Before the
UNITED STATES COPYRIGHT ROYALTY JUDGES
The Library of Congress

In the Matter of **DETERMINATION OF RATES AND TERMS FOR MAKING AND DISTRIBUTING PHONORECORDS (PHONORECORDS III)**	**Docket No. 16–CRB–0003–PR (2018–2022)**

WRITTEN REBUTTAL TESTIMONY OF LESLIE M. MARX, PHD
(On behalf of Spotify USA Inc.)

FEBRUARY 15, 2017

Table of contents

List of figures

I. Scope of charge

(1) I was retained by Spotify USA Inc. ("Spotify") to help determine the reasonable terms and rates for interactive streaming royalty payments under Section 115 of the Copyright Act. Section 115 grants a compulsory license that allows for the making and distributing of physical and digital phonorecords of a songwriter's work, once a phonorecord of that work has been distributed to the public with the permission of that artist. Songwriters are due "mechanical royalties" under this license. Mechanical royalties are a component, along with performance royalties, of the royalties paid by interactive streaming services to holders of musical works rights.[1]

(2) I filed my Written Direct Testimony on November 1, 2016.[2] In this report, I respond to the testimony of witnesses for the National Music Publishers' Association ("NMPA") and the Nashville Songwriters' Association International ("NSAI") (collectively, the "Copyright Owners") that were also filed on November 1, 2016.

(3) In forming my opinion, I reviewed the expert reports and witness statements submitted in this proceeding by the Copyright Owners, Amazon, Apple, Google, Pandora, and Spotify. I also reviewed documents and data from Spotify and those made available through discovery, as well as publicly available documents. All documents cited in this report are listed in Appendix A. I reserve the right to incorporate into my analysis any new information or data that may become available.

[1] In this report, I sometimes refer to the holders of musical works rights collectively as "publishers."

[2] Written Direct Testimony of Leslie M. Marx, PhD, *In the Matter of Determination of Rates and Terms for Making and Distributing Phonorecords (Phonorecords III)* [hereinafter *Phonorecords III*] No. 16-CRB-0003-PR (CRB 2018–2022), Nov. 1, 2016 [hereinafter Marx Written Direct Testimony, *Phonorecords III*].

II. Summary of opinions

(4) The Copyright Owners' economists have concluded that the Copyright Owners' rate proposal, in which all interactive streaming services would pay the greater of $0.0015 per stream per month and $1.06 per user per month in mechanical royalties, is reasonable and consistent with the 801(b) factors governing this proceeding.[3,4]

(5) I disagree. These rates represent a significant change from current practice and a substantial increase in rates for interactive streaming services. Mechanical royalty rates for standalone portable subscription interactive streaming services would [redacted] across the industry. Mechanical royalty rates for ad-supported streaming would increase by [redacted]. Even if ad-supported streaming services lowered their costs under the new proposal by periodically removing the accounts of non-active users, with all of the disruption and cost that would entail, mechanical royalties for ad-supported streaming would still increase [redacted] over current rates. It also appears from my analysis that the [redacted] bundled offering would be particularly affected by the Copyright Owners' proposal, with a [redacted] increase in mechanical royalty rates.

(6) The rates advanced in the Copyright Owners' proposal mean that ad-supported streaming—a service that currently makes up more than half of all interactive streaming users— [redacted]. Even for paid subscription services, the rate structure proposed by the Copyright Owners discourages services from expanding listening by, for example, offering discounts to low WTP groups.

(7) The rate level and structure proposed by the Copyright Owners is a significant departure from current practice. The current rate structure varies by type of service. Paid subscription, ad-supported, and bundled subscription services, for instance, each have different rate formulas.[5] Within those formulas, a headline percentage-of-revenue rate is backstopped with a percentage of sound recording royalties

---

3 In addition, the Copyright Owners' proposal defines streams as all streams ([redacted]) and defines users as all subscribers, including non-active subscribers. These are both departures from current practice.

4 For example, Dr. Eisenach says that "the rates proposed by the Copyright Owners are consistent with a reasonable range of rates based on the policy objectives of Section 115." Expert Report of Jeffery A. Eisenach, PhD, *In re Phonorecords III*, No. 16-CRB-0003-PR (CRB 2018–2022), Oct. 31, 2016 [hereinafter Eisenach Expert Report, *Phonorecords III*], at ¶ 174. *See also* Expert Report of Marc Rysman, PhD, *In re Phonorecords III*, No. 16-CRB-0003-PR (CRB 2018–2022), Oct. 28, 2016 [hereinafter Rysman Expert Report, *Phonorecords III*], at ¶¶ 61, 68. *See also* Expert Report of Joshua Gans, PhD, *In re Phonorecords III*, No. 16-CRB-0003-PR (CRB 2018–2022), Oct. 31, 2016 [hereinafter Gans Expert Report, *Phonorecords III*], at ¶ 87.

5 37 C.F.R. § 385.13.

and/or per-user fees.[6] This rate structure has led to relatively lower rates on services targeting low WTP groups or casual users. Services targeted towards low WTP consumers have expanded listening and increased surplus and yield higher publisher compensation than free-to-user alternatives such as piracy or terrestrial radio.

(8) The current rate structure and level have supported a dynamic, growing interactive streaming industry that has led to reduced piracy, increased volume and variety of listening by consumers, and increased musical works payments to publishers. Arguing for a substantial departure from the status quo in the level and form of rates would require careful analysis of outcomes under the proposed new regime to ensure that these benefits are not undermined. The Copyright Owners' economists have not provided that analysis.

(9) Instead, the Copyright Owners' economists conclude that this substantial change in rate level and structure and its attendant disruptive effects on the industry is consistent with the 801(b) factors. They reach this erroneous conclusion because they misinterpret the 801(b) factors, conduct a misleading analysis of current rates and the impact of the Copyright Owners' proposal, and because they largely ignore the impact of the Copyright Owners' proposal on ad-supported streaming. The analyses they undertake that purport to show the consistency of the Copyright Owners' proposal with the 801(b) factors, such as Dr. Eisenach's use of a ratio of sound recording to musical works royalties and Dr. Gans's approach to the Shapley value and the Efficient Component Pricing Rule (ECPR), are applied in a limited and flawed way and imply disruptively high mechanical royalty rates. The Copyright Owners' economists make a number of additional errors in their analyses as well, which I detail throughout this statement.

---

6 As I discuss in my Written Direct Testimony, economic analysis supports retaining current rates with a headline percentage-of-revenue rate with backstops, but without the current $0.50 per-user minimum. Marx Written Direct Testimony, *Phonorecords III*, at ¶ 14.

III. The Copyright Owners' proposal represents a substantial increase in royalty rates that would disrupt the interactive streaming industry

(10) The Copyright Owners have proposed to alter the structure and level of mechanical royalties, from a headline 10.5% of revenue rate with embedded per-user and percentage of sound recording royalty payment alternatives, depending on the service, to a flat fee for all services consisting of the greater of $0.0015 per stream and $1.06 per end user per month, under a broad definition of "streams" and "end users."[7] This rate proposal would substantially increase mechanical royalties and overall content costs for interactive streaming services. [redacted]. This is obscured in the reports of the Copyright Owners' economists, who find the proposal to be (1) reasonable in light of their interpretation of the 801(b) factors and (2) a small change from the current rate level.[8]

(11) Significantly higher royalty rates for interactive streaming services would lead to reduced accessibility of music to consumers. First, significantly higher royalty rates on paid streaming would likely lead to a reduction in the variety of services and possibly to higher-priced services to consumers. In addition, [redacted] subsequent movement towards piracy and less remunerative forms of listening could actually lower revenue for both copyright owners and copyright users, in addition to removing a popular way of accessing music. These outcomes are contrary to the 801(b) factors and the interests of all of the parties to the proceeding.

(12) Copyright Owners' economists, however, have done little analysis of the potential impact of the Copyright Owners' proposal on the industry or on consumers, except to assert based on a flawed analysis that it will have little impact on rates, and to conjecture that to the extent it does affect the industry, the industry will easily adjust.[9]

(13) In this Section, I analyze the impact of the Copyright Owners' proposal on interactive streaming services and on the industry and consumers more broadly.

---

7 Copyright Owners' Proposed Rates and Terms, *In the Matter of Phonorecords III*, No. 16-CRB-0003-PR, Nov. 1, 2016, (CRB 2018–2022). The Copyright Owners' proposal defines "streams" as the transmission of any portion of a sound recording of a musical work [redacted]. It defines "end users" as all users with access to the service, rather than active users. These expansive definitions relative to current practice are ignored by Copyright Owners' economists in their analysis but have a substantial impact on the effects of the Copyright Owners' proposal.

8 *See* footnote 3. *See also* Gans Expert Report, *Phonorecords III*, at ¶¶ 81–83.

9 *See*, *e.g.*, Rysman Expert Report, *Phonorecords III*, at ¶¶ 68, 92.

III.A. The Copyright Owners' proposal represents a substantial increase in rates over the status quo

(14) The Copyright Owners' proposal would significantly increase rates on interactive streaming services. In this section, I focus first on the impact on Spotify, and then the impact on the rest of the industry.

III.A.1. Impact on Spotify

(15) Spotify, the most popular interactive streaming service in the United States, would see [redacted] under the Copyright Owners' proposal.

(16) [redacted] shows Spotify's royalty payments under the current rate structure and under the Copyright Owners' proposal.[10] The Copyright Owners' proposal calls for per-user rates to be imposed on all "end users," defined as all individuals or entities that have "access to an offering," and so would apply to all consumers enrolled in the ad-supported service.[11] I also consider the extent to which Spotify could lower its rates by removing inactive users from its ad-supported service. There are thus two alternatives listed for Spotify's ad-supported service in [redacted]: one based on all subscribers and one based on monthly active users (MAUs).[12]

---

[10] Whereas the current statutory formula contains distinct calculations for different business tiers (e.g., "standalone portable subscriptions, mixed use" and "free non-subscription/ad-supported services"), the Copyright Owners' proposal does not make this distinction and applies a uniform per-stream or per-user fee across all forms of interactive streaming. Although the Copyright Owners' proposed per-stream fee is higher than the per-user fee when applied to Spotify's subscription-based service separately, when the Copyright Owners' proposal is applied to all Spotify's streaming services, the per-user fee determines the rate. As shown in [redacted], under the Copyright Owners' proposal, Spotify's average monthly per-stream fee would be [redacted] and its average monthly per-user fee would be [redacted] for its paid subscription service during 2H2015–1H2016. [redacted], then [redacted], and its effective mechanical royalty payments on [redacted].

[11] Copyright Owners' Proposed Rates and Terms, *In the Matter of Phonorecords III*, No. 16-CRB-0003-PR, Nov. 1, 2016, (CRB 2018–2022), at B-12.

[12] "Monthly Active Users" is defined as end users who actually used the service in a given month.

[redacted]

(17) As shown in Figure 1, Spotify's overall mechanical royalties would [redacted] of revenue under the Copyright Owners' proposal. Reducing ad-supported subscribers to only monthly active users, which would entail significant disruption, as I discuss below, would still result in Spotify's paying [redacted] of its revenues for mechanical royalties alone, which would drive total royalty payments [redacted] of revenue. [redacted]

[redacted], contrary to the first 801(b) factor, and does not satisfy any notion of fairness that I am aware of, contrary to the second and third 801(b) factors.

(18) [redacted] illustrates the contrast between Spotify's rate proposal and the Copyright Owners' rate proposal on Spotify's royalty payments as a percentage of revenue. Under the Copyright Owner's proposal, Spotify would pay [redacted] of its revenues in royalties. Even if it reduced registered accounts on its ad-supported service to active users each month, it would still pay [redacted] of its revenues in royalties.

[redacted]

[redacted]

[redacted]

(19) [redacted] shows the impact of the proposal on royalty rates for Spotify's ad-supported service and its paid subscription-based service in terms of the percentage [redacted] in mechanical and total musical works royalty.

[redacted]

(20) [redacted] shows that the Copyright Owners' proposal [redacted] mechanical royalties on Spotify's ad-supported service [redacted], leading to a total musical works royalty [redacted].

(21) [redacted] in the wake of the Copyright Owners' proposal being implemented, mechanical royalty rates [redacted], leading to a more than [redacted] on total musical works royalties for that service alone. If [redacted] Copyright Owners' proposal being implemented, then [redacted], and its effective mechanical royalty payments on its paid subscription service would [redacted], as shown in [redacted].

(22) In response to the Copyright Owners' proposal, Spotify could try to cull non-active users from its ad-supported users. As shown in [redacted], [redacted], and a total musical works royalty [redacted]. In addition, it is not clear how Spotify would implement this culling of its users without substantial disruption to the user experience. For instance, if Spotify unregistered users who did not use the service each month, then casual users who might listen one month and not the next would need to repeatedly re-register to maintain access. Even users who are active users but have breaks in their listening due to, for example, travel, would find themselves unregistered under this scenario. [redacted], including those not interested in subscribing to a paid service.

III.A.2. Impact on other streaming services

(23) Other interactive streaming services would also be affected by the rate increase associated with the Copyright Owners' proposal. Figure 4 shows current royalties and those implied by the Copyright Owners' proposal for streaming services based on data submitted to the Harry Fox Agency (HFA) and publishers. It shows mechanical royalties increasing significantly for virtually all interactive streaming services.

[redacted]

(24) The weighted average of these increases is [redacted] of mechanical works royalties and [redacted] of musical works royalties.

(25) Figure 5 illustrates the impact of the Copyright Owners' on the mechanical royalties for Spotify and other streaming services that are party to this proceeding. Annual mechanical royalties would increase significantly under the Copyright Owners' proposal.

[redacted]

[redacted]

(26) Although the Copyright Owners' economists claim that the per-stream rates in the Copyright Owners' proposal represent little change to the status quo because they are roughly equal to current implicit per-stream mechanical royalty rates, this is based on an incorrect analysis of current rates and the rates implied by the Copyright Owners' proposal.[13] I discuss in more detail in Section VII the sources

[13] Dr. Eisenach's own numbers refute this proposition. In his Table 10, Dr. Eisenach calculates that total mechanical royalty payments by streaming services in 2015 were [redacted]. In his discussion of the growth in interactive streaming, Dr. Eisenach cites to Nielsen data to assert that there were about [redacted] total on-demand music streams in 2015. Applying the proposed Copyright Owners rate of $0.0015 per stream to the [redacted] estimated streams

of the discrepancy between the assertions of the Copyright Owners' economists–that the rates in the Copyright Owners' proposal differ little from current rates–and the reality that they substantially increase rates for virtually all services.

III.B. The effects of the Copyright Owners' proposal are [redacted] for ad-supported interactive streaming

(27) Spotify's ad-supported service offers more limited functionality than its paid subscription service. In addition to users periodically being exposed to ads, they receive lower quality audio, a limited number of skips, and no offline play capability, and they have limited access ("shuffle play" only) on mobile devices.[14]

(28) As I discuss in my Written Direct Testimony, Spotify's ad-supported service serves two main purposes: to introduce potential subscribers to the Spotify service and thereby create opportunities to upsell them to the paid subscription service, and to provide a revenue-generating service to low WTP consumers who are unlikely to switch to a paid service. The latter point is discussed, for instance, in an October 2016 Goldman Sachs Equity Report cited by Dr. Gans.[15] The report notes that ad-supported streaming "addresses consumers not able or willing to pay (therefore reducing piracy)."[16]

(29) [redacted]. Unlike its major competitors in interactive streaming—Apple, Amazon, and Google—[redacted].

(30) As [redacted] demonstrates, the ad-supported streaming business model would [redacted] by the Copyright Owners' proposal, which would lead to a [redacted] in mechanical royalties for that service. [redacted]

results in royalty payments of over [redacted] current payments. Nevertheless, Dr. Eisenach concludes that "the proposed rates are directly in line with industry custom and practice and current market activity and expectations." Eisenach Expert Report, *Phonorecords III*, at ¶ 166.

14 Elyse Betters and Jake Smith, "Spotify Free vs. Spotify Premium: What's the Difference?" *Pocket-lint*, Dec. 30, 2014, http://www.pocket-lint.com/news/125771-spotify-free-vs-spotify-premium-what-s-the-difference.

15 Gans Expert Report, *Phonorecords III*, footnote 39.

16 Lisa Yang et al., "Music in the Air: Stairway to Heaven," Goldman Sachs Equity Research, Oct. 4, 2016, 4.

17 Any flat per-stream fee applied across all types of services would suffer this same flaw. For instance, the Apple proposal of $0.00091 per-stream total musical works royalty is less onerous in level than the Copyright Owners' proposal, but still substantially increases rates for ad-supported streaming, which Apple does not offer but that its largest competitor does. [redacted]

(31) [redacted] shows the impact on Spotify's total EBIT of [redacted], leaving aside the impact on paid subscriptions, which I discuss in the next section. [redacted] of total revenue if ad-supported royalties were based on all current subscribers, and to [redacted] of total revenue if it were based on active users.[19]

[redacted]

(32) These numbers accord with the view of Spotify executives, [redacted]. Spotify's CFO, Barry McCarthy, states in his Written Rebuttal Testimony that [redacted]

[redacted] Following Apple's proposal, the streams here are defined as a performance longer than 30 seconds. The per-stream equivalent figure given here changes monthly based on engagement. Note that Spotify does not currently pay royalties on a per-stream basis, and users do not pay per-stream but rather pay a monthly fee for access to the service. As I have discussed in my Written Direct Statement and in this statement, my analysis finds that per-stream royalty rates would harm total welfare and contravene the 801(b) factors.

[18] [redacted].

[19] [redacted]

[20] Written Direct Rebuttal Testimony of Barry McCarthy, *In re Phonorecords III*, No. 16-CRB-0003-PR (CRB 2018–2022) [hereinafter McCarthy Written Direct Rebuttal Testimony, *Phonorecords III*], at ¶ 11.

[21] *Id.* at ¶ 17; Written Rebuttal Testimony of Paul Vogel, *In the Matter of Determination of Rates and Terms for Making and Distributing Phonorecords (Phonorecords III)*, at ¶ 25.

[redacted]

(33) [redacted] These alternatives often earn copyright holders inferior returns to ad-supported interactive streaming. For instance, if Spotify ad-supported streaming customers were to switch to terrestrial radio, musical works copyright holders would earn about [redacted] of previous revenues per hour of listening. Likewise, if Spotify ad-supported streaming customers were to shift to some combination of radio, [redacted] and [redacted] ad-supported non-interactive streaming, total copyright earnings per hour would decrease, as shown in Figure 7.

[22] McCarthy Written Direct Rebuttal Testimony, *Phonorecords III*, at ¶ 67.

[23] [redacted]

Figure 7: Relative royalties per hour for Spotify ad-supported interactive streaming, terrestrial radio, [redacted] and [redacted]

Description	Spotify ad-supported service (2H2015-1H2016)	Terrestrial radio (2015)	[redacted] (2015)	[redacted] ad-supported non-interactive (2016)
Musical works and sound recording royalty per hour	[redacted]	$0.0040	[redacted]	[redacted]
Musical works royalty per hour	[redacted]	$0.0040	[redacted]	[redacted]

Sources for terrestrial radio figure: ASCAP, "Our ASCAP," annual report, 2015, available athttps://www.ascap.com/-/media/files/pdf/about/annual-reports/2015-annual-report.pdf; BMI, "BMI Announces $1.060 Billion in Revenue, the Highest in Company's History," news release, Sep. 8, 2016, available at https://www.bmi.com/news/entry/bmi_announces_1.060_billion_in_revenue_the_highest_in_companys_history; Moody's, "Moody's downgrades SESAC's CFR to B3, affirms first-lien credit facilities at B2 and assigns Caa2 to new second-lien term loan; outlook stable," Apr. 7, 2015, https://www.moodys.com/research/Moodys-downgrades-SESACs-CFR-to-B3-affirms-first-lien-credit--PR_321914; Lisa Yang et al., "Music in the Air: Stairway to Heaven," Goldman Sachs Equity Research, Oct. 4, 2016; Glenn Peoples, "Glenn Peoples: Pandora has its Mind on Your Money and Your on its Mind," Jun. 30, 2016, http://rainnews.com/glenn-peoples-pandora-has-its-mind-on-your-money-and-your-money-on-its-mind/; Nielsen, "Audio Today: Radio 2016 - Appealing Far and Wide," Feb. 25, 2016, http://www.nielsen.com/us/en/insights/reports/2016/audio-today-radio-2016-appealing-far-and-wide.html; Pandora, "Share of Ear Study," Q1 2016, (PAN_CRB115_00051433); Bret Kinsella, "Are Broadcast Radio Ad Loads Sustainable?" *XAPPmedia,* Mar. 24, 2015, https://xappmedia.com/are-broadcast-radio-ad-loads-sustainable/.
Sources for YouTube: Mark Mulligan, "State of the YouTube Music Economy," MIDiA, July 2016; PAN_CRB115_00026226_RESTRICTED.xlsx
[redacted]
Source for average song length for terrestrial radio: Lisa Yang et al. "Music in the Air: Stairway to Heaven." Goldman Sachs Equity Research, Oct. 4, 2016.
[redacted]

Notes:
(a) These figures address mechanical rates for an hour of music listening on each respective service. For example, while terrestrial radio contains ads, I calculate royalties for an hour of listening when songs are occurring. The per-hour figures for terrestrial radio rely on the assumption that an average song played on this service is 3.5 minutes.
[redacted]
(c) The per-hour figures for [redacted] and [redacted] assume an average song length of [redacted] minutes. This figure comes from [redacted] data, which provide total listening hours but do not specify whether those hours contain time spent listening to ads. I conservatively assume that the listening hours do include time spent listening to ads. If they do not include time spent listening to ads, per-hour rates would be slightly lower ([redacted] per hour for musical works only, and [redacted] per hour for sound recording and musical works royalties). There are no available data for average [redacted] song length, so I assume that it is also [redacted] minutes.
(d) To derive the terrestrial radio figures, I first estimate total terrestrial radio payments to PROs. To do this, I multiply total music revenue of terrestrial radio, as provided by the Radio Advertising Bureau, by [redacted], the percentage of gross revenue that licenses with BMI and ASCAP (along with my estimation of SESAC's payment) indicate is being paid in performance royalties. For the purpose of sensitivity, I also used an alternative method of estimating royalties paid by terrestrial radio. This alternative method entailed summing the estimated total royalties from terrestrial radio collected by BMI, ASCAP, and SESAC. This method yields lower royalties and thus a lower per-hour figure of [redacted] in musical works royalties per hour. I feature the former method in the table above to remain conservative.

(34) It is possible that [redacted] could therefore lead to lower revenues for Copyright Owners as well as interactive streaming services.

(35) In his analysis of ad-supported streaming services, Copyright Owners' industry expert Lawrence Miller nonsensically concludes that "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."[24] On the contrary, Spotify has the same incentive to maximize ad revenue beyond its costs as any other firm—it earns profits from generating revenues above costs. To suggest otherwise portrays a misunderstanding of the interactive streaming industry, as well as basic economics.

(36) [redacted].[25]

(37) Spotify's ad-supported service makes up a substantial share of the overall interactive streaming market. In 2015, Spotify's ad-supported service accounted for more than [redacted] of all subscribers-months, as shown in Figure 8. [redacted].

[24] Expert Report of Lawrence S. Miller, *In the Matter of Phonorecords III*, No. 16-CRB-0003-PR (CRB 2018–2022), Oct. 30, 2016 [hereinafter Miller Expert Report, *Phonorecords III*], at ¶ 32.

