

**UNITED STATES DISTRICT COURT SOUTHERN
DISTRICT OF FLORIDA
Case No. 18-cv-80176(BB/BR)**

IRA KLEIMAN, as personal representative of
the estate of David Kleiman, and W&K INFO
DEFENSE RESEARCH, LLC,
Plaintiffs,
v.
CRAIG WRIGHT,
Defendant.

EXPERT DECLARATION

By

STEFAN BOEDEKER,

Managing Director, Berkeley Research Group

DATED April 10, 2020

I, Stefan Boedeker, declare the following:

I. QUALIFICATIONS

1. I am a statistician and an economist. I received a Bachelor of Science degree in Statistics and a Bachelors of Arts degree in Business Administration from the University of Dortmund/Germany in 1988. I received a Master's of Science degree in Statistics from the University of Dortmund/Germany in 1988, and I received a Masters of Arts degree in Economics from the University of California, San Diego in 1992. I also finished Ph.D. requirements (except dissertation) in Economics at the University of California, San Diego. Attached hereto as *Exhibit A* is a true and correct copy of my *curriculum vitae*.
2. I am currently employed as a Managing Director at the Berkeley Research Group ("BRG"). Prior to joining BRG, I was a Partner at Resolution Economics. I also held Managing Director positions at Alvarez & Marsal, Navigant Consulting, and LECS. I also held partner-level positions at Deloitte & Touche LLP, PricewaterhouseCoopers LLP, and Arthur Andersen LLP. At the three latter firms, I was responsible for the Economic and Statistical Consulting group on the West Coast. Before moving to the United States to attend graduate school, I worked as a statistician for the German Government for three years, from 1986 to 1989.
3. For over 25 years, my work has focused on the application of economic, statistical, and financial models to a variety of areas, such as providing solutions to business problems, supporting complex litigation in a consulting and expert witness role, and conducting economic impact studies in a large variety of industries including, but not limited to, healthcare, retail, technology, entertainment, manufacturing, automotive, energy and utilities, hospitality, and federal, state, and local government agencies.
4. I have extensive experience working on consumer class action cases where economic losses are alleged to have occurred. I have developed consumer demand and pricing models to assess if economic losses have occurred and if so, how to quantify these losses reliably. I have issued numerous expert reports and rebuttal reports dealing with these issues in the class certification stage and the liability and merits phases of consumer class

actions. On numerous occasions I have been deposed and I have testified in court in class action proceedings.

5. All the facts and circumstances set forth in this declaration are known to me personally and I am prepared to testify to them if called to do so. My curriculum vitae, which includes matters in which I have testified, is attached to this declaration as Attachment A. BRG is compensated for its work on this matter based on an agreed upon hourly billing rate schedule. My hourly billing rate for professional services related to this case is \$750 and the billing rates of BRG staff supporting me on this engagement range from \$150 to \$600. BRG's payment in this matter is not contingent upon the outcome of this litigation.

II. SCOPE OF RETENTION

6. I was asked by Counsel for the Plaintiff to review transaction data that the Defendant provided. It is my understanding that the data provided by Defendant are comprised of a list of 16,404 Bitcoin blocks he "mined". Each of those blocks contains a special transaction called the "coinbase" transaction. The data comprising each of those coinbase transactions is hashed using SHA-256. The output of that hash is then hashed again using SHA-256. The resulting hash is known as the "Transaction ID" (or "txid"). These range in value from 0 to $2^{256} - 1$.
7. More specifically, I was asked to statistically analyze gaps that are occurring between Transaction IDs and determine the likelihood that gaps exceeding a certain length occur.
8. A complete list of documents that I reviewed is attached to this declaration as *Exhibit B*.

III. SUMMARY OF OPINIONS

9. My review and detailed analysis of the data provided by the Defendant lead me to the conclusion that the observed patterns in the data have an infinitesimally small chance of occurring naturally without any outside intervention such as data manipulation after the fact.

10. More specifically, I have formed the following opinions:

Opinion 1: There are a total of two sets of three subsequent transactions that deviate significantly from the remaining 16,398 transactions in the sense that they create gaps between transactions that that are highly unusual and could not possible have occurred naturally.

Opinion 2: Statistical significance tests prove to an extremely high degree of certainty that these gaps did not occur naturally.

Opinion 3: The exact probability that the gaps created by the two sets of three subsequent transactions given the distribution of gaps between the other 16,398 transactions is virtually zero.

Conclusion: Based on overwhelming statistical evidence derived from descriptive statistical analysis which identified highly unusual “gaps” in the data, and from statistical hypothesis tests and exact probability calculations which proved that these “gaps” would only appear by chance with a probability that is virtually zero, I conclude that some kind of data manipulation must have taken place to “create” these gaps.

11. I may expand or modify these opinions and my conclusion as additional facts, documents or data become available.

IV. DESCRIPTION OF DATA UTILIZED IN THE ANALYSIS

12. I was provided the following three text files:

- a. coinbasetxidshehex.txt – a flat text file with one column and 16,404 rows of Transaction IDs in hexadecimal format;
- b. coinbasetxidsdec.txt - a flat text file with one column and 16,404 rows of Transaction IDs in decimal format; and
- c. coinbasetxidsnormalized.txt – a flat txt file with one column and 16,404 rows of Transaction IDs in decimal format normalized such that the Transaction IDs fall into the open interval (0,1).

13. I understand that these files were derived from DEF_01586024.
14. First, I converted the Transaction IDs in coinbasetxidshex.txt from the hexadecimal format to the decimal format and verified that coinbasetxidsdec.txt is in fact comprised of the same data in decimal format as coinbasetxidshex.txt
15. Second, I transformed the decimal data in coinbasetxidsdec.txt¹ into standardized data on the open interval (0,1) by dividing all data points by the maximum value of all data points in coinbasetxidsdec.txt. This standardization process yielded the same data as in coinbasetxidsnormalized.txt which concluded my quality control check and verified that the data I was provided with were correct.

