

**THE UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

MELISSA FERRICK, et al.,

Plaintiff,

vs.

SPOTIFY USA INC., et al.,

Defendants.

No. 1:16-cv-08412 (AJN)

CORRECTED
DECLARATION OF JOAO DOS SANTOS IN SUPPORT OF PLAINTIFFS' MOTION
FOR FINAL APPROVAL

I, Joao dos Santos, declare as follows:

1. I submit this declaration in support of Plaintiffs' Motion for Final Approval in conjunction with the settlement among Plaintiffs Melissa Ferrick individually and doing business as Nine Two One Music and Right on Records/Publishing ("Ferrick"), Jaco Pastorius, Inc. ("Pastorius"), and Gerencia 360 Publishing, Inc. ("G360") (collectively "Class Plaintiffs" or "Plaintiffs"), for themselves and on behalf of the proposed Settlement Class, and Defendant Spotify USA Inc. ("Spotify"). I have personal, first-hand knowledge of the matters set forth herein and, if called to testify as a witness, could and would testify competently thereto.

A. Experience and Qualifications

2. I am a Managing Director in the Global Disputes & Investigations practice of Navigant Consulting, Inc. ("NCI") with more than 20 years of professional experience. I hold a Master of Science degree in applied economics from Rutgers University, with field concentrations including econometric modeling and forecasting. I am active in several

professional societies relevant to my profession. I regularly attend conferences and seminars and accrue continuing professional credits on topics related to selected industries and academic disciplines. **Exhibit A** is a copy of my current CV which provides additional information about my qualifications.

3. During my professional career, I have gained extensive experience applying economic, finance, statistical and forensic investigative methods to develop empirical answers to questions related to dispute resolution and settlement analysis.

4. I have led over 100 engagements developing economic analyses, financial modeling and forecasts, reviewing financial statements and contracts, and conducting statistical sampling and extrapolation.

5. With respect to royalty disputes, I have reviewed contractual terms, conducted forensic royalty audits, and developed economic and financial analyses to evaluate merits of claims and to quantify economic damages.

B. The Investigative Team and the Nature of the Analysis and Opinions

6. Work in this case was performed personally by me or by a multidisciplinary team of professionals, including CFAs, ABVs, MBAs, and industry experts, working directly under my supervision. The opinions and conclusions set forth herein are based on the totality of the information reviewed and analyses conducted during this evaluation, and are not dependent on any one fact or analysis. This declaration does not contain any opinions on matters of law that would require legal expertise. NCI is compensated for the work performed by me and the team working under my direct supervision. My compensation and the amount of NCI's professional fees in this case are in no way dependent upon, or affected by, the opinions expressed by me nor the ultimate outcome of this case.

7. In determining the opinions set forth in this declaration, I have employed well-established economic and financial methods and analyses commonly relied upon by experts in economic forecasting and in the analysis of music companies.

8. I reserve the right to respond to any reports or opinions offered by experts retained in association with this matter. I also reserve the right to revise my analysis should additional material information become available after the date of this declaration.

C. Scope of Engagement

9. I was retained by Class Counsel to independently estimate the economic value of certain future benefits contained in the proposed settlement of the above referenced actions (the “System”). These benefits include:

- a. Spotify will pay mechanical license royalties to Settlement Class Members who become Identified Royalty Claimants with respect to one or more Claimed Musical Works. Settlement Agreement ¶ 4.
- b. Spotify and Plaintiffs’ Counsel will appoint members to a “Mechanical Licensing Committee” that would meet regularly to discuss and implement processes to increase the percentage of usage that can be matched and otherwise to facilitate the mechanical licensing of content on Spotify’s service. *Id.* ¶ 6.
- c. Spotify will collaborate with other industry participants to improve the sharing of catalog and other data among publishers, labels, and online music services. *Id.* ¶ 7.
- d. Settlement Class Member may elect to conduct a Plenary Audit of mechanical license royalties paid to that Settlement Class Member under the Future Royalty Payments Program. *Id.* ¶ 5.
- e. Spotify will receive information about musical compositions on a catalog basis to facilitate the mechanical licensing of content that Spotify makes available for interactive streaming and/or limited downloading. *Id.* ¶ 8 (together, the “Class Benefits”)

D. Summary of Opinions

10. It is my opinion that a reasonable, conservative range for the expected net present value of certain proposed future settlement benefits (described earlier herein) spans between \$52.6 Million and \$72.7 Million.

11. It is my opinion that, like the case of existing musical compositions, the System will also be of benefit to Settlement Class Members in identifying and matching their future compositions. Although I anticipate the value of this stream of future mechanical royalties to be significant, I have made no attempt to quantify such benefit in my analysis.

12. It is my opinion that the System may also be of benefit to copyright holders other than the Settlement Class. The proposed actions by Spotify under the terms of the Proposed Settlement to facilitate the identification and matching of musical compositions should be of benefit to all copyright holders of currently non-matched compositions. I made no attempt to quantify such benefit in my analysis.

13. The analytical approach, data and documents considered, and primary significant assumptions for my opinion are proffered below and, in more detail, in my report, dated November 8, 2017, which is attached as **Exhibit B** (the "Report").

E. Data and Documents Considered

14. I independently collected, normalized and validated data and documents from various public sources, including Spotify's financial statements, industry reports, academic literature, and other publications. The Report provides details of the data and documents considered for my analyses and corresponding findings and opinions set forth in this declaration.

F. Analysis of Future Benefits from Proposed Settlement

15. I conducted a series of economic, financial and statistical analyses to estimate the present value of the future stream of benefits to Settlement Class Members, including a discounted cash flow framework to estimate the value of the future mechanical royalty stream expected to be payable to the Class. Also, I employed statistical techniques to calculate an estimation range of the value of future benefits to the Class. The details of the adopted methodologies and discussion of the primary assumptions for my analysis is set forth in the Report.

16. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed this 8th day of November, 2017.



Joao dos Santos

Exhibit A

Exhibit A

JOAO DOS SANTOS, M.Sc.

Managing Director

Practice Areas

- Privileged Consulting & Expert Testimony
- Forensic Investigations
- Regulatory Compliance
- Strategic Consulting

Industry Focus

- Healthcare
- Financial Services & Alternative Investments

Technical Skills

- Financial & Economic Modeling
- Big Data Analytics
- Econometrics
- Statistical Sampling
- Valuations

Education

- M. Sc., Applied Economics, Rutgers University
- B. S., Environmental and Business Economics, Rutgers University
- G. H. Cook Scholar, G. H. Cook Honors Program, Rutgers University

Board Memberships

- Big Brothers Big Sisters of Los Angeles

Languages

- Portuguese
- Spanish

Summary Professional Biography

Joao dos Santos is a Managing Director at Navigant's Global Disputes & Investigations practice with more than 20 years of experience in applying economic, financial, statistical and complex database methods, commonly involving large volumes of data, to assist clients facing complex legal, regulatory and risk challenges.

