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

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| In the Matter of<br><br>Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services | Docket No. 2011-1 CRB PSS/Satellite II |

**REBUTTAL TESTIMONY OF GREGORY S. CRAWFORD, Ph.D.**

**July 2, 2012**

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# I. Introduction

## I.A. Summary of qualifications and experience

(1) I am Gregory S. Crawford, Professor of Economics at the University of Warwick in the United Kingdom. I received a Ph.D. in economics from Stanford University in 1998. I was an assistant professor at Duke University and an assistant and later associate professor at the University of Arizona. In 2007-08, I served as chief economist at the Federal Communications Commission ("FCC"), an independent federal regulatory agency charged with regulating a number of media and communications industries, including the broadcast and cable television industries. I reported directly to the Chairman of the FCC and advised him and his staff on a number of topics in these industries, including mergers, spectrum auction design, media ownership, network neutrality, and bundling. After my service at the FCC, I joined the Department of Economics at the University of Warwick as a full professor. I am Director of Research for the economics department. In 2011, I was invited to be a research fellow at the Centre for Economic Policy Research ("CEPR"), one of the leading European research networks in economics.

(2) I conduct research on topics in both industrial organization and law and economics. Much of my research has analyzed the cable and satellite television industries. I have published extensively at the intersection of these fields, evaluating conditions of demand and supply within the cable television industry and the consequences of regulation on economic outcomes in cable markets.[1] When the National Bureau of Economic Research ("NBER") commissioned a volume analyzing the consequences of economic regulation across a number of American industries, I was asked to write the chapter on cable television.[2] I have published numerous academic articles in such outlets as the American Economic Review, Econometrica, the RAND Journal of Economics, and the Journal of Law and Economics.

(3) I have testified twice previously before the Copyright Royalty Board ("CRB"), once in the direct testimony hearing of this proceeding and once as a rebuttal witness for the Commercial Television

[1] Gregory S. Crawford, "The Impact of the 1992 Cable Act on Household Demand and Welfare," *RAND Journal of Economics* 31, no. 3 (2000): 422–49; Gregory S. Crawford and Matthew Shum, "Monopoly Quality Degradation and Regulation in Cable Television," *Journal of Law and Economics* 50, no. 1 (Feb. 2007): 181–209; Gregory S. Crawford and Joseph Cullen, "Bundling, Product Choice, and Efficiency: Should Cable Television Networks Be Offered A La Carte?," *Information Economics and Policy* 19, no. 3–4 (Oct. 2007): 379–404; Gregory S. Crawford and Ali Yurukoglu, "The Welfare Effects of Bundling in Multichannel Television Markets," *American Economic Review*, forthcoming.

[2] The NBER is a private, nonprofit research organization dedicated to studying the science and empirics of economics. It is the largest economics research organization in the United States. The chapter is titled, "Cable Regulation in the Satellite Era," Chapter 5 in Rose, N., ed., "Economic Regulation and Its Reform: What Have We Learned?" forthcoming, University of Chicago Press.

Claimants in the matter of the distribution of copyright royalties for the distant importation of broadcast television signals in 2004 and 2005. My curriculum vitae are submitted as Appendix D.

## I.B. Scope of charge

(4) Counsel for Music Choice has asked me to evaluate the merits of the analysis and evidence presented in the written testimony, deposition, and oral testimony of SoundExchange's witnesses in regards to the proposed royalty rate for digital performance rights in sound recordings ("DPRSR") for pre-existing subscription services ("PSS") such as Music Choice. I am being compensated for my time on this matter at a rate of $700 per hour.

(5) I have reviewed all the written direct testimonies, depositions, and transcripts of the hearing testimonies of Dr. George S. Ford, Professor Januz Ordover, Mr. Stephen Bryan, and Mr. Charles Ciongoli presented on behalf of SoundExchange in this matter. In addition, I have reviewed the decisions in prior PSS, SDARS, and webcasting rate-setting proceedings, trade publications on the recording and various music service industries, relevant academic literature, and numerous other pertinent materials.

## I.C. Summary of conclusions

(6) SoundExchange has proposed that PSS providers pay a revenue-based royalty for sound recording performance rights that increases to 45% by 2017. Dr. Ford, in opining on the reasonableness of the SoundExchange proposal, prepared testimony claiming that this proposal lays within a "zone of reasonableness" for marketplace royalty rates of between 43% and 70% and that no adjustment to this range was necessary to account for the four Section 801(b)(1) policy objectives as required by the Copyright Act.

(7) Dr. Ford's conclusions are both unfounded and incorrect and should not be relied upon to establish a reasonable royalty for sound recording performance rights for PSS providers. There are significant errors of method, reasoning, and fact throughout his report, both in his approach to determining a royalty that would arise in the hypothetical market that would determine sound recording performance royalties in the absence of a compulsory license and in the adjustment to a marketplace rate under the application of the four policy objectives. I briefly summarize the justification for these claims here.

(8) There are a number of significant flaws in the approach Dr. Ford takes to establishing his zone of reasonableness for marketplace royalties for sound recording performance rights that invalidate his conclusions.

(9) First, his methodological approach to selecting benchmark markets comparable to the hypothetical market for PSS is unsound. While other experts in this and related proceedings take great pains to compare the economic features of a hypothetical market with potential benchmarks, an approach with which Dr. Ford agrees in principle, in practice Dr. Ford makes no such effort. He advances a wide variety of markets as appropriate benchmarks within his zone of reasonableness without providing an analytical framework for evaluating their comparability with the unique features of the PSS market or attempting to adjust the royalties in those markets to account for the manifest differences between them.

(10) Using the Asymmetric Nash Bargaining Framework I introduced in my direct testimony, I demonstrate that the benchmarks selected by Dr. Ford are inappropriate and provide no useful guide for appropriate royalties for sound recording performance rights in the PSS market. Dr. Ford's benchmarks have different buyers that offer different products which are purchased and used by ultimate consumers in different ways, all of which materially affect the royalty that would be paid in those markets in ways that would make them non-comparable with the PSS market and all of which Dr. Ford ignores. Using my bargaining framework and focusing on the most important of these differences, the promotional effect of PSS services and the cannibalization effect of interactive webcasting services included among Dr. Ford's benchmarks, I demonstrate how Dr. Ford's failing to account for such differences uniformly yields marketplace agreements with royalty rates that are higher than what one would expect in the hypothetical market for sound recording rights in PSS, invalidating their use as benchmarks.

(11) Second, the interactive webcasting market on which Dr. Ford relies in part as a benchmark differs significantly with the PSS market in its market dynamics that also invalidates its usefulness as a comparator. While the PSS market is fairly mature with established negotiating protocols and longstanding agreements, interactive webcasting is a business with uncertain economics and rapidly changing market dynamics. I know of no interactive webcaster that is currently profitable under its existing royalty agreements, and many of them may continue to be loss-making as providers try to build market scale. Indeed, it is not obvious to me that this business model can achieve profitability under current royalty arrangements. Whether these agreements can be sustained under evolving business models in a growing interactive webcasting market, or whether they represent transitional arrangements that will change as that business eventually becomes more stable, in neither case are they comparable to marketplace agreements in the very different hypothetical market for sound recording performance rights in PSS.

(12) Third, Dr. Ford's claim that use of a revenue-based royalty eliminates any concern about the comparability of a benchmark because differences in overall revenue can account for underlying differences between markets is simply incorrect. The use of revenue-based rates cannot repair an analysis based on non-comparable benchmarks, nor does it obviate the need to adjust even the most closely comparable benchmark to reflect any remaining differences between the markets.

(13) Fourth, Dr. Ford's claim that royalties paid by PSS providers should be increased to capture cable industry revenues is also incorrect. Dr. Ford suggests Music Choice and cable systems that own a portion of its business may be "strategically shifting" revenues to minimize Music Choice's royalty liabilities. This directly contradicts testimony that these relationships are arm's length and ignores the compelling alternative explanation that low demand from ultimate consumers is resulting in low revenues from cable systems. Furthermore, the claim that PSS royalties should somehow be augmented due to the intermediate nature of PSS services ignores the basic economics of outcomes in supply chains.

(14) Finally, Dr. Ford examined a non-representative, non-random sample of marketplace agreements in making his arguments. He cherry-picks those agreements with relatively high royalty rates in establishing his zone of reasonableness, ignoring at least 26 agreements produced in discovery that have percentage of revenue royalty rates below his lower bound of 43%.

(15) In addition to the flaws in his approach to establishing a benchmark market for sound recording performance rights in PSS, Dr. Ford also errs in applying the policy factors necessary to adjust those rates. First, he incorrectly concludes that marketplace rates adequately incorporate the 801(b)(1) statutory factors determining rates in this proceeding. From an economic perspective, it is well known that markets may not provide the appropriate number of goods in the presence of fixed costs, particularly in markets like those for sound recordings. Both the legislative history of the establishment of digital performance rights for sound recordings and the treatment of the same policy factors in other markets confirms that the policy factors should, if anything, lower rates relative to a marketplace benchmark.

(16) Dr. Ford's second error with respect to the policy factors is to ignore the highly asymmetric effect different royalty rates for sound recording performance rights would have on record labels and PSS providers, a fact that influences the analysis of all the statutory policy objectives. I show that the implementation of SoundExchange's proposed royalties would dramatically reduce the profitability of Music Choice on both a historical and prospective basis, causing Music Choice to exit the residential music business. I further show that Dr. Ford's claim that other providers could and would replace Music Choice should they exit is unfounded speculation. Contrary to Dr. Ford's claims, imposing SoundExchange's proposed royalty would lead to Music Choice's subsequent exit, which would cause immense disruption in the cable radio industry, significantly reduce the availability of creative works, not provide Music Choice with a fair income, and not reflect the relative contributions of Music Choice to the industry. By contrast, I show that any changes in PSS sound recording royalties would have inconsequential effects on record label revenue, causing no disruption to the music industry and having effectively no impact on the availability of creative works.

(17) For all these reasons, the Copyright Royalty Judges should not use Dr. Ford's analysis as any basis for determining a reasonable royalty for sound recording performance rights in the PSS market. I develop each of these arguments in greater detail in the balance of my report.

# II. Ford's methodology is unreliable

## II.A. Summary of the Ford approach

(18) SoundExchange has proposed that the PSS pay a revenue-based royalty that ramps up to 45%. In his deposition, Dr. Ford stated that he was presented with the proposed rate and asked to testify whether it was reasonable.[3] Dr. Ford did not calculate the proposed royalty or perform any analysis to generate the proposed royalty;[4] instead he used marketplace agreements to determine whether the proposed rate was reasonable and consistent with marketplace outcomes.[5] In fact, no SoundExchange witness, fact or expert, testified as to how the rate was calculated in the first place or sponsored the proposed rate in testimony.

(19) Dr. Ford begins his benchmarking analysis by asserting that an ideal benchmark market should closely approximate the hypothetical market and share identical buyers, sellers, and rights.[6] Furthermore, Dr. Ford acknowledges that in instances where the benchmark market differs from the hypothetical market, then "modifications and adjustments [should be] applied to render a more suitable rate."[7]

(20) In doing so, however, Dr. Ford faced the challenge of finding a benchmark market comparable to the unique target market at issue in this proceeding (PSS). In his written testimony, he concludes "I was unable to find any contract that matched closely the peculiar nature of the PSS's business."[8] Similarly, in his hearing testimony, Dr. Ford emphasized the distinctiveness of the PSS market,

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[3] Deposition of George S. Ford, Docket No. 2011-1 CRB PSS/Satellite II (Mar. 6, 2012) [hereinafter Ford Deposition] at 7:1–4, 49.

[4] Ibid at 4–6. In particular Dr. Ford states, "they didn't hire me as a business consultant and say how much should we charge. They said is 45 percent consistent with a market rate and consistent with the 801(b) statutory standards. That's what I was asked." Ibid. at 69:3–7.

[5] Hearing Testimony of Dr. George Ford, Docket No. 2011-1 CRB PSS/Satellite II (Jun. 18, 2012) [hereinafter Ford Hearing Testimony] at 2808:10–2809:16, 2876:4–13.

[6] SX Trial Ex. 79, Second Corrected Testimony of George S. Ford, Docket No. 2011-1 CRB PSS/Satellite II (Apr. 2, 2012) [hereinafter Ford Direct Testimony] at 12.

[7] Ibid.

[8] Ibid. at 13.

particularly its distribution structure,[9] and reaffirmed that "[there] is a significant difference between the PSS and what we normally look at here and what's available in terms of market agreements."[10]

(21) Despite many differences between the PSS and other markets for the digital performance and distribution of sound recordings, Dr. Ford goes on to use marketplace agreements involving different buyers and different rights to establish a "zone of reasonableness" for revenue-based royalty rates for sound recording performance rights in PSS. Dr. Ford admits that relying on marketplace agreements from "[a] variety of buyers and business plans" will necessitate a wide range of rates. Nevertheless, Dr. Ford finds this wide range of royalty rates to be "a useful starting point in evaluating the rate proposal offered by SoundExchange."[11] From the collection of marketplace agreements provided to him by SoundExchange counsel,[12] Dr. Ford establishes a zone of reasonableness of 43% to 70%, representing the minimum and maximum of rates he observed.[13]

(22) Since SoundExchange's proposed 45% rate is close to the lower bound of his zone of reasonableness, Dr. Ford concludes that SoundExchange's rate proposal for the sound recording performance rights in the PSS market is reasonable.[14] Dr. Ford further concludes that SoundExchange's rate proposal is at the low end of reasonable rates because the PSS music service is distributed by downstream cable operators and therefore PSS revenues do not incorporate the full retail value of the service.[15]

(23) After considering the four 801(b)(1) factors, Dr. Ford finds no compelling reason to deviate from SoundExchange's proposed royalty rate of 45%. In terms of the first three factors—availability of creative works, fair return/fair income, and relative contribution—Dr. Ford argues that since marketplace rates already account for these factors, no adjustment to his benchmarks is necessary.[16] Finally, Dr. Ford sees no disruptive impact on the industries involved resulting from a six-fold rate increase from 7.5% to 45%. Dr. Ford rationalizes this conclusion by noting that the proposed rate is highly favorable to PSS providers relative to his collection of marketplace rates for other parts of the music services industry, a revenue-based royalty rate follows industry practices, and the proposed rate change would be phased in over five years. He does not consider the elimination of the entire PSS

[9] Ford Hearing Testimony at 2810:16–2812:16.