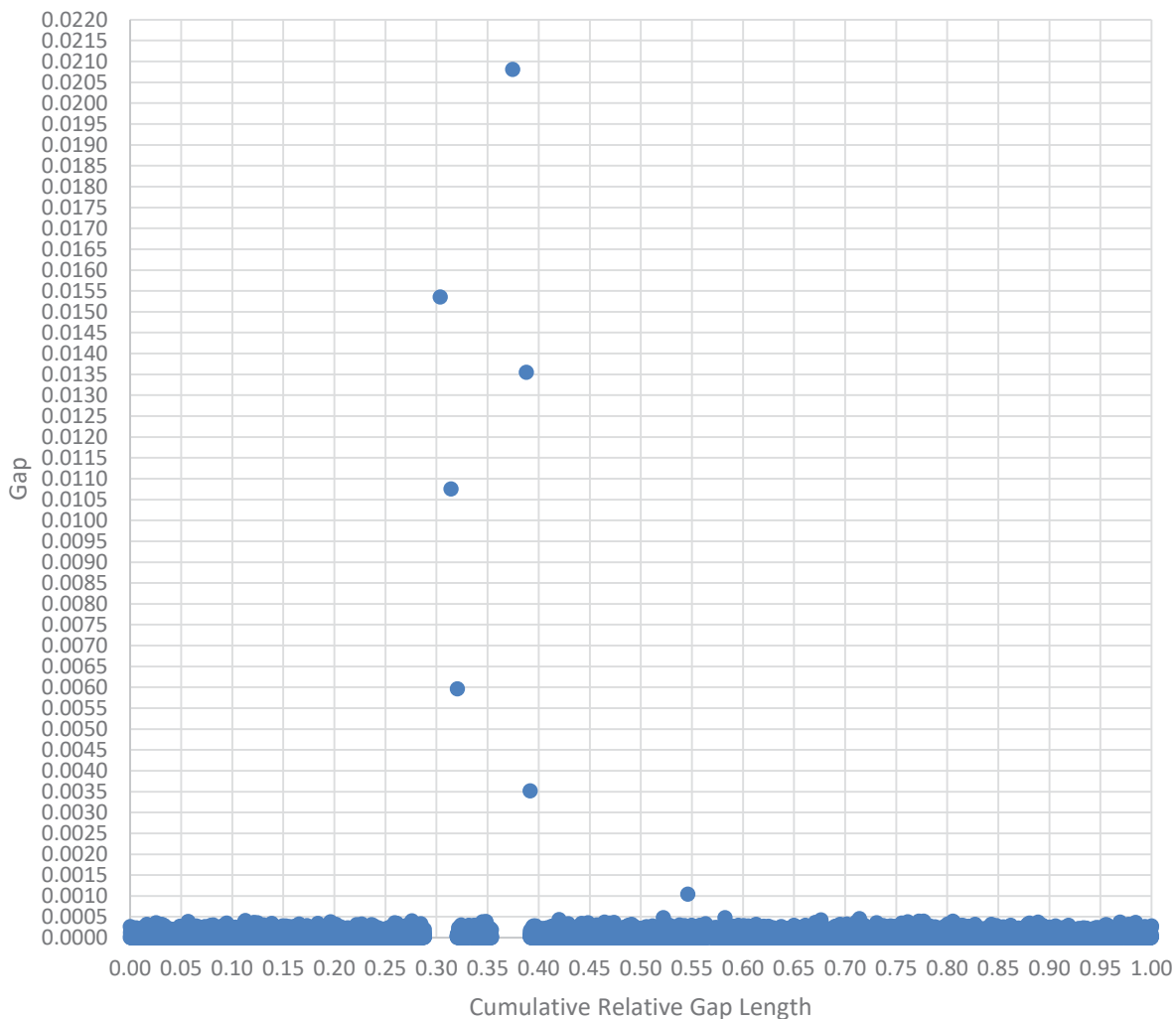
V. DETAILED SUPPORT FOR THE OPINIONS

Opinion 1: There are a total of two sets of three subsequent transactions that deviate significantly from the remaining 16,398 transactions in the sense that they create gaps between transactions that are highly unusual and could not possible have occurred naturally.

16. In the first step of my analysis, I calculated the gap between subsequent transactions and then plotted the length of the gaps against the Transaction IDs on the horizontal axis where the left most data point is the first Transaction ID and the right most data point is the last (i.e., 16,404th) Transaction ID. The following Figure 1 displays the distribution of gaps.

¹ The decimal data in coinbasetxidsdec.txt is comprised of 16,404 data points with number of digits ranging from 74 to 78.

Figure 1: Distribution of Gaps



17. The data in Figure 1 show that there are two sets of three transactions that create visible gaps in the otherwise densely populated transactional data. The average length of a gap in the standardized data is approximately 0.0000567. A simple visual inspection of the first gap (Gap 1) on the horizontal axis which is caused by transaction numbers² 5163, 5164, and 5165 and the second gap (Gap 2) on the horizontal axis which is caused by

² The integers 5163, 5164, 5165, 5704, 5705, and 5706 are simply derived by sequentially numbering all transactions from 1 – 16,404. The gap attributed to transaction number n is defined as the difference of the standardized Transaction ID value of transaction number n minus the standardized Transaction ID value of transaction number n-1. For example, the gap associated with transaction number 5163 is the difference of the standardized Transaction ID value of transaction number 5163 minus the standardized Transaction ID value of transaction number 5162.

transactions 5704, 5705, and 5706 indicates that these gaps are visibly larger than the ones in the remainder of the distribution. More specifically, the length of the gap caused by the three transactions 5163 through 5165 equals 0.03207 which is over 188 times larger than the average gap between three transactions in the overall population excluding those six transactions. The length of the gap caused by the three transactions 5704 through 5706 equals 0.03788 which is over 222 times larger than the average gap between three transactions in the overall population excluding those six transactions.

Opinion 2: Statistical significance tests prove to an extremely high degree of certainty that these gaps did not occur naturally.

18. The analyses presented above providing strong evidence that the two identified gaps are unusually large have been derived by using the field of descriptive statistics. Descriptive statistics are used to summarize large amounts of data into charts, figures, and to calculate statistical measures such as means, standard deviations, and others. In addition to descriptive statistics, inferential statistics is used to make probabilistic statements about data to assess probabilities and significance about events and patterns in data distributions. In the following paragraphs, I will describe the results of statistical significance tests that will show that the two unusually large gaps are statistically significantly different from the general distribution in the population to which they belong, e.g., the population of all 16,404 Transaction IDs provided by the Defendant.
19. First, I tested the hypothesis that that SHA-256 hashes are approximately uniformly randomly distributed over their full range and independent. This is not controversial, as Bitcoin itself is built upon those assumptions, and any good cryptographic hash (like SHA-256) ought to have these properties.
20. I utilized the Kolmogorov-Smirnov Test³ (“KS-Test”) to test the hypothesis that the 16,404 SHA 256 hashes are uniformly distributed over their range. The KS-Test rejects the hypothesis of a uniform distribution at the 1% significance level. Next, I excluded the two sets of three observations that created the gap and then performed the KS-Test of

³ Hollander, Myles and Douglas Wolfe (1999), Non-parametrical Statistical Methods, 2nd Edition, Wiley Series in Probability and Statistics, Pages 178-188.

a uniform distribution for the three remaining groups of SHA 256 hashes separately with the result that the hypothesis of a uniform distribution cannot be rejected. More specifically, transaction numbers 1 – 5162, which are the transactions before the first gap occurs, follow a uniform distribution; transaction numbers 5166 – 5703, which are the transactions between the two gaps, follow a uniform distribution; and transaction numbers 5707 – 16,404, which are the transactions after the second gap occurs, follow a uniform distribution.

21. Second, I performed a test known as the Chi-Squared Test to assess the likelihood that gaps of the size of Gap 1 and Gap 2 occur by chance in a uniformly distributed population.⁴ For this test, I looked at the gap created by five transactions: a) the transaction immediately before Gap 1 and Gap 2 respectively, b) the three transactions defining Gap 1 and Gap 2 respectively, and c) the transaction immediately following Gap 1 and Gap 2 respectively. Next, I compared the number of transactions expected in a gap of the same length as Gap 1 (and Gap 2 respectively) if the gaps were evenly distributed across. When applying the overall average gap between transactions, it would be expected to find 566 transactions in Gap 1 and 668 transactions in Gap 2. Statistical tests result in a p-value which measures the probability that an observed event is due to chance. The p-value to find 5 transactions in Gap 1 and Gap 2 when the expected number of transactions is 566 and 668 respectively, is approximately 5.31×10^{-266} which is virtually zero.⁵

Opinion 3: The exact probability that the gaps created by the two sets of three subsequent transactions given the distribution of gaps between the other 16,398 transactions is virtually zero.

22. I also performed an analysis where I calculated the exact probability of the occurrence of the longest gap that can be observed in the 16,404 transactions. The maximum gap length between two transactions in the data is 0.02081 which occurs between transaction

⁴ Hollander, Myles and Douglas Wolfe (1999), Non-parametrical Statistical Methods, 2nd Edition, Wiley Series in Probability and Statistics, Pages 458-473.

