

**Before the  
UNITED STATES COPYRIGHT ROYALTY JUDGES  
Washington, D.C.**

In the Matter of:

Determination of Royalty Rates and Terms  
for Transmission of Sound Recordings by  
Satellite Radio and “Preexisting”  
Subscription Services (SDARS III)

Docket No. 16-CRB-0001 SR/PSSR  
(2018-2022)

**WRITTEN REBUTTAL TESTIMONY OF**

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**February, 2017**

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## I. INTRODUCTION

### a. Assignment and Qualifications

1. I have been asked by counsel for Sound Exchange, Warner Music Group (“WMG”), Sony Music Entertainment (“SME”) and Universal Music Group (“UMG”) to review, comment on and rebut the direct presentation of SiriusXM (“SXM”) respecting the interactive streaming agreements entered into by the music companies and their relevance to the determination of the appropriate royalty rate for SXM’s receipt of non-exclusive rights to transmit to its subscribers digital performances of copyrighted sound recordings as they relate to identifying the fair market value of the assets licensed in the benchmarks.

2. I am an applied microeconomist and Director for NERA Economic Consulting (“NERA”), an economic consulting firm based in White Plains, New York. I am based in NERA’s Washington, D.C. office. I earned a B.Sc. in Applied Mathematics and Economics from Brown University and a M.A. and Ph.D. in Economics from Harvard University. I have taught economics courses at the graduate and undergraduate level at several institutions. I have written and spoken publicly on a number of economic issues, including intellectual property issues.

3. At NERA, my practice has focused on the use and valuation of intellectual property, on antitrust related matters, and on the calculation of economic damages in commercial disputes. A substantial quantity of my economic research, including my Ph.D. dissertation and my testimony in several legal intellectual property disputes has focused on the recorded music industry, with respect to both physical and digital distribution. My CV, including a list of my recent testimony, is attached as **Appendix 1**. NERA is being compensated for my time at a rate of \$595 per hour and for the time of other NERA staff who worked on this project at their customary rates. Neither NERA’s nor my compensation depends on the outcome of this matter.

4. I reserve the right to supplement my opinions on further analysis and should additional information or testimony become available to me.

## b. Sources Relied Upon

5. In preparing this testimony, I (or economists or staff working under my direction) have reviewed information from a variety of sources. These include the expert testimony of Dr. Carl Shapiro,<sup>1</sup> Dr. Jonathan Orszag,<sup>2</sup> as well as other expert and fact testimony provided in this matter, documents and data produced by SoundExchange, publicly available disclosures from a number of firms, and other market research. In addition, I have relied on my experience and training as an applied microeconomist and my experience in the economic analysis of markets in general and the recorded music industry in particular. A list of the documents I have reviewed and relied upon in preparing this report is appended as **Appendix 2**.

## c. Summary of Conclusions

6. Based on my research to date, I have reached the following conclusions:
- The evaluation of a candidate benchmark agreement to assess the fair market value of royalty rates must take into account the relative bargaining position of *both* the buyer and seller in that negotiation.<sup>3</sup>
  - In terms of *SDARS III*, it is vital to assess the bargaining leverage of both the record labels and the licensees in the candidate benchmarks in order to determine if an adjustment must be made (up or down) to correct for any substantial imbalance in the bargaining positions and ensure that the benchmark rates reflect the underlying fair market value of the rights.
  - It is analytically unsound and incorrect to conclude based solely on an analysis of the bargaining position of the record companies, as has been

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<sup>1</sup> Written Direct Testimony of Carl Shapiro, October 19, 2016 (“Shapiro Report”).

<sup>2</sup> Written Direct Testimony of Jonathan Orszag, October 18, 2016 (“Orszag Report”).

<sup>3</sup> Fair market value refers to the price at which a willing and unrelated buyer would agree to buy and a willing and unrelated seller would agree to sell, when both parties are unconstrained and reasonably and equally informed in their decision making. *See, e.g.,* Robert W. Holthausen & Mark E. Zmijewski, *Corporate Valuation: Theory, Evidence and Practice*, 1<sup>st</sup> Ed. (Cambridge Business Publishers, 2014) at 4.

done by SXM and its witness Dr. Shapiro, that the royalty rates at which sound recordings are licensed to interactive services (the candidate benchmark) are not fair market rates.

- An analysis of a variety of factors demonstrates that the record companies are unable to exercise undue market power in order to raise the royalty rates paid by interactive services. These include:
  - i. The growth in interactive services over the last two years is inconsistent with a suppression of output that normally accompanies an exercise of market power and further provides the streaming services with substantial leverage in negotiations with record companies.
  - ii. The financial performance of the major record companies over the last few years is inconsistent with the record companies earning supracompetitive profits and thus, inconsistent with the exercise of undue market power.
  - iii. Downstream competition between interactive services and other methods of music delivery restricts the ability of record companies to price sound recordings at rates above the fair market value.
  - iv. Similarly, upstream competition amongst the record companies competing for market share, such as for inclusion in and top positioning on playlists curated by interactive services, helps to tilt the bargaining power in favor of the interactive services.
- As a result, there is no evidence that the royalty rates charged by record companies to interactive services reflect anything other than the fair market value of those rates.

## II. PROPOSED BENCHMARK AGREEMENTS SHOULD BE ASSESSED IN THE CONTEXT OF THE BILATERAL NEGOTIATIONS FROM WHICH THEY RESULT

7. In assessing the market value of copyrights subject to compulsory licenses, economists may consider many approaches to identify the value of the licensed rights and the proper approach will vary depending on the information available. In this proceeding, economists for both SXM and SoundExchange found it most appropriate to rely upon a benchmarking approach.<sup>4</sup> The goal of a benchmarking approach is to identify and use transactions between buyers and sellers of a comparable good in comparable circumstances in order to identify the underlying fair market value attached to compulsory license at issue. When comparable benchmarks are available and adjusted appropriately to the parties and rights at issue, this approach can identify the market value of the good at issue. Indeed, in both *SDARS I* and *SDARS II*, the Copyright Judges noted that the “the key characteristic of a good benchmark” is the comparability of the proposed benchmark to the rights and participants at issue in the proceeding.<sup>5</sup>

8. In order to assess the fair market value of licensing rights, it is important to identify the factors that affect the terms of any candidate benchmark agreement. In many cases, the terms of the candidate benchmark (as well as the terms of the hypothetical negotiation considered by the valuation expert) are the result of a bilateral negotiation between the licensor and licensee. Indeed, SXM witness Dr. Carl Shapiro notes that the goal of his analysis is to approximate a negotiated price (*i.e.*, royalty rate) between a willing buyer (SXM) and a willing seller (the record companies) “following a back-and-forth process, with neither side dictating the price.”<sup>6</sup> As he correctly explains, in a negotiation in which neither the seller nor the buyer is able to dictate the price, the agreed-upon price will be below that which the seller would dictate if it could and above that which the buyer would dictate if it could.<sup>7</sup> The actual price, as correctly

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<sup>4</sup> See generally the Shapiro Report and the Orszag Report.

<sup>5</sup> *SDARS I*, Federal Register, Vol. 73, No. 16, January 24, 2008 at 4,092; *SDARS II*, Federal Register, Vol. 78, No. 74, April 17, 2013. at 23,058.

<sup>6</sup> Shapiro Report, pp. 16, 20.

<sup>7</sup> Shapiro Report, p. 20.

explained by Dr. Shapiro, ultimately depends on the relative bargaining position of the negotiating parties – *e.g.*, if the seller has appreciably more bargaining power the price will be closer to the seller’s dictated price and vice versa.<sup>8</sup> In this, we are in agreement.

9. Consequently, it is critical to analyze the relative bargaining position of the licensors and licensees in the candidate benchmark agreements. However, in his discussion relating to the proposed benchmarks raised by the parties (*i.e.*, direct licensing agreements for interactive services proposed by SoundExchange, and the licensing agreements signed between small, independent record companies and SXM, proposed by SXM), Dr. Shapiro does not even acknowledge, let alone study or evaluate, this critical issue. Consequently, Dr. Shapiro fails to apply his own opinion regarding the applicability of relative bargaining power to the determination of reasonable royalty rates in this matter. Instead, when characterizing the free-market agreements between record companies and interactive services, Dr. Shapiro focuses solely on the ostensible bargaining power of the record companies, without assessing the bargaining position of the interactive services.