[10] Ibid. at 2814:9–20.

[11] Ford Direct Testimony at 13.

[12] Dr. Ford responded in the negative when asked during his oral testimony, "outside the collection you were spoon-fed from counsel, did you look at the overall discovery that was produced in this case for marketplace agreements?" See Ford Hearing Testimony at 2871:7–11.

[13] Ford Direct Testimony at 16.

[14] Ibid.

[15] Ibid. at 16–8. Dr. Ford makes no attempt to quantify this "full retail value."

[16] Ford Hearing Testimony at 2925:11–2926:4.

segment to be an indication of a disruption, arguing that similar services might be offered by another provider.[17]

## II.B. Flaws in the Ford approach

(24) There are many flaws in Dr. Ford's analysis that make his conclusion about the "reasonableness" of a 45% royalty rate unreliable and incorrect. I briefly describe them here and discuss each in more detail in the remainder of this section. In the next section, I address the flaws in Dr. Ford's consideration of the four statutory factors.

(25) First, although Dr. Ford's premise for establishing rates by benchmarking is sound and consistent with previous proceedings, he fails to follow through on these guidelines. In particular, he offers no analytical framework to evaluate potential benchmarks, including the benchmarks he proposes.

(26) Second, using the analytical framework I introduced in my direct testimony to evaluate his benchmarks, I demonstrate that they are too different from the PSS market to be valid. The benchmarks Dr. Ford relies on fail to account for the promotional effects of PSS services on market-based royalty rates, they fail to account for the cannibalization effects of some of his benchmark services on those rates, and they fail to account for other important differences between PSS services and his proposed benchmarks that would have material effects on those rates. All of these differences indicate that royalty rates for sound recording performance rights in PSS would be *lower* than those in the benchmark markets he proposes, making his purported "zone of reasonableness" useless for determining rates in that hypothetical market.

(27) Finally, Dr. Ford makes a number of factual and economic errors that invalidate his benchmark analysis. First, Dr. Ford relied on the contracts provided to him by counsel for SoundExchange. A review of other marketplace agreements produced in the discovery process, but apparently withheld from Dr. Ford, revealed royalty rates well below Dr. Ford's proposed "zone of reasonableness." Second, Dr. Ford incorrectly concludes that revenue-based royalty rates adjust appropriately for differences in the target and benchmark markets. This is not generally true as a matter of economic theory, and it certainly does not hold for a comparison of PSS and the benchmark markets he proposes. Finally, Dr. Ford's claim that PSS royalties should be increased to capture downstream revenues is misguided and unsupported by the available evidence.

[17] Ford Direct Testimony at 21–3.

## II.C. Ford offers no analytical framework to evaluate a benchmark

(28) Dr. Ford asserts that an ideal benchmark market should closely approximate the hypothetical market and acknowledges that in instances where the benchmark differs from the hypothetical market, then "modifications and adjustments [should be] applied to render a more suitable rate."[18] This is the correct benchmarking procedure, and in that regard, Dr. Ford, Dr. Ordover, and I all agree.

(29) Dr. Ford breaks company, however, when he fails to follow his own prescription, while Dr. Ordover and I follow the correct procedure. Dr. Ordover discusses how his "analytical framework assesses which non-statutory channels of music distribution reasonably can serve as benchmarks for the rates agreed to between buyers and sellers in the absence of a regulatory backstop"[19] and concludes that "identification of a candidate benchmark marketplace should place heavy emphasis on the extent to which the service under consideration is comparable to [the target] along the relevant dimensions, as well as on the ability to account for any material differences between them."[20] Similarly, in corroborating the appropriateness of the musical works in PSS benchmark, I describe five dimensions of a market that would make it an ideal benchmark and later describe how an Asymmetric Nash Bargaining Framework can be used to account for differences between a benchmark and target market along these dimensions.[21]

(30) Dr. Ford gives up on this correct procedure, and instead invents his own entirely new kind of benchmark analysis which he describes as using "marketplace agreements as benchmarks in order to establish a zone of reasonableness for revenue-based royalty fees."[22] Employing this novel technique, Dr. Ford selects benchmarks that he acknowledges are wildly different than the hypothetical market for sound recording performance rights in PSS. Unlike experts in this or related proceedings,[23] Dr. Ford makes no comparisons of buyers, sellers, products being sold, or any other economic features of the PSS market and the markets he proposes as benchmarks. Indeed, the only criterion he purports to rely on is the fact that royalties in the PSS and his potential benchmark markets are both measured as a percentage of revenue. I rebut the legitimacy of this argument in section II.E.2 of this report.

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[18] Ibid. at 12.

[19] SX Trial Ex. 74, Third Corrected and Amended Testimony of Janusz Ordover, Docket No. 2011-1 CRB PSS/Satellite (Jun. 13, 2012) [hereinafter Ordover Direct Testimony] at 4.

[20] Ibid. at 18.

[21] Corrected Testimony of Gregory S. Crawford, Docket No. 2011-1 CRB PSS/Satellite II (May 10, 2012) [hereinafter Crawford Direct Testimony] at 24–5.

[22] Ford Direct Testimony at 13. Dr. Ford states in his hearing testimony that "[my analysis] is not a traditional analysis of benchmarking...the purpose of my analysis was to say these are the kind of rates you observe in market agreements, and in that sense, they serve as benchmarks, but it's not the same sense that Ordover uses benchmark. Where he says it's 50 percent, I'm going to subtract 5 percent for that and 1 percent for that. It's not that way. It's a different benchmark approach." See Ford Hearing Testimony at 2909:12–2910:2.

[23] For example, see Ordover Direct Testimony at 18, 29-30.

(31) The deficiency in Dr. Ford's methodology is reflected in the wide range of royalty rates among the benchmark contracts he considers. Dr. Ford's pool of benchmarks includes cellular ringtones, portable and non-portable interactive webcasting, and permanent digital downloads, services that are different in many crucial respects not only from PSS but also from each other. Dr. Ford found royalty rates in this diverse collection ranging from 43% to 70% of revenues. As I show in section II.E.1 below, even this wide band does not include the full range of royalty rates reflected in the discovery record, as the contracts given to Dr. Ford exclude a large number of contracts with much lower royalty rates.

(32) Dr. Ford's decision to undertake an analytical approach untethered from any tried and tested methodology and unguided by sound economic principles contributed to shortcomings in his analyses. Below I demonstrate how an appropriate economic framework illuminates those deficiencies.

## II.D. An appropriate framework shows Ford selects a defective set of benchmarks

(33) In previous proceedings before the Copyright Royalty Judges and their predecessors to determine reasonable royalties for sound recording performance rights, it has been established that if a sufficiently comparable marketplace royalty is available, then it can serve as a benchmark, subject to modification or adjustment to account for relevant differences, and subject to further adjustments for the statutory objectives. Ideally, this benchmark would closely resemble the hypothetical market between willing buyers and sellers of sound recordings performance rights in PSS markets but for the compulsory license. Dr. Ford agrees with this framework, but relies on a variety of digital music services—cellular ringtones, interactive webcasting, and digital downloads—as benchmarks that are each starkly different from the hypothetical PSS market for sound recording performance rights. These proposed benchmarks are all so different from PSS that even adjustments based on a theoretically sound methodology would be uninformative and speculative. Since Dr. Ford has no such economically founded methodology, his use of these contracts as benchmarks is completely invalid.

(34) There are five characteristics that an ideal benchmark market for the sound recording performance rights for PSS should satisfy:[24]

1. Same marketplace outcomes: The benchmark rate is negotiated at arm's-length between willing buyers and willing sellers in an open market without influence from non-market factors.
2. Same sellers, same rights: The same sellers (record labels and/or their representative rights organizations) are selling the same rights (sound recording performance rights).

[24] Crawford Direct Testimony at 24.

3. Same buyers: The same buyers (PSS providers) are purchasing the rights.
4. Same products: Buyers package the sound recording performance rights with other inputs, notably musical works performance rights and the PSS's own original creative content, to create the same products (audio channels) that are sold to multi-channel video providers in downstream markets.
5. Same method of purchase and consumption: Consumers purchase and access the product in the same way; namely, through a subscription to a bundled cable television offering that includes the PSS content. Furthermore, since the PSS provider selects the musical content on its channels, consumption by the consumer is passive and the product consumed includes not only the music but also the programming.

(35) By construction, an ideal benchmark market for sound recording performance rights for PSS does not exist. Nevertheless Dr. Ford fails to address major differences between his benchmarks and the PSS market. In fact, the only similarity Ford's benchmarks share with the PSS market is that the seller remains the same. Dr. Ford's failure to account for all the other differences invalidates his benchmarks for determining a reasonable royalty rate for sound recording performance rights for PSS. Next, I use the framework I introduced previously to demonstrate some of these differences and how they make Dr. Ford's benchmarks unsuitable.

## II.D.1. Ford's benchmarks are too different from PSS to be valid

### II.D.1.a. Different buyers, products, and methods of consumption and use

(36) Although Dr. Ford asserts that an ideal benchmark market should consist of the same buyers as in the PSS market,[25] the music services he uses as benchmarks are distinctly different purchasers from PSS. In fact, Dr. Ford did not attempt to find a benchmark comparable to PSS,[26] but instead relied on a collection of benchmarks he described as "a wide variety of services that are different, highly different, very different..."[27] during his deposition.

(37) PSS providers such as Music Choice offer diverse, genre-based music television channels that are bundled by multichannel video programming distributors (MVPDs) into cable subscription services. In accordance with the statutory license, PSS is a non-interactive service in which consumers have no control over song selection and play frequency. These restrictions are meant to limit PSS's ability to

[25] Ford Direct Testimony at 12.

[26] Dr. Ford states his analysis "was not to try to modify or choose a particular service that I'd say oh, this is close to Music Choice." See Ford Deposition at 42:20–2.

[27] Ibid. at 43:1–3.

substitute for CD purchases.[28] Contrast the passive, performance-based PSS product with ownership-based permanent digital downloads or an interactive and often portable webcasting subscription service. Permanent digital downloads are a direct substitute for CDs. By purchasing a digital download, the consumer owns a copy of the song and can play that song at their selected time and place. Similarly, the music-on-demand feature of interactive webcasting, in which the consumer decides when to listen and what songs to listen to, also effectively substitutes for physically purchasing CDs. In the following sections I provide evidence of these substitution effects and discuss in detail the consequences this difference in promotion versus cannibalization has on royalties arising in a hypothetical marketplace.

(38) Cellular ringtones in particular are a fundamentally different product from PSS. Ringtones are short snippets of songs and are viewed by consumers as a personalization product and not a song purchase. Ringtones involve a license to make and distribute copies. Unlike the PSS, I understand a ringtone reseller does not need a public performance license.[29] Similarly, I understand the license from record labels to a download store involves a license to make and publicly distribute copies of digital sound recordings. It does not include a performance right for the full sound recording because there is no public performance of the recording involved.[30]

(39) Finally, PSS such as Music Choice are unique from other music services in that its product isn't directly sold to consumers. PSS providers combine inputs (performance rights for sound recordings and musical works and other original creative content) to produce a set of audio television channels that they in turn sell to cable, telecommunications, and satellite television providers that are collectively known as MVPDs. MVPDs, in turn, bundle the PSS audio channels with other audio-visual channels into a cable package for the end consumer.

(40) These differences have material effects on the royalties that would be predicted in a hypothetical market for digital performance rights for sound recordings on PSS. As discussed in detail in my direct testimony, both the economic surplus that a copyright owner and user could split in the case of agreement and the copyright owner's surplus in the case of disagreement are vastly different because of these differences in buyers, products, and methods of consumption and use.[31]

(41) In particular, the Asymmetric Nash Bargaining Framework I introduced in my written testimony and describe further below emphasizes the importance of *related* markets on a potential benchmark.

[28] In compliance with the performance right complement of the statutory license, Music Choice does not pre-announce songs, play more than three tracks from a single album in a three hour period, or play consecutively more than four tracks by a single artist in a three hour period. See Corrected Testimony of David J. Del Beccaro, Docket No. 2011-1 CRB PSS/Satellite II (May 9, 2012) [hereinafter Del Beccaro Direct Testimony] at 4.

[29] Rebuttal Testimony of David J. Del Beccaro, Docket No. 2011-1 CRB PSS/Satellite II (Jun. 27, 2012) [hereinafter Del Beccaro Rebuttal] at 4–5.

[30] Ibid. at 3.

[31] Crawford Direct Testimony at 34–5.