⁵ The odds of winning the Powerball lottery jackpot are 1 in 292,201,338. The p-value of 5.31×10^{-266} expresses lower odds than the odds of winning the jackpot in the Powerball lottery 31 times in a row.

numbers 5162 and 5163. The problem to be solved is to find the distribution of the maximum distance when a ruler of length 1 will be broken into $k+1$ fragments uniformly at random. The solution to this problem has been extensively researched and solutions have been provided in the statistical literature.^{6, 7}

23. More formally, let (T_1, T_2, \dots, T_k) be k independently and identically distributed Transaction IDs with a uniform distribution on the interval $(0,1)$. When sorting the Transaction IDs in ascending order, $(T(1), T(2), \dots, T(k))$ will be the corresponding order statistics.⁸ The maximum gap between two subsequent transactions can be express as $GAP_{max} = \max(T(1) - 0, T(2) - T(1), \dots, 1 - T(k))$. Following the paper by Pyke cited in Footnote 6 and following the proof of the distribution of the maximum order statistic⁹ calculating the probability that the maximum gap exceed a certain value x given that the normalized Transaction IDs follow a uniform distribution is given by:

$$i. P(AP \max > x) = 1 - \sum_{j=0}^{k+1} \binom{k+1}{j} (-1)^j (1 - jx)_+^k$$

Which evaluates to approximately 2.516×10^{-146} when plugging in $k=16,404$ and $x=0.02081$.¹⁰

24. This is about 100 times lower than the odds of winning the jackpot in the Powerball lottery 17 times in a row. As discussed above, this probability can be interpreted as a p-value for the test that the maximum gap length exceeds 0.02080. This probability should be treated like a p-value for statistical hypothesis test with the interpretation that the probability to observe a gap larger than 0.02080 by chance is infinitesimally small at

⁶ Pyke, Ronald (1965). "Spacings". *Journal of the Royal Statistical Society (Series B)* 27:3, Pages 395-449.

⁷ Pyke, Ronald (1972). "Spacings revisited", *Proceedings of the Sixth Berkeley Symposium on Mathematical Statistics and Probability, Volume 1: Theory of Statistics*, Pages 417-427., University of California Press, Berkeley, Calif., 1972.

⁸ The k th order statistic of a statistical sample is equal to its k th-smallest value – see, e.g., David, H. A. and H.N. Nagaraja (2003). *Order Statistics*. Wiley Series in Probability and Statistics.

⁹ <https://stats.stackexchange.com/questions/162560/distribution-of-the-largest-fragment-of-a-broken-stick's-spacings>.

¹⁰ Source code available here: <https://repl.it/repls/CelebratedCompassionateArguments>.

2.516×10^{-146} .

VI. SUMMARY AND CONCLUSIONS

25. In this Declaration, I discussed three statistical analyses that I performed: a) descriptive statistics and data visualization techniques, b) statistical hypothesis tests, and c) exact probability calculations. Based on these analyses, I formed the following three opinions:

Opinion 1: There are a total of two sets of three subsequent transactions that deviate significantly from the remaining 16,398 transactions in the sense that they create gaps between transactions that are highly unusual and could not possible have occurred naturally.

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Respectfully submitted – Los Angeles, CA on April 10, 2020.



Stefan Boedeker



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Education

- BS in Statistics,
University of Dortmund, Germany
- BA in Business Administration
University of Dortmund, Germany
- MS in Statistics
University of Dortmund, Germany
- MA in Economics
University of California, San Diego
- Met Ph.D. requirements except
dissertation in Economics,
University of California, San Diego

Professional Associations

- Member of the American Economic Association (AEA)
- Member of the American Statistical Association (ASA)
- Member of the Econometric Society
- Member of the Mathematical Association of America (MAA)
- Member of the American Association for Public Opinion Research (AAPOR)
- Member of the Insights Association (FKA MRA)
- In 2001 Stefan was a member of an AICPA task force dealing with Corporate Integrity Agreements (CIA). Stefan was responsible for issues related to statistical methodology utilized in CIA's.

Background

Stefan is a Managing Director at Berkeley Research Group where he focuses on the application of economic, statistical, and financial models to a variety of areas such as solutions to business issues, complex litigation cases, and economic impact studies. He has extensive experience applying economic and statistical theories and methodologies to a wide variety of cases where But-for-scenarios have to be developed based on probabilistic methods and where statistical predictive modeling has to be applied to assess liability and damages.

Stefan has applied these techniques in business disputes, single-plaintiff cases, multi-plaintiff cases, and class action proceedings in the areas of class certification, liability assessment, developing damages scenarios, and post settlement or judgment distributions.

Professional and Business Experience

Representative Engagements

Litigation

- » In a class action alleging misleading advertising practices, Stefan performed statistical analyses in the class certification stage.
- » For a major healthcare provider involved in a dispute with a potential class of more than 3,000 other providers over allegedly excessive outlier payments Stefan performed economic and statistical analyses. Ultimately, class certification was denied in that case.
- » In a class action alleging discriminatory allocation of public funds by a large metropolitan transportation authority, Stefan performed statistical analyses of transportation data.
- » In a multi-plaintiff case against a state authority on improper funding of special education programs, Stefan performed statistical analyses of funding related ledger data.
- » In a class action alleging improper practices of charges for gym memberships, Stefan performed statistical analyses in the class certification analysis. Based on the analysis, the ultimately certified class was significant smaller than initially defined. In this case, Stefan also developed statistical models to assess damages.

Exhibit A



- » In a class action alleging losses to consumers due to faulty window regulators in automobiles, Stefan utilized statistical models to assess economic damages.
- » In a class action against a large financial institution alleging fee overcharges for personal trust accounts, Stefan utilized statistical analyses to segment the account holders and ultimately reduce the size of the class.
- » In a class action case where a provider of a used car evaluation model was ordered by the court to test if their model did not significantly undervalued cars, Stefan performed statistical analyses.
- » In a class action case over fee overcharges in the payment process of car insurance, Stefan developed a distribution model of repayments to class members after a settlement had been reached.
- » In a class action of home owners over alleged diminution of property values due to proximity to a plume of contaminated soil, Stefan performed statistical analysis to assist counsel in a motion against class certification.
- » In a natural resource damage class action case, Stefan provided econometric analysis of property value loss due to proximity to a solid waste site utilizing hedonic regression models.
- » For a class action case involving potential damage from a landfill in a state park, Stefan analyzed data about travel, tourism and park attendance. Stefan specified and estimated linear regression models and time series models to predict park attendance.
- » In a class action case involving alleged diminution of property values due to ground-water contamination, Stefan specified and estimated hedonic regression models to show that other factors than the contamination contributed significantly to the loss in property value.
- » In a class action against a large financial institution alleging non-payment of coupon payments for bearer bonds Stefan designed and administered large-scale databases to reconstruct accounting records of a large financial institution's Corporate Trust Department. He developed statistical models to analyze bondholders' presentment behavior of Bearer bonds.
- » In a class action dispute between the Department of Interior and individual Native Americans over mismanagement of individual trust accounts, Stefan performed a statistical analysis of an electronic database with approximately 60 million records in order to draw a statistically valid sample of accounts for further analysis.
- » In a trademark infringement case of video equipment, Stefan calculated damages based on the defendant's unjust enrichment utilizing statistical time trend models.
- » For a shareholder derivative action against a leading publicly-traded health care provider, employed an econometric approach to quantify potential damages per share due to alleged section 10b-5 violations and other claims. For the same matter, developed a multi-trader model to estimate the number of shares potentially damaged.
- » In a dispute between a major health care provider and private payor groups, Stefan developed statistical stratified sampling models to assess exposure across different contract types.

Exhibit A



- » For a large financial institution's personal trust department involved in a consumer class action, Stefan designed a random sample to estimate the potential exposure due to fee overcharges.
- » For a computer equipment leasing company involved in an employee class action, Stefan utilized statistical models to estimate exposure due to alleged forfeiture of unpaid vacation time in a class action of former and current employees.
- » For a limousine company involved in a wage and hour class action, Stefan developed a statistical sampling based exposure model to quantify the impact of alleged unpaid overtime and missed meal breaks.
- » In several cases involving 12-hour shift workers at hospitals Stefan performed rebuttal analyses of plaintiff's damages computations.
- » For a large electronic retail chain Stefan calculated exposure based on the failure of paying overtime for store managers.
- » For a major department store Stefan performed a statistical analysis of manager surveys where he found significant differences in the managers' allocation of time across department and stores. Ultimately, due to these differences a class was not certified.
- » For a large sporting goods retail chain Stefan assisted in defining the size of the potential class and in estimating the potential exposure which led to a favorable, early settlement of the case.
- » For a women's shoes retail chain Stefan designed and statistically analyzed an observational study to quantify the amount of time spent on exempt versus non-exempt tasks.
- » For a video rental store chain Stefan developed sampling algorithms based on in-store security cameras to analyze time spent by assistant managers on exempt versus non-exempt activities.
- » For a large fast food chain Stefan directed a team collecting employee work information from restaurant locations in order to monitor and gain compliance in response to litigation
- » For a large mass merchandiser Stefan developed a document and data reconciliation tool and he developed a statistical sampling mechanism to proof compliance with a court ordered document retention procedures in the course of a wage and hour litigation.
- » Stefan worked with a Fortune 500 bank in a class action suit to review the claims of managers that were misclassified and should have been paid overtime. To compute damages, Stefan reviewed the overtime records of employees in this position prior to a job classification change and, in the absence of overtime data after the job classification change, Stefan reviewed sign in and sign out times of the office building.
- » For a long-term care provider Stefan used data from timesheets, payroll, and other scheduling records to create comprehensive reports showing potential exposure for each of the claimed areas: timely wage payment, overtime wage payment, adequate daily meal and rest break periods, and travel time compensation.