Joao's experience in disputes and investigations covers various issues, including forensic investigations of allegations of misconduct, assessment of materiality and loss causation, evaluation of Rule 23 class certification requirements, and quantification of economic damages.

He has led over 100 engagements involving a variety of litigation matters, including complex commercial disputes, class actions, securities and white collar fraud, and intellectual property disputes. He has been appointed as an expert in arbitration proceedings, state and federal courts, and submitted expert reports to regulatory agencies.

In assignments involving the music, sports and entertainment industry, Joao is experienced at applying complex database analytics, statistical, economic and finance methods to evaluate merits of claims, perform contract compliance reviews, and quantify economic damages.

Exhibit A

JOAO DOS SANTOS, M.Sc.

Managing Director

Representative Professional Experience

Class Action Litigation – Mr. dos Santos is experienced at applying various data-driven techniques such as statistical sampling, big data analytics, econometric modeling, and survey research to evaluate a broad range of economic issues that can arise in class action cases, including the determination of common impact on a class-wide basis, proof of injury, analysis of intra-class conflict, and the feasibility of standard approaches to quantification of damages.

- *Labor & Employment (Meal and Break Violation)* – For a construction firm facing claims related to unpaid wages, developed complex relational database of time-keeping, payroll, and geo-referenced employee data. Designed database algorithms and statistical analyses to evaluate class certification criteria and to estimate potential economic damages. Deliverables included expert report. Motion for class certification was denied.
- *Labor & Employment (Misclassification)* – For a retailer involved in a labor and employment class action dispute, developed stratified statistical sampling and extrapolation methodology to sample exempt employees; and designed time and motion study to evaluate types of tasks performed by different groups of employees and their required time to completion.
- *Labor & Employment (Gender Discrimination)* – In a labor and employment class action dispute involving a temporary employment agency, performed statistical and database analyses to evaluate alleged wage disparity claim. Work included the development of statistical and database models and drafting of expert report.
- *Securities* – For the insurance carrier of a publicly-traded broker-dealer facing a Section 10(b) securities class action litigation related to insider trading allegations, estimated potential exposure, evaluated materiality and loss-causation, and performed econometric analysis of similar class action cases to predict the likely dollar range of settlement. Deliverables resulted in a settlement approved by the defendant's insurance carrier.
- *Securities* – For a healthcare services provider involved in a derivative securities fraud claim, developed event studies and multi-trader models to evaluate materiality and loss-causation of alleged misconduct, as well as to calculate range of potential economic damages. Deliverables included expert report and presentation to support mediation and settlement discussions.
- *Consumer* – For an electric utility involved in a consumer class action, evaluated Rule 23 class certification criteria, including representativeness of lead plaintiffs. Work included reconstruction and analysis of billing database spanning a period over 10 years and including more than a million consumer accounts. Deliverables included expert report. The court denied class certification.
- *Product Liability* – In a product liability class action dispute against a manufacturer of baby products, developed econometric models and statistical tests to evaluate class certification issues and to develop damages scenarios. Work product included presentation used in settlement negotiation.

Exhibit A

JOAO DOS SANTOS, M.Sc.

Managing Director

Representative Professional Experience (Continued)

Securities Litigation, Regulatory Enforcement, and White-Collar Fraud – Mr. dos Santos has extensive experience in conducting econometric, statistical and financial analyses (e.g., event studies, market efficiency tests, trader models, market impact analyses, option pricing, financial modeling, stochastic simulations, and valuations) to examine materiality and loss causation of selected events, as well as to evaluate economic damages and to support settlement negotiations. Furthermore, he is experienced in analyzing complex transactional and trading databases to evaluate patterns and allegations related to insider trading, market manipulation, and trade allocation.

- *Alternative Investments* – For a large hedge fund involved in a joint investigation by the SEC, NFA and CFTC, conducted database, financial and statistical analyses of historical trading activities and patterns. Work included (i) independent review and forensic testing of large trading databases for various asset classes over extensive time periods; (ii) calculation and comparison of trading costs and execution performance metrics against market benchmarks; and (iii) assessment of reasonableness of selected fund expenses and commissions. Deliverables included weekly presentations and expert report presented to the SEC.
- *Banking* – On behalf of the Department of Justice, built and executed queries designed to evaluate a target company's exposure to particular interest/exchange rate measures (LIBOR/FOREX) on any given day. Deliverables included calculations of gains or losses resulting from alleged manipulation of specific interest/exchange rates and identification of domestic counterparties.
- *Financial Services* – On behalf of the Department of Justice, reconstructed a brokerage's order and trading databases to analyze claims that investors were defrauded by improper trade mark ups and insider trading. Work included identification of improper trade mark ups and falsified records. Deliverables included reports assimilating transcripts of electronic chats and phone calls with the corresponding order and trading activity to tie incriminating conversations to the resultant trading losses.
- *Financial Services* – For a financial institution serving as a bond trustee involved in a SEC investigation, reviewed and criticized opposing expert's calculations and opinions set forth to object a receiver's motion for approval of settlement amounts. Work involved development of Monte Carlo simulation models to estimate range of economic losses. Deliverables included expert report and declaration.
- *Financial Services* – For a gaming industry's payments company facing claims asserted under Sections 11, 12(a)(2) and 15 of the Securities Act of 1933, conducted financial analysis and modeling of traceable IPO shares to evaluate loss-causation and to estimate potential economic damages.
- *Technology* – On behalf of the former general counsel for a software company facing civil and criminal securities-related charges, provided extensive analysis of the materiality of alleged misrepresentations. Analyses included studies of stock price reactions to announcements of cash- and non-cash-related surprises and examination of the amount of analyst coverage dedicated to various topics. Results included complete exoneration of both civil and criminal charges for the defendant.

Exhibit A

JOAO DOS SANTOS, M.Sc.

Managing Director

Representative Professional Experience (Continued)

Complex Commercial Litigation – Mr. dos Santos is experienced at developing economic, financial, and statistical models to evaluate liability, materiality, and loss causation, as well as to quantify economic damages of alleged claims.

