDNet (Dec. 3, 2001), available at <http://www.zdnet.com/article/listen-com-launches-rhapsody-service/> (last accessed Oct. 12, 2016); Slacker Premium Radio: "Slacker Launches Slacker Premium Radio with On-Demand Access to Music Library," Slacker (May 17, 2011), available at <http://blog.slacker.com/press/31/> (last accessed Oct. 12, 2016); Spotify: Charlie Sorrel, "Spotify Launches in the U.S. at Last," Wired (July 14, 2011), available at <http://www.wired.com/2011/07/spotify-launches-in-the-u-s-at-last/> (last accessed Oct. 12, 2016); Groove Music (Formerly Xbox Music): "Introducing Xbox Music: The Ultimate All-in-One Music Service Featuring Free Streaming on Windows 8 and Windows RT Tablets and PCs," Microsoft (Oct. 15, 2012), available at <http://www.microsoft.com/en-us/news/press/2012/oct12/10-14xboxmusicpr.aspx> (last accessed Oct. 12, 2016); Google Play All Access: Josh Constone, "Google Launches 'Google Play Music All Access' On-Demand \$9.99 A Month Subscription Service," TechCrunch (May 15, 2013), available at <http://techcrunch.com/2013/05/15/google-play-music-all-access/> (last accessed Oct. 12, 2016); Amazon Prime Music: Tom Warren, "Amazon Launches Streaming Music Service for Prime Members," The Verge (June 12, 2014), available at <http://www.theverge.com/2014/6/12/5802898/amazon-prime-music-features-pricing> (last accessed Oct. 12, 2016); Tidal Music: Matthew Sparkes, "Tidal launches lossless music streaming in UK and US," The Telegraph (Oct. 28, 2014), available at <http://www.telegraph.co.uk/technology/news/11192375/Tidal-launches-lossless-music-streaming-in-UK-and-US.html> (last accessed Oct. 25, 2016); Apple Music: "Introducing Apple Music - All the Ways You Love Music. All in One Place," Apple (June 8, 2015), available at <http://www.apple.com/pr/library/2015/06/08Introducing-Apple-Music-All-The-Ways-You-Love-Music-All-in-One-Place.html> (last accessed Oct. 12, 2016); SoundCloud Go: "Introducing SoundCloud Go," SoundCloud, available at <https://blog.soundcloud.com/2016/03/29/introducing-soundcloud-go/> (last accessed Oct. 12, 2016); Deezer: Ingrid Lunden, "Deezer Opens Its \$9.99 On-Demand Music Service in the US to Everyone, No Free Tier Included," TechCrunch (July 19, 2016), available at <https://techcrunch.com/2016/07/19/deezer-opens-its-9-99-on-demand-music-service-in-the-us-to-everyone-no-free-tier-included/> (last accessed Oct. 12, 2016); Amazon Unlimited Music: Dan Seifert, "Amazon's Full On-Demand Streaming Music Service Launches Today," The Verge (Oct. 12, 2016), available at <http://www.theverge.com/2016/10/12/13244158/amazon-music-unlimited-launch-echo-availability-price> (last accessed Oct. 18, 2016); Pandora Interactive Streaming Hannah Karp, "Pandora Nears Deals for On-Demand Streaming," The Wall Street Journal (Aug. 19, 2016), available at <http://www.wsj.com/articles/pandora-nears-deals-for-on-demand-streaming-1471599002> (last accessed Oct. 18, 2016); iHeartRadio All Access: Andrew Dalton, "iHeartRadio Plays Catch-up with On-Demand Music," Engadget (Sept. 23, 2016), available at <https://www.engadget.com/2016/09/23/iheartradio-all-access-plus-on-demand-music/> (last accessed Oct. 24, 2016); Playster: Anna Washenko, "Playster Gets Label Deals for the Music Side of Its Streaming Subscription Bundle," RAIN News (Sept. 23, 2016), available at <http://rainnews.com/playster-gets-label-deals-for-the-music-side-of-its-streaming-subscription-bundle/> (last accessed Oct. 24, 2016)

52. For example, as the chart shows, Pandora has announced the planned launch of its interactive streaming business later this year that will compete directly with Apple Music, Spotify and other interactive services.⁴²

53. The continued entry of new services into the interactive streaming business demonstrates that investors and entrepreneurs expect to earn economic profits – i.e., returns in excess of the risk-adjusted return on capital – from their investments.⁴³ To be clear, this does not necessarily mean that: (a) these firms are earning *accounting profits*, which are different from economic profits;⁴⁴ (b) these firms are currently earning economic profits or expect to do so in the immediate future; or, (c) all of these firms will earn profits (of any kind). What it does mean is that many investors believe the risk-adjusted expected rate of return exceeds the cost of capital or, in economic terms, that at current and anticipated prices and market conditions – including the rates and terms for acquiring copyright licenses – the digital music streaming business is profitable.

C. The Economic Value of Musical Works

54. While the ways in which consumers interact with music have changed, and retail sales revenues have declined, demand for music and consumption of it have remained robust. As noted in a recent report from the Computer and Communications Industry Association (CCIA),

⁴² See “Introducing Pandora Plus, More Control and Great New Features at a Very Affordable price,” Pandora (Sept. 15, 2016), available at <http://press.pandora.com/file/4247784/Index?KeyFile=35892456> (last accessed Oct. 25, 2016); see also Micah Singleton, “Pandora is Almost Ready to Launch Its Music Subscription Service,” The Verge (Sept. 13, 2016), available at <http://www.theverge.com/2016/9/13/12901408/pandora-music-subscription-service-umg-sony> (last accessed Oct. 12, 2016).

⁴³ See, e.g., See Dennis Carlton and Jeffrey Perloff, *Modern Industrial Organization*, 4th ed. (Pearson/Addison-Wesley, 2005) at 61 (“In the short-run equilibrium . . . a typical firm may earn a profit, which provides an incentive for firms to enter the market.”).

⁴⁴ See, e.g., Franklin Fisher and John McGowan, “On the Misuse of Accounting Rates of Return to Infer Monopoly Profits,” *The American Economic Review* 73:1 (Mar. 1983) 82-97.

“Although the prominent business models for music are changing, the consumption of music has never been higher.”⁴⁵

55. Various industry experts, industry participants and news outlets also note that overall music consumption has never been higher despite rapid changes in music technology and declining revenues. Music industry consultant Vickie Naumon, Principal and Founder of CrossBorderWorks consulting, notes in an article for Rethink Music:

Music consumption is at an all time high, great music is being produced by artists all over the world, and connectivity has reached 40% of the global population. By far the biggest opportunity now and in the future is to enable innovative, licensed music products to reach consumers through an ever-evolving mix of connected speakers, cell phones, wearables, devices, platforms, and applications, and to efficiently collect and distribute revenue back to creators from all of this usage.⁴⁶

56. Music industry executives also support the claim that music consumption is expanding. For example, Barak Moffitt, the recently promoted Executive Vice President of Content Strategy at Universal Music Group, states, “Music consumption is at an all-time high and music fans have more choices than ever to engage with artists and their music.”⁴⁷ Similarly, Cary Sherman, Chairman and CEO of RIAA, notes in an article concerning industry consumption and revenues, “[w]hile today’s data is encouraging, the challenges facing us are

⁴⁵ Michael Masnick, Michael Ho, Joyce Hung, and Leigh Beadon, “The Sky is Rising 2014 Edition,” CCIA (Oct. 2014) at 9, available at <https://www.cciagnet.org/wp-content/uploads/2014/10/Sky-Is-Rising-2014.pdf> (last accessed Oct. 12, 2016).

⁴⁶ Vickie Nauman, “Reimagining the Music Business,” Rethink Music (Jan. 26, 2016), available at <http://www.rethink-music.com/news/reimagining-the-music-business> (last accessed Oct. 12, 2016).

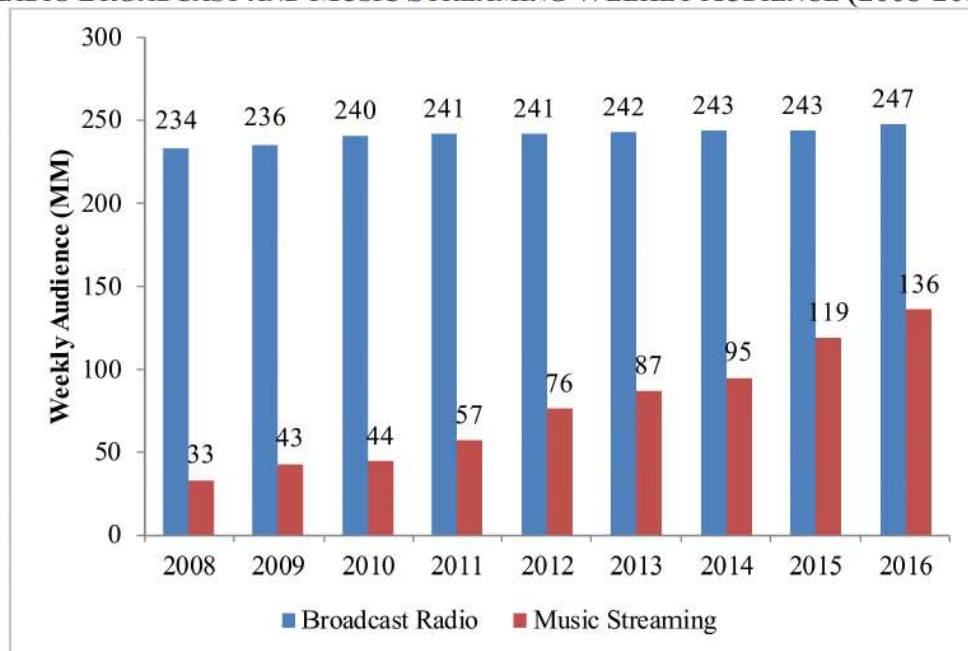
⁴⁷ “Universal Music Promotes Barak Moffitt to Executive Vice President of Content Strategy and Operations,” Universal Music Group (Apr. 21, 2016), available at <http://www.universalmusic.com/universal-music-promotes-barak-moffitt-to-executive-vice-president-of-content-strategy-and-operations/> (last accessed Oct. 12, 2016).

significant. The consumption of music is skyrocketing, but revenues for creators have not kept pace.”⁴⁸

57. Data on time spent listening to music and music platform across various mediums indicate that consumption of music has increased in recent years. Figure 6 below shows the weekly audience of radio and music streaming over the period of 2008 to 2016. As the figure shows, the weekly audience for music streaming quadrupled from 33 million to 136 million over this period, while the weekly audience for broadcast radio also grew by approximately five percent from 234 million to 247 million from 2008 to 2016.

⁴⁸ Cary Sherman, “State of the Music Business: What the Numbers Tell Us,” Medium (Mar. 22, 2016), *available at* <https://medium.com/@RIAA/state-of-the-music-business-what-the-numbers-tell-us-63ce1524b30#.2hxurbjnr> (last accessed Oct. 12, 2016).

FIGURE 6:
RADIO BROADCAST AND MUSIC STREAMING WEEKLY AUDIENCE (2008-2016)

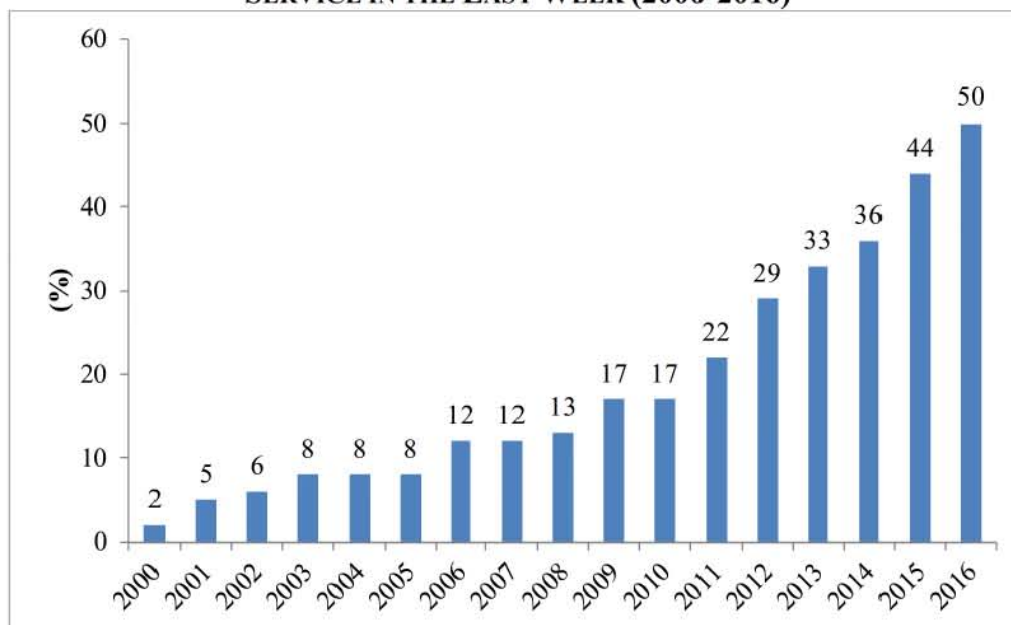


Sources: *Economics of Internet Music and Radio*, SNL Kagan 2016 Edition (2016) at 5 (“SNL Economics of Internet Music and Radio”). Note: Music Streaming is defined as “[l]istening to AM/FM radio stations online and/or listening to streamed audio content available only on the Internet” for persons 12 and older.

58. Figure 7 below shows the percentage of the population 12 years and older that listened to an online streaming service in the last week from a survey conducted by Edison Research and Triton Digital (Edison and Triton).⁴⁹ As the figure shows, the percentage of the population that listened to a music streaming service increased from 13 percent in 2008 to 50 percent in 2016. Listening audience metrics across various mediums also show growth.

⁴⁹ *The Infinite Dial 2016*, Edison Research and Triton Digital (Mar. 10, 2016) (“The Infinite Dial 2016”), available at <http://www.edisonresearch.com/wp-content/uploads/2016/03/The-Infinite-Dial-2016.pdf> (last accessed Oct. 12, 2016).

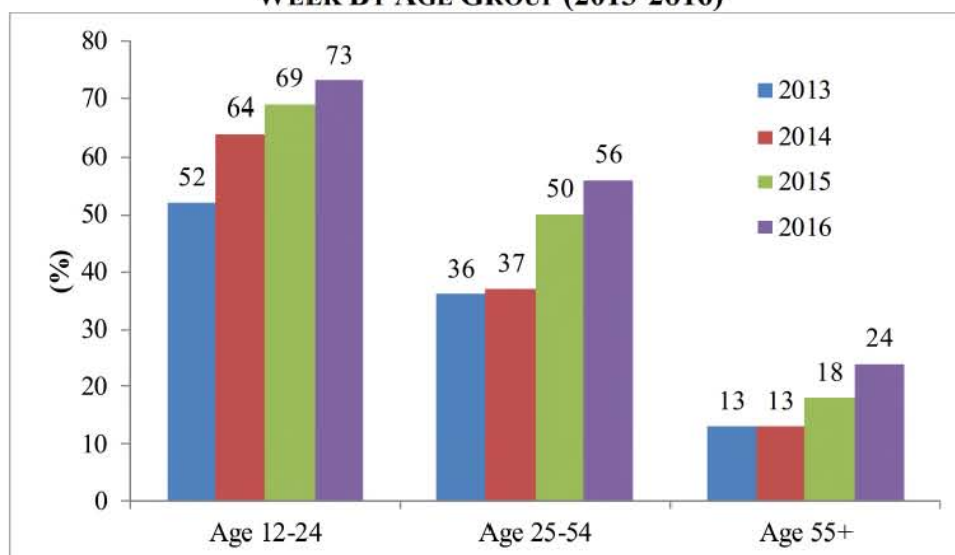
FIGURE 7:
PERCENTAGE OF POPULATION 12 AND OLDER THAT LISTENED TO A MUSIC STREAMING SERVICE IN THE LAST WEEK (2000-2016)



Sources: *The Infinite Dial 2016* at 18. Note: Music Streaming is defined as “[l]istening to AM/FM radio stations online and/or listening to streamed audio content available only on the Internet.” 2016 figure is estimated.

59. Audience penetration data broken out by age group show that music streaming is gaining traction in all age groups and is especially popular among the younger population. As shown in Figure 8, the percentage of the population that listened to a music streaming service in the last week increased from 2013 to 2016 for each of the three age groups. In the age group of 12 to 24, the percentage of the population listening in 2016 was 73 percent compared to 56 percent and 24 percent for the age groups 25 to 54 and 55 and older, respectively.

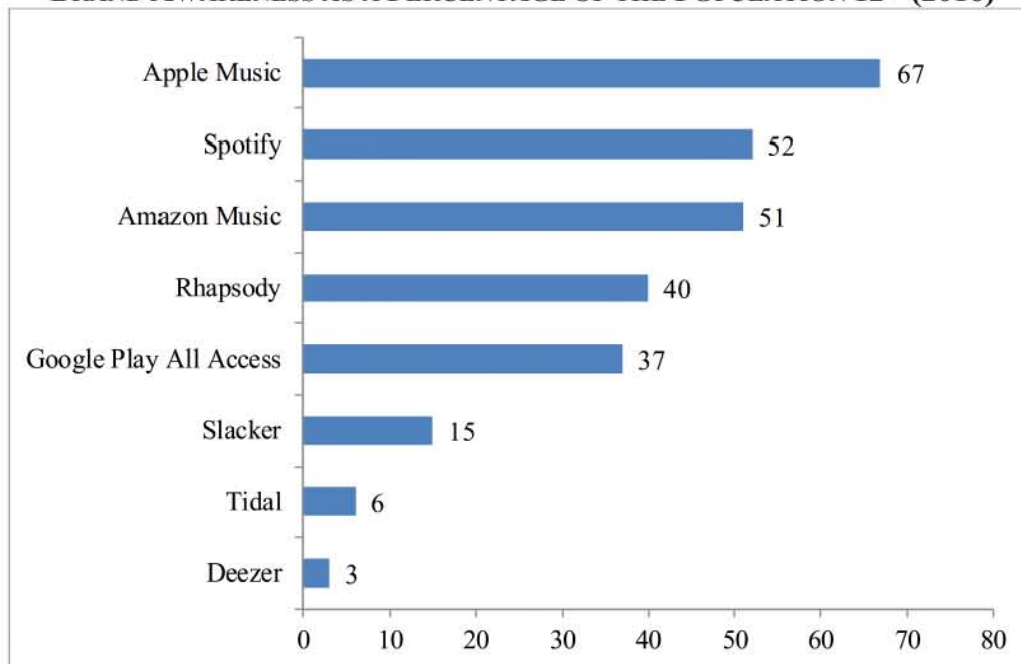
FIGURE 8:
PERCENTAGE OF POPULATION THAT LISTENED TO A MUSIC STREAMING SERVICE IN THE LAST WEEK BY AGE GROUP (2013-2016)



Sources: *The Infinite Dial 2016 at 19.*

60. Data also show that brand awareness for interactive music streaming services is high. Figure 9 below shows the percentage of the population ages 12 and older that are aware of several interactive streaming brands. Apple Music benefits from strong name recognition that comes from the Apple brand with 67 percent of the population aware of the streaming service. Spotify has the second largest brand recognition followed by Amazon Music.

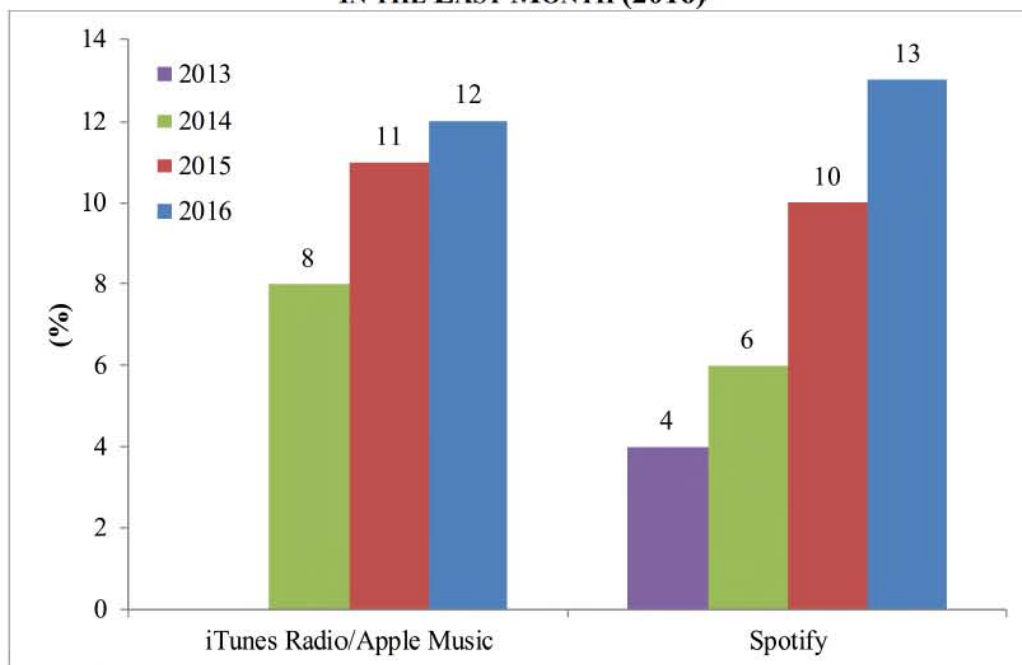
FIGURE 9:
BRAND AWARENESS AS A PERCENTAGE OF THE POPULATION 12+ (2016)



Sources: *The Infinite Dial 2016* at 24.

61. Higher levels of brand awareness have in turn led to higher numbers of active users for these interactive streaming services. Figure 10 shows the percentage of the population that used Spotify or Apple Music in the last month. As shown, the percentage for Spotify increased from four percent to 13 percent between 2013 and 2016; the percentage listening to iTunes Radio/Apple Music rose from eight percent to 12 percent between 2014 and 2016.

**FIGURE 10:
PERCENTAGE OF THE POPULATION LISTENING TO A MUSIC STREAMING SERVICE
IN THE LAST MONTH (2016)**



Sources: *The Infinite Dial 2016* at 26. Note: Data show responses for iTunes Radio from 2014 to 2015 and Apple Music for 2016.

62. Data from Nielsen on total audio streams show that in recent years interactive streaming has increased substantially. Nielsen’s year-end 2015 report showed that on-demand music streams increased from 79.1 billion to 144.9 billion from 2014 to 2015 or by approximately 83 percent.⁵⁰ Mid-year reports from 2016 show a similar trend, with total audio streams of 113.6 billion compared to 57.5 billion for the first half of 2015, representing an increase of 97 percent.⁵¹ The first half of 2016 also marked the first time the number of audio streams was greater than video streams. Nielsen notes, “Audio has surpassed Video as the

⁵⁰ See *2015 Nielsen Music U.S. Report*, Nielsen (Jan. 6, 2016) at 8, available at <http://www.nielsen.com/us/en/insights/reports/2016/2015-music-us-year-end-report.html> (last accessed Oct. 13, 2016).

⁵¹ See *2016 Nielsen Music U.S. Mid-Year Report*, Nielsen (July 7, 2016) at 2 (“Nielsen Mid-Year Report 2016”), available at <http://www.nielsen.com/us/en/insights/reports/2016/2016-us-music-mid-year-report.html> (last accessed Oct. 13, 2016).

leading Streaming format in 2016. Audio share of streaming is 54% in 2016, growing from 44% through the first six months of 2015.”⁵²

63. Music streaming in Internet connected automotive vehicles is also increasing. As noted by SNL Kagan, cars with in-vehicle infotainment systems increased from 900,000 to approximately 13.2 million over the period of 2013 to 2015.⁵³ Table 3 below shows interactive streaming services that eight automobile manufacturers have embedded in their Internet connected-vehicles:

**TABLE 3:
INTERACTIVE STREAMING SERVICES EMBEDDED IN MAJOR CONNECTED CAR MODELS
(MARCH 2016)**

Manufacturer (OEM)	Amazon Music	Deezer	Rhapsody/Napster	Slacker Radio	Spotify
BMW (Mini Cooper)	X	X	X		X
Chrysler Fiat				X	
Ford (Lincoln)		X	X	X	X
General Motors (Chevrolet, Buick, Cadillac)		X		X	
Honda (Acura)				X	
Jaguar (Land Rover)		X			
Mazda		X			
Volvo					X

Sources: SNL Economics of Internet Music and Radio at 38. Note: Data consist of partnerships announced on or before March 1, 2016.

64. Both Apple and Android have released in-vehicle infotainment systems that connect vehicles to smartphones and have access to many vehicle friendly apps, including music

⁵² Nielsen Mid-Year Report 2016 at 2.

⁵³ See SNL Economics of Internet Music and Radio at 35.

streaming apps.⁵⁴ Apple’s Apple CarPlay includes access to Apple Music as well as Spotify and Slacker Radio. Android Auto includes a free 90-day subscription to Google Play Music. Apple and Android have both negotiated partnerships with many car manufacturers, with Apple having partnerships with 34 car manufacturers as of March 2016 and Android having partnerships with 31.⁵⁵

D. Changes in the Industry Have Limited Publisher and Songwriter Royalties

65. The changes that have taken place in the music industry have limited compensation to rightsholders by transforming the quantity and means by which consumers access music. The transition from physical to digital formats has shifted sales from albums to singles, meaning that rather than paying 91 cents for a 10-song album containing one or two very popular songs and eight or nine less popular ones, consumers often purchase just the few popular songs. More recently, the transition from downloads to streaming has further inhibited royalty payments.⁵⁶

66. First, the growth of digital music distribution that began with the iTunes Music Store has resulted in an increase in sales of individual tracks relative to albums.⁵⁷ Albums (in whatever form) bundle together a number of individual tracks that the music consumer purchases

⁵⁴ See “Apple CarPlay,” Apple, available at <http://www.apple.com/ios/carplay/> (last accessed Oct. 12, 2016); see also “Android Auto,” Android, available at <https://www.android.com/auto/> (last accessed Oct. 12, 2016).

⁵⁵ See SNL Economics of Internet Music and Radio at 37.

⁵⁶ As noted by the Copyright Office, even Spotify agrees that the “rapid decline [in industry revenue] is not due to a fall in music consumption but to a shift in music listening behavior towards formats that do not generate significant income for artists”) (See CMM at 74, citing “Spotify Explained – How is Spotify contributing to the music business?,” Spotify Artists, <https://www.spotifyartists.com/spotify-explained/#how-is-spotify-contributing-to-the-music-business>).

⁵⁷ See, e.g., Alex Pham & Glenn Peoples, “Seven Ways iTunes Changed the Music Industry,” BillboardBiz (Apr. 25, 2013), available at <http://www.billboard.com/biz/articles/news/1559622/seven-ways-itunes-changed-the-music-industry> (last accessed Oct. 12, 2016).

as a set; as anyone who has ever listened to an album is well aware, not all tracks on an album are of equal quality or value to the consumer. That is, at a single price, the consumer receives a bundle of tracks on the album, some of which may be considered “higher quality.”

67. As shown in Table 4 below, in 2008 approximately 435 million albums were sold in the U.S., both physical and digital. By 2015, that number had fallen to about 249 million albums. At the same time, sales of singles were about 1.04 billion tracks in 2008 (almost all of which were digital tracks) and remained relatively constant in 2015 at about 1.02 billion, peaking at about 1.4 billion in 2012. Thus, while consumers are buying approximately the same number of singles in 2015 as they did in 2008, sales of albums have fallen by nearly half. While there have been fewer sales of physical and digital music over this time period, among the music that has been sold, an increasing share of that music has been sold as a single.⁵⁸

⁵⁸ This trend is even more astounding if one goes back to the period prior to the launch of the iTunes Music Store, when virtually all music was sold as albums.

TABLE 4:
COMPARISON OF ALBUM AND SINGLE VOLUME SALES (2008-2015)

Year	Album (Units MM)				Singles (Units MM)			
	Vinyl	CD	Download	Total	Vinyl	CD	Download	Total
2008	2.9	368.4	63.6	434.9	0.4	0.7	1,042.7	1,043.8
2009	3.5	296.6	74.5	374.6	0.3	0.9	1,124.4	1,125.6
2010	4.2	253.0	85.8	343.0	0.3	1.0	1,177.4	1,178.7
2011	5.5	240.8	103.9	350.2	0.4	1.3	1,332.3	1,334.0
2012	6.9	198.2	116.7	321.8	0.4	1.1	1,392.2	1,393.7
2013	9.4	173.8	118.0	301.2	0.3	0.6	1,327.9	1,328.8
2014	13.2	142.8	117.6	273.6	0.5	1.0	1,199.1	1,200.6
2015	16.9	122.9	109.4	249.2	0.5	0.4	1,021.0	1,021.9

Sources: RIAA U.S. Sales Database. Note: [1] "Vinyl Albums" corresponds with the RIAA music format category "LP/EP." [2] Data show wholesale sales volume.

68. While the recent shift to singles relative to 2011 is not as dramatic, the same general pattern holds – sales of singles have fallen from about 1.134 billion in 2011 to about 1.022 billion in 2015, a decline of about 9.9 percent, while sales of albums have fallen from 350.2 million to about 249.2 million, a decline of about 28.9 percent. Thus, again, while total unit purchases of music have fallen since 2011, a greater share of the music purchased is being purchased as singles rather than albums.

69. Second, more recently, the transition from downloads to streaming appears to have further limited royalty payments, and dissatisfaction regarding compensation to publishers and songwriters is a widely recognized phenomenon. As author and music industry observer John Seabrook recently wrote in *The New Yorker*:

The steep decline in album sales – the result of a shift from brick-and-mortar distribution to digital retail, and now to streaming – has dealt a blow to songwriters' mechanical-royalty income . . . [T]he performance-royalty rates that songwriters command from streaming services such as Pandora, Spotify, YouTube, Amazon Prime, and Apple Music are in most cases far lower than the ones they get for terrestrial-radio plays.⁵⁹

⁵⁹ John Seabrook, "Will Streaming Music Kill Songwriting," *The New Yorker* (Feb. 8, 2016), available at <http://www.newyorker.com/business/currency/will-streaming-music-kill-songwriting> (last accessed Oct. 12, 2016).

70. To some extent, artists have been able to compensate for falling royalties through larger touring fees and other revenue sources, but these sources generally are not shared with songwriters. As one prominent songwriter explained:

At some point, they (music streaming services) sold the acts some idea like, “We’re promoting your music so you can go out and tour and make money with merchandise and ticket sales and stuff”... But a lot of those artists co-wrote with people like me. I don’t get a piece of the touring. I don’t get a piece of the merchandise.⁶⁰

71. Some popular artists have responded to low streaming royalties by negotiating exclusive deals. However, as the Copyright Office notes, this option is not available to songwriters who are not also artists as a result of the compulsory license:

Notably, songwriters who are not also recording artists with some measure of control over their recordings typically do not have the option to withdraw their works from low-paying services, because – due to the combination of the section 115 compulsory license and the ASCAP and BMI consent decrees – they have no choice other than to permit the exploitation of their musical works by such providers.⁶¹

72. Thus, the office concludes:

While all creators have been affected by the shift from full-album sales to digital streaming models, songwriters who are not also performing artists appear to have been especially hard hit. Unlike songwriter-artists, “pure” songwriters who write works for others to perform do not have the potential to make up for lost income through touring or merchandise sales.⁶²

73. In summary, the available evidence suggests that music consumption in the U.S. is growing, but that current royalty structures are not producing commensurate gains for songwriters and publishers.

⁶⁰ Doug Gross, “Songwriters: Spotify Doesn’t Pay Off... Unless You’re a Taylor Swift,” CNN (Nov. 13, 2014), available at <http://www.cnn.com/2014/11/12/tech/web/spotify-pay-musicians/> (last accessed Oct. 12, 2016).

⁶¹ CMM at 76.

⁶² CMM at 78.

V. ASSESSING THE RELATIVE VALUE OF SOUND RECORDING RIGHTS AND MUSICAL WORKS RIGHTS FOR INTERACTIVE STREAMING

74. In this section and the sections that follow, I report on my analysis of how market-based benchmarks inform the appropriate rate for the Section 115 licenses. As explained above, my benchmarking analysis involves estimating the value of the Section 115 rights by assessing the value of the sound recording right for the same services, which is determined in the marketplace through direct negotiations, and then adjusting that value to reflect the relative value of the musical works right, which can also be estimated based on market rates. This section presents my analysis of the relative value of the two rights for interactive streaming.⁶³

75. In the first section below, I discuss in general terms the relationship between the economic value of sound recording rights and musical works rights. Second, I present evidence from a variety of direct licenses, including licenses for synchronization rights conducted without a regulatory overhang as well as ringtone licenses and a number of other licenses obtained under the shadow of a compulsory license. In my opinion, these licenses, taken together, establish that the upper and lower bounds for the ratio of market valuations of sound recording to market valuations of musical works is between 1:1 and 4.76:1. Third, I present my analysis of YouTube's licensing arrangements with record labels and publishers. Fourth, I analyze recent agreements between Pandora and music publishers for musical works rights for Pandora's interactive services (the "Pandora Opt-Out Deals") and explain how those agreements inform the relative value of the sound recording and musical works rights. In my opinion, the YouTube and Pandora agreements provide strong evidence that relative market valuation of sound recordings

⁶³ By "relative value" I mean the market valuations of the two types of rights in the current marketplace.

and musical works lies [REDACTED]. I conclude this section by presenting my overall assessment of the evidence with regard to the relative valuation of the sound recording and musical works rights for interactive streaming.

A. The Economic Relationship between the Sound Recording and Musical Works Rights

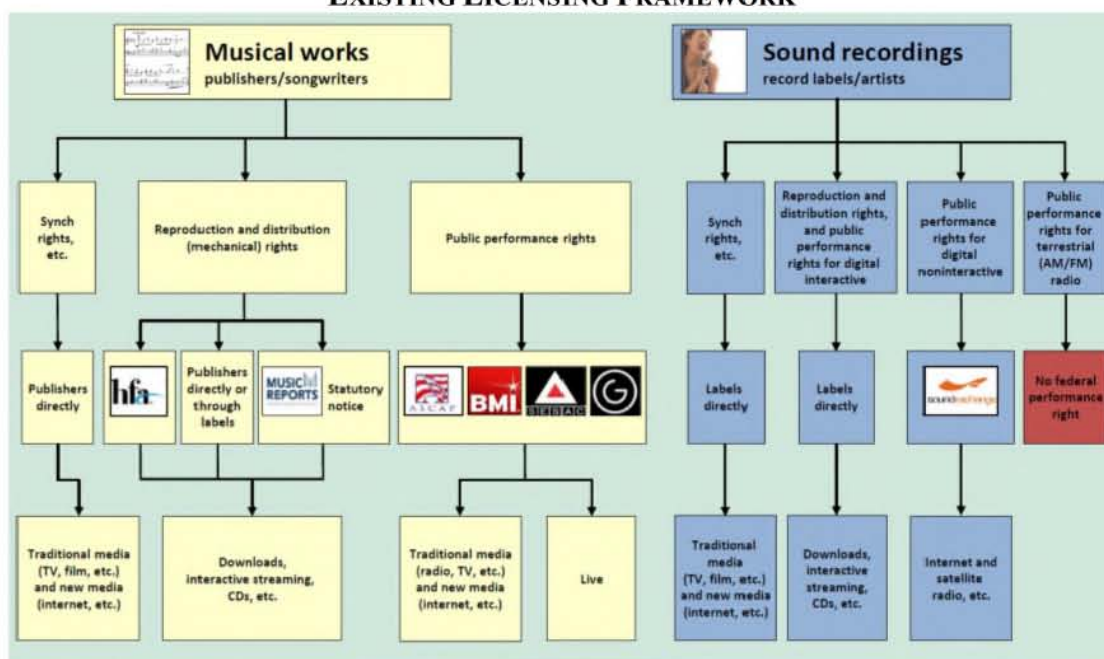
76. For music users that require both sound recording rights and musical works rights, the two sets of rights can be thought of in economic terms as perfect complements in production: Without both inputs, output is zero. In practical terms, this means that virtually all distributors of music – with the singular exception of terrestrial radio stations – are required to enter into at least one sound recording license and at least one musical works license for each performance/musical work utilized. Additionally, as discussed in Section II above, for interactive streaming services, the two categories of rights are further divided into a reproduction license and a performance license, with the former corresponding broadly to a right to duplicate (or the equivalent) and the latter applying only to a right to publicly perform.

77. Thus, any given use of a copyrighted musical performance may implicate up to four categories of rights: the musical works rights, split into a public performance right and a mechanical right; and the sound recording right, which can similarly be thought of as being split between performance and reproduction rights, even if it is not explicitly differentiated.⁶⁴ For sound recordings, there is a statutory compulsory license for the use of sound recordings in non-interactive streaming, but no such right for use in interactive services. Similarly, for musical works, a public performance license is required for both types of streaming services, but only

⁶⁴ Although they typically are not compensated separately, sound recording rights include both reproduction and, in the case of digital audio transmissions, performance rights. See 17 U.S.C. §§ 106, 114; *see also* “Sound Recording Performance Right,” Digital Media Association available at <http://www.digmedia.org/copyright-and-royalties/modernization/94-sound-recording-performance-right> (last accessed Oct. 26, 2016).

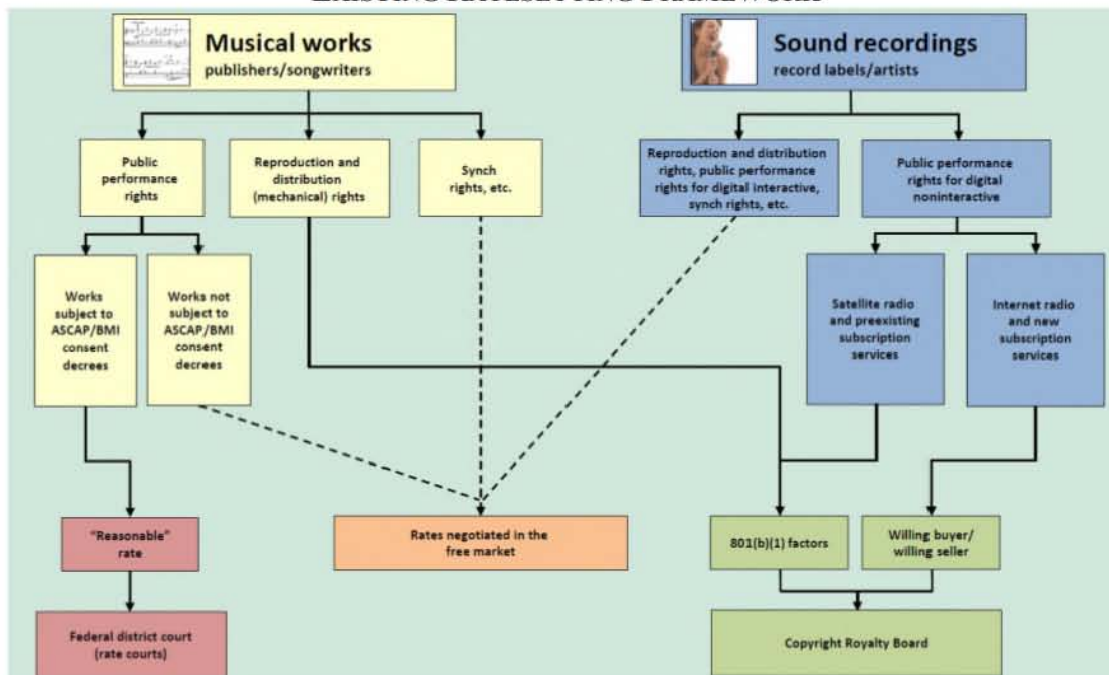
interactive services require a mechanical license as well. Thus, the interactive streaming services covered by Section 115 require all four categories of rights, whereas non-interactive services require only the statutory public performance right for sound recordings and the public performance right for musical works. The legal and regulatory relationships between these rights are depicted in Figures 11 and 12.

**FIGURE 11:
EXISTING LICENSING FRAMEWORK**



Source: CMM at Appendix D.

**FIGURE 12:
EXISTING RATESSETTING FRAMEWORK**



Source: CMM at Appendix D.

78. The relative value of sound recording and musical works licenses may depend on a variety of factors, and traditionally the relationship has differed across different types of services and situations. For example, the sound recording right and the musical works right have often been accorded equal value in the case of synchronization rights, which are privately negotiated. In other contexts, particularly in circumstances where the value of both rights (and therefore the relationship between the two values) has been fixed by different governmental rate-setting bodies rather than by private negotiation, the sound recording right has often been accorded a higher value than the musical works right.⁶⁵ As I describe in more detail below, the

⁶⁵ For example, with respect to Pandora, the rate court reported in 2014 that “Pandora pays over half of its revenue to record companies for their sound recording rights, and only approximately four percent to the PROs for the public performance rights to their songs” – implying a ratio of more than 10:1 between the rate for sound recordings and for musical works. See *In re Petition of Pandora Media, Inc.*, Nos. 12 Civ. 8035(DLC), 41 Civ. 1395(DLC), 6 F.Supp.3d 317, 333 (S.D.N.Y. 2014) (“Cote Opinion”).

long history of statutory mechanical rates means that, as it relates to the types of music usage at issue in this proceeding, none of these relative values are completely free of the shadow of compulsory licensing. With respect to sound recording rights, there has been more freedom from compulsory licensing, as no compulsory licensing has ever existed for the sale of physical and digital media (including ringtones) or for the licensing of sound recordings for use with interactive streaming services.