Exhibit A



- » For a maternity clothing store chain Stefan performed analyses related to exempt/non-exempt status issues for managers and assistant managers. Stefan also conducted a break time analysis for all employees.
- » For a commercial flooring contractor Stefan assessed the job duties and responsibilities of a group of supervisors. During the engagement, the scope of work expanded to include an analysis of misclassification and back-pay exposure for additional groups of employees.
- » For a software developer Stefan analyzed how department and project specific characteristics impacted the work flow and the correlation of that impact to certain exemptions.
- » For a large meatpacker Stefan conducted a time and motion study to properly assess the duration of certain separately compensated activities to rebut allegations of violation of minimum wage laws.
- » For a public university housing department Stefan conducted an extensive time and motion study to identify the tasks (and associated time range to perform each task) related to processing a contract cancellation.
- » For a large drugstore chain Stefan used in-store cameras for the smaller stores and actual in-store observations for the larger stores to conduct a time motion study and quantify the time spent by assistant managers on certain pre-defined tasks.
- » For a large public storage company Stefan conducted a detailed time and motion study to determine the cost of collection and administration of late payments. Using both self-logging and independent review techniques, Stefan defined each step in the late payment process, calculated the cost to the company for such activities, and compared this cost to the late fees under dispute.
- » For a large retail store chain Stefan performed statistical analyses of regularly conducted employee activity surveys.
- » For a mass merchandiser, Stefan conducted an observational study of activities of all individuals classified as managers to show significant differences in daily activities.
- » For a department store, Stefan conducted an in-store observational study of managers and assistance managers to assess the percentage of time spent on managerial tasks.
- » For a state ferry system in the Pacific Northwest, Stefan conducted an observational study of engine room personnel during shift changes to quantify potentially unpaid time worked.
- » For a large retail chain Stefan conducted an extensive analysis of the company's compliance with break time rules and regulations and also the employees' usage and potential abuse of break time.
- » For a large mass merchandise retailer Stefan compiled a comprehensive database of punch clock data, payroll data, point of sales data, hardcopy information about manual edits of time entries, store security system data, etc. to analyze allegations of inserting breaks, deleting time and forcing employees to work after they clocked out.

Exhibit A



- » For a large electronic retail chain Stefan analyzed time card data, point of sales data and other store specific attributes to quantify potentially missed meal and rest breaks.
- » In a gender discrimination case involving a client in the food processing industry, Stefan analyzed the impact of the implementation of an Affirmative Action Plan on the allegedly discriminatory employment practices.
- » In a class action case alleging age discrimination for a vegetable seed company, Stefan performed rebuttal work of the plaintiff's expert's liability and damages analysis.
- » In a class action case alleging age discrimination for a major aerospace company, Stefan performed statistical analyses to rebut allegations of age discrimination.
- » In a class action race discrimination suit against the Alabama Department of Transportation, Stefan developed statistical regression models and tests to analyze the alleged discrimination.
- » In a class action gender discrimination case against a large real estate brokerage firm, Stefan provided deposition testimony to class certification issues.
- » In a gender discrimination case against a temporary employment agency, Stefan performed econometric analyses to disprove salary discrimination against two former female employees. Stefan addressed plaintiffs' expert's damages calculations and developed alternative scenarios.
- » For a large meat processing plant, Stefan performed statistical analyses of employment data to address allegations of discriminatory hiring practices.
- » For a leading publicly-traded developer of enterprise management software, Stefan employed a statistical approach to demonstrate the diversity of investment styles among proposed lead plaintiffs for a securities class action lawsuit alleging section 10b-5 violations and other claims. For the same matter, Stefan employed an econometric approach to estimate potential damages for each lead plaintiff.
- » For a leading publicly-traded developer of enterprise management software, Stefan employed an econometric time-series model to analyze allegations of insider trading and the timing of certain stock transactions relative to information available to officers in the company.
- » For a shareholder derivative action against a leading publicly-traded health care provider, employed an econometric approach to quantify potential damages per share due to alleged section 10b-5 violations and other claims. For the same matter, developed a multi-trader model to estimate the number of shares potentially damaged.
- » For a publicly-traded manufacturer of office supplies, developed a Black-Scholes application and utilized a binomial distribution probability methodology to evaluate the appropriateness of the size of a loan loss reserve related to a loan collateralized by the assets of an employee stock purchase plan.
- » For a large software developer, Stefan performed statistical modeling to assist in a securities class action litigation involving allegations of improper revenue recognition, reserve allocations, financial statement disclosures and other accounting irregularities

Exhibit A



- » For a failed computer hardware company in defense of a 10b-5 securities litigation action, Stefan performed statistical analyses of accounting transactions, inventory and receivable reserves and the auditor's work papers in its evaluation of the allegations.
- » In several Rule 10b(5) class actions, Stefan used the event study approach to calculate the value line of a security. In these cases Stefan applied complex and advanced one, two, and multi-trader models.

Non-Litigation

- » For large grocery store chains, Stefan analyzed the effectiveness of a frequent shopper card program utilizing data mining techniques. He also analyzed customer data to facilitate the introduction of one-to-one marketing tools.
- » For a grocery store chain, Stefan utilized econometric elasticity models to recommend pricing strategies for in-store promotions.
- » For a grocery store chain, Stefan developed customer segmentation models to design segment specific marketing campaigns.
- » For the American Film Marketing Association, Stefan performed an economic impact study of the influence of the independent film producers and distributors on the U.S. economy in general, and the California economy in particular.
- » For a large entertainment client, Stefan developed statistical models to predict the return of video cassettes and DVDs.
- » For several clients in the retail industry, Stefan developed statistical models to estimate the liability of unredeemed gift certificates.
- » For a client in the restaurant business, Stefan developed statistical models to quantify the dollar amount of outstanding unredeemed gift certificates.
- » For a major hotel chain, Stefan developed statistical models to forecast the redemption of frequent traveler program points for tax purposes.
- » For a high profile e-commerce company, Stefan's team produced an interactive business decision tool to forecast company growth and profitability. The interactive model allows the client, through the choice of a few fundamental inputs, to measure the simultaneous impact on all cost and revenue dimensions of the company, including real estate and equity participation.
- » For the Nevada Resort Association, Stefan quantified the economic impact of the gaming industry with special emphasis on the accelerated population growth in greater Las Vegas.
- » For the Los Angeles Unified School District, Stefan performed an economic study about the impact of different recycling programs.
- » For the Los Angeles County Department of Health Services, Stefan conducted a time and motion study to determine the time required to complete specific Medi-Cal eligibility and provider forms.