- *Retaliation and Wrongful Termination* – As part of a post-acquisition dispute, evaluated allegations of wrongful termination associated with the suspension and dismissal of the managing director of the acquired firm. Work included analysis of employment and salary history, quantification of potential economic damages, and evaluation of plaintiff's expert opinions.
- *Defense Industry (Employment Dispute)* – For a defense contractor involved in a breach of contract and wrongful termination dispute, conducted forensic review of communications, HR and payroll records, and financial statements to evaluate questions regarding drivers of promotion and wages and to assess alleged economic damages.
- *Investment Fund* – On behalf of secondary market purchasers of an individual's venture capital fund interests, provided valuation services to defend the purchasers from allegations that they had constructively defrauded the seller. Deliverables included presentation to support mediation proceedings and expert report.
- *Retail Stores* – For a regional retailer, developed econometric models and a statistical survey to evaluate loss-causation and to quantify economic damages related to anticompetitive claims. Work included the estimation of elasticities, market share analysis, and determination of relevant geographic and product markets.
- *Toy Manufacturing* – For a toy manufacturer involved in a high-profile trade secrets misappropriation claim, created and analyzed complex database of historical records to evaluate questions related to liability and loss causation, and to quantify economic damages.
- *Mining* – In a fraudulent conveyance case involving multiple mining companies, projected long-term copper prices and evaluated the efficiency of the market for long-term copper futures contracts. Deliverables included expert report.
- *Government Contracts* – In various disputes involving government contracts, developed statistical and data analysis to support cost audits and forensic reviews of allowances. Work included review of contracts, design of statistical framework, sample selection, analysis and extrapolation of sampling results.
- *Computer Hardware* – For a manufacturer of computer hardware products involved in a patent infringement dispute, developed demand and price study to quantify potential economic damages resulting from price erosion and profit disgorgement. Work included the specification of econometric models to dynamically estimate product supply and demand equations and simulate alternative but-for scenarios; and the review of opposing expert report.

Exhibit A

JOAO DOS SANTOS, M.Sc.

Managing Director

Representative Professional Experience (Continued)

Healthcare and Life Sciences – Mr. dos Santos has assisted a variety of healthcare companies and their outside counsel in responding to governmental investigations and complex disputes related to Medicaid and Medicare false claims and fraud and abuse issues as well as issues related SEC reporting. His work in this area encompass the application of complex data analytics, econometric modeling and statistical sampling to evaluate issues such as reimbursement, pricing, eligibility, and cost reporting. Mr. dos Santos has also been retained by Life Sciences companies to assist with issues related to complex civil litigation and strategic management.

- *Claims Adjudication* – In an arbitration proceeding between a payer and a provider of healthcare services, (i) conducted forensic review of available data and information for a population of disputed claims to examine consistency of adjudication process relative to contractual provisions; (ii) evaluated and responded to assertions, opinions and findings of claimant’s experts; and (iii) served as neutral statistical expert. Work included statistical sampling and extrapolation, complex database mining, development of claim pricing models, and regression analysis of root causes of dispute.
- *Medicare False Claims* – In a qui tam healthcare fraud investigation, led statistical modeling and complex data analytics initiative to estimate contested fiscal intermediary adjustments and to evaluate DRG upcoding claims. Work included the construction and analysis of large cross-sectional database, specification of regression models, statistical tests and extrapolations.
- *Complex Civil Dispute* – In an intellectual property dispute between two U.S. pharmaceutical companies, analyzed numerous large-scale sales databases and statistical surveys to render expert opinions in an arbitration involving market share determination as part of a joint-licensing agreement for a patented pharmaceutical drug.
- *Pharmaceutical Drug Financing* – For a pharmaceutical company involved in a breach of contract dispute regarding the financing of research and development for some pharmaceutical compounds, conducted forensic review, financial modeling, and statistical analyses to evaluate claims of liability and loss-causation, as well as to quantify lost profits. Work product included the analysis of financing terms and financial projections, Monte Carlo simulation of but-for business scenarios and quantification of economic damages.
- *Market Power and Pricing* – As part of a proposed merger, developed analytical model to estimate the potential anticompetitive impact from the transaction. Work included the analysis of market share and market power across different geographic regions and the review of potential price-fixing. Combined GIS mapping software information with provider and patient data to calculate distances to relevant physician locations and test whether certain federal provisions were being met.
- *System Processing Errors* – For a State Department of Health and Social Services, developed statistical sampling and other database analyses to quantify impact of a system error on the State’s Medicaid eligibility processing system.

Exhibit A

JOAO DOS SANTOS, M.Sc.

Managing Director

Representative Professional Experience (Continued)

Music, Sports & Entertainment Industry

- *Contract Compliance Reviews* – For various music, sports, and entertainment companies, led contract compliance audits and assessments of potential licensing fees dues. Work included review of contractual terms and analysis of various allocation methodologies used over time under various contracts.
- *Breach of Contract* – In a breach of contract dispute regarding the production of a portfolio of film productions, conducted statistical and financial analyses to evaluate the merit of allegations regarding expected financial performance and economic losses.
- *IP Dispute* – For a major entertainment company involved in a trademark ownership rights dispute, conducted complex data analytics and financial analyses of sales and distribution data related to merchandising, DVDs, movies and other materials to assess potential economic exposure.
- *IP Piracy* – For an entertainment company, directed economic study to quantify the financial impact from the purchase of pirated hard copies and illegal downloads of filmed entertainment product. Deliverables included the development of econometric and financial models to estimate lost revenues along various stages of the value chain.
- *Labor & Employment* – For an executive of a major music company contemplating the renewal of a five-year contract, provided valuations related to the stock-based portion of the compensation package. Work product supported negotiation of a multi-million dollar buyout of selected incentive payments.
- *Regional Economic Impact Study* – For a large entertainment company, conducted economic impact analyses to estimate the potential incremental economic, fiscal, and qualitative social impacts of a proposed expansion of its theme parks in the U.S. and China. Work included the development of input-output macro-economic models to quantify the direct, indirect, and induced economic impacts on selected economic areas resulting from potential investment scenarios. Deliverables included drafting of report and presentation to C-suite officers.
- *Sales Forecasting* – For a large entertainment company, headed project to forecast sales return reserve levels of returned products. Work included review of reserve allocation models, distribution channel operations, and the development of statistical models to forecast returns.
- *Securities* – For a gaming industry company facing claims asserted under Sections 11, 12(a)(2) and 15 of the Securities Act of 1933, conducted financial analysis and modeling of traceable IPO shares to evaluate loss-causation and to estimate potential economic damages.

Exhibit A

JOAO DOS SANTOS, M.Sc.

Managing Director

Presentations and Workshops

- “Comparison of Labor Executive Orders Between Trump and Obama Administrations,” presented at the WOOPS 2017 – Strategizing for Dealing with the Government Under the New Administration Conference, Marina Del Rey, CA, September 2017.
- “*Forensic Accounting in Compliance*,” presented at ACA’s Annual Compliance Conference, Scottsdale, AZ, September 2011.
- “*Analysis of the Wealth Effects of Shareholder Proposals*,” presented at the Center for Capital Markets’ meeting on Shareholder Rights, the 2008 Proxy Season, and the Impact of Shareholder Activism, U.S. Chamber of Commerce, Washington, DC, July 2008.
- “Class Action Securities Litigation: Review of Recent Developments, Calculation of Damages, and Settlement Estimation,” presented at the Gallagher Management Liability Niche Annual Conference, Chicago, IL, December 2006.
- “*A Guide to Managing and Analyzing Complex Data Sets*,” presented to the Fraud Section meeting of the California Society of Certified Public Accounts, San Francisco, CA, October 2005.