79. It is not necessary for my purposes to put forward a general theory of relative valuation. In fact, the ability to avoid the assumptions, complexities and uncertainties associated with theoretical debates, and to rely instead on empirical observation of market-based outcomes, is the strength of the benchmarking approach relied upon here. For my purposes, it is sufficient simply to assume that the relative values of the two rights should be stable across similar or identical market contexts.

80. As noted above, the comparability of a potential benchmark depends on several key characteristics, including: the nature of the rights at issue; underlying market factors (e.g., different geographic markets); the term or time period covered by the agreements; factors affecting the relative bargaining power of the parties; and, differences in the services being offered. For each of the benchmarks that I discuss in the remainder of this section, the markets at issue implicate rights for both sound recordings and musical works. Similarly, all of the benchmarks discussed below are either current benchmarks or are from the recent past, and involve licenses for use in the U.S.⁶⁶ The parties to these agreements are parties that either are participants in this proceeding or are similarly situated, and the rights in these benchmarks are in

⁶⁶ The oldest benchmarks I discuss below relate to Pandora's agreements for musical work royalties (starting in 2012) and, in that case, I explicitly account for how those rates have changed over time.

general licensed for use in providing music delivery (either interactively or non-interactively) to end users. To the extent there are material differences between the benchmarks and the target licenses, they are discussed in the relevant sections.

B. Benchmarks Establishing Upper and Lower Bounds on the Relative Valuation of Sound Recordings and Musical Works

81. In this section I discuss my analysis of a variety of agreements which in my opinion collectively establish upper and lower bounds on the relative market valuations of sound recordings and musical works. These agreements include valuation ratios embodied in the current Section 115 statutory rate structure, direct licenses for Section 115 rights for direct downloads and for rights related to a locker service and for ringtones, and agreements involving synchronization rights, including synch licenses and “micro-sync” licenses. Some of these agreements (such as the Section 115 rights agreements) are negotiated in the full shadow of compulsory licensing; others involve a mix of free and regulated rates; and some, as in the case of synchronization rights, are altogether free from any compulsory licensing shadow.

1. The Section 115 Statutory Rates and Direct Licenses Under the Section 115 Shadow

82. The current statutory rate structures contain numerous rate tests that are explicitly calculated as a percentage of payments made for sound recording rights. These tests are often referred to as the “TCC” or “total content cost” rate prongs. For example, for the two Subpart B categories described in detail above, the rate tests based on sound recording payments use 22 percent (for ad-supported) and 21 percent (for portable subscriptions)⁶⁷ of royalties paid for

⁶⁷ The rule provides for approximately 18 percent of sound recording payments if the rights were passed through from record labels, but my understanding is that record labels have generally not passed through such rights (and the data I have seen confirms this), so the operative ratio has been at 22 percent.

sound recordings. These percentages correspond to ratios of sound recording and musical work royalties of 4.55:1 and 4.76:1, respectively. Equivalent or similar terms can be found in the rate structure for mechanical royalties for most of the other Subpart B and Subpart C services.⁶⁸

83. In assessing the relevance of these rates as benchmarks, it is important to note three characteristics. First, as noted above, they were established (in 2008) and renewed (in 2012) prior to the marketplace success of interactive streaming services like Spotify. Second, they were negotiated under the full shadow of the compulsory license,⁶⁹ which creates an asymmetric effect on the bargaining power of the two parties. Third, while the ratios represent an upper bound on actual royalties in the case of subscription services, in the sense that they are part of “lesser than” structures,⁷⁰ the ratios for non-subscription services are not capped in this way.

84. Not surprisingly, direct agreements negotiated under the shadow of the existing compulsory rates often reflect similar terms. For example, I have examined a 2011 agreement in which [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁶⁸ “Rate Charts,” Harry Fox Agency, available at https://www.harryfox.com/find_out/rate_charts.html (last accessed Oct. 13, 2016).

⁶⁹ As noted above, the compulsory mechanical license for digital interactive services was created in the Digital Performance Right in Sound Recordings Act of 1995, Pub. L. 104-39, § 4, 109 Stat. 336, 344-48.

⁷⁰ For example, the 21 percent for portable subscriptions is capped by virtue of it being subject to the “lesser of” 21 percent or \$0.80 per subscriber per month. As noted, numerous direct deals utilize the 22 percent test without any cap.

⁷¹ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁷² Thus, this agreement embodies a relative valuation of the two rights essentially equal to the lower range of the ratios in the regulations: 22 percent of sound recordings payments, corresponding to a 4.56:1 ratio of relative values.

85. Similarly, I examined an August 2014 license agreement between [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁷⁵ Thus, the agreement – for a subscription-based ringtone and ringback tone service – calls for musical compositions to be paid at least 21 percent of what is paid for the sound recordings, or a ratio of not greater than 4.76:1.

⁷² [REDACTED]

⁷³ [REDACTED]

⁷⁴ [REDACTED]

⁷⁵ [REDACTED]

86. A third example is the 2010 agreement between [REDACTED]

[REDACTED], or a ratio of not greater than 4.55:1.⁷⁶

87. Another benchmark can be found in the [REDACTED]

[REDACTED] The ratio between these two negotiated deals – for the same service at issue in this proceeding – is 4.3:1.⁷⁹

76 [REDACTED]

77 [REDACTED]

78 [REDACTED]

79 [REDACTED]

88. As I noted above, all of these agreements reflect the full shadow of compulsory rates and terms, which were negotiated in 2008 and extended in 2012, in both cases under the shadow of the statutory license which constrains the value of musical works while leaving the value of sound recordings to market negotiations. The impact of the shadow on the rates can be directly observed in a different way in an agreement between [REDACTED] [REDACTED] which establishes a relative value for musical works and sound recordings for ringtones in a context in which the compulsory rate did not strictly govern.

89. Specifically, under an agreement originally signed in 2006,⁸⁰ subsequently amended to include ringtones, [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

80 [REDACTED]

81 [REDACTED]

82 [REDACTED]

83 [REDACTED] (last accessed Oct. 11, 2016).

90. In this case, [REDACTED]⁸⁴

[REDACTED], a ratio of sound recording rights royalties to musical works mechanical royalties of 4.2:1.⁸⁵

91. [REDACTED]

[REDACTED] provides a benchmark of the relative values of the sound recording and musical works rights as negotiated between a record label and a service, in which the musical works component was established through compulsory license, but the *relative* value of the musical works and sound recording rights was the result of voluntary negotiation.

92. In my opinion, the evidence presented above indicates that the relative valuation ratios implied by the current Section 115 compulsory license and related negotiations under its shadow – ranging from 4.2:1 to 4.76:1 – represent an upper bound on the relative market valuations of the sound recording and musical works rights.

2. Synch and Micro-Synch Agreements for Limited Use Applications

93. This section reviews the ratios implied by synch and micro-synch licenses for markets, applications and parties for limited use applications. While these licenses do not apply to music streaming services as such, in my opinion they provide relevant benchmarks because

⁸⁴ [REDACTED]

⁸⁵ The fact that the current retail price has fallen to \$1.29 suggests it is possible that [REDACTED] though I do not have evidence to this effect. If the actual rate is [REDACTED] the ratio would be lower than [REDACTED].

they are negotiated completely outside the shadow of a compulsory license, and thus serve to establish a market-based lower bound on the ratio of sound recording valuations to musical works valuations. (I discuss the licenses involving YouTube, which do apply to music streaming, in the following section.)

94. Synchronization (or “synch”) licenses – licenses to synchronize a musical composition to audio-video images on, for example, film and television⁸⁶ – are negotiated freely between buyers and sellers without the shadow of a compulsory license. They are often licensed at terms that grant the musical composition equal royalty payments as the corresponding sound recording receives.⁸⁷

95. Synch rights for both the musical work and the sound recording are required to include a pre-recorded song within an audio-video work such as a film, a television episode, or a commercial. Neither synch right is covered by any compulsory licensing regime, and thus the rates paid for both represent the result of market forces outside the shadow of statutory licensing. In particular, the owners of musical composition copyrights and the owners of the sound recording are free to refuse to license, in which case the producers of the audio-video work would not be able to use the recording they wish to license. In these circumstances, I understand that the musical works generally receive the same amount as the sound recordings, or a ratio of 1:1.⁸⁸

⁸⁶ See CMM at 55-58.

⁸⁷ See, e.g., the Witness Statement of David Kokakis submitted in connection with the Copyright Owners’ Written Direct Statement in this proceeding.

⁸⁸ See CMM at 56; see also Donald S. Passman, *All You Need to Know About the Music Business*, 9th Ed. (Simon & Schuster, 2015) at 265.

96. The 1:1 ratio also holds for some “micro-sync” agreements, which are essentially “blanket” synch licenses, in that the license grants the right to synchronize not just one particular song – as would be the case where a publisher licenses a popular song for use in a film or commercial – but any song in the publisher’s catalog (or a significant portion thereof), such as in licenses for mobile applications that “synch” sound recordings to short video clips or slide shows, other games that use sound recordings, and other micro-sync agreements for small-scale projects.⁸⁹

97. For example, in micro-sync deals [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁸⁹ [REDACTED]

⁹⁰ [REDACTED]

⁹¹ [REDACTED]

98. The synch and micro-synch examples confirm that in circumstances in which licensees require both sound recording and musical composition copyrights in order to offer their service, *and* where that service is not entitled to a compulsory license for either right, the sound recording rights and the musical composition rights are in many cases equally valued, that is, the ratio of the two values is 1:1.

3. Summary of Upper and Lower Bounds

99. To summarize, while the markets and rights at issue in the agreements discussed above differ in some respects from the interactive streaming services at issue in this proceeding, and many of them reflect the shadow of the compulsory license, they nevertheless establish a range of relative rates actually charged for sound recording and musical works rights throughout the music marketplace. Specifically, these benchmarks indicate that, in a wide range of markets involving a variety of services, rights and regulatory contexts, the ratio of sound recording to musical works royalties ranges from 1:1 to 4.76:1.

C. The YouTube Agreements

100. Licenses between YouTube and the labels and publishers provide further insight into the relative value of sound recordings and musical works. Because they include [REDACTED]

[REDACTED]. Moreover, the parties (i.e. Google, the labels and the publishers), the market (the

U.S.), and the time period all correspond to the parties, market and time period involved here. Hence, for purposes of assessing the relative value of the sound recording and musical works rights, the YouTube agreements represent reasonably comparable benchmarks for the purpose of assessing the relative value of sound recordings and musical works rights.

101. I have reviewed a number of licensing agreements between publishers and YouTube. While the terms of these deals [REDACTED]

[REDACTED]

[REDACTED]⁹³

⁹³ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

102. While I understand that the labels' agreements with YouTube have not yet been produced in this matter,⁹⁴ it has been widely and publicly reported that YouTube generally pays content providers a total of 55 percent of ad revenue,⁹⁵ implying that [REDACTED]. A video with a commercial sound recording would thus have a [REDACTED] split between the sound recording and musical work, yielding a ratio of [REDACTED] for sound recording rights to musical works rights.⁹⁶ In my opinion, this ratio reflects the relative valuations of sound recording and musical works rights arrived at in free market negotiations in a context which is directly comparable to the markets implicated by Section 115.

D. The Pandora Opt-Out Deals

103. Pandora is by far the largest non-interactive music service. Beginning in 2012, Pandora negotiated a series of direct agreements with major publishers for the musical works

⁹⁴ If, at a later time, they become available to me for review, I reserve the right to amend this analysis in order to rely on the information taken directly from the agreements.

⁹⁵ [REDACTED]

⁹⁶ [REDACTED]

right. These agreements (which I refer to as “opt-out” agreements) were negotiated after publishers withdrew their digital music performance rights from the PROs and asserted the right to negotiate directly with Pandora. While their right to do so was in question throughout most of the ensuing five years, the agreements nevertheless were negotiated with at least some expectation that they would not be subject to rate court review. Moreover, the markets and parties involved in the Pandora agreements are comparable to the markets and parties involved in the Section 115 licenses at issue here. Thus, these agreements provide significant insight into the relative value of the sound recording and musical works rights in this proceeding.

104. As I detail below, even the potential for musical works rights to be negotiated in the marketplace led to a rapid adjustment in relative valuations. As the BMI court put it, “[o]nce the rate negotiations were freed from the overhanging control of the rate courts, the free-market licenses reflect sharply increased rates.”⁹⁷ As a result, the ratio of the royalties paid for two rights – the labels’ and publishers’ performance rights on non-interactive services – went from █████ in 2012 to █████ in 2018. Projecting this trend forward (and assuming the parties were permitted to freely negotiate outside of the control of the rate courts), I estimate that the average ratio over the term of the rate period under consideration here (2018-2022) would be █████. The Pandora opt-out deals are further evidence that the relative value of the sound recording and musical works rights lies near the middle of the range discussed immediately above.

105. In what follows, I (1) briefly describe the context in which the opt-out agreements were negotiated, (2) describe the agreements themselves, and (3) explain the basis for my

⁹⁷ *Broadcast Music, Inc. v. Pandora Media, Inc.*, Nos. 13 Civ. 4037(LLS), 64 Civ. 3787(LLS), 140 F.Supp.3d 267, 289 (S.D.N.Y. 2015) (“Stanton Opinion”).

opinion about their implications for the relative value of the sound recording and musical works rights.

1. The Context: Publishers, PROs, Rate Courts and Partial Withdrawals

106. The efforts by major publishers to withdraw their digital performance rights from the rate court-regulated PROs were driven by the low royalties being received from streaming services.⁹⁸ That those efforts resulted in significant increases in royalty rates indicates on its face that the royalties being received by the PROs were below market rates. There are several underlying reasons, beyond simple regulatory error, why the royalties being paid to the PROs were below market levels.

107. First, the rate courts are prohibited by statute from considering the level of sound recording royalties in determining the value of the musical works performance rights.⁹⁹ While this provision was originally supported by songwriters, its effect in practice has been to prevent the rate courts from using the relatively high value of sound recording rates as a benchmark for musical works. As the Copyright Office stated, this provision was “[o]riginally designed as a

⁹⁸ There does not appear to be any disagreement on this issue. For example, while the two rate courts disagree on several issues, they agree that the opt-outs were motivated by low royalties. *See* Stanton Opinion at 284. (“There is an unambiguous body of evidence that the prevailing BMI and ASCAP rates were believed to be too low. The publishers made their unprecedented withdrawals from the PROs because of their convictions that what those PROs were obtaining was well below what could be obtained through free market negotiations.”) *See also* Cote Opinion at 332-33. (“The modification of the Compendium came in response to pressure from ASCAP’s largest music publishers. These publishers were focused principally on the disparity between the enormous fees paid by Pandora to record companies for sound recording rights and the significantly lower amount it paid to the PROs for public performance rights to compositions.”).

⁹⁹ *See* 17 U.S.C. § 114(i) (“License fees payable for the public performance of sound recordings . . . shall not be taken into account in any . . . proceeding to set or adjust the royalties payable to copyright owners of musical works for the public performance of their works.”).

protective measure to benefit songwriters and publishers, [but] it appears to be having the opposite effect.”¹⁰⁰

108. Second, the provisions of the consent decrees providing for interim licenses also cause the ASCAP and BMI rates to fall below market rates. Under the two decrees, any licensee who applies for a license receives one and is immediately permitted to perform the subject works until completion of a negotiation or a rate court proceeding setting an interim or final fee, with no requirement for immediate payment. As the Copyright Office explains:

Since the consent decrees do not provide for immediate and concurrent payment for uses made during these periods – and do not establish a timeframe for the commencement of a rate court proceeding – an applicant is able to publicly perform a PRO’s catalog of works for an indefinite period without paying.

. . . The problem is exacerbated by the substantial burden and expense of litigating a rate in federal court – a contingency both sides seek to avoid. Licensees may pay nothing or greatly reduced fees for years as negotiations drag on, while still enjoying all of the benefits of a license. The Office agrees with those commenters who have suggested that this system – under which services may launch and continue to operate without an agreed rate – significantly increases the leverage of licensees at the expense of the PROs and their members. Because the licensee already has access to the works it needs, there is no urgency to agree to a rate.¹⁰¹

109. The effect of the interim license provisions is to reduce the costs borne by the licensee of failure to reach an agreement and increase the costs borne by the licensor, increasing the licensees’ bargaining power and thus biasing the resulting rates in their favor.¹⁰²

110. As a result of these and other factors, the Copyright Office concluded in 2015 that:

¹⁰⁰ CMM at 157.

¹⁰¹ CMM at 157-58.

¹⁰² See generally John Nash, “The Bargaining Problem,” *Econometrica* 18:2 (1950) at 155–162; see also Ken Binmore, Ariel Rubinstein, and Asher Wolinsky, “The Nash Bargaining Solution in Economic Modeling,” *The RAND Journal of Economics* 17(2) (1986) 176-188.

There is substantial evidence to support the view that government-regulated licensing processes imposed on publishers and songwriters have resulted in depressed rates, at least in comparison to noncompulsory rates for the same uses on the sound recording side.¹⁰³

111. Faced with this situation, it is not surprising that the publishers and songwriters sought to achieve a better bargain by withdrawing their digital rights from rate-regulated licensing through the PROs and seeking direct licenses with Pandora. The first such withdrawal occurred in March 2011, with the withdrawal of EMI from ASCAP. BMG, Sony and UMPG all followed EMI's lead within a year.

112. The partial withdrawals led to litigation before the ASCAP and BMI rate courts, as well as regulatory activity by the Department of Justice. In an ASCAP rate proceeding filed by Pandora, Judge Cote ruled in September 2013 that that the partial withdraw of digital rights from the PROs violated the ASCAP consent decree.¹⁰⁴ The BMI court issued a similar ruling in December 2013.¹⁰⁵

113. However, shortly after the BMI court's decision, in June 2014, the Department of Justice – acting at the request of ASCAP and BMI – initiated an investigation into the consent decrees, including specifically whether partial withdrawals should be permitted.¹⁰⁶

¹⁰³ CMM at 159.

¹⁰⁴ *In re Petition of Pandora Media, Inc., United States of America v. American Society of Composers, Authors, and Publishers*, Nos. 12 Civ. 8035(DLC), 41 Civ. 1395(DLC), 2013 WL 5211927 (S.D.N.Y. Sept. 17, 2013). Note that this is an earlier ruling than the “Cote Opinion.”

¹⁰⁵ *Broadcast Music, Inc. v. Pandora Media, Inc.*, Nos. 13 Civ. 4037(LLS), 64 Civ. 3787(LLS), 2013 WL 6697788 (S.D.N.Y. Dec. 19, 2013).

¹⁰⁶ See Antitrust Division Review of ASCAP and BMI Consent Decrees 2014, U.S. Department of Justice (Dec. 16, 2015), available at <https://www.justice.gov/atr/ascap-bmi-decree-review> (last accessed Oct. 18, 2016). See also CMM at 37; Renata Hesse, “Remarks Regarding the Antitrust Division’s Closing of its Review of the ASCAP and BMI Consent Decrees,” Remarks as Prepared for the Delivery in Washington, D.C. (Aug. 4, 2016), at 3 (“We opened the current investigation in 2014 after ASCAP and BMI requested that we consider various proposals to modify the consent decrees, including, most prominently, that they be permitted to allow large music publishers to

Concurrently, the Register of Copyrights announced its own investigation into music licensing which also promised to address the partial withdrawals issue.¹⁰⁷ In February 2015, the Copyright Office issued a report endorsing partial withdrawals, and many market participants believed the Department was seriously considering allowing them. For example, in April 2015, a trade press article reported:

After an extensive review of the music publishing industry as a whole, the U.S. Dept. of Justice is considering amending its longstanding consent decree to allow music publishers partial withdrawals from the blanket licenses of the performance rights societies, according to multiple sources who are familiar with recent private talks the agency held with industry representatives.¹⁰⁸

114. It was not until August 2016 that the Department issued a concluding statement announcing that partial withdrawals would not be permitted.¹⁰⁹ The PROs immediately began challenging that conclusion, with ASCAP leading efforts to obtain consent decree reform in Congress.¹¹⁰ Songwriters have also sued the Department of Justice over the issue.¹¹¹

‘partially withdraw’ their songs from ASCAP and BMI for purposes of licensing to digital music services such as Pandora or Spotify.”)

¹⁰⁷ See Library of Congress, Copyright Office, *Music Licensing Study: Notice and Request for Public Comment*, 79 Fed. Reg. 14,739 (Mar. 17, 2014).

¹⁰⁸ Ed Christman, “Dept. of Justice Considering Major Overhauls on Consent Decrees, Sources Say,” *Billboard* (Apr. 7, 2015), available at <http://www.billboard.com/articles/business/6524359/dept-of-justice-consent-decrees-overhaul-publishing-ascap-bmi> (last accessed Oct. 13, 2016).

¹⁰⁹ See Statement of the Department of Justice on the Closing of the Antitrust Division’s Review of the ASCAP and BMI Consent Decrees, Department of Justice (Aug. 4, 2016), available at <https://www.justice.gov/opa/file/882111/download> (last accessed Oct. 13, 2016).

¹¹⁰ See Ed Christman, “ASCAP, BMI Announce Plans for Bilateral Fight Against Dept. of Justice Decision,” *Billboard* (Aug. 4, 2016), available at <http://www.billboard.com/articles/business/7461628/ascap-bmi-announce-plans-for-bilateral-fight-against-dept-of-justice> (last accessed Oct. 13, 2016).

¹¹¹ See Ben Sisario, “Songwriters Sue Justice Department Over Licensing Rules,” *The New York Times* (Sept. 13, 2016), available at http://www.nytimes.com/2016/09/14/business/media/songwriters-sue-justice-department-over-licensing-rules.html?_r=0 (last accessed Oct. 13, 2016).

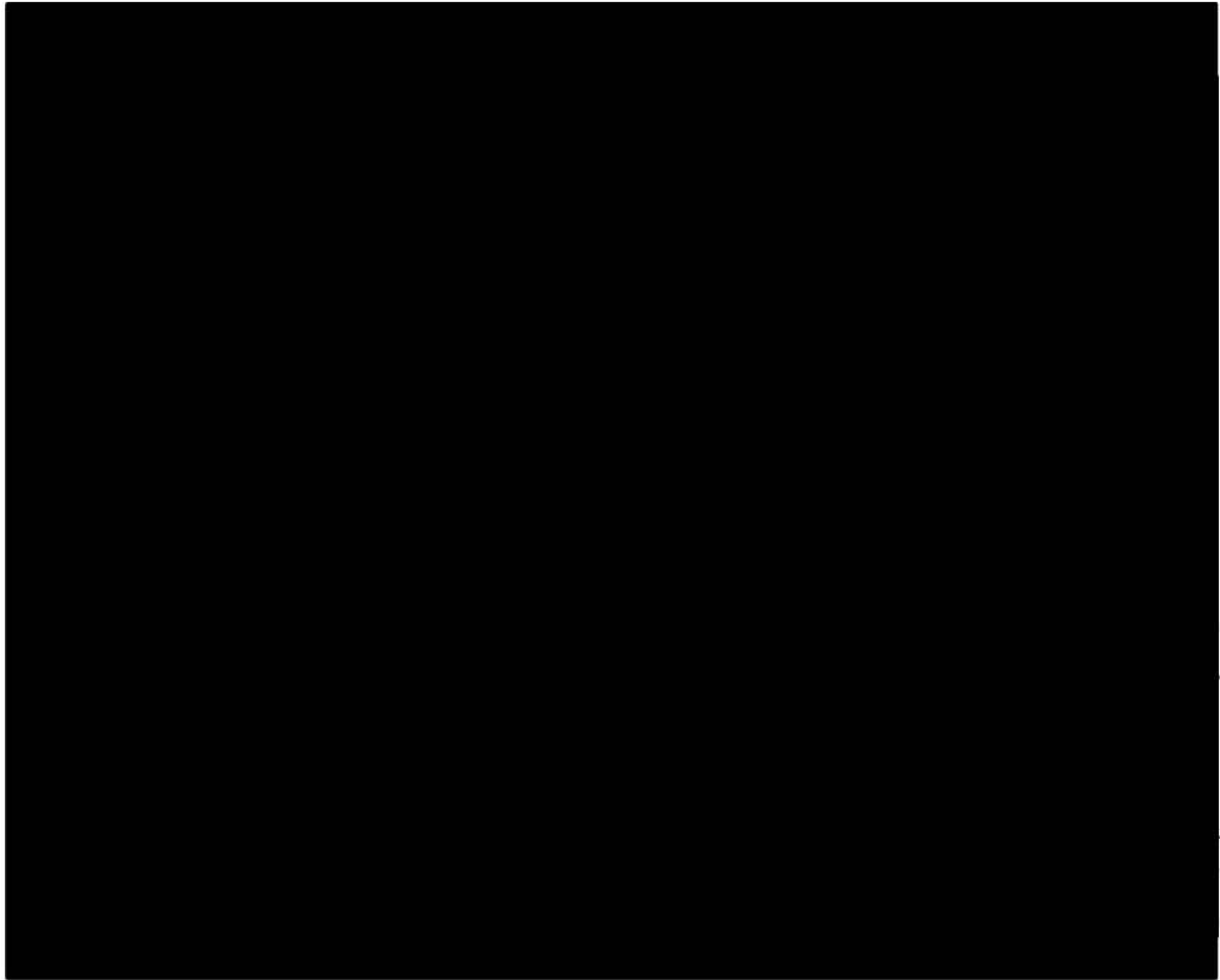
115. Regardless of how the issue plays out, the behavior of the market participants indicates that for much of the period from early 2011 through August 2016 they believed there was a reasonable probability that the licenses for digital sound recording rights could be negotiated directly between Pandora and publishers, outside the purview of the rate courts. The agreements negotiated during this period are thus useful as benchmarks (albeit still under the shadow of *potential* rate regulation) for the value of musical works rights which can be compared to the value for non-interactive sound recording rights established by the CRB under Section 114.

2. The Opt-Out Agreements

116. The opt-out deals between the publishers and Pandora were negotiated beginning in 2011 and cover the period beginning January 1, 2012 to the present. While the negotiations took place at various times during this period, it is useful to group them into three rounds: (1) the “Round One” agreements covering 2012 and 2013; (2) “Round Two” agreements covering 2014; and, (3) “Round Three” agreements reached in 2015 and early 2016 covering 2016-2018. Altogether, as shown in Table 5, there are [REDACTED]

[REDACTED] 112

¹¹² I note that Pandora argued before the BMI Court that a July 2014 agreement with BMG constituted a reasonable benchmark. The BMI Court found that “[t]he Pandora-BMG July 2014 agreement is not an appropriate benchmark.” Stanton Opinion at 292. Among the reasons noted by the court was that “At the time BMG negotiated the agreement it was a BMI affiliate, and Pandora could perform its catalog through BMI at the rate court rate.” *Id.* I do not include the July 2014 agreement among the benchmarks here.



117. The Round One and Round Two agreements, and the circumstances leading up to them, have been addressed in detail by both rate courts in the course of rate setting proceedings conducted in the wake of their decisions to prohibit partial withdrawals. (The ASCAP court issued its decision in March 2014, and the BMI Court more than a year later in May 2015.) The ASCAP Court concluded that the agreements reached up until that point were not appropriate benchmarks because they resulted from the exercise of market power by the PROs. The BMI Court – based in part on evidence not available to the ASCAP Court – reached the opposite conclusion.

118. I have reviewed both decisions, as well as subsequent evidence, and concluded that all of these agreements are useful as benchmarks, subject to the (important) caveat that all were negotiated under the threat of potential regulatory intervention.

119. I base my conclusion in this regard on the following facts. First, as noted previously, the rate courts are prohibited from explicitly considering the most obvious explanation for the withdrawal decisions, the disparity between sound recording and musical works rights that had resulted from combination of CRB and rate court decisions. Second, as the BMI court noted, the ASCAP court did not have the benefit of observing the round two negotiations and resulting agreements.¹¹³ Third, the ASCAP court based its decision heavily on a finding that one of the key witnesses lacked credibility, a finding not shared by the BMI court.¹¹⁴

120. I have also taken into consideration the Copyright Office's assessment of the ASCAP court decisions:

[The ASCAP court] opinion is notable for its focus on the behavior of a handful of actors instead of an empirically based economic analysis of the proper rate for Pandora. For example, rejecting ASCAP's arguments that the court should consider Pandora's commercial success as part of its inquiry, the court opined that "market share or revenue metrics are poor foundations on which to construct a reasonable fee." Yet it seems that these factors might well be considered by parties in an actual market negotiation.¹¹⁵

¹¹³ A central distinction between the round one and round two negotiations was the availability of information regarding the publishers' repertoires. *See* Stanton Opinion at 290. ("The record in this case includes transactions in later years than those in the ASCAP case, and allows the argument that BMI's benchmarks were distorted by the specter of massive copyright infringement (due to ignorance of which works to take down) to be appraised over a longer time period with more transactions. In light of the full record in this case, it appears that the list argument was primarily generated by lawyers.")

¹¹⁴ *See* Stanton Opinion at 278.

¹¹⁵ CMM at 154-55.

121. Accordingly, I conclude that the Round One and Round Two agreements, as well as the Round Three agreements concluded in late 2015, evidence results of market negotiations, but ones conducted in the shadow of potential intervention by the rate courts should the partial withdrawal rights asserted by the publishers be denied.

122. The headline rates contained in the Round One and Round Two agreements are summarized in Table 5 above.¹¹⁶ As the table shows, the headline rates in the Round One agreements ranged [REDACTED], while the headline rates in the Round Two agreements ranged from [REDACTED].

123. As noted above, the most recent direct agreements were negotiated in late 2015 and early 2016 – that is, during the period when it appeared that DOJ was seriously considering permitting partial withdrawals. They involve [REDACTED]

[REDACTED]
[REDACTED] In addition, in December 2015, Pandora signed separate agreements with [REDACTED]
[REDACTED] Each agreement provides for Pandora to pay musical works royalties equal to [REDACTED]
[REDACTED]

¹¹⁶ The headline rate is the implied industry-wide rate expressed as a percentage of Pandora's revenues.

117 [REDACTED]
118 [REDACTED]
119 [REDACTED]
120 [REDACTED]
121 [REDACTED]

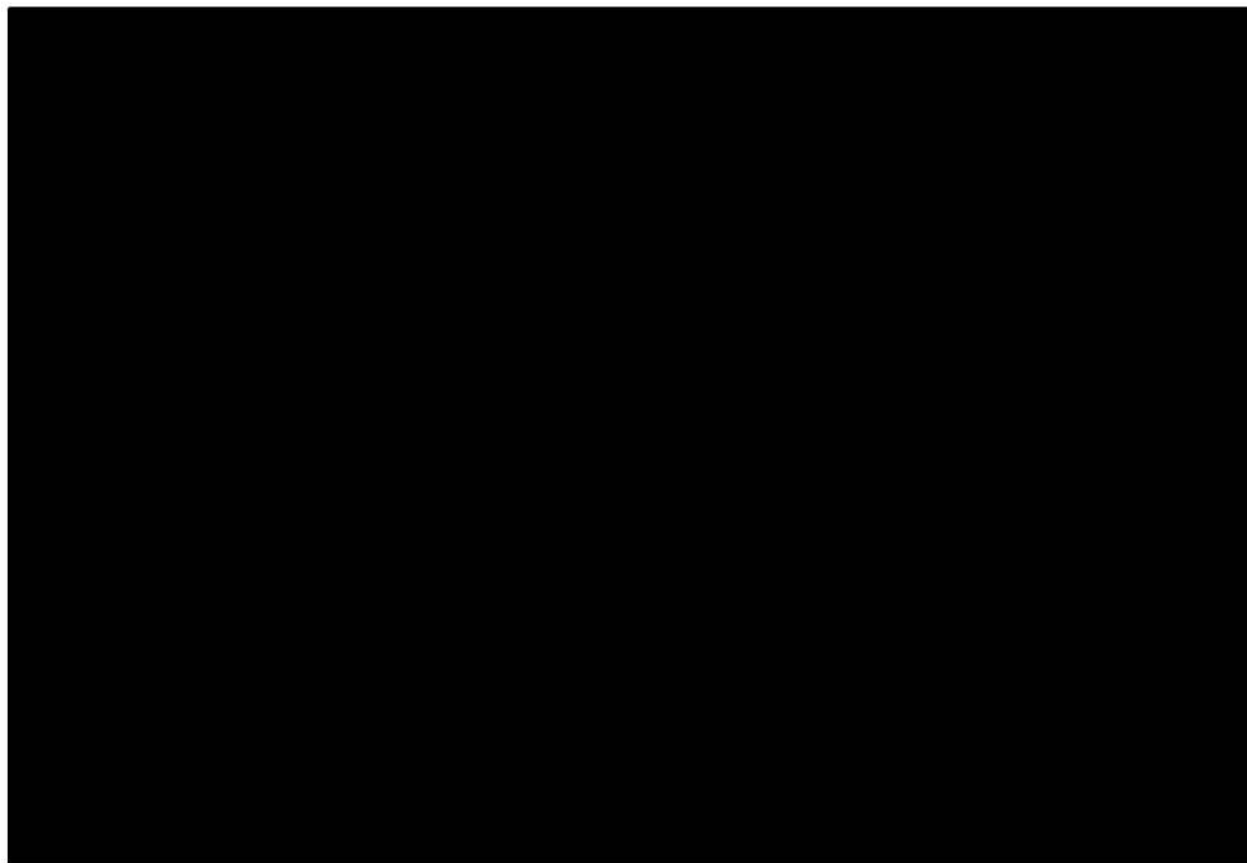
3. **Implications of the Opt-Out Deals for the Relative Value of Musical Works Rights and Sound Recording Rights**

124. The direct transactions between the publishers and Pandora constitute evidence of relative values of musical works and sound recording rights in the area of music streaming services based on voluntary market agreements. These agreements were conducted in the shadow of the rate courts, in the sense that there was uncertainty throughout this period about whether partial withdrawals ultimately would be permitted. However, the natural experiment provided by the potential ability of publishers to withdraw their works and negotiate direct agreements allowed for a period of partial market-based price discovery and, at a minimum, it confirmed the direction in which fair market rates had been skewed by regulation. Prior to the withdrawals, publishers were receiving a headline rate of [REDACTED] [REDACTED] of the amount being paid to the record labels. By the end of the process, that figure had [REDACTED].

125. Table 6 below shows the ratio of payments for the sound recording right to payments for the musical works right by Pandora from 2012 to 2018. To calculate the ratio for years 2012 to 2015, I find the midpoint (Column C) of the minimum (Column A) and maximum (Column B) “headline” rates of the ASCAP and BMI agreements for 2012 and the Pandora opt-out agreements for 2013 to 2015, which is equivalent to musical works right payments as a percentage of Pandora total revenue. I assume that Pandora’s content costs consist entirely of payments for the sound recording and musical works rights. To calculate the sound recording right payments as a percentage of revenue (Column E), I subtract the midpoint of the “headline” rates (Column C) from Pandora content acquisition costs as a percentage of revenue (Column D), as reported in its 10-K reports. Finally, to calculate musical works right payments as a

percentage of sound recording payments (Column F), I divide the “headline” rate midpoint (Column C) by sound recording right payments as a percentage of revenue (Column F). [REDACTED]

[REDACTED]. The ratio of sound recording right payments to musical works payments (Column G) is then derived from Column F. As the table shows, the ratio of sound recording royalties to musical works royalties was [REDACTED] in 2012 under Pandora’s agreements with ASCAP and BMI. The ratio has steadily decreased, in favor of musical works, since 2012, and under the most recent agreements the ratio is [REDACTED].



126. While the window for completely free negotiations outside of rate court influence never fully opened (and for the time being now appears closed), the effect of allowing even a

reasonable expectation of market-based rates was to initiate a rebalancing of rates away from the regulated level towards market equilibrium. That trend began in 2011 when EMI withdrew its digital rights from BMI and was still underway five years later when the Department of Justice announced it would not agree to partial withdrawals. Had DOJ decided otherwise – i.e., if the shadow of the compulsory license had been lifted permanently and completely – it is reasonable to expect that the adjustment towards equilibrium, market-based rates would have continued.

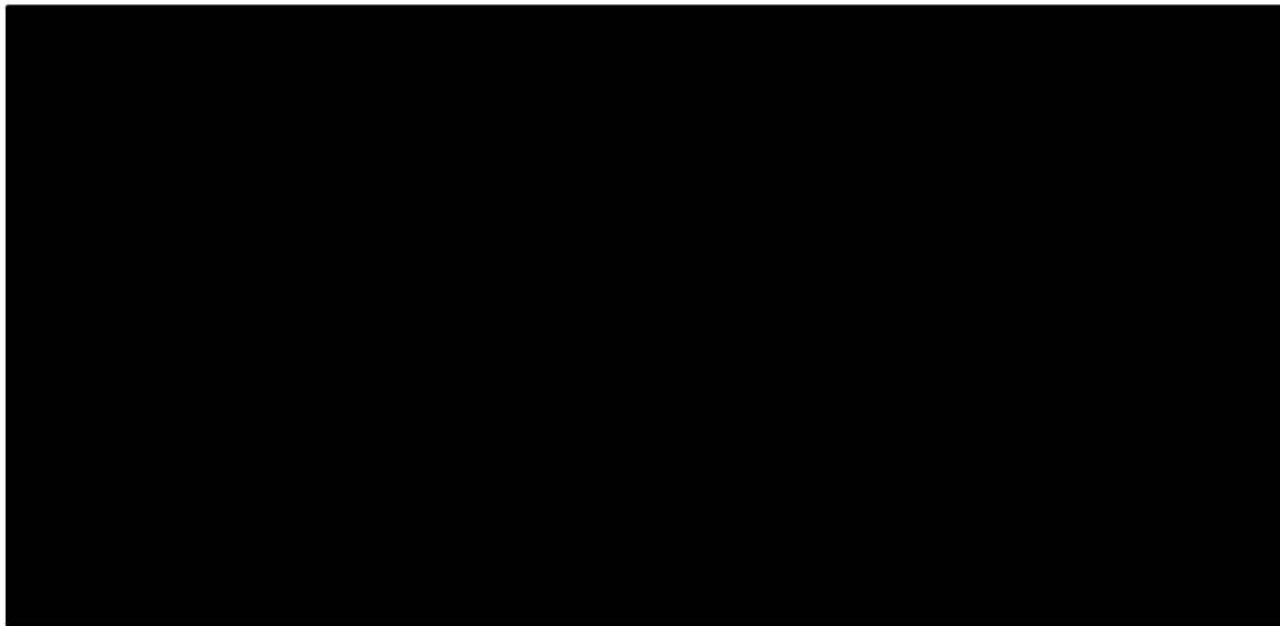
127. In this context, I performed a simple linear regression to forecast how musical work payments as a share of sound recording payments would have progressed if the potential for re-imposition of the compulsory license that affected negotiated rates from 2012-2018 had been removed entirely. Table 7 below shows a summary of the regression statistics. Of note, the “R-squared” statistic reported in the table shows the proportion of the variation in the dependent variable that is explained by the independent variable. Thus, more than 87 percent of the variation in Pandora musical works right payments as a percentage of sound recording right payments is explained by the time trend variable. The one-tail test “P-value” for the time trend variable shows that the variable is statistically significant at the 0.1 percent level.¹²²

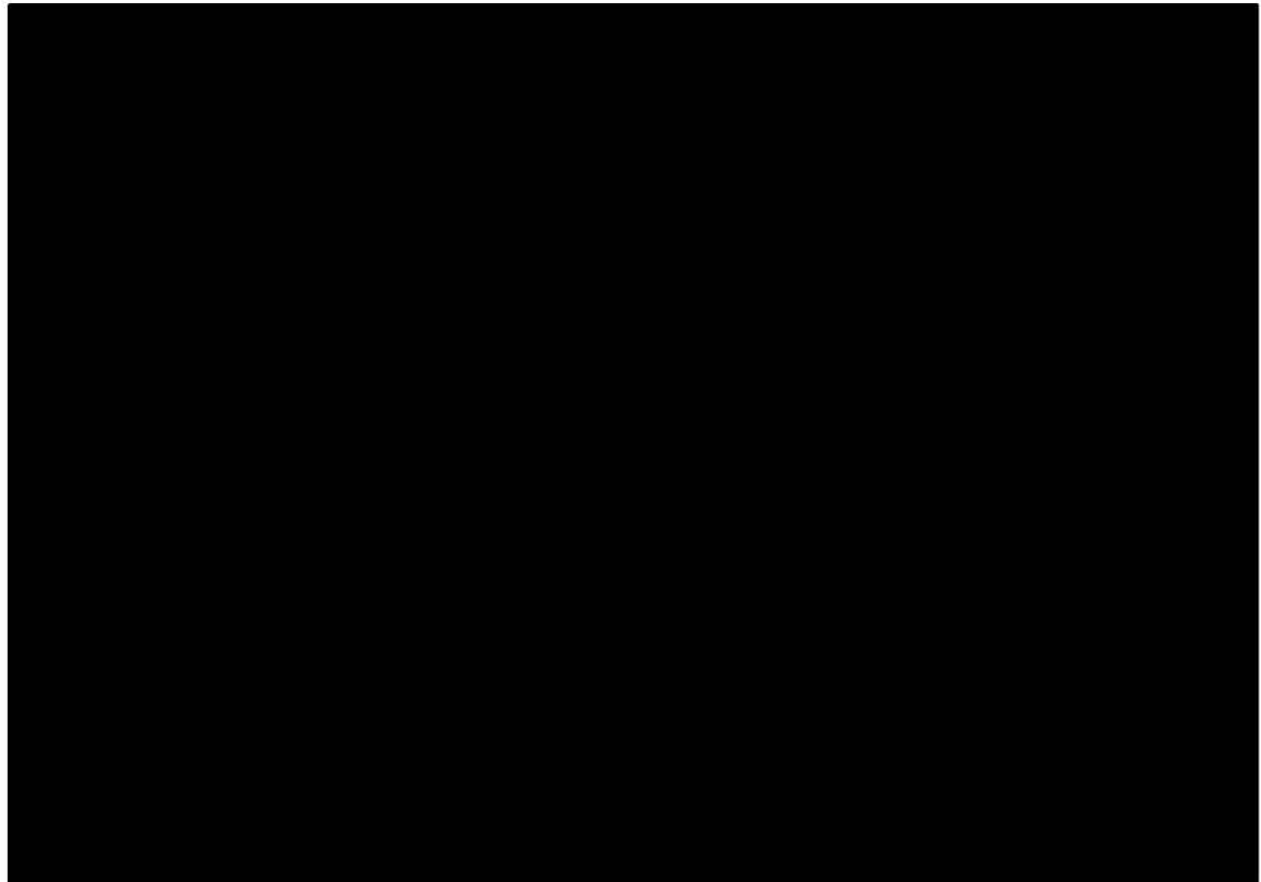
¹²² This statistic can be interpreted as indicating that, if the “true” underlying trend was flat, a random sampling of actual observed changes would produce an upward trend like the one we see in the data only one time out of a thousand.