Exhibit A



- » For the Arizona Tax Research Association, Stefan developed economic models to quantify the revenue impact of a proposed change of taxation in the construction sector in Arizona.
- » For a hotel property management company, Stefan analyzed customer data, and used data mining methods to develop predictive models for customer acquisition, retention, and attrition.
- » For a project analyzing the extent of competition in the market segments of a pipeline company, Stefan estimated regression and Tobit-models to determine optimal bidding behavior for gas storage demand. He prepared testimony given in filings before the Federal Energy Regulatory Commission (FERC).
- » For a hotel property management company, Stefan developed a demand driven yield management system.
- » For a company providing self-storage space, Stefan developed a demand driven price-setting strategy utilizing own- and cross-price elasticity regression models.
- » For a high-tech start-up with a unique service offering of new products, Stefan recommended product-pricing scenarios.
- » For a large international conglomerate, Stefan developed customized data mining techniques for the implementation within a customer knowledge management system.
- » For a large law firm, Stefan performed a comprehensive statistical analysis of Los Angeles Superior Court jury verdicts over the last decade. The project tested the hypothesis of systematic bias in particular courthouses with respect to plaintiff-win probability, length of trial, length of deliberation, and dollar amounts awarded.

Depositions

1. MRO Communications, Inc vs. American Telephone and Telegraph Company, United States District Court District of Nevada, Case. No. -5-95-903-PMP, Deposition on September 26, 1996
2. Yolanda Aiello Harris, individually and on behalf of all others similarly situated; Jennifer Hopkins, individually and on behalf of others similarly situated; Shannon L. Bradley, individually and on behalf of others similarly situated, Plaintiffs, vs. CB Richard Ellis, Inc., a California corporation; CB Commercial INC., a California corporation; Defendants, Superior Court of California, County of San Diego, Case No. GIC 745044, Deposition on January 5, 2001.
3. State of Tennessee, ex rel., Douglas Sizemore, Petitioner vs. Xantus Healthplan of Tennessee, Inc., Chancery Court of Davidson County, Tennessee at Nashville, Case No 99-917-II, Deposition on October 11, 2001.
4. Howard Wright, Inc., a California corporation doing business as AppleOne Employment Services, Plaintiffs, vs. Olsen Staffing Services, Inc., a Delaware Corporation, Dagny Smith, an individual, Vicky Riechers, an individual, and Linda Shiftman, an individual, Defendants, Superior Court of the State of California for the County of Los Angeles, Case No. BC 200657, Deposition on December 7, 2001.



5. Sacred Heart Medical Center, et al., Plaintiffs, -vs- Department of Social and Health Services, and Dennis Braddock, the Secretary of the Department of Social and Health Services, Defendants, Superior Court of the State of Washington in and for the County of Thurston, No. 00-2-01898-1, Deposition on January 23, 2003.
6. Patrick Bjorkquist individually and on behalf of all others similarly situated, Plaintiff, vs. Farmers Insurance Company of Washington, Defendant, in the Superior Court of the State of Washington for King County, Case No.: 02-2-11684-1 SEA, Deposition on November 3, 2003.
7. Diversified Property, a general partnership, Dora Saikhon Family Trust, and Nancy Saikhon Borrelli, an individual, Plaintiffs vs. Manufacturers Life Insurance (U.S.A.), a Michigan corporation, erroneously sued as Manufacturers Life Insurance Company, Inc., Defendants in the Superior Court of California, County of San Diego, Case No.: GIC 815128, Deposition on July 21, 2004.
8. Alan Powers, Plaintiff, vs. Laramar Group et al., Defendants in the United States District Court, Northern District of California, No. C-02-3755 SBA, Deposition on August 27, 2004.
9. Group Anesthesia Services, A Medical Group, Inc., Claimant, vs. American Medical Partners of North Carolina, Inc., etc., et al., Respondents, JAMS Arbitration, Reference No. 1100040919, Deposition on February 9, 2005.
10. Group Anesthesia Services, A Medical Group, Inc., Claimant, vs. American Medical Partners of North Carolina, Inc., etc., et al., Respondents, JAMS Arbitration, Reference No. 1100040919, Deposition on March 11, 2005.
11. Fujitsu v. Cirrus Logic et al., United States District Court, Northern District of California, San Jose Division, Case No. 02CV01627. Deposition on April 21 and 22, 2005.
12. Goldman et al. v. RadioShack Corporation, United States District Court, Eastern District of Pennsylvania, Case No. 03 CV 0032, Deposition on May 18, 2005.
13. Perez et al. v. RadioShack Corporation, United States District Court, Northern District of Illinois, Eastern Division, Case No. 02-CV-7884, Deposition on December 13, 2005.
14. United States of America ex rel. A. Scott Pogue v. American Healthcorp Inc., Diabetes Treatment Centers of America Inc., et al., United States District Court, Middle District of Tennessee at Nashville, Civil No. 3-94-0515, Deposition on May 12, 2006.
15. School Districts' Alliance v. State of Washington, United States District Court, Eastern District of Thurston, Case No. 04-2-02000-7, Deposition on July 20, 2006.
16. Boca Raton Community Hospital, Inc., a Florida not-for-profit corporation d/b/a Boca Raton Community Hospital, on behalf of itself and on behalf of Class of all others similarly situated v. Tenet Healthcare Corp., a Nevada Corporation, United States District Court, Southern District of Florida, Miami Division, Case No. 05-80183-CIV-SEITZ/MCALILEY, Deposition on July 25, 2006.
17. Boca Raton Community Hospital, Inc., a Florida not-for-profit corporation d/b/a Boca Raton Community Hospital, on behalf of itself and on behalf of Class of all others similarly situated v. Tenet Healthcare Corp., a Nevada Corporation, United States District Court, Southern District of Florida, Miami Division, Case No. 05-80183-CIV-SEITZ/MCALILEY, Deposition on October 13, 2006.

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18. Louise Ogborn v. McDonald's Corporation et al., Commonwealth of Kentucky 55th Judicial District, Bullitt County Circuit Court, Case No. 04-CI-00769, Deposition on October 19, 2006.
19. Elise Davis v. Kohl's Department Stores, Inc. consolidated with Rosie Grindstaff v. Kohl's Department Stores, Inc., Superior Court of the State of California for County of Los Angeles Central District, Case No. BC 327426 (lead case) consolidated with Case No. BC 341954, Deposition on April 25, 2007.
20. Norman Utley, et al., v. MCI, Inc., MCI Worldcom Communications, Inc., and MCI Network Services, Inc., formerly known as MCI Worldcom Network Services, Inc., United States District Court, Northern District of Texas, Dallas Division, Civil Action No. 3:05 - CV- 0046 - K, Deposition on May 30, 2007.
21. Ramon Moreno and Ernesto Morailo, on behalf of themselves and all others similarly situated v. Guerrero Mexican Food Products Inc., a division of Gruma Corporation; and Gruma Corporation, a Nevada Corporation, United States District Court, Central District of California, Case No. CV05-773RSWL(PLAx), Deposition on August 10, 2007.
22. Darensburg et al. v. Metropolitan Transportation Commission, U.S. District Court, Northern District of California, Case No. C-05-1597-EDL, Deposition on March 18, 2008.
23. In Re: King Pharmaceuticals, INC, Derivative Litigation, Lead Case No: BOO19077(M), The Chancery Court, Sullivan County at Bristol, Tennessee, Deposition on April 4, 2008.
24. P. Ansley et al. v. Lewis Homes of California, a California General Partnership, et al., Superior Court of the State of California, For the County of Solano, Case No. FCS02445, Deposition on April 10, 2008.
25. Personnel Plus v. Ashish Wahi et al., Superior Court of the State of California, County of Orange, Case No. 07CC08363, Deposition on August 13, 2008.
26. First Capitol Consulting Inc. v. LVX, Inc. et al., Superior Court of the State of California for the County of Los Angeles, Case No. BC378202, Deposition on October 27, 2008.
27. R. Molina et al. v. Lexmark International, Inc., Superior Court of the State of California for the County of Los Angeles, Case No. BC339177, Deposition on November 19, 2008.
28. In re National Century Financial Enterprises, Inc. Investment Litigation, No. 2:03-MD-1565-JLG-MRA (S.D. Ohio), Deposition on January 22, 2009.
29. New York City Employees' Retirement System, et al. v. Bank One, N.A., et al., Case No. 03-cv-09973 (LAK) (S.D.N.Y.), Deposition on January 22, 2009.
30. Dole Fresh Fruit International, Ltd, Hyundai Precision America, Inc., JAMS Arbitration, ADRS Case #05-1138-RTA, Deposition on December 21, 2009.
31. D. Berry, L. Hedges et al. v. Volkswagen of America, Inc. In The Circuit Court of Jackson County, Missouri, at Independence, No. 0516-CV01171 Division 2, Deposition on February 18, 2010.
32. D. Aberle et al. v. Davidson Builders, Inc., et al., Superior Court of the State of California, County of Orange, Case No.: 37-2008-00083718-CU-CD-CTL, Deposition on March 24, 2010.