These related markets have very different effects in PSS and interactive webcasting markets and these differences are a direct consequence of the differences in buyers, products, and methods of ultimate consumer's consumption and use between these markets. Below I discuss the evidence that PSS is a service that provides promotional benefits to copyright owners and that interactive webcasting is a service that cannibalizes other sources of revenue for those owners. This distinction has a critical influence on predicted royalty rates for the two services. In the sub-sections that follow, I emphasize this essential difference between a PSS service and an interactive webcasting service that Dr. Ford included among his benchmarks and illustrate with some simple examples how important it can be for predicted royalty rates across different services, a distinction ignored by Dr. Ford.

#### II.D.1.b. Ford fails to account for promotional effects of MC

(42) In my testimony I introduced a non-cooperative Asymmetric Nash Bargaining Framework to evaluate candidate benchmark markets against the ideal hypothetical market characterized by a negotiation between a PSS provider and a record label for digital performance rights for sound recordings. The Asymmetric Nash Bargaining Solution depends on three key factors to determine how two firms, a buyer and a seller, would split profits after reaching an agreement. These three "Nash Factors" are:

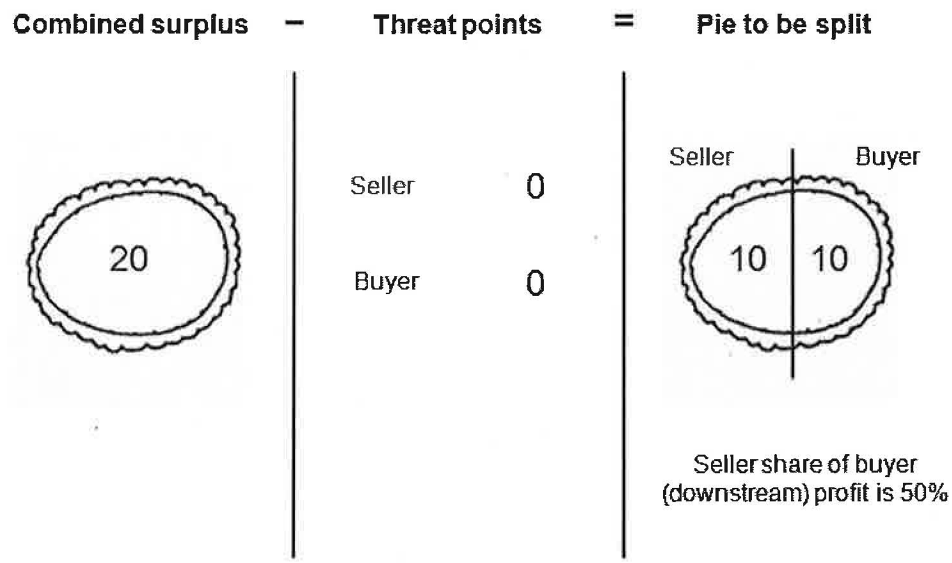
1. The Combined Agreement Surplus is the combined surplus to the buyer and seller in the primary (i.e. PSS) market resulting from an agreement. The combined surplus is simply the revenue earned by the buyer in the PSS market less all other costs in that market.
2. Each Firm's Threat Point is the surplus available to each party if no agreement is reached. Note that threat points can be either negative (representing a loss in other markets in the absence of an agreement) or positive (representing a gain in other markets in the absence of an agreement).
   a. The first two Nash Factors determine the profit or "pie" to be split: it is the difference between the combined agreement surplus and the sum of the firms' threat points. I call this profit the *Incremental Surplus*.
3. Each Firm's Bargaining Power is a number between 0 and 1 that captures that firm's relative strength during negotiations. If the two firms have equal bargaining power then the bargaining power would be 0.5 for both.

(43) The Asymmetric Nash Bargaining Solution utilizes these Nash Factors in an intuitive way to determine royalties in the primary market. For each firm, the profit it receives from the primary market equals its threat point plus its bargaining power times the incremental surplus. This division of profit can then be converted into a revenue royalty rate if the share of profit in revenue in the primary market is known.

(44) Figure 1 demonstrates the intuition of the Nash Bargaining approach in a simple example with no threat points and equal bargaining power. It shows that if the combined agreement surplus between

two firms is 20, the absence of threat points means that so too is the incremental surplus, or pie, to be split. With equal bargaining power, each receives a surplus of 10. The pie is equally split.

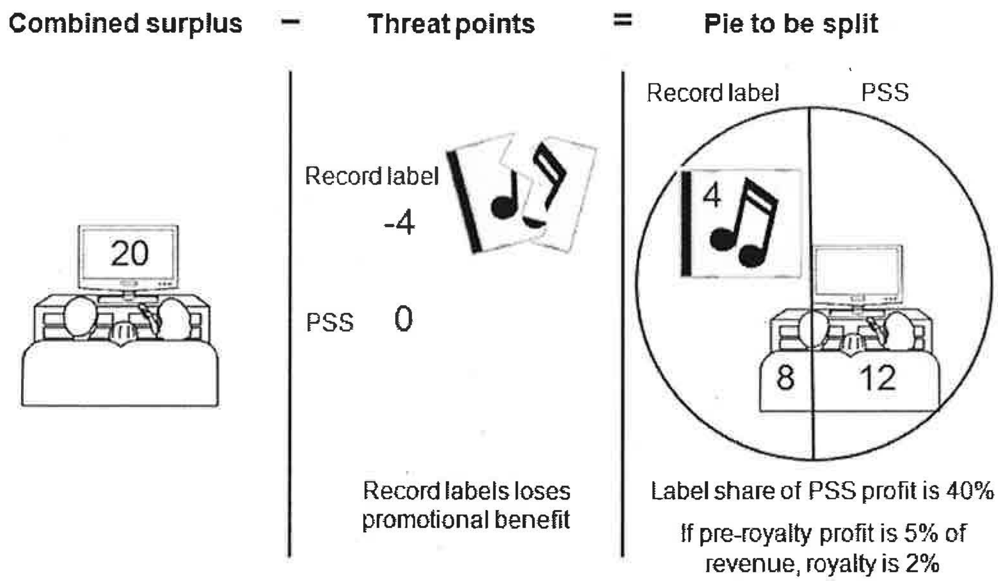
**Figure 1: Asymmetric Nash Bargaining Model example**




(45) The main conclusion I reached in analyzing negotiations in a hypothetical market between a PSS provider and a record label for the license of sound recording performance rights within the Nash Bargaining Framework is that record labels receive a promotional benefit from PSS such as Music Choice and therefore should be awarded a relatively smaller share of the combined agreement surplus from the PSS market (and thus a lower royalty rate), since part of the value they receive from the agreement comes in the form of this promotional benefit. In the event that PSS and record labels do not reach an agreement, the record label would lose additional revenue from non-PSS distribution markets because PSS encourage record label sales through music discovery. In the context of the Asymmetric Nash Bargaining Framework, record labels have a *negative* threat point.

(46) Figure 2 demonstrates this effect in another example modeled on the hypothetical market. Again I assume a combined agreement surplus of 20, but I now add the threat point of minus 4 (–4) for the record label to capture the loss of promotional benefits if they fail to reach an agreement in the PSS market. In this case, the pie to be split is 20 – (–4) = 24. Under the assumption of equal bargaining power, this pie of 24 is split equally, so 12 apiece. Note, however, that an equal split of the overall pie does *not* mean that the *combined agreement surplus* in the PSS market is equally split. Because record labels (alone) benefit from additional sales outside the PSS market, they get a relatively smaller share (8 of 20 or 40%) of the surplus from inside the PSS market. This split of profit can be converted into a split of revenue depending on the share of revenue in profit. The figure shows that if the share of revenue that is profit in the PSS market is 5%, the royalty to the record label in this sample hypothetical market would be 2%.

**Figure 2: Asymmetric Nash Bargaining Model with promotional benefit**




(47) I offered various accounts of the promotional benefits of PSS for record labels in my testimony, which I will briefly summarize here. First, Music Choice has a long history of working with record labels to promote artists and their music as evidenced by the "promotional copies" Music Choice receives, encouragement by record labels for more airplay,[32] and numerous letters and emails from artists and record labels thanking Music Choice for its role in promoting their records.[33] Music Choice also promotes artists through informative on-air displays and exclusive artist promotions. Artist promotion is becoming increasingly important for record labels, who now frequently enter into "360 deals" in which labels receive a share of an artist's concert and merchandising revenue.[34] Second, there is empirical evidence of Music Choice's promotional benefit to performance rights holders. A survey conducted in 2011 by NPD Group found that TV and TV music channels serve as the second most important channel for discovering new music and that younger, heavier buyers of music tend to watch Music Choice.[35] Another survey by Experian Simmons from 2010 showed that Music Choice listeners were 69 percent more likely than the average person to have purchased 10 or more CDs or downloads in the past year, which is indicative of the promotional effect Music Choice has on music sales.[36] Finally, in the only previous ruling on digital performance rights in sound recordings for PSS, the Copyright Arbitration Royalty Panel as well as the record label's own expert agreed that PSS

[32] Testimony of Damon Williams, Docket No. 2011-1 CRB PSS/Satellite II (Nov. 28, 2011) [hereinafter Williams Testimony] at 9-12.

[33] Ibid at 9. Also see Exhibit MC 30.

[34] "The Impact of Digitization on Business Models in Copyright-Driven Industries: A Review of the Economic Issues," The Brattle Group (Jun. 7, 2011) at 12.

[35] Exhibit MC 56, "NARM Research Report: Consumers & Music Discovery," The NPD Group (Nov. 2011) at 42, 44.

[36] Exhibit MC 36, "Simmons National Consumer Study," Experian Simmons (2010) at 18.

provide a promotional benefit to record labels by exposing consumers to new types of music and thereby simulated record sales.[37]

(48) Dr. Ford's benchmark analysis is deficient in ignoring the promotional benefits PSS provides for record labels. He therefore fails to recognize that the benchmark royalty rates that he selects are too high for PSS.

#### II.D.1.c. Ford fails to account for cannibalization effects of interactive webcasting

(49) The cannibalization effect of interactive webcasting on record sales is another difference Dr. Ford fails to account for in his benchmarking analysis. Since Ford uses a variety of benchmark markets, I will focus on interactive webcasting as an illustrative example. In my written direct testimony, I account for this cannibalization effect in the market for digital performance rights for sound recordings between record labels and interactive webcasters in the context of the Asymmetric Nash Bargaining Framework.[38] In particular, I compare the Nash Factors for the hypothetical market for digital performance rights in PSS with the market for these same rights in interactive webcasting and demonstrate the important differences. In my testimony here, I emphasize the central role played by the cannibalization effect of interactive webcasting on CD sales and its influence on a record label's threat point and thus the royalty rate that one would expect to arise from marketplace negotiations in each setting.

(50) While the PSS market *promotes* a record label's other primary distribution channels, I establish in my written direct testimony that an interactive webcasting service *substitutes* for music sold through other distribution channels. In the absence of an agreement, I therefore conclude that record labels would gain revenue from such channels as CD sales and digital downloads that the interactive webcasting service would have otherwise cannibalized, rendering its threat point in these markets positive.

(51) Figure 3 demonstrates this effect in a final example modeled on the interactive webcasting market. Consistent with the conclusions in my written direct testimony, in this example I assume a larger combined agreement surplus of 100. This is due, in part, to the added consumer value associated with an unbundled service, interactivity, and frequent portability of interactive webcasting relative to PSS.[39] I now add a threat point of 70 to record labels to capture the profits from CD sales and other forms of music distribution that would arise in the absence of an agreement with an interactive webcaster (and that would therefore be cannibalized in the case of an agreement in the interactive

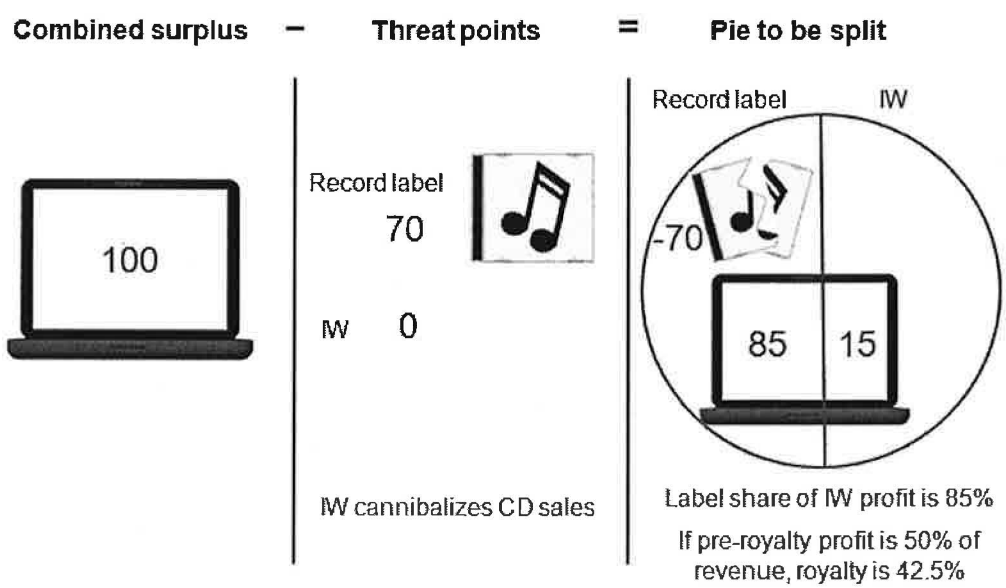
[37] "Determination of Reasonable Rates and Terms for the Digital Performance of Sound Recordings," Docket No. 96-5 CARP DSTRA (May 8, 1998) 63 FR [hereinafter PSS I Final Rule] at 25408.