TABLE 7:
FORECASTED RATIO OF ROYALTIES PAID FOR THE SOUND RECORDING RIGHT TO THE
MUSICAL WORK RIGHT FOR PANDORA – REGRESSION SUMMARY STATISTICS

Regression Results							
Variable	Coefficients	Standard Error	t Stat	P-value (Two-Tail Test)	P-value (One-Tail Test)	Confidence Interval (Lower 95%)	Confidence Interval (Upper 95%)
Intercept	7.23	1.72	4.20	0.009	0.004	2.80	11.65
Time Trend (Base Year (2012) = 1)	2.23	0.38	5.79	0.002	0.001	1.24	3.22
Observations: 7 R-squared: 0.8701 Adj. R-Squared: 0.8441							

128. Table 8 and Figure 13 show the results of the regression analysis and a forecast of the ratio of Pandora musical works payments to sound recording payments using the regression results. As shown in the table and figure below, that forecast shows that the ratio of the value of sound recordings to musical works would have fallen to [REDACTED] by 2022, with an average over the 2018-2022 period of [REDACTED].





129. In my opinion, the [REDACTED] ratio represents a robust but conservative estimate of the relative value of sound recording and musical works rights over this period in the non-interactive services market, if market forces had been allowed to prevail. It is robust because it represents a continuation of a steady trend, and conservative because the negotiated rates continued to reflect the shadow of the rate courts, without which rates would likely have risen even further and more rapidly. Indeed, the ratio of [REDACTED] is still less favorable for musical works than the ratio found in [REDACTED].

E. Summary of Benchmarks for the Relative Rates Paid for Sound Recording and Musical Works Rights

130. The evidence and analysis above demonstrate a range of relative rates paid for sound recording and musical work rights in a variety of market settings. Table 9 below presents

a summary of upper and lower bound ratios, which I established in subsection B above, and of the ratios implied by the YouTube and Pandora agreements, as discussed in subsections C and D. In my opinion, the YouTube and Pandora agreements represent the most comparable and reliable benchmarks, implying ratios of 2.67:1 and 3.7:1, respectively, with a mid-point of 3.2:1.

**TABLE 9:
SUMMARY OF RELATIVE VALUATION BENCHMARKS**

Service	Ratio of Rates Paid for Sound Recordings to Musical Works
Section 115 Deals (various)	Up to 4.76:1
Pandora Publisher Opt-Out Agreements (2020, estimated)	3.7:1
YouTube - Pandora Midpoint	3.2:1
YouTube (current, assuming 15% to musical works)	2.67:1
Synchronization Licenses (various)	1:1

VI. ANALYSIS OF INTERACTIVE STREAMING AND LIMITED DOWNLOADS (SUBPARTS B AND C)

131. As I demonstrated in Section IV above, the use of streaming in general and interactive streaming in particular has grown rapidly in recent years. Spotify, the largest interactive streaming service in the United States, launched in the United States in July 2011, just shortly before the current rates were adopted. That is, at the time the current rates were adopted, interactive streaming services were new and their future and impact on the industry were unclear.

132. Since that time, however, interactive streaming has become one of the primary modalities for music distribution and consumption. As I describe in the remainder of this section, an analysis of the value of interactive streaming – based on the existing licensing deals and resulting payments made for sound recordings – demonstrates that the value of the mechanical right for interactive streaming is greater than the current rates imply. To the extent that the earlier settlement rates reflected some uncertainty as to the future of streaming, as well

as uncertainty regarding the value of interactive streaming rights for musical works, the growth of interactive streaming over the past several years should have laid such doubts to rest.

133. While the current rates for musical works have been frozen by the compulsory license (and the uncertainty of the rate court process), the rates paid for sound performance rights have been free to adjust to market realities, and thus represent fair market value as determined outside the shadow of regulation. Accordingly, the analysis I present below uses the actual payments for interactive sound recording rights in 2015 – which reflect both the results of free market negotiations for access to these rights as well as contemporaneous beliefs about the value and future of interactive streaming. By focusing on these free-market rates – and by accounting directly for the difference in the value of sound recordings between non-interactive streaming settings and interactive streaming settings – I am able to identify the corresponding value for mechanical rights for musical works in interactive streaming.

134. In what follows, I discuss the value of these rights in terms that are commonly used in the industry – on a per-play basis and on a per-user/month basis. As I demonstrate below, the Copyright Owner’s proposed royalty rates for mechanical rights for interactive streaming or limited downloads, the greater of \$0.0015 per play or \$1.06 per user per month, are below the middle of the range of reasonable royalty rates based on my analysis.

A. Sound Recording Agreements Provide Direct Insight into the Value of Interactive Streaming

135. In Section V, I demonstrated, based on a wide range of privately negotiated agreements, that the relative value of sound recording rights and musical works rights lies between 1:1 and 4.76:1, with the most compelling evidence suggesting the ratio lies near the middle of this range.

136. Because the sound recording right for interactive services is not subject to the compulsory license, the royalties paid for that right are negotiated in the marketplace without the shadow of a compulsory license. Therefore, in order to value the mechanical copyright for musical works in interactive streaming, we can look at what is paid in the free market deals negotiated between willing licensors (the record labels) and willing licensees (the interactive streaming services) for sound recording rights. While there is no statutory license available for sound recordings in interactive streaming, there is a statutory license available for non-interactive streaming (webcasting) for the same sound recordings. While the precise level of sound recording royalties for non-interactive services in 2015 varied by service, I conservatively estimate the average rate at approximately 20 cents per 100 plays.¹²³

¹²³ In 2015, the per-play rate varied by the type of service: 24 cents per 100 plays for “commercial webcasters,” 25 cents per 100 plays for “broadcasters” and “small broadcasters,” 25 cents per 100 plays for subscription transmissions and 14 cents per 100 for non-subscription transmissions for “pureplay webcasters” (such as Pandora), a percentage of revenue for “small webcasters,” and a flat fee of \$500 for “microcasters.” Although it is not possible to know the average amount paid by non-interactive webcasters, an assumption of 20 cents per 100 plays is reasonable given that (a) Pandora paid a total of about \$610 million in content costs in 2015, of which approximately \$56 million was paid to publishers (based on a rate of 2.5 percent for BMI, 1.85 percent for ASCAP and an estimated 0.56 percent for SESAC (based on scaling the 2.5 percent rate to its estimated share of the market relative to BMI, or 10% relative to 45%), out of revenues of approximately \$1.15 billion), leaving approximately \$554 million for sound recordings, approximately 69 percent of the total of about \$803 million in statutory webcasting royalties reported by SoundExchange for 2015 and (b) the vast majority of Pandora’s webcasting is done via non-subscription users (and therefore costs only 14 cents per 100 stream) as Pandora reported a total of 21.11 billion listener hours in 2015, of which 18.47 billion (87.5 percent) were by non-subscribers. See Form 10-K for the fiscal year ended December 31, 2015, Pandora Media, Inc. (Feb. 18, 2016) at 46, 68, available at <https://www.sec.gov/Archives/edgar/data/1230276/000123027616000057/p-12312015x10k.htm> (last accessed Oct. 12, 2016); “SoundExchange Ends Record-Setting Year with More Than \$800 Million in Total Distributions to Recording Artists and Record Labels,” SoundExchange Press Release (Feb. 2, 2016), available at <http://www.soundexchange.com/pr/soundexchange-ends-record-setting-year-with-more-than-800-million-in-total-distributions-to-recording-artists-and-record-labels/> (last accessed Oct. 12, 2016). If, for example, 87.5 percent of Pandora’s plays were at the 14 cent rate and 12.5 percent were at the 25 cent rate, then Pandora’s average payment rate would be about 15.4 cents per 100 plays. Even if the remaining services all paid the 25 cent per 100 stream rate, given the predominance of Pandora in the segment, it is clear that using a rate of 20 cents per 100 plays as the average statutory rate for public would, if anything, overstate the actual average statutory rate paid per stream and, therefore, understate the incremental payment associated with the “mechanical” right for sound recordings that I discuss in the remainder of this section.

137. However, to operate an *interactive* streaming service, the service would need a free market, direct license with the record labels. The difference between these two rates – the free market rate for interactive rights for sound recordings and the statutory rate for non-interactive rights – provides direct evidence of the incremental value of being able to stream the sound recordings interactively. That is, the difference between these two rights is akin to a “mechanical” right for sound recordings, directly paralleling the mechanical right for musical works at issue in this proceeding.

138. Given these implied values of the “mechanical” sound recording right, we can then turn to the evidence regarding the reasonable range of relative values of sound recording and musical work rights in order to calculate the implied value of the mechanical right for musical works at issue.

139. Given that labels and publishers are due royalties from both reproduction and public performance rights in the interactive streaming context, we need to identify the public performance value in order to calculate a mechanical-only royalty rate for publishers. I do so using two different methods.

140. Method 1 is to identify the implicit value of the mechanical works right for sound recordings in interactive services by subtracting the statutory performance right value for non-

I note as well that the current terms for commercial statutory webcasting (recently set in the *Web IV* proceeding) have been simplified – 17 cents per 100 plays for non-subscription transmissions and 22 cents per 100 stream for subscription transmissions, with a minimum payment of \$500 per station or channel, up to a maximum of \$50,000 per service for 2016. (See “Commercial Webcaster 2016 Rates,” SoundExchange, *available at* <http://www.soundexchange.com/service-provider/rates/commercial-webcaster/> (last accessed Oct. 12, 2016).) Following the same analysis as above, 20 cents per 100 plays would appear to be a conservative assumption under the new rates as well.

interactive services from the all-in sound recording right for interactive services, and then adjust for the relative value of sound recordings and musical works. The algebraic expression for this approach is shown in Equation 1:

$$(1) \text{MR}_{\text{MW}} = (\text{SR}_{\text{IS}} - \text{SR}_{\text{NIS}}) / \text{RV}_{\text{SR/MW}},$$

where

MR_{MW} = Mechanical Rate for Musical Works

SR_{IS} = Sound Recording Rate for Interactive Streaming (All In)

SR_{NIS} = Sound Recording Rate for Non-Interactive Streaming (Performance Only)

$\text{RV}_{\text{SR/MW}}$ = Relative Value of Sound Recording to Musical Works Rights.

141. For clarity: the term “ $(\text{SR}_{\text{IS}} - \text{SR}_{\text{NIS}})$ ” is the difference between the all-in sound recording royalty for interactive services and the performance-only sound recording royalty (i.e. 20 cents/hundred streams), which is the implicit mechanical rate for sound recordings; the term “ $\text{RV}_{\text{SR/MW}}$ ” is the ratio of the value of sound recordings to the value of musical works (e.g., 3:1); and MR_{MW} is the estimated mechanical royalty for musical works (e.g., 15 cents per 100 plays). So, hypothetically, if the sound recording rate for interactive streaming is 75 cents/100, the statutory sound recording rate for non-interactive streaming is 20 cents/100, then the implied mechanical rate for sound recording is 55/cents per 100; and, if the relative value of sound recordings to musical works is 3:1, then the resulting mechanical rate for musical works would be $55/3 = 18.33$ cents/100.

142. Method 2 is to derive an all-in musical works value based on the relative value of sound recordings to musical works and then remove the amount of public performance rights paid for musical works, leaving just the mechanical-only rate. The algebraic expression for this second approach is shown in Equation 2:

$$(2) \text{MR}_{\text{MW}} = (\text{SR}_{\text{IS}} / \text{RV}_{\text{SR/MW}}) - \text{PR}_{\text{MW}},$$

where PR_{MW} is the public performance royalty rate for musical works, and the other variables are as defined described above.

143. For clarity, the term “ $\text{SR}_{\text{IS}} / \text{RV}_{\text{SR/MW}}$ ” in Equation (2) is the all in royalty for sound recordings in interactive services (e.g., 75 cents/100 plays) divided by the relative value of sound recordings and musical works (e.g., 3:1) (yielding an implied all-in rate for musical works), while the PR_{MW} is the performance royalty for musical works (e.g., 10 cents/100). So, based on these hypothetical values, the mechanical rate for musical works would be $75/3 - 10 = 15$ cents/100.

144. In the following sections I explain how I apply these two methods to estimate the appropriate mechanical royalty rate for interactive services.

1. The Value of Sound Recording Rights for Interactive Services

145. The first step in my analysis is to estimate the value of the interactive streaming right for sound recordings, SR_{IS} . Two approaches present themselves: (a) examining the rates and terms contained in license agreements between the labels and the services; and, (b) calculating the actual amounts paid by the services for sound recording rights. I considered both approaches, starting with examining the terms contained in the license agreements, and found the feasibility and robustness of this approach limited by the complexity of the agreements, which frequently involve multiple prongs, “best of” terms, guaranteed minimums, upfront payments, and other considerations. Furthermore, from an economic perspective, the most relevant and reliable information is not the schedule of prices that may have been agreed to but rather the price actually paid. Because I have information that allows me to calculate the actual amounts – that is, the amount paid and the number of units, with the ratio being the price per unit – I assess

the value of the interactive streaming right for sound recordings using data on the actual royalty payments of the interactive services.¹²⁴

146. Data on what is paid to the owners of sound recording rights is available from a variety of sources, depending on the service at issue, mainly because the current structure for calculating mechanical royalties for interactive streaming relies in part on what is paid for the sound recordings. I was thus able to include data on the royalties paid for sound recordings in 2015 (from a combination of royalty statements and HFA data) for the following interactive streaming services: Amazon; Google Play; Tidal, Deezer S.A.; 7digital Inc; Da Capo Music, LLC; Neurotic Media; Nokia, Inc.; Rhapsody International Inc.; Rithm Messaging; Spotify USA, Inc.; Steinway, Inc.; and Tidal. All of these data sources provide sufficient information to determine the total number of interactive streams, the number of user months, and the total sound recording royalties paid for the service in the period.¹²⁵

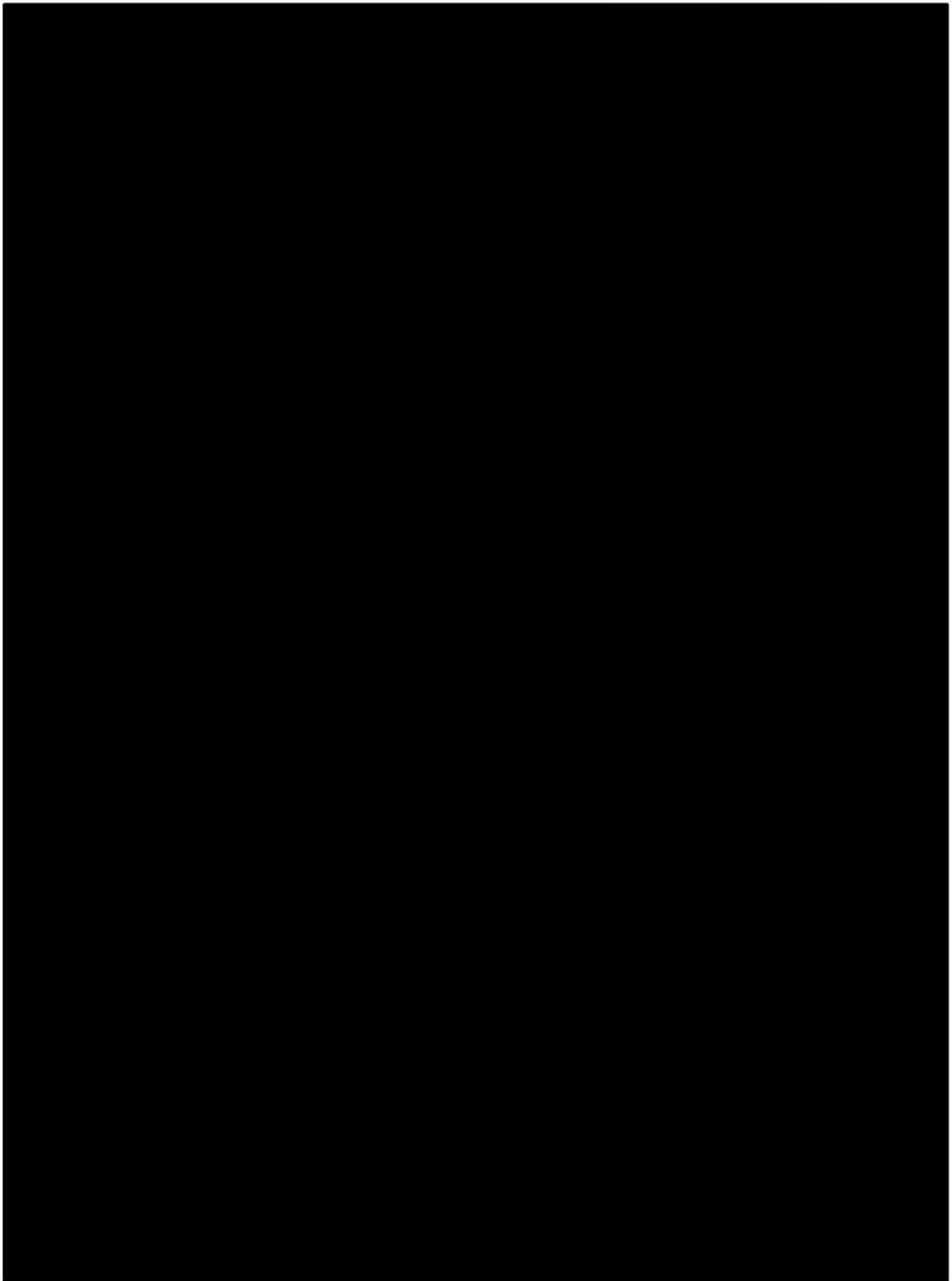
147. While these services do not account for all interactive streaming services, they cover a substantial majority of the interactive streaming industry. One way to assess the extent to which these data sources provide coverage for the entire interactive streaming segment is to look at what these sources have paid historically in total *mechanical* royalties and compare that figure to NMPA's estimate of total mechanical royalties paid, based on reporting by member publishers.¹²⁶ Table 10 displays this information for 2015. As the table shows, the data sources I

¹²⁴ Further, while data are available for the totality of payments made to all labels, access to the full set of licenses agreements with all labels is not available. This raises the question of what is missing in those unseen agreements, without any way to verify if the missing agreements are or are not generally consistent with the agreements to which we do have access. As such, relying on what was actually paid for the sound recording rights is the most direct and most accurate way to assess the value of the interactive streaming right for sound recordings.

¹²⁵ For services that track service revenue, that information is also generally available.

¹²⁶ See NMPA Data.

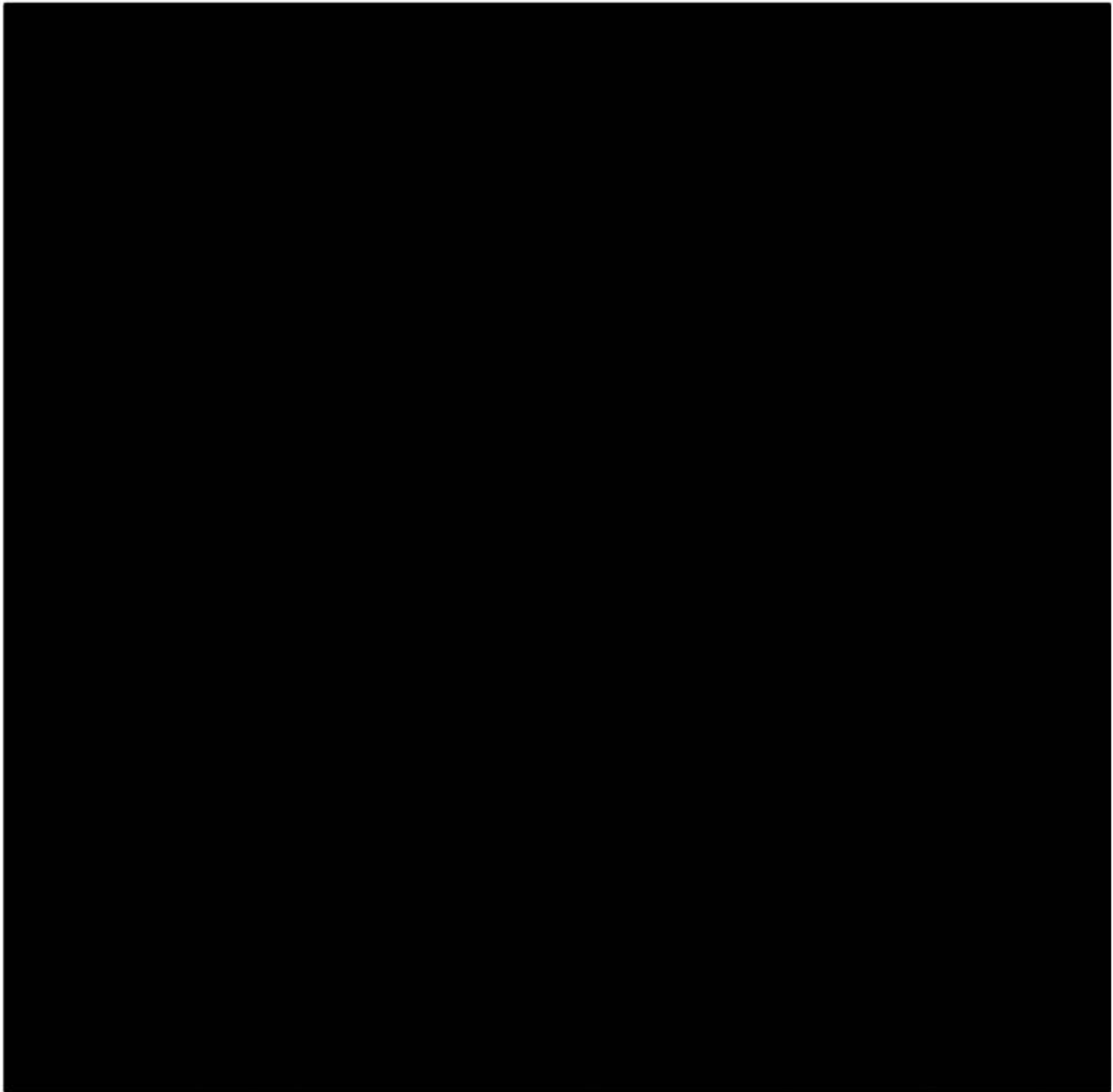
use to calculate sound recording royalties for interactive services report [REDACTED] in mechanical works royalties in 2015, about [REDACTED] than the [REDACTED] NMPA estimates was paid in total royalties paid for the same period. Given that my data includes results from all of the major services (and in particular from Spotify and Rhapsody, which account for the vast majority of interactive streams), the information in Table 10 indicates that: (a) my data covers nearly all interactive streaming; and, (b) NMPA's estimates based on industry self-reporting slightly understate the actual totals.



148. Calculating the value of the interactive streaming right for sound recordings on a per-play basis is straightforward. For each service, I tally the total payments for sound recordings and divide by the total number of interactive streams the service reports. The results for 2015 are reported in Table 11 below.¹²⁷

¹²⁷ The free service from Spotify is not included in these figures. The data indicate that the rate Spotify pays to record labels for sound recording rights for its ad-supported tier is [REDACTED]. In 2015, Spotify paid about [REDACTED] in sound recording rights for about [REDACTED] for its ad-supported interactive service. This rate is [REDACTED] the ad-supported rate paid by statutory webcasters for non-subscription uses (which was \$0.14 per 100 plays for pureplay webcasters such as Pandora in 2015 and was set to \$0.17 per 100 plays starting in 2016). [REDACTED]

[REDACTED]. In my opinion, this low rate reflects (a) the fact that the record labels own approximately 17% equity in Spotify (as discussed below), and (b) that the ad-supported tier is designed to draw users to Spotify in hopes of growing market share and promoting the subscription service, thereby enhancing Spotify's company valuation and long-run profitability. As noted below, Spotify is planning a 2017 IPO from which the record labels could receive over \$1 billion. Accordingly, the rates by Spotify for its free service do not help to inform the value of interactivity (and thus the value of mechanical rights). Further, in my opinion it would not be appropriate to base a rate on an average that included non-subscription services. Using a lower, blended rate would risk causing the sort of disruption I have discussed above – a rate that is too low for subscription services could lead to disruptive and distortionary changes in the interactive service segment, but a rate that may be too high for non-subscription services would not, simply because of the asymmetric nature of those risks.



149. As shown in the table, the lowest per stream royalties among the major services is

150. [REDACTED] several record companies have equity in Spotify, totaling about 16 percent, as public reports indicate.¹²⁸ Spotify is planning an IPO in 2017 valued as high as \$8 billion (of which the record labels would receive approximately \$1.4 billion), and that in their current rate negotiations, “the labels argue that Spotify is already paying less than market rates.”¹²⁹ Because the bargains between Spotify and the labels are not between “unrelated parties,”¹³⁰ in my opinion they do not constitute reliable benchmarks and I do not include them in the calculations below.¹³¹

2. The Appropriate Value for the Mechanical Royalty (Method 1)

151. In this section I discuss my estimate of the appropriate value of the mechanical royalty rate based on Method 1.

152. The value of the interactive streaming right for sound recordings can be used to determine the corresponding mechanical right for musical works. Using 20 cents per 100 plays as the value of the statutory webcasting right for sound recordings as I have described above, and based on the weighted average value of the all-in sound recordings right of [REDACTED], that value is [REDACTED] per 100 plays at the weighted average (excluding Spotify). Table 12 below presents the resulting calculations of the value of the mechanical right for musical works implied by these sound recording deals, at various points between the 1:1 and 4.76:1 ratios of value for sound recordings and musical works.

¹²⁸ Michael Arrington, “This Is Quite Possibly the Spotify Cap Table,” TechCrunch (Aug. 7, 2009), *available at* <https://techcrunch.com/2009/08/07/this-is-quite-possibly-the-spotify-cap-table/> (last accessed Oct. 12, 2016).

¹²⁹ See Lucas Shaw and Alex Barinka, “Will a Spotify IPO Live Up to Its \$8 Billion Valuation?,” BloombergBusinessweek (July 20, 2016) *available at* <http://www.bloomberg.com/news/articles/2016-07-20/will-a-spotify-ipo-live-up-to-its-8-billion-valuation> (last accessed Oct. 26, 2016).

¹³⁰ See n. 24 *infra*.

¹³¹ Including Spotify would not qualitatively alter my opinion regarding the reasonableness of the proposed rates.



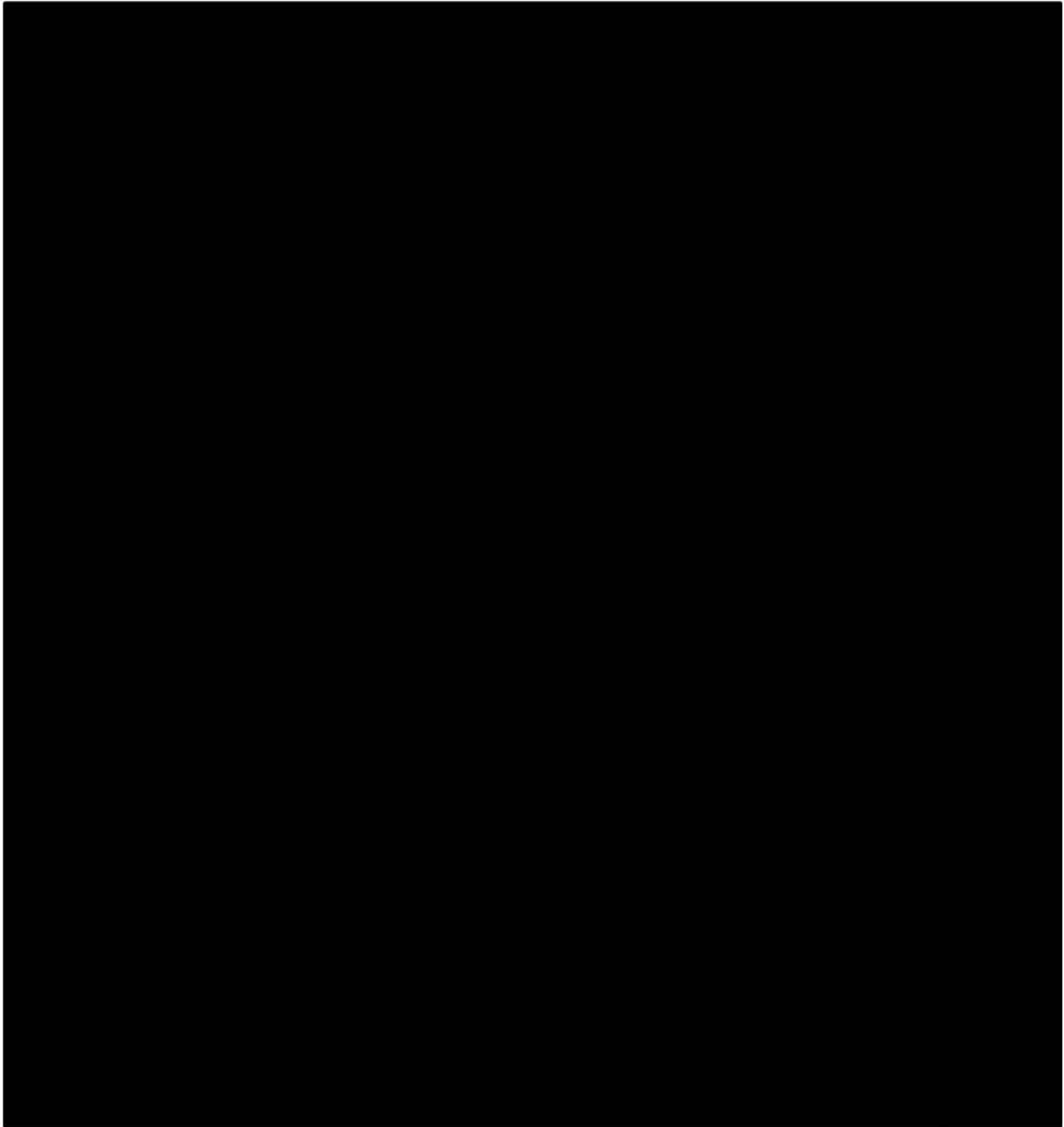
153. The resulting rate of between [REDACTED] per 100 plays reflects the range of relative values for sound recordings and musical works, from a variety of sources. A rate in the lower end of this range would reflect a belief that the more accurate estimates of the relative value of musical works would be found in deals negotiated in the shadow of compulsory licensing (or in the compulsory licensing rates themselves), whereas a rate in the upper end of this range would reflect a belief that the relative value of musical works would be found in free market transactions outside the shadow of compulsory licensing. Notably, at the ratio established by the YouTube benchmark, the corresponding per-play mechanical royalty would be [REDACTED] per 100 plays; at the Pandora ratio of [REDACTED] it would be [REDACTED] per 100 plays; and, at the midpoint of the two, it would be [REDACTED] per 100 plays.

3. The Appropriate Value for the Mechanical Royalty (Method 2)


154. This section describes my estimate of the appropriate mechanical royalty rate using Method 2. As will be recalled, Method 2 begins by estimating the all-in sound recording royalty for interactive services and then subtracting the performance rate, leaving just the mechanical rate.

155. As explained above, I have estimated the all-in sound recording rate at [REDACTED], which implies an all-in rate for musical works of between [REDACTED] per 100 plays if the relative value is 1:1, [REDACTED] per 100 plays if the relative value is 3.2:1, and [REDACTED] per 100 plays if the relative value is 4.76:1.

156. The next step is to subtract public performance royalties, which I first calculate from the same data sources used above to calculate the all-in rates. The results are shown in Table 13, which shows that the range of musical works performance rates ranges from [REDACTED] per 100 plays to [REDACTED] per 100 plays with an average, [REDACTED].



157. Deducting the average public performance royalty per 100 plays for interactive streaming services of [REDACTED] results in the mechanical-only royalty per-play rates shown in Table 14 below:

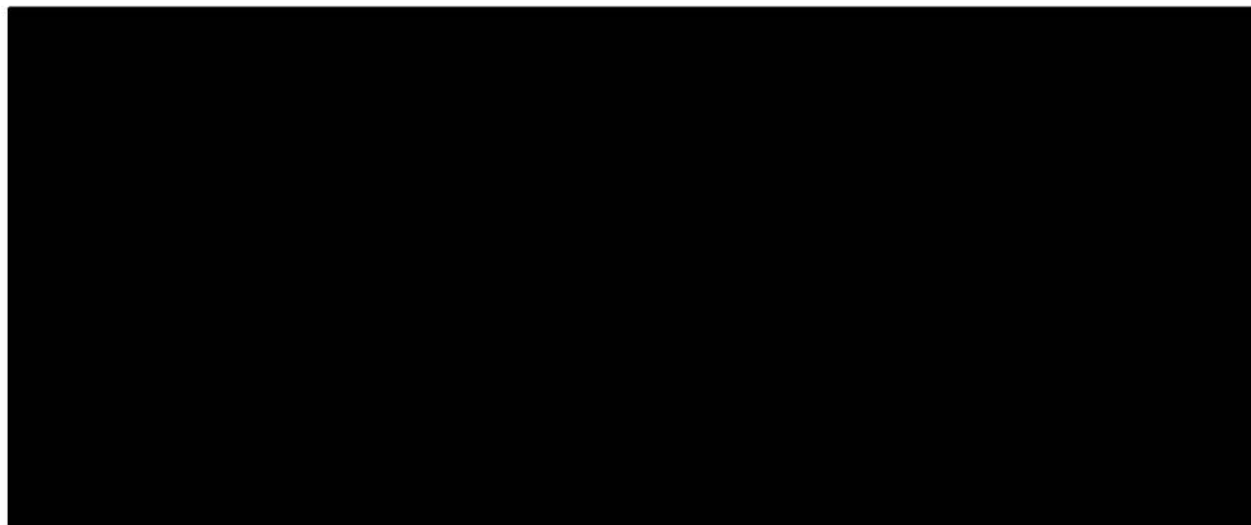


158. The resulting range of between [REDACTED] per 100 plays reflects the range of relative values for sound recordings and musical works. At the ratio established by the YouTube benchmarks, the per-play mechanical royalty would be [REDACTED] per 100 plays; at the Pandora ratio of [REDACTED] it would [REDACTED] and, at the midpoint of the two, it would be [REDACTED] per 100 plays.

4. The Appropriate Per-User Value for the Mechanical Right

159. The Copyright Owners have also proposed a per-user rate. While Method 1 cannot be used to estimate such a rate, because it is not possible to isolate a per-user statutory webcasting rate, which is a necessary input, a per-user rate can be estimated using Method 2. As I explain in this section, this is accomplished by calculating all-in publisher royalties on a per-user basis and subtracting the average effective per-user performance royalties to publishers, leaving an appropriate rate for mechanical royalties. That is, I implement Method 2, except that the magnitudes are expressed on a per-user basis rather than a per play basis.

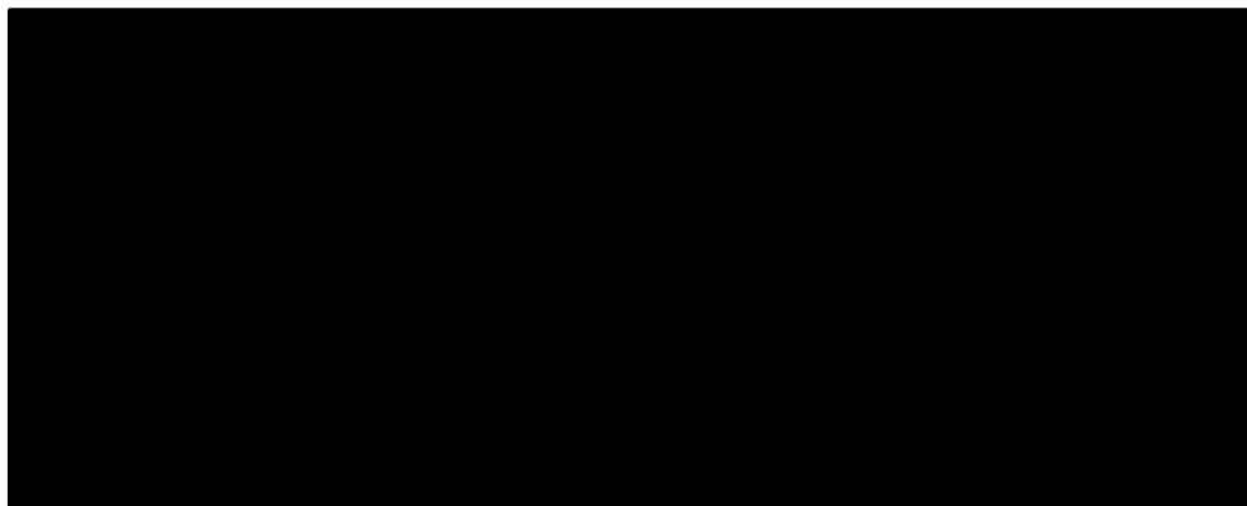
160. To begin, Table 15 presents the all-in rates paid on a per-user basis for interactive sound recording licenses, excluding free services, services that do not track users, and services with limited, bundled or other niche products.¹³²



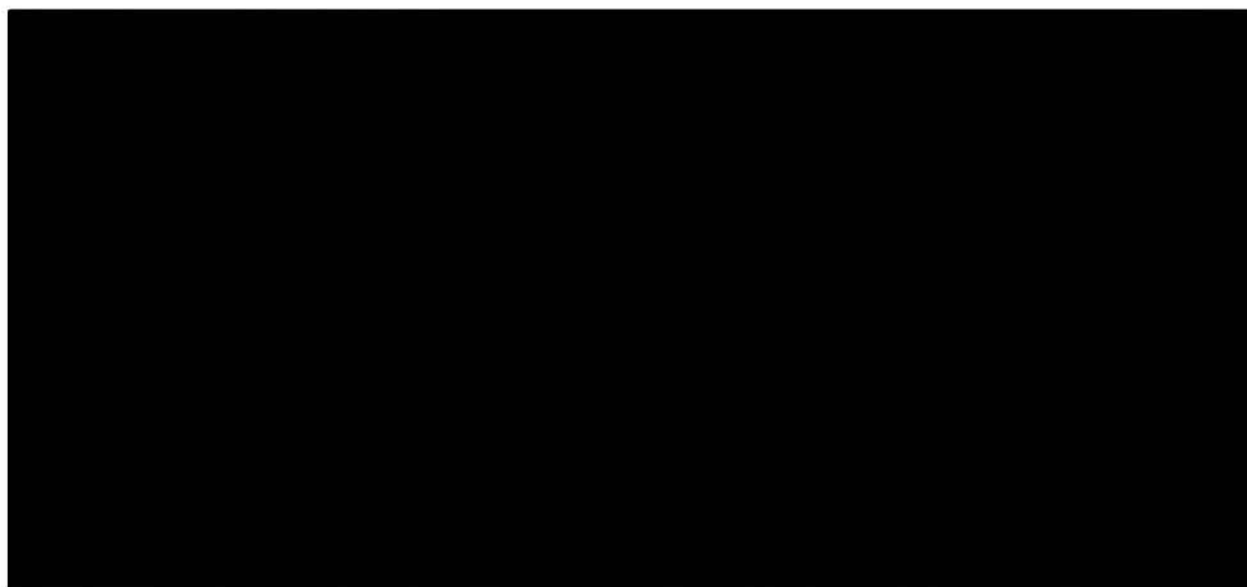
161. As shown in the table, the weighted average of sound recording payments per user in 2015 was [REDACTED].