[25] [redacted]

[redacted]

[redacted]

(38) Figure 9 shows that Spotify's ad-supported service made up approximately [redacted] of all streams in 2015.

[redacted]

[redacted]

III.C. The effects of the Copyright Owners' proposal are also significant for [redacted] bundled music service

(39) [redacted] is the largest of the "bundled subscription service" interactive streaming offerings as defined in subpart B of 37 C.F.R. § 385.13.[26] [redacted] is offered as an additional service to subscribers of the [redacted] service.[27] However, few [redacted] users actually use

[26] A "bundled subscription service" is defined as "a subscription service providing licensed activity that is made available to end users with one or more other products or services (including products or services subject to other subparts) as a part of a single transaction." 37 C.F.R. § 385.13(a)(4). Rhapsody and Neurotic also offer a bundled service but have substantially fewer subscribers than Amazon.

[27] Amazon, "Prime," accessed Feb. 5, 2017, *available at* https://www.amazon.com/gp/dmusic/promotions/PrimeMusic.

the [redacted] service on a regular basis. As shown in Figure 10, [redacted] of [redacted] users are also active users of [redacted] in any given month, even though they have full access to [redacted].

[redacted]

(40) Under the current rate structure, [redacted] pays $0.25 in mechanical royalties per month per "active subscriber," defined as users who have made at least one play of licensed music in a given month.[28] Under the Copyright Owners' proposal, [redacted] would pay $1.06 rather than $0.25 per user and, even more significantly, it would pay the same $1.06 in mechanical royalties [redacted]."[29] As shown in Figure 11, the

[28] 37 C.F.R. § 385.13(a)(4).

[29] Daniel B. Kline, "How Many Prime Does Amazon Have (and Why It Matters)," *The Motley Fool*, Jan. 26, 2016,

cumulative effect would be to increase current mechanical royalties for [redacted] service by over [redacted], substantially higher than the [redacted] increase when considering only [redacted] active users.

[redacted]

(41) With a more than [redacted] increase in mechanical royalty payments, from [redacted], the ability of [redacted] to continue offering its bundled interactive streaming service to [redacted] subscribers would be affected by the Copyright Owners' proposal. The reason is fundamentally the same as in the case of ad-supported services: the structure of the Copyright Owners' proposed rates, with a uniform, high, per-user or per-stream rate across all types of services and all subscribers, makes it difficult to offer a service targeted to low WTP or occasional streamers. The current law accommodates these services, in the case of ad-supported services by removing per-subscriber minima, and in the case of bundled services by defining users as active users and not as all subscribers.

III.D. The Copyright Owners' proposal would also substantially impact paid subscription streaming and its consumers

(42) Although the most dramatic impact of the Copyright Owners' proposal would [redacted], it would also have a substantial impact on royalties for paid subscription services. The higher royalties would reduce the profitability of existing paid subscription services and give potential new entrants less incentive to enter the market. In addition, higher across-the-board royalties on paid subscription services based on streams or users, rather than on a percentage of revenue, reduces the incentive for services to offer

https://www.fool.com/investing/general/2016/01/26/how-many-prime-members-does-amazon-have-and-why-it.aspx.

discounts to lower WTP groups like students and families. An overall reduction in the competitiveness of the downstream market would harm consumers through fewer options and potentially higher prices.

III.D.1. Higher rates would affect downstream paid subscription interactive streaming competition

(43) As shown in Figure 3 above, mechanical royalties on Spotify's paid subscription service would [redacted], and total musical works royalties would [redacted], as a result of the Copyright Owners' proposal. [redacted] As [redacted] below shows, [redacted] royalty rates on subscription services alone would [redacted]. Including the impact on ad-supported services, EBIT would [redacted] if Spotify reduced ad-supported end users to only those currently active.

[redacted]

(44) Other paid subscription services would be affected as well. Figure 13 focuses only on the largest category of Subsection B services, standalone portable subscription, mixed use services. These would see an average [redacted] increase in mechanical royalties and a [redacted] increase in musical works royalties.

[redacted]

III.D.2. Copyright Owners' proposal discourages paid subscription interactive streaming services from expanding the listener base

(45) The Copyright Owners' proposal would apply uniform rates on all customer groups without regard to the revenue generated by them. One advantage of the top-line percentage-of-revenue rate in the current rate structure is that it means that royalties can be effectively discounted for lower WTP groups like students and family members, which generate less revenue per subscriber. This encourages efficient expansion of services to groups with lower WTP. In contrast, establishing a uniform rate for all users regardless of revenue generated discourages discount plans like student or family plans, which are currently offered by most of the major interactive streaming subscription services. [redacted]

[30] Marx Written Direct Testimony, *Phonorecords III*, at ¶ 14.

[redacted]

(46) [redacted] shows current EBIT under the $0.50 per-subscriber minimum, which affects family and student plans to a greater degree relative to a headline 10.5% musical works royalty. [redacted]

[redacted]

[redacted]

(47) The rate structure proposed by the Copyright Owners also penalizes expansion of streams per user for paid subscription services, to the extent that the per-stream rate binds on services. As I discuss in my

Written Direct Testimony, a per-stream rate imposes on streaming services a marginal cost that is higher than the social marginal cost, and gives services an incentive to limit streams even when consumers value these additional streams more than the social cost of providing them.[31] In the extreme, a per-stream rate gives streaming services an incentive to discourage existing subscribers from using the service as much as they might like to. It provides an incentive for streaming services to be more aggressive about requiring users to affirm that they are still listening, imposing additional hassle costs on users, and to inefficiently steer activities towards longer musical works (so that fewer streams would be counted during the user's listening time period) regardless of their value to users. A binding per-stream rate thus runs contrary to the first 801(b) factor. [redacted].

III.D.3. Consumers will be worse off as a result of the impact of the Copyright Owners' proposal on paid subscription services

(48) Interactive streaming services compete on price, quality, and innovation in a differentiated product industry. In addition to offering different tiers of service, such as ad-supported and paid subscription services, services are generally differentiated in their editorial content, technological infrastructure, user interface, song recommendation algorithms, integration with other social media, audio quality, and innovative activities, among other things. That differentiation is seen in the relative popularity of the different services despite generally comparable prices. For instance, Spotify entered the United States in 2011 and quickly became the largest interactive streaming platform in the country, despite the existence of long-time incumbent interactive streaming services like Rdio, which has since gone bankrupt and was purchased by Pandora in 2015, and Rhapsody, at similar prices.[32]

(49) Economics teaches that consumer and total surplus is reduced when competition is significantly reduced.[33] Significant reductions in competition in a differentiated product industry can be expected to lead to fewer options and higher prices for consumers.

(50) The Copyright Owners are asking for substantially higher royalty rates that could [redacted]

31 *Id.* at ¶¶ 130–133.

32 *See Id.* at ¶¶ 48, 78*; see also* Alissa Walker, "Rdio Is Being Acquired by Pandora," *Gizmodo*, Nov. 16, 2015, http://gizmodo.com/rdio-is-being-acquired-by-pandora-1742863433.

33 Council of Economic Advisors, "Benefits of Competition and Indicators of Market Power," Council of Economic Advisors Issue Brief, Apr. 2016, at 1-2: "A long line of economic literature argues that competition among firms benefits consumers via lower prices…competition can benefit consumers in other ways as well: competition may lead to greater product variety, higher product quality, and greater innovation."

[redacted]. To the extent that the increase is not directly passed through to consumers, a cost increase would likely still indirectly be passed through in the form of a reduction in the number of competitors and a reduction in incentives to compete for low WTP customers.

(51) To the extent that the Copyright Owners' economists address consumer impact in their reports, it is to endorse higher downstream prices and to suggest, with little analysis, that higher royalties would not affect the competitiveness of the interactive streaming industry, even if the number of firms were drastically reduced.[34]

(52) For instance, Dr. Rysman asserts that as long as there is some competition downstream, consumers are "well-served."

> [E]ven 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.[35]

(53) This view of the importance of competition downstream is at odds with basic economics and antitrust theory and history, which find that the degree of competition, and not just the existence of "some" competitors, is an important predictor of the level of economic efficiency and consumer surplus produced by an industry.[36] Merger enforcement policy, as articulated in the U.S. Horizontal Merger Guidelines, is predicated on the idea that a reduction in the number of competitors in a market can lead to significant consumer harm through higher prices, lower quality, or reduced innovation.[37]

---

34 Rysman Expert Report, *Phonorecords III*, at ¶¶ 94–97.

35 *Id.* at ¶ 70.

36 Council of Economic Advisors, "Benefits of Competition and Indicators of Market Power," Council of Economic Advisors Issue Brief, Apr. 2016.

37 U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines*, Washington DC, Aug. 19, 2010, 5.

IV. The Copyright Owners' proposal is inconsistent with the 801(b) factors

(54) The likely effects of the substantially higher rates proposed by the Copyright Owners run contrary to the 801(b) factors that govern the setting of rates in this proceeding.

IV.A. The Copyright Owners' proposal would not maximize the availability of creative works to the public

(55) As I explain in my Written Direct Testimony, an economic interpretation of the first 801(b) factor is that the royalty structure should "maximize the pie" of total producer and consumer surplus.[38] This includes consideration of both musical supply by songwriters and ongoing access by listeners.

(56) The substantial increase in mechanical royalty rates embedded in the Copyright Owners' proposal would change the economics of ad-supported and paid subscription services, as I detail in Section III. The higher rates would likely lead to a reduced variety of services available to consumers and could also lead to higher prices and an increase in piracy. In addition, the change in structure towards a per-play or per-user rate would also inhibit the efficient distribution of music by discouraging services from offering discounts to low WTP consumers and work counter to the "all-you-can-eat" listening model, as I explain in my Written Direct Testimony.[39] The cumulative result of these changes would be an increase in deadweight loss and a reduction of total surplus. This outcome is contrary to the 801(b) goal of maximizing availability of creative works to the public.

IV.B. The Copyright Owners' proposal would not provide a "fair return" reflecting relative roles

(57) As I discuss in my Written Direct Testimony, the concept of "fair return" is ambiguous in economics, but Shapley value calculations and common sense argue, if anything, towards an adjustment of rates away from entities that earn significant profits and towards those that earn negative profits, which would imply a lowering of rates from their current level.[40] The Copyright Owners would reverse this directionality and impose an additional large transfer from entities earning negative profits towards those earning significant positive profits.

[38] Marx Written Direct Testimony, *Phonorecords III*, at ¶ 12.

[39] *Id.* at Section X.B.

[40] *Id.* at ¶¶ 137–39, 161.

IV.C. The Copyright Owners' proposal would not minimize disruptive impact

(58) The Copyright Owners' proposal represents a departure from the level and form of current mechanical royalty rates. In level, it moves royalty rates upward. In form, it moves away from a percentage of revenue as a headline rate and replaces it with rates determined either by the number of users or, for the first time in the context of the mechanical royalty rate, by the number of streams. The Copyright Owners' proposal would thereby change the economics of the interactive streaming industry, in particular [redacted], and impose a new rate structure that would penalize the expansion of listening.

(59) This increase in rates and change in rate structure would be imposed on an industry that has been successful at delivering value to consumers and revenue to copyright owners under the current rate structure. Publisher and label revenue has been increasing in recent years, coinciding with the rise of interactive streaming.[41] Studies have shown that consumers who use interactive streaming are not only spending more time listening to music, but also listening to a greater variety of music.[42] Arguing for a such a substantial departure from the status quo in level and form of rates would require a careful analysis of outcomes under the proposed new regime to make sure that these benefits of the status quo are not undermined. The Copyright Owners' economists have not provided that analysis.

IV.D. Summary

(60) There is a conflict between the Copyright Owners' proposal and a reasonable economic interpretation of the 801(b) factors. It is instructive to consider how the Copyright Owners' economists reached the conclusion that a proposal that: (1) substantially increases rates and changes the form of rates compared to the status quo, (2) transfers money from unprofitable interactive streaming services to profitable publishers, and (3) risks significantly disrupting an industry that has been successful in delivering value to consumers and revenues to copyright holders, could be considered consistent with the 801(b) factors. I turn to that question in the next section.

---

[41] *Id.*, at Figure 2 and Figure 3; *see also* Nick Petrillo, "Major Label Music Production in the US," (Major Label Music Production Market Research Report NAICS 51222, Sep. 2016), at 35.

[42] *See* Mark Mulligan, "Borderless Hits and Curated Playlists," *MIDiA*, Apr. 2016, at 6. *See also* MusicWatch, "Annual Music Study 2015: Report to Spotify Ltd.," June 2016 (SPOTCRB0010863), at 33.

V. How did Copyright Owners' economists conclude that the Copyright Owners' proposal is consistent with the 801(b) factors?

(61) There are four main errors and a number of additional mistakes that lead the Copyright Owners' economists to conclude that the Copyright Owners' proposal is consistent with the 801(b) factors. I elaborate on each of these factors in the remainder of this report. Here I provide a short description.

V.A. The Copyright Owners' economists misinterpret the 801(b) factors

(62) The Copyright Owners' economists generally argue for an unconstrained market standard rather than an 801(b) standard, either by arguing that an unconstrained market outcome is superior to the 801(b) factors and should therefore be preferred, or that the 801(b) factors essentially call for an unconstrained market outcome.[43] The view that the 801(b) standard should be considered an unconstrained market standard is not consistent with the language of the statute or past interpretation of the statute, or the existence of the statute in the first place.

(63) Dr. Rysman, while favoring a market interpretation of 801(b)—"in my opinion, the stated policy objectives allow for the setting of a royalty rate that emulates a free market"—also provides interpretations of the 801(b) factors as something other than a market standard.[44] For the first factor, he focuses on songwriter incentives while ignoring the role of services in making music accessible and ignores the benefits to consumers of enhanced availability brought about by the interactive streaming model.[45] In his interpretation of the second factor, he introduces a notion of "fair" that is tied to a specific compensation model.[46] His interpretation of the third factor, regarding relative contributions, introduces an inapposite analogy to Netflix.[47] I discuss these issues in more detail in Sections IV.B, VI.C.2, and VI.C.3 below.

(64) In the case of the fourth 801(b) factor, Dr. Rysman dismisses concern with the disruptiveness of the Copyright Owners' proposal because, in his view, "the Copyright Owners' rate proposal will not be disruptive and will hardly be noticed within such a dynamic industry."[48] To the contrary, I expect that [redacted] that is used by the majority of streaming service consumers in the United States, is likely to be noticed. With regard to the fourth 801(b) factor, Dr.

[43] Rysman Expert Report, *Phonorecords III*, at ¶ 80. *See also* Eisenach Expert Report, *Phonorecords III*, at ¶ 24. *See also* Gans Expert Report, *Phonorecords III*, at ¶ 18-23.

[44] Rysman Expert Report, *Phonorecords III*, at ¶ 80.

[45] *Id.* at ¶ 69.

[46] *Id.* at ¶ 73.

[47] *Id.* at ¶¶ 86–89.

[48] *Id.* at ¶ 92.

Eisenach dismisses it as "controversial" and as deserving a "constrained interpretation."[49] [redacted]

V.B. The Copyright Owners' economists misinterpret the Copyright Owners' rate proposal

(65) The Copyright Owners' economists make some comparisons between current rates and rates under the Copyright Owners' proposals that imply that the Copyright Owners' rates are not a significant departure from current rates.[50] As I show in Section III, this is an error. The error has three main sources.

(66) First, the Copyright Owners' economists ignore [redacted] in making the comparison between current implied rates and proposed rates. This ignores one of the largest impacts of the Copyright Owners' proposed rates on the industry, [redacted]

(67) Second, the Copyright Owners' economists' presentation of current implicit per-stream mechanical royalty rates for paid subscription services gives the misleading impression that Copyright Owners' proposed rates are comparable to current implicit rates. Weighting the data correctly and focusing on current implicit per-stream mechanical royalty rates, which are of greater relevance than historical implicit per-stream rates, gives a more accurate picture of the impact of the Copyright Owners' proposal in light of current consumption patterns, and shows that the Copyright Owners' proposal would represent a significant increase in rates for paid subscription services as well. [redacted].

(68) Third, the Copyright Owners' economists tend to separately evaluate the reasonableness of the per-stream component and per-user components of the proposal compared to "average" current rates, while ignoring the "greater of" aspect of the rate proposal.[52] There is a logical flaw at the heart of this comparison. As a matter of mathematics, a proposal could mimic current average per-stream and per-

---

49 Eisenach Expert Report, *Phonorecords III*, at ¶ 25.

50 Rysman Expert Report, *Phonorecords III*, at ¶¶ 66, 68. *See also* Eisenach Expert Report, *Phonorecords III*, at ¶ 174.

51 *See* NMPA00001647 (Citing HFA and publisher data from: SONY-ATV00005245, KOBALT00001225 - KOBALT00001683, KOBALT00000741 – KOBALT00000742, KOBALT00000743 – KOBALT00000744, KOBALT00000745 – KOBALT00000746, KOBALT00000747 – KOBALT00000748, SONY-ATV00005247); NMPA00001670 (Citing Data from The Harry Fox Agency, Sony/ATV, Kobalt MRI, and Audiam).

52 Rysman Expert Report, *Phonorecords III*, at ¶ 66. *See also* Eisenach Expert Report, *Phonorecords III*, at ¶ 159.

user rates across all services, yet represent a substantially higher rate for each service, if services must pay the greater of the two.

(69) A simple numerical example illustrates this point. Consider two hypothetical streaming services, a "high-use" service in which 100 users each stream 1,200 songs per month and a "low-use" service in which 100 users each stream 200 songs per month. Suppose the high-use service currently pays $150 in mechanical royalties per month, and the low-use service pays $62 in mechanical royalties per month. *On average*, the two services pay $0.0015 per stream and $1.06 per user. One might argue, as the Copyright Owners' economists imply, that therefore a proposal consisting of those two rate prongs would represent no increase over current rates for the services. However, the "greater of" structure of the rate proposal means that the high-use service would be bound by the per-stream rate, and the low-use by the per-user rate. In this simple example, total mechanical royalties would increase from $212 to $284 as a result of the proposal—a 34% increase—rather than stay the same, as the simple "average" analysis would imply.

V.C. Dr. Eisenach uses a flawed ratio approach to determine rates

(70) The heart of the Copyright Owners' economic analysis of optimal rates for mechanical royalties is Dr. Eisenach's ratio approach to determining mechanical or musical works royalties. He argues that there is an appropriate ratio between sound recording payments and musical works payments across all music distribution channels and that this ratio should be the sole determinant of mechanical royalty rates for interactive streaming services. Dr. Eisenach argues that the appropriate ratio is found in the market and uses various proxies to determine the appropriate market ratio.

(71) The ratio of sound recording rates to musical works recordings varies by channel, setting, and regulatory regime. There is no one rate or narrow range of rates that guides every circumstance, nor should there be. And even if there were an appropriate ratio or narrow range of ratios between sound recording and musical works rates that should guide setting of royalty rates for all services in all settings, that ratio could be achieved by either raising or lowering sound recording or musical works rates. Dr. Eisenach implies that the only way to achieve the "correct" ratio is to raise the musical works rate to match a supracompetitive sound recording rate, leading to a supracompetitive musical works rate in contravention of the 801(b) factors.[53]

(72) Aside from this basic flaw in his approach, there are a number of other errors in Dr. Eisenach's ratio approach that I discuss in Section VIII below.

[53] As I discuss in Section VI.A.2 below, the sound recording market was found in *Web IV* to reflect supracompetitive rates even above the "willing buyer/willing seller" standard that governed that proceeding.

V.D. Dr. Gans applies the Shapley and ECPR models incorrectly

(73) Dr. Gans argues that the Copyright Owners' proposed rates are supported by the theoretical models of the Shapley value and ECPR. He uses both to argue narrow points in support of the Copyright Owners' rates but ignores the larger lesson of those two models.

(74) For instance, Dr. Gans uses the Shapley value to determine what he views as the appropriate ratio of payments between sound recording and musical works, but he does not use the model to determine the appropriate allocation of royalties between upstream copyright holders and downstream copyright users. This is particularly remarkable, given that the reason for this proceeding is to determine the appropriate royalties to be paid to upstream copyright holders by downstream copyright users. In addition, Dr. Gans simply assumes that sound recording profits reflect the Shapley value, rather than deriving it. When the Shapley value is correctly used to examine the allocation of value between copyright owners and copyright users, as I show in my Written Direct Testimony, it calls for lower payments by copyright users relative to current rates.

(75) In his application of the ECPR, Dr. Gans similarly makes mistakes due to erroneous or incomplete application of the underlying model. He uses the ECPR model to advocate in favor of higher rates without doing an empirical analysis of cannibalization and relative returns of other channels that such a conclusion would call for. He also claims that ECPR supports flat per-play or per-user rates for all services but ignores the fact that such a structure runs counter to the notion of opportunity costs that underlies the ECPR approach.

V.E. The Copyright Owners' economists make other substantial errors in their analysis

(76) In addition to the four major errors discussed above, the Copyright Owners' economists make other substantial errors that I discuss in Section X, including:

- Mischaracterizing the historical impact of interactive streaming on Copyright Owners;
- Mischaracterizing the impact of a percentage-of-revenue royalty structure versus a per-play or per-user royalty structure;
- Incorrectly concluding that the unbundling of tracks coincident with the decline of CDs calls for higher per-stream royalty rates; and
- Making an incorrect analogy to SiriusXM.

VI. Copyright Owners' economists' analyses rely on a flawed interpretation and analysis of the 801(b) factors

(77) Copyright Owners' economists' analyses of the Copyright Owners' proposal rely on an interpretation of the 801(b) factors that favors unconstrained rate setting by copyright owners contrary to the language of the statute and the history of regulation of musical works rates. I discuss below their flawed interpretations of each 801(b) factor and how those interpretations lead them to view a significant increase in musical works royalties as consistent with those factors.

VI.A. Copyright Owners' economists essentially advocate a market standard rather than an 801(b) standard

VI.A.1. Copyright Owners' economists point to unconstrained market rates as a benchmark for an 801(b)-determined rate

(78) Dr. Gans states that his goal is to determine rates that are "consistent with market rates and with the 801(b)(1) statutory standard."[54] Elsewhere he notes that a "free market outcome" is a good benchmark for regulatory rates and argues that such a market would be unconstrained by mandatory licensing "but not one that meets any specific, narrow definition of competitiveness."[55] Further, he views the market for sound recording rights as one that fits the definition of a "reasonably competitive market."[56] Essentially, he argues that an unconstrained market rate for sound recording represents a good baseline for determining the 801(b) rates. Dr. Eisenach similarly argues that the first three 801(b) factors call for a "fair market rate" and uses the sound recording market as a benchmark for a fair market, and he argues that the fourth should be construed narrowly.[57]

(79) The 801(b) standard is neither an unconstrained market standard nor a "willing buyer/willing seller" standard. As I discuss in my Written Direct Testimony, a reasonable interpretation of its language argues for a rate that takes into account consumer surplus in a way that an unconstrained market rate, particularly in a market with a large degree of market power, does not.[58]

---

[54] Gans Expert Report, *Phonorecords III*, at ¶ 32.

[55] *Id.* at ¶ 32.

[56] *Id.* at ¶ 32.

[57] Eisenach Expert Report, *Phonorecords III*, at ¶¶ 24–25.

[58] Marx Written Direct Testimony, *Phonorecords III*, at ¶ 89.