[38] Crawford Direct Testimony at 36-7.

[39] I do not have any information about the costs of interactive webcasters, but to the extent that they do not involve the many and varied costs of providing a PSS service to cable operators, including significant programming, content creation, and sales staff, satellite uplink facilities, and not-insubstantial general and administrative costs, they are likely to be less, also increasing the combined agreement surplus in the IW market.

webcasting market).[40] In this case, the pie to be split is 100 – 70 = 30. Under the assumption of equal bargaining power, this pie of 30 is split equally, so 15 apiece. Note, however, that an equal split of the overall pie does *not* mean that the *combined agreement surplus* in the interactive webcasting market is equally split. Because record labels (alone) bear the burden of lost CD sales outside the interactive webcasting market, they get a relatively larger share (85 of 100 or 85%) of the surplus from inside the interactive webcasting market. This split of profit can again be converted into a split of revenue depending on the share of revenue in profit in the interactive webcasting market. The figure shows that if the share of revenue that is profit in the interactive webcasting market is 50%, the royalty to the record label in this example would be 42.5%.

**Figure 3: Asymmetric Nash Bargaining Model with cannibalization effect**




(52) There is considerable evidence that interactive webcasting substitutes for record sales. In my written direct testimony I point to a recent NPG Group study that estimated the impact of music downloads at 17 million fewer CD sales in 2008 than the prior year.[41] SoundExchange's fact witness, Stephen Bryan, who serves as the Executive VP of Business Development at Warner Music Group, attested to the substitution effect of interactive webcasting in his deposition. Putting aside licensing revenue, Bryan agrees that unlimited interactive services substitute for CD and digital download sales on an individual consumer level and product unit basis.[42] [redacted]

[40] In the next paragraph, I motivate why I chose such a large value for this cannibalization effect.

[41] Andrew Nusca, "CD Sales Drop, Digital Downloads on the Rise," ZDNet Blog (Mar. 17, 2009).

[42] Deposition of Stephen Bryan, Docket No. 2011-1 CRB PSS/Satellite II (Mar. 14, 2012) [hereinafter Bryan Deposition] at 202:24–204:11.

[redacted][44] Free users cannibalize far less due to play restrictions imposed by WMG. These restrictions are even less onerous than the programming restrictions placed on Music Choice by the DMCA.[45]

(53) Dr. Ford's benchmark analysis is again deficient in ignoring the cannibalization effect interactive webcasting imposes on record labels. This important effect is not present in the PSS market. As a consequence of his failure to analyze this difference, Dr. Ford proposes a fatally deficient benchmark, and does not recognize that his benchmark royalty rates again overstate the appropriate royalty rate for PSS.

#### II.D.1.d. Ford fails to account for other important differences

(54) The PSS market can be considered an outlier among the spectrum of music services. In the previous SDARS proceeding, the Copyright Royalty Judges ruled against the use of the PSS market as a benchmark for the sound recording performance right for SDARS on the grounds of disparate differences between the two markets. In particular, the Judges found the weak consumer demand for PSS to have an influence on the demand for, and consequently the value of, the sounding recording performance right that is wholly different from the demand characteristics in the SDARS market.[46] This unique demand feature of the PSS market was affirmed by Dr. Ordover on rebuttal in his arguments against the comparability of the PSS and SDARS markets.[47]

(55) Among the additional important differences between the PSS market and the benchmarks chosen by Dr. Ford are differences in the cost structures of PSS and firms in his benchmark markets and differences in the programming efforts contributed by the rights buyer.[48] These programming efforts by Music Choice contribute to consumer value and are not generally present in Dr. Ford's benchmarks. Dr. Ford ignores these differences. He also does not address portability or the lack thereof, nor does he account for the interactive nature of webcasting compared with the passive consumption of PSS. He ignores the low, derived demand for PSS compared to services sold directly to the public. His only analysis regarding the unique bundled nature of cable sales is a logically

[43] Ibid at 208:12–209:17.

[44] Ibid at 213:1–22.

[45] See The Copyright Act at 17 U.S.C. 114(j)(13).

[46] Final Determination of Rates and Terms, Docket No. 2006-1 CRB DSTRA [hereinafter SDARS I CRJ Report] at 35.

[47] PSS Trial Ex. 11, Rebuttal Testimony of Janusz Ordover, Docket No. 2006-1 CRB DSTRA (Jul. 23, 2007) at 6–7.

[48] The difference in cost structures is important because the share of costs in revenue determines the share of profits in revenue necessary to convert a division of profit negotiated between any buyer and seller into a revenue royalty rate.

unsound argument that PSS royalties should be increased to attempt to capture profits earned in other parts of the supply chain that I address in Section II.E.3 below.

#### II.D.1.e. Ford's royalty rate is too high and cannot be accurately adjusted

(56) A proper benchmarking analysis should emphasize the extent to which the benchmark under consideration is comparable to PSS and also account for any material differences that would warrant adjustments to the starting marketplace rate. Dr. Ford's analysis fails on both fronts. Not only does Dr. Ford fail to adequately address the differences between his benchmarks and PSS as outlined above, he also makes no effort to adjust his benchmark rates to account for those differences. Unfortunately, Dr. Ford's analysis cannot be redeemed by an attempt to make an adequate adjustment for the myriad differences between his benchmarks and PSS. These differences are so numerous and so fundamental that any attempt to salvage Dr. Ford's benchmarks would necessary involve significant speculation. The only conclusion we can draw from these differences is that the royalty rate proposed by SoundExchange exceeds, and may vastly exceed, the appropriate royalty for PSS.

### II.D.2. Interactive webcasting is evolving too rapidly to be a valid benchmark

(57) In addition to the differences in Nash Factors that would predict wildly different royalty rates in the benchmark markets proposed by Dr. Ford compared to the hypothetical market for digital performance rights for sound recordings in PSS, there are important additional differences in market maturity between the PSS market and the markets used as benchmarks by Dr. Ford.

(58) The benchmark markets Dr. Ford uses—cellular ringtones, interactive webcasting, and permanent downloads—have decidedly different market dynamics than the PSS market. Whereas the PSS market is fairly mature with established bargaining patterns, the digital music services Dr. Ford proffers are rapidly evolving with untested business models.[49] It is unclear whether the royalty rates in these markets are sustainable and thus representative of long-run marketplace transactions. I do not know of any interactive webcasters that have managed to turn a profit, while many have simply gone out of business. [redacted][50][redacted]

[49] See Bryan Deposition at 216:8-218:11. Mr. Bryan agrees that most interactive webcasters are not profitable, noting that the services are in the "early stage of development so they're still heavily investing in building other platforms and expanding their services."

[50] Deposition of Charles C. Ciongoli, Docket No. 2011-1 CRB PSS/Satellite II (Mar. 16, 2012) [hereinafter Ciongoli Deposition] at 288:18-24.

[redacted][51] A review of relevant SEC filings, however, makes clear that Rhapsody is not and has not been profitable. Rhapsody, the interactive webcasting service formerly operated as a joint venture by Real Networks and MTV Networks, was founded in 2001 and is one of the oldest and best known interactive webcasters.[52] According to Real Networks' 2011 and 2012 SEC filings, Rhapsody has never had a profitable quarter as long as it has been owned by Real Network (since 2007), and it is my understanding that it was never profitable in the six years before that.[53]

(59) Furthermore, music services such as interactive webcasting may be motivated to obtain a near-full catalogue of songs to attract the volume of consumers necessary to sustain their business models. This motivation could partially explain the high percentage-of-revenue royalty rates interactive webcasters pay record labels. Much as firms in young, dynamic industries may use relatively low "introductory prices" in order to attract consumers and (ideally) build a loyal customer base, so too interactive webcasters may be willing to accept relatively high "introductory royalties" in order to build a catalog of music sufficiently attractive to build a loyal customer base. In both cases, prices (royalties) would be expected to adjust to levels that can earn their firms long-run profits as the respective markets matured. Using such royalties as benchmarks before this long-run equilibrium is reached would be inappropriate. [redacted][54] Since these percentage-of-revenue rates are not even relevant for determining actual webcaster royalty payments, they certainly should not be taken as benchmarks to determine royalties in other markets.

(60) Dr. Ford acknowledges that the contracts he examined covering interactive webcasters are not comparable to a hypothetical contract that would be negotiated between a PSS and a record company, and would not suffice as benchmarks under "traditional benchmarking analysis."[55] However, he suggests in his cross-examination that such a "crazy different" product might be a reliable benchmark if the two products' prices were "correlated over time."[56] This suggestion is also wrong. Prices of products with vastly different price levels can be highly correlated and still be completely unacceptable benchmarks for one another. For example, the price of crude oil and the price of a

[51] Bryan Deposition at 216:8-217:25.

[52] Matt Graves, "Cha-Cha-Changes: The Brand Damn New Rhapsody," Rhapsody Blog (Apr. 6, 2010) http://blog.rhapsody.com/2010/04/kindalikeabigdeal.html.

[53] See Exhibits MC 67 (RealNetworks Inc., Form 10-Q for period ended March 31, 2012) and MC 68 (RealNetworks Inc., Form 10-K for the fiscal year ended December 31, 2011).

[54] [redacted] Bryan Deposition at 220:15–22.

[55] Ford Hearing Testimony at 2909:7-2910:15, 2918:17-2929:1.

[56] Ibid. at 2903:15–2904:8, 2883:5.

chemical made from crude oil might have correlated prices, but the price of the latter might be many times higher than the former. Crude oil could not be used as benchmark for the chemical absent careful analysis establishing that the criteria for a benchmark are met. Even then, still more analysis would need to be done to determine what adjustments would be necessary to adjust the benchmark to obtain the price of the target good from the price of the benchmark.

(61) That being said, Dr. Ford did not even go so far as to test whether or not his "benchmark" contracts are correlated with PSS prices or with demand for PSS services. In his cross examination, Dr. Ford acknowledged that he did not do any formal economic analysis to observe price trends or price changes with his benchmark products.[57]

(62) Even a brief examination of the market for interactive webcasting reveals that prices in this very different market are not "correlated over time" with PSS service prices or PSS demand. Interactive webcasting is an evolving market in which there has been a great deal of churning as entrants attempt (and often fail) to find viable business models. In contrast, PSS is a mature, established and slowly declining market.[58] I know of no evidence to suggest that prices in these two markets either are or should be correlated.

### II.D.3. Ford ignores guiding PSS precedent

(63) A final flaw in Dr. Ford's choice of benchmarks is that the benchmarks that he uses are inconsistent with decisions made in previous proceedings. Although Dr. Ford repeatedly refers to the 2008 rate-setting proceeding for SDARS for guidance in his testimony, he ignores the conclusions reached by the Copyright Royalty Judges regarding the lack of comparability of the PSS market to the SDARS market for benchmarking purposes. The Copyright Royalty Judges rejected the SDARS's proposal to use PSS as a marketplace benchmark because the two services have different products, market structures, mobility, and demand characteristics.[59] The Judges found that PSS and SDARS "exhibit substantial differences so as to make them poor comparators," a conclusion that SoundExchange's own expert, Dr. Ordover, advocated.[60] Given the incompatibility of PSS and SDARS as comparable benchmarks, the same logic applies for Dr. Ford's benchmarks as they exhibit more differences with PSS than does SDARS.[61]

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[57] Ibid. at 2866:22–2867:6.

[58] [redacted] Del Beccaro Direct Testimony at 28.

[59] "Determination of Rates and Terms for Preexisting Subscription Services and Satellite Digital Audio Radio Services," (Jan. 24, 2008) 73 FR [hereinafter SDARS I Final Rule] at 4089.

[60] Dr. Ordover submitted a rebuttal testimony on the 2006 SDARS proceeding. See PSS Trial Ex. 11 at 2-3.

[61] Dr. Ford repeatedly affirmed the "big differences" between his collection of benchmark services and the PSS. See Ford Hearing Testimony at 2817:11–2818:12.

(64) Similarly, Dr. Ford ignores the precedent set in the only previous proceeding to determine sound recording performance rights for PSS. In the 1996 PSS proceeding, the Librarian of Congress relied on musical composition performance rights as a benchmark to set reasonable royalties for the sound recording performance rights.[62] The Librarian's benchmarking decision was later upheld on appeal by the D.C. Circuit Court.[63]

## II.E. Ford's factual and economic errors invalidate his conclusions

(65) In addition to failing to offer an analytical framework and selecting an inappropriate benchmark, Dr. Ford makes a number of additional errors that invalidate his proposed range of reasonable benchmark royalties for sound recording performance rights in PSS.

### II.E.1. Ford relied on an unscientific sample of licenses

(66) Dr. Ford bases his opinions on a selection of 46 licenses of sound recording rights for various digital music services that was provided to him by counsel for SoundExchange.[64] He examined these contracts and "was unable to find any contract that matched closely the peculiar nature of the PSS's business."[65] Remarkably, Dr. Ford then concludes that by examining a collection of such contracts, none of which is comparable to PSS, he can nonetheless use these contracts to establish a zone of reasonableness for PSS. He effectively chooses the lowest royalty rate among these contracts as his reference. Obviously, this is equivalent to choosing that single contract as the benchmark. But Dr. Ford has already established that this particular contract, like all the others in his collection, is not suitable to be a benchmark for PSS.