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33. Urga, et al. v. Redlands Community Hospital, Superior Court of the State of California, County of San Bernardino, Case No. SCVSS 123769, Deposition on May 17, 2010.
34. Oberschlake, et al v. St. Joseph Hospital of Orange, et al, Superior Court of the State of California, County of Orange, Case No. 05CC00301, Deposition on August 12, 2010.
35. J. Morrison v. The Vons Companies, Inc., Superior Court of State of California, County of San Diego, Case No. 37-2009-00081026-CU-BT-CTL, Deposition on December 7, 2010
36. R. Pate, et al. v. Children’s Hospital of Orange County, Superior Court of California, County of Orange, Case No. 05CC00303, Deposition on April 13, 2011.
37. M. St. Croix, et al. v. Cedar Fair, L.P., et al., Superior Court of California, County of Orange, Case No. 30-2008-0214500, Deposition on August 22, 2011.
38. Steven Domalewski, a minor v. Hillerich and Bradsby Co., et al., Superior Court of New Jersey, Passaic County, Docket No.: PAS-L-2119-08, Deposition on January 5, 2012.
39. Cathleen McDonough, et al., v. Horizon Blue Cross/Blue Shield of New Jersey, United States District Court, District of New Jersey, Civil Action No. 09-cv-00571-(SRC) (PC), Deposition on January 10, 2012.
40. Daniel Ordonez, et al., v. Radio Shack, United States District Court, Central District of California, Case No. CV 10-07060 CAS (JCGx), Deposition on October 24, 2012.
41. Ameritox, Ltd., v. Millennium Laboratories, Inc., United States District Court, Middle District of Florida, Case No. 8:11-cv-00775-SCB-TBM, Deposition on December 20, 2013.
42. United States of America, ex rel. Glenda Martin v. Life Care Centers of America, Inc., United States District Court Eastern District of Tennessee at Chattanooga, Civ. Action No. 1:08-CV-251, Deposition on January 15, 2014.
43. United States of America, ex rel. Tammie Taylor v. Life Care Centers of America, Inc., United States District Court Eastern District of Tennessee at Chattanooga, Civ. Action No. 1:12-CV-64, Deposition on January 15, 2014.
44. Darren Smith, et al., v. Panera Bread Company, Superior Court of California, County of San Diego, Case No. 37-201-00084077 CU-BT-CTL, Deposition on April 30, 2014.
45. Joseph Hummel et al., v. Castle Principles, LLC et al., Superior Court of California, County of Santa Clara, Case No. 112CV223170, Deposition on June 19, 2014.
46. Sherman Way Oil, Inc. (Bijan Pouldar), American Pacific Enterprises Group (Sherwin Louie), Bahman Kohanteb, Hamid Kalhor, Claimants, Vs. Circle K Stores, Inc., Respondent, Alternative Dispute Resolution Case No’s 13-7103-DSC through 13-7106-DSC, Deposition on September 25, 2014.
47. In re: ExxonMobil Oil Corporation, et al., Southern California Bulk Sale Litigation, Case No. CV12-04689-PA (VBKx), Deposition on September 25, 2014.

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48. Oracle Wage and Hour Cases, Raghunandam Matam et al., v. Oracle Corporation, Superior Court of California, County of Alameda, No. RG-09480164, Deposition on October 21, 2014.
49. G. Taylor et al. v. Shippers Transport Express, Inc., et al., United States District Court, Central District of California, Case No.: CV13-02092-BRO (PLAx), Deposition on October 24, 2014.
50. Denise Mays et al. v. Children's Hospital of Los Angeles, Superior Court of California, County of Los Angeles, Case No. BC477830, Deposition on March 17, 2015.
51. Direct General Insurance Company v. Indian Harbor Insurance Company et al., United States District Court, Southern District of Florida, Miami Division, Case No. 14-20050-CIV-Cooke/Torres, Deposition on March 27, 2015.
52. Dennis Dickman v. Gerdau Reinforcing Steel, et al., Superior Court of California, County of San Bernardino, Case No. CIV-DS-1406231, Deposition on July 7, 2015.
53. Fred Devries, et al. v. Morgan Stanley & Co. LLC, et al., United States District Court, Southern District of Florida, Case No. 9:12-cv-81223-KAM, Deposition on July 31, 2015.
54. Dennis Dickman v. Gerdau Reinforcing Steel, et al., Superior Court of California, County of San Bernardino, Case No. CIV-DS-1406231, Deposition on September 11, 2015
55. Leah Davis, and Amy Krajec, et al. v. St. Jude Hospital, Superior Court of California, County of Orange, Case No. 30-2012-00602596-CU-OE-CXC, Deposition on January 19, 2016.
56. In re MyFord Touch Consumer Litigation, Whalen, et al. vs. Ford Motor Company, United States District Court Northern District of California San Francisco Division, Case No. 13-cv-3072-EMC, Deposition on February 23, 2016.
57. United States of America, ex rel. Glenda Martin v. Life Care Centers of America, Inc., United States District Court Eastern District of Tennessee at Chattanooga, Civ. Action No. 1:08-CV-251 & United States of America, ex rel. Tammie Taylor v. Life Care Centers of America, Inc., United States District Court Eastern District of Tennessee at Chattanooga, Civ. Action No. 1:12-CV-64, Deposition on March 4, 2016.
58. The United States of America and the State of Florida ex rel. Angela Ruckh v. CMC II LLC, United States District court for the Middle District of Florida Tampa Division, Civil Action No. 8:11 CV 1303 SDM-TBM, Deposition on March 16, 2016.
59. Bertha Sanchez, et al. v. St. Mary Medical Center, et al., Superior Court of the State of California for the County of San Bernardino, Case No. CIVDS 1304898, Deposition on July 13, 2016.
60. Christian Juarez, et al v. Dignity Health, a California corporation, et al., Superior Court of the State of California, County of Los Angeles, Central Civil West District, Case No. BC550950, Deposition on August 15, 2016.
61. In Re Dial Complete Marketing and Sales Practices Litigation, United States District Court, District of New Hampshire, Case No. 11-md-2263-SM (MDL Docket No. 2263), Deposition on August 30, 2016.