VI.A.2. Allowing publishers and labels to exercise substantial market power is inconsistent with the 801(b) standard

(80) As the *Web IV* proceeding acknowledged, due to the market power exercised by the music labels, sound recording rates for interactive streaming services are not currently negotiated in an effectively competitive environment.[59] In response, the *Web IV* court, in determining sound recording rates for non-interactive streaming services, adjusted interactive streaming service negotiated rates downward in part to mimic effective competition under a "willing buyer/willing seller" standard.[60]

(81) Licensors of musical works rights also have significant inherent market power, as has been recognized by the U.S. Department of Justice (DOJ). Licensing of *performance* rights has long operated under consent decrees enforced by the Antitrust Division of the DOJ designed to "prevent the anticompetitive exercise of market power" by ASCAP and BMI.[61] The consent decrees do not cover the setting of mechanical royalty rates, which are overseen by the Copyright Royalty Board (CRB) under the 801(b) standard.

(82) The inherent market power of publishers and labels comes about as a result of the aggregation of rights among the three major record labels and publishers—Sony, Universal, and Warner. These three entities collectively account for 58.2% of U.S. label revenues and 35.6% of U.S. publishing revenues.[62] While each owner of a musical works or sound recording right has some market power due to the uniqueness of its product, the aggregation of rights into large groups that streaming services "believe they must have" in order to compete in the marketplace creates significant market power on the part of labels and publishers.[63] The Federal Trade Commission concluded as much in its assessment of the proposed Vivendi-EMI merger, noting that "Commission staff found considerable evidence that each leading interactive streaming service must carry the music of each Major to be competitive."[64]

---

59 Determination, *In re Determination of Royalty Rates and Terms for Ephemeral Recording and Webcasting Digital Performance of Sound Recording (Web IV)*, No. 14-CRB-0001-WR (CRB 2015) [hereinafter *Web IV*] at 66–67.

60 *Id.* at 65–66.

61 "Statement of the Department of Justice on the Closing of the Antitrust Division's Review of the ASCAP and BMI Consent Decrees," Washington, DC, Aug. 4, 2016, 2.

62 Nick Petrillo, "Major Label Music Production in the US" (Major Label Music Production Market Research Report NAICS 51222, Sep. 2016), at 26. *See also*, Nick Petrillo, "Music Publishing in the US: Market Research Report" (Music Publishing Market Research Report 51223, Oct. 2015), at 26.

63 United States Copyright Office, "Copyright and the Music Marketplace," February 2015, 148, *available at* http://copyright.gov/docs/musiclicensingstudy/copyright-and-the-music-marketplace.pdf. *See also*, Determination, *Web IV*, at 121–22.

64 Federal Trade Commission, "Statement of Bureau of Competition Director Richard A. Feinstein *In the Matter of Vivendi, S.A. and EMI Recorded Music*," news release, Sept. 21, 2012, *available at* https://www.ftc.gov/sites/default/files/documents/closing_letters/proposed-acquisition-vivendi-s.a.emi-recorded-music/120921emifeinsteinstatement.pdf. *See also* the *Web IV* decision, which discusses "supranormal pricing that arises from the impact of complementary oligopoly pricing that was well-documented and admitted in the filings with the

(83) Dr. Gans rejects the notion of market power in the sound recording market simply because, he notes, the market functions. He writes that "the orderly functioning of the interactive streaming sound recording market, outside of the compulsory licensing regime of the Copyright Act, provides evidence that notional anticompetitive concerns underlying the Copyright Act are not manifest in licensing with interactive streaming services."[65] There is no economic rationale for this statement. It is in the interest of sellers with market power to sell their product; the fact that transactions take place does not prove the existence of a competitive market.

VI.A.3. Copyright Owners proposal does not reflect the "market"

(84) Ironically, given the preference of the Copyright Owners' economists for market outcomes in this context, they support a proposal that would tend to [redacted], which the unregulated sound recording side of the market has facilitated. Their proposal would also completely do away with percentage-of-revenue rates that form a key part of unregulated rates negotiated between music labels and interactive streaming services.

(85) In addition, both sides in the *Phonorecords II* settlement voluntarily agreed to percentage-of-revenue rates for ad-supported services with no per-user or per-stream alternative.

VI.A.4. Summary

(86) The Copyright Owners' economists in some instances imply that the 801(b) factors should not set effective rates but instead just provide a baseline from which to negotiate rates.[66] In other instances, however, they seem to accept the language of 801(b) as meaning something other than an unconstrained market rate and try to define each of the four factors in economic terms.[67] Even in the latter cases, however, their economic interpretation of each factor leads them in the direction of an unconstrained market rate, not a rate based on the 801(b) factors.

VI.B. Copyright Owners' economists ignore the first 801(b) factor or interpret it with little regard for "the public"

(87) The first of the 801(b) factors reads:

- "(A) to maximize the availability of creative works to the public."

Federal Trade Commission by Universal, its economic expert and its counsel in connection with the Universal-EMI merger." Determination, *Web IV*, at 75.

65 Gans Expert Report, *Phonorecords III*, at ¶ 13.

66 *See* Eisenach Expert Report, *Phonorecords III*, at ¶¶ 24, 31–32.

67 *See* Gans Expert Report, *Phonorecords III*, at ¶¶ 31–32.

(88) As I discuss in my Written Direct Statement, I interpret this factor to favor a rate structure that maximizes total surplus, including both producer and consumer surplus.[68]

(89) Dr. Rysman asserts that this factor calls for increasing the mechanical royalty rate, which, he argues, would increase investment in the production of music, all else equal, while not disturbing downstream investment.[69] Dr. Eisenach and Dr. Gans equate this factor alongside the other 801(b) factors to a market value with little other comment.[70] Because Dr. Rysman is the only one of the economists who tries to provide an interpretation of this factor other than as supporting a market rate, I focus on his response.

(90) In discussing the "availability of creative works to the public," Dr. Rysman focuses only on one component of this availability—the composition of musical works. Composition is one step in the process of making music available to consumers. Other steps include music recording and the transmission of recordings through a platform that is readily accessible by "the public." A breakdown in any of these steps may lead to deviation from factor A. For example, if songwriters are compensated such that they produce a large number of new musical works, but performers are compensated such that they have no incentive to record these works, the availability of creative works will not be maximized. Similarly, if both songwriters and performers are compensated such that there are a large variety of new performances, but distribution platforms have insufficient financial incentive to make these performances available to consumers, the availability of creative works will not be maximized. In missing this essential point, the Copyright Owners' economists fail to properly consider factor A, to which the Copyright Owners' proposal is contrary.

(91) Even if one accepts Dr. Rysman's interpretation of factor A, neither he nor any of the other Copyright Owners' economists have done any analysis of the impact of changes in royalty rates on music production. Available evidence suggests that, despite the decrease in total industry music revenues starting in 1999 and shown in Figure 2 of my Written Direct Testimony, the number of individuals in the U.S. Office of Employment Statistics category "music directors and composers" generally increased from 1999 to 2015. Likewise, the inflation-adjusted compensation of this category generally increased despite the overall music industry trend.[71]

(92) Nor do the Copyright Owners' economists produce any substantial analysis of the impact of the Copyright Owners' proposal on downstream interactive streaming services. As I show in Section III, it represents a substantial increase in royalty rates for interactive streaming services and [redacted]. The Copyright Owners'

68 Marx Written Direct Testimony, *Phonorecords III*, Section X.B.

69 Rysman Expert Report, *Phonorecords III*, at ¶¶ 69–70.

70 Eisenach Expert Report, *Phonorecords III*, at ¶ 24. Gans Expert Report, *Phonorecords III*, at ¶¶ 31–32.

71 Bureau of Labor Statistics, "Occupational Employment Statistics," Department of Labor, accessed Jan 1, 2017, https://www.bls.gov/oes/.

proposal would reduce the accessibility of music to the public and could result in increased prices for paid subscription services. Dr. Rysman does not incorporate these effects into his analysis of whether the Copyright Owners' proposal meets the first 801(b) factor. Dr. Rysman affirmatively points to an industry-wide increase in charges to the public as a way in which services could positively respond to the Copyright Owners' proposal.[72] Dr. Rysman's positive view of a price increase to consumers represents a significant deviation between his views and the first 801(b) factor.

VI.C. Copyright Owners' economists misinterpret the second and third 801(b) factors

(93) The second and third of the 801(b) factors read:

- "(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 contribution, capital investment, cost, risk, and contribution to the opening of new markets for creative expression and media for their communication."[73]

VI.C.1. Copyright Owners' economists incorrectly equate factors B and C with an unconstrained market outcome

(94) The Copyright Owners' economists interpret the second and third 801(b) factors as calling for an unconstrained market rate.[74] For instance, Dr. Gans states that in the context of this proceeding, "a hypothetical unconstrained market for mechanical licenses is an appropriate analytical guide"[75] and that "sound recording licenses provide a benchmark for estimating a reasonable rate for musical works."[76]

(95) Such an interpretation is inconsistent with both precedent and market reality. Even the "willing buyer/willing seller" standard, which governs certain CRB proceedings and is more akin to a market

[72] Rysman Expert Report, *Phonorecords III*, at ¶¶ 93–95. It appears that in his report, Dr. Rysman is advocating for collusion among the interactive streaming services to coordinate on an industry-wide price increase to consumers: "Collectively the services could pass through the rate change to consumers without affecting their price points relative to each other." Dr. Rysman implicitly recognizes that competition among streaming services constrains the prices that they can charge to consumers—a key reason that competition is good—and seems to suggest that streaming services have available to them the option of acting collectively, something that in my understanding would be viewed under antitrust laws as price fixing.

[73] 17 U.S.C. § 801(b)(1).

[74] *See* Eisenach Expert Report, *Phonorecords III*, at ¶ 32. *See also* Gans Expert Report, *Phonorecords III*, at ¶ 31.

[75] *Id.* at ¶ 9.

[76] *Id.* at ¶ 9.

rate than an 801(b) standard, is not interpreted to be an unconstrained market rate.[77] CRB precedent, DOJ precedent, and economics all recognize the market power that is created by the aggregation of copyrights by upstream entities, which argues that the unconstrained market rate is not "effectively competitive."[78] The 801(b) standard is recognized as distinct from both an unconstrained market rate and a "willing buyer/willing seller" standard.[79]

(96) As I explain in my Written Direct Testimony, the Shapley value provides one way to assess a fair return reflecting the relative roles of copyright owners and copyright users.[80] The analysis in my Written Direct Testimony showed that the Shapley value calls for a lowering of rates from current levels.[81]

VI.C.2. Dr. Rysman incorrectly equates "fair" with a per-play royalty

(97) Dr. Rysman argues that a "fair" return means that "when a copyright is used more intensively, the copyright owners should see increased returns."[82] He then argues that this notion supports a per-play royalty over a percentage-of-revenue royalty.[83]

(98) Under the current royalty structure, however, returns to individual copyright owners do increase when their works are played with greater intensity. Once the total compensation is determined, compensation for an individual work is calculated on a per-play basis. If that is the definition of "fair," as Dr. Rysman suggests, then compensation for artists is already determined on a fair basis.

(99) Under a percentage-of-revenue rate, copyright owners are compensated more in aggregate when revenue increases. One would expect revenue to increase as use increases, because of increased ad placements, increased numbers of subscribers, and, potentially in the future, increased subscription prices.

(100) In addition, as I explain in my Written Direct Testimony, the "all you can eat" pricing model of the interactive streaming services supports an efficient amount of streaming.[84] Per-stream and per-user fees above the social marginal cost tend to create deadweight loss and reduce total surplus available

[77] For a definition of the "willing buyer/willing seller" standard, s*ee* Determination, *Web IV*, at 2.

[78] *Id.* at 121–22; *see also* Department of Justice, "Statement of the Department of Justice on the Closing of the Antitrust Division's Review of the ASCAP and BMI Consent Decrees," Aug. 4, 2016, at 2, 7, and 22.

[79] Determination, *Web IV*, at 2.

[80] Marx Written Direct Testimony, *Phonorecords III*, at ¶¶ 136–39.

[81] *Id.* at ¶ 161.

[82] Rysman Expert Report, *Phonorecords III*, at ¶ 73.

[83] *Id.* at ¶ 75.

[84] Marx Written Direct Testimony, *Phonorecords III*, at Section X.B.

from copyright usage.[85] Maximizing total surplus is beneficial for all parties—services, consumers, and rights holders—and a "fair" allocation can be determined once that surplus is maximized.

(101) I discuss this issue and the differences between percentage-of-revenue, per-play, and per-user royalties in more detail in Section X.B below.

VI.C.3. Dr. Rysman's Netflix analogy does not support his interpretation of the third 801(b) factor

(102) In evaluating the third 801(b) factor, Dr. Rysman writes that Netflix is a useful benchmark for the relation between rights holders and an interactive streaming service.[86] He supports this conclusion by noting that Netflix and other music streaming services that provide creative content over the Internet were uncertain when they began, disrupted traditional methods of consuming content, and have invested heavily in distribution.[87] Dr. Rysman goes on to note that content costs for Netflix have risen significantly over the last 10 years. In 2010, Netflix content costs were $300 million and rose to $2.2 billion in 2013. By 2016, Netflix was paying $4.4 billion in content costs.[88] The implication Dr. Rysman points to is that as Netflix became more established and grew its subscriber base, content providers increased the amount that they charged Netflix for licensed content. Dr. Rysman concludes from this example that he would expect content providers for streaming service to also raise prices if the market were operating as an efficient free market.[89] This use of Netflix as a benchmark for interactive streaming is flawed.

(103) Dr. Rysman's characterization of Netflix's increasing content costs is incorrect. Rather than representing increasing payments to rights holders for similar content, they partially represent an increase in the cost of original content, which Netflix pioneered in order to differentiate itself from its competitors. Netflix launched its first self-commissioned original content in February 2013 with *House of Cards* and released several other pieces of content that year, including *Orange is the New Black* and Season 4 of *Arrested Development*.[90] As of 2016, Netflix had 126 pieces of original content.[91] This includes *The Crown*, the most expensive TV series ever produced, with a reported cost of $130 million.[92] This show alone would equal almost half of Netflix's 2010 content costs. In this

85 *Id.* at ¶¶ 125–26.

86 Rysman Expert Report, *Phonorecords III*, at ¶¶ 86–87.

87 *Id.* at ¶ 86.

88 *Id.* at ¶ 87.

89 *Id.* at ¶ 88.

90 The first Netflix exclusive series was *Lilyhammer*, which was released in partnership with a Norwegian broadcaster. *See* Richard Lawler, "Netflix Schedules Its Original Series 'House of Cards' for release February 1st," *Engadget*, Oct. 4, 2012, https://www.engadget.com/2012/10/04/netflix-house-of-cards-original-series-february-1/.

91 Kim Masters, "The Netflix Backlash: Why Hollywood Fears a Content Monopoly," *Hollywood Reporter*, Sep. 14, 2016, http://www.hollywoodreporter.com/features/netflix-backlash-why-hollywood-fears-928428.

92 Kevin Fallon, "Inside Netflix's $130 Million 'The Crown,' the Most Expensive TV Series Ever," *Daily Beast*, Nov. 2,

same time period, as Netflix has increased its exclusive content offerings, the service has reduced its catalog of licensed offerings. As of 2016, Netflix's U.S. content library shrank by about 40%, from over 9,000 titles in 2012 to just 5,100.[93] Thus, rising content costs in Netflix's case have little to do with more money being paid to rights holders.

(104) Another aspect that Dr. Rysman glosses over in his characterization of Netflix's content costs growth is the firm's global expansion from 2010 to 2016. Netflix first expanded outside of the United States in September 2010, when it began offering service in Canada. By 2013, the firm had expanded to Latin America, Central America, the Caribbean, the United Kingdom, Ireland, Scandinavia, and the Netherlands. Today, Netflix is available around the world, with the exception of a handful of locations such as China.[94] One would expect licensing costs to increase with an expansion of geographic rights.[95]

(105) Dr. Rysman provides none of this additional information as context to Netflix's rising content costs. He fails to mention the rise in Netflix's exclusive content offerings or global expansion. This leaves the misleading impression that the growth is driven by licensed content domestically, as he attempts to use Netflix's rising content costs as an implicit benchmark for interactive streaming services in the current proceeding.[96]

VI.D. Copyright Owners' economists virtually ignore the fourth 801(b) factor

(106) The fourth 801(b) factor reads:

2016, http://www.thedailybeast.com/articles/2016/11/02/inside-netflix-s-130-million-the-crown-the-most-expensive-tv-series-ever.html.

93 Adam Levy, "Netflix Inc. Content Costs Are Booming, But Its Library Is Shrinking," *The Motley Fool*, Jun. 20, 2016, http://www.fool.com/investing/2016/06/20/netflix-inc-content-costs-are-booming-but-its-libr.aspx.

94 *See* Netflix Inc., "Netflix Launches Canadian Service for Streaming Movies and TV Episodes over the Internet," news release, Sep. 22, 2010, *available at* https://media.netflix.com/en/press-releases/netflix-launches-canadian-service-for-streaming-movies-and-tv-episodes-over-the-internet-migration-1; Netflix Inc., "Netflix to Launch Service in Latin America and the Caribbean for Streaming TV Shows and Movies Later This Year," news release, Jul. 5, 2011, *available at* https://media.netflix.com/en/press-releases/netflix-to-launch-service-in-latin-america-and-the-caribbean-for-streaming-tv-shows-and-movies-later-this-year-migration-1; Netflix Inc., "Netflix to Launch Service in the UK and Ireland for Streaming Movies and TV Shows in early 2012," news release, Oct. 24, 2011, *available at* https://media.netflix.com/en/press-releases/netflix-to-launch-service-in-the-uk-and-ireland-for-streaming-movies-and-tv-shows-in-early-2012-migration-1; Netflix Inc., "Netflix Launches in Sweden, Denmark, Norway and Finland," news release, Oct. 18, 2012, *available at* https://media.netflix.com/en/press-releases/netflix-launches-in-sweden-denmark-norway-and-finland-migration-1; Netflix Inc., "Netflix Now Available in the Netherlands," news release, Sep. 11, 2013, *available at* https://media.netflix.com/en/press-releases/netflix-now-available-in-the-netherlands-migration-1; Netflix Inc., "Netflix Is Now Available Around the World," news release, Jan 6, 2016, *available at* https://media.netflix.com/en/press-releases/netflix-is-now-available-around-the-world.

95 Adam Levine-Weinberg, "Can Netflix Rein in Skyrocketing Costs?" *The Motley Fool*, Jun. 22, 2016, http://www.fool.com/investing/2016/06/22/can-netflix-rein-in-skyrocketing-costs.aspx.

96 Rysman Expert Report, *Phonorecords III*, at ¶¶ 86–88.

- "(D) To minimize any disruptive impact on the structure of the industries involved and on generally prevailing industry practices."

(107) In response to this factor, the Copyright Owners' economists:

1. Argue that it should be interpreted narrowly.[97]
2. Argue that the rates implied by the Copyright Owners' proposal do not differ much from the status quo and thus would have little disruptive impact.[98]
3. Suggest, with little justification, that to the extent rates that do differ from the status quo, interactive streaming services could take various business decisions that would leave them no worse off under the Copyright Owners' proposal.[99]

(108) Dr. Eisenach argues that the fourth 801(b) factor is in conflict with the other three factors and should be interpreted in a "constrained" fashion.[100] [redacted].

(109) The Copyright Owners' economists also argue that the Copyright Owners' proposed rates do not represent a material change over implicit per-play or per-user rates charged under the current regime.[102] As I show in Section VII below, this assertion is incorrect. It ignores [redacted], is based on a misleading impression of current rates, and ignores the "greater of" structure of the Copyright Owners' proposed rates.

(110) Finally, to the extent that Dr. Rysman acknowledges a possible rate impact of the Copyright Owners' proposal, he argues with little analysis that any increases "will hardly be noticed within such a dynamic industry."[103] He advances possible cost-reducing or revenue-enhancing responses by interactive streaming services to a rate increase and says that these responses will mitigate any

[97] Eisenach Expert Report, *Phonorecords III*, at ¶ 25.
[98] Rysman Expert Report, *Phonorecords III*, at ¶ 92. Eisenach Expert Report, *Phonorecords III*, at ¶¶ 171–173.
[99] Rysman Expert Report, *Phonorecords III*, at ¶¶ 94–101.
[100] Eisenach Expert Report, *Phonorecords III*, at ¶ 25.
[101] *Id.* at ¶ 25.
[102] Rysman Expert Report, *Phonorecords III*, at ¶ 92. Eisenach Expert Report, *Phonorecords III*, at ¶¶ 171–73.
[103] Rysman Expert Report, *Phonorecords III*, at ¶ 92.

adverse impact on the industry.[104] Because he has not performed any analysis of consumer responses to price increases or cost reductions of the type he describes, his opinion in this regard is no more than speculation.

[104] *Id.* at ¶ 94-101.

VII. Copyright Owners' economists mischaracterize the Copyright Owners' proposal and its impact on royalty rates

(111) Dr. Rysman argues that the Copyright Owners' proposal would not be disruptive to the industry in part because it would represent little change or even a reduction from current implied per-stream or per-user rates.[105] Dr. Eisenach similarly finds the Copyright Owners' proposal to be within the range of existing implied rates, as does Dr. Gans.[106] All omit ad-supported interactive streaming from these comparisons.

(112) To the contrary, as I show in Section III, virtually all services would see a substantial increase in mechanical and total musical works royalty payments as a result of the Copyright Owners' proposal, and [redacted]. This disconnect between the actual impact of the proposal and Copyright Owners' experts' assertions that the proposal is little different from current rates follows from three primary errors by the Copyright Owners' economists:

1. They ignore the impact of the Copyright Owners' proposal on ad-supported streaming;
2. They give misleading impressions of current implicit per-stream mechanical royalty rates for paid subscription services; and
3. They ignore the "greater of" aspect of the Copyright Owners' proposal.

VII.A. Copyright Owners' economists ignore the impact of the Copyright Owners' proposal on ad-supported streaming

(113) In the comparisons of proposed per-stream rates to implicit current per-stream rates performed by Drs. Eisenach, Gans, and Rysman, all omit ad-supported interactive streaming from their comparisons. As I discuss in my Written Direct Testimony, ad-supported streaming is attractive to users with a lower WTP relative to those who opt for paid subscription services.[107] The bifurcation of WTP among consumers has been noted by the CRB in other contexts.[108] The current royalty rate structure, which calculates ad-supported royalties as a percentage of revenue, accounts for this difference in WTP.

105 *Id.* at ¶¶ 61–66 and Figure 7.
106 Eisenach Expert Report, *Phonorecords III*, at ¶¶ 171–73. *See also* Gans Expert Report, *Phonorecords III*, at ¶¶ 83–84.
107 Marx Written Direct Testimony, *Phonorecords III*, at ¶ 14.
108 *Id.* at ¶¶ 54–56. *See also* Determination, *Web IV*, at 70–71.