10. In lieu of an analysis of the bargaining positions of both parties, Dr. Shapiro focuses his “economic framework for determining a reasonable royalty rate” on a price-setting model in which record companies set rates, and licensees are price takers that must either accept those rates or decline a license.<sup>9</sup> His analysis is directly at odds with the way in which these agreements were actually negotiated, as well as at odds with his own description of the goal of his analysis. Rather than recognizing that the royalty rates in the interactive services agreements are the result of “a back-and-forth process, with neither side dictating the price,” in which the rate is ultimately determined by the relative bargaining positions of the parties,<sup>10</sup> Dr. Shapiro focuses his analysis solely on the bargaining positions of the record companies.

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<sup>8</sup> Shapiro Report, p. 20, FN 28.

<sup>9</sup> Shapiro Report, pp. 15-24, Section 5.

<sup>10</sup> Shapiro Report, pp. 16-20.

11. In doing so, Dr. Shapiro ultimately implies that the nature of competition among the major record companies is such that any royalty rates that they have negotiated with these services are simply not relevant to this rate setting proceeding due to a lack of “workable competition.”<sup>11</sup> He describes workable competition as follows:

A market is workably competitive if two conditions hold: (1) there are multiple suppliers who are capable of offering buyers meaningful alternatives, so that no single supplier has substantial unilateral market power; and (2) these suppliers do not engage in coordinated interaction. When both of these conditions are met, competition among the sellers in the market generates substantial benefits for buyers in the market and ultimately to downstream consumers.

The hallmark of a workably competitive market is regular, significant competition among suppliers for the patronage of buyers. In practice, to assess whether a market is workably competitive, economists look at market concentration, entry conditions, profits and price/cost margins, and especially more direct evidence regarding how suppliers compete, or refrain from competing, for the patronage of buyers.<sup>12</sup>

12. Dr. Shapiro claims that he is attempting to determine if the rates for his candidate benchmarks can be taken as representative of fair market value, rather than of undue market power. However, while the goal of his approach is correct, his implementation is not. Because he ignores entirely the buyer side of the market, he assumes that the buyer has little or no market power (*i.e.*, in the parlance of economists, they are simply price takers). If the candidate benchmark agreements were not bilaterally negotiated license agreements, then such an approach may be warranted.<sup>13</sup> However, this is *not* how the royalty rates in any of the interactive services benchmark agreements were determined. That is, these agreements are the result of direct, bilateral negotiations between buyers and sellers. Dr. Shapiro’s analysis simply ignores this critical fact.

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<sup>11</sup> Shapiro Report, p. 4.

<sup>12</sup> Shapiro Report, p. 22.

<sup>13</sup> If, for example, candidate benchmarks were the result of a market mechanism in which sellers set prices and buyers were price-takers (*i.e.*, in which buyers had little or no market power), then Dr. Shapiro’s approach may be appropriate.



13. Dr. Shapiro's approach – focusing solely on the bargaining position of the record companies – is fundamentally biased and incomplete. The correct approach in these circumstances recognizes that the ultimate value (or price) of the bargain will be the result of bilateral negotiation and may result in prices that are equal to, higher, or lower than the inherent value of the underlying copyrights.<sup>14</sup> Economic models of bargaining – including those cited by Dr. Shapiro – predict that, under standard assumptions, the value of the bargain will be divided between the parties in proportion to their negotiating power. Thus, if one determines that sellers have strong bargaining positions, that would, *all else equal*, result in higher royalty rates; this is the analysis that Dr. Shapiro conducts. However, by stopping there, Dr. Shapiro does not consider whether or not the services (or licensees) also have strong bargaining positions that would, *all else equal*, lead to lower royalty rates. As a result, Dr. Shapiro's assessment of the candidate benchmarks is incomplete and his conclusions are accordingly unreliable.

14. In the context of *SDARS III*, it is vital to assess the bargaining leverage of both the record labels and the licensees in the candidate benchmarks in order to determine if an adjustment must be made (up or down) to correct for any substantial imbalance in the bargaining positions and ensure that the benchmark rates reflect the underlying fair market value of the rights. Of course, Dr. Shapiro's flawed approach does not necessarily mean that the answer he arrives at is wrong. However, as I explain in more detail below, in this case Dr. Shapiro's conclusions regarding the applicability of the interactive services sound recording benchmarks ignore the substantial leverage that the interactive services have and, as a result, his opinion with regards to the utility of those benchmarks is wrong.

15. Specifically, in his assessment of the record companies' bargaining position, Dr. Shapiro notes that, in *Web IV*, the Copyright Judges were presented with evidence that there was a "lack of competition" in the licensing of sound recording rights to interactive services<sup>15</sup> and concludes that license agreements involving the interactive services are poor benchmarks

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<sup>14</sup> Dr. Shapiro acknowledges as much. See Shapiro Report, p. 20, FN 28 ("The negotiated price will be closer to the price the seller would dictate if the seller has more bargaining skill or bargaining power than the buyer, and vice versa.").

<sup>15</sup> Shapiro Report, p. 23. See also *Web IV*, Federal Register, Vol. 81, No. 84, May 2, 2016 ("*Web IV*") at 26341-44.

because they do not arise under workably competitive conditions.<sup>16</sup> While it has become increasingly clear that interactive services can, in fact, thrive even with incomplete catalogs,<sup>17</sup> I will assume, for argument's sake, that the major record companies' catalogs are "must haves" to the interactive services and, as a result, this enhances the bargaining power of the record companies and, therefore, tends to pull the negotiated royalty rates upward.

16. Rather than stop there, however, I also consider the impact of ignoring the bargaining position of the services themselves. As I describe below, the interactive services marketplace is dominated by a small number of large services (e.g., Spotify, Apple, Amazon), several of whom are also substantial players in the retail market for physical and/or digital sales of recorded music (e.g., Apple, Amazon). As shown in **Figure 1** below, Spotify, Apple, and Google accounted for over ■ percent of premium subscriptions in 2015, with Spotify alone accounting for almost ■ percent.

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<sup>16</sup> Shapiro Report, p. 24.

<sup>17</sup> For example, in November 2014 Taylor Swift removed all of her music from Spotify. Yet despite the absence of Taylor Swift's music on Spotify, the number of global active Spotify users grew from 50 million users in the month of November 2014 to 100 million users in the month of June 2016. Similarly, the number of paying worldwide Spotify subscribers grew from 12.5 million subscribers in November 2014 to 39 million subscribers in August 2016. See Sven Grundberg and Hannah Karp, "Taylor Swift Pulls Her Music From Spotify: Move Comes Week After New Album Release," *The Wall Street Journal*, November 4, 2014, available at <https://www.wsj.com/articles/spotify-says-taylor-swift-pulls-her-music-from-service-1415035751>; Reuters, "Spotify hits 100 million total users, 30 million paying subscribers," *VentureBeat*, June 20, 2016, available at <http://venturebeat.com/2016/06/20/spotify-hits-100-million-total-users-30-million-paid-subscribers/>; Paul Sawers, "Spotify hits 40 million paying subscribers, up 10 million in 6 months," *VentureBeat*, September 14, 2016, available at <http://venturebeat.com/2016/09/14/spotify-40-million/>; and "2 Billion and Counting," *Spotify News*, November 11, 2014, available at <https://news.spotify.com/us/2014/11/11/2-billion-and-counting/>.

See  
SoundX\_000156808-50 at 40; SoundX\_00156902-6 at 4.

[REDACTED] 18

[REDACTED]

[REDACTED]

[REDACTED] 19 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 20

17. These shares, however, underestimate the respective bargaining position of other non-Spotify services like Apple and Amazon, whose business, unlike Spotify, is not limited to on-demand interactive steaming. For example, Apple is the largest retailer of digital download

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<sup>18</sup> SoundX\_000045626-61 at 45.

<sup>19</sup> SoundX\_000045488-515 at 507.