Publications and Papers

- dos Santos. “*Dial up analytics: using forensic techniques to evaluate class certification in TPCA class actions*,” Forensic Focus, June 2015.
- dos Santos, et al. “*Quantitative Risk Analysis Adds Certainty to the Uncertain Litigation Environment*,” RKCO Advisor, May 2013.
- dos Santos and Song. “*Analysis of the Wealth Effects of Shareholder Proposals – Volume II*,” White Paper, Commissioned by the U.S. Chamber of Commerce, June 2009.
- dos Santos and Song. “*Analysis of the Wealth Effects of Shareholder Proposals*,” White Paper, Commissioned by the U.S. Chamber of Commerce, June 2008.
- dos Santos, Joao. “Managing Urbanization in the Southern Coastal Plain Region of New Jersey: Integrating Landscape Ecology and Economics,” Masters Thesis, Rutgers University, New Brunswick, NJ, October 1998.
- dos Santos, Joao. “*The Impact of Regional Development Policies on the Deforestation of the Brazilian Amazon*,” Honors Thesis, G. H. Cook Honors Program, Cook College, Rutgers University, New Brunswick, May 1996.

Exhibit A

JOAO DOS SANTOS, M.Sc.

Managing Director

Expert Testimony, Declarations and Affidavits

- *Sutter Health, et al v. Anthem Blue Cross Life and Health Insurance Company*. JAMS Arbitration. Reference No. 1130006494
- *Michael Colaco v. Cavotec S.A.* Orange County Superior Court in California. Case No. 30-2012-00601735
- *Orologio of Short Hills, Inc. v. the Swatch Group (U.S.), Inc.* U.S. District Court, District New Jersey. Case No. 11-6854 (SDW)
- *Kelleher v. Kelleher, Dean, and Wells*. U.S. District Court, Northern District of California. Case No. CV135450-MEJ
- *Securities and Exchange Commission v. Medical Capital Holdings, Inc. et al.* U.S. District Court – Central District California. Case No. SACV 09-818 DOC
- *State of Arizona v. L. Spear, LLC*. Superior Court of the State of Arizona – Cochise County. Case No. CV200900828
- *Jose Moreno et al. v. J. Redfern, Inc. et al.* Alameda County Superior Court. Case No. RG08375539

Exhibit B

EXHIBIT B

REPORT ON THE ECONOMIC QUANTIFICATION OF CERTAIN FUTURE BENEFITS CONTAINED IN THE SETTLEMENT BETWEEN CLASS PLAINTIFFS AND SPOTIFY (The “Report”)

A. Executive Summary

1. Based on the totality of the information reviewed and analyses conducted, I estimate that the expected net present value of certain proposed future settlement benefits (described herein) is \$63.1 Million. Also, based on a Monte Carlo simulation, I determined that the 95% interval for the simulated iterations for the net present value estimation ranges between \$52.6 Million and \$72.7 Million.

B. Scope of Analysis

2. I was retained to independently estimate the economic value of certain future benefits contained in the proposed settlement among Plaintiffs Melissa Ferrick individually and doing business as Nine Two One Music and Right on Records/Publishing, Jaco Pastorius, Inc., and Gerencia 360 Publishing, Inc., for themselves and on behalf of the proposed settlement class (collectively, the “Class”) and Defendant Spotify USA Inc. (“Spotify”). These benefits (collectively, the “Settlement Benefits”) include:

- a. Spotify will pay mechanical license royalties to Class Members who become Identified Royalty Claimants with respect to one or more Claimed Musical Works (“Future Royalty Payments Program”). Settlement Agreement ¶ 4.
- b. Spotify and Class Plaintiffs will appoint members to a “Mechanical Licensing Committee” that would meet regularly to discuss and implement processes to increase the percentage of tracks on Spotify’s service that can be matched to registered copyright owners and otherwise to facilitate the mechanical licensing of content on Spotify’s service. *Id.* ¶ 6.
- c. Spotify will collaborate with other industry participants to improve the sharing of catalog and other data among publishers, labels, and online music services, and to facilitate the digitization of pre-1978 U.S. Copyright Records. *Id.* ¶ 7.
- d. Any Class Member may elect to conduct a Plenary Audit of mechanical license royalties paid to that settlement Class Members under the Future Royalty Payments Program. *Id.* ¶ 5.

- e. Spotify will receive information about musical compositions on a catalog basis from music publishers to facilitate the mechanical licensing of content that Spotify makes available for interactive streaming and/or limited downloading on its service. *Id.* ¶ 8.

C. Analytical Framework

3. In complying with the terms of the proposed settlement, Spotify's actions are expected, among other things, to result in an increased identification and matching of digital streams for musical compositions by the Class. For example, the Settlement provides for a portal developed and maintained by a Settlement Claims Facilitator that will enable Class Members to look up copyright and other information for their copyrighted works in conjunction with submitting a claim form. *Id.* ¶¶ 1.44-1.45, 3.2(a), (d), 3.3.

4. Additionally, subject to the future performance of Spotify's streaming service, the proposed Settlement sets forth a process for Class Members to receive mechanical royalties for future streaming of their copyrighted musical compositions.

5. The Settlement Benefits estimated in this Report assume that the settlement claim facilitation process, along with the proposed actions by Spotify to improve identification of currently unmatched songs, will result in the Class catalog being fully matched at some point in the coming years. Furthermore, this estimate represents the economic value of the increased matching of Authorized Claimants' songs resulting in the certainty of future royalties. For instance, Spotify's future payments of mechanical license royalties to the Class for musical compositions that become identified and matched are a direct benefit resulting from the proposed settlement, since, but for the proposed settlement, it is unclear whether or when the Class would be compensated for mechanical royalties attributable to existing unmatched copyrighted songs.¹ This estimate also assesses proposed actions by Spotify under the terms of the proposed settlement that would facilitate the future matching of existing songs by the Class. For example, Spotify's agreement to accept catalog information from music publishers on an ongoing basis will likely result in higher matching of Class Members' copyrighted compositions to tracks on

¹ This benefit is separate and distinct from the cash Settlement Payment benefits that will be distributed to Authorized Claimants in the Class from the Net Settlement Fund, which compensates those Claimants for *past* interactive streaming and/or downloading without a valid license on Spotify's service during the Class Period. Settlement Agreement ¶¶ 3. The Settlement Agreement values this past payment at \$43,450,000.

Spotify's service.² This Report estimates the total impact of these benefits through quantification of the net present value of the stream of future mechanical royalties payable to the Class associated with existing unmatched songs.

6. To estimate the economic value of benefits to the Class, I adopted a discounted cash flow framework. For existing unmatched copyrighted compositions, the discounted cash flow analysis estimates: (i) the value of the future mechanical royalty stream expected to be payable to the Class for a number of years (until royalties are assumed to accrue at a stable rate); and (ii) a "terminal value" of future cash flows to account for cash flows into perpetuity. This dual approach is explained further below. Then, the stream of future cash flows and terminal value is discounted to a "Net Present Value" (NPV) at a discount rate, which considers the risk of the expected royalty stream.