(114) The Copyright Owners' proposal does not account for this bifurcation of users, or any difference in user demand, and instead imposes uniform per-stream or per-user rates for all types of interactive streaming services sold to all customer groups. [redacted]

(115) Drs. Gans and Rysman provide no explanation as to why they omit ad-supported streaming from their comparison of current implied per-stream rates to rates under the Copyright Owners' proposal. Dr. Eisenach's explanation, in his footnote 127, is unclear, but appears related to his view that revenue for this service is "too low" because [redacted] and ad-supported services provide an on-ramp to paid services.[109] While I agree that one aspect of the ad-supported service is to provide an on-ramp to paid services, it also has another important aspect, namely to serve low WTP customers.[110]

(116) Regardless of Dr. Eisenach's explanation for why revenues and effective royalties on ad-supported services are currently lower than those on paid subscription services, or his speculation about why they are "too low," he and the other Copyright Owners' economists err in not calculating the impact of the Copyright Owners' proposal on ad-supported services. Ad-supported services currently make up a majority of subscribers and [redacted] of all streams in the industry.[111] By this omission, Copyright Owners' economists substantially understate the impact of the Copyright Owners' proposal on the interactive streaming industry.

VII.B. Copyright Owners' economists give misleading impressions of current paid subscription rates

(117) The Copyright Owners' economists, in their analysis of paid subscription services, argue that the Copyright Owners' proposed rates are not that different from current implicit per-stream mechanical royalty rates. [redacted].

[109] Eisenach Expert Report, *Phonorecords III*, footnote 127. Dr. Eisenach does not attempt to value this [redacted] or show how that equity share is distributed or how it might affect rates.

[110] Spotify, "Performance, Industry Impact & Freemium," Presentation (SPOTCRB0003951), at 15–29.

[111] *See* Figure 9.

VII.B.1. Copyright Owners' economists provide a misleading analysis of current implicit per-stream mechanical royalty rates

(118) Focusing on paid subscription streaming services, Drs. Rysman and Eisenach assert that the Copyright Owners' proposal of $0.0015 per stream represents little change over current (implicit) per-stream mechanical royalty rates. In support, they provide a series of calculations comparing per-stream mechanical royalty rates implied by the current rate structure with per-stream rates included as part of the Copyright Owners' proposal. These calculations and comparisons are misleading. They give the erroneous impression that the $0.0015 per-stream structure is roughly what the services currently pay.[112] That is inconsistent with the analysis that I present in Section III, which shows that the Copyright Owners' proposal would result in a significant increase to paid subscription interactive streaming services.

(119) One reason that the analysis of the Copyright Owners' economists is misleading is that, in much of their discussion, there is little accounting for the differences in scale and scope among interactive streaming services. For instance, Dr. Rysman's Figure 7 appears to visually show implicit per-stream rates that vary tremendously and that are mostly higher than the Copyright Owners' proposal of $0.0015 per stream. Figure 15 reproduces Dr. Rysman's Figure 7.

[112] Dr. Rysman indicated in his report "that there are numerous services that have paid effective per-play rates well above what the Copyright Owners propose…" Rysman Expert Report, *Phonorecords III*, at ¶ 63. Dr. Eisenach concluded that his benchmark analysis indicated "that the proposed rates fit with market practices and reasonable expectations." Eisenach Expert Report, *Phonorecords III*, at ¶ 173.

[redacted]

[redacted]

(120) However, many of the services he includes on this graph are of *de minimis* size. For instance, the highest rate he shows for 2015, at [redacted], belongs to "[redacted]," a service with [redacted] subscribers and [redacted] in revenues in that year in the United States.[113] Visually and analytically, all services are given equal weight.

(121) The graph also shows data from 2012 to 2015 and implicitly weights more distant years the same as more recent years. In general, as interactive streaming has become more accepted and accessible and overall listening has increased, streams per user have increased for virtually all services, [redacted], whose blended average mechanical royalty rate per stream has increased approximately [redacted] from 2015 to first half of 2016.[114]

---

[113] Rysman Expert Report, *Phonorecords III*, backup materials (NMPA00001670.xlsx (Citing Data from The Harry Fox Agency, Sony/ATV, Kobalt MRI, and Audiam)).

[114] [redacted].

(122) Dr. Rysman's approach hides the fact that based on more recent streaming figures, the Copyright Owners rates represent roughly a [redacted] per-stream rate than current payments for the paid subscription portion of the interactive streaming industry.

(123) Weighting his Figure 7 by revenue or subscribers and focusing on 2015 shows a more accurate picture of the data he presents. Figure 16, which weights Dr. Rysman's Figure 7 by service size (subscribers and revenue, separately), shows that the per-stream component of the Copyright Owners' proposal would represent a roughly [redacted] increase over 2015 average current implicit per-stream mechanical royalty rates for paid interactive streaming services.

[redacted]

(124) Dr. Eisenach does not attempt to calculate the current implicit per-stream rate as Dr. Rysman does, yet he purports to perform calculations of reasonable per-stream and per-user rates based on current practices. His conclusion is that "current" mechanical rates of [redacted] per-user month or [redacted] per play show that the rates derived from his benchmark analysis are "consistent with customary costs and

margins and industry practices."[115] This conclusion is incorrect, and the underlying calculations are based on erroneous assumptions.

(125) Dr. Eisenach starts by assuming that allocating 15% of streaming revenue for musical works royalties is current practice, and multiplies this by a baseline assumed $10.00 per month in revenue for a paid subscription streaming service to determine a $1.50 per-user per-month rate for all musical works as in line with "current practice." These assumptions are flawed. Paying 15% of revenue is more than most services pay for musical works in the United States—it is nearly 50% higher than the statutory "all-in" rate of 10.5%. In addition, although $9.99 per month is a common price for interactive streaming, free trials and student and family discounts mean that $9.99 per month per user is not the realized average per-user revenue for interactive streaming services. [redacted][116]

(126) In concluding that $1.50 per user per month for musical works rights is roughly current practice, Dr. Eisenach arrives at a rate that is more than 50% higher than current practice. [redacted].[117] And this per-user rate would not be applied to just paid streaming. It would apply to [redacted].[118]

(127) Dr. Eisenach divides his assumed per-user revenue by industry average streams per user to find [redacted] per-stream mechanical royalty as a reasonable match to current practice. However, that rate would represent [redacted] current per-stream mechanical royalty rate for its paid services, and more than a [redacted] increase of the 2015 weighted average per-stream rate for the industry.[119] Dr. Eisenach's conclusion that his benchmark rates are not a departure from current practice is thus based on incorrect assumptions, leading to a substantial distortion of what is "current practice."

(128) [redacted].

[115] Eisenach Expert Report, *Phonorecords III*, at ¶ 173.

[116] [redacted].

[117] [redacted].

[118] *See* Figure 1. The [redacted] figure applies the Copyright Owners' rate to all subscribers. The [redacted] rate assumes Spotify continuously purges non-active ad-supported subscribers.

[119] The current per-stream mechanical royalty for the services highlighted in Drs. Eisenach and Rysman's expert reports (excluding locker services) weighted by streams is [redacted]. This value assumes for [redacted] the same ratio between PRO payments and mechanical royalties as a share of musical works royalties from 2014 applies to 2015. It also assumes that [redacted] PRO payments for 2015 were approximately equal to its mechanical royalties. Some services included in this weighted average, such as [redacted], do not have complete data for 2015.

[redacted]

[redacted] [redacted]. [121]

[120] My analysis of Spotify's streaming data for its paid service in 2015 indicated that there were approximately [redacted] billion streams of any length and approximately [redacted]. Thus, [redacted] Using 2H2015-1H2016 numbers, this ratio is [redacted].

[121] *See* Rysman Expert Report, *Phonorecords III*, Section V.

[redacted]

[redacted]

VII.C. Copyright Owners' economists ignore the "greater of" aspect of the Copyright Owners' proposal

(130) Although the Copyright Owners' economists focus on the per-stream aspect of the Copyright Owners' proposal, for the majority of services today the per-stream aspect of the Copyright Owners' proposal would not determine their rates. Instead, their rates would be determined by the $1.06 per-user rate. As shown in Figure 13, application of this rate to current paid subscription portable mixed use services leads to a [redacted] of the mechanical royalty rate, even if Copyright Owners changed their proposal to apply only to [redacted]

(131) As I discuss in Section V.B, as a matter of mathematics, even if the Copyright Owners' proposal mimicked current average implicit per-stream and per-user rates for interactive streaming services, the "greater of" aspect of the rate structure could mean that every service pays a significantly higher

rate. As I have also discussed, however, the Copyright Owners' proposal does not mimic current implicit per-stream and per-user rates, but is instead higher.

VIII. Dr. Eisenach's calculation of mechanical royalty rates based on ratios of sound recording to musical works rates is flawed

(132) Dr. Eisenach proposes to assess the appropriate rate for Section 115 licenses based on calculating the ratio of sound recording to musical works royalties in a variety of settings and applying that ratio to the interactive streaming market.

(133) As discussed below, Dr. Eisenach's approach is flawed in multiple ways. His use of this ratio approach has no foundation in economic theory. In addition, the copyright users he examines to determine the "market ratio" are not all similarly situated to streaming services, and their rates were determined under a variety of regulatory and non-regulatory circumstances. Also, he does not consider other ratios that fall outside of his range. Finally, Dr. Eisenach's methodology for arriving at a rate for Section 115 licenses, given his selected ratio, rests on unrealistic assumptions that artificially increase his suggested rates.

VIII.A. Dr. Eisenach provides insufficient economic foundation for his ratio approach

(134) Dr. Eisenach proposes a methodology that relies on identifying a "market-determined" ratio between royalty payments for sound recording rights and royalty payments for musical works rights to calculate appropriate mechanical royalty rates under the 801(b) factors. He provides no economically sensible explanation for why the ratios he proposes are appropriate for determining mechanical rates for interactive streaming services. In addition, Dr. Eisenach defines "market-based valuations" to be "fair market valuations determined by voluntary negotiations."[122] Yet his "observed" ratios are not "market-based" valuations because they are not all determined by voluntary negotiations, and they are not "fair market valuations" because even the ones that are negotiated did not take place in an effectively competitive market. Thus, while Dr. Eisenach is sometimes using negotiated rates for his ratios, these are not equivalent to fair market valuations.

(135) Dr. Eisenach claims to discuss the "economic relationship between the sound recording and musical works rights" in Section V.A. of his report, presumably in order to explain why the ratio between their valuations in other settings is an appropriate approach for this setting.[123] However, his analysis goes no further than the assertion that these rights are complementary inputs for "music users that

[122] Eisenach Expert Report, *Phonorecords III*, at ¶ 8.
[123] *Id.* at ¶¶ 76–80.

require both sound recording rights and musical works rights."[124] He states that "it is not necessary for my purposes to put forward a general theory of relative valuation," and he relies instead on "empirical observation of market-based outcomes."[125]

(136) In the absence of a "general theory of relative valuation," Dr. Eisenach's assumption that "the relative values of the two rights should be stable across similar or identical markets" has no grounding in economics.[126] He assumes a conclusion (stability), and from this conclusion he asserts the existence of a useful baseline from a disparate and widely varying set of ratios. Thus, not only does Dr. Eisenach neglect to explain why the ratio "should" be stable, his data show proposed ratios varying from a low of [redacted] to a high of [redacted], contradicting this stability assumption.[127] And as I discuss in Section VIII.C.5, considering the implied ratios in other music services expands this set further, to a high of [redacted].

VIII.B. Sound recording rates do not constitute an appropriate baseline under the 801(b) factors

(137) Dr. Eisenach's ratio approach attempts to set musical works rates from a baseline of sound recording rates based on a "market ratio." In doing so, he does not account for the substantial market power of the three major record labels in the market for sound recording rights. When sound recording rates are inflated by the exercise of market power over an "effectively competitive" benchmark, as the *Web IV* decision found with respect to sound recording royalties for interactive streaming services, then raising the musical works royalty to a sound recording baseline is inflating the musical works royalty rate to reflect the market power of music labels on the sound recording side, contrary to the 801(b) factors.[128]

(138) The fallacy of Dr. Eisenach's approach can be illustrated by the following example.

(139) Consider sales of a left shoe and right shoe, perfect complements for production of a pair of shoes, but one of little use without the other. Assume the market price of a pair of shoes, reflecting market power on the part of shoe producers, is $100, and the "market ratio" is 1:1: if sales are broken up into individual sales of left and right shoes, producers charge $50 for each.

---

[124] *Id.* at ¶ 76.

[125] *Id.* at ¶ 79.

[126] *Id.* at ¶ 79.

[127] *Id.* at ¶ 79 and Table 9.

[128] The CRB in *Web IV* noted that "the Judges were presented with substantial, unrebutted evidence that the interactive services market is *not* effectively competitive." Determination, *Web IV*, at 66. According to the CRB, "[E]ven economists quite unwilling to assume that a given monopoly structure or oligopoly structure is inefficient and anticompetitive bristle at the idea that supranormal pricing arising from a complementary oligopoly is reflective of a well-functioning competitive market." *Id.*

(140) Now suppose that the price of left shoes is constrained to be $30, similar to the Copyright Owners' economists' argument that musical works royalties are currently constrained.[129] The price of right shoes will rise to $70, reflecting the $100 "market price" of a pair of shoes. Now suppose that shoe producers argue to lift the constraint on left shoes and implement a "market solution" based on the "market ratio" of 1:1. That would result in a total price of $140, which is above the market price of a pair of shoes. In this case, implementing a "market ratio" raises the price above what the market would charge. In this simple example, shoes would become unaffordable for some consumers and consumption would decline, resulting in a loss of consumer surplus and lower production.[130]

(141) Similarly, raising the musical works rate to attain a "market ratio" based on an already inflated sound recording rate results in supracompetitive musical works rates and overall rates. To the extent that the supracompetitive rates are passed through to final consumers, demand would drop and both consumers and producers would be worse off.

(142) Aside from this fundamental error, which renders the ratio approach unreliable, Dr. Eisenach's selection of ratios is flawed. Below, I discuss each of Dr. Eisenach's proposed ratios in turn.

VIII.C. Dr. Eisenach's proposed ratios are not reliable

(143) Dr. Eisenach does not include all music distribution channels in his analysis, but only those that he selects based on his assessment of which are close to market rates. But the ratios he presents, rather than indicating a stable "market ratio" of sound recording to musical works rates, represent a wide range of ratios, no one of which is particularly well suited as a baseline for determining mechanical royalties for interactive streaming services. In addition, he ignores other sound recording to musical works royalty ratios that are significantly above the range he presents.

(144) Below, I look at his proposed benchmarks in turn and then present ratios from a broader set of scenarios than Dr. Eisenach selects.

VIII.C.1. Section 115 licenses

(145) Dr. Eisenach's first benchmarks, which he uses to establish an upper bound of [redacted] on the ratio between sound recording and musical works royalties, derive from the existing structure of

[129] *See*, e.g., Gans Expert Report, *Phonorecords III*, Section III. In addition, Dr. Eisenach argues that the current rate structure was determined "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." If true, this would tend to inflate payments to sound recording rights holders, all else equal. Eisenach Expert Report, *Phonorecords III*, at ¶ 19.

[130] This is the same as saying that consumers base their decisions on the sum of the prices of the shoes, rather than the ratio of those prices. Similarly, copyright users make production decisions based on their total royalty costs rather than the ratio between various components of such costs.

payment for musical works rights under Section 115. This rate structure, as explained in Figure 12 and Figure 17 of my Written Direct Testimony, includes a prong for percent of sound recording payments of 21% or 22%.[131] The direct agreements that Dr. Eisenach examines for the same set of rights contain similar prongs.

(146) Dr. Eisenach proposes the ratios derived from the Section 115 agreements as an upper bound, rather than a direct benchmark. His justification is that the rates were initially established in 2008, prior to the success of streaming. I note that the rates were re-established in 2012, by which point the rapid growth in streaming was evident. The Recording Industry Association of America (RIAA) data underlying Figure 2 in my Written Direct Statement show that ad-supported streaming revenues increased by 50% from 2011 to 2012, and subscription streaming revenues increased by 61%.[132]

(147) As Dr. Leonard calculates in his Expert Witness Statement, a sound recording to musical works ratio based on Subpart A licenses that were recently ratified in the 2016 settlement yields a very different ratio of [redacted] in 2015.[133] Dr. Eisenach gives no explanation for ignoring this more recent Section 115 ratio, which lies outside of the range of ratios he presents.

VIII.C.2. Licenses for synchronization rights

(148) Dr. Eisenach's second benchmark, which he uses as a lower bound on his "market-based" ratio of sound recording payments to musical works payments, derives from licenses for synchronization ("synch") rights, which allow a musical composition to be synchronized with an audio-visual image. Synch royalty rates are a poor benchmark for streaming royalty rates.

(149) Both film and television production companies have the option of recording their own versions of songs, rather than paying royalties to use a pre-recorded song. For example, in the movie *Lost in Translation*, Bill Murray sings "More Than This," a 1982 hit by Roxy Music and written by lead singer Bryan Ferry.[134] In such a case, the movie producers would have paid the publisher that held the musical works rights for the song, but not the label that held the sound recording rights for songs performed by Roxy Music. This option gives the users of synch rights, such as movie producers, more bargaining power relative to the labels than would be the case with streaming services. Dr. Eisenach makes no attempt to adjust this benchmark to account for these differences or to adjust for

---

131 Marx Written Direct Testimony, *Phonorecords III*, Figure 12 and Figure 17.

132 *Id.* Figure 2.

133 Amended Expert Witness Statement of Dr. Gregory K. Leonard, *In the Matter of Phonorecords III*, No. 16-CRB-0003-PR (CRB 2018-2022), Nov. 1, 2016, [hereinafter Amended Leonard Expert Report, *Phonorecords III*] at ¶ 46.

134 "Bryan Ferry," Internet Movie Database, accessed Feb. 11, 2017, *available at* http://www.imdb.com/name/nm0275069/#soundtrack. *See also* More Than This—Lost in Translation (Bill Murray & Scarlett Johansson)," YouTube, accessed Feb. 11, 2017, *available at* https://www.youtube.com/watch?v=dpwIbqm-umk.

the 801(b) factors. The resulting ratio of sound recording to musical works royalties is therefore not a good benchmark for streaming. This was recognized by the CRB in the *Phonorecords I* proceeding:

> The musical works inputs in the synch market are used in very different ultimate consumer products by different input buyers as compared to the target market and the input sellers may have different degrees of market power in the benchmark market as compared to the target market. The mere fact a musical work is used as an input in both the proposed benchmark market and the target market is not sufficient to overcome all the aforementioned fundamental differences between the proposed benchmark market and the target market even in a purely relative value analysis. Because of the large degree of its incomparability, the synch market "benchmark" clearly lies outside the "zone of reasonableness" for consideration in this proceeding. Therefore, we find this particular benchmark cannot serve as a starting point for the 801(b) analysis that must be undertaken in this proceeding.[135]

(150) Dr. Eisenach also fails to point out that, although contracts negotiated separately for synch rights generally pay similar royalties for musical works and sound recording rights, the same is not true for licenses that were not negotiated separately. As described by the U.S. Copyright Office:

> While parity may be commonplace for individually negotiated deals, the same does not seem to hold true for broader licenses with consumer-facing video services such as YouTube. Under an HFA-administered YouTube license, publishers are paid 15% of YouTube's net revenue from videos uploaded by non-record label users that incorporate HFA-controlled publishing rights and embody a commercially released or distributed sound recording (i.e., a lip sync video), and 50% of revenue from videos that incorporate HFA-controlled publishing rights but a user-created recording (*i.e.*, a cover recording)….By comparison, YouTube's standard contract for independent record labels reportedly allocates 45% of YouTube subscription music revenue to labels, as compared to 10% to publishers.[136]

(151) Dr. Eisenach's exclusive focus on individually negotiated synch rights is misleading. If he incorporated YouTube's synch rights licenses, his lower bound would be greater than [redacted]. Instead, as discussed in Section VIII.C.3. below, Dr. Eisenach introduces YouTube as a separate benchmark that does not factor into his lower bound.

---

135 Mechanical and Digital Phonorecord Delivery Rate Determination Proceeding, Docket No. 2006-3 CRB DPRA, 74 Fed. Reg. No. 15 (Jan. 26, 2009), at 4,519.

136 United States Copyright Office, "Copyright and the Music Marketplace," February 2015, footnote 276, *available at* http://copyright.gov/docs/musiclicensingstudy/copyright-and-the-music-marketplace.pdf.

VIII.C.3. YouTube licenses

(152) Dr. Eisenach's third benchmark is YouTube's licenses with labels and publishers. Dr. Eisenach first discusses agreements with publishers, which he indicates have separate terms for "User Video[s] with commercial sound recording," "publisher audio-only" video, and "label produced videos."[137] However, he uses the [redacted] revenue sharing for "user video[s] with commercial sound recording" in his ratio approach, without adjusting for this [redacted] being a only one part of a more complicated contract. Absent knowledge of the trade-offs that may have been made between various rates agreed to by the parties, as well as the role of the lump-sum payments that some agreements include, it is difficult to assess the valuation of musical works embedded in the YouTube agreements.

(153) Because Dr. Eisenach apparently does not have access to agreements between YouTube and record labels, he derives his sound recording valuation from an aggregate number for total YouTube payments to content providers (55%), and subtracts the [redacted] as a proxy for musical works payments. This ignores the fact that the aggregate 55% includes YouTube payments for all uses, while the [redacted] includes intended payments for only one of many YouTube products that require payments to publishers. Dr. Eisenach himself reports that other uses require lower payments [redacted].[138] Thus, the actual payment to publishers is likely to be less than [redacted] of aggregate revenues, and the resulting ratio is likely to be greater than the [redacted] that Dr. Eisenach reports. For example, if actual payments to publishers are [redacted] of aggregate revenues, the ratio increases to [redacted].

VIII.C.4. Pandora opt-out rates

(154) Dr. Eisenach's fourth benchmark is the ratio between sound recording and musical works rates for Pandora. Dr. Eisenach uses the musical works rates that Pandora negotiated directly with publishers starting in 2012, the "opt-out rates," in the denominator of his ratio. Dr. Eisenach assumes that the differences between subsequent rounds of agreements from 2012 to 2016 reflect primarily a move away from regulation, rather than changes in market conditions or bargaining power. He de-emphasizes evidence that the publishers exercised significant market power in the determination of the opt-out rates.[139]

(155) Using the opt-out rates as a measure of "voluntary market agreements" for musical works, he constructs a ratio of sound recording to musical works rates over time. [140] In constructing his ratio, Dr.

[137] Eisenach Expert Report, *Phonorecords III*, footnote 93.

[138] *Id.* footnote 93.

[139] *See*, *e.g.,* Opinion & Order, *In re Petition of Pandora Media, Inc.*, 1:12-cv-08035-DLC, 1:41-cv-01395-DLC-MHDF. 738 (S.D.N.Y. Mar. 14, 2014) at 97. "Sony and UMPG each exercised their considerable market power to extract supra-competitive prices."

[140] Dr. Eisenach states that "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." Eisenach Expert Report, *Phonorecords* III, at ¶ 124.