162. The corresponding all-in musical works rate can be established by applying the range of relative values of sound recordings and musical works, as shown in Table 16 below.

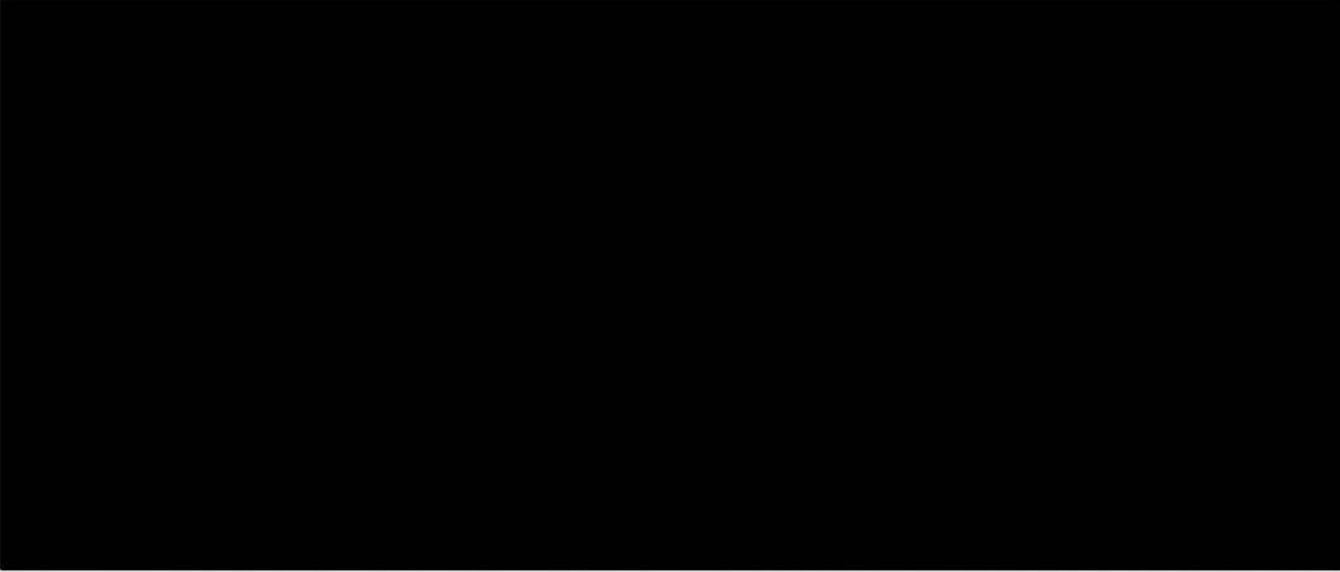
¹³² Amazon's Prime Music service is excluded, as it is a bundled service with a very limited catalog, and so has not been subjected to per-user royalty tests. Amazon reported [REDACTED]. Amazon's Music Unlimited service would be included, but for the fact that it just launched and has no data.



163. The resulting rate of between [REDACTED] per user, *all in*, reflects the range of relative values for sound recordings and musical works, from a variety of sources. Using the same approach as above, I calculated the musical works performance royalties paid by these same services during this time period, but this time on a per-user instead of per-play basis. The results are shown in Table 17.



164. As the table shows, the average (excluding Spotify) performance royalty per user was [REDACTED]. Deducting this amount from the all-in figures shown in Table 17 results in the mechanical-only royalty per-user rates shown in Table 18:



165. The resulting mechanical rate of between [REDACTED] per user reflects the range of relative values for sound recordings and musical works, from a variety of sources. At the 3.2:1 ratio which is the midpoint of the YouTube and Pandora benchmarks, the mechanical only rate would be [REDACTED] per user.

B. Mechanical Rights Values Implied by Standard Industry Practices Confirm the Reasonability of the Proposed Rates

166. The above analysis uses actual payments made by interactive streaming services for access to sound recording rights combined with the benchmarked relative value of sound recording and musical work rights to value the mechanical streaming right. We can test and confirm the results of this analysis by looking at standard licensing terms and metrics in the industry. In the remainder of this subsection, I demonstrate that this alternative method also supports the proposed rates, showing that the proposed rates are directly in line with industry custom and practice and current market activity and expectations.

167. This analysis begins with three facts about the streaming industry:

168. First, I note that it is accepted, and indeed publicly proclaimed by some services, that services pay approximately 70 percent of revenue to rightsholders – which in the case of

interactive streaming means simply two groups: publishers/songwriters and labels.¹³³ At the time of the launch of Apple Music, Apple stated that it will pay 71.5 percent of its streaming revenues to rightsholders in the United States.¹³⁴ Spotify has repeatedly stated that it pays 70 percent of revenues to rightsholders.¹³⁵

169. Second, a review of license agreements for sound recordings between labels and interactive services demonstrate that, while there is variability in the payment terms across services and labels, it is standard for label licenses to include a royalty prong of approximately [REDACTED] of service revenue for the sound recording license.¹³⁶ This standard term is borne out by actual payments. In practice, as shown in Table 19 below, interactive streaming services (excluding Spotify) in fact pay about [REDACTED] of their revenue for rights to sound recordings.¹³⁷

¹³³ This ratio extends beyond music streaming. For example, Apple retains 30 percent of revenue from sales of MP3s while paying 70 percent of the revenue to rightsholders. See John Seabrook, “Revenue Streams: Is Spotify the music industry’s friend or its foe?,” *The New Yorker* (Nov. 24, 2014), available at <http://www.newyorker.com/magazine/2014/11/24/revenue-streams> (last accessed Oct. 18, 2016). Hulu, another online video streaming site, paid over 70 percent of its revenue for content costs in 2012. See Jennifer Van Grove, “Embrace the Mushy Mush! Hulu’s 2012 Numbers Are a Mixed Bag,” *Venture Beat* (Dec. 17, 2012), available at <http://venturebeat.com/2012/12/17/hulu-2012/> (last accessed Oct. 12, 2016).

¹³⁴ Paul Resnikoff, “Apple Responds: ‘We Pay 71.5 Percent of Streaming Revenue Back to Artists...’,” *Digital Music News* (June 15, 2015), available at <http://www.digitalmusicnews.com/2015/06/15/apple-responds-we-pay-71-5-percent-of-streaming-revenue-back-to-artists/> (last accessed Oct. 12, 2016); Sai Saichin R, “Apple to Pay 70 Percent of Music Subscription Revenue to Labels, Publishers,” *Reuters* (June 15, 2015), available at <http://www.reuters.com/article/us-apple-music-idUSKBN0OV1VX20150615> (last accessed Oct. 12, 2016).

¹³⁵ “Spotify Explained – How We Pay Royalties: An Overview,” *Spotify Artists*, available at <https://www.spotifyartists.com/spotify-explained/> (last accessed Oct. 18, 2016).

¹³⁶ In each of these instances, the [REDACTED] of revenue is pro-rated among labels according to their percentage of total streams.

¹³⁷ [REDACTED]



170. Third, one particular royalty rate ratio is standard in the interactive streaming market – that is the ratio between [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

171. These industry practices align closely with the proposed rates. Following the industry standard that approximately 70 percent of service revenue is allocated to rightsholders, if [REDACTED] is allocated to sound recordings, then it follows that approximately [REDACTED] is available for allocation to music publishers.¹³⁹ Given the established ratio between revenue prongs and per-user prongs, [REDACTED] of revenue would be matched with a [REDACTED] per-user month rate, with both calculated “all in,” *i.e.*, including performance royalties. Public performance royalty rates in 2015 were approximately [REDACTED].¹⁴⁰ Subtracting

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¹³⁹ The only rightsholders for interactive music streaming are the sound recording copyright owners (labels) and the musical works copyright owners (publishers/songwriters). The Copyright Office noted that services see a royalty cost pool and are agnostic as to how it gets allocated between rightsholders. “From the services’ perspective, total content costs are the relevant consideration. They assert that they are ‘agnostic’ as to how that total is divided among various rightsholders.” CMM at 77.

¹⁴⁰ Based on total 2015 public performance royalties of [REDACTED] and service revenue of [REDACTED]. These numbers are for the services included in the calculation of label payments as a percentage of service revenues as in

this from [REDACTED] for mechanical only rights, which would match with a per-user rate of [REDACTED], higher than the proposed rate of \$1.06 and fully consistent with the benchmark analysis rates above.

172. It is also possible to determine the matching per-play rate to this per-user rate at current average streams per user. In 2015, there are a total of [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

173. These rates ([REDACTED] per user month and [REDACTED] per 100 plays for mechanical only) provide support for my conclusion that the rates I described above based on a benchmark analysis are consistent with customary costs and margins and industry business practices. The services' public statements that they set aside 70 percent of revenues for rightsholders lead to the conclusion that the proposed rates fit with market practices and reasonable expectations. Accordingly, these industry business practices value the mechanical right similarly and provide further support for the rates I have calculated above.

C. Summary of Analysis and Findings for Interactive Streaming and Limited Downloads

174. As my benchmark analysis above indicates, confirmed by standard industry customs and practices, the rates proposed by the Copyright Owners are consistent with a

Table 19, with the exception [REDACTED], as the royalty statements reviewed did not have performance royalty data, and [REDACTED].

reasonable range of rates based on the policy objectives of Section 115. Indeed, they fall near the low end of the range, and there is benchmark evidence that supports significantly higher rates than those proposed by the Copyright Owners. Accordingly, the proposed rates of the greater of \$0.0015 per play or \$1.06 per user are reasonable terms for mechanical royalties for interactive streaming and limited download services.

VII. SUMMARY OF OPINIONS

175. As the music industry has undergone (and continues to undergo) substantial changes in recent years, the statutory rates which define payments for the rights to musical works have failed to keep up. In order to properly determine the value of mechanical rights for musical works, it is instructive to turn to market-based valuations of reasonably comparable benchmark rights – that is, to turn to licenses for similar musical rights to understand that value of the mechanical rights at issue.

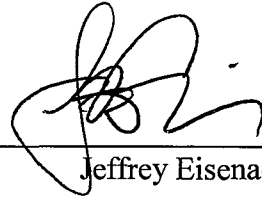
176. In particular, information from a variety of agreements demonstrates that the relative value of sound recording rights and musical rights lies between 1:1 and 4.76:1. I apply this ratio to the actual payments made by interactive services for sound recording rights corresponding to the musical works rights at issue here, using two different methods. The first method demonstrates that the value of mechanical rights to musical works for interactive streaming and limited downloads is likely between [REDACTED] per play, with the most compelling benchmarks indicating per-play rates of between [REDACTED]. The second method results in a similar range of [REDACTED] per play, with the most compelling benchmarks indicating per-play rates of between [REDACTED]. Using a similar approach, I estimate the value of musical works rights for interactive streaming and limited downloads likely is between [REDACTED] per user per month, with the most compelling

benchmarks indicating per-user rates of between [REDACTED] per user per month and [REDACTED] per user per month. Similar values of the mechanical right to musical works for streaming and limited downloads can be found by analyzing industry standards for the division of value among services and copyright holders, around [REDACTED] per play and [REDACTED] per user month, for mechanical rights only, corroborating the results of my benchmark analysis.

177. Copyright Owners' proposed rates of the greater of \$0.0015 per play and \$1.06 per user are at the low ends of these ranges, and hence constitute reasonable terms for mechanical rights for interactive streaming and limited download services, and are consistent with the requirements set forth in Section 801(b)(1) of the Copyright Act.

I declare under penalty of perjury that the foregoing testimony is true and correct to the best of my knowledge, information and belief.

Dated: October 28, 2016

A handwritten signature in black ink, appearing to be 'JE' followed by a stylized flourish, positioned above a horizontal line.

Jeffrey Eisenach

APPENDIX A

Materials Relied Upon by Jeffrey A. Eisenach, Ph.D.

Academic Books and Journal Articles

Dennis Carlton and Jeffrey Perloff, *Modern Industrial Organization*, 4th ed. (Pearson/Addison-Wesley, 2005).

Al Kohn & Bob Kohn, *Kohn on Music Licensing*, 3rd Ed. (Aspen Publishers, 2000).

Robert W. Holthausen & Mark E. Zmijewski, *Corporate Valuation: Theory, Evidence and Practice*, 1st Ed. (Cambridge Business Publishers, 2014).

Donald S. Passman, *All You Need to Know About the Music Business*, 9th Ed. (Simon & Schuster, 2015).

Restricted Documents

[REDACTED]
[REDACTED] (SONY-ATV00001242 – SONY-ATV00001253)

[REDACTED]
(SONY-ATV00001603 – SONY-ATV00001614)

[REDACTED]
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(UMPG00000937 - UMPG00001006)

[REDACTED]
[REDACTED] (UMPG00001371 - UMPG00001385)

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[REDACTED]
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(UMPG00000912 - UMPG00000921)

[REDACTED]
(BMG00000093 - BMG00000095)

[REDACTED]
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(WC00000090 - WC00000095)

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[REDACTED]
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(WC00000550 WC00000567)

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PHONO_00009020)

[REDACTED] (APL-PHONO_00004388 - APL-PHONO_00004430)

[REDACTED] (APL-PHONO_00004518 - APL-PHONO_00004523)

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[REDACTED] (UMPG00000232 - UMPG00000244)

[REDACTED] (BMG00000001 - BMG00000021)

[REDACTED]
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[REDACTED]
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[REDACTED] (GOOG-PHONOIII-00001818 - GOOG-PHONOIII-00001848)

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- SPOTCRB0005409)

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(SPOTCRB0005548 - SPOTCRB0005627)

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[REDACTED] (KOBALT00000745 – KOBALT00000746)

[REDACTED] (KOBALT00000747 – KOBALT00000748)

Restricted Data

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KOBALT00001235	[REDACTED]
KOBALT00001265	[REDACTED]
KOBALT00001268	[REDACTED]
KOBALT00001269	[REDACTED]
KOBALT00001270	[REDACTED]
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HFA00000001	[REDACTED]
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Public Data

RIAA U.S. Sales Database, RIAA (“RIAA U.S. Sales Database”), *accessible at* <https://www.riaa.com/u-s-sales-database/> (last accessed Oct. 12, 2016).

Legal

17 U.S.C. § 114(i)

17 U.S.C. § 115(c)(3)(A).

17 U.S.C. §§ 801(b)(1)(A)-(D)

37 C.F.R. § 385

Recording Indus. Ass’n of America v. Copyright Royalty Tribunal, 662 F.2d 1, 9 (D.C. Cir. 1981).

1980 Adjustment of the Royalty Rate for Coin-Operated Phonorecord Players, 46 Fed. Reg. 884 (decided Jan. 5, 1981).

Adjustment of Royalty Payable Under Compulsory License for Making and Distributing Phonorecords, 46 Fed. Reg. 891 (Jan. 5, 1981).

Rates and Adjustment of Rates, 46 Fed. Reg. 10,466 (decided Feb. 3, 1981).

Amusement and Music Operators Ass’n v. Copyright Royalty Tribunal, 676 F.2d 1144 (D.C. Cir. 1982).

Digital Performance Right in Sound Recordings Act of 1995, Pub. L. No. 104-39 § 4, 109 Stat. 336 and 344-348.

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APPENDIX B

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In the Matter of the Constitution of the Co-Operative Republic of Guyana and In the Matter of the Application for Redress Under Article 153 for the Contravention of the Applicant's Fundamental Rights Guaranteed by Articles 20, 146, and 149D of the Constitution of the Republic of Guyana and In the Matter of the Telecommunications Act No. 27 of 1990, U-Mobile (Cellular) Inc., v. The Attorney General of Guyana, "International Exclusivity and the Guyanese Telecommunications Market: A Further Response to DotEcon," Expert Report on Behalf of Guyana Telephone and Telegraph Company (March 9, 2010)

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In re: Complaint and Request for Emergency Relief against Verizon Florida, LLC for Anticompetitive Behavior in Violation of Sections 364.01(4), 364.3381, and 364.10, F.S., and for Failure to Facilitate Transfer of Customers' Numbers to Bright House Networks Information Services (Florida), LLC, and its Affiliate, Bright House Networks, LLC, Florida Public Service Commission, Docket No. 070691-TP, Rebuttal Testimony on Behalf of Verizon Florida LLC (July 25, 2008)

In the Matter of the Constitution of the Co-Operative Republic of Guyana and In the Matter of the application for redress under Article 153 for the contravention of the Applicant's fundamental rights guaranteed by Articles 20, 146, and 149D of the Constitution of the Republic of Guyana and In the Matter of the Telecommunications Act No. 27 of 1990, U-Mobile (Cellular) Inc., v. The Attorney General of Guyana, Expert Report on Behalf of Guyana Telephone and Telegraph Company (June 19, 2008)

In the Matter of Bright House Networks LLC et al v. Verizon California et al, Federal Communications Commission File No. EB-08-MD-002, Expert Declaration on Behalf of Verizon Communications (February 29, 2008)

On Petition for a Writ of Certiorari to the United States Court of Appeals for the Ninth Circuit, Pacific Bell Telephone Company d/b/a AT&T California, et al., Petitioners, v. Linkline Communications, Inc., et al., Respondents, Brief of Amici Curiae Professors and Scholars in Law and Economics in Support of the Petitioners (with R. Bork, G. Sidak, et al) (November 16, 2007)

In re: ACLU v. Gonzales, Civil Action No. 98-CV-5591, E.D. Pa., Rebuttal Report on Behalf of the U.S. Department of Justice (July 6, 2006)

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APPENDIX C

Curriculum Vitae

JEFFREY A. EISENACH, PH.D.

Managing Director

Co-Chair Communications, Media and Internet Practice

Dr. Eisenach is a Managing Director and Co-Chair of NERA's Communications, Media, and Internet Practice. He is also an Adjunct Professor at George Mason University Law School, where he teaches Regulated Industries, and a Visiting Scholar at the American Enterprise Institute, where he directs the Center for Internet, Communications, and Technology Policy. Previously, Dr. Eisenach has served in senior policy positions at the US Federal Trade Commission and the White House Office of Management and Budget, and on the faculties of Harvard University's Kennedy School of Government and Virginia Polytechnic Institute and State University.

Dr. Eisenach's consulting practice focuses on economic analysis of competition, regulatory, intellectual property and consumer protection issues. He has submitted expert reports and testified in US federal court as well before the Federal Communications Commission, the Federal Trade Commission, several state public utility commissions, and courts and regulatory bodies in Australia, Canada, the Caribbean, and South America. He has also advised clients in some of the world's largest information technology sector mergers.

He has written or edited 19 books and monographs, including *Broadband Competition in the Internet Ecosystem* and *Competition, Innovation and the Microsoft Monopoly: Antitrust in the Digital Marketplace*. His writings have also appeared in scholarly journals such as *The Review of Network Economics*, as well as in popular outlets like *Forbes*, *The New York Times*, and *The Wall Street Journal*.

Prior to joining NERA, Dr. Eisenach was a managing director and principal at Navigant Economics, and before that he served as Chairman of Empiris LLC, Criterion Economics, and CapAnalysis, LLC. Among his other previous affiliations, Dr. Eisenach has served as President and Senior Fellow at The Progress & Freedom Foundation; as a scholar at the American Enterprise Institute, the Heritage Foundation, and the Hudson Institute; as a consultant to the US Sentencing Commission (on corporate sentencing guidelines); and as a member of the 1980-81 Reagan-Bush Transition Team on the Federal Trade Commission, the 2000-2001 Bush-Cheney Transition Team on the Federal Communications Commission, the Virginia Governor's Commission on E-Communities, and the Virginia Attorney General's Task Force on Identity Theft.

Dr. Eisenach received his PhD in economics from the University of Virginia and his BA in economics from Claremont McKenna College.

Education

1985	Ph.D. in Economics, University of Virginia
1979	B.A. in Economics, Claremont McKenna College

Professional Experience

Jan 2014-present	Senior Vice President/Managing Director, NERA Economic Consulting
Jan 2010-Jan 2014	Managing Director and Principal, Navigant Economics
Sept 2008-Jan 2010	Chairman and Managing Partner, Empiris LLC
June 2006-Sept 2008	Chairman, Criterion Economics, LLC
July 2005-May 2006	Chairman, The CapAnalysis Group, LLC
Feb 2003-July 2005	Executive Vice Chairman, The CapAnalysis Group, LLC
June 1993-Jan 2003	President, The Progress & Freedom Foundation
July 1991-May 1993	Executive Director, GOPAC
Mar 1988-June 1991	President, Washington Policy Group, Inc.
Sept 1986-Feb 1988	Director of Research, Pete du Pont for President, Inc.
1985-1986	Executive Assistant to the Director, Office of Management and Budget
1984-1985	Special Advisor for Economic Policy and Operations, Office of the Chairman, Federal Trade Commission
1983-1984	Economist, Bureau of Economics, Federal Trade Commission
1981	Special Assistant to James C. Miller III, Office of Management and Budget/Presidential Task Force on Regulatory Relief
1979-1981	Research Associate, American Enterprise Institute
1980	Consultant, Economic Impact Analysts, Inc.
1978	Research Assistant, Potomac International Corporation

Teaching Experience

2000-present	Adjunct Professor, George Mason University School of Law, (Courses Taught: Regulated Industries; Perspectives on Government Regulation; The Law and Economics of the Digital Revolution)
1995-1999	Adjunct Lecturer, Harvard University, John F. Kennedy School of Government, (Course Taught: The Role of Government in the 21st Century)
1989	Adjunct Professor, George Mason University, (Course Taught: Principles of Economics)

1985, 1988	Adjunct Professor, Virginia Polytechnic Institute and State University, (Courses Taught: Graduate Industrial Organization, Principles of Economics)
1983-1984	Instructor, University of Virginia, (Courses Taught: Value Theory, Antitrust Policy)
1982-1983	Teaching Assistant, University of Virginia, (Courses Taught: Graduate Microeconomics, Undergraduate Macroeconomics)

Honors & Professional Activities

2012-present	Visiting Scholar, American Enterprise Institute
2011-present	Member, Board of Directors, Information Technology & Innovation Foundation
2011-present	Vice President (Education) and Member of Audit Committee, Economic Club of Washington
2010-2011	Member, World Bank ICT Broadband Strategies Toolkit Advisory Group
2009-present	Member, Economic Club of Washington
2008-2009	Member, Board of Directors, PowerGrid Communications
2008-2012	Member, Board of Advisors, Washington Mutual Investors Fund
2002-2014	Member, Board of Advisors, Pew Project on the Internet and American Life
1993-2009	Member, Board of Directors, The Progress & Freedom Foundation
2002	Member, Attorney General's Identity Theft Task Force, Virginia
2002-2003	Member of the Board of Directors, Privacilla.com
2001-2004	Member, Executive Board of Advisors, George Mason University Tech Center
2001-2002	Contributing Editor, <i>American Spectator</i>
2001	Member, Bush-Cheney Transition Advisory Committee on the FCC
2000-2001	Member, Governor's Task Force on E-Communities, State of Virginia
1999-2001	Member, 2000-2001 Networked Economy Summit Advisory Committee
1998-2003	Member, Board of Directors, Internet Education Foundation
1998-2003	Member, Internet Caucus Advisory Committee
1996-2002	Member, American Assembly Leadership Advisory Committee
1995-2000	Member, Commission on America's National Interests
1988-1991	Adjunct Scholar, Hudson Institute
1988-1991	Visiting Fellow, Heritage Foundation

1981-1984	President's Fellowship, University of Virginia
1981-1983	Earhart Foundation Fellowship, University of Virginia
1981	Member, Reagan-Bush Transition Team on the Federal Trade Commission
1979	Henry Salvatori Award, Claremont Men's College
1978	Frank W. Taussig Award, Omicron Delta Epsilon

Testimony, Declarations and Expert Reports

Examination of Differential Pricing Practices Related to Internet Data Plans, Canadian Radio-Television and Telecommunications Commission CRTC 2016-192, Supplemental Expert Report on Behalf of TELUS Communications Company (September 21, 2016)

Balancing Efficient Pricing and Investment Incentives in the Migration from Copper to Fibre Networks: Assessing the Feasibility of a Temporary Copper Wedge, Expert Report on Behalf of Vodaphone (July 13, 2016)

Examination of Differential Pricing Practices Related to Internet Data Plans, Canadian Radio-Television and Telecommunications Commission, CRTC 2016-192, Expert Report on Behalf of TELUS Communications Company (June 28, 2016)

The Canadian Market for Wireless: Understanding the Bell-MTS Transaction, Expert Report on Behalf of Bell Canada (June 2, 2016)

Analysis of Online Music Copyright Issues; Copyright Tribunal of Australia CT 3 of 2013 – Reference by Phonographic Performance Company of Australia Limited (ACN 000 680 704) Under section 154 (1) of the Copyright Act of 1968, Fifth Expert Report on Behalf of Phonographic Performance Company of Australia Ltd. (March 9, 2016)

Analysis of Online Music Copyright Issues; Copyright Tribunal of Australia CT 3 of 2013 – Reference by Phonographic Performance Company of Australia Limited (ACN 000 680 704) Under section 154 (1) of the Copyright Act of 1968, Fourth Expert Report on Behalf of Phonographic Performance Company of Australia Ltd. (February 8, 2016)

Review of the Consultation Paper on Differential Pricing for Data Services (Consultation Paper No. 8/2015), Telecom Regulatory Authority of India, Expert Declaration on Behalf of Facebook, Inc. (December 30, 2015)

In the Matter of the Joint Application of Frontier Communications Corporation, Verizon California Inc. (U 1002 C), Verizon Long Distance, LLC (U 5732 C), and Newco West Holdings LLC for Approval of Transfer of Control Over Verizon California Inc. and Related Approval of Transfer of Assets and Certifications, California Public Service Commission, Expert Declaration on Behalf of Verizon Communications (August 24, 2015)

Broadband Market Performance in Canada: Implications for Policy, Canadian Radio-Television and Telecommunications Commission Notice of Consultation 15-134, Expert Report on Behalf of Bell Canada (July 2015)

Analysis of Online Music Copyright Issues; Copyright Tribunal Proceeding CT 3 of 2013 – Reference by Phonographic Performance Company of Australia Ltd. Under s 154 of the Copyright Act of 1968, Third Expert Report on Behalf of Phonographic Performance Company of Australia Ltd. (February 26, 2015)

Analysis of Online Music Copyright Issues; Copyright Tribunal Proceeding CT 3 of 2013 – Reference by Phonographic Performance Company of Australia Ltd. Under s 154 of the Copyright Act of 1968, Second Expert Report on Behalf of Phonographic Performance Company of Australia Ltd. (December 9, 2014)

Testimony on Open Internet Rules, Before the Committee on the Judiciary, United States Senate (September 17, 2014)

Review of Wholesale Mobile Wireless Services, Canadian Radio-Television and Telecommunications Commission Notice of Consultation CRTC 2014-76, Supplemental Expert Report on Behalf of TELUS Communications Company (August 20, 2014)

Analysis of Online Music Copyright Issues; Copyright Tribunal Proceeding CT 3 of 2013 – Reference by Phonographic Performance Company of Australia Ltd. Under s 154 of the Copyright Act of 1968, Expert Report on Behalf of Phonographic Performance Company of Australia Ltd. (August 5, 2014)

The Economics of Pick-and-Pay, Canadian Radio-Television and Telecommunications Commission Broadcasting Notice of Consultation CRTC 2014-190, Expert Report on Behalf of Bell Canada (June 27, 2014)

Review of Wholesale Mobile Wireless Services, Canadian Radio-Television and Telecommunications Commission Notice of Consultation CRTC 2014-76, Expert Report of Jeffrey A. Eisenach on Behalf of TELUS Communications Company (May 15, 2014)

In the Matter of Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, Federal Communications Commission, WC Docket No. 05-25, RM-10593 Expert Declaration (with Kevin W. Caves) on Behalf of Verizon Communications and Verizon Wireless (March 12, 2013)

In the Matter of Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, Federal Communications Commission, Docket No. 12-268, Expert Reply Declaration on Behalf of the Expanding Opportunities for Broadcasters Coalition (March 10, 2013)

In the Matter of Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, Federal Communications Commission, Docket No. 12-268, Expert Declaration on Behalf of the Expanding Opportunities for Broadcasters Coalition (January 24, 2013)

Testimony on the Digital Sound Performance Right, Before the Subcommittee on Intellectual Property, Competition and the Internet, Committee on the Judiciary, United States House of Representatives (November 28, 2012)

Response to Pre-Consultation Document PC12/03: Comments on Market Review Process (Part B), Before the Bermuda Telecommunications Regulatory Authority, Expert Report of Jeffrey A. Eisenach on Behalf of Bermuda Digital Communications Ltd. (November 21, 2012)

Order Instituting Rulemaking to Evaluate Telecommunications Corporations Service Quality Performance and Consider Modification to Service Quality Rules, Before the California Public Service Commission, Rulemaking 11-12-001, Reply Declaration of Jeffrey A. Eisenach on Behalf of Verizon Communications (March 1, 2012)

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Joint Declaration of Jeffrey A. Eisenach and Wayne A. Leighton before the Tribunal de Defensa de la Libre Competencia, Santiago, Chile, on behalf of Telefónica Chile S.A. (July 22, 2011)

In the Matter of Amendment of the Commission's Rules Related to Retransmission Consent, Federal Communications Commission, MB Docket No. 10-71, Expert Reply Declaration (with Kevin W. Caves) on Behalf of the National Association of Broadcasters (June 27, 2011)

In the Matter of an Application by Way of a Reference to the Federal Court of Appeal Pursuant to Sections 18.3(1) and 28(2) of the Federal Courts Act, R.S.C. 1985, C.F-7, Between: Cogeco Cable Inc. et al Applicants and Bell Canada et al Respondents, In the Supreme Court of Canada (on appeal from the Federal Court of Appeal), Affidavit and Expert Report on Behalf of Bell Media Inc. and V Interactions Inc. (May 27, 2011)

In the Matter of Amendment of the Commission's Rules Related to Retransmission Consent, Federal Communications Commission, MB Docket No. 10-71, Expert Declaration (with Kevin W. Caves) on Behalf of the National Association of Broadcasters (May 27, 2011)

In the Matter of Section 36 of the Public Utilities Commission Act, Proposal to Establish a New Interconnection Agreement Between Digicel and GT&T, Expert Oral Testimony on Behalf of Guyana Telephone and Telegraph Company, Guyana Public Utilities Commission (July 13, 2010)

In the Matter of International Comparison and Consumer Survey Requirements in the Broadband Data Improvement Act, Federal Communications Commission GN Docket No. 09-47, Supplemental Declaration Regarding the Berkman Center Study (NBP Public Notice 13) (with R. Crandall, E. Ehrlich and A. Ingraham), on Behalf of Verizon Communications (May 10, 2010)

Testimony on Deployment of Broadband Communications Networks, Before the Subcommittee on Communications, Technology and the Internet, Committee on Energy and Commerce, United States House of Representatives (April 21, 2010)

Net Neutrality: The Economic Evidence, Expert Declaration in the Matters of Preserving the Open Internet and Broadband Industry Practices, GN Docket No. 09-191 and WC Docket No. 07-52 (with Brito et al) (April 12, 2010)

In the Matter of the Constitution of the Co-Operative Republic of Guyana and In the Matter of the Application for Redress Under Article 153 for the Contravention of the Applicant's Fundamental Rights Guaranteed by Articles 20, 146, and 149D of the Constitution of the Republic of Guyana and In the Matter of the Telecommunications Act No. 27 of 1990, U-Mobile (Cellular) Inc., v. The Attorney General of Guyana, "International Exclusivity and the Guyanese Telecommunications Market: A Further Response to DotEcon," Expert Report on Behalf of Guyana Telephone and Telegraph Company (March 9, 2010)

Universal Service Subsidies to Areas Served by Cable Telephony: Supplemental Report, Expert Report Submitted to the Federal Communications Commission, on Behalf of the National Cable and Telecommunications Association (January 2010)

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Universal Service Subsidies to Areas Served by Cable Telephony, Expert Report Submitted to the Federal Communications Commission, on behalf of the National Cable and Telecommunications Association (November 2009)

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Virginia State Corporation Commission, Second Order for Notice and Hearing In Re: Revisions of Rules for Local Exchange Telecommunications Company Service Quality Standards, Comments on Behalf of Verizon Virginia (March 13, 2009)

In the Matter of Review of the Commission's Program Access Rules and Examination of Programming Tying Arrangements, Federal Communications Commission Docket MB 07-198, Supplemental Report on Behalf of the Walt Disney Company (December 11, 2008)

In re: Investigation of Rates of Virgin Islands Telephone Corporation d/b/a Innovative Communications, PSC Docket 578, Rebuttal Testimony on Behalf of Virgin Islands Telephone Corporation (October 31, 2008)

Evidence Relating to the ACCC's Draft Decision Denying Telstra's Exemption Application for the Optus HFC Footprint, Australian Consumer and Competition Commission, Expert Report on Behalf of Telstra Corporation Ltd. (October 13, 2008)

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In the Matter of the Appropriate Forms of Regulating Telephone Companies, Maryland Public Service Commission, Case No. 9133, Rebuttal Testimony on Behalf of Verizon Maryland (September 24, 2008)

Virginia State Corporation Commission, Proposed Service Quality Rules for Traditional Landline Telecommunications, Comments on Behalf of Verizon Virginia (August 21, 2008)

In re: Complaint and Request for Emergency Relief against Verizon Florida, LLC for Anticompetitive Behavior in Violation of Sections 364.01(4), 364.3381, and 364.10, F.S., and for Failure to Facilitate Transfer of Customers' Numbers to Bright House Networks Information Services (Florida), LLC, and its Affiliate, Bright House Networks, LLC, Florida Public Service Commission, Docket No. 070691-TP, Rebuttal Testimony on Behalf of Verizon Florida LLC (July 25, 2008)

In the Matter of the Appropriate Forms of Regulating Telephone Companies, Maryland Public Service Commission, Case No. 9133, Direct Testimony on Behalf of Verizon Maryland (July 8, 2008)

Comparative Analysis of Communications Markets as it Relates to the Economic Viability of Optus' HFC Network and Telstra's Proposed HFC Exemption, Australian Consumer and Competition Commission, Expert Report on Behalf of Telstra Corporation Ltd. (June 23, 2008)

In the Matter of the Constitution of the Co-Operative Republic of Guyana and In the Matter of the application for redress under Article 153 for the contravention of the Applicant's fundamental rights guaranteed by Articles 20, 146, and 149D of the Constitution of the Republic of Guyana and In the Matter of the Telecommunications Act No. 27 of 1990, U-Mobile (Cellular) Inc., v. The Attorney General of Guyana, Expert Report on Behalf of Guyana Telephone and Telegraph Company (June 19, 2008)

In the Matter of Bright House Networks LLC et al v. Verizon California et al, Federal Communications Commission File No. EB-08-MD-002, Expert Declaration on Behalf of Verizon Communications (February 29, 2008)

In the Matter of Review of the Commission's Program Access Rules and Examination of Programming Tying Arrangements, Federal Communications Commission Docket MB 07-198, Reply Report on Behalf of the Walt Disney Company (February 12, 2008)

In the Matter of Verizon's 2007 Price Cap Plan for the Provision of Local Telecommunications Services in the District Of Columbia, District of Columbia Public Service Commission, Formal Case No. 1057, Rebuttal Testimony on Behalf of Verizon (January 31, 2008)

In the Matter of Review of the Commission's Program Access Rules and Examination of Programming Tying Arrangements, Federal Communications Commission Docket MB 07-198, Expert Report on Behalf of the Walt Disney Company (January 4, 2008)

In the Matter of Verizon's 2007 Price Cap Plan for the Provision of Local Telecommunications Services in the District Of Columbia, District of Columbia Public Service Commission, Formal Case No. 1057, Direct Testimony on Behalf of Verizon (December 7, 2007)

In the Matter of the Commission's Investigation Into Verizon Maryland, Inc.'s Affiliate Relationships, Maryland Public Service Commission, Case No. 9120, Rebuttal Testimony on Behalf of Verizon (November 19, 2007)

On Petition for a Writ of Certiorari to the United States Court of Appeals for the Ninth Circuit, Pacific Bell Telephone Company d/b/a AT&T California, et al., Petitioners, v. Linkline Communications, Inc., et al., Respondents, Brief of Amici Curiae Professors and Scholars in Law and Economics in Support of the Petitioners (with R. Bork, G. Sidak, et al) (November 16, 2007)

In the Matter of the Commission's Investigation Into Verizon Maryland, Inc.'s Affiliate Relationships, Maryland Public Service Commission, Case No. 9120, Direct Testimony on Behalf of Verizon (October 29, 2007)

Application of Verizon Virginia, Inc. and Verizon South for a Determination that Retail Services Are Competitive and Deregulating and Detariffing of the Same, State Corporation Commission of Virginia, Case No. PUC-2007-00008, Rebuttal Report on Behalf of Verizon (July 16, 2007)

Testimony on Single Firm Conduct, “Understanding Single-Firm Behavior: Conduct as Related to Competition,” United States Department of Justice and United States Federal Trade Commission, Sherman Act Section 2 Joint Hearing (May 8, 2007)

Testimony on Communications, Broadband and U.S. Competitiveness, Before the Committee on Commerce, Science and Transportation, United State Senate (April 24, 2007)

Application of Verizon Virginia, Inc. and Verizon South for a Determination that Retail Services Are Competitive and Deregulating and Detariffing of the Same, State Corporation Commission of Virginia, Case No. PUC-2007-00008, Expert Testimony and Report on Behalf of Verizon (January 17, 2007)

In re: ACLU v. Gonzales, Civil Action No. 98-CV-5591, E.D. Pa., Rebuttal Report on Behalf of the U.S. Department of Justice (July 6, 2006)

In re: ACLU v. Gonzales, Civil Action No. 98-CV-5591, E.D. Pa., Expert Report on Behalf of the U.S. Department of Justice (May 8, 2006)

In re: Emerging Communications Shareholder Litigation, “The Valuation of Emerging Communications: An Independent Assessment” (with J. Mrozek and L. Robinson), Court of Chancery for the State of Delaware (August 2, 2004)

In the Matter of Review of the Commission’s Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers, WC Docket No. 03-173, Declaration of Jeffrey A. Eisenach and Janusz R. Mrozek, Federal Communications Commission (December 2003)

In the Matter of Disposition of Down Payments and Pending Applications Won During Auction No. 35 for Spectrum Formerly Licensed to NextWave Personal Communications, Inc., NextWave Power Partners, Inc. and Urban Comm – North Carolina, Inc., Federal Communications Commission, (October 11, 2002)

In the Matter of Echostar Communications Corporation, General Motors Corporation, and Hughes Electronics Corporation, Federal Communications Commission (February 4, 2002)

In the Matter of United States v. Microsoft Corp. and New York State v. Microsoft Corp., Proposed Final Judgment and Competitive Impact Statement (with T. Lenard), U.S. Department of Justice, Civil Action No. 98-1232 and 98-1233 (January 28, 2002)

In the Matter of Implementation of Section 11 of the Cable Television Consumer Protection and Competition Act of 1992 (with R. May), Federal Communications Commission (January 4, 2002)

In the Matter of Request for Comments on Deployment of Broadband Networks and Advanced Telecommunications (with R. May), National Telecommunications and Information Administration (December 19, 2001)

In the Matter of Implementation of the Telecommunications Act of 1996, Telecommunications Carriers' Use of Customer Proprietary Network Information and Other Consumer Information; Implementation of the Non-Accounting Safeguards of Sections 271 and 272 of the Communications Act of 1934, As Amended (with T. Lenard and J. Harper), Federal Communications Commission (November 16, 2001)

In the Matter of Flexibility for Delivery of Communications by Mobile Satellite Service Providers (with W. Adkinson), Federal Communications Commission (October 22, 2001)

In the Matter of Deployment of Advanced Telecommunications Capability (with R. May), Federal Communications Commission (October 5, 2001)

In the Matter of Deployment of Advanced Telecommunications Capability (with R. May), Federal Communications Commission (September 24, 2001)

In the Matter of Nondiscrimination in Distribution of Interactive Television Services Over Cable (with R. May), Federal Communications Commission (March 19, 2001)

In the Matter of High-Speed Access to the Internet Over Cable and Other Facilities, Reply Comments (with R. May), Federal Communications Commission (December 1, 2000)

Testimony on Federal Communications Commission Reform, Before the Committee on Government Reform, Subcommittee on Government Management, Information and Technology, United States House of Representatives (October 6, 2000)

In the Matter of Public Interest Obligations of TV Broadcast Licensees (with R. May), Federal Communications Commission (March 27, 2000)

Testimony on Truth in Billing Legislation, Before the Subcommittee on Telecommunications, Trade and Consumer Protection, Committee on Commerce, United States House of Representatives (March 9, 2000)

In the Matter of GTE Corporation, Transferor and Bell Atlantic, Transferee for Consent to Transfer of Control, (with R. May), Federal Communications Commission (February 15, 2000)

Testimony on Reforming Telecommunications Taxes in Virginia, Governor's Commission on Information Technology (October 26, 1999)

Testimony on Telecommunications Taxes, Advisory Commission on Electronic Commerce (September 14, 1999)

In the Matter of GTE Corporation, Transferor and Bell Atlantic, Transferee for Consent to Transfer of Control, Federal Communications Commission (December 23, 1998)

In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996 (with C. Eldering), Federal Communications Commission (September 14, 1998)

Testimony on Section 706 of the Telecommunications Act of 1996 and Related Bandwidth Issues, Before the Subcommittee on Communications Committee on Commerce, Science, and Transportation, United States Senate (April 22, 1998)

Testimony on the Impact of the Information Revolution on the Legislative Process and the Structure of Congress, Before the Subcommittee on Rules and Organization of the House of the Committee on Rules, United States House of Representatives (May 24, 1996)

Testimony on Efforts to Restructure the Federal Government, Before the Committee on Governmental Affairs, United States Senate (May 18, 1995)

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The Benefits and Costs of I-File, (with R. Litan and K. Caves), Criterion Economics, LLC, April 14, 2008

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**Before the
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Washington, D.C.