(67) If the collection of contracts examined by Dr. Ford had included other contracts with lower rates, he would presumably have found an even wider zone of reasonableness. In fact, Dr. Ford was not shown all the contracts pertaining to licenses of sound recording rights for digital music services that have been produced in discovery in this case. I am aware of 26 additional licenses produced in discovery that have royalty rates lower than those in the 46 contracts that Dr. Ford relied on.[66] [redacted] These contracts are for a wide variety of services that, like those in the selective collection shown to Dr. Ford, are also not comparable to PSS. Presumably if Dr.

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[62] PSS I Final Rule at 25409–10.

[63] *Recording Industry Association of America v. Librarian of Congress*, 176 F.3d 528, 336 (U.S.App.DC May 21, 1999).

[64] Dr. Ford co-opts Dr. Ordover's analysis of a set of contracts provided by SoundExchange counsel. Ford Hearing Testimony at 2815:21–2816:3, 2871:7–11. See Ordover Direct Testimony at Appendix II, for a list of the contracts examined by Dr. Ordover.

[65] Ford Direct Testimony at 13.

[66] See Appendix A-1 for a list of these contracts.

Ford had been shown all the available contracts he would have concluded that his zone of reasonableness analysis is not workable because the zone includes any percentage royalty rate from [redacted] to 70%.

(68) Even this conclusion, the logical extension of Dr. Ford's analysis, would be incomplete, since even these much lower royalty rates still have not been adjusted to reflect important differences between the market for these services and PSS. As I have shown through my application of the Asymmetric Nash Bargaining Framework, the appropriate royalty rate for PSS is lower, and likely much lower, than the rate for interactive webcasters. While I haven't considered each of these services in detail, for the same reasons it is likely that they would be lower than the rates for these as well. It is apparent that Dr. Ford's approach, applied to all the available contracts, yields no useful insights whatsoever. According to his approach, based as it is on an examination of non-comparable licenses, any royalty rate whatsoever might be "reasonable."

### II.E.2. Revenue differences cannot replace a proper benchmark analysis

(69) Dr. Ford acknowledges that under a traditional benchmarking analysis, one would ideally find a benchmark such that "buyers, sellers, and rights in the benchmark market would be identical to the [PSS] market..."[67] He goes on, "in instances where the nature of the transaction in the benchmark market differs from that in the hypothetical target market [PSS], modifications and adjustments are applied to render a more suitable rate."[68] Yet in spite of the fact that Dr. Ford "was unable to find any contract that matched closely the peculiar nature of the PSS's business,"[69] he made no adjustments at all when calculating his "zone of reasonableness."

(70) While Dr. Ford never adequately justifies this unorthodox methodology, he asserts that applying a revenue-based royalty permits the use of non-comparable, unadjusted benchmarks because a "revenue-based rate scales the royalty payment to the revenues of the copyright user, and these revenues are determined by the value of the service offered to the consumers."[70] This assertion is wrong. The use of revenue based rates cannot repair an analysis based on non-comparable benchmarks, nor does it obviate the need to adjust even the most closely comparable benchmark to reflect any and all remaining differences between the markets.

(71) Even Dr. Ford's assertion that revenues are determined by the value of the service offered to consumers is not correct. The value consumers place on a product is not the only factor influencing a firm's revenues. For example, the number and characteristics of alternative sellers strongly affect

[67] Ford Direct Testimony at 12.

[68] Ibid.

[69] Ibid. at 13.

[70] Ibid. at 14.

revenues, even for products that generate similar consumer value. Furthermore, many additional factors other than consumer value influence what royalty would be negotiated in an arm's-length transaction.

(72) For example, differences in cost structure between the PSS and the candidate benchmark services could result in highly different outcomes under hypothetical negotiations with the same rights seller. All else equal, a high cost buyer would be willing and able to pay far less than a low cost buyer for the same right. If the buyers were seeking exclusive rights, the low cost buyer would obtain the rights at a higher royalty than the high cost buyer would (or could) be willing to pay. If they do not compete with one another, then the seller could offer both buyers a license, with the high cost buyer paying a lower royalty rate.

(73) Perhaps the most important illustration of the absurdity of applying the same percentage rates for non-comparable services is to consider services that promote the sales of music compared with services that compete with the labels for music sales. In arm's length negotiations, services like PSS that promote the sales of CDs and other related products would be predicted to pay far less in percentage royalties than services that compete with labels for the sales of music. This difference was evident in my direct testimony as well as in the simple examples illustrated by Figures 2 and 3 above.

## II.E.3. Ford's claim that PSS royalties should be raised to capture cable revenues is wrong

### II.E.3.a. Negotiations between Music Choice and cable companies are at arm's length

(74) In his direct written testimony Dr. Ford offers the unsubstantiated speculation of a "possibility that the deals struck between Music Choice and much of the cable industry did not arise in arm's length negotiations."[71] He repeats this innuendo in his hearing testimony.[72]

(75) Dr. Ford offered no evidence or other empirical analysis to support this assertion in his written direct testimony. Even after discovery, he did not supplement his report with any evidence or analysis in his hearing testimony. It appears that his opinion is not that he believes that such an improper diversion of revenue is actually occurring, but rather his opinion is merely that there is a "possibility" that Music Choice "may be able to strategically shift revenues to affiliated firms or to uses that are outside the scope of the statutory license, thereby minimizing the royalty liability."[73]

(76) The record contains direct evidence contradicting Dr. Ford's opinion, and confirming that the negotiations between Music Choice and the cable companies are in fact arm's-length market

[71] Ibid. at footnote 23.

[72] Ford Hearing Testimony at 2840:6–2846:9.

[73] Ford Direct Testimony at footnote 23.

transactions. Mr. Del Beccaro stated in his hearing testimony that the negotiations between Music Choice and its cable partners are long, difficult, arm's-length negotiations.[74] He also testified that per-subscriber rates are primarily driven by the size of each MVPD's subscriber base, and that affiliates of similar size pay similar rates, irrespective of whether they are partners or non-partners.[75] Moreover, the financial statements of Music Choice and its partner owners are audited, and Dr. Ford admitted in his hearing testimony that he found no evidence in these financial reports of the accounting improprieties that he alleges.[76] It is unlikely that Music Choice's other owners, which I understand own about two-thirds of Music Choice and include companies that also own record labels, would allow their own interests to be compromised in this way by minority shareholders.[77]

(77) In a previous proceeding, SoundExchange's own expert, Dr. Janusz Ordover, provided a more plausible alternative explanation for the relatively low revenues collected by Music Choice, namely that the demand for PSS service is weak and declining. Customers of the cable companies are not willing to pay much at all for this service, and accordingly the cable companies are not willing to pay much to Music Choice for the carriage of these music channels.[78]

#### II.E.3.b. Retail revenues are not an appropriate royalty base for performance rights

(78) Dr. Ford makes several other mistakes in his analysis of the negotiation between the cable companies and Music Choice. He observes that a portion of the value of the music performance rights may be captured by other participants in the supply chain, including cable operators and ultimately consumers. This observation is trivially true, and it holds for every supply chain, for every product, and for every input, whether it is a physical input or an intellectual property right.

(79) However, Dr. Ford then draws an incorrect conclusion from this observation. Just because an input makes possible the creation of profits for all the other participants in the supply chain does not mean that royalties should be increased to somehow capture these profits. For example, a farmer creates value by raising wheat, and that value enables the profits of the grain elevator, the miller, the baker, and the grocer. All of that profit, plus the surplus enjoyed by the consumer, derives ultimately from the value the consumer places on bread. This observation does not mean that the payment to the farmer needs to be inflated to account for the profits of others in the supply chain.

(80) The same analogy applies to a patent holder, whose royalties reflect a portion of the value of the end product sold to consumers, but whose royalties nonetheless are generated by what can be obtained in a negotiation with a manufacturer. The same applies for the PSS royalty – it should reflect a portion

[74] Hearing Testimony of David Del Beccaro, Docket No. 2011-1 CRB PSS/Satellite II (Jun. 11, 2012) at 1455:1–1456:7.

[75] Del Beccaro Hearing Testimony at 2145:2– 21.

[76] Ford Hearing Testimony at 2925:2–9.

[77] Del Beccaro Direct Testimony at 2.

[78] PSS Trial Ex. 11, Rebuttal Testimony of Janusz Ordover in the 2006 PSS proceeding at 6–7.

of the profits that can be obtained by the PSS in the negotiation with the cable companies. The fact that the cable companies may also obtain profits when they bundle and sell their products to consumers is irrelevant and does not imply that upstream PSS royalties need to be inflated. The profit to be split between an input provider (like a record company) and an intermediate output provider (like Music Choice) is only that profit that Music Choice can obtain in arm's length negotiations with cable operators.

(81) This view on the inapplicability of the retail market on royalties paid by an intermediate goods provider was echoed by expert Dr. Roger Noll and affirmed by the U.S. Court of Appeals in the recent application by ASCAP to determine reasonable license fees for public performances of music works embodied in the services provided by MobiTV to wireless communications carriers.[79] MobiTV's supply chain is similar to that of Music Choice in that consumers do not obtain the service directly from MobiTV, but rather from their wireless carrier along with other services, just as consumers obtain access to Music Choice from their cable operator bundled with cable TV channels. ASCAP proposed using retail revenues as the base against which to establish a reasonable royalty, while MobiTV proposed using its own (wholesale) revenues. Dr. Noll, on behalf of MobiTV, convincingly argued against using retail revenues. He concluded that, despite the value of the rights in question being determined in the retail market in which final goods are sold to consumers, "this … is not a useful guide for determining the most appropriate revenue base for calculating ASCAP royalties."[80] He further argued that using retail revenues is undesirable as retail prices embody the value of inputs other than the performance rights at issue and that final products are often sold in bundles, complicating the calculation of the contribution of those rights relative to the contribution of the other components of the bundle.[81] Both of these arguments equally well apply to the PSS market.

(82) The United States Court of Appeals, Second Circuit denied ASCAP's appeal in that case, which contended that the District Court's rate formulation should have been based on the retail revenues received by the wireless carriers from sales to their customers, rather than the content providers' wholesale revenues paid by MobiTV. The Second Circuit "confirm[ed] the wisdom of the District Court's decision to reject the use of a retail base …" The Second Circuit cited Dr. Noll's economic analysis, described above, extensively in its decision.[82]

(83) Moreover, if royalties were increased to attempt to capture these cable profits, there is no evidence that this increase in costs could be passed along to the cable operators. On the contrary, the testimony in this case reveals that a substantial increase in royalties, such as that proposed by Sound Exchange,

[79] *American Society of Composers, Authors and Publishers v. MobiTV*, Nos. 10-3161 and 10-3310, 2012 WL 1844414 (2d Cir. May 22, 2012) at 6.

[80] Declaration of Roger Noll, *In re Application of MobiTV*, No. 09-7071 and *United States v. American Society of Composers, Authors and Publishers*, No. 41-1395 (S.D.N.Y. Mar. 10, 2010) at 11.

[81] Ibid. at 13.

[82] 2012 WL 1844414 (2d Cir. May 22, 2012) at 8.

would not result in compensating higher payments from cable companies but rather it would simply result in the exit of Music Choice from the PSS business.[83]

# III. Ford fails to adequately account for the statutory factors

(84) As established in previous proceedings, a reasonable royalty rate for sound recording performance rights in PSS must be calculated to take into account the four 801(b)(1) policy objectives:[84]

1. To maximize the availability of creative works to the public;
2. To afford the copyright owner a fair return for his creative work and the copyright user a fair income under existing economic conditions;
3. To reflect the relative roles of the copyright owner and the copyright user in the product made available to the public with respect to relative creative contribution, technological contribution, capital investment, cost, risk, and contribution to the opening of new markets for creative expression and media for their communication; and
4. To minimize any disruptive impact on the structure of the industries involved and on generally prevailing industry practices.[85]

(85) As described in Section II.A above, Dr. Ford compounds his mistake of choosing an inappropriate benchmark by failing to make any adjustment downwards to his benchmark rate of 43% after considering these policy objectives. I disagree with Dr. Ford's assessments and will address each objective below. Before doing so, however, I rebut Dr. Ford's equating of market-based rates with rates that satisfy the policy factors and demonstrate the impact of SoundExchange's proposed royalty rates on pro-forma financial returns to Music Choice's residential music business.

## III.A. Ford incorrectly concludes that market rates incorporate 801(b)(1) factors

(86) Dr. Ford argues that no adjustment is necessary to account for the statutory objectives regarding availability of creative works and fair income/fair return because a benchmark that reflects marketplace rates already accounts for these objectives.[86] This is incorrect on two counts, one economic and one institutional.

[83] Del Beccaro Rebuttal at 16.

[84] SDARS I CRJ Report at 7.

[85] 17 U.S.C. 801(b)(1)

[86] Ford Direct Testimony at 19, 20.

(87) From an economic perspective, while it is usually the case that competitive markets yield outcomes that enhance public welfare, there is no reason to expect that competitive markets necessarily yield outcomes that reflect the 801(b)(1) factors. Moreover, there are exceptions to the rule that competitive markets tend to maximize public welfare. Such exceptions are called market failures and come in many forms. One form relevant to this proceeding arises when there are fixed costs to producing a product. It may be the case that the total public benefits from producing the product (in the form of consumer benefits and profits to the firm that provides it) exceed the fixed costs of producing it, but the private returns from producing the product (in profits alone) are less than the fixed costs.[87] In such settings, public policy goals can be achieved by putting in place rules that encourage the product's production.