Eisenach makes no attempt to account for the fact that Pandora's sound recording royalty payments have been determined by the CRB under a willing buyer–willing seller standard.[141] Instead, he claims that "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."[142] Dr. Eisenach constructs his ratio using sound recording rates that are adjusted to account for the market power of the labels in his numerator to arrive at an effectively competitive rate, and musical works rates that are not adjusted for the market power of the publishers in his denominator. The ratio of the two thus cannot reflect a market-determined relative value of musical works to sound recording. The denominator (musical works) is inflated by the market power of the publishers, while the numerator (sound recording) reflects a regulated rate. This has the effect of lowering the ratio, which in turn allows Dr. Eisenach to argue that "the value of the mechanical right for interactive streaming is greater than the current rates imply."[143]

(156) He further assumes, without providing any economic foundation, that the increase in musical works rates resulting from the opt-out agreements is not a one-time adjustment to deregulation but a linear trend that will continue in perpetuity.[144] Not surprisingly, his linear regression of the sound recording to musical works ratio predicts implausible rates over time, and he uses this projection as the basis for calculating his ratio. In addition, Dr. Eisenach uses a projection despite having actual observations. The actual contractual rate for 2018 is [redacted] of sound recording payments. This leads to an actual ratio of [redacted], rather than the [redacted] ratio his forecast predicts for 2018, both of which are higher than his projected 2020 ratio of [redacted].[145] This method, when applied to the whole sample period, has the effect of reducing the range of predicted ratios.

VIII.C.5. Dr. Eisenach's ratios represent a skewed sample of music distribution channels

(157) Section VII.A. above explains that Dr. Eisenach presents no economic justification for his view that there exists a stable ratio between sound recording and musical works rights that reveals their relative value to all users of these rights. Section VII.C. explains why the comparators selected by Dr. Eisenach do not constitute reliable benchmarks that reveal a stable ratio that should be applied to the determination of mechanical works royalties. Here I argue that, even if Dr. Eisenach's selections were reliable benchmarks for either sound recording or musical works rates alone, his construction of a ratio is problematic. Specifically, many of the component rates fall under different regulations, and some under no regulations at all. For example, YouTube licenses for musical works (both

[141] *See*, *e.g.*, Determination, *Web IV*, at 2.
[142] Eisenach Expert Report, *Phonorecords III*, at ¶ 124.
[143] *Id.* at ¶ 132.
[144] *Id.* at ¶ 129.
[145] *Id.* at Table 8.

performance and mechanical rights) are negotiated with a regulatory backstop, while YouTube licenses for sound recording are negotiated in an unregulated market. Pandora non-interactive streaming licenses for musical works (performance rights only) are negotiated with a regulatory backstop, while Pandora licenses for sound recording are regulated under a willing buyer/willing seller standard. Dr. Eisenach does not adjust for these differences.

(158) Dr. Eisenach's selected licenses result in a range of benchmarks between [redacted]. For reasons explained above, Dr. Eisenach's selected benchmarks bias his ratio downward, leading to a conclusion that musical works (and therefore mechanical works) payments must increase. A more complete review of actual payments in Figure 18 shows ratios of [redacted]. Figure 18 shows the ratio of sound recording to musical works royalties paid in 2015 by distribution channel, including a wider variety of ratios than those cited by Dr. Eisenach. All but one of the ratios is above the upper bound reported by Dr. Eisenach.

(159) In Figure 18, I also include the ratio calculated by Dr. Leonard in his Expert Witness Statement for Google.[146] Dr. Leonard computes the ratio of musical works to sound recording royalties for the sale of personal digital downloads (PDDs), and finds that it has decreased from [redacted] from 2006 to 2015.[147] This implies a ratio of sound recording to musical works of [redacted] in 2015.

[146] Amended Leonard Expert Report, *Phonorecords III* at ¶ 46.
[147] *Id.* at ¶ 46.

Figure 18: Comparison of sound recording to musical works royalty ratios from multiple sources

Distribution channel	% of revenue paid to labels	% of revenue paid to publishers	Ratio
[redacted]			
[redacted]			[redacted]
[redacted]			[redacted]
[redacted]			[redacted]
[redacted]			[redacted]
[redacted]			[redacted]
[redacted]			
[redacted]			[redacted]
[redacted]			[redacted]
[redacted]			
[redacted]			[redacted]
Ratios based on actual payments			
Physical (2015)	48.00%	8.00%	6:1
Downloads (2015)	48.75%	7.29%	6.7:1
Streaming (ad-funded + subscription) (2015, interactive and non-interactive)	48.05%	8.05%	6:1
Streaming (subscription) (2015, interactive and non-interactive)	48.00%	8.00%	6:1

Note: Parenthetical dates indicate the year or range of years in which the relevant licenses were signed.
Source: Lisa Yang *et al*., "Music in the Air: Stairway to Heaven," Goldman Sachs Equity Research, Oct. 4, 2016, at 58. Eisenach Expert Report, *Phonorecords III*, Table 8 and 9, Amended Leonard Expert Report, *Phonorecords III*, at ¶ 46.

VIII.D. Incorrect implementation of the ratio approach

(160) Even if Dr. Eisenach's methodology for determining the appropriate benchmarks were correct, which it is not, his use of the ratio approach to argue that musical works royalties must rise is incorrect.

VIII.D.1. Formulas for calculating mechanical royalties

(161) As I describe above, Dr. Eisenach claims to rely on market-based rates for sound recording and asserts that the rates for musical works can be derived from these market-based rates ratios.[148] He aims to accomplish this by holding the sound recording rates fixed and raising the musical works rates. This ignores the possibility that, if there were a uniform appropriate ratio, it could be reached by lowering the sound recording rate rather than raising the musical works rate.

(162) Dr. Eisenach offers two methods for using his ratio to derive mechanical rates for interactive streaming services. In his Method 1, he solves for the mechanical rate for musical works (MR_{MW}) by setting it equal to the mechanical rate for sound recording (MR_{SR}) divided by his selected ratio for the

[148] Eisenach Expert Report, *Phonorecords III*, at ¶ 93.

value of sound recording to musical works (RV). Dr. Eisenach defines the mechanical rate for sound recording as being the difference between the interactive rate (SR_{IS}) and the non-interactive rate (SR_{NIS}), because non-interactive streaming services do not pay a mechanical royalty to record labels.

$$MR_{MW} = MR_{SR}/RV, \text{ where } MR_{SR} = SR_{IS} - SR_{NIS}$$

(163) Sound recording rates for non-interactive streaming services are typically determined by the CRB under a willing buyer–willing seller standard, whereas for interactive streaming the rates are unregulated. As stated in *Web IV* and other rate court proceedings, the willing buyer–willing seller standard is designed to account for the market power of the record labels in ways that unregulated rates do not.[149] Therefore, the difference in the two rates reflects differences in exercised market power as well as the value of interactivity.

(164) Because Dr. Eisenach ignores the possibility that the difference in sound recording rates for interactive relative to non-interactive services can be accounted for by a difference in how performance royalties are calculated in the two settings, he overestimates the value of the sound recording mechanical royalty paid by interactive streaming services, and thereby increases his estimate of the appropriate mechanical royalty for interactive streaming musical works.

(165) Dr. Eisenach's Method 2 derives the all-in musical works value by dividing the all-in sound recording royalty (SR_{IS}) by his selected ratio (RV), and then subtracting the musical works performance royalty (PR_{MW}) to obtain the mechanical works royalty (MR_{MW}) as a residual.

$$MR_{MW} = (SR_{IS}/RV) - PR_{MW}$$

(166) This method seems more straightforward and relies on fewer assumptions. However, the results from these methods ultimately depend on the inputs Dr. Eisenach uses.

(167) I have already discussed problems with Dr. Eisenach's inputs. Another is that Dr. Eisenach assumes that Spotify's sound recording payment should be left out of the average sound recording royalty that he uses as an input into his two methods of calculating the mechanical royalty. This has the effect of raising the average, and, because he holds sound recording rates fixed, results in a higher per-play musical works royalty payment. Dr. Eisenach argues that Spotify's partial ownership by the labels is responsible for Spotify's lower rate, without providing any analysis of those purported agreements or taking into account how the market power of the labels might inflate the royalty payments of the services that he includes in his average.

[149] According to the CRB, "[b]ecause the Majors could utilize their combined market power to prevent price competition among them by virtue of their complementary oligopoly power – as proven by the evidence of the pro-competitive effects of steering and the admissions of Universal and its agents discussed supra… - the Judges must establish rates that reflect steering, in order to reflect an 'effectively competitive market.'" Determination, *Web IV*, at 121.

(168) In applying his Method 1, Dr. Eisenach uses an average sound recording payment of [redacted] per 100 streams in his calculations, leaving out the Spotify payments.[150] From this, he derives a mechanical royalty rate for musical works ranging from [redacted] per 100 streams, with the variation explained by the range of benchmarks he proposes. If Spotify payments are included, using Dr. Eisenach's own data, the average sound recording payment is [redacted] per 100 streams. This would result in a mechanical royalty rate for musical works ranging from [redacted].

(169) In applying his Method 2, Dr. Eisenach uses an average musical works public performance payment of [redacted], excluding Spotify. He also calculates the all-in musical works rate by dividing the average sound recording payment of [redacted] per 100, excluding Spotify, by his proposed ratios. Subtracting the first number from the second, he arrives at a range of mechanical royalty rates for musical works of [redacted]. If Spotify payments are included, using Dr. Eisenach's own data and methodology, the average musical works public performance payment is [redacted] and the all-in musical works rate is between [redacted]. This would result in a mechanical royalty rate for musical works ranging from [redacted].

VIII.E. Summary

(170) Dr. Eisenach's ratio approach has no support in economic theory. His supposition that this ratio is stable across all copyright users is further contradicted by his own data, which show a wide dispersion of ratios across different channels. But even if this ratio approach were appropriate, Dr. Eisenach's implementation of the approach is incorrect and unreliable. His conclusion that musical works royalty rates must be increased rather than sound recording rates decreased to achieve this ratio has no basis. In addition, Dr. Eisenach selects a few specific copyright users as benchmarks to derive a set of ratios, but he does not adjust his benchmarks to account for relevant differences, or consider ratios outside of his favored range. His selections have the effect of biasing upward his estimates of the appropriate musical works mechanical royalty. Further, his methodology for deriving the appropriate musical works mechanical royalty includes unfounded assumptions. Finally, Dr. Eisenach uses current rates that are not representative of actual payments because he leaves Spotify payments out of his averages. This results in an additional bias in his results.

[150] Eisenach Expert Report, *Phonorecords III*, at ¶ 149.

IX. Dr. Gans's use of economic theory to support Copyright Owners' proposal is flawed and incomplete

(171) Dr. Gans's approach to determining that the Copyright Owners' rates are reasonable is to appeal to economic models that he claims support the Copyright Owners' rate proposals. Dr. Gans points to two particular economic models—the ECPR and the Shapley value—as supporting the Copyright Owners' proposal. In each case, a flawed and incomplete application of the model leads him to an erroneous conclusion.

(172) Dr. Gans states that the economic principles that underlie the ECPR "result in statutory rates that allow for recovery of opportunity costs and do not favor particular business models over others," and he claims that "prevailing rates are too low to compensate for opportunity costs overall."[151] To the contrary, I show in my Written Direct Testimony that the prevailing rates are higher than the rates that compensate Copyright Owners' opportunity costs for lost sales of CDs and PDDs, and I show here that this is even more true of other music distribution channels. Moreover, in applying his "business model neutrality" principle, he ignores the fact that subscription-based services and ad-supported services imply different opportunity costs for copyright owners, and so in a reasonable application of ECPR should pay different rates.[152]

(173) Dr. Gans also claims that "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."[153] However, as I explain below, his Shapley value analysis is incomplete and his benchmark is incorrect. As I discuss in my Written Direct Testimony, correct application of the Shapley value leads to the opposite conclusion.[154]

IX.A. Dr. Gans's application of ECPR does not support the Copyright Owners' proposal

(174) Dr. Gans makes two main points in his application of the ECPR: (1) interactive streaming's royalty rates should compensate for opportunity costs of cannibalization, but the prevailing rates are too low relative to this standard, and (2) interactive streaming's royalty rates should be business-model neutral, which he interprets to mean that they should have the same per-user and per-stream rates for

---

151 Gans Expert Report, *Phonorecords III*, at ¶ 9.
152 *Id.* at ¶ 54.
153 *Id.* at ¶ 9.
154 Marx Written Direct Testimony, *Phonorecords III*, at ¶ 161.

all services, regardless of differences in type of service and the type of consumer they target. Both of these points are flawed.

(175) ECPR implies that interactive streaming's royalty rates should be set to compensate copyright owners for lost royalty income from other music distribution services, i.e. the copyright owners' opportunity cost. Dr. Gans implies that current rates are too low to provide this compensation, without performing any analysis to support that proposition. In my Written Direct Testimony I compare copyright owner returns on interactive streaming to those on PDD/CDs.[155] Here I provide a more complete analysis of cannibalization by comparing Spotify's average royalty payment per music listening hour (for the overall service) with other music distribution channels' average royalty payments per music listening hour.

(176) Suppose a copyright owner does not license its musical works to interactive streaming services. Then users of interactive streaming who would otherwise consume this copyright owner's works through interactive streaming may do the following: purchase a PDD or CD of the work, play the work through [redacted] or a similar service, listen to music without using an interactive streaming service (e.g., listen to radio or non-interactive streaming), play other copyright owners' musical works through an interactive streaming service, decide not to play any works at all, or play pirated versions of the works. The last three scenarios do not give the copyright owner of that work any royalty income. The first three scenarios give the copyright owner lower royalty income than what they would earn from Spotify under the current headline royalty rate of 10.5% of revenue.

(177) In the first scenario in which users purchase PDD/CD if a work is not available through interactive streaming, the copyright owners get 9.1 cents for recordings of a song 5 minutes or shorter, and 1.75 cents per minute or fraction thereof for those over 5 minutes. I show in my Written Direct Testimony that the interactive streaming musical work royalty rate that compensates copyright owners' opportunity cost even if all of interactive streaming's business comes from PDD/CD sales is 7.7–8.7%, lower than the current 10.5% headline rate, [redacted].[156]

(178) In the second scenario, in which users listen to [redacted] if a work is not available through interactive streaming, the musical work copyright owner earns [redacted] per music listening hour.[157] Instead, if the work is listened to on Spotify, the copyright owner earns [redacted] per music listening hour under the current rate, or [redacted] per music listening hour under the current 10.5% headline royalty rate.[158]

155 Marx Written Direct Testimony, *Phonorecords III*, at ¶ 115.

156 *Id.* at ¶ 115.

157 *See* Figure 7 for sources and notes.

158 [redacted]

(179) In the third scenario, in which users listen to terrestrial radio, satellite radio, or non-interactive streaming if a work is not available through interactive streaming, the copyright owner would also earn lower royalties than from Spotify. Terrestrial radio's musical work royalty is $0.0026–$0.0040 per music listening hour. Using data in the Goldman Sachs report cited by Dr. Gans, the musical work royalty per music listening hour of SiriusXM, the only satellite radio service in the United States, is about $0.0050.[159] I use Pandora's royalty rate as an estimate of royalty rate of non-interactive streaming. My estimate of Pandora's average musical work royalty per music listening hour for both ad-supported and subscription-based services is [redacted].[160] [redacted]. These calculations are summarized in Figure 19.

[159] For terrestrial radio's royalty rate, *see* Figure 7. Goldman Sachs estimates that SiriusXM's total royalty rate per play million subscribers is $1,522. Its total royalty payments were $500 million in 2015, and sound recording royalty payments were $405 million in 2015. Therefore, its musical works royalty per play per subscriber are $1,522/1,000,000/500*(500-405) = $0.00029. The same report estimates that the average song length is 3.5 minutes. Therefore, on average, 17.14 songs are played in a music listening hour. This yields Sirius XM's musical works royalty per music listening hour as $0.00029*17.14= $0.0050. Lisa Yang et al., "Music in the Air: Stairway to Heaven," Goldman Sachs Equity Research, Oct. 4, 2016, 19, 21.

[160] *See* Figure 19.

Figure 19: A copyright owner's royalty income in various scenarios if it does not license its musical works to interactive streaming services

Listeners' consumption options if a copyright owner does not license its musical works to interactive streaming	A copyright owner's royalty income per music listening hour in each consumption scenario if it does not license to interactive streaming	Copyright Owners' royalty income per music listening hour from Spotify under current rate terms	Copyright Owners' royalty income per music listening hour from Spotify under the current headline rate (10.5% of revenue)
Listen via YouTube	[redacted]	[redacted]	[redacted]
Listen via satellite radio	$0.0050		
Listen via terrestrial radio	$0.0040		
Listen via non-interactive streaming	[redacted]		
Listen via a pirated channel	0		
Listen to other copyright owner's music on interactive streaming	0		
Do not listen to music	0		

Source for SiriusXM figure: Lisa Yang et al. "Music in the Air: Stairway to Heaven." Goldman Sachs Equity Research, Oct. 4, 2016.
Sources for terrestrial radio: *see* Figure 7.
[redacted].
Sources for non-interactive streaming: *see* Figure 7 and Pandora 2016 Q3 10Q..
[redacted].

Notes:
(a) The [redacted] and terrestrial radio estimates are the same as the estimates in Figure 7.
(b) Goldman Sachs estimates that Sirius XM's total royalty rate per play million subscribers is $1,522. Its total royalty payments were $500 million in 2015 and sound recording royalty payments were $405 million in 2015. Therefore, its musical works royalty per play per subscriber is $1,522/1,000,000/500*(500-405) = $0.00029. The same report estimates that the average song length is 3.5 minutes. Therefore, on average 17.14 songs are played in a music listening hour. This yields Sirius XM's musical works royalty per music listening hour as $0.00029*17.14= $0.0050. Lisa Yang et al., "Music in the Air: Stairway to Heaven," Goldman Sachs Equity Research, Oct. 4, 2016, at 19 and 21.
[redacted]

(180) [redacted]. Moreover, a copyright owner's opportunity cost is an average of its royalty income from all alternatives, some of which, such as piracy and not listening, do not generate royalty income at all. If the possibility of piracy, for example, is non-trivial, as the data suggest that it is, then copyright owners' opportunity costs would be even less than the average of the three royalty-generating scenarios. The Goldman Sachs report cited by Dr. Gans argues that streaming has proven to reduce illegal downloads, as does evidence I cite in my Written Direct Testimony.[161] Therefore, it is likely that Spotify's current musical works

[161] Lisa Yang et al., "Music in the Air: Stairway to Heaven," Goldman Sachs Equity Research, Oct. 4, 2016, 36. *See also*

royalty payment is higher than copyright owners' opportunity cost for musical works. This means that Dr. Gans's ECPR analysis argues for a reduction in royalties for interactive streaming.

(181) Dr. Gans's second point regarding ECPR is that "the rate structure for mechanical licensing should be neutral with respect to the business model for interactive streaming services." [162] However, this concept and the Copyright Owners' proposal work against the opportunity cost compensation idea of ECPR. The copyright owners' opportunity costs of subscription-based interactive streaming services and ad-supported interactive streaming services target people on different sides of a "bimodal chasm" in terms of their WTP for music, where the "bimodal" nature of people's WTP for music is noted by the CRB in the *Web IV* proceeding.[163] Dr. Gans's "business model neutrality" interpretation is thus inconsistent with the opportunity cost idea underlying the ECPR because the bimodal WTP leads to different opportunity costs for different services. Creating rates based on opportunity costs, as ECPR calls for, would therefore lead to different rates for paid subscription and ad-supported services, like the current rate structure, and unlike the Copyright Owners' proposal.

IX.B. Dr. Gans' Shapley value analysis does not support the Copyright Owners' proposal

(182) The Shapley value allocates surplus created by an agreement among a group of entities.[164] It is not a market allocation, and is not meant to model a market bargaining process, but rather is an attempt to distribute the gains from trade in an equitable way. It can be viewed as a "fair" allocation of surplus because it gives each entity in the joint effort its average marginal contribution.[165] The entities that

---

Marx Written Direct Testimony, *Phonorecords III*, at ¶¶ 27–31.

[162] Gans Expert Report, *Phonorecords III*, at ¶ 54.

[163] Determination, *Web IV*, at 70–71. The fact was also recognized by the *Phonorecords I* and *Phonorecords II* settlements, which set different rate formulas for paid and ad-supported services.

[164] The basic idea of the Shapley value is that "each player gets 'his average marginal contribution to the players that precede him,' where averages are taken with respect to all potential orders of the players." *See* Uriel G. Rothblum, "Combinatorial Representations of the Shapley Value Based on Average Relative Payoffs," in *The Shapley Value: Essays in Honor of Lloyd S. Shapley*, ed. Alvin E. Roth (Cambridge, UK: Cambridge University Press, 1988); Lloyd S. Shapley, "A Value for N-Person Games," in *Contributions to the Theory of Games*, eds. Harold W. Kuhn and Albert W. Tucker (Princeton, NJ: Princeton University Press, 1953) as cited in Copyright Royalty Board, "Distribution of 1998 and 1999 Cable Royalty Funds," Docket No. 2008-1 CRB CD 98-99 (Phase II), 2015, footnote 26.

[165] *See* Andreu Mas-Collel, Michael D. Whinston, and Jerry R. Green, *Microeconomic Theory* (New York: Oxford University Press, 1995), 679-684: "We shall now investigate a solution concept, the *value*, whose motivation is normative. It attempts to describe a reasonable, or 'fair', way to divide the gains from cooperation, *taking as a given* the strategic realities captured by the characteristic form. We study only the TU case, for which the theory is particularly simple and well established. The central concept is then a certain solution called the *Shapley value*." "It then turns out that $Sh_i(I, v)$ is the *average marginal contribution* i to the set of her predecessors, where the average is taken over all orderings (held to be equally likely)." *See* also Myrna Holtz Wooders and William R. Zame, "Values of large finite games," in in Alvin E. Roth, *The Shapley Value: Essays in Honor of Lloyd S. Shapley* (Cambridge, UK: Cambridge University Press, 1988), 198: "In other words, $Sh(v, i)$ is player i's average marginal contribution to coalitions in N. The Shapley value is a feasible, Pareto-optimal, and individually rational payoff. It is frequently interpreted as a representing a 'fair' payoff because it yields to each player his expected contribution."

work together to create and distribute music to consumers are copyright holders of sound recordings and musical works and, importantly, music distributors. However, Dr. Gans's one-sided Shapley value analysis ignores the contributions of any music distributors, which are necessary for the realization of music's value through music consumption. Thus, Dr. Gans's analysis is vacuous because no value would be created given the limited set of parties he considers.

(183) A key assumption of Dr. Gans's one-sided Shapley value analysis is that current record label profits are equivalent to the record label Shapley value (i.e., its average marginal contribution), an assertion that has no basis. As noted in Section VI.A.2, CRB precedent, DOJ precedent, and economics all recognize the market power that is created by the aggregation of copyrights by upstream entities. The three largest major record companies accounted for 58.2% of U.S. label revenues.[166] Record labels' profits reflect their market power and are likely higher than their Shapley value. Dr. Gans assumes this inflated profit level reflecting significant market power is the "fair" outcome, and then uses the observation that both labels' and publishers' rights are needed for interactive streaming to equate publishers' profit with labels' profit, which he argues suggests that a substantial increase in musical works royalties would be "fair".[167,168]

(184) I disagree. The results derived from Dr. Gans's flawed method are not "fair" and are inconsistent with the 801(b) factors. Dr. Gans estimates that the per-play musical works royalty rate is [redacted] for 2012–2015 based on his incomplete Shapley value analysis.[169] If this were Spotify's musical works royalty rate, its 2015 musical works royalty would be [redacted] of its revenue, which is [redacted] Spotify's current effective musical works royalty rate of [redacted].[170] Together with its effective sound recording royalty rate in 2015 of [redacted] its total royalty rate would be [redacted] of its revenue.[171] A royalty rate that would [redacted] is against the fairness and relative contributions components of the 801(b) factors, and likely not sustainable. It is also contrary to the fourth 801(b) factor.