In the Matter of:

**DETERMINATION OF RATES AND TERMS FOR MAKING AND DISTRIBUTING
PHONORECORDS (PHONORECORDS III)**

Docket No. 16-CRB-0003-PR (2018– 2022)

**EXPERT REPORT
OF
JOSHUA GANS

ON BEHALF OF
COPYRIGHT OWNERS**

October 31, 2016

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I. ASSIGNMENT AND QUALIFICATIONS

1. I have been retained by counsel for the National Music Publishers' Association (NMPA) and Nashville Songwriters Association International (NSAI) (together, the "Copyright Owners") to evaluate appropriate royalty rates and terms for making and distributing phonorecords in the United States for the period 2018-2022 using economic principles. As part of my analysis, I was asked to examine the extent to which regulatory access pricing methods provide helpful models for estimating and implementing mechanical royalties and, applying those models, opine on the economic reasonableness of the Copyright Owners' rate proposal.
2. The materials that relied upon in developing my analysis and opinions are listed in Appendix A.

A. QUALIFICATIONS

3. I am a Professor of Strategic Management and holder of the Jeffrey S. Skoll Chair of Technical Innovation and Entrepreneurship at the Rotman School of Management, University of Toronto. I am a Research Associate, National Bureau for Economic Research and a Research Fellow, Center for Digital Business, Sloan School of Management, Massachusetts Institute of Technology. I am also the Chief Economist at the University of Toronto's Creative Destruction Lab, a highly successful incubator for technology-based business ventures. I have previously served as a Professor of Management (Information Economics) at the Melbourne School of Business, University of Melbourne, and as a visiting researcher at Microsoft Research (New England).

4. I have published extensively on the nature of technological competition and innovation, industrial organization, and regulatory economics. My work frequently appears in the leading economics journals, including the American Economic Review, the Journal of Economic Perspectives, Journal of Public Economics, and the Journal of Law and Economics. In addition, I have authored several books and write regularly on high-tech issues on the blog Digitopoly.
5. In my book titled “The Disruption Dilemma,” which concerns innovation and competition by looking at companies that have proven resilient and those that have fallen, I explain why some companies have successfully managed disruption and why others have not.
6. I am an Academic Advisor to The Brattle Group, an economic consulting firm and have worked with several other consulting firms, including London Economics, Frontier Economics, Charles River Associates and Analysis Group. I have previously been retained by the Federal Trade Commission and the Australian Competition and Consumer Commission to provide expert testimony on market power, copyright licensing, and telecommunications network competition. My consulting experience covers energy (gas and electricity markets), telecommunications, financial services and banking, intellectual property licenses, pharmaceuticals, and rail transport.
7. I have provided expert testimony in intellectual property disputes and copyright matters. In addition, I have provided expert advice on regulatory pricing issues including access pricing and advised Microsoft in a number of patent royalty and antitrust matters. The full range of cases on which I have provided expert advice and testimony are listed in my CV (attached as Appendix B).

II. SUMMARY OF OPINIONS

8. The existing rate structure and the level of statutory rates for interactive streaming and limited download services¹ have not performed well when measured against a free market standard favored by economists for evaluating regulated prices. I analyze the relevance of economic principles from regulatory access pricing rules. I analyze what mechanical royalty rates would be in a free market without compulsory licensing, based on a Shapley value approach (described below), and I estimate rates using assumptions from benchmarks for sound recordings. The results of my analysis support the reasonableness of the Copyright Owners' proposed rates.
9. More specific findings of my analysis include:
- The compulsory licensing of musical works has depressed mechanical royalty rates in comparison to the non-compulsory licensing of sound recordings.
 - In the context of "reasonable" royalty rates to be set in this proceeding, a hypothetical unconstrained market for mechanical licenses is an appropriate analytical guide.
 - Economic principles that underlie the Efficient Component Pricing Rule (ECPR) regulatory pricing rules used in other markets are useful guides in setting reasonable rates. These principles are also designed to mimic the outcome that would result in a hypothetical free market. These principles result in statutory rates that allow for recovery of opportunity costs and do not favor particular business models over others.
 - The opportunity cost principle also implies that if rates are set appropriately, rightsholders should not be harmed by compulsory licensing.
 - Prevailing rates are too low to compensate for opportunity costs overall.
 - Sound recording licenses provide a benchmark for estimating a reasonable rate for musical works that bakes-in the opportunity cost.

¹ Throughout this report, for convenience I will use the term interactive streaming to refer to services that provide interactive streaming and/or limited downloads, unless explicitly stated otherwise.

- The Shapley value approach can be applied to the interactive streaming business and used to assess how the proposed mechanical rate would compare to rates that would prevail absent compulsory licensing.
- The rates proposed by the Copyright Owners are conservative relative to estimates derived using the Shapley value approach and benchmarks of outcomes in an unconstrained market.

III. ROYALTIES FOR MUSICAL WORKS HAVE BEEN HISTORICALLY DEPRESSED THROUGH COMPULSORY LICENSING

10. The U.S. Copyright Office acknowledges that royalty rates for musical works have been historically depressed by compulsory licensing and presents significant evidence to that effect in its 2015 Music Marketplace Report.² Although licensors and licensees of composition rights can negotiate outside of the compulsory system, the statutory rate acts as a ceiling to those negotiations.³ Through the constraint of negotiated outcomes, perceptions regarding the market value of composition rights have been negatively influenced. In turn, those skewed perceptions have influenced statutory rates. This unvirtuous cycle has worked to historically depress royalty rates for musical works.

A. THE HISTORICAL CONTEXT FOR COMPULSORY LICENSING OF MUSICAL WORKS

11. Mechanical royalties were established in the 1909 Copyright Act, which granted songwriters the exclusive right to reproduce and distribute phonorecords. However, the

² “There is substantial evidence to support the view that government-regulated licensing processes imposed on publishers and songwriters have resulted in depressed rates, at least in comparison to noncompulsory rates for the same uses on the sound recording side. Setting aside efficiency concerns, the Office does not see a principled reason why sound recording owners are permitted to negotiate interactive streaming rates directly while musical work owners are not.” United States Copyright Office, “Copyright and the Music Marketplace, A Report of the Register of Copyrights,” February 2015, at 159 (hereinafter, “CMM”).

³ “While copyright owners and users are free to negotiate voluntary licenses that depart from the statutory rates and terms, in practical effect the CRB-set rate acts as a ceiling for what the owner may charge.” CMM, at 29.

exclusivity of those rights would have meant, by definition, that parties wishing to use musical works could be excluded from doing so at the rightsholders' discretion, triggering fears of anticompetitive behavior by rightsholders. For example, some lawmakers believed that manufacturers of player pianos would obtain exclusive deals with rights owners so that certain compositions could only be purchased in conjunction with a certain brand of player piano. This would allow manufacturers of those brands to establish monopoly power over the downstream market. To prevent such a possibility, lawmakers established a compulsory licensing system, whereby any manufacturer of player piano rolls could use protected musical works upon paying the statutory rate of \$0.02 and serving notice to the copyright owner.⁴

12. It is worth noting that the anticompetitive behavior used to justify compulsory licensing existed in theory only. No manufacturer of player pianos had ever gained monopoly power by securing exclusive access to musical works. Moreover, those fears were not manifest when Congress passed the Sound Recording Act of 1971,⁵ which granted copyright holders the exclusive right to the reproduction and sale of sound recordings, as those rights were not subjected to compulsory licensing.⁶ Thus, in order to play the musical works subject to

⁴ Skyla Mitchell, *Reforming Section 115: Escape from the Byzantine World of Mechanical Licensing*, Cardozo Arts & Entertainment Law Journal 24(3) (March 2007), at 1239,.

⁵ A limited copyright in sound recordings for the reproduction and sale of such recordings was created by the Sound Recording Act of 1971. *See* House Report 92-487, Committee of the Judiciary, September 22, 1971, at 2, accessed October 18, 2016, <http://copyright.gov/reports/performance-rights-sound-recordings.pdf>. The 1978 Act merely clarified and limited the scope of that right (excluding performance) and directed the Register of Copyrights to prepare a report on whether performance should also be added to the right under a compulsory license. *See* House Report 94-1476, Committee of the Judiciary, September 3, 1976, at 106, accessed October 21, 2016, http://www.copyright.gov/history/law/clrev_94-1476.pdf.

⁶ The relevant House Report does not mention that any anticompetitive or antitrust arguments were presented in support of compulsory licensing, but notes that the idea was rejected on other grounds. House Report 92-487, Committee of the Judiciary, September 22, 1971 at 4.

compulsory licensing, interactive streaming services must negotiate for a license for the sound recording of that work. The prediction of anticompetitive theories that gave rise to compulsory licensing has not been borne out to date in markets with similar characteristics.

13. Competition between streaming services in the downstream market is vigorous. There are many competing providers, (see Table 1) and some artists are withholding their sound recording rights in order to put upward pressure on compensation.⁷ The orderly functioning of the interactive streaming-sound recording market,⁸ outside the compulsory licensing regime of the Copyright Act provides evidence that notional anticompetitive concerns underlying the Copyright Act⁹ are not manifest in licensing with interactive streaming services. The asymmetric treatment of publishers that are subject to compulsory licensing while labels are outside the compulsory licensing regime for interactive streaming rights is not economically justified.¹⁰

⁷ “A growing number of high-profile songwriter/artists—including Taylor Swift and Thom Yorke—are leveraging their sound recording rights to remove their music from Spotify, principally out of concern that Spotify’s free ad-supported tier of service does not fairly compensate them for their songs.” CCM, at 75. *See also*, Ben Sisario, “Adele is Said to Reject Streaming for ‘25’,” *The New York Times*, November 19, 2015, accessed October 24, 2016, <http://www.nytimes.com/2015/11/20/business/media/adele-music-album-25.html>; Ben Sisario, “Chief Defends Spotify After Snub by Taylor Swift,” *The New York Times*, November 11, 2014, accessed October 24, 2016, <http://www.nytimes.com/2014/11/12/business/media/taylor-swifts-stand-on-royalties-draws-a-rebuttal-from-spotify.html>.

⁸ The private negotiation of licenses between labels and interactive streaming services has not been inhibited, or resulted in monopolization, by the absence of compulsory licensing, but has resulted in different terms being agreed. “A streaming service that does not fall under the section 112 and 114 licenses—i.e., an interactive service—must negotiate a license with a record company in order to use the label’s sound recordings. Since direct licenses are agreed upon at the discretion of the copyright owner and the potential licensee, the license terms can be vastly different from those that apply under the statutory regime.” CMM, at 52.

⁹ The U.S. Copyright Office identifies two prevalent antitrust concerns raised by participants in the U.S. music marketplace arising from the risk of the undue influence of monopoly power. “The first type of ‘monopoly’ refers to alleged anticompetitive practices on the part of the PROs. [...] The second type of monopoly [...] [is] the limited ‘monopoly’ in an individual work that is conferred by virtue of the exclusive rights granted under the Copyright Act. Even though it is not a product of collective activity, these exclusive rights probably play no less of a significant role in debates about music licensing.” CMM, at 146.

¹⁰ “In keeping with the guiding philosophy that government should aspire to treat like uses of music alike, the [U.S. Copyright] Office believes this should change, at least in the digital realm. That is, where sound

Table 1: Interactive Music Streaming Service Market (Selected Companies)

		Date of Entry
	Major Services	
[1]	Rhapsody (rebranded Napster)	December 2001
[2]	Slacker	May 2011
[3]	Rdio	August 2010
[4]	Spotify	July 2011
[5]	Google Play	May 2013
[6]	Tidal	October 2014
[7]	Amazon (Prime)	June 2014
[8]	Microsoft (formerly Xbox Music)	October 2012
[9]	Apple Music	June 2015
[10]	Soundcloud (Go)	March 2016
[11]	Deezer	July 2016
	Recent Notable Entrants	
[12]	Amazon (Unlimited)	October 2016
[13]	iHeartMedia	January 2017
[14]	Pandora	TBD
[15]	Playster	TBD

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[7]: Ed Christman, "Amazon Launches Prime Music Streaming Service, Minus UMG," *Billboard*, June 12, 2014, accessed October 18, 2016,

recording owners have the ability to negotiate digital rates in the open market, so should owners of musical works." CMM, at 136.

<http://www.billboard.com/biz/articles/news/digital-and-mobile/6114217/amazon-launches-prime-music-streaming-service-minus-umg>

[8]: "Introducing Xbox Music: The Ultimate All-in-One Music Service Featuring Free Streaming on Windows 8 and Windows RT Tablets and PCs," Microsoft, October 15, 2012, accessed October 25, 2016. <https://news.microsoft.com/2012/10/15/introducing-xbox-music-the-ultimate-all-in-one-music-service-featuring-free-streaming-on-windows-8-and-windows-rt-tablets-and-pcs/#sm.000jd442w15kwen6xyh194pk3tjgo>.

[9]: "Introducing Apple Music—All The Ways You Love Music. All in One Place," Apple, June 30, 2016, accessed October 25, 2016. <https://www.apple.com/pr/library/2015/06/08Introducing-Apple-Music-All-The-Ways-You-Love-Music-All-in-One-Place-.html>.

[10]: Andrew Flanagan, "SoundCloud Launches Its Subscription Service, Go," *Billboard*, March 29, 2016, accessed October 18, 2016, <http://www.billboard.com/articles/business/7311612/soundcloud-go-subscription-service-launches>

[11]: Deezer had already had a limited presence in the U.S as early as October 2014 through Sonos and Bose speakers. See Kobalt data. Andrew Flanagan and Rebecca Sun, "Deezer Launches, After a Fashion, in the U.S.," *Billboard*, July 19, 2016, accessed October 18, 2016, <http://www.billboard.com/articles/business/7445723/deezer-launches-us>.

[12]-[14]: Kim Kyung-Hoon, "Amazon and Pandora Set to Launch New Music Streaming Services, NY Times," *Reuters*, September 11, 2016, accessed October 18, 2016, <http://www.reuters.com/article/us-amazon-com-music-idUSKCN11I023>.

[13]: "iHeartMedia Revolutionizes Live Radio and Introduces On Demand With New Services 'iHeartRadioPlus' And 'iHeartRadio All Access,'" iHeartMedia, September 23, 2016, accessed October 18, 2016, <http://www.iheartmedia.com/Pages/iHeartMedia-Revolutionizes-Live-Radio-And-Introduces--On-Demand-With-New-Services--%E2%80%98iHeartRadio-Plus%E2%80%99-And-%E2%80%98iHeartRadio-All-.aspx>.

[15]: Although Playster has been around since December 2015, it unveiled a partnership in August 2016 with 7digital to launch its revamped music platform. "Stream Daily: New Subscription Service Playster Launches Globally," Playster, December 14, 2015, accessed October 18, 2016, <https://blog.playster.com/news-posts/new-subscription-service-playster-launches-globally/>.

1. Sound Recording Rights are Negotiated in Unconstrained Markets While Composition Rights Remain in a Compulsory World

14. It is easy to draw parallels between sound recording rights and musical works rights, especially in the context of the interactive streaming market. Both begin with an artist who creates content, and both end with that content being distributed to the public by way of a streaming service. In both cases, an enterprise stands between the artist and streaming service to facilitate transactions. Those enterprises (record companies and music publishers) are both compensated in the same way—through full or partial ownership of or the exclusive right to license the content. Moreover, the markets in which record companies and music publishers exist are very similar to one another—a handful of “major” companies (each with at least 15% of market share) and a large cohort of smaller,

“indie” companies. At the point where recorded content becomes available to the public, however, these two structures cease to be parallel and begin to converge. That is to say, sound recording rights and musical works rights for streaming are two sides of the same coin—one right cannot be delivered to listeners, or hold any value, absent the other right.

15. Despite the parallels and ultimate convergence of sound recording and musical works rights, one artificial yet very important distinction exists between the two. That is, sound recording royalty rates are freely negotiated between the parties, whereas musical works rights must be made available at the statutory rate.

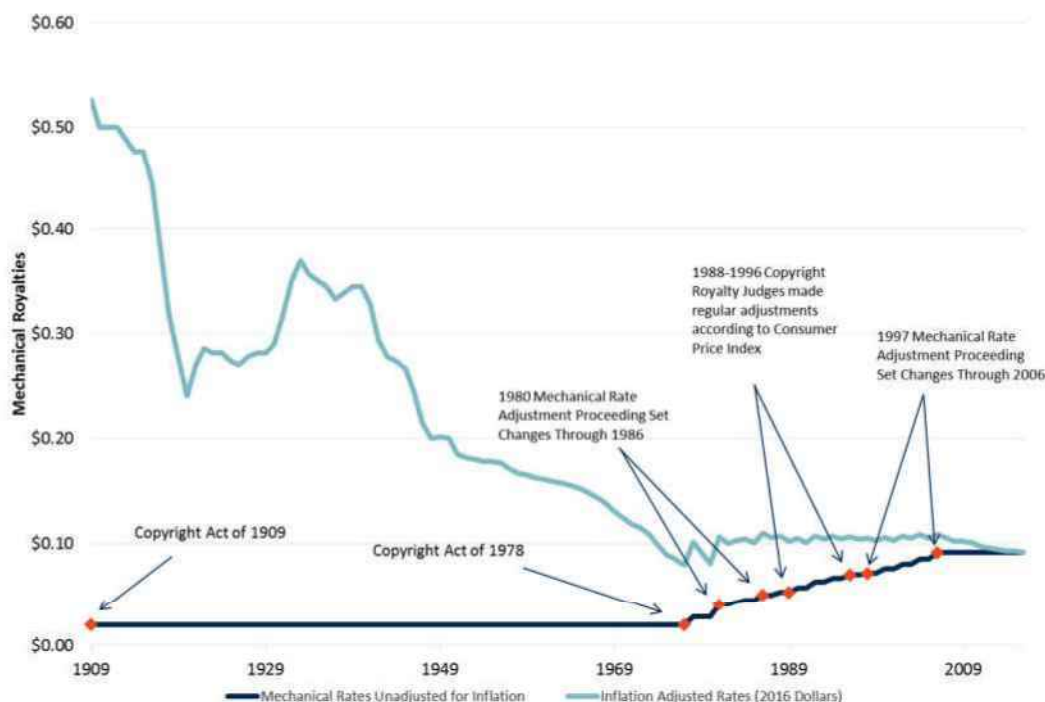
2. Statutory Rates Guarantee Access to Musical Works but May be Set at Levels that Expropriate Value From Rightsholders or Discourage Innovation

16. Services benefit from being able to rely on a statutory royalty rate being available without negotiation. The statutory license shelters the services against exercise of market power by a copyright holder. A poorly structured rate can distort the market, either expropriating value from rightsholders or discouraging competition.
17. A statutory rate that was so high to be exclusionary would be equivalent to having no statutory rate. A rate that was too low would expropriate value from the rightsholders, but could also distort competition by encouraging inefficient services. But a reasonable rate would establish a ceiling for guaranteed access, below which services and publishers could negotiate if more efficient pricing arrangements existed that made both sides better off, for example for new services or business models.

**B. RELATIVELY UNCONSTRAINED MARKET RATES FOR SOUND RECORDINGS
AND COMPULSORY RATES FOR COMPOSITIONS CREATED A HISTORICAL
AND ARTIFICIAL ANCHOR FOR RELATIVE VALUES**

18. There is good reason to believe that the regulatory differences between sound recording and musical work rights have artificially and chronically depressed musical works royalty rates relative to sound recording royalty rates.
 19. In the 107 years since compulsory licensing was instituted for musical works, those royalty payments have been disconnected from market forces. In fact, there was no change in the nominal mechanical rate (\$0.02 per work) for 69 years, at which point (in 1978) it increased to \$0.0275. The nominal rate went up to \$0.04 in 1982 with another increase in 1996 putting it at \$0.0695. In 2006, the nominal rate was increased to \$0.091, which is where it stands now. Putting these figures in terms of 2016 dollars, the royalty rate was 49 cents per song in 1909, which eroded to 8 cents by 1978, at which point it was increased to 10 cents. Although several inflation-indexed adjustments kept the rate relatively constant between 1978 and 2006, no such adjustments have been made since 2006, causing the real rate to fall. The current rate is 9.1 cents per song—less than 20% of what it once was.¹¹
- The full history of mechanical royalties is depicted in Figure 1.

¹¹ For the full history of mechanical royalties, *see, e.g.*, “What Are Mechanical Royalty Rates?” The Harry Fox Agency, 2015, accessed October 19, 2016, https://www.harryfox.com/license_music/what_mechanical_royalty_rates.html and [cv2016.xls](#), downloaded from “Individual Year Conversion Factor Tables,” Oregon State University, accessed October 19, 2016, <http://liberalarts.oregonstate.edu/spp/polisci/faculty-staff/robert-sahr/inflation-conversion-factors-years-1774-estimated-2024-dollars-recent-years/individual-year-conversion-factor-table-0>.

Figure 1: History of Mechanical Royalties 1909-2016

Sources: "What Are Mechanical Royalty Rates?" The Harry Fox Agency, 2015, accessed October 19, 2016, https://www.harryfox.com/license_music/what_mechanical_royalty_rates.html; cv2016.xls, downloaded from "Individual Year Conversion Factor Tables," Oregon State University, accessed October 19, 2016, <http://liberalarts.oregonstate.edu/spp/polisci/faculty-staff/robert-sahr/inflation-conversion-factors-years-1774-estimated-2024-dollars-recent-years/individual-year-conversion-factor-table-0>.

20. The anchoring effect of existing rates on future rates is seen in the many instances of renewal of existing rates or rate structures. Due to the rate's insulation from market forces over time, it was not clear what the actual market value of these rights might be. Jurists, lawmakers, licensees, and licensors have based their decisions about rates on their perception of value. However, the one consistent piece of information they have had to inform their perception is the rate itself. That is to say, decisions about rate changes have historically been based on perceptions of value, which have themselves been anchored to the existing rate. Compounding this stagnant cycle, all rate settlements between licensees and licensors have been negotiated in the shadow of the regulatory proceeding tasked with

setting those rates. Licensees have not had an incentive to agree to rates higher than they believed regulators would set in the absence of a settlement, and the rates set by regulators have likely been anchored by existing rates. Therefore, even though rightsholders may have understood that statutory rates were beneath market value, they could not have successfully negotiated for higher rates within the given context.

21. It is easy to see how this loop could cause rates to quickly diverge from any reflection of market value—that is, if such a reflection ever existed. Benchmarks which directly measure the market value of composition rights are difficult to construct, hence the historical bootstrapping of rate decisions to negotiated rates. This necessitates a scrupulous examination of any proposed benchmark and the application of economic principles as the primary method by which to determine the appropriate rate and rate structure.
22. Alternatively, sound recording rights, which are licensed at rates significantly higher than musical works rights, have been freely negotiated in the market. There may be a somewhat naive tendency to assume that differences between sound recording royalties and musical works royalties for reproduction rights reflect fundamental value differential. This is not an economically-sound conclusion given the market distortion created by the statutory mechanical royalty rate.
23. From one fundamental economic point of view, the value of sound recording rights and musical works rights for interactive streaming are equal. These two rights are perfect complements to one another. That is, one has no value without the other; a streaming service cannot transmit a track for which it owns the sound recording rights without first obtaining the musical works rights. The opposite situation is equally true. Both rights are necessary inputs. In the absence of compulsory licensing, either rightsholder could block a

track from being transmitted—they both have veto power. Moreover, neither contributes any value, without the simultaneous consent of the other.

C. RATES HAVE BEEN DEPRESSED BY A FAILURE TO ACCOUNT FOR THE HIGHER VALUE OF NEW CONSUMPTION PATTERNS


24. The mechanical royalties earned from album sales priced each track the same, in part because there was no practical way to compute the relative value of tracks. But now that downloads and streaming have unbundled the album, we can see how much more valuable the more popular tracks were than the others. One economic implication of this revealed value differential is that those tracks that are downloaded and streamed are typically of higher value than the average song on an album. The per-track mechanical rates should have been adjusted upwards for downloads to account for the change in the mix of tracks being sold. There are two contributing sources of this effect revealed by accounting for the higher popularity of tracks, relative to other tracks on the same albums. One of the unbundling effects is that some tracks are not consumed at all, the other is that the most popular tracks are consumed relatively more than others. I estimate that this effect would likely have resulted in about a doubling of mechanical rates (see Table 2).¹² The increase in average mechanicals is estimated using as examples hypothetical albums for which ten, eleven or twelve tracks are streamed. I assume that on average twenty percent of the tracks on these albums are not streamed.¹³ The total mechanicals payable on these albums under

¹² To be precise, I estimate a 93% increase in mechanical royalties for tracks bundled on albums with 10 streamed tracks, a 98% increase in mechanical royalties for tracks bundled on albums with 11 streamed tracks, and a 101% increase in mechanical royalties for tracks bundled on albums with 12 streamed tracks.

¹³ According to Spotify, “There are over 20 million songs on Spotify – 80% of these have been streamed at least once.” Diego Planas Rego “We’ve turned 5 – here’s our story so far!” Spotify News, October 7, 2013, accessed October 27, 2016, <https://news.spotify.com/us/2013/10/07/the-spotify-story-so-far/>.

the statutory rate is computed as 9.1 cents for each track (row [12]). The aggregate mechanicals are then reallocated based on streaming popularity (columns [2], [4], and [6]) to re-price each track (columns [3], [5], and [7]). The weighted average price of the tracks being consumed is then computed in row [13] taking into account the fact that the more valuable tracks are consumed more after unbundling.



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25. The effect of this artificial depreciation in mechanical rates is continuing to push aggregate mechanical revenues lower. The shift from physical to digital sales not only reduced the number of unique tracks from albums being bought by each user on which a mechanical royalty was being paid, but also concentrated royalties that were paid within the set of top tracks. The shift to interactive streaming has further exacerbated the shift in royalty payments allocated per stream to those tracks that are streamed the most.

D. RATES NEGOTIATED OUTSIDE, OR PARTIALLY OUTSIDE, THE SHADOW OF COMPULSORY LICENSING ARE HIGHER THAN COMPULSORY RATES

26. Where musical works rightsholders have not been subject to compulsory licensing, they have achieved higher rates than compulsory rates, providing further evidence that the compulsory regime has historically depressed royalties for musical works rightsholders. I was advised by counsel that Dr. Eisenach provides a detailed analysis of market benchmarks, so I will confine myself to some brief observations.
27. It can be difficult to compare royalty rates for different licenses as to which rate is “higher” where different rights are at issue. However, we can find compelling evidence of private negotiations outside the shadow of compulsory licensing producing higher rates for sound recording rights licensed to interactive streaming services, which is relevant to musical works copyrights. Both rights are implicated with the same use, and, thus, the scope of the license is the same as between the musical works and sound recording copyrights. Since

sound recording licenses are not subject to compulsory licensing for interactive streaming, we can use them as a benchmark from which to assess whether a market value for musical works licenses would be higher than compulsory rates. We can compare relative ratios of sound recording royalty rates to musical works royalty rates in other settings to the ratio of rates for corresponding interactive streaming licenses to judge the effects of compulsory licensing. As an example, if Musical Work License A is not subject to compulsory licensing and has a royalty rate that is equal to 50% of the corresponding sound recording royalty rate for the same licensed use, and Musical Work License B, which is subject to compulsory licensing, has a rate equal to 25% of the corresponding sound recording royalty rate for the same licensed use, we can say that the compulsory Musical Work License B is at a lower royalty rate.

28. A useful example of the value of musical works copyrights can be found in the market for synchronization licenses,¹⁴ a market in which both sound recording and musical work licenses are freely negotiated. In that market, the typical agreement provides the same compensation for both rightsholders.¹⁵ This is explained because, as discussed above, each rightsholder has the same bargaining power relative to the licensee. The licensee must obtain both licenses for either one to provide value. While synchronization licenses may

¹⁴ A synchronization license is a music license granted by the owner of a copyright for a musical work, allowing the licensee to synchronize the composition with visual media.

¹⁵ “Synch licenses and master use licenses typically contain “most favored nation” provisions, which state that if a licensee acquires one of the two necessary rights [*i.e.*, the sound recording and the musical work rights] and subsequently agrees to pay the licensor of the other necessary right more than it paid the first, the licensee will be obligated to increase retroactively the fee paid to the first party.” “Final Determination of Rates and Terms, In the Matter of Mechanical and Digital Phonorecord Delivery Rate Determination Proceeding,” Docket No. 2006-3 CRB DPRA, Copyright Royalty Board, January 26, 2009, at 34, accessed September 17, 2016, <http://www.loc.gov/crb/proceedings/2006-3/dpra-public-final-rates-terms.pdf>, citing Copyright Owners PFF ¶534.

invoke a different exclusive right than the mechanical right, both licenses involve the coordination by a licensee of licenses from both publishers and labels, and so involve the same economic forces that would determine the bargaining power for mechanical licenses in a hypothetical market for interactive streaming rights without compulsory licensing.

Synchronization license rates that price publisher and label rights equally¹⁶ provide evidence that the compulsory licensing exerts a downward pressure on royalty rates.

29. These types of transactions, where publisher royalties rise relative to corresponding royalties when the market is less constrained, exemplify how the historically-anchored regulatory system tends to insulate prices from market forces and ultimately depress them.

IV. ECONOMIC PRINCIPLES AND REGULATORY PRICING RULES FROM OTHER MARKETS ARE USEFUL GUIDES IN SETTING REASONABLE RATES

30. In this section, I examine economic principles and regulatory pricing rules developed and studied in other markets that are relevant in this setting. In particular, I look to the economic literature on regulatory pricing for essential facilities.

A. NORMALLY FUNCTIONING MARKETS ARE APPROPRIATE BENCHMARKS FOR REASONABLE RATES, IN THIS CASE A HYPOTHETICAL MARKET WITHOUT COMPULSORY LICENSING

31. Section 115(c)3(C) of the Copyright Act states that “[P]roceedings under chapter 8 shall determine reasonable rates and terms of royalty payments.”¹⁷ Economists generally look to

¹⁶ See, e.g., “Musical work and sound recording owners are generally paid equally—50/50—under individually negotiated synch licenses.” CMM, at 56.

¹⁷ Section 801(b)(1) calls for the Copyright Royalty Judges to “make determinations and adjustments of reasonable terms and rates of royalty payments [...] calculated to achieve the [certain policy] objectives.” The 801(b)(1) factors are: “(A) To maximize the availability of creative works to the public. (B) To afford the copyright owner a fair return for his or her creative work and the copyright user a fair income under existing economic conditions. (C) To reflect the relative roles of the copyright owner and the copyright user in the product made available to the public with respect to relative creative contribution, technological

normally functioning, unconstrained markets to assess prices or to set regulated rates.

Indeed, “the single most widely accepted rule for the governance of the regulated industries is regulate them in such a way as to produce the same results as would be produced by effective competition, if it were feasible.”¹⁸ Thus, in any market that is not functioning as an effectively competitive market would, the so-called market failure that prevents it from functioning normally is the usual focus of regulatory intervention. Absent market failure, markets are presumptively superior to regulators in establishing prices that reflect fair value.

32. The term “reasonable rates” can be read as a relatively broad definition, but from an economic perspective would still be consistent with free market outcomes.¹⁹ In this setting a free market would be a hypothetical market for mechanical rights, unconstrained by compulsory licensing, but not one that meets any specific, narrow definition of competitiveness. In other words, a reasonable rate would be expected to prevail in a reasonably competitive hypothetical market for mechanical licenses. Furthermore, such a rate would be expected to reflect the fair value of the copyright. A desirable property of prices that result from free markets is they reflect the fair value of the goods or services

contribution, capital investment, cost, risk, and contribution to the opening of new markets for creative expression and media for their communication. (D) To minimize any disruptive impact on the structure of the industries involved and on generally prevailing industry practices.” 17 U.S.C. § 801(b)(1) (2010).

¹⁸ Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions* (Cambridge, Massachusetts: The MIT Press, 1988), at 171.

¹⁹ Benchmarking prices against free market rates is an approach used in other settings including regulatory price setting and transfer pricing (the “arms-length standard”). See, e.g., Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions* (Cambridge, Massachusetts: The MIT Press, 1988). See also IRS transfer pricing regulations: 26 CFR 1.482-1 “Allocation of income and deductions among taxpayers,” <https://www.law.cornell.edu/cfr/text/26/1.482-1>.

being transacted.²⁰ Based on the reasonable competitiveness of the market for sound recording licenses with interactive services, a hypothetical market in which mechanical licenses were freely negotiated with interactive services rather than compulsory would produce rates that reflected the value of the copyrights.

1. Normal Market Outcomes Result From Negotiations in Which the Participants are Not Compelled to Transact, But Have Outside Options

33. Much of economics was developed with the goal of understanding market outcomes when buyers and sellers act in a voluntary manner; that is, when buyers and sellers can withdraw participation from the market if they so choose.²¹ While much economic analysis is understood in terms of aggregate constructs like market demand and supply relations, other situations, such as those in which the market consists of few buyers and few sellers, need to be analyzed at the transaction level. For that sort of analysis, economists rely on notions that arise when two parties negotiate the terms of a transaction. Thus, rather than buyers and suppliers acting in an arms-length and relatively anonymous manner in a market, often a buyer and seller will negotiate in an interrelated manner. This is not to say that the outcomes in anonymous, large markets and small, bilateral negotiations are unrelated, but that the choice of starting point for economic analysis depends on the realities of the economic situation.

²⁰ The classic Efficient Market Hypothesis predicts that market prices will be fair, since those prices will incorporate all of the information available to market participants. *See, e.g.,* Richard A. Brealey, Stewart C. Myers, and Franklin Allen, *Principles of Corporate Finance* (New York, NY: McGraw-Hill/Irwin, 2008), at 359.

²¹ *See, e.g.,* Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions* (Cambridge, MA: The MIT Press, 1988), at p.1/I. “The coordinating and controlling mechanism is the competitive market and the system of prices that emerges out of the bargains between freely contracting buyers and sellers.”

34. In this case, a normal functioning market would involve negotiations between a licensee and a licensor of copyright-protected musical works, outside the influence of any compulsory licensing regulation. A negotiation perspective is often appropriate precisely because the licensor is the exclusive rightsholder giving them a monopoly position with respect to the works that they own. In effect, all licensees must deal with that particular licensor. Assessing proper royalty rates and terms involves understanding that negotiation as it might arise if market conditions permitted it.
35. Starting with a bilateral negotiation does not preclude incorporating the effects of competition. The impact of competition is felt by both sides to a negotiation. For a buyer, if it has more than one seller that it can negotiate with, the sellers compete and the likely result has terms more favorable to the buyer. If there are multiple buyers that a seller can negotiate with to make its work available to final consumers, then the buyers compete and the likely result has terms more favorable to the seller. For there to be effective competition, therefore, both the buyer and seller must have reasonable outside options to engaging in the transaction.
36. Those outside options constrain the prices each would be willing to accept. For instance, if a buyer was willing to pay \$10 to access a work, but could access the work from another seller for \$5, the maximum price the buyer would accept would be \$5. Similarly, if the licensor could earn \$5 from an alternative source instead of licensing the work to this particular buyer, the licensor would not accept less than \$5 in this negotiation, assuming it could only license this product to one licensee. If both conditions were true, then there would be no 'wiggle room' in this negotiation and the likely price would be \$5. Under *perfect* competition it is often noted that prices are determined entirely by such competitive

substitutes on each side of the market. Consequently, one can consider an outcome in a negotiation like this an outcome that arises under *perfect* competition.

37. It is my understanding that the reasonable royalty rate standard of the Copyright Act does not dictate an outcome of perfect competition, but of competition that would prevail in the market if licensing musical works were not compulsory. In my opinion, this means that we should examine hypothetical negotiations over mechanical royalties in the context of licensing negotiations where *both* the licensor and licensee have strong outside options. For a licensor, this means relating its decision to opportunity costs rather than physical costs in a manner I will outline in more detail below.

2. The Market for Non-Compulsory Licensing of Sound Recordings Provides a Model for Market-Based Mechanical License Rates

38. While a market for non-compulsory licensing of musical works is hypothetical, the market for non-compulsory licensing of sound recordings provides a model for normal market conditions that should determine statutory mechanical rates. This market for non-compulsory licensing of sound recordings is not perfectly competitive, but *both* the licensors and licensees have strong outside options (i.e., it is a reasonably competitive market).²²

²² The Federal Trade Commission's (FTC's) review of the Universal EMI merger provides additional evidence of the ability of unconstrained licensing negotiations with interactive streaming services to produce reasonable rates while delivering wide access to recorded music. The FTC investigated whether the transaction would lead to higher costs to interactive streaming consumers or a more limited selection of recorded music. The merger increased market concentration, but did not raise concern over the labels' bargaining leverage in part because the labels' licensed sound recordings were found to be complements not substitutes. "After a thorough investigation into the likely competitive effects of the merger, Commission staff did not find sufficient evidence that the acquisition would substantially lessen competition in the market for the commercial distribution of recorded music." Statement of Bureau of Competition Director Richard A. Feinstein *In the Matter of Vivendi, S.A. and EMI Recorded Music*, FTC, September 21, 2012, accessed September 17, 2016,

39. The labels have the right to refuse to license their sound recordings to particular interactive streaming services and instead to continue to distribute their sound recordings through other competing channels. The services have the ability to develop offerings with different content and pricing through which to distribute the labels' competitors' sound recordings. The outcome of negotiations between the parties in this market has resulted in reasonable rates that reflect the value of these outside options to each party. It is only due to the asymmetric treatment of musical works under the law that publishers are unable to negotiate comparable deals in which they could exercise their outside options and obtain a reasonable mechanical rate.²³

B. RELATIONSHIP OF COMPULSORY LICENSING OF MUSICAL WORKS WITH REGULATION OF ACCESS TO ESSENTIAL FACILITIES AND ECPR

40. It has been noted that the determination of royalties for compulsory intellectual property licensing exhibits parallels with the setting of regulated prices for access to essential facilities.²⁴ Here I explore that relationship specifically because it is an area of economic study and practice that has generated a number of pricing solutions that are likely to be

https://www.ftc.gov/sites/default/files/documents/closing_letters/proposed-acquisition-vivendi-s.a.emi-recorded-music/120921emi-feinstein-statement.pdf.

²³ CMM, at 149.

²⁴ See, e.g., David R. Strickler, "Royalty Rate Setting for Sound Recordings by the United States Copyright Royalty Board: The Judicial Need for Independent Scholarly Economic Analysis," *Review of Economic Research on Copyright Issues*, 12(1/2), (December 2015): 1-15, accessed September 17, 2016, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2714784 and Joshua S. Gans, and Stephen P. King, "Access Holidays and the Timing of Infrastructure Investment," *Economic Record* 80.248 (2004): 89-100, accessed September 17, 2016, https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=513514.

relevant in this context.²⁵ This will lead to principles that, in my opinion, should inform the royalty rates and terms being determined in these proceedings.

41. To understand the context for regulation of access to essential facilities, consider a line of rail infrastructure that goes from point A to point B. The infrastructure is owned by a rail operator who, absent regulation, has a monopoly on rail traffic between those two points. The monopolist is able to charge a price (per customer), P , for use of the rail service. This price might itself be set by regulation or alternatively by conditions in a downstream, more competitive, market. The marginal cost per customer is C ($< P$). If the rail operator has N customers, its net profit (that is, net of the costs of the rail infrastructure itself) would be $N(P - C)$.
42. Suppose another party appears (an independent rail operator) who wants to use the monopolist's rail line but not the rail service. It intends to run its own cars on the rail line but it intends to compete for existing traffic (that is, any of the monopolist's current N customers). It is readily apparent that the monopolist will likely have no interest in permitting this. Faced with this, the independent would have to duplicate the rail line in

²⁵ Separate from access pricing rules, another commonly employed regulatory pricing rule is Ramsey pricing. This rule has been used to set prices in certain regulated monopoly markets and has the property of maximizing total welfare conditional on a target profitability constraint. Prices are set such that the markup above costs is inversely proportional to the elasticity of demand. This means that less price sensitive products (i.e., products with low price elasticity) are priced higher. Products become more inelastic the more desirable or indispensable they become. This is consistent with the result of competition in differentiated product markets in which markups above costs are inversely proportional to the elasticity of demand (a relationship expressed as the Lerner Equation). As an approach to pricing mechanical royalties, without reliable estimates of elasticities and costs, this method of setting prices is not necessarily useful. Moreover, conceptually, Ramsey pricing is a means of allocating the fixed costs of providing infrastructure over a number of different uses or channels. While it is possible to consider the creation of a musical work as a fixed cost, there are many additional costs that vary and involve the discretion of different parties. Thus, they may vary from work to work in ways that evolve in unpredictable ways over time. Finally, the different uses for those works are interdependent demand – that is, downloaded music is a substitute for streaming music and vice versa. Thus, it is not only elasticities that are required but cross-price elasticities as well. These elasticities are also likely to be specific to particular works. Ultimately, Ramsey pricing is not well suited to the context of setting interactive streaming royalty rates.

order to compete. It is to prevent this form of duplication (which would be socially inefficient) that essential facilities law has come into being, the full merits of which do not concern us here.