7. To develop this discounted cash flow model, I performed a series of empirical analyses, which can be summarized as four main analytical steps:

- a. Estimation of the Class' 2016 unpaid mechanical royalties and musical streams;
- b. Estimation of the Class' annual mechanical royalties from 2017 through 2021;
- c. Estimation of net present value of the Class' future mechanical royalties in perpetuity; and
- d. Calculation of estimation range for net present value of the Class' future mechanical royalties.

8. Next, I describe the details of the data and methodology used in my analyses.

D. Data and Documents Considered

9. I received documents from Class Counsel and also independently collected, normalized and validated sufficient data and documents from various public sources, including Spotify's financial statements, industry reports, academic literature, and other publications. **Exhibit B-1** provides details of the data and documents considered for my analyses and corresponding findings set forth in this Report.

² This Report is particularly conservative because it does not account for claims for new compositions that are not part of the Class. Spotify's changed practices will result in benefits to the Class with respect to *future* compositions, as actions taken by Spotify under the terms of the settlement will improve on an ongoing basis the matching of tracks with compositions published and registered with the Copyright Office by Class Members. This Report does not attempt to quantify the value of this facet of the indirect benefits to the Class, though such value is likely significant.

E. Empirical Methods and Assumptions

Data and Assumptions

10. I estimated unpaid mechanical royalties and corresponding musical streams attributable to the Class using: (i) Spotify's streaming revenues, (ii) the composition of the Class, and (iii) the value of existing agreed upon settlements related to Spotify's unpaid mechanical royalties.

11. I conducted broad research of publicly available data sources (e.g., industry publications, news articles, and industry research and reports) to identify and collect the required data and information for my analysis. I evaluated the reliability of the data by comparing similar metrics collected from alternative sources.

Step 1: Estimation of the Class' 2016 Unpaid Mechanical Royalties and Musical Streams

12. As a starting point for the estimation of annual mechanical royalties paid to the class for the discounted cash flow analysis framework, I estimated a range for 2016 total unpaid mechanical royalties by using published information on Spotify's accrued reserve amounts for unpaid mechanical royalties and on the dollar amount of existing or proposed settlements. Specifically, I estimated the range of mechanical royalties potentially due to the Class based on (i) Spotify's accrued reserve amounts for unpaid mechanical royalties and (ii) the proportion of the Class settlement amount in relation to other Spotify settlements for unpaid mechanical royalties.

13. Based on my research, I found that as of December 2015, Spotify had accrued between \$17 Million and \$25 Million in reserves for unpaid mechanical royalties.³ To estimate the corresponding range for the year 2016, I performed the following computational steps. First, I looked at Spotify's global revenues in 2016 as a percentage of Spotify's global revenues from 2012 to 2016. Spotify's 2016 global revenue was 41.1% of Spotify's global revenues from 2012 to 2016 – Spotify launched its U.S. music streaming service in mid-2011.⁴ Next, using the assumed \$17 Million to \$25 Million range for reserve accrual as of December 2015, I estimated the range for reserve accrual through 2016 to be between \$24.0 Million and \$35.3 Million, using

³ "Spotify Hit With \$150 Million Class Action Over Unpaid Royalties." *Billboard*, December 2015.

⁴ "Spotify music-streaming service launches in U.S." *CNN*, July 2011.

the assumption that 41.1% of the total reserve was accrued in 2016. Similarly, using the range for reserve accrual through 2016, I estimated the 2016 reserve accrual to be between \$11.8 Million and \$17.4 Million. The calculation of the Spotify reserve attributed to 2016 is shown in **Table 1a** and **Table 1b**.

Table 1a. Lower Bound Spotify Reserve for Unpaid Mechanical Royalties for 2016

Input Description - Lower Bound		2012	2013	2014	2015	2016
A	Total Revenue (in Millions) ¹	\$ 576.5	\$ 839.2	\$ 1,215.3	\$ 2,185.8	\$ 3,354.8
B	Annual Percentage of Total 2012-2016 Revenue	7.1%	10.3%	14.9%	26.7%	41.1%
D	Spotify Reserve Accrual (End of 2015, in Millions) ²	17.0				
E	Spotify Reserve Accrual (End of 2016)	28.8				
F = [E*B]	Annual Proportion of Reserve Accrual	\$ 2.0	\$ 3.0	\$ 4.3	\$ 7.7	\$ 11.8

Table 1b. Upper Bound Spotify Reserve for Unpaid Mechanical Royalties for 2016

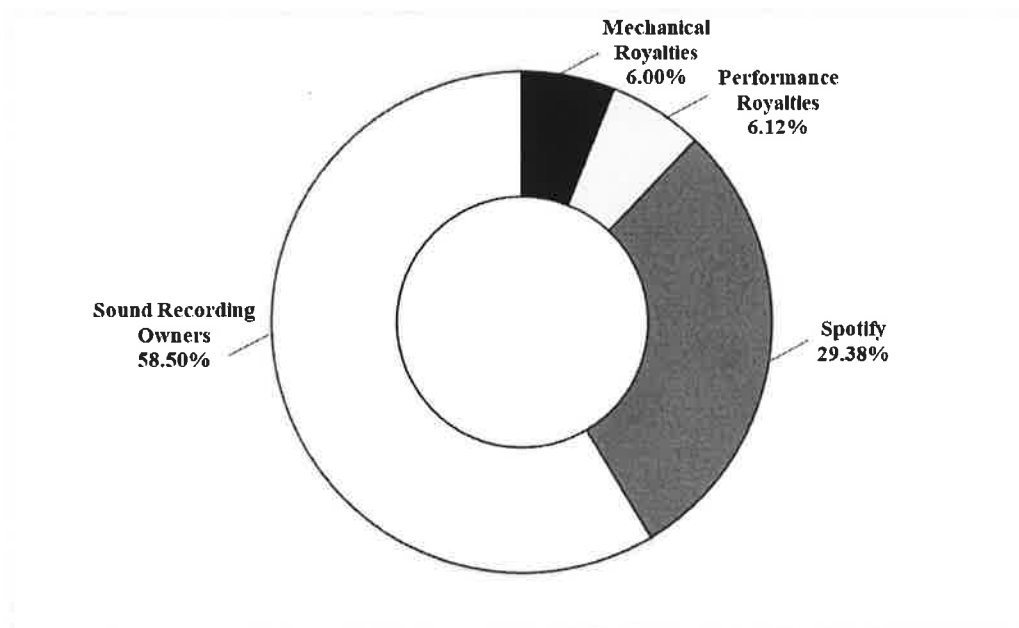
Input Description - Upper Bound		2012	2013	2014	2015	2016
A	Total Revenue (in Millions) ¹	\$ 576.5	\$ 839.2	\$ 1,215.3	\$ 2,185.8	\$ 3,354.8
B	Annual Percentage of Total 2012-2016 Revenue	7.1%	10.3%	14.9%	26.7%	41.1%
D	Spotify Reserve Accrual (End of 2015, in Millions) ²	25.0				
E	Spotify Reserve Accrual (End of 2016)	42.4				
F = [E*B]	Annual Proportion of Reserve Accrual	\$ 3.0	\$ 4.4	\$ 6.3	\$ 11.3	\$ 17.4

¹ "Spotify: A Global Streaming Leader", Cowen and Company – Spotify, June 2016

² "Spotify Hit With \$150 Million Class Action Over Unpaid Royalties", Billboard.com, Dec 2015

14. In the U.S., Spotify pays mechanical royalties for interactive streaming for revenues derived from both ad-supported and premium usage. About 6% of Spotify's U.S. total streaming revenue is payable as mechanical royalties to copyright holders.⁵ **Figure 1** shows the allocation of Spotify's revenues across stakeholders.