<sup>20</sup> SoundX\_000040351-9 at 6-7. [REDACTED]



– the second oldest of the larger interactive streaming services launched outside of the U.S. in 2008 and in the U.S. June 2011 (behind Rhapsody) – is currently valued at \$8.5 billion.<sup>25</sup> Between 2015 and 2021, Spotify is projected to more than triple its number of subscribers in the U.S.<sup>26</sup> Similarly, between 2015 and 2021, U.S. subscribers for interactive streaming services is expected to more than double from 12.5 million subscribers in 2015 to 30.9 million subscribers in 2021. This demonstrates that interactive services are increasingly important as a profit and revenue source to the record companies with no signs of letting up, while other channels, especially digital and physical sales, are shrinking.<sup>27</sup>

19. Record companies recognize the growing importance of interactive streaming services to their bottom lines today and in the future.<sup>28</sup> For example, in 2015, [REDACTED] [REDACTED] [REDACTED]<sup>29</sup> The importance of these services to UMG’s bottom line means that interactive streaming services like [REDACTED] have “considerable clout in [royalty rate] negotiations” and that the royalty rates that UMG seeks from these service providers are

<sup>25</sup> “Merlin, the Virtual Fifth Major, to Join Spotify at Launch,” Merlin Press Release, October 7, 2008, available at <http://www.merlinnetwork.org/uploads/7thOctober2008-MerlintheVirtualFifthMajorToJoinSpotify.pdf>. Mike Flacy, “Unlimited Listening on Spotify Will Vanish For U.S. Early Adopters Next Week,” *Digital Trends*, January 6, 2012, available at <http://www.digitaltrends.com/music/unlimited-listening-on-spotify-will-vanish-for-u-s-early-adopters-next-week/>. Douglas MacMillan, Matt Jarzemsky and Maureen Farrell, “Spotify Raises \$1 Billion in Debt Financing,” *Wall Street Journal*, March 29, 2016, available at <https://www.wsj.com/articles/spotify-raises-1-billion-in-debt-financing-1459284467>. See also Julia Greenberg, “Spotify is Worth \$8 Billion? It’s Not as Crazy as it Sounds,” *Wired*, April 15, 2015, available at <https://www.wired.com/2015/04/spotify-worth-8-billion-not-crazy-sounds/>. One investment bank released a report that went further and estimated that a Spotify IPO would be worth \$20 billion as a base case and as much as \$53 billion in the best case. See Per Roman, Robert Ahldin and Joakim Dal, “Spotify – Growth Is Accelerating,” *GP. Bullhound*, September 2016, available at <http://tech.eu/wp-content/uploads/2016/09/GP-Bullhound-Spotify-Update-Sept-2016.pdf>.

<sup>26</sup> See John Blackledge et al., Spotify: A Global Streaming Leader,” *Cowen and Company*, June 29, 2016, pp. 10, 14 (“We expect On Demand streaming to drive music revenue growth long term, with Spotify playing a crucial role.”).

<sup>27</sup> See e.g., Adam Levy, “Spotify is Growing Twice as Fast as Apple Music,” *The Motley Fool*, September 23, 2016, available at <https://www.fool.com/investing/2016/09/23/spotify-is-growing-twice-as-fast-as-apple-music.aspx>; and Kris Carlon, “Amazon reports 20% sales growth: Prime, Prime Video and Prime Music all booming,” *Android Authority*, January 29, 2016, available at <http://www.androidauthority.com/amazon-reports-20-sales-growth-2015-670302/>.

<sup>28</sup> “For this reason, in the current market climate, we recognize that regardless of whether the Spotify on-demand subscription service or the Apple Music on-demand subscription service are promotional or substitutional of sales, they are now the digital platforms that best monetize our sound recordings and pay the highest royalties.” See Written Testimony of Aaron Harrison ¶ 18.

<sup>29</sup> Written Testimony of Aaron Harrison, ¶¶ 13 (Figure 1) and 14.

“constrained by the importance of these services to UMG and the highly competitive nature of the market in which they operate.”<sup>30</sup>

20. The critical importance of interactive streaming to the record industry is directly relevant to the relative bargaining positions of the record companies and the service providers. Ultimately, because the interactive services account for a substantial proportion of industry revenues and many of the major players also have important positions in other distribution channels, it is clear that they have leverage which they can (and, as I have noted above, do) use to strengthen their bargaining position in negotiations for sound recording licenses for interactive streaming. [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]<sup>31</sup> [REDACTED]  
[REDACTED]  
[REDACTED]<sup>32</sup>

21. As a result, it is analytically unsound and incorrect to conclude, based solely on an analysis of the bargaining position of the record companies, that the royalty rates at which sound recordings are licensed to interactive streaming services are not fair market rates. Simply assuming that the record companies are dictating prices and the interactive streaming services are price-takers with no leverage with which to negotiate for lower rates is unfounded. That said, without further analysis, it would similarly be wrong to conclude that fair market rates are either below the licensed royalty rates for interactive services (as Dr. Shapiro has done) or equivalent to the licensed rates royalty rates for interactive services. Instead, additional analysis is necessary to determine if the royalties paid for sound recordings by interactive streaming services can be fairly represented as being market value.

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<sup>30</sup> Written Testimony of Aaron Harrison, ¶ 35.

<sup>31</sup> SoundX\_000045626-61 at 36.

<sup>32</sup> See, e.g., Tim Ingham, “Spotify is out of contract with all three major labels – and wants to pay them less,” August 22, 2016, Music Business Worldwide, available at <http://www.musicbusinessworldwide.com/spotify-contract-three-major-labels-wants-pay-less/> (“the possibility of UMG, Sony or Warner catalogues being pulled is widely regarded as out of the question.”).

22. There are many well-accepted processes by which one can assess if prices are “competitive” or not – that is, in the context of bargaining, whether the prices represent fair market value. For example, if market prices were indeed anticompetitive, one would expect to see evidence of some or all of the following – a suppression of output for recorded music, supracompetitive profits earned by the record companies, and a lack of alternatives to which downstream consumers (*i.e.*, music listeners) could turn to.<sup>33</sup> In the next section, I investigate these factors to determine if there is evidence that the rates paid by interactive services are anticompetitive (*i.e.*, that they are higher than fair market value).

### III. SOUND RECORDING RATES PAID BY INTERACTIVE SERVICES DO NOT REFLECT UNDUE MARKET POWER BY THE RECORD COMPANIES

23. Economic theory is clear as to the effects of firms possessing undue market power – when goods are priced above the competitive level, prices tend to reduce output and growth, and lead to supracompetitive profits for the firm.<sup>34</sup> As I show below, however, the available evidence demonstrates that interactive streaming has grown substantially over the past several years and is forecast to continue this growth. Meanwhile, the profits earned by the record companies do not suggest that the record companies are earning supracompetitive returns. This – along with additional evidence of market pressures that would tend to depress the record companies’ wishes to raise royalty rates – supports a conclusion that the licensing rates for sound recordings in interactive streaming agreements do, in fact, represent the fair market value of such rates for the underlying sound recordings.

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<sup>33</sup> Here I note that while Dr. Shapiro’s assessment of the record companies’ bargaining power is largely restricted to the interactive services space, the dynamic he describes would apply not only to interactive services, but likely also to other licensing situations. In all those cases, prices are set by bilateral negotiation and the resulting prices therefore reflect the bargaining position of the record companies and the licensees/distributors.

<sup>34</sup> While any microeconomics textbook will demonstrate that market power leads to higher prices, higher profits and lower output (so long as demand is not perfectly inelastic), for one example, *see* W. Kip Viscusi, John M. Vernon, and Joseph E. Harrington, Jr., *Economics of Regulation and Antitrust*, Third Edition, The MIT Press, 2000, pp. 78-80.

**a. The Rates Charged for Interactive Streaming Rights Have Not Suppressed Its Growth**

24. As I discussed above, interactive streaming has grown enormously in recent years in both absolute and relative terms, and this growth has not slowed down; for example, [REDACTED]

[REDACTED]<sup>35</sup> As Dr. Shapiro reports in his Table 5, [REDACTED]

[REDACTED].<sup>36</sup> This growth was largely driven by Spotify, which increased by more than threefold its global revenues from approximately \$553 million in 2012 to over \$2 billion in 2015.<sup>37</sup>

25. Similarly, **Figures 2 and 3** shows the growth in the number of active Spotify users and the number of paying Spotify subscribers worldwide. Between December 2012 and June 2016, the number of monthly Spotify global users has increased from 20 million to 100 million users – a fivefold increase in less than 4 years (**Figure 2**). Similarly, between December 2012 and August 2016 the number of global paid Spotify subscribers increased from 5 million to 39 million subscribers – almost an eightfold increase in less than 4 years (**Figure 3**).