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62. In Re: Myford Touch Consumer Litigation, United States District Court, Northern District of California, San Francisco Division, Case No. 13-cv-3072-EMC, Deposition on September 16, 2016.
63. United Healthcare Insurance Company v. Lincare Inc., Case Improvement Plus of Texas Insurance Company: Care Improvement Plus South Central Insurance Company: Care Improvement Plus of Maryland, Inc. v. Lincare Inc., In an Arbitration Before the American Arbitration Association, Case No. 01-15-0003-4095, Deposition on December 21, 2016.
64. The Moses H. Cone Memorial Hospital Operating Corporation d/b/a Cone Health v. Springfield Service Corporation d/b/a SPI Healthcare, United States District Court for the Middle District of North Carolina, Civil Action No. 1:13-cv-651, Deposition on January 17, 2017.
65. The People of the State of California, acting by and through Orange County District Attorney Tony Rackauckas v. General Motors LLC, Superior Court of the State of California in and for the County of Orange Complex Litigation Division, Case No. 30-2014-00731038-CU-BT-CX, Deposition on April 20 and 21, 2017.
66. In Re: Emerson Electric Co. Wet/Dry Vac Marketing and Sales Litigation, United States District Court for the Eastern District of Missouri, MDL No. 2382, Civil Action No. 4:12-md-2382-HEA, Deposition on May 17, 2017.
67. The People of the State of California, acting by and through Orange County District Attorney Tony Rackauckas v. General Motors LLC, Superior Court of the State of California in and for the County of Orange Complex Litigation Division, Case No. 30-2014-00731038-CU-BT-CX, Rebuttal Deposition on June 13, 2017.
68. Clayton Dezan, et al. v. Dignity Health, a California Corporation; Community Hospital of San Bernardino, et al, Superior Court of The State of California for the County of San Bernardino, Case No. CIVDS1516658, Deposition on August 22, 2017.
69. Millennium Health, LLC v. Blue Shield of California, Counterclaim, Blue Shields of California v. Millennium Health, LLC, American Arbitration Association, Case No. 01-15-0005-5926, Deposition on August 24, 2017.
70. Matthew Townsend, et al. v. Monster Beverage Corporation and Monster Energy Company, United States District Court Central District of California, Case No. 5:12-cv-02188 VAP (KKx), Deposition on September 20, 2017.
71. Welltower Inc., v. Scott M. Brinker, In the Court of Common Pleas Lucas County, Ohio, Case No. CI-17-2692, Deposition on October 4th, 2017.
72. In Re Seagate Technology LLC Litigation, United States District Court, Northern District of California San Jose Division, Case No. 5:16-cv00523-RMW, Deposition on December 12th, 2017.
73. Joanne Hart and Sandra Bueno v. BHH, LLC d/b/a Bell + Howell and Van Hauser LLC, United States District Court for the Southern District of New York, Case No. 1:15-CV-04804-WHP, Deposition on January 26th, 2018.
74. Thomas Davidson, et al v. Apple Inc., United States District Court Northern District of California San Jose Division, Case No. 5:16-cv-04942-LHK, Deposition on January 29, 2018.

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75. In Re: General Motors, LLC Ignition Switch Litigation, United States District Court Southern District Of New York, Case No. 14-MD-2543 (JMF), Deposition on February 6th and 7th, 2018.
76. Bertha Sanchez, et al. v. St. Mary Medical Center, Superior Court of the State of California for the County of San Bernardino, Case No. CIVDS 1304898, Deposition on March 29, 2018.
77. The State of Texas v. Xerox Corporation, et al., The District Court 53rd Judicial District Travis County, Texas, Cause No. D-1-GV-14-000581, Deposition on April 12, 2018.
78. Wendy Manemeit, et al. v. Gerber Products Co., The United States District Court for the Eastern District of New York, No. 2:17-cv00093, Deposition on May 10, 2018.
79. Theodore Broomfield, et al., v. Craft Brew Alliance, Inc., et al., United States District Court, Northern District of California, San Jose Division, Case No. 5:17-cv-01027-BLF, Deposition on June 20, 2018.
80. In RE: General Motors, LLC Ignition Switch Litigation, United States District Court, Southern District of New York, Case No. 14-MD-2543 (JMF), Deposition on July 5, 2018 and July 6, 2018.
81. Brendan C. Haney v. Costa Del Mar Inc., In The Circuit Court, Fourth Judicial Circuit, in and for Duval County, Florida, Case No. 16-2017-CA-004797-XXXX-MA, Deposition on November 27, 2018.
82. Patricia Weeks, et al. v. Google LLC, United States District Court Northern District of California San Jose Division, Case No. 5:18-cv-00801-NC, Deposition on December 21, 2018.
83. Frederick Sharp v. Wolf Appliance, Inc., The United States District court for the Eastern District of New York, Civil Action No. 1:18-CV-01723-JS-GRB, Deposition on January 3, 2019.
84. Kellie Loeb, et al. v. Champion Petfoods USA Inc. and Champion Petfoods LP, United States District Court Eastern District of Wisconsin Milwaukee Division, Case No. 2:18-cv-00484-JPS, Deposition on January 8, 2019.
85. Fremont Emergency Services (Mandavia), Ltd v. Rocky Mountain Hospital and Medical Service, Inc. d/b/a Anthem Blue Cross and Blue Shield and HMO Colorado, Inc. d/b/a HMO Nevada, In the Judicial Arbitration and Mediation Services, JAMS No. 12600004507, Deposition on January 25, 2019.
86. United States of America ex rel. Lori Morsell, v. Symantec Corporation, United States District Court for The District of Columbia, C.A. No. 12-0800 (RC), Deposition on February 28, 2019.
87. Jeff Young v. Cree, Inc., United States District Court Northern District of California Oakland Division, Case No. 4:17-cv-06252-YGR, Deposition on March 12, 2019.
88. Raymond Foreman et. al. v. Shlomo Rechnitz et. al., JAMS Judicial Arbitration, No. 120052954, Deposition on March 21, 2019.
89. Thomas Davidson, et al v. Apple Inc., United States District Court Northern District of California San Jose Division, Case No. 5:16-cv-04942-LHK, Deposition on March 27, 2019.

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90. Sepehr Forghani, as an aggrieved employee pursuant to the Private Attorney General Act (“PAGA”) v. Whole Foods Market California, Inc., a California Corporation; Mrs. Gooch’s Natural Food Markets, Inc., a California Corporation, Superior Court of The state of California, County of Los Angeles, Case No. BC637964, Deposition on April 16, 2019.
91. Weiner v. Ocwen Financial Corporation, United States District Court, Eastern District of California, Case No. 2:14-cv-02597-MCE-DB, Deposition on April 19, 2019.
92. Dennis MacDougall, Ray Seow, Prabhanjan Kavuri, Richard Frick, Joseph Ryan Parker, and Bryan Lentz v. American Honda Motor Co., Inc., and Honda North America, Inc., United States District Court, Central District of California, Case No. 8:17-cv-01079, Deposition on April 23, 2019.
93. Yan Mei Zheng-Lawson v. Toyota Motor Corporation, Toyota Motor North America, Inc., and Toyota Motor Sales U.S.A., Inc., United States District Court, Northern District of California, Case No. 17-CV-06591-BLF, Deposition on June 28, 2019.
94. Shaya Eidelman v. The Sun Products Corporation and Costco Wholesale Corporation, United States District Court, For The Southern District of New York, Case No. 7:16-cv-03914-NSR, Deposition on July 22, 2019.
95. Dara Fresco and Canadian Imperial Bank of Commerce, Ontario Superior Court of Justice, Court File No. 07-CV-334113CP, Deposition on October 3, 2019.
96. Inteliquent, Inc. v. Free Conferencing Corporation; HDPSTN, LLC d/b/a HD Tandem; Wide Voice, LLC; Yakfree, LLC; and Carrierx, LLC, United States District Court for the Northern District of Illinois Eastern Division, Case No. 1:16-CV-06976, Deposition on October 18, 2019.
97. Elaine Rice and Alex Kukich v. Electrolux Home Products, Inc., United States District Court for The Middle District of Pennsylvania, Case No. 15-cv-00371, Deposition on December 13, 2019.
98. Richard Sotelo, et al. v. Rawlings Sporting Goods Company, Inc., United States District Court Central district of California, Case No. 2:18-cv-09166-GW-MAA, Deposition on February 14, 2020.
99. Kieran O’Hara, et al. v. Diageo Beer Company USA & Diageo North America, Inc., United States District Court District of Massachusetts, Case No. 1:15-cv-14139-MLW, Deposition on February 20, 2020.

Testimony

1. State of Tennessee, ex rel., Douglas Sizemore, Petitioner vs. Xantus Healthplan of Tennessee, Inc., Chancery Court of Davidson County, Tennessee at Nashville, Case No 99-917-II, Trial Testimony on October 16, 2001.
2. State of Tennessee, ex rel., Douglas Sizemore, Petitioner vs. Xantus Healthplan of Tennessee, Inc., Chancery Court of Davidson County, Tennessee at Nashville, Case No 99-917-II, Rebuttal Testimony on October 26, 2001.