(185) To calculate the Shapley values properly, both upstream and downstream participants' contributions need to be considered. This is what I do in my Written Direct Testimony. In my baseline model, I treat rights holders as one upstream entity, reflecting the broad overlap in ownership between publishers and record labels. I treat music distributors as two downstream entities: interactive streaming and other music distribution services, to capture interactive streaming's potential

---

166 Nick Petrillo, "Major Label Music Production in the US" (Major Label Music Production Market Research Report NAICS 51222, Sep. 2016), at 26.

167 "The label profits from interactive streaming services are used as benchmark Shapley values (row [10])." Gans Expert Report, *Phonorecords III*, at ¶ 77.

168 "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." *Id.* at ¶ 68.

169 Gans Expert Report, *Phonorecords III*, Table 4.

170 Marx Written Direct Testimony, *Phonorecords* III, Figure 11.

171 These calculations use the revenue that Spotify reports to HFA, which I am told reflects the revenue Spotify generates.

substitution effect on other music services. In my alternative model, to check the robustness of the baseline model, I ungroup the upstream entity into two separate entities: musical work copyright holders and sound recording copyright holders. Due to data availability problems,[172] it is difficult to estimate all the inputs precisely. Because of the abstractions and simplifications I use to achieve workable approximations, the royalty rates calculated in the Shapley value section of my Written Direct Testimony should not be viewed as point estimates. However, the Shapley value, when applied correctly, does provide insights about the directional change for fair royalty rates relative to current values. Both my baseline model and my alternative model suggest that interactive streaming's mechanical royalty rates should be reduced from their current level. A main reason that Dr. Gans reaches implausible royalty rates is that his Shapley value calculation does not even include interactive streaming in his model. An application of the Shapley value without interactive streaming as an entity in the model is unlikely to allocate surplus fairly for interactive streaming.

(186) Moreover, every entity's Shapley value should be calculated from first principles instead of using values already reflecting complimentary oligopoly market power. That is what I do in my Written Direct Testimony. In my baseline model, I calculate the upstream entity's Shapley value based on its average marginal contributions.[173] In my alternative model, I calculate the Shapley value of musical work copyright owners and the Shapely value of sound recording copyright owners based on their average marginal contributions.[174] Dr. Gans does not perform these calculations. Instead, he simply uses the profit of sound recording copyright owners as their Shapley value without any justification. This is not a proper application of the Shapley value.

[172] Copyright Royalty Board, "Distribution of 1998 and 1999 Cable Royalty Funds," Docket No. 2008-1 CRB CD 98-99 (Phase II), 2015, footnote 33. "The Shapley model provides a reasonable working solution for regulators…. However, it does suffer from a particularly pressing problem—that of data availability," citing Richard Watt, "Fair Copyright Remuneration: The Case of Music Radio," *Review of Economic Research on Copyright Issues* 7, no. 2 (2010): 21–37.

[173] Marx Written Direct Testimony, *Phonorecords III,* ¶ 196, Equation (6).

[174] *Id.* ¶ 196, Equation (12).

X. Copyright Owners' economists make a series of other errors

(187) In addition to the errors discussed above, the Copyright Owners' economists make other errors that affect their analysis and conclusions.

X.A. Mischaracterizing the impact of interactive streaming on musical works rights owners

(188) The Copyright Owners' economists imply that the growth of interactive streaming has hurt royalties for publishers and songwriters. This assertion is contradicted by the data and is based on an incorrect focus on mechanical royalties rather than total royalties to musical works rights holders.

X.A.1. Copyright Owner revenues decreased since 1999 due to technological change and piracy, not interactive streaming

(189) The Copyright Owners' economists recognize that the music distribution industry has undergone substantial technological change since 1999, when CD sales dominated all other channels and the Internet had yet to emerge as an important channel for music distribution.[175] They compare revenues from physical and digital sales (as in Eisenach's Figure 4) and revenues from download and streaming platforms (Eisenach's Figure 5), documenting the transition from physical to Internet commerce.

(190) At the same time, the Copyright Owners' economists point to an increase in overall music consumption, an increase that they fail to link to the technological change they describe. Dr. Eisenach even states that "overall music consumption has never been higher *despite* rapid changes in music technology and declining revenues" (emphasis added).[176] Rather than recognizing that this increase generates consumer surplus and reflects a technological landscape and consumer options that have radically changed over time, they imply that "revenues for creators" should keep pace with the increase in music consumption regardless and therefore that streaming services should pay higher royalties. The Copyright Owners' economists fail to recognize the economic significance of the technological change, namely that the Internet has facilitated piracy, allowing low or no-cost consumption of music, which, among other technological changes, has changed consumer WTP for music. Thus, simultaneously, music consumption rose while music industry revenues fell. Technology and consumer preferences, rather than streaming services, were responsible.

[175] *See* Eisenach Expert Report, *Phonorecords III*, at ¶¶ 41–73. *See also* Miller Expert Report, *Phonorecords III*, at ¶¶ 16–22.

[176] Eisenach Expert Report, *Phonorecords III*, at ¶ 55.

(191) The Copyright Owners' economists present no evidence that interactive streaming has led to decreased copyright royalty payments, although some of their experts imply that this is the case. Dr. Eisenach claims that "the transition from downloads to streaming has further inhibited royalty payments" but provides just a single quotation from Spotify to support that statement. And Dr. Eisenach misrepresents that quotation—ascribing its meaning as the opposite of what it was actually conveying. He writes in a footnote supporting the idea that streaming has "inhibited royalty payments":

> 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"[177]

(192) He omits that this statement is in the context of Spotify saying that "its subscription service aims to regenerate this lost value by converting music fans from these poorly monetized formats to our paid streaming format, which produces far more value per listener." [178] In other words, Spotify is pointing to outlets like piracy as the reason for a decline in revenue and its paid interactive streaming service as a way to resuscitate that value.

(193) Dr. Eisenach reiterates this point later in his report, although with somewhat more ambiguous language, when he notes that "the transition from downloads to streaming *appears to have* further limited royalty payments" (emphasis added). [179] For this statement, he cites only an article in the *New Yorker* that provides a series of anecdotes but no economic analysis.

(194) The Copyright Owners' industry expert Lawrence Miller similarly writes, referring to "digital streaming services," that "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 dramatically decreased mechanical income on all songs, including major hits."[180] There are at least three problems with this statement. First, it refers only to "mechanical income" and thus glosses over the important fact that interactive streaming pays both mechanical and performance royalties, while permanent downloads and CDs pay only mechanical royalties. The correct economic comparison in evaluating relative compensation to publishers and songwriters of different channels is to compare all musical works payments, not just mechanical income. This is an error that many Copyright Owners' witnesses make, as I describe in more detail in Section X.A.2 below. Second, he again provides no evidence supporting this point other than the same *New Yorker* article that Dr. Eisenach cites, along

[177] *Id.* at ¶ 69.

[178] United States Copyright Office, "Copyright and the Music Marketplace," February 2015, footnote 362, *available at* http://copyright.gov/docs/musiclicensingstudy/copyright-and-the-music-marketplace.pdf.

[179] Eisenach Expert Report, *Phonorecords III*, at ¶ 69.

[180] Miller Expert Report, *Phonorecords III*, at ¶¶ 25-29.

with a *Wired* article written by a songwriter.[181] The *Wired* article contains anecdotes but no economic analysis and asserts that songwriters should be paid more because digital streaming services "enjoy enormous profits," which is incorrect.[182] No digital streaming service has reported any profits in the United States to date.[183] Third, although an ad-supported service does not require an out-of-pocket payment from users, it imposes a cost on them in the form of advertising, which, contrary to "giving away the music for free," means that an ad-supported service monetizes listening and pays associated royalties.

(195) In sum, although some of the Copyright Owners' economists imply that music streaming had depressed royalties for publishers and songwriters, none of them has conducted an analysis of the impact of interactive streaming on copyright royalties or the relative values generated by different distribution channels.

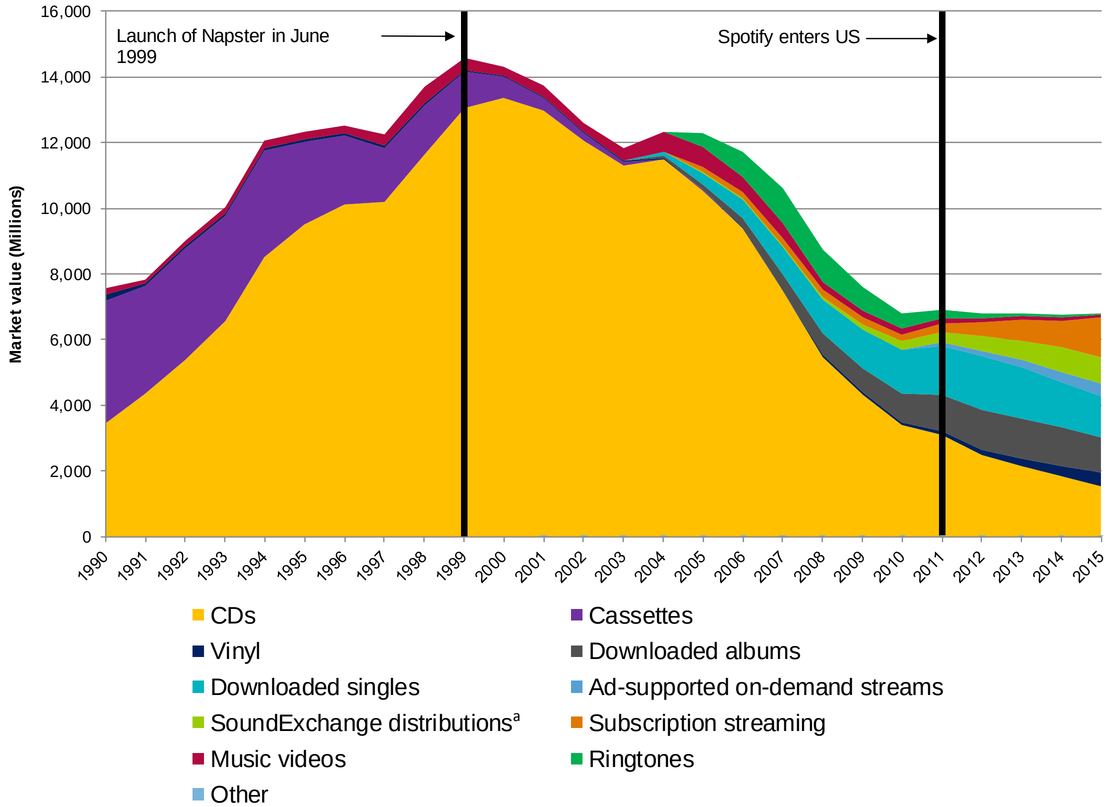
(196) Music streaming has contributed positively to music industry revenues since it was introduced. As I discuss in Section IX.A, interactive streaming generates more revenue that most other common music distribution channels. Figure 20 below, which appears in my Written Direct Testimony as Figure 2, indicates that music industry revenue declined precipitously well before the advent of streaming. Revenues began to drop shortly after the launch of Napster and other websites that facilitated the acquisition of music at low or no cost through piracy.

[181] 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, "Aloe Blacc: Streaming Services Need to Pay Songwriters Fairly," *Wired*, Nov. 5, 2014, https://www.wired.com/2014/11/aloe-blacc-pay-songwriters.

[182] *Id.*

[183] *See* Jeremy Bowman, "Music Streaming Is a Money Pit," *The Motley Fool*, Sep. 18, 2016, https://www.fool.com/investing/2016/09/18/music-streaming-is-a-money-pit.aspx. *See also* Robert Cookson, "Losses Point to a Bleak Future for Music Streaming Services," *Financial Times*, Dec. 3, 2015, https://www.ft.com/content/160ad860-9840-11e5-95c7-d47aa298f769.

Figure 20: U.S. music industry revenue by distribution channel over time



Source: RIAA U.S. Sales Database.

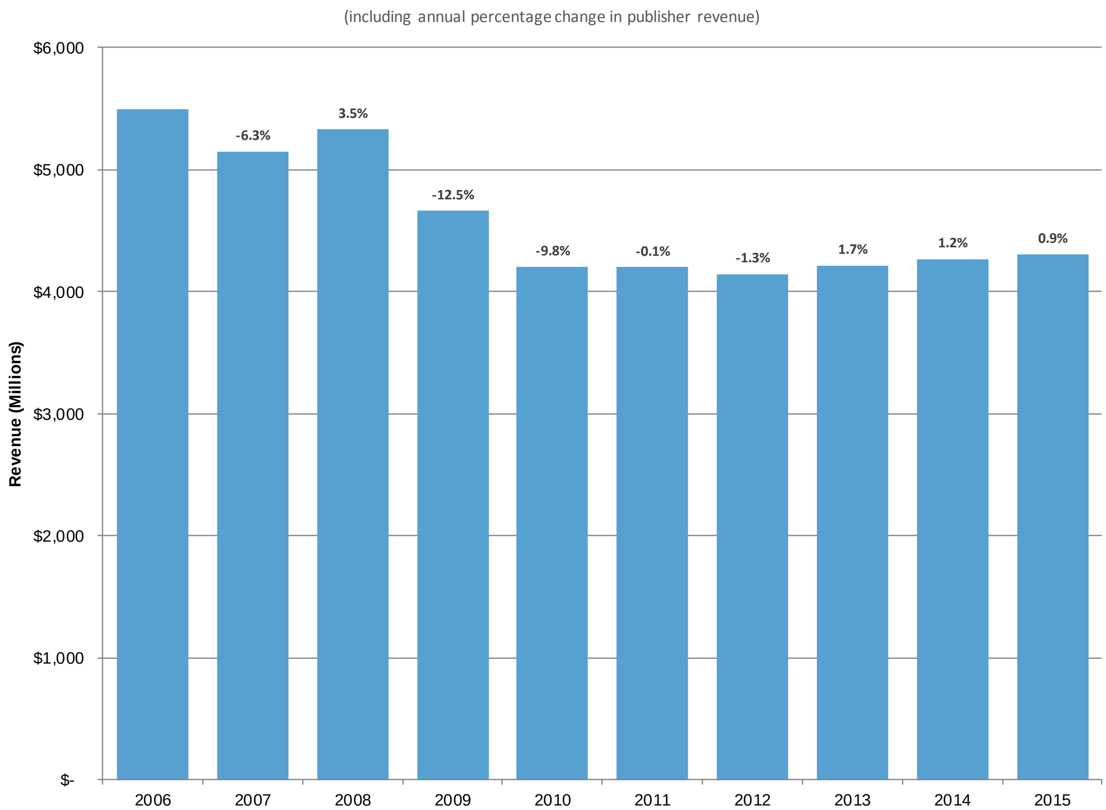
Notes:
(a) "SoundExchange distributions" includes non-interactive streaming, satellite radio, and Cable TV music services.

(197) Music industry revenues stopped declining with the advent of interactive and non-interactive streaming. As Figure 21 (Figure 3 of my Written Direct Testimony) shows, publisher revenues have been increasing for the last several years, alongside the rapid growth of interactive streaming.[184] Spotify's royalty payments to the labels and publishers have [redacted]

[184] Marx Written Direct Testimony, *Phonorecords III*, Figure 3.

[185] *See* NMPA00001647 (Citing HFA and publisher data from: SONY-ATV00005245, KOBALT00001225 - KOBALT00001683, KOBALT00000741 – KOBALT00000742, KOBALT00000743 – KOBALT00000744, KOBALT00000745 – KOBALT00000746, KOBALT00000747 – KOBALT00000748, SONY-ATV00005247); NMPA00001670 (Citing Data from The Harry Fox Agency, Sony/ATV, Kobalt MRI, and Audiam).

Figure 21: U.S. music publishing industry revenue, 2006–2015 (2015 dollars)

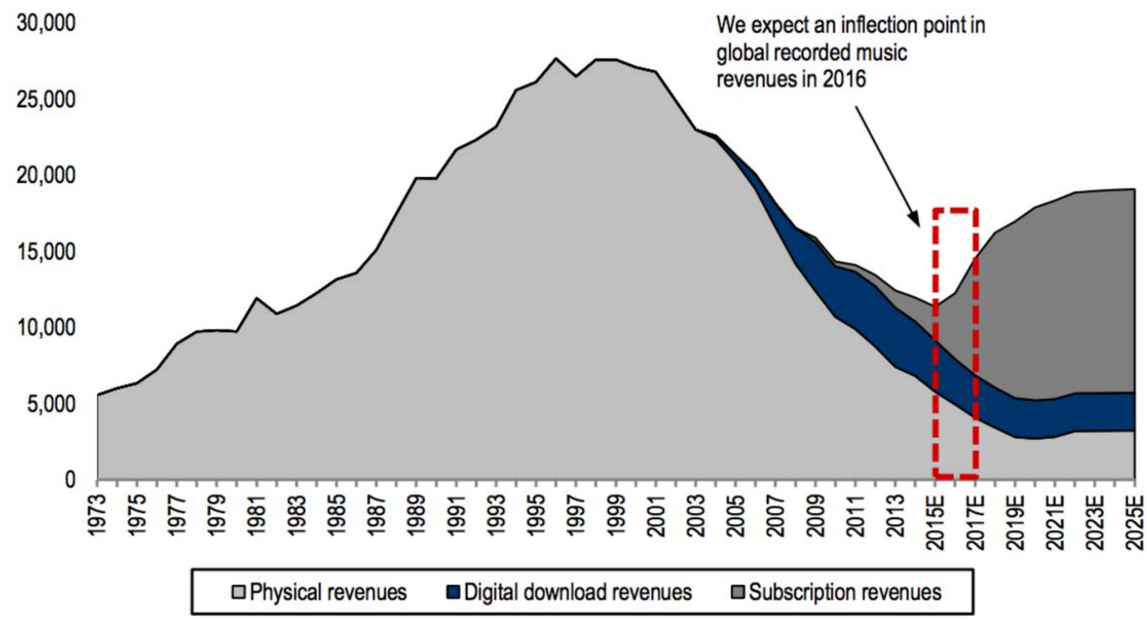


Source: 2015 IBISWorld Music Publishing Report at 34.

(198) The Credit Suisse report cited by Mr. Miller in his report states that 2016 is an "inflection point" in global recorded music revenues and predicts substantial growth in total global music revenue from that point on due to the rise of streaming services, despite further declines in physical and digital download revenues.[186] Figure 22 shows Credit Suisse's estimates for how global music industry revenues will grow after 2016.

[186] 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.

Figure 22: Credit Suisse forecast of music industry revenue growth



Credit Suisse

Source: 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.

(199) The Goldman Sachs report that Dr. Gans cites states that:

> [t]he recorded music industry has recently turned a corner, with the proliferation of subscription streaming driving an improvement in global recorded music revenues from a 6% pa decline over 2007–2010 to a 1% pa decline over 2011–14, and a 3% yoy growth in 2015, the fastest growth recorded since 1998. We expect growth to accelerate further from there, as confirmed by 1H16 trends. Three of the top 5 markets that have reported so far (the United States, Germany, France) posted c.6% revenue growth on average in 1H16, following flat performance in FY15."[187]

(200) It also states:

> Unlike its predecessor, this 'second' digital revolution creates more value for rights holders (rather than destroys it), shifting revenue streams from structurally declining markets (physical, download sales) to a significantly larger new revenue pool (ad-funded and subscription streaming). This shift has enabled the recorded music market

[187] Lisa Yang et al., "Music in the Air: Stairway to Heaven," Goldman Sachs Equity Research, Oct. 4, 2016, at 52.

to return to growth in 2015 following almost two decades of value destruction led by piracy and unbundling.[188]

(201) However, increased returns to all parties based on increases in revenues does not mean that it is appropriate for copyright owners to take an increasing share of the pie just because the pie is growing. As summarized by the Pandora-ASCAP decision and reflected in my Shapley value approach, returns to various parties in the industry should reflect their contribution: "A rights holder is, of course, entitled to a fee that reflects the fair value of its contribution to a commercial enterprise. It is not entitled, however, to an increased fee simply because an enterprise has found success through its adoption of an innovative business model, its investment in technology, or its creative use of other resources."[189]

(202) The Goldman Sachs Report provides information regarding the relative profitability of labels, publishers, and streaming services. Figure 23 indicates that publisher profits are considerably higher than label profits and that the largest non-interactive and interactive streaming services are conversely unprofitable.

Figure 23: Publisher, label, and streaming service margins

Entity	Percent of revenue
Publisher EBITA margins for subscription and ad-supported streaming	26%
Label EBITA margins for subscription and ad-supported streaming	15%
Pandora's margin	-14.6%
Spotify's EBIT margin	[redacted]

Source: Lisa Yang et al., "Music in the Air: Stairway to Heaven," Goldman Sachs Equity Research, Oct. 4, 2016, at 54, 58, and Pandora Media Inc., Annual Report (Form 10-K) (Feb. 16, 2016).
Note: *See* [redacted] for sources for Spotify's EBIT margin.

X.A.2. Copyright Owners' witnesses incorrectly focus on mechanical royalties rather than all musical works royalties when considering the impact of streaming

(203) As I explain in my Written Direct Testimony, economic decisions are driven by total payments to musical works rights holders and total payments to sound recording rights holders.[190] In particular, the fact that some musical works payments are labeled "performance" and some "mechanical" does not matter for interactive streaming costs or total musical works copyright holders' collections.

---

188 *Id.* at 4.

189 Opinion & Order, *In re Petition of Pandora Media, Inc.*, 1:12-cv-08035-DLC, 1:41-cv-01395-DLC-MHDF. 738 (S.D.N.Y. Mar. 14, 2014) at 127.

190 Marx Written Direct Testimony, *Phonorecords III*, at ¶ 59.

Performance and mechanical rates collectively flow to all copyright owners and their representatives. The current Section 115 rate, with the exception of the $0.50 per-user floor on some rates, is defined as an "all-in" rate, such that increases in performance royalties decrease mechanical royalties on a one-for-one basis. This is also a feature of some private agreements.[191] Analysis of the impact of interactive streaming on rights holders' revenue should therefore focus on musical works payments as a whole and not on any particular subcomponent.

(204) Copyright Owners' witness statements often make pronouncements regarding trends in *mechanical royalties* rather than *musical works royalties*. Trends in mechanical royalties paint a misleading picture of the impact of interactive streaming on music publishers. Because interactive streaming services divide their musical works payments between mechanical and performance royalties, while CDs and PDDs pay all of their musical works royalties in the form of mechanical royalties, it is natural for mechanical royalties to decrease as streaming displaces purchases, even if, as has occurred in recent years, performance royalties and total musical works royalties increase.

(205) Copyright Owners' witness statements often ignore the fact that unlike CD/PDD sales, musical work copyright owners' royalty incomes from interactive streaming include both mechanical royalties and performance rights royalties. For example, one of the Copyright Owners' witnesses, David Kokakis, claims that "over the past five years, UMPG and the music industry as a whole have experienced steady declines in the overall sale of physical product and digital downloads, and *the decrease in mechanical income from physical recordings and digital downloads has thus far had a larger impact than the growth in mechanical income from streaming services*"[192] (emphasis added). Another Copyright Owners' witness, Thomas Kelly, states, "Unless the *mechanical income* produced by streaming services materially increases, the trend we have seen means that SATV and its writers will increasingly suffer from continuing overall reductions in *mechanical income*"[193] (emphasis added).