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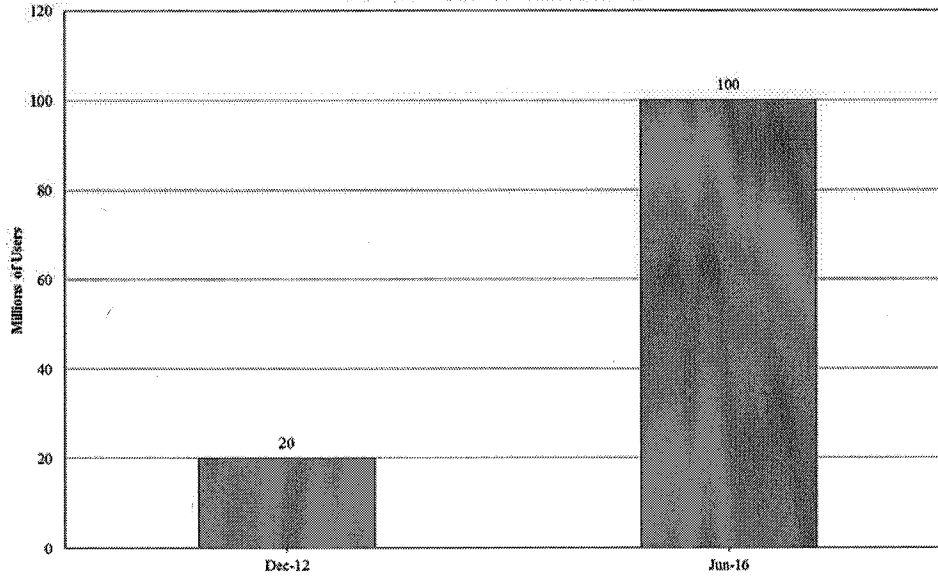
<sup>35</sup> SoundX\_000045626-61 at 36.

<sup>36</sup> Shapiro Report, Figure 5. This may not be a perfect definition of revenues from interactive services, but it is likely very close. RIAA defines “Paid Subscriptions” as “Streaming, tethered, and other paid subscription services not operating under statutory licenses” and “Ad-Supported On-Demand Streaming” as “Ad-supported audio and music video services not operating under statutory licenses.” Interactive services cannot operate under a statutory license and non-interactive services generally do operate under a statutory license. However, to the extent that some non-interactive services are operating under direct licenses, then these figures include a small portion of non-interactive service revenues. Pandora, by far the largest statutory service operated under a statutory license until the third quarter of 2016. See Pandora SEC 10-Q, for the period ended September 30, 2016, p. 41, available at <http://investor.pandora.com/Cache/36431006.pdf>; and RIAA 2015 Year-End Industry Shipment and Revenue Statistics, available at <https://www.riaa.com/wp-content/uploads/2016/03/RIAA-2015-Year-End-shipments-memo.pdf>.

<sup>37</sup> Tim Ingham, “Spotify Revenues Topped \$2BN Last Year as Losses Hit \$194M,” *MusicBusinessWorldwide*, May 23, 2016, available at <http://www.musicbusinessworldwide.com/spotify-revenues-topped-2bn-last-year-as-losses-hit-194m/>. Data was converted from Euros to U.S. dollars using annual exchange rates published by the Board of Governors of the Federal Reserve available at <https://www.federalreserve.gov/data/download/Build.aspx?rel=H10>.

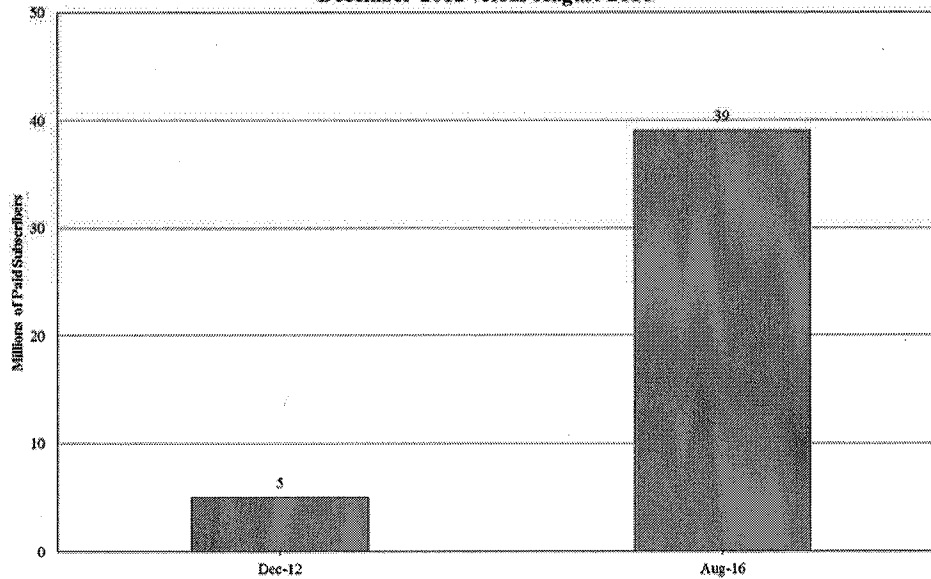


**Figure 2**  
**Spotify Number of Global Monthly Active Users**  
**December 2012 versus June 2016**



Sources: Ingrid Lunden, "Spotify By The Numbers: Now 5M Paying Subscribers, With 1M In The U.S. Alone; 20M Users Overall," *Tech Crunch*, December 6, 2012. Reuters, "Spotify hits 100 million total users, 30 million paying subscribers," *VentureBeat*, June 20, 2016.

**Figure 3**  
**Spotify Number of Global Paid Subscribers**  
**December 2012 versus August 2016**



Sources: Ingrid Lunden, "Spotify By The Numbers: Now 5M Paying Subscribers, With 1M In The U.S. Alone; 20M Users Overall," *Tech Crunch*, December 6, 2012. Paul Sawers, "Spotify hits 40 million paying subscribers, up 10 million in 6 months," *VentureBeat*, September 14, 2016.

26. Since Spotify's U.S. launch in 2011, interactive streaming services have also been launched by a number of companies, including Google, Amazon, Apple, Tidal and, most recently, Pandora.<sup>38</sup> Notwithstanding the bargaining position of the record labels when negotiating for licenses to operate an interactive streaming service, there is no shortage of entrants who believe that participation in the market will be profitable given the rates at which they can license sound recordings.

27. Simply put, there is substantial evidence that the growth of interactive streaming has been robust at the current rates at which the services license sound recordings from the record companies. Given the downstream competition that interactive services face from other distribution channels, one would expect that if the rates being charged were above fair market value, the growth of interactive services would suffer. Instead, growth continues unabated and interactive streaming has exploded in importance in recent years. As UMG has stated, "its best hope of increasing its revenues lies with subscription on-demand services" and, as a result, the subscription on-demand services "have considerable clout in [royalty rate] negotiations."<sup>39</sup>

**b. The Record Companies' Financial Performance Does Not Indicate that They Are Earning Excessive Returns**

28. The implication of SXM's contention that the record companies have "substantial market power" is that the record companies are able keep prices above the "workably competitive" level, such that it would lead to supracompetitive profits. Indeed, while no such evidence as to the profitability of the record companies was presented in *Web IV*, the Copyright Judges invited such an analysis in their decision: "...SoundExchange may be making an implicit

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<sup>38</sup> Josh Constine, "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/>; 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>; "Introducing Apple Music – All The Ways You Love Music. All in One Place," *Apple Press Release*, 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>; Kerry Close, "Pandora Unveils Its \$10-a-Month Premium Streaming Service," *Time.com*, December 7, 2016, available at <http://time.com/money/4593478/pandora-premium-music-streaming/>; and Matthew Sparkes, "Tidal launches lossless music streaming in UK and US," *The Telegraph*, October 28, 2014, available at <http://www.telegraph.co.uk/technology/news/11192375/Tidal-launches-lossless-music-streaming-in-UK-and-US.html>.