⁵ In the case of Spotify, mechanical royalties can be categorized as to distinct types: ad-supported or subscription. For the analysis in this Report, however, I refer to mechanical royalties as a blended value of ad-supported and subscription mechanicals.

Figure 1. Allocation of Spotify's U.S. Total Streaming Revenue⁶

15. Per industry analyst reports on Spotify's business, global revenue in 2016 was \$3.3 Billion. Spotify's U.S. revenue is approximately 40% of their global revenue, or approximately \$1.3 Billion.^{7,8} Given that 6% of U.S. revenue is payable to mechanical royalty rights' holders, I estimated that 2016 payable mechanical royalties were \$80.5 Million. Therefore, the lower and upper bound estimations for 2016 unpaid mechanical royalties of \$9.8 Million and \$14.5 Million as discussed in paragraph 13 constitute 12.2% and 18.0% of the total 2016 mechanical royalties, respectively. As a reasonableness test, these estimates are in line with the National Music Publishers Association's ("NMPA") estimate that Spotify's unpaid royalties are up to 25% of payable mechanical royalties.⁹

16. I adopted an assumption which defines the Class' share of Spotify's total unpaid mechanical royalties to be proportional to the value of its settlement relative to the overall value

⁶ "US Streaming Royalties Explained." 2016 Manatt, Phelps & Phillips, LLP.

⁷ "Spotify: A Global Streaming Leader", Cowen and Company – Spotify, June 2016.

⁸ "Spotify Showing Momentum Ahead of Possible Listing", MKM Partners, June 2017.

⁹ The NMPA is a national trade association for music publishers and songwriters. To test the reasonableness of the estimated values of 2016 unpaid mechanical royalties based on Spotify's published reserve accrual amounts, I compared the lower bound and upper bounds of 2016 unpaid mechanical royalty estimates to estimates by David Israelite, the CEO and President of the NMPA. According to Mr. Israelite, "as much as 25 percent of all royalties owed by Spotify were unpaid or distributed to an improper party due to Spotify's neglect in obtaining mechanical licenses." *The Spotify Settlement With NMPA: What it means for Music Publishers.* Garvey Schubert Barer, January 2017.

of all existing Spotify settlements for claims of unpaid mechanical royalties. In this regard, settlement value becomes a proxy for the relative share of total unpaid mechanical royalties. Holding all other factors constant, it seems reasonable to expect that the dollar amount of a settlement is correlated with the value of the underlying claim (e.g., unpaid mechanical royalties). My research indicates that, to date, there are two relevant settlements: the NMPA settlement and the proposed settlement for this Class.¹⁰

17. In addition, I included an allocation for opted-out parties. Of the 535,401 mechanical rights' owners to whom Garden City Group¹¹, the claims administrator, provided notice, there were only 822 timely exclusions.¹² As such, only approximately 0.15% of the Class opted out of the settlement.¹³ Since the settlement value for opt-outs is currently unknown and to account for the possibility that opted-out songs have higher royalty earnings (on average), I assumed that between 0.15% and 15% of the Class Settlement value is attributable to opt-outs. If opt-outs equaled 15% of the Settlement value, then this would imply that the royalties owed to the average opt-out artist is 100 times the value of the royalties of the owed to average members of the Class.

18. The proposed Class settlement corresponds to between 54.4% and 59.1% of the combined amount for these settlements and Class opt-out values. These percentages were then applied to the upper and lower bounds of Spotify's 2016 estimated unpaid mechanical royalties to estimate the Class share of 2016 unpaid mechanical royalties. **Table 2a and Table 2b** describes all steps in the estimation of the Class' 2016 unpaid mechanical royalties.¹⁴

¹⁰ In March of 2016, Spotify reached a settlement with the NMPA to cover unlicensed streams from member publishers dating back to 2011. As part of the settlement, Spotify agreed to pay \$30 Million to NMPA members who affirmatively opt in to the settlement. The exact fund for the NMPA settlement was never disclosed but widely accepted reports put the royalty fund at \$25 Million and the penalty fund at \$5 Million. To simplify the analysis, and to be conservative, we included the entire \$30 Million as the NMPA settlement amount.

¹¹ Declaration of Stephen J. Cirami Regarding Notice to Settlement Class, Filed 9/1/2017.

¹² Declaration of Stephen J. Cirami Regarding Notice to the Settlement Class, Filed 11/10/2017. Of those 822 timely exclusions, 510 originated from Wixen Music Publishing, Inc. *Id.* I understand there is a dispute as to whether the exclusions submitted by Wixen Music Publishing, Inc. are valid.

¹³ My understanding is that there is other litigation pertaining to Spotify's unpaid mechanical royalties, including *Bluewater Music Services Corporation v. Spotify USA, Inc.*, Case No. 3:17-cv-01051 and *Gaudio. et al v. Spotify USA, Inc.*, Case No. 3:17-cv-01052, both in the District Court for the Middle District of Tennessee. Both of those cases involve Class Members who opted out of the instant Settlement. Furthermore, any NMPA member that participated in the NMPA settlement is, by definition, outside the Class, and therefore was not subject to the Settlement Agreement ¶ 11.2.

¹⁴ To test the reasonableness of the estimated range for the Class' 2016 unpaid mechanical royalties, I contrasted its upper and lower bounds to an abridged calculation based on the following simplifying assumptions about the

Table 2a. Lower-Bound Estimation of 2016 the Class' Unpaid Mechanical Royalties

Input Description - Lower Bound		Value
A	Spotify Accrued Reserve for Unpaid Royalties (End of 2016)	\$ 28.8
B	2016 Proportion of Total Revenue (2012-2016)	41%
C = [A * B]	Spotify Annual Unpaid Mechanical Royalties to Independent Artists	\$ 11.8
D	Proposed Class Settlement	\$ 43.5
E	NMPA Settlement	\$ 30.0
F = [D * 15%]	Potential Opt-Out Amount (15% of Ferrick)	\$ 6.5
G = [D / (D + E + F)]	Class Settlement Share of Total Existing Settlements	54.4%
H = [D * G]	Estimated Class 2016 Unpaid Mechanical Royalties	\$ 6.4