43. The essential problem here is that there is *no market* for “above rail” access independent of the provision of rail infrastructure. The goal of access regulation is to create that market which involves requiring the monopolist to offer a separate service and then to regulate the pricing terms for that service in a manner that leads to more efficient outcomes by preventing incentives to duplicate the infrastructure, while encouraging the continued development of such infrastructure where it is needed.
44. This regulatory challenge can be mapped to the challenge in these proceedings. For interactive streaming services, musical works are an essential input. In this situation, the rightsholder is the key agent akin to the infrastructure provider who has been forced to grant services access to its intellectual property. The goal is to set pricing terms such that more efficient outcomes result (for example, that services are encouraged to pay for access and license the intellectual property when it is efficient for that to happen). Where it differs is that we are not starting from a situation where the rightsholder is necessarily providing products and controlling access to final consumers. However, I believe that we can still tap into the literature and experience regarding access regulation to inform us as to principles that should apply to any rate structure in these proceedings.
45. Before doing so, let us consider what price might emerge in the rail line example. If the government were to force the monopolist to open up access to the rail line in this situation, what might be a good price for it to insist on for that access? One option would be to engage in a full accounting of the monopolist’s costs associated with the rail line

infrastructure and charge the independent a price based on those costs. However, it is often the case that such costs are difficult to measure. In fact, as I will argue below, for the analogous case of intellectual property where the rightsholder plays the role of the monopolist in this story, estimating the equivalent costs would be even more difficult.

46. For this reason, some economists have proposed a pricing approach that avoids the cost measurement issue entirely (at least for the infrastructure). This is the so-called efficient component pricing rule (ECPR) that is based on the theory of contestable markets.²⁶ That theory asks: what if access to the rail infrastructure were open, but the monopolist was required to set an access price at a value that would deter inefficient entry into the ‘above rail’ service? Or to put it another way, what price would the infrastructure owner set if it treated its integrated above rail business as an independent entity?
47. The answer is simple: the rail infrastructure provider would set a price equal to its **opportunity cost** of providing access. If an independent comes in and attracts one customer from the integrated monopolist, the monopolist loses the margin, $P - C$. This represents its opportunity cost from providing access (i.e., its lost profit). Thus, the monopolist would set an access price, a , equal to $P - C$.
48. Given this price, consider the choice of an independent. Suppose that the marginal cost of the independent, c , were greater than C (the monopolist’s marginal costs). In this case, if it enters, the independent earns $P - c - a = P - c - (P - C) = C - c$ which is negative if ($c > C$). Thus, the independent would not enter if it is less efficient than the incumbent. By

²⁶ See, e.g., William J. Baumol and J. Gregory Sidak, “The Pricing of Inputs Sold to Competitors,” *Yale Journal on Regulation* Volume 11, Issue 1 (1994), accessed October 19, 2016, http://digitalcommons.law.yale.edu/yjreg/vol11/iss1/8?utm_source=digitalcommons.law.yale.edu%2Fyjreg%2Fvol11%2Fiss1%2F8&utm_medium=PDF&utm_campaign=PDFCoverPages.

contrast, if $c < C$, the independent is more efficient and earns a profit of $C - c$ in this case (a positive amount). In this case, the independent may enter and earn a positive profit.

49. Notice that the rule encourages entry precisely when the costs of providing the rail service are reduced by so doing and deters it otherwise. Thus, it has a convenient (productive) efficiency property. However, it does this without having to investigate the full costs of the monopolist in providing the infrastructure. Instead, it just needs knowledge of P (the rail price which should be easily observable) and C (which may require some measurement, but is based on factors capable of being measured presently rather than inferred historically). In addition, if entry occurs, the monopolist still earns $N(P - C)$ and so we do not need to consider whether the regulation is reducing its incentives to invest in infrastructure as the outcome is the same as if the regulation did not exist.
50. The opportunity cost of licensing musical works to a given interactive streaming service depends on the royalty income lost as a result of doing so. There are numerous potential sources of that lost royalty income, including lost revenue from another interactive streaming service (that may pay higher rates), as well as lost physical sales, downloads and radio/webcasting revenue. A compulsory rate set below the opportunity cost to the rightsholders would distort downstream competition and deteriorate fair royalty compensation to rightsholders. Although the ECPR model does not apply here in its traditional application, as the rightsholders are not themselves in the market providing products and controlling access to final consumers, opportunity cost compensation is a basic but critical principle of fair compensation under the ECPR model that should inform the analysis of rates and structures here.

51. To summarize, this feature of ECPR, applied to the copyright setting, implies that rates should be set so that the rightsholder is indifferent between licensing to the downstream services or not, which means that where licensing results in lost profits elsewhere, the rate should be set so as to compensate them, in the aggregate.
52. However, there is another feature that is worth stressing. Because ECPR is designed to be an informationally efficient way of computing prices, it implies that the regulator does not attempt to tailor prices to particular downstream use cases. In the copyright setting, this suggests that upstream and downstream markets should be separated such that rates set upstream do not bias business activity and competition between downstream businesses: in this case interactive streaming services.
53. As described in the above example regarding rail access, ECPR is agnostic regarding the costs, but it is also agnostic regarding the business activity of independent rail service providers so long as they do not impact on the provider's opportunity costs.²⁷ An advantage of this is that the regulator need not investigate or tailor prices to particular details of the services that downstream firms provide.²⁸ It is a rule that permits experimentation and innovation on the part of downstream firms and entry by providing non-discriminatory licensing without disadvantaging the rightsholders in their activities through other channels (e.g., alternative streaming platforms, direct sales, downloads).

²⁷ Note that this is a feature of ECPR that is not necessarily shared by other access rules (for instance, those based on Ramsey pricing). This is because ECPR aims to ensure the infrastructure provider is 'made whole' by the provision of access and not that its ultimate incentives to invest in that infrastructure are enhanced.

²⁸ See, e.g., Joel B. Dirlam and Alfred E. Kahn, *Fair Competition, The Law and Economics of Antitrust Policy*, (Ithaca, New York: Cornell University Press, 1954), at 28. One way this is often described in regulatory contexts is a desire for competitive neutrality. Again, like ECPR, this often has its origins when there is a vertically integrated provider competing with independent downstream firms. Here the context would be interactive streaming services competing with revenue sources that music rightsholders receive through other channels. See, Joshua S. Gans and Stephen P. King, "Competitive Neutrality in Access Pricing," *Australian Economic Review*, 38 (2), 2005, at 128-136.

54. To align this notion with the language in the music industry, I articulate the principle (“business model neutrality”) that the rate structure for mechanical licensing should be neutral with respect to the business model for interactive streaming services. In other words, the rate structure should endeavor to not reference particular business models but instead focus on the fundamental drivers of demand. Neutrality of this form often arises in normally functioning markets when inputs are supplied freely. In the case here, the input is access to a particular work. In other markets, it may be a raw material or other factor of production. It is quite natural for inputs to be supplied and for the supplier to only care about the supply price and terms and not what use the input is put to. For instance, a supplier of electricity does not care about whether a consumer has a large refrigerator or uses air conditioning. Instead, it cares about the total amount of electricity purchased and when. The principle of business model neutrality is analogous in that it calls on the rightsholder to care only about whether its work is used (via streaming or access) and not where it is used nor whether it is used in a certain context.

C. STATUTORY RATES TIED TO PARTICULAR BUSINESS MODELS ARE NOT NEUTRAL OR PREFERRED

55. In the Phonorecords I and II proceedings, licensees and licensors negotiated a variety of different rate terms and structures to address a variety of potential business models for interactive streaming.²⁹ In effect, these rates tried to ignite a fledgling industry, and the

²⁹ See, e.g., “§ 385.13 Minimum royalty rates and subscriber-based royalty floors for specific types of services.” Final Determination of Rates and Terms, In the Matter of Mechanical and Digital Phonorecord Delivery Rate Determination Proceeding, Docket No. 2006-3 CRB DPRA, Copyright Royalty Board. January 26, 2009, at 4532, accessed September 17, 2016. <http://www.loc.gov/crb/proceedings/2006-3/dpra-public-final-rates-terms.pdf>.

participants expressly stated that the rates and terms should not be precedential, and that new rate proceedings should look at the matter *de novo*.³⁰

56. Consistent with the understanding that the current rate structure was envisioned to have a very specific and time-limited application, it contains a set of rates that are a snapshot in time. The current regulations in Subparts B and C contain ten different rate structures for ten different specific business models.³¹ I understand that some of these models are still commonly used (e.g., standalone portable subscription mixed use), while others have commonly been merged with other plans or are not as commonly used (e.g., standalone non-portable mixed use, purchased content locker). In place of more outdated models in the regulations, there are new types of business models on the market that do not have their own customized regulations.³²
57. This type of structure is understandable as a specific negotiation at a specific point in time, intended to boost a handful of proposed business models to see whether any would catch on. However, this is not a sound approach to setting blanket rates across the country for five years of a dynamic industry that is in a constant state of disruption and evolves quickly.

³⁰ See, e.g., “In any future proceedings under 17 U.S.C. 115(c)(3)(C) and (D), the royalty rates payable for a compulsory license shall be established *de novo*.” Final Determination of Rates and Terms, In the Matter of Mechanical and Digital Phonorecord Delivery Rate Determination Proceeding, Docket No. 2006-3 CRB DPRA, Copyright Royalty Board. January 26, 2009, at 4536, accessed September 17, 2016, <http://www.loc.gov/crb/proceedings/2006-3/dpra-public-final-rates-terms.pdf>.

³¹ Useful charts of the different rates are found at “Rate Charts,” Harry Fox Agency, accessed October 24, 2016, https://www.harryfox.com/find_out/rate_charts.html.

³² For example, Cricket Wireless’ interactive streaming deal and Amazon Prime Music fall into the same category of Bundled Subscriptions for the purposes of mechanical royalty payment calculations despite offering different services. Amazon Prime provides users with access to movies and shipping deals, whereas Cricket Wireless is bundled with a phone service. See “Deezer Cricket,” Cricket Wireless, accessed October 23, 2016, <https://www.cricketwireless.com/support/plans-and-features/deezer-product/customer/deezer-usa.htm>; “What is Prime Music,” Amazon, accessed October 23, 2016, <https://www.amazon.com/gp/help/customer/display.html?nodeId=201530920>.

58. A rate structure designed around prevailing interactive streaming service business practices is also not business model neutral. Tying a rate structure to current service offerings can adversely affect competition in the downstream market. The success or failure and exit or entry of businesses with different business models should be determined by competition, not by the structure or level of compulsory rates.
59. As a case in point, the current regulations allow for music subscriptions to be sold as part of a bundle with a product, such as a phone. The mechanical royalty per-subscriber minimum for this type of service is 50% of the minimum for standalone portable subscriptions.³³ Thus, where end-user usage is precisely the same, a service could pay publishers and songwriters half as much just by packaging the sale of the service in a particular way. A rate like this, that favors a particular business model, may have made sense as a limited-term compromise to encourage a new market, but is not likely to be efficient because it distorts competition in the downstream market for the term of the statutory rates. Rather, a rate structure that applies equally to all business models would encourage efficiency via free and fair competition downstream.

V. EVALUATING THE PROPOSED RATES

60. I understand that the Copyright Owners propose per-play and per-user royalty rates, that correspond to the two sources of value derived from musical works, streaming and access.

³³ See, 37 C.F.R. 385.13(a)(3) (indicating a subscriber-based royalty floor for standalone portable subscription services of 50 cents per subscriber per month) and Section 385.13(a)(4) (indicating a subscriber-based royalty floor for bundled subscription services of 25 cents per month for each active user).

**A. INTERACTIVE STREAMING RATES FOR SOUND RECORDINGS PROVIDE
MARKET BENCHMARKS THAT BAKE-IN OPPORTUNITY COST**

61. Licenses obtained by interactive streaming services from labels for rights to use sound recordings are not compulsory. Consequently, the royalty rates paid to labels are freely-negotiated market rates. These rates provide a benchmark for estimating what the aggregate average per-play rate might be for musical works in a hypothetical non-compulsory market.
62. When sophisticated market participants negotiate deals in an unconstrained market they implicitly or explicitly consider the opportunity costs involved with such deals. The relative valuations of the available alternatives influence the terms of negotiations; specifically, labels should be expected to not license interactive streaming services unless the labels will benefit from doing so by at least recovering their opportunity cost. Consequently, sound recording rates – appropriately adjusted for any economic differences expected to result from negotiating licenses for musical works instead of sound recordings – provide benchmarks that bake-in the opportunity cost.
63. I use the “Shapley value” approach (described below) to determine the ratio of sound recording royalties to musical works royalties that would prevail in an unconstrained market. I then estimate what publisher mechanical royalty rates would be in a market without compulsory licensing by multiplying the benchmark sound recording rates by this ratio. I have not carried out an analysis to arrive at benchmark sound recording rates. Rather, my analysis adopts two assumptions of benchmark sound recording rates provided by counsel, as noted below. I understand that Dr. Eisenach is providing an analysis of benchmark agreements to arrive at benchmark rates.

B. THE PROPOSED PER-PLAY RATE IS REASONABLE AND CONSISTENT WITH ESTIMATES MADE USING A SHAPLEY VALUE APPROACH

1. The Shapley Value Approach Can Be Used to Estimate a Per-Play Rate for Musical Works Based on Sound Recording Royalty Benchmarks

64. One way to analyze how interactions between rightsholders and interactive music services could be expected to produce market prices through negotiations in the absence of compulsory licensing is to model the bargaining process in a free market. Bargaining is complicated. Any solution to a bargaining game that requires specifying too much structure to the bargaining process (such as who offers first and the sequence in which multiple issues are resolved) will suffer from a lack of generality. This problem is exacerbated when there are more than two parties to a bargain. In this case the structural problem is worse because there is a new dimension of the possibility of subgroups of players forming coalitions against other players. Lloyd Shapley's solution, published in 1953, elegantly avoids these problems.³⁴ It does so by considering all the ways each party to a bargain would add value by agreeing to the bargain and then assigns to each party their average contribution to the cooperative bargain. It is an axiomatic feature of the fairness constructs of the Shapley value approach that market participants that make equivalent contributions to the cooperative enterprise earn the same profits.
65. Bargaining among interactive streaming services and multiple music rightsholders is exactly the type of bargaining problem that Shapley's solution is best suited to address.³⁵

³⁴ Lloyd S. Shapley, "A Value for n-person Games," In Alvin E. Roth, *The Shapley Value: Essays in Honor of Lloyd S. Shapely*, Cambridge University Press, 1988, at 31-40.

³⁵ "The Shapley value methodology as a solution concept has been widely endorsed and lauded by economists as providing a fair and equitable allocation rule. [...] For example, according to Nobel Laureate Robert Aumann; '[B]ecause of its mathematical tractability, the [Shapley] value lends itself to a far greater

The approach has also been used to model the pricing of rights in connection with the voluntary licensing of music by broadcast radio stations.³⁶

66. In a market in which interactive streaming service businesses depend on obtaining licenses for the use of musical works and sound recordings, the parties could collectively benefit from entering into licensing agreements for the distribution of music. A collaborative process of mutually agreeing to royalty rates that are objectively fair provides a possible efficient solution to the bargaining problem facing participants in a hypothetical market without compulsory licensing. In the economic field of game theory, these types of market problems are referred to as games.
67. The term Shapley value is given to a solution to a cooperative game of this type and represents the share of the economic value (producer surplus, *i.e.* profits) from the joint endeavor received by each participant. The approach involves considering all the possible permutations of agreements to participate (coalitions) that could result between the parties and studying how the addition of a particular participant, in each particular sequence, adds to the combined surplus in each case. These additions to the combined surplus represent the contributions made by each party in each permutation of the coalitions between the parties. The Shapley value for a particular party in the game is the average contribution made across all of the possible coalition permutations.

range of applications than any other cooperative solution concept. And in terms of general theorems and characterizations for wide classes of games and economies, the value has greater range than any other solution concept bar none.” Richard Watt, “Fair Copyright Remuneration: The Case of Music Radio,” *Review of Economic Research on Copyright Issues* 7, no. 2 (2010): 21-37, accessed September 16, 2016, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1737449 (Watt 2010).

³⁶ *Id.*

68. This framework can be used to determine royalty rates that would result from negotiations between rightsholders and interactive music services in a hypothetical non-compulsory market. A prior CRB proceeding discussed Shapley value approach with approval for an analogous inquiry.³⁷ I apply the Shapley value approach below to assess how royalties for musical works would compare to sound recording royalties if they were to be negotiated freely in a non-compulsory market. The symmetry of the labels' and publishers' rights in the interactive streaming business means that this framework results in symmetric treatment—an even division of profits between labels and publishers.

a) Application of the Shapley Value Approach to Interactive Streaming

69. In the language of game theory, the participants in the endeavor are the players in the coalition game. For a given set of players, there are many possible coalitions that can form where a coalition may consist of all or a subset of the players. The value of a coalition depends on the players from whom it is comprised. While players may vary widely in the value they contribute to the coalition, they can be divided into one of two general categories, veto players and non-veto players. A veto player can be thought of in a binary sense—coalitions to which the veto player is a member may or may not have positive value, whereas coalitions to which the veto player is not a member necessarily have no value. Hence, the label 'veto player' is derived from that player's ability to block a

³⁷ The CRB determination in "Distribution of 1998 and 1999 Cable Television Funds" (CRB Docket No. 2008-1, 80 Fed. Reg. 13423, 13429-30, March 13, 2015), concluded that, "the optimal measure or approximation of relative value in a distribution proceeding—the Shapley valuation method—was neither applied nor approximated by either party." Application of the Shapley value approach was developed however, "inspired by a similar example set forth by Professor Richard Watt, Managing Editor of the Review of Economic Research on Copyright Issues and a past president of The Society for Economic Research on Copyright Issues. [citation omitted]."

valuable coalition from forming. A valuable coalition must contain all veto players as members.

70. A Shapley value is the average marginal contribution a player makes to a coalition in terms of producer surplus (*i.e.* profits) across all possible coalition orderings (*e.g.*, permutations). To illustrate this concept, consider the classic glove game. There are three players, *a*, *b*, and *c*. Players *a* and *b* each have a right glove and player *c* has a left glove. The surplus generated from one pair of gloves is \$1 and the surplus generated from an unpaired glove is \$0. In order to create any value, a coalition must form that includes player *c* and either player *a* or player *b*. The players may enter into the coalition in any order, and a player's marginal contribution is determined by the change in coalition value caused by his entering. For example, the marginal contribution of the first player to enter is always zero, as a right glove or a left glove on its own is worthless. Alternatively, if player *c* is the first to enter and player *a* is the second to enter, player *a*'s marginal contribution is \$1—the coalition before he entered included only a left glove and was therefore worthless, whereas the coalition after he entered included a pair of gloves, which increased the coalition's value from zero to \$1. In this example, player *a* and player *b* each have a Shapley value of \$1/6 and player *c* has a Shapley value of \$2/3 (see calculations in Exhibit 1). Player *c* commands a higher share of the surplus because she is the only player to own a left glove, whereas player *a* and player *b* are not—they are substitutes for one another.
71. The interactive streaming industry can be thought of as involving a set of interrelated negotiations; the outcome of which may be approximated by the Shapley value approach. Specifically, there may be a label, a publisher, and two services A and B – hypothetically, Spotify and Rhapsody – who are negotiating over the allocation of value created by a

musical work. Importantly, as they each hold a right over the musical work, in a non-compulsory negotiation, both the record company and the publisher must agree to any negotiated deal in order for value to be created. Hence, they are both veto parties with the ability to prevent value creation should they want to withdraw their participation.

72. Interestingly, one might suppose that in this environment, the streaming services might themselves command limited negotiating power. The usual intuition is that these parties are substitutes in terms of getting value to consumers, and hence, they can be played off against one another to effectively be pushed to receiving payments close to their costs, earning no surplus. However, the Shapley value approach predicts otherwise. For instance, while the record company and publisher can do without Spotify if they have a deal with Rhapsody, the Shapley value approach supposes that without Spotify waiting in the wings (so to speak), Rhapsody will command greater power. Thus, because they have a role in providing competition against one another, the publisher and record company will not push these streamers to their limits in negotiations. Both companies will earn some surplus although perhaps not as much as the veto parties in this game.
73. This illustration is, of course, a simplification. One complication is that publishers and record labels may have different cost structures. Costs do not change the Shapley values, which represent the fair share of profits that rightsholders and services should receive from the endeavor, but they affect the amount of royalties that would have to be paid to deliver these profits to publishers and labels. The profits equal to the Shapley values would be delivered to labels by paying royalties equal to the Shapley values plus their incremental costs. The Shapley value is an equitable distribution of surplus, not revenue—costs must be deducted from royalty revenue to yield profits. Any difference in incremental costs

associated with cultivating and licensing their respective repertoires would lead to different royalty rates. Since the Shapley values for publishers and labels are equal, differences in costs would lead to less than proportional differences in royalties.³⁸

74. Ultimately, what we learn from this analysis is that in a hypothetical market where licensing of composition and sound recording rights were equally unconstrained, and royalties were negotiated with the aim of establishing a fair and efficient division of the surplus generated from music delivery via interactive streaming, publishers and labels would have the same ability to capture surplus. Their equal Shapley values would result in negotiated royalty rates that delivered equal profits to each.

b) Calculating Interactive Mechanical Rates Based on Shapley Values

75. The consequences of the Shapley value approach to modeling competition for the interactive streaming business is that in the absence of compulsory licensing, we would expect the publishers to make the same profit in aggregate from this business as the labels. Since the labels are able to freely negotiate interactive streaming rates that produce a competitive level of profits from this business for them, we can use this level of profits to estimate what the mechanical rate for publishers would be if they were able to do the same.

³⁸ To illustrate this point, consider the royalty rate for sound recordings (R^{sr}) and the royalty rate for compositions (R^c) to each be equal to the sum of two parts, cost recovery (C^{sr} and C^c for sound recordings and compositions respectively) and a portion of total surplus (S^{sr} and S^c for sound recordings and compositions respectively). Then we have $R^{sr} = C^{sr} + S^{sr}$ and $R^c = C^c + S^c$. Note that from the above analysis of Shapley values, we know that $S^{sr} = S^c$. Then if we conjecture that sound recording production costs are greater than composition production costs ($C^{sr} > C^c$), it must be the case that the ratio of sound recording royalties to composition royalties is less than the ratio of sound recording costs to composition costs ($R^{sr}/R^c < C^{sr}/C^c$).

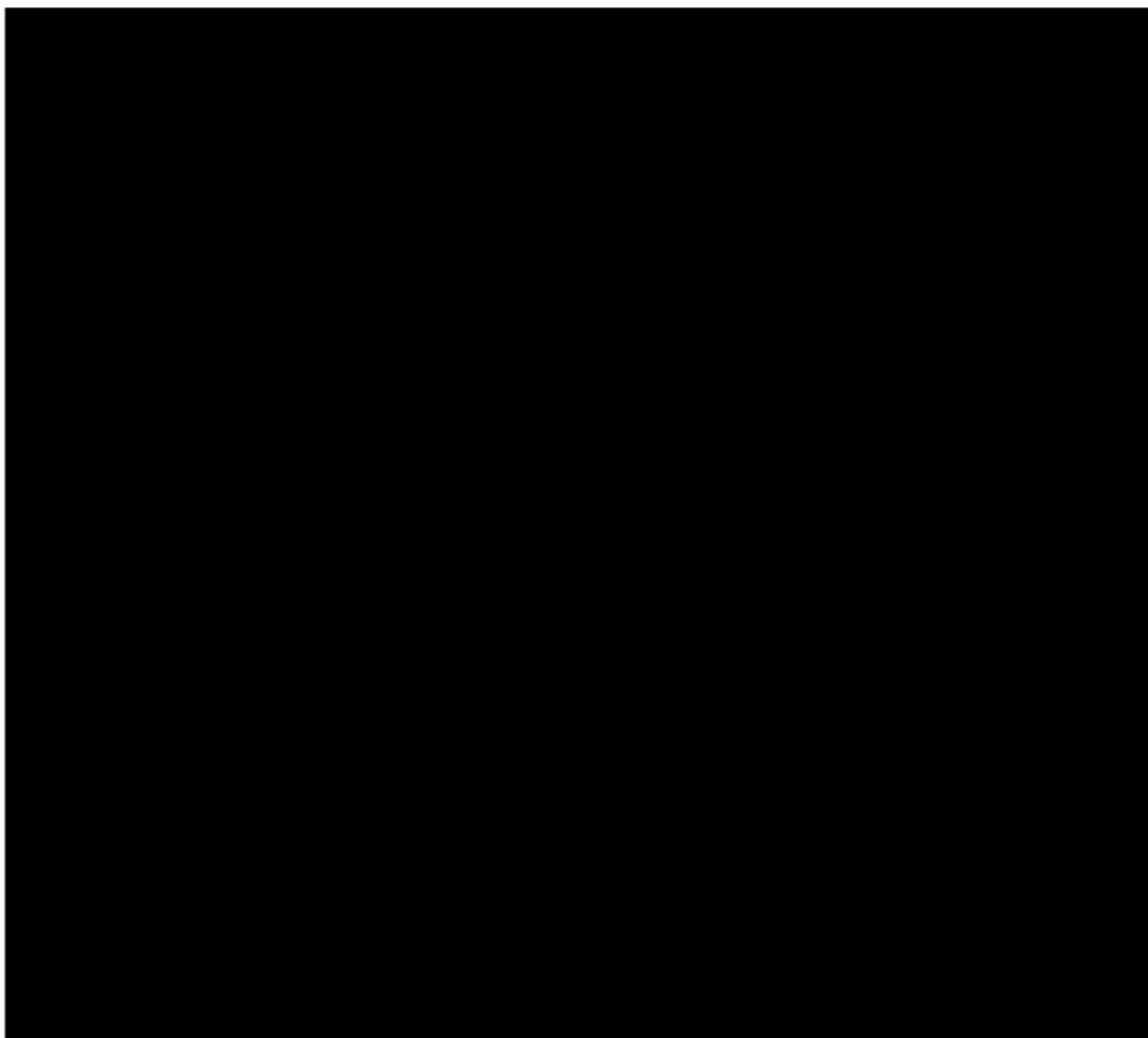
76. The historical royalties and associated profits earned by labels from interactive streaming are estimated in a recent music industry equity analyst report.³⁹ If publisher royalties were not subject to compulsory licensing but were determined in a free market consistent with outcomes of a Shapley cooperative game, publisher profits would equal label profits from interactive streaming. The profit margins of the publishers can then be used to infer the level of a mechanical rate that would deliver these profits to publishers after deducting expected performance royalties. This analysis, implemented in Table 3, holds label profits as fixed while determining mechanical royalty levels that would bring publisher profits to parity with them. This has the potential to change if labels renegotiate, but is a valid valuation for the present.⁴⁰
77. The label profits from interactive streaming services are used as benchmark Shapley values (row [10]). The publisher revenues are broken down between performance royalties, which are held fixed, and mechanical revenues that are raised. This is done by applying the percent of publisher revenues attributable to mechanical royalties estimated for a number of services (row [4]).⁴¹ The publisher royalties are increased (row [13]) such that the

³⁹ Lisa Yang, Heath P. Terry, Masaru Sugiyama, et al., “Music in the Air, Stairway to Heaven,” Goldman, Sachs Equity Research, October 4, 2016.

⁴⁰ An alternative calculation would be to compute total industry profit = $(\$8.50 + \$2.50) + \alpha \cdot (\$8.50 - \$2.50)$ where α is a parameter capturing the potential for profit increase should mechanical royalties increase. In that case, Shapley value publisher profit = $(1/2)(\$11) + (\alpha/2)(\$6) = \$5.50 + \alpha\3 . This parameter is a quantitative measure of how the services would respond in their negotiations with labels if the mechanicals were higher, typically measured by a more detailed model of market conditions. However, for this market I do not believe that there are reliable estimates of the demand, supply, and competitive conditions needed to implement the calculation – in other words, there is no reliable estimate of α – making such a calculation impossible.

⁴¹ The services for which performance royalty data are available from Harry Fox Agency, MRI, and Audium are: 7Digital Inc., Amazon Prime Music, BBM Music, Beats Subscription Family, Cricket Wireless, Da Capo Music, LLC., Deezer Standalone Premium Plus, Google Play, Groove Music Pass, Guvera Platinum, KaZaa, Neurotic Media, Nokia, Inc., Omnifone Basic, Omnifone Unlimited Paying, Premium Elite Bi-Yearly (Sonos), Premium Elite Monthly (Sonos), Premium Elite Yearly (Sonos), Premium Plus (Bose), rara, Rdio, Rhapsody International Inc., Rithm Messaging, Samsung Milk Music Premium, Slacker Prem

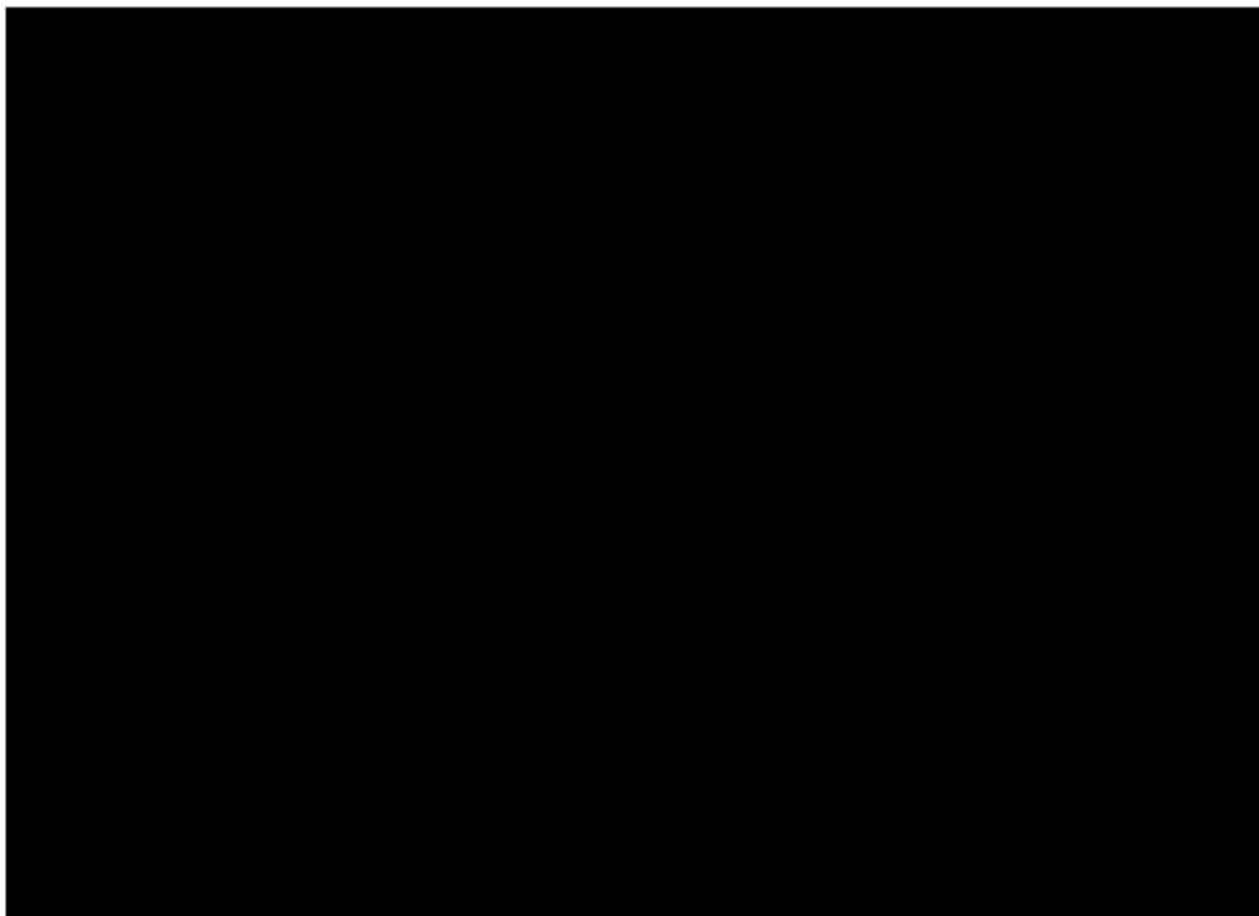
remainder, after paying a portion to songwriters (at an average rate reported by analysts) produces the higher publisher profits needed to reach the Shapley value. After adding the original publisher royalties, the Shapley value-based ratio of sound recording to musical works royalties of [REDACTED] is computed (row [16]).



OnDemand, Slacker, Inc., Sony Music Unlimited-Access, Sony Music Unlimited-Basic, Sony Music Unlimited-Unlimited, Sony Music Unlimited – Unlimited 365, Spotify USA, Inc., Steinway, Inc., Wimp Music As (Tidal), XBOX Music – Zune, XBOX Music-ZunePass, and Zune. I examine mechanical royalties as a percentage of all musical works royalties from 2012 to 2015 and find little fluctuation in these calculations over time [REDACTED] I use the percent of publisher revenues attributable to mechanical royalties in 2015, which is at the lower bound of this range. In total, 23 services were included in my calculation.

78. The Shapley value-based ratio of sound recording royalties to mechanical royalties for musical works can be used to estimate mechanical royalty rates from benchmark sound recording royalty rates. I adopt as an assumption provided by counsel the benchmark effective per-play royalty rate for sound recordings of [REDACTED]. The Shapley value-based ratio of sound recording royalties to musical works royalties of [REDACTED] (Table 3, row [16]), and the percent of royalties from mechanicals (Table 3, row [17])⁴² are used to estimate the corresponding mechanical rate of [REDACTED] (Table 3, row [18]). This same exercise can be performed on the assumed sound recording per-user rate of [REDACTED], which produces a per-user mechanical rate of [REDACTED] (Table 3 row [19]).
79. The estimated ratio of label royalties to publisher royalties of close to [REDACTED] narrows the historical gap that has existed between label and publisher royalties. Recent historical rates are compared to the rate computed from the Shapley values in Table 4 below. The lower ratio of royalties derived from the Shapley value approach provides further evidence that, as expected, royalties for musical works have been depressed by compulsory licensing.

⁴² In this calculation, I assume the Average 2015 performance royalties do not increase royalty per-play computed from Harry Fox Agency data.




c) The Proposed Per-Play Rate Is Conservative Based on Estimation Using the Shapley Value Approach

80. The Shapley value approach predicts that were the statutory rate set at a level that would prevail if publishers were not subject to compulsory licensing, the profits under this statutory rate would equal the profits earned by labels. I compute the hypothetical profits that would have resulted in 2015 from royalties administered by HFA if the mechanical rates proposed by the Copyright Owners had been in effect. These rates are the greater of a per-play rate of \$0.0015 and a per-user rate of \$1.06 per month.⁴³ Based on the actual interactive streaming activity in 2015 the resulting publisher mechanical royalties were

⁴³ I have been advised by counsel that the rate structure proposed by NMPA consists of a per-play and a per-user rate that correspond to the two sources of value derived from musical works, streaming, and access.

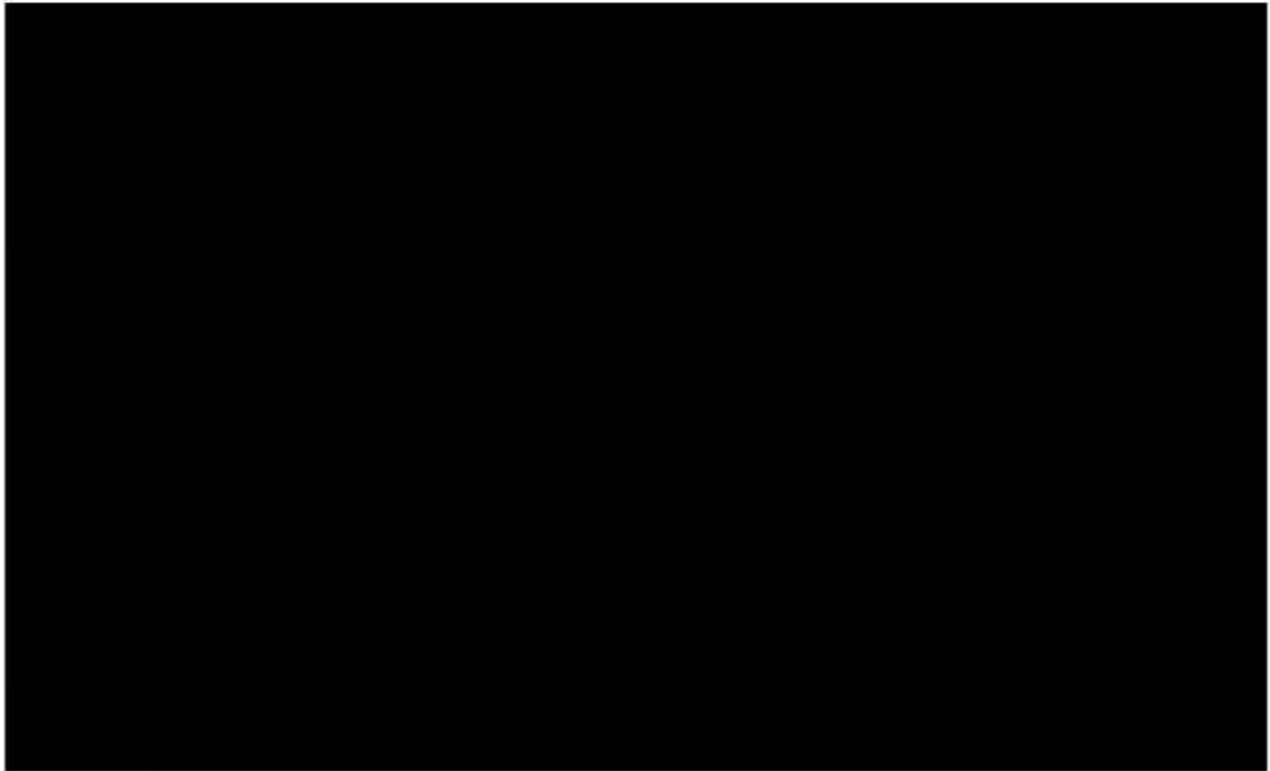
██████████ (see Table 5). The actual performance royalties were ██████████. Using the profit margins estimated in Table 5, the associated hypothetical publisher profits are ██████████. The ██████████ for subscription streaming services were ██████████, which correspond to estimated profits of ██████████. The hypothetical publisher profits are ██████████ below the level that would have equated them with the profits earned by the labels. This analysis provides evidence that the proposed rates represent a conservative increase over prevailing rates.



2. Historical Effective Per-Play Rates Paid by Services Show the Proposed Per-Play Rate is Well Within Current Market Activity, and also Reveal the High Opportunity Costs of Compulsory Licensing

81. The compulsory licensing of musical works under Section 115 not only requires that rightsholders allow interactive streaming services to distribute their music and potentially displace existing sources of royalty revenue, but also requires that they do so to all services, irrespective of the relative effect of their particular music distribution practices on royalty revenues. Musical works rightsholders may not selectively license only to those services with business models that support interactive streaming activity that increases royalty revenues relative to other distribution channels. In an unrestrained market without compulsory licensing, rightsholders would use their ability to control distribution of their work to ensure they would be paid their opportunity cost and by doing so stimulate competition in the downstream market.
82. If Service Alpha was willing to pay \$0.0007 per play, Service Beta was willing to pay \$0.0015 per play, and the rightsholder accepted both deals, the royalty rate differential would give Alpha a competitive advantage over Beta that could shift consumption from Beta to Alpha over time. Such a shift would change the mix of royalty payments, with more payments at \$0.0007 rather than \$0.0015. Alternatively, the rightsholder could reject the deal with Alpha. The absence of the rightsholders' musical works on Alpha would tend to shift consumption to Beta and the higher royalty rate. This illustrates the opportunity cost of the rightsholder licensing to Alpha. Each Alpha stream that would have otherwise been listened to on Beta costs the rightsholder \$0.0008 in lost royalty revenue. In an unconstrained market, Alpha would be forced to increase its royalty rate or forego that rightsholder's catalogue.

83. The prevailing rate structure does not include a per-play rate, but the effective per-play rates paid to date by each service provide an indication of the historical context for reasonable rates. Absent compulsory licensing, rightsholders could choose only to license those services prepared to pay reasonable per-play rates. Services currently paying lower effective per-play rates would have to choose to pay higher rates or risk losing business to higher paying rivals.
84. The mechanical royalties paid by interactive streaming services under the prevailing rate structure to date, expressed on a per stream basis, have varied across services and from year to year. As Table 6 shows, the lowest paying of the major interactive streaming services, [REDACTED] paid [REDACTED] the rate of [REDACTED] in 2015 and paid [REDACTED] of the rate that [REDACTED] paid in 2014. The rate proposed by the rightsholders provides a consistent rate between services, and falls into this range historically paid.