<sup>39</sup> Written Direct Testimony of Aaron Harrison, ¶¶ 34-35.

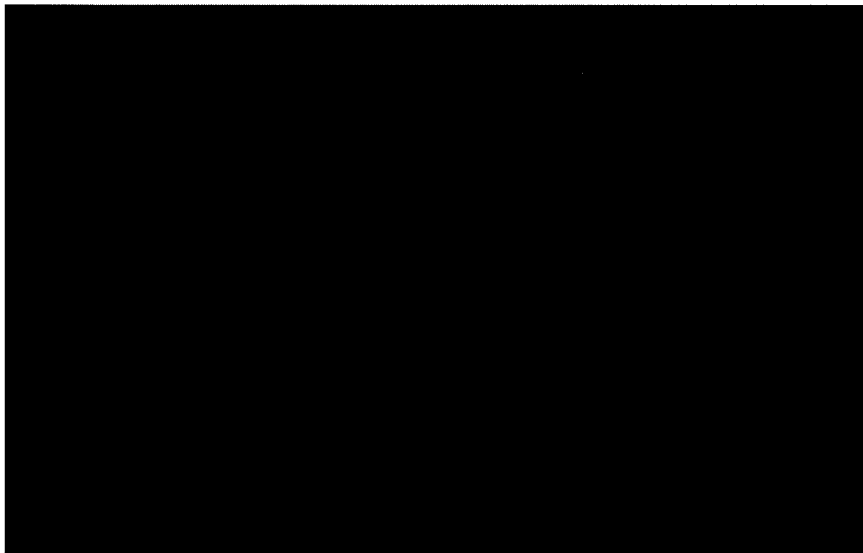
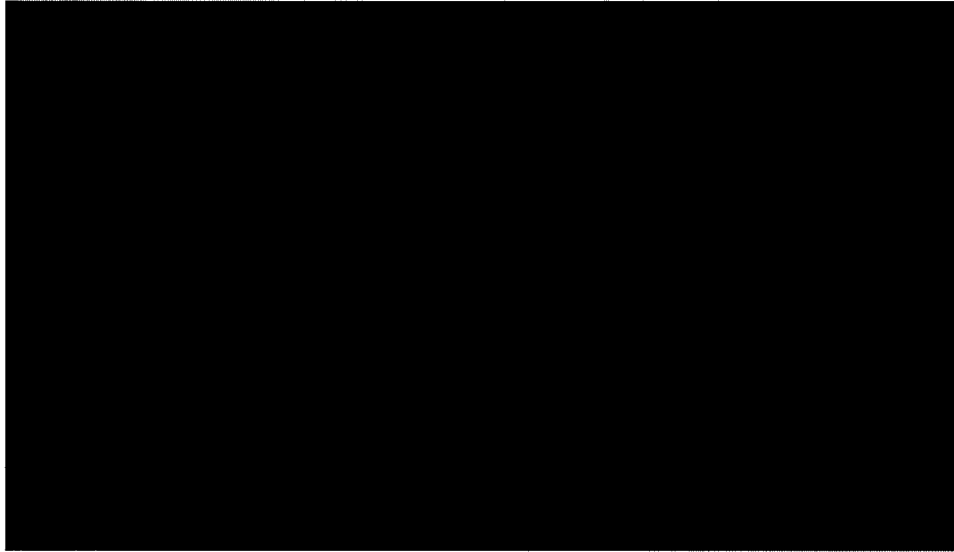
argument that the rates in its interactive benchmark market have been so reduced by downstream competition that all supranormal profits have been eliminated. However, SoundExchange did not produce evidence sufficient to show record company profits overall to support such an argument.”<sup>40</sup> As I describe below, an analysis of the record companies’ financial performance shows no such excessive returns.

29. To assess whether record companies are earning supracompetitive profits with respect to interactive services, I reviewed each major label’s annual operating margins for their recorded music industry business for the period 2014 to 2016. These margins are based on revenues from physical sales, digital downloads, and streaming and related costs. While particular costs included in this analysis are only attributable to certain revenue channels (e.g., manufacturing costs related to physical sales), most of the included costs relate to advances and recording expenses, and marketing and promotion expenses which are spread across the entirety of the recorded music business. While these data are not limited to interactive streaming services, to the extent there is undue market power in streaming on the part of the record companies, such market power would extend to physical and digital sales as well. Thus, there is no a priori reason why recorded music business profits could not be used as a proxy for assessing whether record companies earn supracompetitive profits. Simply put, the nature of the business is such that it is only sensible to look at profits across the recorded music business. However, given the growth in the share of revenues (and therefore profits) that is due to interactive streaming, *if* it were the case that supracompetitive pricing and profits existed in interactive streaming, it should be apparent in the overall profitability of the recorded music business.

30. **Figures 4-6** show the annual worldwide, and where available, the U.S. operating margins for each of the three major recording companies for the period 2014 to 2016.

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<sup>40</sup> *Web IV* at 26,343, FN 99.





31. The margins earned by the three major record companies in recent years do not indicate any cause for concern with regard to pricing power.<sup>41</sup> First, pre-tax operating margins, like those reported in **Figures 4-6**, reflect a firm’s mark-up over its operating costs and thus, the ability of a firm to cover its costs and return revenue back to the company. The interpretation of a firm’s pre-tax operating margin will be driven by the industry in which that firm is a part. For example, normal margins in some industries or business sectors may be lower than those earned by the record companies, while in other industries they may be higher. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>42</sup> [REDACTED]

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<sup>41</sup> [REDACTED] in physical and digital sales, which had been the dominant distribution channels in the past, the record companies collect additional revenues to pay mechanical publishing royalties that are passed on directly to the owners of musical work copyrights. With respect to streaming, however, this is not the case – the services typically pay music publishers directly. Because a cost that exists in physical and digital distribution is not present for streaming (and the associated revenues to cover those costs is eliminated one for one), this will tend to increase margins (profits divided by revenues) in streaming even when the economics are otherwise identical. [REDACTED]

<sup>42</sup> Entertainment sector margin data is taken from Dr. Aswath Damodaran’s database that compiles average operating and net margins data by industry sector over time. Dr. Damodaran is the Kerschner Family Chair in Finance Education at NYU’s

[REDACTED]

[REDACTED]

32. Given this, the financial performance of the record companies in recent years does not suggest that they are able to earn supracompetitive profits in the recorded music business in general, or in interactive streaming specifically. Instead, these margins are consistent with the premise that the prices charged by the record companies (for interactive streaming licenses as

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Leonard N. Stern School of Business where he teaches and writes on valuation and corporate finance. He has, since the late 1990s, compiled a variety of financial data from sources like Bloomberg, Morningstar, Capital IQ, and Compustat for companies in a variety of business sectors, entertainment being one. Dr. Damodaran identifies companies that should be classified as belonging to the Entertainment industry, using data obtained from the S&P Capital IQ and from that he calculates a sector operating margin. See Data Archives, Cash Flow Estimation, Operating and Net Margins by Industry, available at [http://people.stern.nyu.edu/adamodar/New\\_Home\\_Page/dataarchived.html#cashflows](http://people.stern.nyu.edu/adamodar/New_Home_Page/dataarchived.html#cashflows) ; and Data Current, Cash Flow Estimation, Operating and Net Margins by Industry, available at [http://people.stern.nyu.edu/adamodar/New\\_Home\\_Page/datacurrent.html](http://people.stern.nyu.edu/adamodar/New_Home_Page/datacurrent.html) (collectively, “Dr. Damodaran Margins Data”).

well as for physical and digital sales, and other revenue sources) are a result of negotiations in which both sides possess and exercise leverage in bargaining.