Table 2b. Upper-Bound Estimation of 2016 the Class' Unpaid Mechanical Royalties

Input Description - Upper Bound		Value
A	Spotify Accrued Reserve for Unpaid Royalties (End of 2016)	\$ 42.4
B	2016 Proportion of Total Revenue (2012-2016)	41%
C = [A * B]	Spotify Annual Unpaid Mechanical Royalties to Independent Artists	\$ 17.4
D	Proposed Class Settlement	\$ 43.5
E	NMPA Settlement	\$ 30.0
F = [D * 0.15%]	Potential Opt-Out Amount (0.15% of Ferrick)	\$ 0.1
G = [D / (D + E + F)]	Class Settlement Share of Total Existing Settlements	59.1%
H = [D * G]	Estimated Class 2016 Unpaid Mechanical Royalties	\$ 10.3

19. Finally, based on the Class' estimated 2016 unpaid mechanical royalties, I calculated the number of streams attributable to the Class in 2016 using the 2016 blended stream rate (calculation details provided in Step 2).

proposed settlement amount: (i) the proposed settlement amount represents an implicit valuation of total unpaid mechanical royalties by Spotify for the class period; and (ii) unpaid royalties follows the proportion for Spotify revenues for each year during the class period. Based on these assumptions, I determined that the 2016 share of unpaid mechanical royalties due to the Class were \$17.8 M. This value is materially greater than the upper bound for my estimation, thus, suggesting that the estimated range is reasonable and conservative.

[Proposed Settlement Amount] x [Proportion of 2016 Revenue of Total Revenue (2012-2016)] = [\$43.5M] x [41%] = \$17.8M.

Step 2: Estimation of Annual Payable Mechanical Royalties to the Class from 2017- 2021

20. To estimate annual payable mechanical royalties to the Class from 2017 through 2021, I developed an estimation approach which relies on certain data and assumptions. The main computational steps I performed are described next.

21. First, I estimated the annual blended “per stream rate” for years 2016 through 2021. The “per stream rate” is the dollar amount payable by Spotify for each stream of a copyrighted song, and is defined as the ratio of total payable Spotify mechanical royalties and total payable Spotify streams for a given period.

22. As part of estimating an annual blended “per stream rate”, I calculated annual payable Spotify mechanical royalties by referencing analyst forecasts of global Spotify revenue for each year between 2016 and 2021, and per analyst reports, assumed that U.S. gross revenue was approximately 40% of global revenue each year.^{15,16} I then multiplied annual Spotify U.S. revenue by the percentage payable for mechanical royalties (i.e., 6%) to determine annual payable mechanical royalty amounts.¹⁷

23. To estimate annual Spotify streams between 2017 and 2021, I started with the number of total Spotify payable streams in 2016, which I determined to be 162 Billion.¹⁸ Then, I assumed that Spotify streams would grow annually by the same rate as the forecasted growth in Spotify subscribers, which is reasonable given that growth in subscribers should be correlated with growth in streaming. Finally, I estimated the blended per stream mechanical royalty rate per year by dividing each annual payable mechanical royalty amount by the corresponding total annual streams. **Table 3** provides details of the calculation of blended per stream rates from 2016 through 2021.

¹⁵ “*Spotify: A Global Streaming Leader*,” Cowen and Company – Spotify, June 2016.

¹⁶ “*Spotify Showing Momentum Ahead of Possible Listing*,” MKM Partners, June 2017.

¹⁷ See p. 6, *Figure 1*, *supra*.

¹⁸ “*Exclusive Report: Spotify Artist Payments are Declining in 2017, Data Shows*,” Digital Music News, May 2017.

Table 3: Calculation of Blended Per Stream Rate 2016 – 2021

	Input Description	2016	2017	2018	2019	2020	2021
A	Global Revenue (in Millions) ¹	\$ 3,354.8	\$ 4,353.5	\$ 5,244.5	\$ 6,149.5	\$ 6,954.0	\$ 7,592.5
B	Percentage of Revenue in U.S. ²	40%	40%	40%	40%	40%	40%
C = [A*B]	U.S. Revenue	\$ 1,341.9	\$ 1,741.4	\$ 2,097.8	\$ 2,459.8	\$ 2,781.6	\$ 3,037.0
D	Payable Mechanical Royalty Rate	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
E = [C*D]	Payable Mechanical Royalties	\$ 80.5	\$ 104.5	\$ 125.9	\$ 147.6	\$ 166.9	\$ 182.2
F	Forecasted Subscribers (in Millions) ³	9.5	12.4	14.8	16.7	18.3	19.3
G	Growth Rate in Subscribers		30.0%	20.0%	12.5%	10.0%	5.0%
H	Total U.S. Streams (in Millions) ⁴	162,000	210,600	252,720	284,319	312,745	328,383
I	Blended Stream Rate	\$ 0.00050	\$ 0.00050	\$ 0.00050	\$ 0.00052	\$ 0.00053	\$ 0.00055

1, 3 "Spotify: A Global Streaming Leader", Cowen and Company – Spotify, June 2016

2 "Spotify Showing Momentum Ahead of Possible Listing", MKM Partners - June 2017

4 "Exclusive Report: Spotify Artist Payments are Declining in 2017, Data Shows", Digital Music News, May 2017

24. Second, I estimated the growth rate for future streams of songs that are part of the Class. For this, I reviewed historical trends in streaming for compositions by Class representatives as well as past and projected trends for selected Spotify metrics, including the number of Spotify's subscribers and size of Spotify's overall digital streaming catalog. Based on this review, I determined that the year-over-year change in class streams for 2017 through 2021 would vary according to the projected changes in the ratio of the number to Spotify subscribers to the size of the Spotify catalog. On one hand, increases in the number of Spotify subscribers should also increase the demand for streaming compositions of Class Members. On the other hand, since the number of songs that are part of the Class catalog is fixed (i.e., new songs will not be added), then, holding all else constant, the Class Member's composition being streamed may decrease given the growth in Spotify's overall catalog.

25. Spotify's current catalog size is approximately 30 Million songs, and Spotify is adding approximately 20,000 songs per day.¹⁹ Based on this information, I was able to calculate annual catalog growth rates for 2017 through 2021. **Table 4** shows the estimation of the Class stream growth rates.

¹⁹ "Spotify vs. Apple Music: Which Service is the Streaming King?" Digital Trends, June 21, 2017.

Table 4: Estimation of Class Stream Growth Rates

	Input Description	2016	2017	2018	2019	2020	2021
A	Total Subscribers (in Millions) ¹	9.50	12.35	14.82	16.67	18.34	19.26
B	Subscriber Growth Ratio ²		1.30	1.20	1.13	1.10	1.05
C	2016 Spotify Catalog Size (in Millions) ³	30.00					
D	Catalog Daily Increase (in Millions) ⁴	0.02					
E = [D*365]	Annual Increase (in Millions)	7.30					
F = [F+E]	Spotify Catalog Size (in Millions)	30.00	37.30	44.60	51.90	59.20	66.50
G	Catalog Growth Ratio ²		1.24	1.20	1.16	1.14	1.12
H = B/G	Ratio of Subscriber Growth to Catalog Growth		1.05	1.00	0.97	0.96	0.93

1 "Spotify: A Global Streaming Leader", Cowen and Company - Spotify, June 2016

2 Growth Ratios are calculated by taking the ratio of the current year Subscribers/Catalog Size and the values from the previous year.