C. THE PROPOSED PER-USER RATE IS REASONABLE AND CONSISTENT WITH ESTIMATES BASED ON THE SHAPLEY VALUE APPROACH

85. The Shapley value approach provides an estimate of the ratio of sound recording royalties to musical works royalties in a free market. This Shapley value based ratio can also be used to estimate what a reasonable per-user mechanical royalty rate would be in the absence of compulsory licensing from benchmark per-user rates for sound recordings. As seen in Table 3, the benchmark rate negotiated by the labels was [REDACTED] per user per month. The Shapley value based ratio of [REDACTED] (see Table 3, row [15]) and the percent of musical works royalties attributable to mechanicals (Table 3, row [16])⁴⁴ produce an equivalent publisher mechanical rate of [REDACTED] (Table 3, row [19]).
86. The proposed statutory per-user rate would apply to all users on a monthly basis including ad-supported users. As with any other distinctive business model, a service would be able

⁴⁴ In this calculation, I assume the performance royalties do not increase.

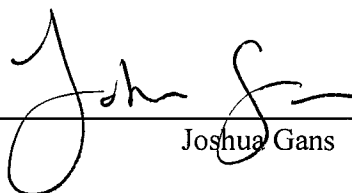
to negotiate for rates below the statutory rate if it believed that its business model would entail lower opportunity costs to the publishers, because doing so would be in their mutual interest. There is no regulatory or economic impediment or restriction on the parties to negotiate bilateral agreements, and such negotiations would be a presumptively more efficient mechanism through which to establish the appropriate exceptions to a standard rate for access and usage.

VI. CONCLUSION

87. The rates proposed by the rightsholders are below the estimates I develop from relevant benchmarks using the Shapley value approach to adjust the ratio of sound recording royalties to musical works royalties so that it reflects the outcome in a free market without compulsory licensing. This implies that the proposed rates are reasonable and represent conservative increases over the prevailing rates, which have been biased downwards over the years by compulsory licensing.

I declare under penalty of perjury that the foregoing testimony is true and correct to the best of my knowledge, information and belief.

Dated: October 28, 2016



Joshua Gans

EXHIBIT 1: SHAPLEY VALUE CALCULATIONS

1. To find the Shapley value of player a in the example of Section V.B, consider all of the six possible coalition orderings (enumerated below in **Table 7**). Player a enters the coalition first or third in four out of the six orderings. When player a enters the coalition first her marginal contribution is always \$0 because when player a enters the coalition there is only one right glove, which is worthless. This result is shown in rows [2] and [3] of **Table 7**. When player a enters the coalition third her marginal contribution is also always \$0 because when player a enters the coalition there is already one right and one left glove and player a 's additional right glove is worthless. This result is shown in rows [4] and [6] of **Table 7**. The last two cases to consider are when player a enters the coalition second. In one of these two cases player a will enter the coalition second behind player b . In this case, player a adds a second right glove to the coalition, which is worthless and her marginal contribution is \$0. In the second case player a enters the coalition behind player c and, by creating one pair of gloves, generates \$1 in surplus. This result is shown in row [5] of **Table 7**. Thus, player a will only generate \$1 in surplus in one of the six possible orderings and, as a result, her average contribution, or Shapley value, is \$1/6. Because player b contributes the same good as player a to the coalition her results will be symmetric to those of player a and player b 's marginal contribution will also be \$1/6.

Table 7: Marginal Contribution of Player a

	Coalition Ordering			Marginal Contribution of Player a
	First	Second	Third	
[1]	a	b	c	\$0
[2]	a	c	b	\$0
[3]	b	a	c	\$0
[4]	b	c	a	\$0
[5]	c	a	b	\$1
[6]	c	b	a	\$0
[7]	Shapley Value:			\$ 1/6

Notes: [7] = ([1] + [2] + [3] + [4] + [5] + [6]) / 6.

Table 8: Marginal Contribution of Player c

	Coalition Ordering			Marginal Contribution of Player c
	First	Second	Third	
[1]	a	b	c	\$1
[2]	a	c	b	\$1
[3]	b	a	c	\$1
[4]	b	c	a	\$1
[5]	c	a	b	\$0
[6]	c	b	a	\$0
[7]	Shapley Value:			\$ 2/3

Notes: [7] = ([1] + [2] + [3] + [4] + [5] + [6]) / 6.

2. The marginal contributions of player c for each coalition ordering are enumerated in **Table**

8. Player c commands a larger Shapley value because she is the only player to own a left glove, which is required for the coalition to generate one pair of gloves. In contrast to player a and player b , player c generates surplus in four of the six possible coalition orderings. That is, as long as player a does not enter the coalition first she will contribute the left glove that is necessary to form a pair. The Shapley value for player c is then \$2/3.

APPENDIX A

Documents Relied Upon by Joshua Gans

Legal Documents and Statutes

17 U.S.C. §801 (2010).

37 U.S. Code of Federal Regulations, Chapter III, Subchapter E, Parts 385.12 and 385.13.

26 U.S. Code of Federal Regulations, Chapter I, Subchapter A, Parts 1.482-1.

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- "Stream Daily: New Subscription Service Playster Launches Globally." Playster. December 14, 2015. Accessed October 18, 2016. <https://blog.playster.com/news-posts/new-subscription-service-playster-launches-globally/>.
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[REDACTED] (HFA00000001)

[REDACTED] (SONY-ATV00005245)

[REDACTED] (APL-PHONO_00006817 - APL-PHONO_00006832)

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[REDACTED]
[REDACTED] (APL-PHONO_00009021 - APL-PHONO_00009079)

[REDACTED]
(PAN_CRB115_00094163 - PAN_CRB115_00094206)

[REDACTED]
[REDACTED] (PAN_CRB115_00093953 – PAN_CRB115_00094048)

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(SPOTCRB0005959)

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(SPOTCRB0005221 - SPOTCRB0005409)

[REDACTED]
(KOBALT00000011 – KOBALT00000014)

APPENDIX B: CV OF JOSHUA GANS

Joshua Samuel Gans

Contact

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Citizenship: Australian

Education

Stanford University, U.S.A., Doctor of Philosophy (in Economics), 1990 - 1994, Dissertation Title: *Essays on Economic Growth and Change*, Advisors: Professors Paul Milgrom, Kenneth J. Arrow and Avner Greif.

University of Queensland, Australia, B.Econ (First Class Honours) with majors in Economics and Law, 1986 - 1989.

Positions Held

Current:

Professor of Strategic Management and Jeffrey S. Skoll Chair of Technical Innovation and Entrepreneurship, Rotman School of Management, and (Honorary) Professor, Dept of Economics, University of Toronto (July 2011 -)

Area Coordinator, Department of Strategic Management, Rotman School of Management (July 2013 -)

Chief Economist, Creative Destruction Lab, University of Toronto (June 2014 -)

Research Associate, National Bureau for Economic Research (May 2012 -)

Research Affiliate, Center for Digital Business, Sloan School of Management, Massachusetts Institute of Technology (May 2012 -)

Managing Director, Core Economic Research (June 2001 -)

Chief Economist, Revlo (2015 -)

Advisory Board, The Conversation (2011 -)

Advisory Board, Coursepeer Ltd (2012 -)

Associate Editor, Management Science (Strategy) (2010 -)

Associate Editor, Journal of Industrial Economics (2008 -)

Previous:

Professor of Management (Information Economics), Melbourne Business School University of Melbourne (October 2000 - June 2011); Professorial Fellow, Department of Economics, University of Melbourne (2001-2011), Associate Professor (July, 1996 - October 2000)

Visiting Researcher, Microsoft Research (New England Lab) (January - June 2011).

Visiting Scholar, Harvard University (Economics) and NBER (December 2009 - January 2011).

Co-Editor, International Journal of Industrial Organization (2005 - 2011)

Co-Editor, Journal of Economics and Management Strategy (2003 - 2008)

Director, Centre for Ideas and the Economy, Melbourne Business School (October 2006 -).

Director, Economic Theory Centre, University of Melbourne (January, 2006 - December 2009); Associate Director (September 2001 - December 2005).

Director, Intellectual Property Research Institute of Australia (August 2006 – January, 2007), *Associate Director* (March, 2002 - August 2006).
Advisory Board, Rismark Pty Ltd (2005 - 2010)
Advisory Board, Aplia.com (2005 - 2007)
Director, Melbourne Business School Ltd (October 2003 – October 2006)
Lecturer, School of Economics, University of New South Wales (September, 1994 - July, 1996)

Honors and Awards

Best Paper in Technology Management, *Informa* (Runner-Up), 2013
Excellence in Teaching Award, Rotman School of Management, 2012
Excellence in Refereeing Award, *American Economic Review*, 2012
Fellow, Strategy Research Initiative, 2012 -
Australian Publishers Association Award for Best Tertiary Adaptation (Teaching & Learning), 2009.
Fellow of the Academy of Social Sciences, Australia, 2008 -
Young Economist Award, Economic Society of Australia, 2007
Woodward Medal in Humanities and Social Science, 2006
Professorial Fellow, Department of Economics, University of Melbourne, 2001 -
Best Discussant, Annual PhD Conference in Economics and Business, 2002.
Fellowship, Jerusalem Summer School in Economic Theory, 1993
Stanford Center for Conflict and Negotiation Fellowship, 1993
Fulbright Postgraduate Scholarship, 1990
Stanford University Graduate Fellowship, 1990
University Medal, University of Queensland, Australia, 1989
Reserve Bank of Australia Cadet Scholarship, Australia, 1988

Teaching Experience

Postgraduate subjects in microeconomics, incentives and contracts, economics of innovation, macroeconomics, advanced game theory, personnel economics, network and digital market strategy (Rotman School of Management, University of Toronto, Melbourne Business School and University of New South Wales, AGSM and School of Economics)
The Next 36 (Toronto), lectures in digital market strategy and on-going supervision of start-ups
Undergraduate subjects in microeconomics, macroeconomics, technological change and development, network and digital market strategy (University of Toronto, University of New South Wales)
Executive Education in technology strategy (INSEAD) and regulatory economics

Consulting

1. Long-term Associations

- Brattle Group (January 2015 -)
- Keystone Strategy (August 2011 -)
- CoRE Research (June, 2001 – September 2014)
- Australian Competition and Consumer Commission (October, 1999 – June 2000; March 2006 – December 2007)
- Charles River Associates, Senior Consultant (August 2002 – August 2005)
- The Economist Advocate (February, 1999 – June 2002)
- London Economics, Australia (February 1997 - May, 1999)

2. *Litigation and Witness Statement Preparation*

- Expert witness in valuation of intellectual property matter on behalf of Semantic Computing (June – November 2015)
- Expert witness on copyright dispute for arbitration with regard to mobile apps for telecommunications carriers (2013-14).
- Expert witness in class action against Whirlpool Ltd in Ohio on damages associated with damaged front-loading washing machines (2013 - 2014). Testified on damages in jury trial in October 2014.
- Chief economic expert witness to the Federal Trade Commission on its antitrust claim – exclusionary conduct and abuse of market power – against Intel (2009-2010).
- Expert witness advice to Fortescue Metals Group in the Mt Newman declaration decision against BHP-Billiton, Australian Competition Tribunal (June 2007 – December 2009).
- Expert Witness Affidavit and Deposition on behalf of Third Wave Ltd in antitrust litigation in the HPV testing market against Digene Ltd in the US Federal Court, Wisconsin (August 2007 – January 2008).
- Expert witness advice to the WA Potato Marketing Corporation in a constitutional dispute (July 2007 – January 2008)
- Expert witness advice to the ACCC on an Australian Copyright Tribunal dispute involving Fitness Australia and PCMA (May 2007 – April 2009)
- Expert witness statement construction on behalf of Foodstuffs NZ in Court proceedings with the NZCC on a potential acquisition of The Warehouse (August, 2007 – July 2008)
- Expert Witness Testimony on behalf of Victorian Chicken Meat Processors on the collective boycott authorisation for chicken growers at the Australian Competition Tribunal (July 2005 – November 2005).
- Expert Witness Testimony on behalf of ARA on hazardous waste trade in the Administrative Appeals Tribunal (December 2002 – February 2003).
- Expert testimony for TXU in appeal at the Victorian Supreme Court over the ORG's electricity pricing determination (March, 2001).
- Expert witness at Appeal Tribunal for United Energy appealing the Office of the Regulator General's Determination on prices for electricity distribution in Victoria (October, 2000)
- Expert witness at the Administrative Appeals Tribunal for the Australian Communications Authority on dispute with Cable and Wireless Optus over local number portability requirements (August, 1999)
- Advice to ACCC on trade practices matter against Safeway (July, 1998 – August, 1999)
- Advice to ACCC on predatory pricing case against Boral (April, 1998 – February, 2000)
- Assistance to Professor Philip Williams in preparation of expert witness statement for Australian Competition Tribunal consideration of the authorisation of the Australian Performing Rights Association (January - August, 1998)
- Report on damages calculation for misleading information case in the building industry (August, 1997)
- Report on the economic theory of damages for price fixing violations (March, 1997)
- Submission of competitive implications of Pay TV mergers in New Zealand (Nov 1996)

3. *Projects by Industry*

1. **Electricity**

- Evaluation of a methodology for assessing market power in wholesale electricity markets in New Zealand for the Commerce Commission (June 2008).
- Economic advice to the ACCC on the proposed AGL-TRU Energy electricity asset swap in South Australian (March, 2007)
- Economic advice to the ACCC on the partial acquisition of Loy Yang Power by AGL (November – December 2003).
- Expert testimony for TXU in appeal at the Victorian Supreme Court over the ORG's electricity pricing determination (March, 2001).

- Report critiquing the form of regulation of Victorian electricity distribution, on behalf of United Energy (September - October, 2000).
- Participation in a training program for Macquarie Generation (December, 1999)
- Economic analysis of electricity generating asset in preparation for a bid (March, 1999)
- Analysis of a contract for sale of electricity to a smelter project (February, 1999)
- Report on NEMMCO pricing principles for the National Retailers Association (September, 1998)
- Analysis of gaming the National Electricity Market Rules (February, 1998)
- Analysis of proposal for allocation of power purchasing agreements in Queensland (December, 1997)
- Analysis of vesting contract arrangements for the Queensland Electricity Reform Unit (December, 1997)
- Analysis of proposals for electricity transmission pricing in Queensland (September, 1997)
- Report on options for electricity industry reform in Western Australia (September, 1997)
- The role of greenhouse gas regulation on electricity pool behaviour (July, 1997)
- Advisor to Queensland Electricity Reform Unit: review of generator market strategies in the NEM and the implications of contracts (May 1997 - November, 1999).
- Bid for Loy Yang: report on the implications of market power for asset values (October-February 1997);
- ETSA Generation: report on the regulation of market power (August, 1996);
- NSW Electricity: report to ACCC on potential for anti-competitive behaviour (March - April, 1996);

2. Gas

- Analysis of a proposed AGL-Alinta arrangement on behalf of the ACCC (May, 2006).
- Submission on behalf of Envestra to the Queensland Competition Authority regarding its determination on regulated prices for Queensland's gas distribution network (March - April, 2001).
- Analysis of the competitive implications of a gas contract for electricity generation (March, 1998).
- Advice on the use of electricity prices in gas supply contracts to generators (May, 1997).
- Evaluation of R.J. Rudden report on AGL's cross subsidies (April, 1997)
- Gas transmission pricing: reviewed IPART gas transmission submission on behalf of BHP (October 1996-April 1997);
- Gas market: report on the market power implications of the proposed Victorian gas market and examined alternative market arrangements (January-March 1997);
- ETSA Gas: reports on appropriate pricing of gas in electricity use (April, 1996);

3. Telecommunications

- Economic advice to the ACCC of mobile termination pricing (September 2007)
- Economic advice to the NZCC on imputation tests in telecommunications (April 2007)
- Economic advice to the ACCC on the copper tails pricing by the G9 (August, 2007)
- Economic advice to the ACCC on Telstra's ULLS undertakings (May – August 2006)
- Economic advice to the NZCC on a 0867 dispute with Telecom NZ (2006).
- Submission to the ACCC on behalf of AAPT in relation to the report by Professor Hausman on mobile termination (April 2005).
- Submission to the ACCC on behalf of Hutchison Telecommunications in respect of its mobile services review (July 2003).
- Submissions to the ACCC on behalf of AAPT in respect of Telstra's proposed PSTN undertakings (June 2003).
- Advice to Hutchison telecommunications on bundling in Pay TV markets (June 2002)
- Advice and analysis to AAPT with regard to its interconnection pricing dispute with Telstra at the Australian Competition Tribunal (April, 2001 – May, 2002).
- Report submitted as part of SingTel submission to the ACCC evaluating the competitive implications of Vodafone's undertakings with respect to its proposed bid for C&W Optus (February, 2001).

- Research report for ACCC on Mobile termination of fixed line calls (December, 1999)
- Research report for ACCC on PSTN termination by non-dominant networks (December, 1999)
- Expert witness for the Australian Communications Authority/ACCC in a matter against Cable and Wireless Optus at the Administrative Appeals Tribunal on local number portability (August, 1999)
- Advice to ACCC on commercial churn matter against Telstra (March, 1999 – January, 2000)
- Analysis of criteria for declaration of intercity transmission lines in telecommunications (ACCC); (March, 1998)
- Report on contracting arrangements in telecommunications (October, 1997)
- Report on local number portability and technology adoption for Telstra (November, 1996)

4. Banking and Financial Services

- Economic research on behalf of Visa International (March – October 2016).
- Economic advice to Suncorp on proposed acquisition of Promina (October – November 2006).
- Submission to the ACCC on behalf of Cash Services Australia regarding the share acquisition by National Australia Bank (October 2005).
- Submission to the ACCC on behalf of First Data with regard to its acquisition of CashCard (November 2003 – January 2004).
- Research report and assistance to the National Australia Bank in assessing the competitive implications and regulatory options for the setting of interchange fees in credit card associations (March, 2000 – March 2001).
- Examination of theoretical arguments regarding horizontal mergers in Australian banking industry (March, 1997 and May, 1998)
- Analysis, on behalf of Lend Lease, of submission to the ACCC for a joint venture between Lend Lease and National Mutual (November - December, 1997)
- Report on access to the electronic payments system for the National Australia Bank (March - July, 1998).

5. Pharmaceuticals

- Advice to Mayne Healthcare on wholesale reform under the Pharmaceutical Benefits Scheme (February 2002).
- Advice to the National Pharmaceutical Services Association on the changes to the wholesale margin in the Pharmaceutical Benefits Scheme (May 2001 - June 2001).
- Advice to Faulding Healthcare on implications of COAG review of the pharmaceutical industry (April, 1999 – June, 1999)
- Economic analysis, on behalf of Faulding, of the competition issues surrounding a proposed takeover of AMCAL by Faulding Retail (September, 1998).
- Report on merger authorisation for Sigma and QDL(Nov, 1996)

6. Other

- Economic advice to Microsoft on antitrust matters (January – December, 2012)
- Economic advice to Microsoft on patent royalties (May, 2012 -)
- Economic advice to US Airways on online travel retailing (February – May 2012)
- Economic advice to Foodstuffs (NZ) on a potential merger with The Warehouse (July-August, 2007).
- Economic advice to the NZCC on a dispute between Pete's Post and NZ Post on a s36 matter (March, 2007).
- Economic advice to Visy on price fixing matters and damages calculations (October 2006 - 2008).
- Advice to Metcash on the potential acquisition by Woolworths of an IGA Outlet in Jindabyne (June 2007 – August 2007)
- Economic advice to the ACCC on a proposed acquisition by Video Easy of Blockbuster (June – August, 2007)
- Economic advice to Leighton Holdings on a contract dispute with the WA Government (May – July 2007).
- Economic advice to the ACCC on exclusionary conduct by Nestle (October, 2006 – January 2007)
- Economic advice to OneSteel on proposed acquisition of Smorgon Steel (June – June 2007).

- Economic advice to ACCC on definitions of regulatory risk (June, 2006).
- Economic advice to VicForests on proposed auction designs (2006)
- Economic advice to Barloworld on their proposed acquisition of Wattyl (October 2004 – June 2006)
- Economic advice to the ACCC on Alinta's proposed acquisition of AGL (May 2006)
- Submission on behalf of CSR on exclusive dealing arrangements of James Hardie (February 2006)
- Economic advice to the ACCC on Toll's proposed acquisition of Patrick (October 2005 – March 2006)
- Economic advice to the ACCC on Patrick's proposed acquisition of FCL (July – September, 2005).
- Submission to the IPART review of rents for Crown Land for Broadcast towers on behalf of Broadcast Australia (May 2005).
- Economic advice to Pacific Brands on the proposed acquisition of Joyce by Dunlop Foams (September 2004 – January 2005).
- Economic analysis of smash repairs and insurance for Consumer Affairs Victoria (September, 2004).
- Analysis of exclusive dealing claim by Peter Stevens Motorcycles against Kawasaki on behalf of Kawasaki (July – October 2004).
- Report for the MTAA on shopper docket schemes in petrol retailing (August 2004).
- Economic advice to Boral on its proposed acquisition of Adelaide Brighton and litigation against the ACCC (May 2004 – October 2004).
- Work for AWBI on the value of the single desk and its performance in wheat marketing (September 2003 – September 2004).
- Report for Medibank Private on the economic case for a private health insurance rebate (October 2002 – February, 2003).
- Submission to Productivity Commission on behalf of Adsteam Marine Ltd on harbour towage regulation (May – June 2002).
- Submission to ACCC on behalf of Adsteam Marine Ltd on capital cost calculations in harbour towage pricing (April 2002).
- Evaluation of the single desk selling of dairy products on behalf of the Australian Dairy Corporation (September 2001).
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- Submission to the Victorian Treasury on the role of economic regulation and supply security in the proposed Essential Services Commission, on behalf of the Regulated Businesses Forum (October, 2000).
- Submission to the Competition Review of the Wheat Marketing Act on behalf of AWB Limited (March - August, 2000).
- Analysis of the Victorian Freight Rail access pricing regime for Freight Australia (July, 2000).
- Paper for Inquiry into Intellectual Property on behalf of APRA (November, 1999).
- Competitive Analysis of the proposed acquisition of Hymix by Pioneer (December, 1998)
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Blog Contributions

Digitopoly: digitopoly.org

Parentonomics: blogs.forbes.com/joshuagans

Core Economics: economics.com.au

Game Theorist: gametheorist.blogspot.com

News for Econ Students: econblog.aplia.com

Other Professional Activities

Executive Committee, Strategic Research Initiative (2012 – 2013, 2015-)

Associate Editor, *Management Science* (Strategy) (2010 -)

Associate Editor, *Journal of Industrial Economics* (2009 -)

Co-Editor, *International Journal of Industrial Organization* (2005 - 2011)

Co-Editor, *Journal of Economics and Management Strategy* (2003 - 2008)

Board of Editors, *Review of Network Economics* (2009 -)

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Board of Editors, *Games* (2009 -)

Economics Editor, *Australian Journal of Management* (1997 - 2003)

Board of Editors, *Information Economics and Policy* (1996 - 2004).

Board of Editors, *BE Journals of Economic Analysis and Policy* (2001 -)

Book Review Editor (Microeconomics) for the *Economic Record* (1996 - 1998)

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Professional Memberships: Economic Society of Australia, American Economic Association, Econometric Society, Law Council of Australia (Business Law Section)

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In the Matter of:

DETERMINATION OF RATES AND
TERMS FOR MAKING AND
DISTRIBUTING PHONORECORDS
(PHONORECORDS III)

Docket No. 16–CRB-0003–PR
(2018-2022)

EXPERT REPORT OF LAWRENCE S. MILLER

Expert Witness for Copyright Owners

OCTOBER 30, 2016

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I. INTRODUCTION AND SUMMARY OF FINDINGS AND OPINIONS

1. My name is Lawrence (Larry) S. Miller. I am a Clinical Associate Professor at New York University (NYU) and Director of the undergraduate and graduate Music Business Programs at the NYU Steinhardt School of Culture, Education and Human Development. I have been engaged by the National Music Publishers' Association ("NMPA") and the Nashville Songwriters Association International ("NSAI" and with NMPA "Copyright Owners") to provide my expert opinion in this proceeding in support of the rates and terms proposed by the Copyright Owners. The NMPA is the principal trade association representing all American music publishers and their songwriter partners. NSAI is a non-profit trade organization of over 5,000 songwriter members, dedicated to advancing the interests of songwriters of all genres of music

A. Qualifications

2. I have observed and analyzed the growth and development of the music industry over the last 24 years since I first began advising music companies and, more recently, in the last five years while on the NYU faculty. My clients have included major recorded music companies, music publishers, commercial and public broadcasters, ratings services, music technology companies, private equity firms and other institutional investors.

3. At NYU, I teach undergraduate and graduate courses on Music Entrepreneurship, Music Analytics, Strategic Marketing and the Business Structure of the Music Industry. Through my consulting firm Musonomics LLC, I advise media and technology companies and their financial sponsors on capital formation and growth

strategy, digital product and service development, acquisitions, and restructurings. I also produce and host the Musonomics podcast.

4. From 2007 to 2009, I was a Partner at L.E.K. Consulting and a senior member of the firm's media and entertainment practice. I later served as Executive Vice President and General Manager of MediaNet Digital.

5. From 2001 to 2006, I operated Or Music, which I also founded. Or Music was a Grammy Award winning independent record label and music publisher. I signed, recorded and published multi-platinum artists Los Lonely Boys and Matisyahu, among others, to Or Music. I also produced the album *Por Vida: A Tribute to the Songs of Alejandro Escovedo* for Or Music, which the Wall Street Journal called "an artistic and humanitarian triumph."¹

6. From 1996 to 2001, I was Vice President of Market Development at AT&T Labs Research where I co-founded AT&T a2b Music, an early digital music rights management business. In 1999, I merged a2b Music with Reciprocal. I then served as President of Reciprocal Entertainment through the sale of that company to Microsoft in 2001.

7. I began my career as a radio broadcaster in Boston and later in New York at Tribune, NBC Radio Entertainment and WHTZ/Z100 New York, regarded as the most successful start-up in U.S. radio history (the station went from "worst to first" within 72 days of signing-on in the country's most competitive radio market).

¹ Luke Torn, *Honoring and Aiding an Ailing Rocker*, THE WALL STREET JOURNAL (Dec. 2, 2004), <http://www.wsj.com/articles/SB110195358290288916>.

8. I have commented on music industry stories for major media outlets including CBS, ABC, CNBC, CNN, Fox News; NPR; the Wall Street Journal, The New York Times, Time, Business Week, Financial Times, Los Angeles Times and Billboard.

9. I earned a BA from Brandeis University and an MBA from Columbia Business School.

B. Compensation

10. I am being paid for my participation in this matter at my standard hourly rate. I have been asked by NMPA and NSAI and its counsel to provide my independent expert opinion on the issues addressed in this report. My compensation is not dependent upon my findings or on the outcome of this proceeding.

C. Summary of Findings and Opinions

11. Successive shifts in the manner in which music is distributed and consumed has negatively impacted songwriters and the music publishers that represent them. More music is being consumed in more places and with more mobility than ever before, the transition from album sales (on vinyl and compact disc) to the sale of permanent downloads, to the rental model of consumer access to music through on-demand streaming services, has been catastrophic for most non-performing or “pure” songwriters. They have lost the opportunity to earn mechanical royalties on all but the most popular singles.

12. The problem is exacerbated by the well-documented fact that songwriters and publishers are receiving micro-pennies from the digital services for even the biggest hits. In my opinion, a primary cause of these low payments is that the current

rate structure is tied to the services' business models, as opposed to the value of the music itself. The existing rate scheme does not encourage the digital services to maximize revenue from their music offerings and those services are deferring short-term revenue and profits from those offerings.

13. Some of the services are using music as a loss leader to promote the sale of other products and services. Apple and Google, for instance, are using their music services to draw in consumers to their vast ecosystems to sell more smartphones and other products and services. Amazon is using its new music service to sell Echo speakers and is charging subscription prices that are significantly less than what Apple and Google charge, and less than half of what those companies charge for Amazon subscribers who own Echo speakers. Further, the current rate structure does not sufficiently incentivize Spotify to turn the 60 million users of its ad-supported, free-to-the-customer service into paying subscribers. In my opinion, a rate structure based on the greater of a per-play rate and a per-user rate will be more fair to songwriters and publishers and will provide more transparency in the services' accounting.

14. Record labels and recording artists are paid more for the use of their recordings than pure songwriters and music publishers are paid for their songs. Historically, the justification for the disparity has been the argument that the record labels' expenses were significantly higher than those of the publishers. Recent trends in the music industry have placed music publishers and record labels at a greater level of parity in terms of costs incurred and financial risk taken. Music publishers have seen increased costs in areas such as A&R and promotion, and record labels have seen a reduction in their costs to create and distribute sound recordings.

15. Both labels and publishers continue to make investments in artists and songwriters, respectively, through the payment of advances that can range up to many millions of dollars for just one artist or writer. While mechanical royalties have declined for music publishers and songwriters, record labels have tapped into many additional sources of revenue. Labels are also not constrained by the compulsory license in negotiating with interactive streaming and limited download services and so they are able to negotiate more favorable royalty rates and, in some cases, even equity in the services. This greater level of parity in spending between labels and publishers should eliminate many of the antiquated justifications for paying labels significantly more than publishers when both are licensing a third party to use their sound recordings and musical works, respectively.

II. SUCCESSIVE SHIFTS IN THE MANNER IN WHICH MUSIC IS DISTRIBUTED AND CONSUMED HAS NEGATIVELY IMPACTED SONGWRITERS AND MUSIC PUBLISHERS

A. The Album Comes Undone

16. For nearly four decades, the record album – where multiple songs are bundled together to form a collective whole – was the primary method by which music was consumed. Following the introduction of the stereo LP in 1958,² albums quickly replaced singles as the dominant format for music consumption. By 1973, album formats (vinyl, 8-tracks and cassettes) accounted for 90% of U.S. music revenue. Meanwhile, vinyl singles – the only measured format available at the time in which

² *Association History*, MUSIC BUSINESS ASSOCIATION (Sep. 23, 2016 8:25 AM), <https://musicbiz.org/history/?decade=1950>.

individual songs were unbundled from their respective albums – accounted for only 9% of the U.S. industry’s overall revenue.³

17. In 1983, the introduction of the CD further contributed to the dominance of the album as the primary means of music consumption in the U.S. CDs eliminated vinyl’s distortion problems and the need to flip a record halfway through, and offered longer playing time.⁴ Album sales exploded as the CD gained traction and labels began remastering catalog releases in the 1990s.⁵ The peak of the album era and the U.S. music industry as a whole came in 1999 when album formats (CDs and cassettes) brought in 95% of the industry’s \$20.68 billion in overall revenue (adjusted for inflation to 2015 dollars). In comparison, CD singles and vinyl singles combined accounted for only 2% of the total.⁶

18. However, because the digital files on CDs were not copy-protected, they could be “ripped” from CDs and converted into file formats that could be easily transmitted over the Internet. Napster was the first to truly capitalize on this technological change by creating a “peer-to-peer” network used almost exclusively for the illicit trading of these digital files. The theft of music on these peer-to-peer networks contributed to declines in albums sales and, therefore, revenues.

19. In 2001, Apple introduced iTunes, then a music media management application to store digital music files (whether ripped from a CD, obtained on an

³ U.S. Sales Database, RIAA (Sep. 23, 2016 8:31 AM), <https://www.riaa.com/u-s-sales-database/>.

⁴ Bernard Holland, *Digital Compact Disks: Replacement for LPS?*, THE NEW YORK TIMES (Mar. 31, 1983), <http://www.nytimes.com/1983/03/31/arts/digital-compact-disks-replacement-for-lps.html>.

⁵ Joel Rose, *The CD, at 30, Is Feeling Its Age*, NPR MUSIC (Oct. 1, 2012), <http://www.npr.org/sections/therecord/2012/10/01/162062347/the-cd-at-30-is-feeling-its-age>.

⁶ U.S. Sales Database, RIAA (Sep. 23, 2016 8:31 AM), <https://www.riaa.com/u-s-sales-database/>.

illegal peer-to-peer service, or purchased from a download store). In 2003, licensed alternatives to piracy began to catch on and Apple introduced the iTunes store,⁷ which sold digital downloads and sent them directly to a user's iTunes song library. In 2004, the first year in which the sale of permanent digital downloads made an impact on RIAA measurements, revenue from digital singles (\$173 million in 2015 dollars),⁸ nearly tripled that of digital albums (\$57 million in 2015 dollars), likely due to the iTunes Store's offering albums a la carte as singles as well as in bundled, album form.⁹ Although Apple was seen as providing an early alternative to piracy, as Peter Stanwick and Sarah Stanwick point out in their textbook on business ethics, "Apple officials were not concerned with illegal music transfers *per se*, but wanted people to buy its computers."¹⁰

20. Just a few years following iTunes' introduction, as digital devices expanded into consumer life, digital music sales exploded. In 2008, iTunes surpassed Walmart as the top overall music retailer in the U.S.¹¹ By 2010, iTunes accounted for 28% of all music purchased by U.S. consumers. In addition, Amazon – bolstered by its growing Amazon MP3 digital download store and online CD sales – tied with Walmart

⁷ *Association History*, MUSIC BUSINESS ASSOCIATION (Sep. 23, 2016 8:43 AM), <https://musicbiz.org/history/?decade=2000>.

⁸ *U.S. Sales Database*, RIAA (Sep. 23, 2016 8:31 AM), <https://www.riaa.com/u-s-sales-database/>.

⁹ Nathan Ingraham, *iTunes Store at 10: how Apple built a digital media juggernaut*, THE VERGE (Apr. 26, 2013), <http://www.theverge.com/2013/4/26/4265172/itunes-store-at-10-how-apple-built-a-digital-media-juggernaut>.

¹⁰ PETER STANWICK & SARAH STANWICK, *UNDERSTANDING BUSINESS ETHICS* 410 (3d ed. 2016).

¹¹ CBS News, *iTunes Overtakes Wal-Mart In Music Sales*, CBS MONEY WATCH (Apr. 4, 2008), <http://www.cbsnews.com/news/itunes-overtakes-wal-mart-in-music-sales/>.

for second place, each with 12% of the overall market.¹² The market for downloads peaked in 2012 when combined sales of digital singles and albums accounted for 40% of total U.S. recorded music revenue. In comparison, the top two physical album formats (CDs and vinyl) accounted for 38% of overall U.S. recorded music revenue,¹³ illustrating that digital formats had reached a point of parity with the physical marketplace.

21. The growth of digital downloads was tied to increasing broadband internet adoption in U.S. households, as the increased speed over dial-up was necessary to make the download experience palatable. For example, downloading a four-minute song with a 4MB file size from iTunes takes 1-to-16 seconds with a broadband internet connection, while that same file takes nearly 10 minutes to complete via a 56K dial-up connection.¹⁴ However, broadband penetration may have reached a saturation point, with a peak of 70% of U.S. households reporting broadband connectivity in 2013 and only 67% reporting the same in 2014, largely due to the rising number of U.S. residents who use only their smartphones to connect to the internet (13% in 2014).¹⁵

22. The shift from the sale of albums to a la carte digital downloads resulted in songwriters earning less mechanical income. Whereas album cuts had previously

¹² *The NPD Group: Amazon Ties Walmart as Second-Ranked U.S. Music Retailer, Behind Industry-Leader iTunes*, NPD (May 26, 2010), https://www.npd.com/wps/portal/npd/us/news/press-releases/pr_100526/.

¹³ *U.S. Sales Database*, RIAA (Sep. 23, 2016 8:49 AM), <https://www.riaa.com/u-s-sales-database/>.

¹⁴ *About download times for the iTunes Store purchases and rentals*, APPLE, INC. (Sep. 23, 2016 8:49 AM), <https://support.apple.com/en-us/HT201587>.

¹⁵ Mike Snyder, *Homes with Broadband Internet Hit Plateau*, USA TODAY (Dec. 21, 2015), <http://www.usatoday.com/story/tech/2015/12/21/homes-broadband-internet-hits-plateau/177669066/>.

sustained the careers of many songwriters, they came to produce very little income in a singles' marketplace.

B. Streaming Takes Hold And Further Solidifies The Market As A Singles Market

23. With the rise of smartphones, music consumption in the U.S. has begun to switch from an ownership model, in which consumers purchased downloads or physical products that they owned indefinitely, to an access model, in which they can play content from a variety of licensed services in exchange for a monthly subscription fee or, in some cases, for free (as in an advertising-supported model). Currently, nearly 80% of U.S. residents own a smartphone¹⁶ and 40% of the smartphone market is controlled by Apple.¹⁷ In the U.S., smart- phones using Apple iOS and Google Android operating systems comprised 97% of the market by the end of 2015.¹⁸

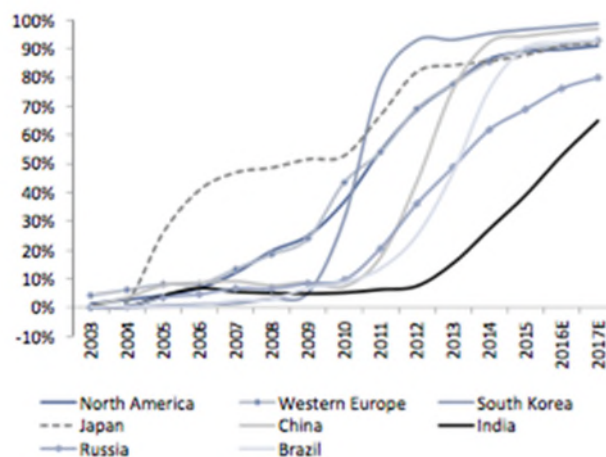
¹⁶ *comScore Reports January 2016 US. Smartphone Subscriber Market Share*, COMSCORE (Mar. 4, 2016), <http://www.comscore.com/Insights/Rankings/comScore-Reports-January-2016-US-Smartphone-Subscriber-Market-Share>.

¹⁷ *Apple iPhones accounted for 40% of US. smartphone market in 2015*, USA TODAY (Feb. 10, 2016), <http://www.parksassociates.com/blog/article/pr-02102016-mwc>.

¹⁸ *Subscriber share held by smartphone operating systems in the United States from January 2012 to February 2016*, STATISTIA (2016), <https://www.statista.com/statistics/266572/market-share-held-by-smartphone-platforms-in-the-united-states/>.

FIGURE 1
SMARTPHONE PENETRATION¹⁹

Smartphone subscribers, % of total handsets



24. The need for an access model was driven, in part, by the lower storage capacity of smartphones like the iPhone (maximum of 128GB on iPhone 6s)²⁰ compared to music storage devices like the iPod (maximum of 160GB on iPod Classic),²¹ coupled with the increased storage demands of smartphones like the iPhone – which also stores photos and videos captured with its built-in camera, apps downloaded from Apple’s App Store, and a variety of other data – compared to the iPod, which only stored music files. In addition, the introduction of 3G wireless connectivity to the iPhone in 2008, was crucial to the development of streaming

¹⁹ GOLDMAN SACHS: LISA YANG, HEATHER P. TERRY, MASARU SUGIYAMA, SIMONA JANKOWSKI & HEATHER BELLINI, MUSIC IN THE AIR: STAIRWAY TO HEAVEN 32 (Oct. 4 2016).

²⁰ *iPhone 6s*, APPLE, INC. (Sep. 23, 2016 9:05 AM), <http://www.apple.com/iphone-6s/specs/>.

²¹ Ben Travis, *Why the loss of the iPod Classic is bad news for music fans*, THE TELEGRAPH (Sep. 10, 2014), <http://www.telegraph.co.uk/technology/apple/11086805/Why-the-loss-of-the-iPod-Classie-is-bad-news-for-music-fans.html>.

services,²² as it enabled users to download a 4MB music file in only 16.4 seconds.²³ When 4G networks decreased the download time for a 4MB file to less than 1 second in 2012,²⁴ the stage was set for the streaming explosion, as the increased speed made it possible for high-quality music files to be streamed seamlessly via mobile with little to no interruption. Today, Spotify and many on-demand streaming services allow paying subscribers to cache music offline on their devices for easy access to their music libraries without consuming data and while outside of network coverage.

25. On-demand streaming's initial growth was constrained by the device and bandwidth considerations explained above. The first major player, Rhapsody, entered the market in 2001 and grew slowly over its first decade to only 1 million paid subscribers by December 2011. However, its growth then accelerated significantly, jumping to 3.5 million by December 2015.²⁵ Overall on-demand streaming growth was accelerated by the entrance of Spotify, which launched outside of the U.S. in 2008 and made its way to the U.S. in 2011. Since 2012, there have been several new entrants. Google Play launched in 2013; Apple Music and TIDAL launched their on-demand streaming services in 2015; SoundCloud launched its version of a premium on-demand streaming service in March 2016; iHeartMedia, which dominates U.S. radio with 858 stations, announced in September 2016 that it is launching an on-demand streaming

²² AOL.com Editors, *The Evolution of the iPhone*, AOL (Sep. 7, 2016), <http://www.aol.com/article/2016/09/07/the-evolution-of-the-iphone/21467253/>.

²³ Margeurita Tan, *How I Met Your Mother's Smartphone*, USA ONLINE, <http://www.todayonline.com/brandstudio/singtel/mobilehistory>.