**c. Downstream Competition among Interactive Services Limits the Ability of Record Companies to Exert Upstream Market Power**

33. Music listeners can acquire music from a variety of service providers: terrestrial radio, satellite radio, webcasting, interactive services, digital downloads, and through the purchase of CDs. There is little dispute that these service providers compete downstream to acquire users and that such competition impacts the rates charged upstream by the rights holders.<sup>43</sup> In *Web IV*, the Copyright Judges found that such downstream competition helped to equalize royalty rates among downstream services. Specifically, the Copyright Judges found that downstream competition helps to serve as a check on what interactive services can charge and therefore on what upstream licensing rates can be, because if interactive streaming licensing rates are too high, it would impact the ability of interactive streaming to compete with other channels.<sup>44</sup>

34. This competition has indeed manifested itself and has served as a check on the leverage that the record companies might otherwise hold in negotiations with the services. Record companies understand that attempting to charge royalty rates that exceed fair market values could result in interactive streaming providers having to raise subscription rates for their on-demand tiers. Given the downstream competition faced by interactive services, these higher rates could result in a loss of subscribers to other alternatives, such as free ad-supported services, satellite radio, or terrestrial radio.<sup>45</sup> Such a loss of interactive service subscribers would only

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<sup>43</sup> Shapiro Report, p. 11. *See also* Direct Testimony of Aaron Harrison, ¶ 34.

<sup>44</sup> *Web IV* at 26,347-50 (“Those two benchmark subscription rates therefore indicate that competition and convergence indeed do cause interactive and noninteractive royalty rates to be similar in the subscription market.”). *See also* Hon. 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*, 2015, vol. 12(1/2), pp. 1-15 (Judge Strickler, from the *Web IV* decision, discussing the importance of economic evidence and the quality of the evidence supported for the purpose of determining copyright royalty rates).

<sup>45</sup> Written Testimony of Michael Kushner, ¶ 21 (“...we have to view use of our music in every type of streaming service as competing to some extent with every other such use of our music. We view none of them as promotional of any other, and

serve to reduce the revenues of interactive services and thus, the record companies' revenues.<sup>46</sup> As such, the royalty rates sought by the record companies are constrained by the importance of interactive services to record companies' bottom lines, as well as the competition that interactive services face.<sup>47</sup>

35. Higher rates for interactive services, instead of pushing users to other legal downstream music services, could also drive users to illegally download (or pirate) music recordings. [REDACTED]<sup>48</sup> [REDACTED]

[REDACTED]<sup>49</sup> The record companies understand the costs of piracy to their business – and the impact on their recording artists – and consider this reality in their negotiation with interactive services to establish royalty rates.<sup>50</sup>

36. Downstream competition between interactive services and other methods of music delivery restricts the ability of record companies to price sound recordings at rates above the fair market value. Given the size of the interactive streaming segment in the music ecosystem, the risk that consumers might switch to other channels of music consumption is substantial, and both the record companies and the services would likely recognize this in negotiations, providing further support for the use of a bargaining framework to assess the fair market value of sound recording rights.

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indeed, we view each as potentially cannibalizing others. Thus, we are focused on growing the lines of business that generate the highest revenue per user, and need to generate an appropriate level of revenue from each of them.”).

<sup>46</sup> Written Testimony of Aaron Harrison ¶ 34.

<sup>47</sup> Written Testimony of Aaron Harrison ¶ 35.

<sup>48</sup> See, e.g., SoundX\_000158765-799 at 767 and 770 [REDACTED].

<sup>49</sup> SoundX\_000158453-463 at 457. [REDACTED]

<sup>50</sup> See, e.g., SoundX\_000158371-402 at 373 (“

[REDACTED]”).



**d. Record Companies Compete for Share of Interactive Services**

37. Between 2014 and 2016 the digital streaming percentage of record company revenues [REDACTED].<sup>51</sup> In an environment dominated by digital streaming, whereby a record company's revenues are based on its share of plays on each digital streaming service in a given month, in order for a record company to increase its revenues, it must seek to obtain the highest share of listens on each streaming service in each month at the expense of all other record companies. As Michael Kushner, Executive Vice President, Business & Legal Affairs for Atlantic Recording Corporation testified, a record company's "success depends significantly on maximizing our market share on each streaming service."<sup>52</sup> [REDACTED]

[REDACTED]  
[REDACTED].<sup>53</sup>

38. Interactive services are not innocent bystanders of this competition between record companies. In fact, they are a key component of that competition. Interactive services can steer a subscriber to a particular record company's catalog by including a higher proportion of that record company's catalog on curated playlists. [REDACTED]

[REDACTED]  
[REDACTED].<sup>54</sup> A record company competes for inclusion on such Spotify curated playlists as a way to get more plays, which increases the record company's share on the service and thus, its revenue. Record companies also compete for higher positioning on a playlist because users will not often make it through a playlist in its entirety.<sup>55</sup> [REDACTED]

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<sup>51</sup> Shapiro Report, Figure 5.

<sup>52</sup> Written Direct Testimony of Michael Kushner, ¶ 22.

<sup>53</sup> SoundX\_000040364-380 at 370, 371, and 374.

<sup>54</sup> Written Direct Testimony of Aaron Harrison, ¶¶ 36-37. *See also* Written Direct Testimony of Michael Kushner, ¶¶ 59-60 ([REDACTED]).

<sup>55</sup> Written Direct Testimony of Aaron Harrison, ¶ 41.

[REDACTED]

39. This represents a shift from the conduct of the interactive streaming services considered by the Copyright Judges in *Web IV*. In *Web IV*, the Copyright Judges determined that interactive services could not steer subscribers to one record label over another (in that case from higher-priced to lower-priced record labels) because those services had to be able to play a sound recording on demand.<sup>57</sup> However, as an increasing percentage of music streamed from interactive services like Spotify come from Spotify curated playlists, the ability of interactive services to steer a subscriber toward one record label or another has improved, as discussed in detail in the Orszag Report.<sup>58</sup> As such, the record companies acknowledge the increasing importance of such steering by interactive services.<sup>59</sup>

40. Similarly, Spotify recognizes the benefits of these playlists to the record companies and uses them as a way to “discipline” the record companies. For example, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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<sup>56</sup> SoundX\_000158982-159007 at 995.

<sup>57</sup> *Web IV* at 26,341.

<sup>58</sup> Orszag Report, ¶¶ 74-78. See also SoundX\_000158872-883 and SoundX\_000158982-1590007 at 984 (dated June 2014 [REDACTED]).

<sup>59</sup> See, e.g., SoundX\_000069614-644 at 619 ([REDACTED]).

<sup>60</sup> SoundX\_000158475-483.

41. Thus, Dr. Shapiro's contention that the upstream market where interactive services license recording rights from record companies is "entirely devoid of competition"<sup>61</sup> is not true. The competition amongst record companies for inclusion and top positioning on playlists curated by interactive streaming services tilt the bargaining power in favor of the interactive services who "argue that other labels are on board with any contentious [negotiating] point, including economic points, to pressure [record companies] to acquiesce."<sup>62</sup>

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<sup>61</sup> Shapiro Report, p. 23. Dr. Shapiro follows that declaration by stating there is "some, albeit limited amounts of competition."

<sup>62</sup> Direct Written Testimony of Aaron Harrison, ¶ 43.

**Appendix 1**

**David Blackburn  
Director**

**Education**

**Harvard University**  
Ph.D., Economics, 2005

**Brown University**  
B.Sc., with Honors, Applied Mathematics and Economics, 1998

**Professional Experience**

**NERA Economic Consulting**  
2017- Director  
2012-2016 Vice President/Associate Director  
2008-2012 Senior Consultant  
2005-2008 Consultant

**Framingham State College**  
2003 Instructor - Intermediate Microeconomics

**Universidad Nacional de Tucumán, Argentina**  
Summer 2002 Visiting Professor  
Instructor - Regulation in Network Industries

**Written Testimony**

Affidavit of David Blackburn, *Simon Property Group, L.P., on behalf of itself and its affiliated landlord entities v. Kenneth Cole Consumer Direct, LLC and Kenneth Cole Productions, Inc.*, In the Marion Superior Court (Indiana), Cause No. 49D01-1612-PL-043144, December 2016. Assess issues related to the calculability of damages resulting from Kenneth Cole's closure of retail stores at Simon owned shopping centers.

Expert Report of David Blackburn, P.D., *Marjam Supply Company v. Firestone Building Products Company, LLC; Firestone Diversified Products, LLC; and Genflex Roofing Systems, LLC*, U.S. District Court, District of New Jersey, Case No. 11-cv-07119(WJM)(MF), November 2016. Assess Marjam's Robinson-Patman claims against Firestone and associated damages.