(206) Similarly, David Israelite, president and CEO of NMPA, writes in his Written Direct Statement that "mechanical royalties paid to music publishers have continued to decrease year after year in recent history, to a point where I have never seen mechanical royalties, as a percentage of revenues paid to the music publishing industry, lower than they are presently."[194] He also writes that "according to revenue information collected by the NMPA from its members on an annual basis, the total U.S.

[191] *See* e.g., Apple-Universal Music Corp, "Confidential Subscription Service/Live Radio U.S. Short Form Agreement," Jun. 05, 2015, (UMPG00000912).

[192] Witness Statement of David Kokakis, *In the Matter of Phonorecords III*, at ¶¶ 1, 72. (David Kokakis is Executive Vice President/Head of Business & Legal Affairs, Business Development and Digital, Universal Music Publishing Group.)

[193] Witness Statement of Thomas Kelly, *In the Matter of Phonorecords III*, at ¶¶ 1, 61. (Thomas Kelly is Executive Vice President, Finance and Administration, at Sony/ATV Music Publishing LLC.)

[194] Witness Statement of David M. Israelite, *In the Matter of Phonorecords III*, at ¶ 68.

mechanical revenues for the songwriting and publishing industry decreased by [redacted] from 2013 to 2014, and by another [redacted] from 2014 to 2015."[195]

(207) These statements are misleading because they give the impression that the only royalties paid by interactive streaming to musical works copyright owners are mechanical royalties, and thus that interactive streaming has caused Copyright Owners' total musical works royalty income to drop. As shown in Figure 21, however, U.S. music publishing industry revenue has been increasing in the last few years, in contrast to the bleak picture painted by these witnesses. The difference between this pattern and the Copyright Owner witnesses' misleading statements occurs because interactive streaming pays both performance and mechanical royalties. Spotify's performance royalty payments to musical work copyright owners are similar to their mechanical royalty payments. Both omission of almost half of interactive streaming's musical work royalty payments and the increase of publisher's revenue in recent years help some Copyright Owner witnesses create the illusion that musical works payments are decreasing when they are actually increasing.

(208) Figure 24 presents NMPA estimates of publisher revenues by royalty type. It demonstrates that, alongside the rise of interactive streaming, [redacted].

[195] *Id.* at ¶ 70.

[redacted]

(209) As shown in Figure 25, the growth in mechanical royalty revenue from streaming has [redacted] so that even considered in isolation, mechanical revenues may increase in the future.

[redacted]

X.B. Mischaracterizing the impact of a percentage-of-revenue royalty structure versus a per-play or per-user royalty structure

(210) Headline percentage-of-revenue royalty rates have been the norm for interactive streaming since its inception. During this period, the popularity of streaming has grown, overall listening has grown, and variety of listening has grown; in recent years, publisher revenue has also grown.[196]

(211) As I discuss in my Written Direct Testimony, a percentage-of-revenue rate has an important advantage over per-stream and per-user fees in that it prices marginal streams at their true marginal cost, which reduces deadweight loss and increases total surplus created by interactive streaming.[197] This encourages socially beneficial listening and "maximizes the pie" of value created by interactive streaming, to the benefit of both service providers and rights holders.

(212) Percentage-of-revenue royalty rates are a common feature of licenses related to intellectual property. They are also common in the music industry. Percentage-of-revenue royalty rates are a feature of sound recording contracts for interactive streaming services and of contracts between streaming services and PROs for performance royalties.[198]

(213) It is against this economic backdrop that I evaluate Dr. Rysman's claims that royalty rates calculated as a percentage of revenue are "unnatural" and "unfair" and inferior to per-stream and per-user rates. Dr. Rysman gives five main reasons for this conclusion. According to Dr. Rysman,

1. Percentage-of-revenue rates have "no economic reason" behind them;[199]
2. Reported revenue can be manipulated;[200]
3. Percentage-of-revenue rates create an incentive to inefficiently forego present revenues;[201]
4. Percentage-of-revenue rates give streaming firms an "unfair advantage" over download services;[202] and
5. Percentage-of-revenue rates are inconsistent with prior CRB decisions.[203]

(214) I address each of these arguments in turn.

---

[196] *See* ¶ (59) and ¶ (250).

[197] Marx Written Direct Testimony, *Phonorecords III*, at ¶ 133.

[198] *See*, e.g., [redacted].

[199] Rysman Expert Report *Phonorecords III*, at ¶ 36.

[200] *Id.* at ¶¶ 43-45.

[201] *Id.* at ¶¶ 46-50.

[202] *Id.* at ¶¶ 51-52.

[203] *Id.* at ¶ 52.

X.B.1. Percentage-of-revenue royalty rates are commonly used

(215) In contrast to Dr. Rysman's assertion that there is "no economic reason" for a percentage-of-revenue rate, there is a clear economic rationale for such a structure, as evidenced by the economic literature on taxation cited below, and by its use in a variety of settings.

(216) The economics literature shows that an *ad valorem* tax can increase economic efficiency relative to a per-unit tax. For instance, in their investigation of dynamic market entry, and looking at the tax on a profit maximizing intermediary, Loertscher, Muir, and Taylor (2017) show that "a specific tax distorts the relative value of suboptimal trades…further reducing the welfare of buyers and sellers," whereas "an *ad valorem* tax levied as a percentage on the market maker's revenue will not affect the relative value of a suboptimal trade…and an *ad valorem* tax can be levied without affecting social welfare."[204]

(217) The Pandora-ASCAP Court similarly recognized the benefits of a percentage-of-revenue royalty when it wrote that "…with a single rate as a percentage of revenue a joint interest is created between the parties in the growth of the licensee's business."[205]

(218) Percentage-of-revenue fees are commonly used in a variety of settings. In franchise operations, for instance, an initial up-front fixed fee is often required for the franchise right and on ongoing franchise payments are set as a percentage of revenue.[206] Similarly, book publishing, drug licensing, and other patents commonly define royalties as a percentage of revenue.[207] This all occurs despite Dr. Rysman's

[204] Simon Loertscher, Ellen V. Muir, and Peter G. Taylor, "Optimal Market Thickness and Clearing," January 5, 2017, *available at* http://ellenmuir.net/wp-content/uploads/2016/11/Market_Thickness-2017-01-05.pdf. *See also* Simon P. Anderson, Andre de Palma, and Brent Kreider, "The Efficiency of Indirect Taxes Under Imperfect Competition," *Journal of Public Economics* 81 (2001): 231–51.

[205] Opinion & Order, *In re Petition of Pandora Media, Inc.*, 1:12-cv-08035-DLC, 1:41-cv-01395-DLC-MHDF. 738 (S.D.N.Y. Mar. 14, 2014) at 96.

[206] Business format franchises tend to have a royalty percentage between 4% and 6% of gross sales. Jeff Elgin, "What's the Norm for Franchise Royalty/Residual Payment Percentages?" *Entrepreneur,* Oct. 1, 2009, *available at* https://www.entrepreneur.com/answer/221990. *See also,* McDonald's franchise agreement stipulates a royalty rate of 7% of gross sales for each franchised restaurant. McDonald's, "Amended and Restated Master Franchise Agreement for McDonald's Restaurants," Nov. 10, 2008, *available at* https://www.sec.gov/Archives/edgar/data/1508478/000119312511077213/dex101.html, 14.

[207] Many trade book publishers pay a royalty on the list price of a book. Vallery Peterson, "Book Advances and Royalties," *The Balance,* Feb. 24, 2016, *available at* https://www.thebalance.com/book-advances-and-royalties-2799832.*See also,* Licensing partnerships between biotechnology companies and pharmaceutical companies typically include "an ongoing percentage of the revenue stream for the approved drug." Christopher M. Schelling, "Drug Royalties in a Real Asset Portfolio," *Pensions&Investments,* Oct. 9, 2014, *available at* http://www.pionline.com/article/20141009/ONLINE/141009844/drug-royalties-in-a-real-asset-portfolio.*See also,* Toy companies typically pay a toy inventor a royalty of 2%–10% of gross sales. Toy Industry Association, Inc., "Toy Inventor & Designer Guide," 2014, *available at* http://www.toyassociation.org/App_Themes /tia/pdfs/resources/inventors/TIAToyInventorDesignerGuide.pdf, at 11.

assertion that "if input suppliers are paid a percentage of revenue, it is difficult to design a scheme for input suppliers to be paid appropriately."[208]

(219) Dr. Rysman has not compared total or consumer welfare under his proposed per-stream fee to that under a percentage-of-revenue fee. Instead, he points to the alleged "inappropriateness" and difficulty of designing such a royalty rate. The common use of percentage-of-revenue rates and the theoretical underpinnings of such a rate structure bely these arguments.

X.B.2. Percentage-of-revenue rates are not uniquely susceptible to manipulation

(220) Dr. Rysman argues that service revenue is "likely to be manipulated" by services to the detriment of copyright holders.[209] What enables this manipulation, he argues, is that service revenue is more opaque to publishers than number of plays or number of users.[210] He notes that, as a result, service revenue could be fraudulently manipulated by the services, resulting in underpayments to copyright owners.[211] He presents no evidence, however, that percentage-of-revenue payments, which have been used throughout the industry for many years in many different contexts, have been fraudulently manipulated.

(221) As a theoretical possibility, the argument that reported revenue could be fraudulently manipulated applies to per-stream or per-user fees as well.[212] None of the three is directly observed by publishers. Dr. Rysman argues that the number of users or number of streams could be approximately verified by an independent survey, but he fails to note that a good approximation for number of users or streams could be converted into an approximation of revenue by applying an approximate price per user.[213]

(222) Aside from outright fraud, Dr. Rysman argues that services with non-music offerings can determine the accounting of their streaming revenues such that they are effectively realized in other areas of the firm.[214] This argument does not apply to pure-play streaming services like Spotify, which make up a majority of subscribers and revenue for interactive streaming services. For services that do offer a variety of non-music services, like Amazon, alternative ways of calculating revenue are built into the existing rate structure. Amazon Prime currently pays $0.25 per subscriber for its bundled streaming services. In the case of standalone portable subscription services, mixed use, significantly under-

[208] Rysman Expert Report, *Phonorecords III*, at ¶ 36.

[209] *Id.* at ¶ 39.

[210] *Id.* at ¶ 43.

[211] *Id.* at ¶ 43.

[212] Note too that the Spotify rate proposal includes audit rights for publishers. Spotify Proposed Rates and Terms, In the Matter of Phonorecords III, Docket No. 16–CRB–0003–PR (2018–2022), Nov. 1, 2016, (CRB 2018–2022).

[213] Rysman Expert Report, *Phonorecords III*, footnote 45.

[214] *Id.* at ¶¶ 44–45.

reporting revenue would lead a service to pay the minimum of $0.80 and 21% of sound recording payments.[215,216]

X.B.3. Percentage-of-revenue rates do not distort intertemporal choices of services

(223) Dr. Rysman argues that percentage-of-revenue royalty rate structures causes services to shift revenues from the present to the future, and that this is inherently unfair to copyright holders.[217] In addition, he argues that this shift does not simply represent a shift of revenue, but a loss of revenue to copyright holders because future revenues may never be recovered but instead might be monetized in other services or might be lost if services fail.[218]

(224) In effect, Dr. Rysman argues that it is unfair for interactive streaming services to take a longer-run view of their own business while at the same time Copyright Owners' witnesses Peter Brodsky (Sony/ATV Music Publishing), David Kokakis (UMPG), Michael Sammis (UMPG), Annette Yocum (Warner/Chappell), Justin Kalifowitz (Downtown), and Lee Thomas Miller (songwriter), and Copyright Owners expert Dr. Lawrence Miller all discuss publishers' use of advances.[219] These advances imply that payments to artists and songwriters are disconnected in time from when their musical works are experienced by consumers. The reliance of publishers on advances also highlights that they are not behaving to maximize current profits, but rather taking a longer-run view of their business.

(225) Dr. Rysman has not advanced any argument as to why a percentage-of-revenue royalty rate causes a shift in pricing strategy towards pricing low in the present and higher in the future. Economists generally consider that firms maximize the present discounted value of future cash flows, whatever time path of prices that entails, and percentage-of-revenue royalty rates, or per-stream or per-user

---

215 In addition, current rates include an additional $0.50 per user minimum. I explain in my Written Direct Testimony why that fee is inefficient and should be removed. Marx Written Direct Testimony, *Phonorecords III*, at ¶ 135.

216 In addition, the current rate structure may allow one to use a comparable standalone service from another service provider in certain situations. *See* the definition of "service revenue" in 37 C.F.R. § 385.11: "(5) Where the licensed activity is provided to end users as part of the same transaction with one or more other products or services that are not a music service engaged in licensed activity, then the revenue deemed to be recognized from end users for the service for the purpose of the definition in paragraph (1) of the definition of "Service revenue" shall be the revenue recognized from end users for the bundle less the standalone published price for end users for each of the other component(s) of the bundle; provided that, if there is no such standalone published price for a component of the bundle, then the average standalone published price for end users for the most closely comparable product or service in the U.S. shall be used or, if more than one such comparable exists, the average of such standalone prices for such comparables shall be used."

217 Rysman Expert Report, *Phonorecords III*, at ¶ 49.

218 *Id.* at ¶¶ 46–50.

219 Witness Statement of Peter Brodsky, *In the Matter of Phonorecords III*, at ¶¶ 9, 29–33. Witness Statement of David Kokakis, *In the Matter of Phonorecords III*, at ¶¶ 6, 40–44. Witness Statement of Michael Sammis, *In the Matter of Phonorecords III*, at ¶¶ 24-27. Witness Statement of Annette Yocum, *In the Matter of Phonorecords III*, at ¶¶ 13–23. Witness Statement of Justin Kalifowitz, *In the Matter of Phonorecords III*, at ¶¶ 14–19. Witness Statement of Lee Thomas Miller, *In the Matter of Phonorecords III*, at ¶ 6. Miller Expert Report, Phonorecords III, at ¶¶ 45–50.

royalty rates for that matter, do not change that basic logic.[220] In addition, there is a limitation of such shifting of revenues built into the current rate structure due to backstops based on percentage of sound recording royalty payments or number of users.

X.B.4. Percentage-of-revenue rates do not inherently give streaming services an "unfair advantage" over download services

(226) Dr. Rysman asserts that a revenue-based royalty rate gives interactive streaming services an "unfair competitive advantage" over download services.[221] He concludes that this difference in rate structure has "led to an accelerated displacement of downloads in favor of streaming."[222]

(227) Dr. Rysman presents no evidence that differences in rate structures have led to accelerated displacement of downloads by streaming. Nor does he present any analysis comparing the level of royalties paid by the PDD and CD channel to the level of royalties paid by the interactive streaming channel.

X.B.5. Percentage-of-revenue rates are not inconsistent with prior CRB decisions

(228) Finally, Dr. Rysman argues that because some prior CRB decisions have favored per-play fees over percentage-of-revenue fees, per-play fees should be favored in this context. He cites primarily the *Webcaster I* decision from 2002, which instituted a per-play rate structure for non-interactive streaming.[223] That rate structure was recently ratified in the *Web IV* decision.[224] Other CRB decisions have ratified a percentage-of-revenue reimbursement, however, most recently *SDARS II*.[225] The CRB in *SDARS I* notes that:

> The parties to this proceeding, at least initially, all proposed a revenue-based metric and, while there were some differences in the definition of revenues in their initial proposals, no party has submitted any evidence regarding the impossibility of applying or complying with a revenue-based metric. That is not surprising, inasmuch as the parties have until now lived under a revenue-based regime. Therefore, the parties are most familiar, and perhaps most comfortable, with the operation of a

[220] Shareholders receive cash from the company in the form of a stream of dividends. So PV(stock) = PV(expected future dividends). Brealey Myers and Allen, *Principles of Corporate Finance* (New York: McGraw-Hill Irwin, 2006), 61.

[221] Rysman Expert Report, *Phonorecords III*, at ¶ 51.

[222] *Id.* at ¶ 51.

[223] *Id.* at ¶ 52.

[224] Determination, *Web IV*, at 1.

[225] Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services, Docket No. 2011-1 CRB PSS/Satellite II, 78 Fed. Reg. No.74 (Apr. 17, 2013) [hereinafter *SDARS II* Determination], at 23,056.

revenue-based metric. The value of such familiarity lies in its contribution towards minimizing disputes and concomitantly, keeping transactions costs in check.[226]

(229) The common thread in these recent decisions is maintenance of status quo rate structures, not in moving broadly to per-play or per-user rate structures.

(230) In the case of interactive streaming, the *Phonorecords I* and *Phonorecords II* proceedings, agreed to by representatives of both Copyright Owners and users, ratified a headline percentage-of-revenue rate, with percentage of sound recording and per-user prongs as possible alternatives. Instituting a per-stream rate in an industry where none has existed is a stark change to the status quo. The Copyright Owners' economists have not provided a compelling justification that the current rate structure violates the 801(b) factors. As I discuss in Section (238), the industry is thriving under the current structure. Relatedly, it is notable that the agreements that Dr. Eisenach points to as baselines for his ratio test generally are based on percentage-of-revenue, not per-play or per-user structures.[227]

X.C. The unbundling of tracks does not call for higher per-stream royalty rates

(231) Dr. Gans's claim that "the per-track mechanical rates should have been adjusted upwards for downloads to account for the change in the mix of tracks being sold" is flawed.[228] He estimates the increase of mechanical royalty due to unbundling, using as examples hypothetical albums for which 10, 11, or 12 tracks are streamed. He assumes on average 20% of the tracks on these albums are not streamed, so the three examples he considers are albums with 12.5, 13.8, and 15 tracks.[229]

(232) His calculation has three steps. In the first step, he calculates the mechanical royalty per album using $0.091 multiplied by the number of tracks. For example, in the first case he considers where 10 tracks are streamed, an album has 12.5 tracks, so the mechanicals per album is $0.091*12.5 = $1.14. In the second step, he estimates the "repriced mechanicals" for each track by multiplying a track's fraction of plays of the album and the mechanicals per album. For example, the fraction of plays of an album of the most popular song in his 12.5 tracks example is 29.8%, so this track's "repriced mechanicals" is 29.8%*$1.14 = $0.339. In the third step, he estimates the "weighted average mechanical per track" by calculating the weighted average of "repriced mechanicals," using each track's fraction of plays again.[230]

[226] Determination, *In the Matter of Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services (SDARS I),* Docket No.2006-1 CRB DSTRA [hereinafter *SDARS I*], at 28.

[227] Eisenach Expert Report, Phonorecords III, at ¶¶ 86, 87, 97, 101, and Table 5.d

[228] Gans Expert Report, *Phonorecords III*, at ¶ 24.

[229] *Id.* Table 2, rows [10] and [11].

[230] *Id.* at ¶ 24, Table 2.

(233) Dr. Gans's main mistake in this analysis is that he considers the absolute demand decrease of unpopular songs and the relative demand increase of popular songs, but he ignores the absolute demand increase of popular songs. Unbundling the album reduces the purchase of some unpopular songs, but this does not necessarily mean Copyright Owners' total royalty income will drop, because unbundling may also increase the purchase of some other songs. For simplicity, assume each CD has 10 tracks and is sold for $10. Assume a digital download costs $1. Suppose a consumer's music budget is $20. Before unbundling, they buy two CDs and copyright owners get 20 tracks*9.1 cents=$1.82 from this consumer. After unbundling, the consumer may purchase eight tracks they like from each of these two CDs and four tracks they like from a third CD. Although two tracks from the first two CDs are indeed not purchased by this consumer due to unbundling, copyright owners still get 20 tracks*9.1 cents=$1.82 because unbundling allows this person to buy songs they like. In this example, the Copyright Owners' royalty income does not drop due to unbundling. Moreover, consumer surplus—the total amount of consumer benefit less price paid—increases due to unbundling.

(234) In addition, the unbundling of music occurred well before the onset of interactive streaming, as CDs were increasingly replaced by PDDs sold through outlets such as the iTunes Store. The recent subpart A settlement could have increased rates due to this unbundling, were it appropriate, but did not.

X.D. Dr. Rysman's SiriusXM analogy is flawed

(235) Dr. Rysman states that the Copyright Owners' proposal "will hardly be noticed within such a dynamic industry."[231] He argues that "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."[232] He uses SiriusXM as a case to support his point that "to offset the increase in royalty expenditures, services can also take advantage of favorable trends in other expense lines and metrics."[233]

(236) Both Dr. Rysman's claim that the Copyright Owners' rate proposal will not be disruptive and his use of SiriusXM as an example to support his claim are flawed. The Copyright Owners' rate proposal, in its most basic application, would [redacted].[234] [redacted].[235] In *SDARS I*, the SDARS sound recording royalty rate was increased from a range of

231 Rysman Expert Report, *Phonorecords III*, at ¶ 92.
232 *Id.* at ¶ 93.
233 *Id.* at ¶ 98.
234 *See* [redacted].
235 Rysman Expert Report, *Phonorecords III*, at ¶ 92.

2.0% to 2.5% of revenues, to 6.0% of gross revenues for 2007 and 2008, 6.5% for 2009, 7.0% for 2010, 7.5% for 2011, and 8.0% for 2012.[236] In *SDARS II*, SiriusXM's sound recording royalty as a percentage of gross revenue was increased from 8.0% in 2012 to 9.0% for 2013, 9.5% for 2014, 10.0% for 2015, 10.5% for 2016, and 11.0% for 2017.[237,238] It is possible that SiriusXM's cost reduction in customer acquisition, research and development, general and administrative expenses, and sales and marketing expenses can cover their royalty increases, as suggested by Dr. Rysman. [redacted].

(237) Another reason that Dr. Rysman's SiriusXM analogy is flawed is that he ignores the substantial differences between satellite radio and interactive streaming. The *SDARS I* proceeding happened during the merger process of Sirius Satellite Radio and XM Satellite Radio, the only two satellite radio providers in the United States.[239] The *SDARS II* proceeding happened after the merger, and SiriusXM, anticipated "that its adjusted earnings before depreciation and amortization ('EBITDA') for 2012 will be $860 million on revenues of $3.3 billion, which should allow SiriusXM to return capital to its investors."[240] The merger created a single provider of satellite radio services and thus would be expected to improve the profitability of satellite radio relative to the case of competition between Sirius and XM for subscribers and content prior to the merger.

(238) The current situation in the interactive streaming industry is different from the situation in the satellite radio industry during those two proceedings. Unlike the satellite industry during *SDARS I*, the interactive streaming service has many competitors, and they are not in the process of merging into a single entity. [redacted]

---

[236] Determination, *SDARS I*, at 18, 67.

[237] *SDARS II* Determination, at 23,054.

[238] Determination, *SDARS I*, at 70.

[239] Prior to 2008, Sirius and XM were the only two satellite radio providers in the United States. They announced their intention to merge in February 2007. The merger was under review during the *SDARS* proceeding and was not consummated until seven months after the CRB handed down the *SDARS* determination. *See* Richard Siklos and Andrew Ross Sorkin, "Merger Would End Satellite Radio's Rivalry," *New York Times*, Feb. 20, 2007, http://www.nytimes.com/2007/02/20/business/media/20radio.html?pagewanted=all. *See also* Determination, *SDARS I*, at 2–7. *See also* Olga Kharif, "The FCC Approves the XM-Sirius Merger," *Bloomberg*, Jul. 26, 2008, https://www.bloomberg.com/news/articles/2008-07-25/the-fcc-approves-the-xm-sirius-mergerbusinessweek-business-news-stock-market-and-financial-advice.