(88) Consider the implications of this well-known result on Dr. Ford's argument that "marketplace agreements… presumably reflect the balance of supply-side and demand-side considerations [and] as such, the [maximize availability of creative works] policy objective provides a sound basis for … raising the royalty rate presently paid by the PSS to a level more consistent with a market outcome."[88] As a matter of economic logic, there is nothing that ensures marketplace outcomes provide the "right" amount of creative works. Indeed, academic research in media markets generally demonstrates that they can provide too much or too little content.[89] I argue below that the asymmetry in the consequences of royalty rates on record labels versus PSS providers strongly suggest that *lower* royalty rates will further this statutory objective. My point here is that there are strong economic reasons for policy objectives to yield policy outcomes that differ from market outcomes.

(89) I understand that the legislative history associated with the Digital Performance Right in Sound Recordings Act of 1995 (DPRA) established both the compulsory license and the policy factors governing this proceeding to protect the few digital music services then in operation, including Music Choice. I further understand the legislative history associated with the Digital Millenium Copyright Act of 1998 (DMCA) that established the PSS designation under which the current rates are being determined confirmed this intention.

(90) Previous PSS proceedings have confirmed that reasonable rates under these policy factors are not marketplace rates. In the original PSS proceeding, the Copyright Arbitration Royalty Panel and later the Librarian of Congress concluded that a reasonable royalty rate need not comport with marketplace rates and indeed should be *strictly lower* than marketplace rates to account for the 801(b)(1)

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[87] For example, see Dennis Carlton and Jeffrey Perloff, "Fixed Costs Lead to Too Little Variety", *Modern Industrial Organization* (Boston: Addison Wesley, 2005) at 216–8.

[88] Ford Direct Testimony at 19.

[89] Simon Anderson and Stephen Coate, "Market Provision of Broadcasting: A Welfare Analysis," *Review of Economic Studies* 72 (2005): 947–72.

objectives.[90] When the Librarian's decision went to the D.C. Court of Appeals, the Court again found that the PSS royalty rate need not be the same as a marketplace rate and that marketplace rates are not necessarily "reasonable."[91] Furthermore, this conclusion has not been limited to the application of the policy factors for digital performance rights: the D.C. Court of Appeals reached the same conclusions in its decision for the Section 115 mechanical license which also falls under the 801(b)(1) policy objectives.[92]

(91) These arguments establish that marketplace rates *need not* advance the 801(b)(1) policy factors. That is not to say that marketplace rates *could not* do so. I rebut Dr. Ford's arguments that they do after demonstrating the effect SoundExchange's proposed royalty rates would have on the financial return from operations of Music Choice's residential music business.

## III.B. Music Choice would be highly unprofitable under the royalty proposed by SoundExchange

(92) In order to assess whether Dr. Ford and SoundExchange's proposed royalty rates advance the 801(b)(1) statutory factors, I conducted two, related, pro-forma analyses of Music Choice's financial results.[93] The results of these financial analyses underpin my later rebuttal of Dr. Ford's analysis of the statutory factors and so I introduce them here.

(93) First, I asked Music Choice to provide me with estimates of the effect implementing SoundExchange's long-run royalty rate of 45% would have had on the financial performance of its residential music business between 2008 and 2011. Second, I asked Music Choice for estimates of the financial performance of their residential music business for 2012-2017 under the phased-in royalties actually proposed by SoundExchange.

(94) For the second analysis, I asked Music Choice to provide me with financial forecasts based on three scenarios: a "best case" scenario with no loss of cable operator customers going forward, as well as two "downside" scenarios that [redacted]

[90] "[The Copyright Arbitration Royalty Panel] noted that the statue requires the Panel to adopt reasonable rates and terms, and that reasonable rates and terms are not synonymous with marketplace rates. Unlike a marketplace rate which represents the negotiated price a willing buyer will pay a willing seller, reasonable rates are determined based on policy considerations...the Register finds that the Panel correctly analyzed how to determine a reasonable rate under section 114." See PSS I Final Rule at 25399–400.

[91] "RIAA's claim that the statue clearly *requires* the use of 'market rates' is simply wrong...Moreover, there is no reason to think that the two terms are coterminous, for it is obvious that a 'market rate' may not be 'reasonable,' and vice versa." See *Recording Industry Association of America v. Librarian of Congress*, 176 F.3d 528, 336 (U.S.App.D.C. May 21, 1999) at 5.

[92] *Recording Industry Association of America v. Copyright Royalty Tribunal*, 662 F.2d 1, 213 (U.S.App.D.C. Aug. 27, 1981) at 12.

[93] A pro-forma analysis can provide a reasonable basis to assess the impact of specific changes on a company's financial statements such as those created by an increase in royalties.

[redacted] The details of these scenarios are provided in Music Choice CEO David Del Beccaro's written rebuttal testimony.[94]

### III.B.1. Music Choice would have been highly unprofitable from 2008 to 2011 under the long-run royalty proposed by SoundExchange

(95) In this section, I examine the impact on Music Choice of SoundExchange's 45% royalty rate during the period 2008–2011. I do so for two reasons. First, this allows me to examine the impact of the increased royalty on actual financial results, rather than prospective forecasts. Second, this allows me to compare their impact on Music Choice's financial results with their impact on financial results of a typical record company (here Universal Music Group) in the same period.[95] In both cases the analysis is intended to complement the analysis of Music Choice's forecasted future performance in the next sub-section.

(96) Appendix B-1 reports Music Choice's financial performance for its residential music business from 2008 to 2011. Music Choice's actual operating profits in its residential music business [redacted][96] These [redacted] were calculated using the prevailing royalty rates of 7.25% for 2008–2011 as these were the royalties actually paid to SoundExchange in that period.

(97) To illustrate the impact on Music Choice of operating at Sound Exchange's proposed long-run royalty rate of 45%, I asked Music Choice to calculate pro-forma estimates of the income from the operations of their residential music service business if it had operated under this higher royalty rate from 2008–2011. The results of this analysis are presented in Appendix B.2. If Sound Exchange's proposed (ultimate) rate of 45% had been in place throughout this period, Music Choice would have [redacted]. This exercise illustrates that Music Choice's residential music business would not have been viable in the past under a 45% royalty rate. Analysis explored in the next section demonstrates that Music Choice's residential music business will also not be viable in the future under that proposed royalty rate.

### III.B.2. Music Choice will be highly unprofitable going forward under the phased-in royalty proposed by SoundExchange

(98) While this historical analysis is informative, and has the advantage of relying on actual results rather than prospective forecasts, SoundExchange's proposal only applies to future years of Music Choice's

[94] Del Beccaro Rebuttal at 14–5.

[95] I do this comparison in Section III.C.2 below.

[96] See Appendix B–1. These figures are taken from data provided in Exhibit MC 24.

operations, and it phases in the royalty to its maximum of 45% over six years. A similar pro-forma analysis can be applied to Music Choice's business forecasts to demonstrate the impact of SoundExchange's proposed royalty increase on Music Choice's future profitability. I do so in this section.

(99) It is my understanding that SoundExchange has proposed to phase the PSS royalty rate to be the current rate (7.5%) in 2012, followed by rates of 15% in 2013, 20% in 2014, 25% in 2015, 35% in 2016, and 45% in 2017. To assess the impact of these royalty rates on Music Choice's future operating results, I have asked Music Choice to provide me with forecasts of future revenues and costs associated with its residential music business. It is my understanding that these forecasts, which cover 2012 to 2107, were prepared with the same data and assumptions used during regular course of business for financial planning purposes by Music Choice. Music Choice budgets are prepared with a five year outlook and are generally prepared on an annual basis based on projections of revenue and costs for the residential music business and the commercial business during the forecasted period. The forecasts are subsequently presented to its Board of Directors for approval and are relied upon by Music Choice to gauge actual performance against the revenue targets and cost management budgets. As discussed above, they replicate the forecasts provided by Mr. Del Beccaro in his written rebuttal testimony.[97] Therefore, I present the impact of the proposed royalty rates on these forecasts prepared by Music Choice.

(100) Appendix B-3 presents an income statement summary between 1996 and 2017 for Music Choice's residential music business for the "best case" revenue forecast, while Appendices B.4 and B.5 present similar summaries under the two "downside" scenarios discussed in Mr. Del Beccaro's testimony. In each scenario, financial results for 1996–2011 represent Music Choice's actual financial results for their residential music business, while those for 2012–2017 represent forecast ("budgeted") results. The only differences between Appendices B–3, B–4, and B–5 are in the amount of audio revenue received and thus the rights costs paid to copyright owners of musical works and sound recordings associated with that revenue.

(101) Focus for the moment on the results in the "best case" scenario presented in Appendix B.3. In this scenario, Music Choice forecasts keeping all its major cable customers. [redacted]

[97] Del Beccaro Rebuttal at 14–5; also see Exhibit MC 71.

(102) If the residential music service market share declines, as anticipated in Music Choice's alternative downside financial planning scenarios, the situation becomes even more bleak. These scenarios, which are presented in Appendixes B-5 and B-6, model the impact of the SoundExchange proposal in conjunction with a potential loss of subscribers. In "Downside scenario 1," [redacted][98]

(103) Based on this analysis, I conclude that under the royalty rates proposed by SoundExchange, Music Choice would likely to exit the residential cable music market entirely. This is consistent with the rebuttal testimony of Mr. Del Beccaro. He testifies that there is no way that Music Choice could continue operations if it were forced to endure the losses that the SoundExchange proposal would entail.[99]

(104) I now consider the implications of this conclusion on the application of the statutory factors for setting a reasonable rate for digital performance rights for PSS. For convenience, I begin with the last statutory factor.

## III.C. SoundExchange's proposed royalty would disrupt the market and force Music Choice to exit

(105) The fourth 801(b)(1) factor states that a reasonable royalty should "minimize any disruptive impact on the structure of the industries involved and on generally prevailing industry practices".

(106) Dr. Ford concludes that SoundExchange's proposed rate of 45% addresses these concerns by being favorable relative to (his measures of) marketplace standards, being revenue-based and thus familiar and consistent with existing industry practices, and being phased-in, thus attenuating the effect of the significant increase in proposed royalties. Each of these arguments is vacuous.

(107) Dr. Ford argues that because 45% is lower than royalty rates paid by some other entities that are not at all similar to Music Choice, that somehow the proposal cannot be disruptive.[100] That argument is not logically sound. In my analysis of the likely effect of a 45% royalty on Music Choice's financial performance, I conclude that they would likely exit the residential music business. As Music Choice is the only significant PSS provider in the market, this would clearly disrupt the PSS market.

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[98] See Appendix B–4 and Appendix B–5.

[99] Del Beccaro Rebuttal at 16.

[100] Ford Direct Testimony at 22.

Furthermore, I argue below that there is no sound evidence that another viable long-run provider of residential cable music services could step in should Music Choice cease offering residential music services and that it would therefore disrupt the cable music industry as well.

(108) Dr. Ford also argues that because the percentage-of-revenue royalty structure is familiar to the industry, it is not disruptive. The problem, of course, is that the proposed royalty is not disruptive because of its structure, but rather because of its exceedingly high royalty rate.

(109) Finally, Dr. Ford offers the opinion that the phasing-in of SoundExchange's requested royalty increase over five years would somehow mitigate the disruptive impact of these increases.[101] He cites no evidence and conducts no analysis to support this notion. Clearly this too is wrong. I showed above that even under the phased-in royalties, Music Choice would likely lose money immediately, and would certainly be expected to face residential music service losses [redacted] by the end of the phase-in. Facing this prospect, it is my opinion that Music Choice would likely exit, as Mr. Del Beccaro corroborates.[102] The exit of the last of the original PSS players, effectively eliminating an entire segment of the music business, would seem to me to be exactly the type of disruption to the industry that the statute contemplated and sought to avoid.

### III.C.1. Ford's claim that other providers could and would replace Music Choice is unsubstantiated and incorrect

(110) Dr. Ford's final argument that SoundExchange's proposed royalty would not be disruptive is that other firms would replace the services offered by Music Choice once Music Choice has been driven out of the market.[103] Dr. Ford offers no analysis or evidence to support this assertion. In his report, he implies that he is referring to existing companies, but he does not name them. In response to a question from Judge Wisniewski during his oral testimony, he clarified that the only service to which he referred is Sonic Tap. Sonic Tap is the name of the residential audio service provided by the new DMX through the DirecTV satellite television service. I understand that DMX was purchased by the Canadian firm, Mood Media, in March, 2012.[104]

(111) Mr. Del Beccaro discusses at length each of the most notable candidate competitors to Music Choice, including DMX, Muzak, Sirius/XM, MTV's URGE Radio, Pandora Radio, and Galaxie, and explains why each is unlikely to enter the market and would be unable to do so quickly even it was to make the attempt.[105] I briefly analyze the idiosyncratic market position of each of these would-be competitors

[101] Ibid.

[102] Del Beccaro Rebuttal at 16.

[103] Ford Direct Testimony at 22–3.

[104] "Mood Media Corporation Announces Acquisition of DMX," (Mar. 19, 2012) http://www.moodmedia.com/2012/03/19/mood-media-corporation-announces-acquisition-of-dmx/. Throughout this report I will use 'DMX' to refer to all of DMS' operations, including Sonic Tap.

[105] Del Beccaro Rebuttal at 17–20.

and assess the likelihood that each would choose to enter the residential cable radio market in the event Music Choice exited. I then explore the challenges facing *any* such potential entrant.

(112) Like DMX, Muzak also focuses on providing commercial background music and also was recently purchased by Mood Media.[106] I understand both Muzak and DMX contracted with Dish Network and DirecTV, respectively, for the satellite delivery of their commercial background music service and provided residential audio channels as an ancillary service.[107] It is not clear what Mood Media intends to do with these businesses, but as its primary line of business is also "in-store media,"[108] it seems unlikely they would be interested in expanding into the residential cable music business.