Declaration of David Blackburn, *Merck & Cie, et al., Applicants, v. Watson Laboratories, Inc., Respondent*, In the Supreme Court of the United States, July 2016. Assess issues related to irreparable harm and the public interest from Applicants request to stay the entry of a generic pharmaceutical product.

Rebuttal Expert Report of David Blackburn, Ph.D., *PPC Broadband, Inc., d/b/a PPC v. Corning Optical Communications RF, LLC*, U.S. District Court, Northern District of New York, Case No. 5:13-cv-00538-GLS-DEP, March 2016. Assess PPC's damages from Corning's alleged patent infringement.

Expert Report of David Blackburn, Ph.D., *PPC Broadband, Inc., d/b/a PPC v. Corning Optical Communications RF, LLC*, U.S. District Court, Northern District of New York, Case No. 5:13-cv-00538-GLS-DEP, November 2015. Assess PPC's damages from Corning's alleged patent infringement.

Expert Report of David Blackburn, Ph.D., *Cubist Pharmaceuticals LLC v. Agila Specialties Inc. and Mylan Laboratories Limited*, U.S. District Court, District of Delaware, Case No.: C.A. No. 13-1679 (GMS), October 2015. Assess the commercial success of Cubicin, a pharmaceutical product sold by Cubist.

Rebuttal Declaration of David Blackburn, Ph.D., *Torrent Pharmaceuticals Limited and Apotex, Inc. and Mylan Pharmaceuticals, Inc., Petitioners v. Novartis AG and Mitsubishi Pharma Corp., Patent Owners*, Before the Patent Trial and Appeal Board, Case IPR2014-00784, Case IPR2015-00518, Patent 8,324,283 B2, June 2015. Assess the commercial success of Gilenya, a pharmaceutical product sold by Novartis.

Supplemental Rebuttal Expert Report of David Blackburn, *International Business Machines Corporation v. BGC Partners, Inc., BGC Brokers US, L.P., BGC Financial L.P., and BGC USA, L.P.*, U.S. District Court, Southern District of New York, Civil Action No. 1:10-cv-00128, May 2015. Assess IBM's supplemental claim for damages resulting from BGC's alleged breach of contract and copyright infringement.

Expert Report of David Blackburn, Ph.D., *Supernus Pharmaceuticals, Inc. v. Actavis Inc., and Actavis Laboratories FL, Inc., Actavis Pharma, Inc., Watson Laboratories, Inc., and ANDA, Inc.*, United States District Court, District of New Jersey, Civil Action No. 13-4740 (RMB) (JS) and Civil Action No. 14-1981 (RMS)(JS), May 2015. Assess the commercial success of Oxtellar XR, a pharmaceutical product sold by Supernus.

Updated: January 9, 2017

Declaration of David Blackburn, Ph.D. in Support of SoundExchange's Motion in Limine to Exclude the Written Rebuttal Testimony of Todd Kendall, *14-CRB-0001-WR (2016-2020) Determination of Royalty Rates for Digital Performance in Sound Recordings and Ephemeral Recordings (Web IV)*, Before the United States Copyright Royalty Judges, Library of Congress, Washington, D.C., April 2015.

Declaration of David Blackburn, Ph.D., *Torrent Pharmaceuticals Limited and Apotex, Inc. and Mylan Pharmaceuticals, Inc., Petitioners v. Novartis AG and Mitsubishi Pharma Corp., Patent Owners*, Before the Patent Trial and Appeal Board, Case IPR2014-00784, Case IPR2015-00518, Patent 8,324,283 B2, April 2015. Assess the commercial success of Gilenya, a pharmaceutical product sold by Novartis.

Declaration of David Blackburn, Ph.D., *Otsuka Pharmaceutical Co., Ltd. v. Actavis Elizabeth LLC, Jubilant Life Sciences Limited, Jubilant Generics Limited and Jubilant Life Sciences (USA) Inc.*, United States District Court, District of New Jersey, Civil Action No. 14-cv-07106-JBS-KMW, March 2015. Assess potential impact of at-risk entry by Actavis and others of a generic formulation of aripiprazole.

Written Rebuttal Testimony of David Blackburn, Ph.D., On Behalf of SoundExchange, Inc., *14-CRB-0001-WR (2016-2020) Determination of Royalty Rates for Digital Performance in Sound Recordings and Ephemeral Recordings (Web IV)*, Before the United States Copyright Royalty Judges, Library of Congress, Washington, D.C., February 2015. Assess webcasting and relationship to other music distribution channels.

Expert Report of David Blackburn, Ph.D., *Endo Pharmaceuticals Inc. and Grünenthal GmbH v. Actavis Inc., Actavis South Atlantic LLC, and Watson Pharmaceuticals, Inc.*, United States District Court for the Southern District of New York, C.A. No. 13-cv-436-TPG, January 2015. Assess the commercial success of Opana ER, a long-acting opioid sold by Endo.

Expert Report of David Blackburn, Ph.D., *Takeda Pharmaceuticals Co., Ltd., Takeda Pharmaceuticals U.S.A., Inc., and Takeda Pharmaceuticals America, Inc. v. TWI Pharmaceuticals, Inc.*, United States District Court for the Northern District of California, Case No. 5:13-cv-02420 LHK (PSG), December 2014. Assess the commercial success of Takeda's Dexilant pharmaceutical product.

Report of David Blackburn, Ph.D., On Behalf of SoundExchange, *14-CRB-0001-WR (2016-2020) Determination of Royalty Rates for Digital Performance in Sound Recordings and Ephemeral Recordings (Web IV)*, Before the United States Copyright Royalty Judges, Library of Congress, Washington, D.C., October 2014. Assess webcasting and relationship to other music distribution channels.

Updated: January 9, 2017

Expert Report of David Blackburn, Ph.D., *Carrier Corporation v. Goodman Global, Inc., Goodman Manufacturing Company, L.P., Goodman Global Holdings, Inc., Goodman Distribution, Inc., and Goodman Sales Company*, United States District Court, District of Delaware, C.A. No. 12-930 (SLR), February 2014. Assess commercial success of Carrier's Infinity HVAC system and related patents.

Declaration of David Blackburn, Ph.D., *Ferring B.V. v. Watson Laboratories, Inc. - Florida*, United States District Court, District of Nevada, Case Nos.: 3:11-cv-00481-RCJ-VPC, 2:12-cv-01935-RCJ-VPC, and 3:11-cv-00853-RCJ-VPC, February 2014. Asses potential impact of continued sale of Watson's generic tranexamic acid tables.

Expert Report of David Blackburn, Ph.D. and Supplemental Expert Report of David Blackburn, Ph.D., *In re: Cengage Learning, Inc. et al.*, U.S. Bankruptcy Court, Eastern District of New York, Case No.: 13-44106 (ESS), Case No.: 13-44105 (ESS), Case No.: 13-44107 (ESS), and Case No.: 13-44108 (ESS), December 2013 and January 2014. Assess the appropriate royalty rates to use in determining the value of certain copyrights held by Cengage.

Expert Report of David Blackburn, Ph.D., *Energy Intelligence Group, Inc. and Energy Intelligence Group (UK) Limited v. Canal Barge Company, Inc.*, United States District Court, Eastern District of Louisiana, Civil Action No.: 12-cv-02107-JCZ-DEK, June 2013. Supplemental Expert Report of David Blackburn, Ph.D., December 2013. Assess EIG's claim for damages resulting from Canal Barge's alleged copyright infringement.

Expert Report of David Blackburn, Ph.D., *Machine Maintenance Inc., d/b/a Luby Equipment Services, Inc. v. Generac Power Systems, Inc.*, United States District Court, Eastern District of Missouri, Eastern Division, Case No: 4:12-cv-793-JCH, September 2013. Assess the reasonableness of Generac's determination of the market opportunities available to Luby.

Declaration of David Blackburn, Ph.D., *Endo Pharmaceuticals, Inc. v. Actavis, Inc. and Actavis South Atlantic LLC*, United States District Court, Southern District of New York, Civil Action No. 12-cv-8985-TPG-GWG, August 2013. Assess potential impact of at-risk entry by Actavis and Roxane of a generic extended-release oxymorphone.