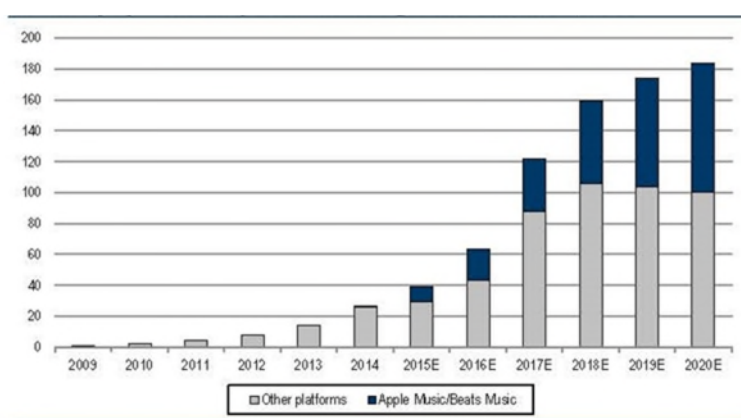
²⁴ *Id.*

²⁵ Billboard Staff, *Rhapsody Nears 3.5 Million Global Subscribers*, BILLBOARD (Dec. 4, 2015), <http://www.billboard.com/articles/business/6806086/rhapsody-2015-global-subscribers-growth-streaming>.

service; Amazon launched its standalone subscription interactive streaming service this October; and Pandora, the largest streaming service in the world, intends to launch an interactive streaming service to complement its non-interactive streaming service.

26. Today, depending on reports, Spotify counts anywhere from 17 million to 25 million paid subscribers, out of over 100 million total user worldwide, while Apple Music is already at 17 million.²⁶ One can clearly observe the growth of the paid streaming services in this Figure 1 from the April 2016 Credit Suisse report on the Global Music market.²⁷

**FIGURE 2:
PAID STREAMING PLATFORM SUBSCRIBERS 2009 — 2020E²⁸**



Source: Company data, Credit Suisse estimates

27. The growth of the market strongly correlates with peak broadband penetration in 2014 and the move to smartphones (see Figure 2).

²⁶ Lizzie Plaugic, *Apple Music Now Has 17 Million Subscribers*, THE VERGE (Sep. 7, 2016), <http://www.theverge.com/2016/9/7/12836994/apple-music-17-million-subscribers-2016>.

²⁷ James Cook, *The global downturn in the music industry may finally be over*, BUSINESS INSIDER (Apr. 4, 2016), <http://www.businessinsider.com/credit-suisse-global-downturn-music-industry-streaming-apple-note-2016-4>.

²⁸ *Id.*

28. These streaming and limited download services not only continue the market trend of offering individual tracks on an album on an a la carte basis, but also enable users to create and listen to playlists of individual tracks. Streaming has therefore further contributed to the unbundling of the album format that began with iTunes in 2003. CDs have been in decline for years, with revenues falling 17% from 2014 to 2015.²⁹ That trend shows no signs of slowing, as 73% of CD buyers are over 35, while 69% of streaming subscribers are under 35.³⁰

**C. The Shift To Streaming Harms Songwriters
And Publishers In Numerous Ways**

29. These switches from physical to digital, and from ownership to access, have impacted songwriters and their publishers, who receive mechanical royalties from the reproduction and distribution of musical compositions on recordings, whether a deep cut on a vinyl LP, a download from iTunes or a stream on Spotify. As a result of the settlement of the Phonorecords I proceedings two rate periods ago, a complex greatest-of rate structure was adopted for mechanical reproductions involving interactive streams and limited downloads. While this rate structure was negotiated when the streaming industry was nascent and when the prospects for digital streaming were unknown, it has turned out to be a bad deal for songwriters and publishers. It has been well publicized that the low effective per-play rates paid by some of these services – particularly those that are giving away the music for free – have resulted in

²⁹ *Id.*

³⁰ Mark Mulligan, *The Steady Demise of the CD Buyer. How The Music industry is Sleepwalking Into a Revenue Collapse*, MIDIA (Feb, 2016), <https://data.midiaresearch.com/reports/66>.

dramatically decreased mechanical income on all songs, including major hits.³¹ Below I describe (a) what I believe to be a root cause of the problem, and (b) some other perhaps less obvious ways that the shift to streaming has harmed songwriters and publishers.

30. First, as I noted above, the rate structure is problematic because it ties mechanical royalty payments payable to songwriters and publishers not to usage, but to the business models of the digital services which are not incentivized to maximize revenue from their music services. The digital services have, in fact, chosen to defer short-term revenue by charging low subscription prices (or no subscription prices) to gain market share. Some digital services are also using their music services as loss leaders to sell other products and services to consumers, all of which has resulted in lower payments to songwriters and publishers.

31. Apple, for example, has used family plans, student discounts and free, limited-duration trials as an inducement for customers to sign up with its music service. Amazon's Prime Music Service was an add on for those with a Prime membership. As of last month, Amazon is estimated to have 65 million U.S. Prime members, more than double what it had two years ago, according to Consumer Intelligence Research Partners. The research firm estimates Prime members spend about twice as much as non-Prime customers.³² Amazon's new Music Unlimited is a central part of its

³¹ John Seabrook, *Will Streaming Music Kill Songwriting?* NEW YORKER (Feb. 8, 2016), <http://www.newyorker.com/business/currency/will-streaming-music-kill-songwriting>; Aloe Blacc, *Streaming Services Need to Pay Songwriters Fairly*, WIRED (Nov. 5, 2014), <https://www.wired.com/2014/11/aloe-blacc-pay-songwriters>.

³² Steven Russolillo, *Amazon Can't Neglect Its Retail Roots*, THE WALL STREET JOURNAL (Oct. 26, 2016), <http://www.wsj.com/articles/amazon-com-cant-neglect-its-retail-roots-1477510402>.

marketing strategy to entice consumers to buy their new Echo smart speaker, introduced at a \$180 price point.³³ Prime members can subscribe to Amazon Music Unlimited for \$7.99 per month, and those who already have one of the company's voice-controlled Echo devices can subscribe to Amazon Music Unlimited for \$3.99 a month, or 60% below the benchmark price of \$9.99 being charged for the premium on-demand services offered by Spotify, Apple and Google. These strategies all reduce revenue from the music services, while increasing consumption, which lowers the effective per play rate the services pay to publishers and writers. Pandora acquired concert ticketing company Ticketfly in October 2015 for \$450 million, and now Ticketfly sends concert notifications directly to listeners when a performer the listener has just heard is on tour near them.³⁴ The songs entice the consumers to the services' other products and offerings, but the songwriters and music publishers get no share of these other income streams. A mechanical rate structure based on music service revenue is not reasonable or fair when the service provider is not interested in running a profitable music business per se, but in acquiring customers to drive another, more profitable arm of the company.

32. The problems of a revenue-based mechanical royalty model are very troubling too with respect to ad-supported offerings. The royalties paid for an ad-supported offering may in fact approach zero for any particular songwriter under the

³³ Hannah Karp & Laura Stevens, *Amazon's Music-Streaming Service Competes on Price and Robotic Assistance*, THE WALL STREET JOURNAL (Oct. 12, 2016), <http://www.wsj.com/articles/new-amazon-music-streaming-service-costs-echo-speaker-owners-4-a-month-1476255600>.

³⁴ Sarah Perez, *Pandora will now recommend nearby concerts, thanks to Ticketfly*, TECH CRUNCH (Jul. 27, 2016), <https://techcrunch.com/2016/07/27/pandora-will-now-recommend-nearby-concerts-thanks-to-ticketfly/>.

existing regulations, which require the payment of an all-in royalty of 10.5% of ad-revenue for performance and mechanical rights. If ad-revenue is low or non-existent, there is a very small pool of royalties to divide over millions of songs and billions of plays. With no per-play rate, there is no logical incentive for the services to maximize their ad-revenue beyond covering their own costs for these offerings.

33. Spotify's free service is particularly controversial. While the free, ad-supported streaming tier may have helped convert users to paid subscribers in Spotify's early days, since 2015, that conversion has been decreasing. As music industry analyst Mark Mulligan wrote, "free just wasn't converting at the same rate it once did in mature markets like the US."³⁵ The Spotify ad-supported service provides the user access to the same music library as the paid service, indefinitely. It seems intuitive that if a service really wanted to maximize conversion from free to paid, the service would provide free access for a limited time or with limited repertoire, or might increase advertising inventory or limit the ability of a user to multi-task by disabling the free user's ability to access music in the background while the user is doing something else like checking email or updating Instagram on their device in the foreground. Spotify has done none of these things.

34. The second way that the current rate structure negatively impacts songwriters and publishers is the lack of transparency it engenders. Working out the total music publishers' royalty under the current percentage calculation for an on-demand streaming subscription service requires knowing the service's monthly

³⁵ *Spotify May Be Buying Soundcloud, But Who Wins?*, MUSIC INDUSTRY BLOG (Sep. 28, 2016), <https://musicindustryblog.wordpress.com/category/ad-supported/>.

revenue, the number of subscribers, the payments by the service to the record companies, and the payments for performance royalties. This makes it impossible for songwriters and publishers to ensure they are being paid fairly and completely, as they do not receive enough data to properly verify their royalty payments.

III. THE RELATIVE COSTS, RISKS, AND RETURNS OF PUBLISHERS AND LABELS JUSTIFIES PUBLISHERS RECEIVING A GREATER SHARE OF STREAMING ROYALTIES

35. Given their ability to operate in the free market and benefit from multiple income streams beyond the exploitation of the sound recording, record labels generally receive more revenue than music publishers. Historically record labels have claimed that the differential is warranted because their expenses are higher than those of the music publishers. This continued viability of this rationale, however, is questionable in the era of interactive streaming.

A. Labels Have More Sources Of Revenue Than Publishers

36. In 2015, the global recorded music industry brought in a total of \$15 billion, an increase of 3.2% from the previous year largely fuelled by the growth of streaming. Digital revenue accounted for 45% of that amount (about \$6.7 billion), while physical revenue accounted for 39% (about \$5.8 billion). In addition, revenue from performance rights accruing to record companies and performers made up 14% of the total (about \$2.1 billion) and synchronization revenue accounted for 2% (about \$300 million).³⁶

³⁶ *IFPI Global Music- Report 2016*, IFPI (Apr. 12, 2016), <http://www.ifpi.org/news/IFPI-GLOBAL-MUSIC-REPORT-2016>.

37. In addition to the above income streams, recognizing the decline in value of the sales of recorded music, labels are increasingly signing artists to “360” deals, which give them a cut of the revenue generated from income streams previously beyond the reach of record companies. These income streams can include tour, concert, and live performance revenue; merchandise sales; endorsement deals; and fees for TV or movie appearances. Chief among these is touring and merchandising revenue. According to Nielsen’s 2016 Music 360 study, live music events now account for 57% of consumer music spending, and that percentage is on the rise from 52% in 2015. These revenue sources are all beyond the grasp of music publishers,³⁷ and contribute to the disparity between label and publisher income.

38. Furthermore, while compulsory licenses restrain the ability of songwriters and publishers to negotiate with streaming services for the use of their catalogs, all three major record labels have been able to leverage the rights to their master recordings to acquire equity stakes in major streaming services such as Spotify. In fact, Universal Music Group, Sony Music Entertainment, and the Warner Music Group collectively hold \$3 billion in equity in digital music start-ups, 20% of what all three labels are collectively worth.³⁸

39. This arrangement allows labels to exploit new sources of income that are unavailable to songwriters and publishers. For example, Universal recently made \$404

³⁷ Heather McDonald, *How 360 Deals in the Music Industry Work*, THE BALANCE (Aug. 5, 2016), <https://www.thebalance.com/how-360-deals-in-the-music-industry-work-2460343>.

³⁸ Zack O’Malley, *Revenge Of The Record Labels: How The Majors Renewed Their Grip On Music*, FORBES (Apr. 15, 2015), <http://www.forbes.com/sites/zackomalleygreenburg/2015/04/15/revenge-of-the-record-labels-how-the-majors-renewed-their-grip-on-music/#376caf06debe>.

million from Apple's acquisition of Beats By Dre, of which Universal owned a 13% share.³⁹ Meanwhile, Warner owner Access Industries recently acquired a 50%-plus share of on-demand streaming service Deezer, effectively gaining full control of the company,⁴⁰ which launched in the U.S. in 2015.⁴¹

40. This situation presents at least a misalignment of interests. It stands to reason that the more profitable these music services are, the better their presumed exit events (either an IPO or trade sales) will be for their shareholders – income streams from which songwriters and publishers receive nothing.

41. To contrast, songwriters and music publishers currently have three major sources of income. The first source of income – mechanical royalties — covers money earned from the reproduction and distribution of a recording of a song, with rates set by the Copyright Royalty Board in proceedings such as the present one. In the case of permanent downloads and physical product, the statutory rate is a penny rate that has not kept pace with the rate of inflation.⁴²

42. The second source of income – performance royalties – covers income earned from the public performance of music via terrestrial broadcast radio and television, digital music services, live performances and through general licensing to

³⁹ *Id.*

⁴⁰ Tim Ingham, *Len Blavatnik's Access Industries takes 'exclusive control' of Deezer*, MUSIC BUSINESS WORLDWIDE (Sep. 7, 2016), <http://www.musicbusinessworldwide.com/len-blavatniks-access-industries-takes-exclusive-control-deezer/>.

⁴¹ Micah Singleton, *Deezer's music-streaming service is now available for everyone in the US*, THE VERGE (Jul. 19, 2016), <http://www.theverge.com/2016/7/19/12227120/deezer-available-us-music-streaming>.

⁴² *Historical Royalty Rates*, HARRY FOX AGENCY, <https://secure.harryfox.com/public/HistoricalRoyaltyRates.jsp>.

physical outlets like restaurants, bars, gyms, and retail stores.⁴³ Performance royalties are collected by performing rights organizations (PROs) such as ASCAP, BMI, and SESAC. ASCAP and BMI, which represent 90% of the songs released commercially in the U.S. and account for 70% of performance distributions to music publishers,⁴⁴ operate under decades-old Consent Decrees with the U.S. Department of Justice. These Consent Decrees are overseen by federal “rate courts.” Pursuant to their Consent Decrees, ASCAP and BMI require member or affiliate music publishers to make their full catalogs available to anyone who applies for a license.

43. The third major source of income – synchronization royalties – includes money earned from the placement or use of a song in conjunction with a video or visual image. Record labels or music publishers are not regulated with respect to issuing synchronization licenses. As a result, synchronization revenue is typically split 50/50 between writers and publishers.⁴⁵ This use is primarily driven by the use of music in film and television.

44. Mechanical and performance royalties accounted for 75% of U.S. music publisher revenues in 2013. Synchronization fees,⁴⁶ the only income source over which songwriters and publishers have free market control, accounted for 20% of such revenues. Meanwhile, U.S. revenue from synch royalties appears to be plateauing, as

⁴³ *How Songwriters Get Paid*, NASHVILLE SONGWRITERS ASSOCIATION INTERNATIONAL, <https://www.nashvillesongwriters.com/how-songwriters-get-paid>.

⁴⁴ ALICE ENDERS & CHRIS HAYES, US MUSIC PUBLISHING 2014-17: POISED FOR GROWTH 7 (May 11 2015).

⁴⁵ *How Songwriters Get Paid*, NASHVILLE SONGWRITERS ASSOCIATION INTERNATIONAL, <https://www.nashvillesongwriters.com/how-songwriters-get-paid>.

⁴⁶ ALICE ENDERS & CHRIS HAYES, US MUSIC PUBLISHING 2014-17: POISED FOR GROWTH 7 (May 11 2015).

they were flat year-over-year in the first half of 2016 at \$100 million.⁴⁷ Thus, it appears that going forward, an even greater percentage of songwriters' and music publishers' income may be subject to government price control.

B. The Gap Between Label and Publisher Expenditures Is Narrowing

45. As noted above, record labels have argued that they have higher costs than music publishers. The IFPI found that when labels sign a performing artist, they typically spend between \$500,000 and \$2 million on artist development, the vast majority of which is recoupable against the artist's future royalties. This means artists do not see royalty income from their master recordings until these expenses are recouped. These expenses include an advance of \$50,000 to \$350,000 payable to the artist, recording costs of \$150,000 to \$500,000, video production budget of \$50,000 to \$300,000, tour support of \$50,000 to \$150,000, and marketing and promotion costs of \$200,000 to \$700,000.⁴⁸

46. Compare this, however, to advances paid by music publishers. For new songwriters, advances can range from \$18,000 to \$100,000 per year.⁴⁹ Superstar writers can earn advances of hundreds of thousands or even millions of dollars a year.⁵⁰ The level of advance may vary depending on whether the writer is a "pure songwriter" or is also an artist with a record deal.

⁴⁷ Joshua P. Friedlander, *News and Notes on 2016 Mid-Year Music Shipment and Revenue Statistics*, RIAA (2016), http://www.riaa.com/wp-content/uploads/2016/09/RIAA_Midyear_2016Final.pdf.

⁴⁸ *Investing in Music*, IFPI (Sep. 23, 10:26 AM), <http://www.ifpi.org/how-record-labels-invest.php>.

⁴⁹ See, e.g., DONALD S. PASSMAN, *ALL YOU NEED TO KNOW ABOUT THE MUSIC BUSINESS* 269 (7th ed. 2009).

⁵⁰ *Id.*

47. Music publishers are also investing more money in developing and marketing songwriters and the songs that they create. They are spending money to host and fly songwriters to all-expenses paid songwriter camps. They are providing recording facilities and paying for demos to be recorded in order to do their most important work: shop the songs to labels, managers and producers to get the right artists to record them. They also spend considerable amounts to place finished music in commercials, movies, TV shows, video games and other products,⁵¹ to enforce their songwriters' copyrights, and to maintain their royalty administration infrastructure.

48. One important distinction between a record label and a music publisher is the "shelf life" of their intellectual property. A label will focus on an individual release for 3-18 months, but a music publisher will work to market a song for the life of the copyright, promoting it to new artists for cover versions and bringing it to music supervisors for use in films, TV and commercials. All of a music publishers' repertoire can be considered "current," whereas recordings at least 18-months old, that have fallen below No. 100 on the Billboard 200, or are re-issues of older albums are considered "catalog," not "front-line" product for record labels.⁵² So while record labels may, in the short term, spend more to promote a particular recording, in the long term, a publisher's promotional investments in any given song may be greater.

49. Another significant justification offered in the past for paying greater royalties for sound recordings than for musical works was the cost of record production

⁵¹ Todd Brabec & Jeff Brabec, *Songwriter and Music Publisher Agreements: A Relationship Necessary For Success*, ASCAP (2008), <http://www.ascap.com/music-career/articles-advice/industryNotes/200809.aspx>.

⁵² *Catalog Albums*, BILLBOARD, <http://www.billboard.com/charts/catalog-albums>.

and distribution. However, the availability of low cost recording technology has led to reduced cost for recording a competitive album. Big city professional recording studios have been in crisis for over a decade as widely available music recording and production software tools like GarageBand, Logic and ProTools have enabled low cost commercial music production, often in bedroom studios. Indeed, GarageBand is ubiquitous. It comes pre-installed on every device sold by Apple, including the iPhone, iPad, and Mac computers. With nearly 300 million of those devices sold in 2015 alone, its market penetration is extensive, and these software applications are powerful. For example, indie-pop artist Grimes recorded her entire breakthrough album, *Visions*, on her own using GarageBand.⁵³

50. Outside the few elite, superstar recording projects, record company advances typically fund the production of an average, competitive recording without the use of big commercial recording studios. One can extrapolate that the labels are leveraging the availability of lower-cost technology to drive down the cost of producing an average, competitive record, which reduces both the recording budget and therefore the risk of not recouping advance money paid to recording artists.⁵⁴

51. The drop in the use of commercial recording studios is well-documented. The Hit Factory closed its New York location in 2005 to make way for condominium development. Sony Music Studios opened in 1993 and closed in 2007. In 2016, The Magic Shop and MSR (Manhattan Recording Studios), among the last surviving full

⁵³ Art Tavana, *Democracy of Sound: Is GarageBand Good for Music?*, PITCHFORK (Sep. 30, 2015), <http://pitchfork.com/features/article/9728-democracy-of-sound-is-garageband-good-for-music/>.

⁵⁴ *Id.*

service recording studios in Manhattan, closed their doors. Avatar Studios, formerly known as the Power Station, is reportedly for sale.⁵⁵ Between 1999 and 2014, New York State’s share of hit music production fell by 49.3%.⁵⁶ In a study authored by Jennifer Fowler of Belmont University in 2014 reviewing census data, Nashville’s recording studios peaked at 96 in 2002 and employed 486 people in 2001, and fell to a low of 63 studios in 2010, and the number of employees dropped to a low of 158 in 2009.⁵⁷ The studio industry has continued to suffer since then, with high-profile closures of 16 Ton Studios, Sound Shop, Fireside Studios and others,⁵⁸ with the famed RCA Studio A only narrowly missing demolition.⁵⁹ Los Angeles, the third major location for recording, has also experienced a steep decline. As noted in a 2009 Los Angeles Times article, “Although nobody officially tracks the number of recording studios, the consensus among industry experts is that the big commercial facilities have taken a major hit. They estimate that as many as half of the L.A. area’s commercial studios have closed or been sold to artists for private use. A key reason is that recording software emulates what old studio consoles and tape recorders used to do – at

⁵⁵ Matt A.V. Chaban, *The Music May Stop at a Storied Manhattan Studio*, THE NEW YORK TIMES (Sep. 28, 2015), http://www.nytimes.com/2015/09/29/nyregion/as-hit-factory-fades-chrome-faucets-may-supplant-gold-records.html?_r=0.

⁵⁶ Downtown Music Publishing, *‘New York Is Music’ Reveals Stark Decline In New York State Music Production*, SHORE FIRE MEDIA (Feb. 13, 2015), <http://shorefire.com/releases/entry/new-york-is-music-reveals-stark-decline-in-new-york-state-music-production>.

⁵⁷ Nate Rau, *Music industry leaders push recording studio incentive*, THE TENNESSEAN (Oct. 27, 2014), <http://www.tennessean.com/story/money/industries/music/2014/10/17/music-industry-leaders-push-recording-studio-incentive/17440619/>.

⁵⁸ Nate Rau, *16 Ton Studios will go silent at end of year*, THE TENNESSEAN (Nov. 19, 2014), <http://www.tennessean.com/story/news/2014/11/18/ton-studios/19248511/>.

⁵⁹ *Historic RCA Studio A Saved From Demolition*, THE ROLLING STONE (Dec. 23, 2014), <http://www.rollingstone.com/music/news/historic-rca-studio-a-saved-from-demolition-20141223>.

a fraction of the price. Among the most widely used programs are Avid Technology Inc.'s Pro Tools, Steinberg Media Technologies' Cubase and Apple Inc.'s GarageBand.”⁶⁰ Famed musician Dave Grohl even filmed a documentary about the closing of recording studio Sound City in 2011, where Tom Petty, Fleetwood Mac, Neil Young, and Nirvana all recorded seminal albums, and his purchase of its famed recording console.⁶¹

52. Technology has also revolutionized the record distribution side. Record labels used to have to press vinyl records or CDs, store them as inventory, and put them in trucks to be delivered to record stores. Now, all they need to do is send digital files to the digital services, who store them on their servers and provide them to consumers.

53. The role of the record label has been minimized not only by recording technology, but today, an artist need not even use a record label to distribute his or her recordings. Services such as CD Baby, Tunecore, and Distrokid have made it extremely easy and inexpensive for anyone to upload their music onto every major digital distribution platform. For example, CD Baby offers worldwide digital and CD distribution for \$9.95 per single and \$49 per album,⁶² while Tunecore offers worldwide digital distribution for \$9.99 per year per single and \$29.99 for the first year of an album's release followed by \$49.99 for each subsequent year.⁶³ Further driving down

⁶⁰ Nathan Olivarez-Giles, *Recording studios are being left out of the mix*, LOS ANGELES TIMES (Oct. 13, 2009), <http://articles.latimes.com/2009/oct/13/business/fi-smallbiz-studios13>.

⁶¹ Miriam Coleman, *Sound City Studios Owner Tom Skeeter Dead at 82*, THE ROLLING STONE (Sep. 14, 2014), <http://www.rollingstone.com/music/news/sound-city-studios-owner-tom-skeeter-dead-at-82-20140914>.

⁶² CD BABY (Sep. 23, 2016 11:01 AM), <https://members.cdbaby.com/cd-baby-cost.aspx>.

⁶³ *Tunecore Pricing*, TUNECORE (Sep. 23, 2016 11:05 AM), <http://www.tunecore.com/index/pricing>.

the price is Distrokid, which charges only \$19.99 per year for unlimited song and album uploads.⁶⁴

54. In sum, while labels may still have greater costs than publishers, that gap is closing due to decreases in labels costs combined with publishers being forced to undertake more promotional activities and incur greater risk of loss than in the past.

IV. SUMMARY OF OPINIONS

55. The recorded music and music publishing businesses are undergoing transformative change driven by the long term transition from physical product and permanent downloads to on-demand streaming. The shift to an access model, combined with a statutory rate structure that ties the royalties of songwriters and publishers to revenues earned by digital services that are motivated by business interests other than generating revenue from their music offerings, has resulted in reduced mechanical royalty payments to songwriters and publishers generally, but particularly to non-performing or “pure” songwriters, who require royalties from album cuts to sustain themselves.

56. The steaming revolution has not had the same adverse effects on the recorded music industry, which has seen increased revenues fuelled by the growth of streaming as well as from additional revenue sources that are not available to music publishers and songwriters. At the same time, the historical justifications for record labels receiving a greater share of royalties than music publishers and songwriters when a sound recording embodying a musical work is sold or licensed are becoming

⁶⁴ *How Much Does It Cost?*, DISTROKID (Sep. 23, 2016 11:05 AM), <https://distrokid.desk.com/customer/portal/articles/1276095-how-much-does-it-cost->.

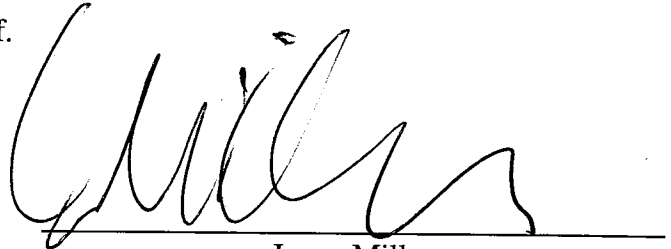
increasingly anachronistic. Recent trends in the music industry have placed music publishers and record labels at a greater level of parity in terms of both costs incurred and risk undertaken. Music publishers have seen increased costs in areas such as A&R and promotion, and record labels have seen a reduction in their costs to create and distribute sound recordings.

57. The recorded music and music publishing industries hit an inflection point in 2015, which solidified in the first half of 2016 as streaming became the largest revenue source for the U.S. recorded music business, overtaking physical CDs for the first time. The path forward is now clear. What is less clear, however, is how songwriters can sustain themselves in the absence of a per-play and per-user on-demand streaming rate. As we noted on an episode of the Musonomics podcast earlier this year, “If the songwriters can’t make a living writing songs, where will the songs come from?”⁶⁵

⁶⁵ *Songwriters, Consent and the Age of Discontent*, MUSONOMICS (2016) (downloaded using iTunes at <https://itunes.apple.com/us/podcast/musonomics/id985799104?mt=2>).

I declare under penalty of perjury that the foregoing testimony is true and correct to the best of my knowledge, information and belief.

Dated: October 28, 2016



Larry Miller

APPENDIX A

Materials Relied Upon by Lawrence S. Miller

Academic Books and Journal Articles

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APPENDIX B

Curriculum Vitae of Lawrence S. Miller

LARRY S. MILLER

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Strategic leader, teacher and music industry expert with over 20 years in all phases of music publishing and production, distribution and advanced technology, driving growth for the Fortune 100, startups and their investors. M&A advisory, business development, capital formation, recruiting and retaining the team, turning good ideas into amazing products, articulating the plan and executing with rigor in all economic cycles.

PROFESSIONAL EXPERIENCE

NYU – Steinhardt School of Culture, Education and Human Development **2013 - present**
Director, Music Business Program and Clinical Associate Professor

Courses taught: Undergraduate and graduate courses in

- Business Structure of the Music Industry: copyright, music publishing, recorded music, digital music services and venture economics
- Entrepreneurship in the Music Industry: the capstone course in the undergraduate program, where students generate a fundable music startup
- Data Analysis in the Music Industry: graduate course in music analytics; students learn literacy in the sources and uses of data as a strategic asset in the music industry
- Strategic Marketing in the Music Industry: an in-depth analysis of how the music industry is developing and implementing market opportunities in the context of the entertainment and mass media industries.

MediaNet
Vice President & General Manager

2012 - 2013 Executive

Responsible for new service innovation in music and media rights administration, partner acquisition, and revenue growth for the company founded by Warner Music Group, BMG, EMI and Real Networks as MusicNet. Company provides 30 million licensed music files on behalf of all major labels and thousands of independents, and related metadata and infrastructure for digital music services including Beats Music, Google, MTV, Microsoft. Built team and executed go-to-market strategy for music publishing rights administration services.

Musonomics
Managing Director

2009 – Present

Advisor to creators, distributors and investors in music and technology, enabling clients to understand the risks and potential of strategic acquisitions; help developers of music technology and web services analyze markets, define products, build a team and go to market.

- Senior Advisor to venture accelerator The Hatch Group
- Producer and host of the Musonomics podcast
- Led operational review of Sony/ATV-Universal Music Publishing joint venture
- Led global pricing study for Zildjian, world's largest manufacturer of cymbals

- Advised BV Investments (f/k/a Boston Ventures) on acquisitions in TV and film music

L.E.K. Consulting, New York

2007 – 2009

Vice President/Partner, Co-Head of Media & Entertainment

Senior member of Media & Entertainment practice and East Coast practice leader of \$250 million, London-based global strategy consulting firm. Established New York-based industry practice, developed trusted C-level client relationships, led pitch teams, consistently exceeded profitability and client satisfaction targets. Selected engagements:

- Developed and executed value-maximizing business strategy for Rodgers & Hammerstein Organization, supported auction process and acquisition by Imagem/ABP
- Led commercial due diligence team on acquisition of \$4 billion global music company
- Advised Oaktree Capital Management and Triton Media on acquisition of Dial Global
- Crafted digital marketing strategy for \$100 million Los Angeles standalone FM by Bonneville
- Advised NPR on digital affiliate services and pricing
- Devised a three-screen -- mobile, PC and television -- entertainment strategy for AT&T

Or Music, New York

2002 - 2006

Founder and CEO

Signed and developed artists and songwriters, produced and released CD's, DVD's, websites and original broadband content; home of Los Lonely Boys, Matisyahu, Tower of Power, John Cale, Alejandro Escovedo. Worldwide distribution and joint ventures with Sony Music and EMI Music Publishing. Sold company to Sony Music and EMI Music Publishing in 2006 with excellent return on capital.

- Founded company, built business plan, raised capital, recruited and trained staff
- Developed trusted relationships with distributors and financial sponsors
- Identified and signed brilliant artists and made great records
- Drove sales from zero to \$60 million and 4 million unit sales in three years

Reciprocal, New York

1999 – 2001 *President,*

Reciprocal Entertainment

P&L responsibility for rights management technology services business in three US locations, London and Singapore. Led sales, marketing, professional services, account management, operations and media/analyst relations.

- Led post-merger integration of AT&T a2b music and Reciprocal
- Drove customer and revenue growth from zero to 50 customers/\$5 million in revenue in 18 months
- Secured strategic partnerships with Microsoft, Reuters, Xerox, HP, First Data Corp, Bertelsmann, Softbank and Venrock
- Major clients included Sony Music Entertainment, BMG Entertainment, EMI, Warner Music Group, Universal Music Group, Pepsi, The Grammys and Yahoo
- Led organization through sale to Microsoft in 2001

AT&T, New York and Murray Hill, NJ

1996 – 1999

Vice President, Advanced Technology Commercialization, AT&T Labs (1997 – 1999)

Incubated research projects into commercial enterprises. Co-founder and operating chief of AT&T a2b music, the digital content distribution initiative of AT&T Labs. Led spinout of a2b music to Reciprocal in 1999

- Secured exclusive use of audio compression and electronic licensing technology
- Recruited technical and operations team, scoped, developed, tested and launched end-to-end secure multimedia content distribution service
- Managed AT&T's joint development agreement with Universal Music Group, BMG and Matsushita
- Jointly authored U.S. Patent Pending Method for Secure Microbilling

Client Partner, AT&T Solutions Consulting (1995 – 1997)

Established New York office of AT&T's professional services business; managed P&L, opened New York office, recruited 25 consulting professionals and staff

- Developed and executed strategic consulting engagements in broadcasting, publishing, music and business information services

A.T. Kearney/EDS Management Consulting, New York
Managing Consultant

1994 - 1995

Led client teams in media practice of national management consulting firm

EARLY CAREER HISTORY

Began career in broadcasting, ultimately rising to general management positions at **NBC Radio Entertainment** in affiliate relations, marketing and advertising sales, and at **Tribune Broadcasting's** WQCD-FM/CD101.9.

- Arrived in NY as the first production manager of **WHTZ/Z100** New York, the most successful startup in U.S. radio history.
- Recruited from product management/operations director at startup Radio Computing Services, developer of Selector music selection software
- Started out as a presenter and music director at commercial rock radio stations in Boston.

EDUCATION

Columbia Business School, MBA, Marketing and Finance, New York, NY
Brandeis University, BA, English and American Literature, Waltham, MA

AWARDS AND RECOGNITION

2005 Grammy Award for Best Pop Vocal Performance (Los Lonely Boys), 5 Grammy Nominations
BMI Music Publisher's Award for Most Performed Songs of the Year, 2004 and 2005
Executive Producer, *Por Vida*; "An artistic and humanitarian triumph," *Wall Street Journal*

LARRY MILLER
SELECTED RECENT MEDIA QUOTATIONS

NPR/American Public Media *Marketplace*, “We’re Running Out of Beyoncé’s,” by Tony Wagner, May 6, 2016 <http://www.marketplace.org/2016/05/05/world/streaming-exclusives>

Financial Times, “Beyonce scores a hit for Tidal but business may not ride the wave,” by Anna Nicolaou and Mamta Badkar, May 3, 2016
<http://www.ft.com/intl/cms/s/0/ace0562c-0d8c-11e6-b41f-0beb7e589515.html#axzz4840q5lHu>

Wall Street Journal, “Pricing Tickets for a Classic Rock Megashow,” by Neil Shah, April 28, 2016, <http://www.wsj.com/articles/pricing-tickets-for-a-classic-rock-megashow-1461872091>

Los Angeles Times, “Beyonce bets on a Tidal exclusive to boost ‘Lemonade’ sales,” by Ryan Faughnder, April 25, 2016,
<http://www.latimes.com/entertainment/envelope/cotown/la-et-0426-ct-beyonce-tidal-20160426-story.html>

Wall Street Journal, “Guns N’ Roses Puts It Back Together,” by Neil Shah, March 24, 2016, <http://www.wsj.com/articles/guns-n-roses-puts-it-back-together-1458760765>

Los Angeles Times, “Sony is betting on love for the Beatles lasting in a new \$750 million deal,” by Ryan Faughnder, March 16, 2016,
<http://www.latimes.com/entertainment/envelope/cotown/la-et-ct-sony-music-atv-20160316-story.html>

NPR/American Public Media *Marketplace*, “Getting the band back together can really pay off,” by Tony Wagner, January 25, 2016,
<http://www.marketplace.org/2016/01/22/business/business-getting-band-back-together>

Los Angeles Times, “David Bowie bonds were a ‘revolutionary business move, and here’s how they panned out,” by Samantha Masunaga, January 11, 2016,
<http://www.latimes.com/business/la-fi-bowie-bonds-history-20160111-story.html>

Los Angeles Times, “Sony/ATV sale expected to attract rivals, private equity,” by Ryan Faughnder,” October 17, 2015,
<http://www.latimes.com/entertainment/envelope/cotown/la-et-ct-sony-atv-music-20151017-story.html>

New York Times, “Music Publishing Deal Driven by Shift from Sales to Streaming,” by Ben Sisario, July 6, 2015, <http://www.nytimes.com/2015/07/07/business/media/music-publishing-deal-driven-by-shift-from-sales-to-streaming.html>

CBS This Morning, “Apple vows to pay artists in response to Taylor Swift’s open letter,” June 23, 2015, <https://www.youtube.com/watch?v=zVAe5rBE3gQ>

Los Angeles Times, “Apple Muscles Into Music Streaming,” by Ryan Faughnder, June 9, 2015, <http://www.latimes.com/entertainment/envelope/cotown/la-et-ct-apple-music-beats-20150609-story.html>

Los Angeles Times, “Apple’s new music streaming service could revive the recording industry,” by Ryan Faughnder, June 6, 2015, <http://www.latimes.com/entertainment/envelope/cotown/la-et-ct-apple-music-launch-20150606-story.html#page=1>

New York Times, “Sony Terms With Spotify Uncovered in Contract,” by Ben Sisario, May 24, 2015. <http://www.nytimes.com/2015/05/25/business/media/sony-terms-with-spotify-uncovered-in-contract.html>

Los Angeles Times, “Top 10 juicy rationalizations for Apple’s \$3.2 billion Beats deal,” by Chris O’Brien and Ryan Faughnder, May 10, 2014, <http://www.latimes.com/business/technology/la-fi-tn-top-10-juicy-rationalizations-for-apples-32-billion-beats-deal-20140509-story.html>

Harvard Political Review, “A Brave New World: Spotify and the Future of Music,” by David Freed, March 20, 2014, quoted throughout. <http://harvardpolitics.com/covers/brave-new-world-spotify-future-music/>

SRF 3 Schweizer Radio und Fernsehen (Swiss Radio), “YouTube: Grosse Fabrik der kleinen Traume,” February 16, 2014, radio interview. <http://www.srf.ch/sendungen/input/youtube-grosse-fabrik-der-kleinen-traeume>

Time, “Beats Has a Secret Weapon to Decimate Spotify, iTunes,” by Victor Luckerson, January 16, 2014, quoted throughout. <http://business.time.com/2014/01/16/beats-music-streaming-service-partners-with-att/>

Time, “Spotify and YouTube Are Just Killing Digital Music Sales,” by Victor Luckerson, January 3, 2014, quoted throughout. <http://business.time.com/2014/01/03/spotify-and-youtube-are-just-killing-digital-music-sales/>


Bloomberg Businessweek, “Why Live Nation Wants to Put Madonna and U2 Under New Management,” November 13, 2013, quoted throughout. <http://www.businessweek.com/articles/2013-11-13/why-live-nation-wants-to-put-madonna-and-u2-under-new-management>

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The Licensing Journal, “Metadata: How to Develop the Foundation for the Music Business of Tomorrow,” by Larry Miller, Volume 33 Number 10, November/December 2013, pages 1-8, Aspen Publishers, Wolters Kluwer.

THE MUSONOMICS PODCAST

Musonomics is a twice-monthly podcast about the business of the music and culture industries. Hosted by Larry Miller and produced with support from the NYU Steinhardt Music Business Program, we use data, music and interviews with newsmakers and analysts to provide insight into what's happening now -- and what's coming next. Distributed on iTunes, Soundcloud and other podcasting platforms. Musonomics has been downloaded or streamed over 500,000 times in its first year and reaches 15,000 listeners each week.



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Description

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	NAME	TIME	RELEASED	DESCRIPTION	POPULARITY	PRICE
1	Songwriting, Consent and the Age of Discontent	26 min	Mar 31, 2016	Songwriters struggle to get paid while the copyrig...	i	Get
2	Music in the time of Politics	29 min	Mar 2, 2016	The role of music in presidential elections -- and ...	i	Get
3	Music, Money and the Super Bowl	18 min	Feb 4, 2016	It's big! But just how big is the Super Bowl Halftim...	i	Get
4	The 3 Most Important Stories of 2015	22 min	Jan 1, 2016	A record breaking record, escalation of the strea...	i	Get
5	That Weird Thing That Happened To Recording Studios	35 min	Nov 30, 2015	Recording studios have had a rough time over the...	i	Get
6	YouTube's Big Red Elephant is Loose in the Music Industry's Room	33 min	Oct 27, 2015	YouTube is not only the biggest video streaming s...	i	Get
7	The Transparency Moment	19 min	Sep 2, 2015	What does transparency look like for the music in...	i	Get
8	Summer Festival Fever Spreads from Newport to Tennessee	27 min	Aug 3, 2015	Bonnaroo, EDM, and the state of the summer mus...	i	Get
9	George Wein and the Newport Legacy	29 min	Jul 23, 2015	The Summer Music Festival Part 1	i	Get
10	Apple, Music, and the Launch of Apple Music	29 min	Jun 28, 2015	A look back at Apple's history with music and a lo...	i	Get
11	What's a Mixtape Anyway?	23 min	Jun 6, 2015	A mixtape history lesson, a special report about a...	i	Get
12	Hello, Tidal! The Escalation of the Streaming Wars and the \$100 Billion Music...	21 min	May 7, 2015	Larry Miller chats with Larry Rosin, Alex Jacobs a...	i	Get
13	Record Store Day, the Vinyl Resurgence and The State of Physical Music Retail	36 min	Apr 14, 2015	Larry Miller chats with James Donio, Michael Kurt...	i	Get

TOTAL: 13 ITEMS