(113) Sirius/XM provided the same audio channels they offer as a satellite radio service on DirecTV before being replaced by DMX in 2010. I understand that Sirius/XM's strategy on DirecTV was to focus on promotion of their other services.[109] After withdrawing its service from DirecTV, Sirius/XM is now on Dish Network with a similar promotional focus.[110] To my knowledge, Sirius/XM has not made any serious attempt to expand into the broader cable market, and they too seem unlikely to serve as a replacement for Music Choice.[111] MTV's URGE Radio entered the market in 2007 before exiting in 2010 and are unlikely to return. I understand Pandora Media, provider of Pandora Radio, has tried to enter the cable music business, but has not been successful to date.

(114) Finally, Galaxie is a provider of cable music service owned by Stingray digital group, a Canadian company, and has focused on "Canadian musical tastes."[112] I understand they have recently signed affiliation agreements with several small U.S. cable operators. Even if Galaxie has ambitions for further entry into the US market, further analysis of their specific situation suggests it will not be profitable form them to do so.

(115) An important challenge facing Galaxie in the residential U.S. cable music market is the necessity to pay so-called CABSAT royalties to SoundExchange. Notably, the CABSAT rates were set by the settlement of a rate proceeding entered into by Sirius XM (which only operates its CABSAT service on one affiliate, purely as a promotional tool) and SoundExchange.[113] The CABSAT royalty payments to SoundExchange from existing CABSAT providers, shown in Appendix C, demonstrate several important points that are relevant to the question of whether Galaxie or any other CABSAT

[106] "Mood Media to Acquire Muzak for US $345 Million," (Mar. 24, 2011), http://www.moodmedia.com/2011/03/24/mood-media-to-acquire-muzak-for-us345-million/.

[107] Del Beccaro Rebuttal at 17, 19.

[108] http://www.moodmedia.com/about/.

[109] Hearing Testimony of David Frear, Docket No. 2011-1 CRB PSS/Satellite II (Jun. 7, 2012) at 666:12–7.

[110] Ibid.

[111] Del Beccaro Rebuttal at 19.

[112] http://www.galaxie.ca/en_CA/about.

[113] "Digital Performance Right in Sound Recordings and Ephemeral Recordings for a New Subscription Service," Docket No. 2009–2 CRB New Subscription II (Mar. 24, 2010) 75 FR 14074–6.

service would have the incentive and ability to enter the market, either in competition with Music Choice or after Music choice exits. The CABSAT providers typically pay royalties on a "greater of" per-subscriber, minimum payment, or percentage-of-revenue royalty. [redacted]

(116) [redacted][114] Obviously, this cannot be a sustainable business model. The explanation for this unlikely situation is that DMX is primarily in the commercial background music business and agreed to give DirecTV its residential audio channels at extremely favorable (to DirecTV) rates in partial compensation for distribution of its commercial service.[115] Given its inability to command prices on its residential services sufficient to even cover its royalties, it seems extremely unlikely that DMX would seek to expand in this market.

(117) Similarly, Galaxie is paying CABSAT royalties equal to [redacted] of revenues, in spite of the fact that it has only a few small US affiliates. Since small affiliates pay more than large affiliates, these are the most lucrative deals. Yet even for these most profitable affiliates, Galaxie is paying [redacted] that it is unlikely to be able to make a profit even on these contracts. Galaxie would be even less likely to expand into the larger business currently served by Music Choice, as that would yield lower prices and likely generate large incremental losses. Moreover, Galaxie would have to substantially increase its expenditures on complementary video services to expand significantly in the US, further reducing its profits (or increasing its incremental losses) and further reducing the chance that it would choose to do so.[116]

(118) There is no evidence that any of these providers could step into the void created by the exit of Music Choice should it be forced to leave the residential music market. Of all the providers offering cable music service since the industry's inception in the United States over 20 years ago, only Music Choice has survived.

(119) To reinforce this point, it is useful to analyze the economics of potential entry by any firm in the residential music service business. In evaluating whether or not potential entry can be counted upon to offset the potential competitive concerns about a merger, the US Department of Justice considers three conditions, all of which must be satisfied. These conditions are timeliness, likelihood, and sufficiency.[117] Although the context of avoiding consumer harm resulting from the exit of Music Choice is different than avoiding consumer harm from a merger, the insights from the experience of the Department of Justice with respect to mergers can nonetheless provide useful guidance to evaluate

[114] See Appendix C–1.

[115] Del Beccaro Rebuttal at 19.

[116] Ibid. at 20.

[117] U.S. Department of Justice and the Federal Trade Commission, "Horizontal Merger Guidelines" (Aug. 19, 2010) at 27–9.

whether potential new entry into the cable music business after Music Choice is driven from the market can mitigate the effects of its exit.

(120) The DOJ explains that timeliness requires that "entrants in the relevant market be rapid enough that customers are not significantly harmed…"[118] No other provider listed above currently offers the full complement of audio and video services provided by Music Choice necessary to compete in the residential music service business and would likely have to create them, an expensive and time-consuming proposition. A replacement provider would have to invest in a residential video business and obtain royalty agreements with copyright owners to offer those services, a costly and time-consuming process. A replacement provider would need to hire a sales force and seek to secure affiliation agreements with a large number of cable operators. A replacement provider would need to negotiate those agreements, negotiations that can often take months if not years. All of these investments would take time, violating the timeliness criterion.

(121) Creating these capabilities would also entail significant development and rights acquisition costs as well as significant delays for such development and rights acquisition efforts and could hardly be expected to be repaid at royalty rates that would cause Music Choice to exit the business. According to the merger guidelines, "entry is likely if it would be profitable, accounting for the assets, capabilities, and capital needed and the risks involved…"[119] Under this criterion, it seems that entry is highly unlikely given that the only previously remaining competitor, Music Choice, will have been driven out of this market because of its low profitability. There is no indication that any prospective entrant would be more profitable in this business than Music Choice is currently.[120]

(122) "Even where timely and likely, entry may not be sufficient to deter or counteract the competitive effects of concern."[121] Even if an entrant were willing to venture into a portion of the unprofitable space vacated by Music Choice, that is not enough to offset the disruption to some cable music customers, unless the entrant were able to move immediately to serve all cable markets currently served by Music Choice. Given the likely unprofitability of prospective entrants, even one willing to test the waters would seem unlikely to be willing and able to replace Music Choice everywhere.

(123) Taken as a whole, neither the economics of entry into the residential cable music business nor the specific positions of potential entrants suggest entry to replace Music Choice should it exit would be timely, likely, or sufficient. The resulting disruption caused by Music Choice's exit would therefore be significant and any supposition that it might be mitigated by potential entrants is pure speculation.

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[118] Ibid.

[119] Ibid.

[120] Furthermore, there is no evidence that Music Choice is a poorly run organization and that any replacement would be able to operate more efficiently.

[121] U.S. Department of Justice and the Federal Trade Commission, "Horizontal Merger Guidelines" (Aug. 19, 2010) at 27–9.

### III.C.2. PSS royalty rate would have no disruptive impact on record label profits

(124) While SoundExchange's proposed royalty would cause significant disruption to the residential cable music industry, there is no proposed royalty that would cause less disruption on the music labels' business. This is because PSS royalty revenues are a tiny fraction of music labels' overall revenues and therefore have a minimal effect on the production of sound recordings. I estimate that PSS royalty revenues amount to only [redacted] of the gross revenue for Universal Music Group for 2011, which I take as typical of the music labels.[122] I understand that the Librarian of Congress found that the trivial portion (less than 1%) of record industry gross revenues represented by PSS royalty payments, even at the 41.5% rate proposed by RIAA in that proceeding, indicated that the fourth 801(b)(1) factor, market disruption, favored setting a rate at the low end of the range of reasonable rates.[123]

(125) [redacted]

(126) PSS royalties are also a trivial fraction of SoundExchange collections. [redacted][125] This is consistent with similar calculations for individual record labels. The overall 2011 gross revenue earned by UMG in the US was [redacted].[126] During the same year, UMG earned operating profits (earnings before income and taxes –EBIT) of [redacted].[127] I estimated the impact that SoundExchange's proposed royalty of 45% would have on the revenues and profits of UMG by determining what would have been the effect on revenues and profits if the 45% royalty had been in place in 2011. I estimate that UMG's revenues would increase by [redacted] in aggregate. [128] This impact on revenues is too small to even be noticed, much less cause a disruption, in the record labels' business. This observation is confirmed by executives at UMG. Mr. Ciongoli

[122] The calculation of the percentage of PSS revenue in UMG's gross revenue is presented in Appendix B–7.

[123] PSS I Final Rule at 25408.

[124] See SX02 00020175 and SX02 00020074.

[125] See Appendix B–6. SoundExchange payments to record companies, 2007–2011 (SX02 00020175).

[126] SX02 00025917–9, Universal Music Group 2005–2011 P&L U.S. Music. Gross revenues are calculated by taking total net sales and adding back commercial discounts - on invoice, cash discounts and commercial discounts –off invoice.

[127] See Appendix B–7. [redacted] See SX02 00025917–9.

[128] Details of this calculation are provided in Appendix B–7.

admitted that PSS royalties are not a significant source of revenue for UMG[129] [redacted] [130]

## III.D. Higher royalties will likely reduce the availability of creative works

(127) The first 801(b)(1) factor states that a reasonable royalty should "maximize the availability of creative works to the public."

(128) Dr. Ford establishes that setting royalty rates to maximize creative works has opposing forces—a higher royalty rate encourages the creation of creative works, but discourages their dissemination. Dr. Ford goes on to argue that a market balances these forces and therefore no adjustment is necessary to deviate from a benchmark rate that is derived from marketplace negotiations.

(129) Unfortunately, Dr. Ford's argument neglects the reality that the consequences of a higher royalty are highly asymmetric. Since copyright royalty revenues from PSS are so small, any change in the royalty rate would have an immaterial impact on a record label's incentive to produce creative works. Conversely, a substantially higher royalty rate, such as that proposed by Dr. Ford, would likely drive Music Choice out of business and deprive the market of an important channel for music discovery and dissemination. That no firm could adequately replace them in this event means a reduction in the overall availability of creative works to the public.

(130) This is particularly true given the types of music played by Music Choice. As discussed in detail by Damon Williams, Music Choice is an important performance channel for artists typically ignored by commercial broadcast radio.[131] Because Music Choice plays music others don't play, their exit would be particularly damaging to those artists' availability to the public. In the long-run, fewer such artists would likely be signed and fewer such creative works produced.

### III.D.1. Under SoundExchange's proposal Music Choice will not earn a fair income

(131) The second 801(b)(1) factor states that a reasonable royalty should "afford the copyright owner a fair return for his creative work and the copyright user a fair income under existing economic conditions." Dr. Ford concludes that a market outcome would be fair.

[129] Ciongoli Deposition at 239:14-21.

[130] Ibid. at 282:11-18 and Hearing Testimony of Charles Ciongoli, Docket No. 2011-1 PSS/Satellite II (Jun. 14, 2012) at 2116:2–2117:13.

[131] Williams Direct Testimony at 23–4.

(132) Despite this, the financial analysis above demonstrates that the 45% royalty that Dr. Ford proposes would surely lead to the exit of Music Choice from the residential music business. It is hard to conceive of that as a fair outcome for Music Choice.

(133) Dr. Ford also argues that "the economic concept of fairness does not suggest rates should be set to guarantee a particular user's success." I agree with this claim, but counter it with the point that even granting my proposed range of royalties between 0.61% and 2.43% does not do so.[132] The financial analysis in my written direct testimony was based on the assumption that Music Choice's financial performance going forward was accurately estimated by using its historical financial results. Mr. Del Beccaro instead forecasts audio revenues that decline significantly. There is no guarantee that Music Choice's residential audio business will remain viable even at a 1 or 2 percent royalty rate. What is surely true is that it will be forced to exit at a 45 percent rate.

## III.E. SoundExchange's proposal does not reflect the relative contributions of PSS

(134) The third 801(b)(1) factor states that a reasonable royalty should "reflect the relative roles of the copyright owner and the copyright user in the product made available to the public" with respect to a large number of factors. Dr. Ford claims there is no evidence that PSS providers' relative contributions exceed those of providers of services he (incorrectly) considers to be benchmarks.

(135) This is not the appropriate comparison. While other markets may be considered to establish a marketplace benchmark for licensing for digital performance rights in the PSS market, the application of the statutory factors should focus exclusively on the relative contributions of the providers in the PSS market.

(136) Mr. Del Beccaro testified extensively on the differences in relative contributions of Music Choice relative to record labels in the PSS market and how those have only grown over time.[133] If anything, this factor also mitigates for reducing rates relative to the appropriate marketplace benchmark.

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[132] Crawford Direct Testimony at 49.

[133] Del Beccaro Direct Testimony at 28-44.

Pursuant to 28 U.S.C. § 1746, I, Gregory S. Crawford, Ph.D., declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed July 2, 2012

Gregory S. Crawford, Ph.D.