[240] *SDARS II* Determination, at 23,069.

[241] [redacted]

XI. Benefits of the current rate structure

(239) The current Section 115 rate structure, the result of a settlement between representatives of the Copyright Owners and users in 2012, has coincided with a rapid expansion of interactive streaming through a variety of different business models, increased consumer access to music, and increased publisher revenue. The Copyright Owners propose to replace this rate structure with a substantially different one that increases royalties on already unprofitable interactive streaming services, [redacted], and thereby curtails consumer access to music.

(240) The Copyright Owners' economists acknowledge the success of the interactive streaming industry. Dr. Rysman reports that the interactive streaming market is "thriving."[242] Dr. Eisenach finds that "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." Their objections to the current structure are mostly theoretical. Rather than giving concrete examples of how it impedes availability of music, they imply that the growth of streaming has lowered songwriter and publisher royalties. As I explain in Section X.A, they provide only anecdotal support for this notion, while the available quantitative evidence points to the contrary.

(241) Dr. Rysman further asserts that lower musical works compensation *could* reduce overall production of music, but provides no quantification of this effect or evidence that it has actually happened based on past changes in musical works compensation.[243] Nor do the other Copyright Owners' economists.

(242) These theoretical objections to the current rate structure need to be weighed against the concrete benefits it has brought both to the industry and to consumers before a substantial change is made to the current structure.

XI.A. Adaptability to different business models

(243) Subpart B of Section 115 defines five tiers that support different types of interactive streaming services, including ad-supported services; bundled subscription services; and "standalone, portable" subscription services, which is currently the largest category by revenue. While the formulas defined for each of these tiers are headlined by a percentage-of-revenue rate, there are also percentage of sound-recording royalty and per-user prongs that are activated in certain circumstances. This results

242 Rysman Expert Report, *Phonorecords III*, at ¶ 11.

243 For instance, *see* Rysman Expert Report, *Phonorecords III*, at ¶¶ 69–70, noting that changes in copyright holder compensation may lead to exit or reduced production, but not showing any evidence of this in response to past changes in copyright holder compensation.

in a variety of different rates, depending on the type of service, the pricing of the service, and payments made for sound recording rights by the service.

(244) This differentiation in applicable rates has supported the growth of a variety of business models that appeal to different consumer types. Amazon Prime, classified as a "bundled subscription service," provides online or offline ad-free listening to a limited music catalog (2 million songs) as a part of a broader package of Amazon services it offers including free shipping, movie streaming, and free book access. Amazon Prime appeals to casual music streamers who do not require a full catalog and who may be unwilling to pay for a broader streaming service.[244] It currently pays mechanical royalties for this service based on a $0.25 per-user prong.

(245) Spotify's paid subscription service, classified as a "standalone, portable" subscription service, offers an ad-free service with a broad catalog of over 30 million tracks accessible online or offline via computers or mobile devices. It charges a $9.99 basic subscription rate but also, like many other services, offers discount plans including a $14.99 family plan and $4.99 student plan. It currently pays mechanical royalties based on the $0.50 per-user prong.[245]

(246) Spotify's ad-supported service provides on-demand service interspersed with advertisements, no ability to listen offline, limited ability to skip, limited ability to listen on mobile devices, and lower quality audio than its paid service.[246] It currently pays mechanical royalties based on a percentage of sound recording royalties.

(247) These three different services vary significantly in terms of catalog size and functionality, and target different consumer groups with distinct WTP. The current system, with a variety of tiers and possible payment calculations, supports these three different approaches to streaming and thereby improves consumer access to music. For instance, the Goldman Sachs Equity Research report notes that the flexibility of the current system helps interactive streaming services capture Gen Z and Millennials, "the ideal audience for streaming," who make up 77% of all Spotify users across its markets.

> Their inherent characteristics of being "digital natives," focused on experience and convenience, make them the ideal targets of music streaming services which can be

---

[244] Expert Report of Glenn Hubbard, *In the Matter of Phonorecords III*, No. 16-CRB-0003-PR (CRB 2018-2022), Nov. 1 2016, at Section 3.

[245] As I explain in my Written Direct Testimony, my view is that this $0.50 per-user fee should be removed, which would mean that standalone portable subscription services would pay an all-in royalty pool based on 10.5% of revenue, 21% of sound recording payments, or $0.80 per user—PRO payments are deducted from this all-in royalty pool to determine mechanical royalties. Marx Written Direct Testimony, *Phonorecords III*, at ¶¶ 14, 75.

[246] Elyse Betters and Jake Smith, "Spotify Free vs. Spotify Premium: What's the Difference?" Pocket-lint, Dec. 30, 2014, *available at* http://www.pocket-lint.com/news/125771-spotify-free-vs-spotify-premium-what-s-the-difference.

> tailored for any taste, different budgets (ad-supported, student plans, family plans) and most importantly for any device.[247]

(248) In contrast, as I have discussed at length in this statement, the Copyright Owners' proposal would impose a uniform per-stream or per-user fee, regardless of catalog size, functionality of service, or consumer group targeted, [redacted]. This outcome runs counter to the 801(b) factors and reduces the total surplus created by interactive streaming.

XI.B. Efficiency benefits of interactive streaming model

(249) As I discuss in my Written Direct Testimony, the "all-you-can-eat" business model of interactive streaming, with a single monthly subscription price allowing unlimited streams by users, reduces deadweight loss relative to a model such as PDD, in which consumers pay a flat price above cost for ownership of a song. The PDD model discourages consumers from listening to songs of lower or uncertain value, even if they value such listening at greater than the marginal cost of providing the song. That is the definition of deadweight loss.

(250) The all-you-can-eat model has led to increased music listening and increased variety. First, because the marginal price of listening is equal to marginal cost, listeners can efficiently experiment with artists and tracks about which they are unsure. In addition, the data analytics made possible by interactive streaming play a part in this result. As I discuss in my Written Direct Testimony, Spotify features such as Discover Weekly and algorithmic playlists are designed to expand listening variety and expose listeners to new artists. This is possible in part due to the data collected by Spotify on listening patterns, data that are not as available in a PDD/CD model of distribution.[248] The Goldman Sachs Equity Research report notes that:

> Streaming services are becoming a much more important partner for labels and artists as their data analytics fundamentally change the way music consumption is measured and promoted and how new artists are being discovered.[249]

(251) It also finds that these data analytics lead to enhanced consumer benefits:

> Consumers have never had it better in terms of convenience, discoverability, and personalization of their music thanks to technology that is powering selection algorithms and integrating social network relationships. Spotify's "Discover

[247] Lisa Yang et al., "Music in the Air: Stairway to Heaven," Goldman Sachs Equity Research, Oct. 4, 2016, at 47.
[248] Marx Written Direct Testimony, *Phonorecords III*, at ¶ 46.
[249] Lisa Yang et al., "Music in the Air: Stairway to Heaven," Goldman Sachs Equity Research, Oct. 4, 2016, at 65.

Weekly," introduced in July 2015, which automatically generates a tailored two-hour playlist every week, is internet-scale curation demonstrating that algorithms can tailor a playlist to someone's taste.[250]

(252) The Copyright Owners' proposal, by imposing a per-play prong that would significantly raise the per-play cost of streaming, [redacted] and could lead to, for instance, throttling of listening or changing the distribution of songs listened to. More generally, by [redacted] and raising costs for the entire industry, it restricts the consumer benefits of convenience, discoverability, and personalization flowing from interactive streaming and the data analytics interactive streaming services use to promote discovery of new music.

[250] *Id.* at 65.

XII. Conclusion

(253) The Copyright Owners propose a substantial increase in rates and a significant change to the rate structure compared to the status quo. Their proposal would impose a flat per-user or per-stream rate, at a significantly higher level than current royalties, on an industry that has grown rapidly in recent years in part due to the variety of different services and business models it accommodates. The Copyright Owners' proposal would [redacted].

(254) The Copyright Owners' economists are able to support this proposal by misinterpreting the 801(b) factors, presenting a misleading analysis of the impact of the Copyright Owners' proposal that incorrectly asserts that the proposed rates do not represent a significant change over current rates, and by presenting economic models that they claim support the Copyright Owners' proposal but are either inappropriate or incorrectly implemented.

(255) In none of their analyses have the Copyright Owners' economists demonstrated any serious defects in the current system. Although they imply that interactive streaming has lowered copyright holder revenue, they provide only anecdotal support for this notion, and the data show otherwise. The interactive streaming industry has led to increased publisher revenues and significantly enhanced consumer access to music in a way that increases total surplus and reduces deadweight loss of music distribution.

(256) Given the success of the current system in supporting what all concede to be a successful, dynamic interactive streaming industry, a substantial change to the status quo level and structure of rates would require a detailed analysis of the impact of that change on rights holders, the industry, and consumers. The Copyright Owners' economists have not provided that analysis.

Before the
UNITED STATES COPYRIGHT ROYALTY JUDGES
The Library of Congress

In the Matter of **DETERMINATION OF RATES AND TERMS FOR MAKING AND DISTRIBUTING PHONORECORDS (PHONORECORDS III)**	**Docket No. 16–CRB–0003–PR (2018–2022)**

DECLARATION OF LESLIE M. MARX

I, Leslie M. Marx, declare under penalty of perjury that the statements contained in my Written Rebuttal Testimony in the above-captioned proceeding are true and correct to the best of my knowledge, information, and belief. Executed this 14 day of February 2017 in Durham, North Carolina.

Leslie M Marx

Leslie M. Marx

Appendix A. Materials cited

A.1. Publically available materials

- 17 U.S.C. § 801(b)(1).
- 37 C.F.R. § 385.11.
- 37 C.F.R. § 385.13.
- Allen, Brealey Myers. *Principles of Corporate Finance*. New York: McGraw-Hill Irwin, 2006.
- Amazon. "Prime." Accessed Feb. 5, 2017, https://www.amazon.com/gp/dmusic/promotions/PrimeMusic.
- Anderson, Simon P., Andre de Palma, and Brent Kreider. "The Efficiency of Indirect Taxes Under Imperfect Competition," *Journal of Public Economics* 81, no. 2 (2001): 231–51.
- ASCAP. "Our ASCAP." Annual report, 2015. *Available at* https://www.ascap.com/-/media/files/pdf/about/annual-reports/2015-annual-report.pdf.
- ASCAP. "ASCAP is the First PRO in the World to Report $1 Billion in Revenues." News release, Mar. 3, 2015. *Available at* https://www.ascap.com/press/2015/0302-ascap-hits-a-high-note-in-its-100th-year.aspx.
- Betters, Elyse, and Jake Smith. "Spotify Free vs. Spotify Premium: What's the Difference?" Pocket-lint, Dec. 30, 2014, http://www.pocket-lint.com/news/125771-spotify-free-vs-spotify-premium-what-s-the-difference.
- Blacc, Aloe. "Aloe Blacc: Streaming Services Need to Pay Songwriters Fairly." Wired, Nov. 5, 2014, https://www.wired.com/2014/11/aloe-blacc-pay-songwriters.
- BMI. "BMI Announces $1.060 Billion in Revenue, the Highest in Company's History." News release, Sep. 8, 2016. *Available at* https://www.bmi.com/news/entry/bmi_announces_1.060_billion_in_revenue_the_highest_in_companys_history.
- Bowman, Jeremy. "Music Streaming Is a Money Pit." *The Motley Fool*, Sep. 18, 2016, https://www.fool.com/investing/2016/09/18/music-streaming-is-a-money-pit.aspx.
- Cook, James. "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.

- Cookson, Robert. "Losses Point to a Bleak Future for Music Streaming Services." Financial Times, Dec. 3, 2015, https://www.ft.com/content/160ad860-9840-11e5-95c7-d47aa298f769.
- Council of Economic Advisors. "Benefits of Competition and Indicators of Market Power." Council of Economic Advisors Issue Brief, Washington, DC, 2016, https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160414_cea_competition_issue_brief.pdf.
- Copyright Royalty Board, "Distribution of 1998 and 1999 Cable Royalty Funds," Docket No. 2008-1 CRB CD 98-99 (Phase II), 2015
- Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services, Docket No. 2011-1 CRB PSS/Satellite II, 78 Fed. Reg. No.74 (Apr. 17, 2013).
- Determination, *In re Determination of Royalty Rates and Terms for Ephemeral Recording and Webcasting Digital Performance of Sound Recording (Web IV)*, No. 14-CRB-0001-WR (CRB 2015).
- Determination, In the Matter of Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services (SDARS I), Docket No.2006-1 CRB DSTRA.
- Elgin, Jeff. "What's the Norm for Franchise Royalty/Residual Payment Percentages?" Entrepreneur, Oct. 1, 2009, https://www.entrepreneur.com/answer/221990.
- Fallon, Kevin. "Inside Netflix's $130 Million 'The Crown,' the Most Expensive TV Series Ever." *Daily Beast*, Nov. 2, 2016, http://www.thedailybeast.com/articles/2016/11/02/inside-netflix-s-130-million-the-crown-the-most-expensive-tv-series-ever.html.
- Federal Trade Commission. "Statement of Bureau of Competition Director Richard A. Feinstein In the Matter of Vivendi, S.A. and EMI Recorded Music." News release, September 21, 2012. *Available at* https://www.ftc.gov/sites/default/files/documents/closing_letters/proposed-acquisition-vivendi-s.a.emi-recorded-music/120921emifeinsteinstatement.pdf.
- Hill, Bard. "Glenn Peoples: Pandora has its Mind on Your Money and Your on its Mind." *Radio and Internet News*, Jun. 30, 2016, http://rainnews.com/glenn-peoples-pandora-has-its-mind-on-your-money-and-your-money-on-its-mind/.
- Internet Movie Database. "Bryan Ferry." Accessed Feb. 11, 2017, http://www.imdb.com/name/nm0275069/#soundtrack.
- Kharif, Olga. "The FCC Approves the XM-Sirius Merger." *Bloomberg*, Jul. 26, 2008, https://www.bloomberg.com/news/articles/2008-07-25/the-fcc-approves-the-xm-sirius-mergerbusinessweek-business-news-stock-market-and-financial-advice.

- Kinsella, Bret. "Are Broadcast Radio Ad Loads Sustainable?" *XAPPmedia*, Mar. 24, 2015, https://xappmedia.com/are-broadcast-radio-ad-loads-sustainable/.
- Kline, Daniel B. "How Many Prime Does Amazon Have (And Why It Matters)." *The Motley Fool*, Jan. 26, 2016, https://www.fool.com/investing/general/2016/01/26/how-many-prime-members-does-amazon-have-and-why-it.aspx.
- Lawler, Richard. "Netflix Schedules Its Original Series 'House of Cards' for Release February 1st." *Engadget*, Oct. 4, 2012, https://www.engadget.com/2012/10/04/netflix-house-of-cards-original-series-february-1/.
- Levine-Weinberg, Adam. "Can Netflix Rein in Skyrocketing Costs?" *The Motley Fool*, Jun. 22, 2016, http://www.fool.com/investing/2016/06/22/can-netflix-rein-in-skyrocketing-costs.aspx.
- Levy, Adam. "Netflix Inc. Content Costs Are Booming, But Its Library Is Shrinking." *The Motley Fool*, Jun. 20, 2016, http://www.fool.com/investing/2016/06/20/netflix-inc-content-costs-are-booming-but-its-libr.aspx.
- Loertscher, Simon, Ellen V. Muir, and Peter G. Taylor. "Optimal Market Thickness and Clearing," January 5, 2017. Unpublished paper. *Available at* http://ellenmuir.net/wp-content/uploads/2016/11/Market_Thickness-2017-01-05.pdf.
- Mas-Collel, Andreu, Michael D. Whinston, and Jerry R. Green. *Microeconomic Theory*. New York: Oxford University Press, 1995.
- Masters, Kim. "The Netflix Backlash: Why Hollywood Fears a Content Monopoly." Hollywood Reporter, Sep. 14, 2016, http://www.hollywoodreporter.com/features/netflix-backlash-why-hollywood-fears-928428.
- McDonald's. "Amended and Restated Master Franchise Agreement for McDonald's Restaurants." Nov. 10, 2008. *Available at* https://www.sec.gov/Archives/edgar/data/1508478/000119312511077213/dex101.html.
- Mechanical and Digital Phonorecord Delivery Rate Determination Proceeding, Docket No. 2006-3 CRB DPRA, 74 Fed. Reg. No. 15 (Jan. 26, 2009).
- Moody's, "Moody's downgrades SESAC's CFR to B3, affirms first-lien credit facilities at B2 and assigns Caa2 to new second-lien term loan; outlook stable," Apr. 7, 2015, https://www.moodys.com/research/Moodys-downgrades-SESACs-CFR-to-B3-affirms-first-lien-credit--PR_321914.n
- "More Than This—Lost in Translation (Bill Murray & Scarlett Johansson)." YouTube. Accessed Feb. 11, 2017, https://www.youtube.com/watch?v=dpwIbqm-umk.
- Motion to adopt settlement, *In re Phonorecords III*, No. 16-CRB-0003-PR, June 15, 2016, (CRB 2018–2022).

- Nielsen, "Audio Today: Radio 2016 - Appealing Far and Wide," Feb. 25, 2016, http://www.nielsen.com/us/en/insights/reports/2016/audio-today-radio-2016-appealing-far-and-wide.html.
- Netflix Inc. "Netflix Is Now Available Around the World." News release, Jan 6, 2016. *Available at* https://media.netflix.com/en/press-releases/netflix-is-now-available-around-the-world.
- Netflix Inc. "Netflix Launches Canadian Service for Streaming Movies and TV Episodes Over the Internet." News release, Sep. 22, 2010. *Available at* https://media.netflix.com/en/press-releases/netflix-launches-canadian-service-for-streaming-movies-and-tv-episodes-over-the-internet-migration-1.
- Netflix Inc. "Netflix Launches in Sweden, Denmark, Norway and Finland." News release, Oct. 18, 2012. *Available at* https://media.netflix.com/en/press-releases/netflix-launches-in-sweden-denmark-norway-and-finland-migration-1.
- Netflix Inc. "Netflix Now Available in The Netherlands." News release, Sep. 11, 2013. *Available at* https://media.netflix.com/en/press-releases/netflix-now-available-in-the-netherlands-migration-1.
- Netflix Inc. "Netflix to Launch Service in Latin America and the Caribbean for Streaming TV Shows and Movies Later This Year." News release, Jul. 5, 2011. *Available at* https://media.netflix.com/en/press-releases/netflix-to-launch-service-in-latin-america-and-the-caribbean-for-streaming-tv-shows-and-movies-later-this-year-migration-1.
- Netflix Inc. "Netflix to Launch Service in the UK and Ireland for Streaming Movies and TV Shows in early 2012." News release, Oct. 24, 2011. *Available at* https://media.netflix.com/en/press-releases/netflix-to-launch-service-in-the-uk-and-ireland-for-streaming-movies-and-tv-shows-in-early-2012-migration-1.
- Opinion & Order, *In re Petition of Pandora Media, Inc.*, 1:12-cv-08035-DLC, 1:41-cv-01395-DLC-MHDF. 738 (S.D.N.Y. Mar. 14, 2014).
- Pandora Media Inc., Annual Report (Form 10-K), (Feb. 16, 2016).
- Pandora Media Inc., Annual Report (Form 10-Q), (Sep. 30, 2016).
- Peterson, Vallery. "Book Advances and Royalties." *The Balanc*e, Feb. 24, 2016, https://www.thebalance.com/book-advances-and-royalties-2799832.
- Radio Advertising Bureau, "Annual Radio Revenue Trends", accessed Feb. 9, 2017, *Available at* http://www.rab.com/public/pr/rev-pr.cfm.
- Radio Advertising Bureau, "Why Radio." Nielsen Audio. Sep. 2016, http://www.rab.com/whyradio/pdf/Full_Fact_SheetSept2016.pdf.

- Radio Music License Committee. "Federal Court Approves Radio Industry Settlement with ASCAP." News release, Jan 27, 2012. *Available at* http://www.radiomlc.org/pages/4795848.php.
- Radio Music License Committee. "Federal Court Approves Radio Industry Settlement with BMI." News release, Jan 27, 2012. *Available at* http://www.nab.org/xert/2012emails/newsletters/pulse/090412/bmicourtapprovalrelease082812.pdf.
- Rothblum Uriel G. "Combinatorial Representations of the Shapley Value Based on Average Relative Payoffs." *In The Shapley Value: Essays in Honor of Lloyd S. Shapley*, edited by Alvin E. Roth. Cambridge, UK: Cambridge University Press, 1988.
- Schelling, Christopher M. "Drug Royalties in a Real Asset Portfolio." *Pensions&Investments*, Oct. 9, 2014, http://www.pionline.com/article/20141009/ONLINE/141009844/drug-royalties-in-a-real-asset-portfolio.
- Seabrook, John. "Will Streaming Music Kill Songwriting?" *New Yorker*, Feb. 8, 2016, http://www.newyorker.com/business/currency/will-streaming-music-kill-songwriting.
- Siklos, Richard, and Andrew Ross Sorkin. "Merger Would End Satellite Radio's Rivalry." *New York Times*, Feb. 20, 2007, http://www.nytimes.com/2007/02/20/business/media/20radio.html?pagewanted=all.
- Sirius XM, Annual Report (Form 10-K), (Feb. 2, 2016).
- Sirius XM, Annual Report (Form 10-Q), (Oct. 27, 2016).
- Federal Reserve Bank of St. Louis, "Daily Rates", accessed Feb. 13, 2017, *Available at* https://fred.stlouisfed.org/categories/94.
- Thrive Advertising, "Why we are loving Pandora Radio Advertising", accessed Dec. 12, 2017, *Available at* http://thriveadvertisingco.com/why-we-are-loving-pandora-radio-advertising-right-now/.
- Toy Industry Association Inc. "Toy Inventor & Designer Guide." 2014. *Available at* http://www.toyassociation.org/App_Themes/tia/pdfs/resources/inventors/TIAToyInventorDesignerGuide.pdf.
- United States Copyright Office. "Copyright and the Music Marketplace." February 2015. *Available at* http://copyright.gov/docs/musiclicensingstudy/copyright-and-the-music-marketplace.pdf.
- US Department of Justice. "Statement of the Department of Justice on the Closing of the Antitrust Division's Review of the ASCAP and BMI Consent Decrees." Aug 4, 2016, https://www.justice.gov/atr/file/882101/download.
- US Department of Justice and the Federal Trade Commission. Horizontal Merger Guidelines. Washington DC, Aug. 19, 2010, https://www.justice.gov/atr/horizontal-merger-guidelines-0.

- US Department of Labor, Bureau of Labor Statistics. "Occupational Employment Statistics." Accessed Jan 1, 2017, https://www.bls.gov/oes/.
- Walker, Alissa. "Rdio Is Being Acquired by Pandora." *Gizmodo*, Nov. 16, 2015, http://gizmodo.com/rdio-is-being-acquired-by-pandora-1742863433.
- Watt, Richard. "Fair Copyright Remuneration: The Case of Music Radio." *Review of Economic Research on Copyright Issues* 7, no. 2 (2010): 21–37.
- Warner Music Group, Annual Report (Form 10-K), (Dec. 10, 2015)
- Wooders, Myrna Holtz, and William R. Zame. "Values of Large Finite Games." *In The Shapley Value: Essays in Honor of Lloyd S. Shapley*, edited by Alvin E. Roth. Cambridge, UK: Cambridge University Press, 1988.

A.2. Restricted materials

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]