3, 4 "Spotify vs. Apple Music: Which Service is the Streaming King?" Digital Trends, June 2017

26. Third, I estimated mechanical royalties payable to the Class from 2017 through 2021 based on respective annual estimates for blended per stream rates, 2016 Class Streams, and the growth rates of Class streams. The calculation is shown in **Table 5**.

Table 5. Estimation of Class' Annual Mechanical Royalties for 2017 Through 2021

	Input Description	2016	2017	2018	2019	2020	2021
A	Blended Stream Rate	\$ 0.00050	\$ 0.00050	\$ 0.00050	\$ 0.00052	\$ 0.00053	\$ 0.00055
	Lower Bound						
B	Class Streams	12,950	13,540	13,588	13,137	12,669	11,842
C	Growth Ratio		1.05	1.00	0.97	0.96	0.93
D = A*B	Class Mechanical Royalties	\$ 6.4	\$ 6.7	\$ 6.8	\$ 6.8	\$ 6.8	\$ 6.6
	Upper Bound						
E	Class Streams	20,716	21,660	21,738	21,016	20,266	18,944
F	Growth Ratio		1.05	1.00	0.97	0.96	0.93
G = A*E	Class Mechanical Royalties	\$ 10.3	\$ 10.7	\$ 10.8	\$ 10.9	\$ 10.8	\$ 10.5

Step 3: Estimation of Net Present Value of the Class' Stream of Future Mechanical Royalties

27. After estimating the mechanical royalties for each year between 2017 and 2021, I estimated an appropriate discount rate to discount future payable mechanical royalties to the Class. This is a necessary step in a discounted cash flow analysis because a present valuation of future cash flows must consider the risk and uncertainty from future mechanical royalties. In determining the range of discount rates to use, I considered publicly available information on discount rates of comparable music streaming companies, and assumed a normal distribution for the cost of capital with 12% as the mean value, and three standard deviations to range between

10% and 14%, in accordance with a valuation of Spotify by Manhattan Venture Partners.²⁰ I determined that this range in the cost of capital used is reasonable based on the review of values used for comparable firms, including Pandora's estimated cost of capital of 9.4%.²¹

28. Next, I estimated a terminal value for the future mechanical royalties beyond 2021. The terminal value in a discounted cash flow framework accounts for the assumption that the Class' mechanical royalties will grow at a stable rate in perpetuity. This perpetual growth model formula incorporates the estimated discount rate and assumes a terminal growth rate for future mechanical royalties. Based on the five-year projections for streaming Class compositions, growth in total Spotify subscribers, and growth in Spotify revenue, I determined that using a normal distribution for the growth rate, with a mean value of -1.5% and standard deviation of 0.5% represented a reasonable, conservative estimate for the perpetual growth rate for mechanical royalties to the Class beyond 2021, given that forecasted mechanical royalties between 2019 and 2021 are decreasing.

Step 4: Calculation of Estimation Range for Net Present Value of the Class' Future Mechanical Royalties

29. A Monte Carlo simulation is a technique commonly-used to evaluate the impact of uncertainty in forecasting models and to create estimation ranges. In a Monte Carlo simulation, a random value is selected for each of the input variables, based on the range of estimates for that variable. The model is calculated based on this random value. The result of the model is recorded, and the process is repeated. A typical Monte Carlo simulation calculates results thousands of times, each time using different randomly selected values for each model variable.

30. I performed a Monte Carlo simulation to create an estimation interval for the calculation of the net present value for the Class' future royalties. This approach allowed me to examine thousands of iterations of randomly changing input/assumption values and to calculate an estimation range. For this analysis, I determined the 95% estimation range for calculated results to include replications whose values ranged between the 2.5% and 97.5% percentiles of the overall distribution of replications.

²⁰ "Spotify Research Report: The Rock Star of Streaming Services", Manhattan Venture Partners.

²¹ "Pandora Media Corp - Spotify Sub Leap Evidence of Expanding Market for On-Demand", Aegis Capital Corp, March 2017.

31. The simulation comprised 20,000 replications of the estimated net present value for the Class' future royalties. For each replication, randomly selected values were assigned, based on their estimated ranges, to each of the following input variables into the discounted cash flow analysis:

- a. 2016 Class Members musical streams by Spotify;
- b. Perpetual growth rate of terminal value; and
- c. Discount rate.

32. **Table 6** summarizes the data ranges and assumed distribution for the varying inputs into the Monte Carlo simulation.

Table 6. Estimated Ranges and Assumed Distributions for Monte Carlo Simulation

Input Variable	Descriptive Statistics	Assumed Distribution
2016 Class Members' musical streams by Spotify	Min: 12,949 M; Max: 20,715 M	Uniform
Perpetual Growth Rate of Terminal Value	Mean: -1.5%; Std. Dev: 0.5%	Normal
Discount Rate	Mean: 12%; Std. Dev: 0.67%	Normal

33. **Table 7** shows the expected value for the net present value estimate as well as the respective upper and lower bounds for the estimation range.

Table 7. Estimated Net Present Value of Benefits to the Class

Net Present Value of Benefits to the Class (in Millions)	Estimated	95% Interval for the Simulated Iterations	
	Mean	Lower Bound	Upper Bound
	\$63.1	\$52.6	\$72.7

F. Conclusions and Observations

34. Based on the totality of the information reviewed and analyses conducted, I estimate that the expected net present value of certain proposed future settlement benefits (described herein) is \$63.1 Million. Also, based on a Monte Carlo simulation, I determined that the 95% interval for the simulated iterations for the net present value estimation ranges between \$52.6 Million and \$72.7 Million, respectively.

35. Music publishing catalogs are often traded for a multiple over Net Publisher's Share (NPS).²² This result from my estimation of the net present economic value of certain future benefits from the proposed settlement is consistent with those of a publishing catalog valuation with a NPS multiple between 7 and 8. Typical NPS multiples range between 8 and 18.²³ This benchmarking supports the conservative nature of my findings.

36. Although the proposed actions by Spotify under the terms of the proposed settlement agreement benefit all future copyright holders, this Report incorporates solely the corresponding economic value to the Class.

²² Defined as the net amount of royalties received by a music publisher.

²³ "Music Publishing Song Catalog Valuation." *Legal Symposium on the World of Music, Film, Television and Sports. ABA 2016, presented by John Redmond.*

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on November 13, 2017, all counsel of record who are deemed to have consented to electronic service are being served with a copy of this document via the Court's SDNY Procedures for Electronic Filing.

/s/ Steven G. Sklaver
Steven G. Sklaver