Rebuttal Expert Report of David Blackburn, Ph.D., *Ferring B.V. v. Watson Laboratories, Inc. - Florida*, United States District Court, District of Nevada, Case Nos.: 3:11-cv-00481-RCJ-VPC, 2:12-cv-01935-RCJ-VPC, and 3:11-cv-00853-RCJ-VPC, June 2013. Assess commercial success of Lysteda and related patents.

Updated: January 9, 2017

Expert Report of David Blackburn, Ph.D., *Warner Chilcott Company, LLC v. Watson Laboratories, Inc. and Warner Chilcott Company, LLC v. Lupin Ltd. and Lupin Pharmaceuticals, Inc.*, United States District Court, District of New Jersey, 12-cv-2928-JAP-TJB, June 2013. Assess commercial success of Lo Loestrin Fe and related patents.

Expert Report of David Blackburn, Ph.D. and Declaration of David Blackburn, *Edward L. White, P.C., v. West Publishing Corporation d/b/a "West"; and Reed Elsevier Inc., d/b/a LexisNexis*, United States District Court, Southern District of New York, Case No. 12-cv-1340, September 2012 and October 2012. Assess economic factors related to fair use considerations in Lexis's and West's alleged copyright infringement.

Expert Report of David Blackburn, Ph.D., *William F. Shea, LLC, et al. v. Bonutti Research, Inc., et al.*, United States District Court, Southern District of Ohio, Case No. 2:10-cv-615, January 2012. Assess issues relating to alleged competition related to Shea's alleged breach of contract and other claims.

Rule 26(b)(4) Expert Witness Disclosure of Plaintiffs Wildheart Entertainment, L.P., Maxim Langstaff, and Michele Langstaff, *Wildheart Entertainment, L.P., Maxim Langstaff, and Michele Langstaff v. Higher Ground, LLC et al.*, Superior Court for the District of Columbia (Civil Division), Civil Action No. 2010 CA 005253 B, June 2011. Assess Wildheart's claims for damages resulting from Higher Ground's alleged breach of contract, interference, and other claims.

Expert Report of David Blackburn and Christine S. Meyer, *Waddington North America, Inc. v. Sabert Corporation*, United States District Court for the District of New Jersey, Civil Action No. 2:09-cv-04883-GEB-MCA, January 2011. Assess Waddington's claim for damages resulting from Sabert's alleged infringement of patented metalized cutlery technology.

Rebuttal Expert Report of David Blackburn, *International Business Machines Corporation v. BGC Partners, Inc., BGC Brokers US, L.P., BGC Financial L.P., and BGC USA, L.P.*, U.S. District Court, Southern District of New York, Civil Action No. 1:10-cv-00128, November 2010. Assess IBM's claim for damages resulting from BGC's alleged breach of contract and copyright infringement.

Expert Report of David Blackburn, *Danforth S. DeSena, DPM and Solstice Corporation v. Beekley Corporation*, United States District Court, District of Maine, Civil Action No. 2:09-cv-00352-DBH, December 2009. Assess DeSena's claim for damages from Beekley's alleged infringement of patented radiographic scanner technology.

Report of David Blackburn on Claimed Monopolistic Impact of Proposed New York State Legislation (Senate Bill Number 3708-D), Letter to Governor David Paterson, December 2009.

Updated: January 9, 2017



Expert Report of David Blackburn, Ph.D., *Carolina Power & Light Co., et al. v. Aspect Software, Inc. and BellSouth Communications Systems, L.L.C.*, United States District Court, Eastern District of North Carolina, Western Division, Case No. 5:08-cv-00449, October 2009. Assess Aspect's indemnification obligation relating to a patent settlement entered into by Carolina Power.

Expert Report of David Blackburn, *Jose Estrada and Rene Byron Brizuela v. Toyota Motor Sales USA, Inc., et al.*, United States District Court, Central District of California, Case No. CV 08-05992 GAF(AJWx), October 2009. Assess Estrada's claim for damages resulting from the alleged infringement of Estrada's musical copyrights.

Expert Report of David Blackburn, *UMG Recordings, Inc., et al. v. Divx, Inc., et al.*, United States District Court, Central District of California, Case No. CV 07 06835 – AHM(AJWx), August 2009. Rebuttal Expert Report of David Blackburn, September 2009. Assess the extent and source of UMG's damages resulting from Divx's alleged infringement of UMG's copyrighted works.

Expert Report of David Blackburn, Ph.D., *Dominion Resources, Inc. v. Aspect Software, Inc. and Rockwell Automation, Inc.*, United States District Court, Eastern District of Virginia, Case No. 3-08-cv-737, June 2009. Assess Aspect's indemnification obligation relating to a patent settlement entered into by Dominion.

Expert Report of David Blackburn, Ph.D., *UMG Recordings, Inc., et al. v. Veoh Networks, Inc., et al.*, United States District Court, Central District of California, Case No. CV 07 5744 – AHM(AJWx), May 2009. Rebuttal Expert Report of David Blackburn, Ph.D., June 2009. Assess the extent and source of UMG's damages resulting from Veoh's alleged infringement of UMG's copyrighted works.

Report of David Blackburn on Claimed Monopolistic Impact of Proposed New York State Legislation (Senate Bill Number 4487-B), Letter to Governor David Patterson, November 2008.

Expert Report of Steven Schwartz and David Blackburn, *Ford Motor Company v. Sudesh Agrawal*, Cuyahoga County Court of Common Pleas, Case No. CV-04-536688, January 2008. Assess Agrawal's claim for damages resulting from Ford's allegedly unlawful policies relating to excess wear and use.

## Live Testimony

Updated: January 9, 2017

Trial Testimony, *Supernus Pharmaceuticals, Inc. v. Actavis Inc., and Actavis Laboratories FL, Inc., Actavis Pharma, Inc., Watson Laboratories, Inc., and ANDA, Inc.*, United States District Court, District of New Jersey, Civil Action No. 13-4740 (RMB) (JS) and Civil Action No. 14-1981 (RMS)(JS), December 2015. Assess the commercial success of Oxtellar XR, a pharmaceutical product sold by Supernus.

Deposition Testimony (Rebuttal), *Torrent Pharmaceuticals Limited and Apotex, Inc. and Mylan Pharmaceuticals, Inc., Petitioners v. Novartis AG and Mitsubishi Pharma Corp., Patent Owners*, Before the Patent Trial and Appeal Board, Case IPR2014-00784, Case IPR2015-00518, Patent 8,324,283 B2, July 2015. Assess the commercial success of Gilenya, a pharmaceutical product sold by Novartis.

Deposition Testimony, *Supernus Pharmaceuticals, Inc. v. Actavis Inc., and Actavis Laboratories FL, Inc., Actavis Pharma, Inc., Watson Laboratories, Inc., and ANDA, Inc.*, United States District Court, District of New Jersey, Civil Action No. 13-4740 (RMB) (JS) and Civil Action No. 14-1981 (RMS)(JS), July 2015. Assess the commercial success of Oxtellar XR, a pharmaceutical product sold by Supernus.

Deposition Testimony, *Torrent Pharmaceuticals Limited and Apotex, Inc. and Mylan Pharmaceuticals, Inc., Petitioners v. Novartis AG and Mitsubishi Pharma Corp., Patent Owners*, Before the Patent Trial and Appeal Board, Case IPR2014-00784, Case IPR2015-00518, Patent 8,324,283 B2, June 2015. Assess the commercial success of Gilenya, a pharmaceutical product sold by Novartis.

Rebuttal Hearing Testimony, On Behalf of SoundExchange, Inc., *14-CRB-0001-WR (2016-2020) Determination of Royalty Rates for Digital Performance in Sound Recordings and Ephemeral Recordings (Web IV)*, Before the United States Copyright Royalty Judges, Library of Congress, Washington, D.C., May 2015. Assess webcasting and relationship to other music distribution channels.

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## **Fellowships and Awards**

Certificate for Excellence in Teaching, Harvard University, 2002-2005

Charles H. Smith Fellowship in Economics, Harvard University

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**Appendix 2**

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