**CERTIFICATE OF SERVICE**

I, Martin Cunniff, do hereby certify that copies of the public version of ***Rebuttal Testimony of Gregory S. Crawford, Ph.D.*** was sent on July 2, 2012 by both Federal Express (with exhibits) and electronic mail (without exhibits), to the following:

| | |
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Martin Cunniff /mg

Martin Cunniff

# Appendix A. Other marketplace agreements

**Appendix A–1: Marketplace agreements with per-revenue rates below 43%**

| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
|---|---|---|---|---|
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
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# Appendix B. Profit analysis

**Appendix B–1: Income from Operations—Residential Music Service Business (2008–2011)**

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**Appendix B–2: Pro-forma impact on operating income if 45% royalty rate were applied 2008–2011—Residential Music Service Business**

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**Appendix B–3: Income from Operations—Residential Music Service Business (1996–2017) ("Best case scenario")**

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**Appendix B–4: Income from Operations—Residential Music Service Business (1996–2017) ("Downside scenario 1")**

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**Appendix B–5: Income from Operations—Residential Music Service Business (1996–2017) ("Downside scenario 2")**

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**Appendix B–6: Summary of SoundExchange payments to record companies**

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**Appendix B–7: Summary of impact on UMG gross sales assuming 45% PSS royalty**

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# Appendix C. CABSAT Royalties

**Appendix C–1: Royalty payments by CABSAT services as a percentage of revenue**

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# Appendix D. Dr. Crawford's curriculum vitae

## Education

Ph.D. in Economics, Stanford University, Stanford, CA, 1998
B.A., Economics (with Honors), University of Pennsylvania, Philadelphia, PA, 1991

## Professional Experience

### University of Warwick, Department of Economics

**Professor of Economics**, September 2008–present

Director of Research, September 2009-present

Courses taught: *Graduate*: Empirical Industrial Organization (MSc/PhD), Empirical Methods. *Undergraduate*: Introductory Econometrics (time series, limited dependent variables, panel data), Undergraduate Business Strategy.

### Centre for Economic Policy Research (CEPR)

**Research Fellow, Industrial Organization Programme**, February 2011–present

### Institute for Fiscal Studies (IFS)

**Research Fellow, Industrial Organization Programme**, February 2011–present

### Federal Communications Commission (FCC)

**Chief Economist**, September 2007–August 2008

Reported to the then-FCC Chairman, Kevin Martin. Primary responsibilities were to advise the Chairman and his staff regarding the economic issues facing the Commission, to formulate and implement desired policies, to communicate and discuss these policies with senior Commission staff, and to assist as needed the 40+ staff economists. Main workstreams focused on the cable and satellite industries, including bundling and tying in wholesale and retail cable and satellite television markets and the economic analysis of XM/Sirius satellite radio merger. Also consulted on spectrum auction design, net neutrality, access pricing, ownership rules, and various international policy issues. Previous to joining the Commission, wrote a sponsored study analyzing media ownership and its impact in television markets.

## University of Arizona, Department of Economics

**Associate Professor of Economics**, September 2008–August 2009 (on leave)
**Associate Professor of Economics**, September 2002–August 2008 (on leave, 2007–08)

Courses taught: *Graduate*: Empirical Industrial Organization (2nd-year PhD), Business Strategy (MBA) *Undergraduate*: Introductory Econometrics (cross-section).

## Duke University, Department of Economics

**Associate Professor of Economics**, September 1997–August 2002

Courses taught: Graduate: Empirical Industrial Organization (2nd-year PhD), Graduate Econometrics (1st-year PhD), Undergraduate: Introductory Econometrics (cross-section), Introductory Microeconomics, The Economics and Statistics of Sports.

## Other Academic Appointments

**Visiting Professor**, European School of Management and Technology, Berlin, Summer 2007
**Visiting Professor**, Fuqua School of Business, Duke University, 2000–2001

## Consulting Experience (Country)

**Evaluating "neighborhooding" of news channels on Comcast cable systems (US)**, 2011, lead expert – Designed and executed expert reports for complaint to FCC by Bloomberg (Television) L.P. (BTV) that Comcast was not fulfilling the neighborhooding conditions imposed during Comcast-NBCU merger (see below). Defined news neighborhoods and investigated incidence of carriage of BTV on such neighborhoods. Compared patterns to neighborhooding of sports channels on Comcast and news channels on other operators and analyzed Comcast channel changes over time.

**Evaluating switching costs in fixed voice telephony markets (UK)**, 2010–11, lead expert – Designed and executed reports for Office of Communication (Ofcom) evaluating the impact of automatically renewable ('rollover') contracts (ARCs) introduced by British Telecommunications (BT) in the UK fixed voice telephony market. Based on this analysis, Ofcom prohibited rollover contracts in all residential and small business fixed voice and broadband markets.

**Evaluating competitive harms (US)**, 2010 – Worked as consulting expert to design and execute economic and econometric analyses in support of client opposed to major media merger. Analysis included market definition and quantifying the potential harms of the merger, including refusal to carry (foreclosure).

**Analysis of advertising market regulations (UK)**, 2009-10, consulting expert – Advised project team on analysis of demand for advertising for the purpose of evaluating changes in regulation of advertising minutes on public-service broadcasters in the United Kingdom. Designed econometric model and supervised implementation and description of results. Report submitted to media regulator (Ofcom).

**Distribution of cable copyright royalties (US)**, 2009-10, testifying expert – Submitted rebuttal testimony to copyright royalty judges regarding relative market value of programming provided on the distant broadcast signals carried by U.S. cable systems. Testified before judge panel.

**Video chain merger (US)**, 2005 – Worked as consulting expert for a challenge of proposed merger of video chains. Merger denied.

**Echostar/DirecTV (US)**, 2002-03, consulting expert – Supported analysis by AES Consulting (now Compass) of liability for proposed merger. Helped design econometric model of pay-television demand and participated in conference calls with opposing lawyers and experts.

**Advisory roles:**

Cartel case in the computer industry (US), 2009; German media market (Germany), 2007; Major price-fixing litigation (US), 1999–2001

Bates White LLC, Academic Affiliate, 2005–present.

## Publications

"Cable Regulation in the Satellite Era," Chapter 5 in Rose, N., ed, "Economic Regulation and Its Reform: What Have We Learned?" forthcoming, University of Chicago Press.

"Accommodating Endogenous Product Choices: A Progress Report," *International Journal of Industrial Organization*, v30 (2012), 315-320.

"Price Discrimination in Service Industries," (with A. Lambrecht, K. Seim, N. Vilcassim, A. Cheema, Y. Chen, K. Hosanger, R. Iyengar, O. Koenigsberg, R. Lee, E. Miravete, and O. Sahin), Marketing Letters, v23 (2012), 423-438. 315-320.

"The Welfare Effects of Bundling in Multichannel Television Markets," (with Ali Yurukoglu), *American Economic Review*, v102n2 (April 2012), 643-685 (lead article).

"Economics at the FCC: 2007-2008," (with Evan Kwerel and Jonathan Levy), *Review of Industrial Organization*, v33n3 (November 2008), 187-210.

"The Discriminatory Incentives to Bundle: The Case of Cable Television," *Quantitative Marketing and Economics*, v6n1 (March 2008), 41-78.

- Winner, 2009 Dick Wittink Prize for the best paper published in the *QME*

"Bidding Asymmetries in Multi-Unit Auctions: Implications of Bid Function Equilibria in the British Spot Market for Electricity," (with Joseph Crespo and Helen Tauchen), *International Journal of Industrial Organization*, v25n6 (December 2007), 1233-1268.

"Bundling, Product Choice, and Efficiency: Should Cable Television Networks Be Offered A La Carte?" (with Joseph Cullen), *Information Economics and Policy*, v19n3-4 (October 2007), 379-404.

"Monopoly Quality Degradation and Regulation in Cable Television," (with Matthew Shum), *Journal of Law and Economics*, v50n1 (February 2007), 181-209.

"Uncertainty and Learning in Pharmaceutical Demand," (with Matthew Shum), *Econometrica*, v73n4 (July 2005), 1137-1174.

"Recent Advances in Structural Econometric Modeling: Dynamics, Product Positioning, and Entry," (with J.-P. Dube, K. Sudhir, A. Ching, M. Draganska, J. Fox, W. Hartmann, G. Hitsch, B. Viard, M. Villas-Boas, and N. Vilcassim), *Marketing Letters*, v16n2 (July 2005).

"The Impact of the 1992 Cable Act on Household Demand and Welfare," RAND Journal of Economics, v31n3 (Autumn 2000), 422-449.

### Reports

"Empirical analysis of BT's automatically renewable contracts," (with ESMT Competition Analysis, Commissioned Research Study for the Office of Communications), August 2010. Also Supplementary Report, February 2011.

"Television Station Ownership Structure and the Quantity and Quality of TV Programming," (Commissioned Research Study for the Federal Communications Commission), July 2007.

## Work in Progress

### Articles Under Review

"The impact of 'rollover' contracts on switching in the UK voice market: Evidence from disaggregate customer billing data," (with Nicola Tosini and Keith Waehrer), Working paper, University of Warwick, June 2011. *Under revision for resubmission*

"Accommodating Endogenous Product Choices: A Progress Report," Working paper, University of Warwick, October 2011. *Under revision for resubmission*

## Working Papers

"The (inverse) demand for advertising in the UK: Should there be more advertising on television?" (with Sally Dickerson, Neil Mortensen, Jeremy Smith, and Paul Sturgeon), Working paper, University of Warwick, October 2011.

"The Welfare Effects of Monopoly Quality Choice: Evidence from Cable Television Markets," (with Matthew Shum and Alex Shcherbakov), mimeo, University of Warwick, September 2011

"The Empirical Consequences of Advertising Content in the Hungarian Mobile Phone Market," (with Jozsef Molnar), University of Arizona, March 2008.

"Quantifying adverse selection in credit markets," (with Nicola Pavanini and Fabiano Schivardi) University of Warwick, October 2011.

"Accommodating choice set heterogeneity in demand: Evidence from retail scanner data," (with Rachel Griffth and Alessandro Iaria), University of Warwick, October 2011.

"Orthogonal Instruments: Estimating Price Elasticities in the Presence of Endogenous Product Characteristics," (with Dan Ackerberg and Jin Hahn), mimeo, University of Warwick, of Arizona, June 2011.

"An Empirical Analysis of Manufacturer-Retailer Interaction: What Determines Wholesale Prices?" (with Zsolt Macskasi), May 2006.

## Grants

"Endogenous Product Characteristics in Empirical Industrial Organization," Economic and Social Research Council, $140,000 (~$220,000), 2010–2012.

"The Empirical Consequences of Advertising Content" (with Jozsef Molnar), Hungarian Competition Commission, 10,000,000 Hungarian Forint (~$50,000), 2007–2008

## Other Professional Activities

Associate Editor, International Journal of Industrial Organization, October 2005 – present.

Editorial Board, Information Economics and Policy, December 2007 – present.

Referee for Econometrica, American Economic Review, Review of Economics Studies, RAND Journal of Economics, Review of Economics and Statistics, Quantitative Marketing and Economics, National Science Foundation, International Journal of Industrial Organization, Journal of Industrial Economics, Journal of Applied Econometrics, Information Economics and Policy, Management Science, Southern Economic Journal

2010 Presentations: LBS (1/10), UCL (4/10), Oxford (5/10), Invitational Choice Conference (5/10), Manchester University (9/10), EIEF (Rome, 10/10), University of Venice (10/10), University College Dublin (11/10).

2009 Presentations: ESMT, Berlin (5/09), CEPR IO, Mannheim (5/09), University of Leuven (9/09), University of Toulouse (Econometrics Workshop and Competition Policy Workshop), (11/09)

2008 Presentations: UK Competition Commission (1/08), Oxford University (1/08), University of Warwick (1/08), University of Virginia (3/08), Industrial Organization Society (5/08), NBER Summer Institute, IO Group (6/08), 6th Workshop in Media Economics, Zurich (10/08), Network of Industrial Economics, London (12/08)

2007 Presentations: University of Pennsylvania (Wharton, 3/07), ESMT (Berlin, 4/07), Northwestern University (5/07), Bates White Antitrust/Merger Conference (6/07), University of Wisconsin, Madison (10/07), Duke University (Fuqua, 11/07)

2006 Presentations: AEA Meetings, Boston (1/06), Columbia (3/06), University of Chicago Marketing (3/06), Bates White Antitrust/Merger Conference (6/06), EARIE Amsterdam (8/06)

2005 Presentations: NBER Conferences on Regulation (2/05, 6/05), Econometric Society World Congress, London (8/05)

2004 Presentations: Stanford University (3/04), CEPR \The Role of Competition in the New Economy", Greece (5/04), Invitational Choice Conference (6/04), FCC Symposium on 'A La Carte" MVPD Pricing (7/04)

Conference Organization: Triangle Applied Micro Conference, April 2000, Triangle Applied Micro Conference, May 1999 (co-organizer)

# Appendix E. Materials relied upon

## Materials previously submitted

Below is a list of materials that were previously submitted in this proceeding or identified in Appendix C of my written direct testimony.

1. Corrected Testimony of Gregory S. Crawford, Docket No. 2011-1 CRB PSS/Satellite II (May 10, 2012).
2. Corrected Testimony of David J. Del Beccaro, Docket No. 2011-1 CRB PSS/Satellite II (May 9, 2012).
3. Hearing Testimony of David Del Beccaro, Docket No. 2011-1 CRB PSS/Satellite II (Jun. 11, 2012).
4. Rebuttal Testimony of David J. Del Beccaro, Docket No. 2011-1 CRB PSS/Satellite II (Jun. 27, 2012).
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16. Exhibit MC 36, “Simmons National Consumer Study,” Experian Simmons (2010).
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20. Exhibit MC 69, Music Choice 1996–2011 summary of financial results with and without impact of SoundExchange’s 45% royalty rate.
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