3. Howard Wright, Inc., a California corporation doing business as AppleOne Employment Services, Plaintiffs, vs. Olsen Staffing Services, Inc., a Delaware Corporation, Dagney Smith, an individual, Vicky Riechers, an individual, and Linda Shiftman, an individual, Defendants, Superior Court of the State of California for the County of Los Angeles, Case No. BC 200657, Trial Testimony on March 4, 2002.
4. Columbia/HCA Healthcare Corporation - Billing Practices Litigation, United States District Court, Middle District of Tennessee, Nashville Division, Case No. 3-98-MDL-1227 on June 28, 2002.
5. Sacred Heart Medical Center, et al., Plaintiffs v. Department of Social and Health Services, and Dennis Braddock, the Secretary of the Department of Social and Health Services, Defendants, Superior Court of the State of Washington in and for the County of Thurston, No. 00-2-01898-1, Testimony in Liability Trial on April 14, 2003.
6. Diversified Property, a general partnership, Dora Saikhon Family Trust, and Nancy Saikhon Borrelli, an individual, Plaintiffs v. Manufacturers Life Insurance (U.S.A.), a Michigan corporation, erroneously sued as Manufacturers Life Insurance Company, Inc., Defendants in the Superior Court of California, County of San Diego, Case No.: GIC 815128, Trial Testimony on October 25, 2004.
7. Bridgestone/Firestone North American Tire v. Sampo Japan Ins. Co. of America, United States District Court for the Middle District of Tennessee Nashville Division Civil Action NO. 3-02-1117 on March 7, 2005
8. Group Anesthesia Services, A Medical Group, Inc., Claimant, vs. American Medical Partners of North Carolina, Inc., etc., et al., Respondents, JAMS Arbitration, Reference No. 1100040919, Arbitration Testimony on March 23, 2005.
9. Goldman et al. v. RadioShack Corporation, United States District Court, Eastern District of Pennsylvania, Case No. 03 CV 0032, Testimony in Liability Trial on June 28 and 29, 2005.
10. Goldman et al. v. RadioShack Corporation, United States District Court, Eastern District of Pennsylvania, Case No. 03 CV 0032, Rebuttal Testimony in Liability Trial on July 5, 2005.
11. Mauna Loa Vacation Ownership LLP v. Accelerated Assets, LLP. United States District Court, District of Arizona, Case No. CIV 03-0846 PCT DGC. Trial Testimony on February 22, 2006.
12. School Districts' Alliance v. State of Washington, United States District Court, Eastern District of Thurston, Case No. 04-2-02000-7, Trial Testimony on November 13, 2006.
13. In the Matter of Premier Medical Group, PC, Appellant – Department of Health and Human Services, Office of Medicare Hearings and Appeals, Southern Field Office, ALJ Appeal No. 1-221579701, Medicare Appeal No. 1-18761858, Provider No. 3706654, AR No. 9406352171039, Judge Zaring Robertson, US Administrative Law Judge, Testimony on April 1, 2008.
14. Darensburg et al. v. Metropolitan Transportation Commission, U.S. District Court, Northern District of California, Case No. C-05-1597-EDL, Trial Testimony on October 9, 2008.
15. R. Molina et al. v. Lexmark International, Inc., Superior Court of the State of California for the County of Los Angeles, Case No. BC339177, Trial Testimony on October 22 and 26, 2009.

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16. Dole Fresh Fruit International, Ltd, Hyundai Precision America, Inc., ADRS Case #05-1138-RTA, Trial Testimony on February 19, 2010.
17. In the matter of University of Tennessee Cancer Institute, ALJ Appeal No. 1-446 575 318, Office of Medicare Hearings & Appeals, Judge Z. Robertson, US Administrative Law Judge, Testimony on April 20, 2010.
18. Urga, et al. v. Redlands Community Hospital, Superior Court of the State of California, County of San Bernardino, Case No. SCVSS 123769, Trial Testimony on July 20, 2010.
19. Marine Engineers' Beneficial Association v. Department of Transportation, Ferries Division Federal Mediation & Conciliation Service Cause No. 110105-52404-6 AGO Matter No. 10499471, July 19, 2011.
20. Richard Robinson v. County of Los Angeles, et. al., United States District Court of California, Central District, Case No. CV06-2409 GAF (VBKx), Trial Testimony on December 1, 2011.
21. In the matter of American Home Patient, ALJ Hearing, Appeal No. 1-982137828, Office of Medicare Hearings & Appeals, Miami Office Southern Field Division, Testimony on October 29, 2012.
22. In the matter of American Home Patient, ALJ Hearing, Appeal No. 1-924297238, Office of Medicare Hearings & Appeals, Irvine Office Western Field Division, Hearing Testimony on February 28, 2013.
23. TaylorMade Golf Company Challenge to Callaway Golf Company's Final Response, National Advertising Division, New York, Testimony on March 13, 2013.
24. United States of America, ex rel. Tammie Taylor v. Life Care Centers of America, Inc., United States District Court Eastern District of Tennessee at Chattanooga, Civ. Action No. 1:12-CV-64, Testimony on May 13, 2014.
25. United States of America v. Houshang Pavehzadeh, United States District Court for the Central District of California, No. CR 13-0320-R, Testimony on May 19, 2014.
26. Sherman Way Oil, Inc. (Bijan Pouldar), American Pacific Enterprises Group (Sherwin Louie), Bahman Kohanteb, Hamid Kalhor, Claimants, Vs. Circle K Stores, Inc., Respondent, Alternative Dispute Resolution Case No's 13-7103-DSC through 13-7106-DSC, Arbitration Testimony on October 10, 2014.
27. Heidi's Children Dental Center (DC14-0813-204-LM) vs. Denti-Cal, Testimony at Administrative Law Judge Hearing, Judge Lewis Munoz, in Los Angeles on November 5, 2014.
28. AdvanceMed Audit of Altercare of Wadsworth, Medicare Appeal, Medicare Appeal No. 1-912446681, Bertha Sanchez, et al. v. St. Mary Medical Center, et al., Superior Court of the State of California for the County of San Bernardino, Case No. CIVDS 1304898, Certification Hearing Testimony on October 21, 2016.
29. Michael Bozsik v. Livingston International Inc., Ontario Superior Court of Justice, Court File No. 5270/14, Cross Examination Testimony on May 12, 2016.

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30. Bertha Sanchez, et al. v. St. Mary Medical Center, et al., Superior Court of the State of California for the County of San Bernardino, Case No. CIVDS 1304898, Certification Hearing Testimony on October 21, 2016.
31. In Re Dial Complete Marketing and Sales Practice Litigation, United States District Court, District of New Hampshire, Case No. 11-md-2263-SM (MDL Docket No. 2263), Hearing Testimony on November 16, 2016.
32. United Healthcare Insurance Company v. Lincare Inc., Case Improvement Plus of Texas Insurance Company: Care Improvement Plus South Central Insurance Company: Care Improvement Plus of Maryland, Inc. v. Lincare Inc., In An Arbitration Before the American Arbitration Association, Case No. 01-15-0003-4095, Arbitration Testimony on February 6, 2017.
33. The United States of America and The State of Florida ex rel. Angela Ruckh v. CMC II, LLC, United States District Court for the Middle District of Florida Tampa Division, Civil Action No. 8:11 CV 1303 SDM-TBM, Trial Testimony on February 8, 2017.
34. Federal Government of Germany v. A Consortium of Publicly Traded Companies in an arbitration under the laws of Germany, Arbitration Testimony on March 21 and 22, 2017.
35. In Re Determination of Royalty Rates and Terms for Transmission of Sound Recordings by Satellite Radio and “Preexisting” Subscription Services (SDARS III), United States Copyright Royalty Judges The Library of Congress Washington, D.C., Docket No. 16-CRB-0001-SR/PSSR (2018-2022), Trial Testimony on May 9, 2017.
36. ZPIC Audit Appeal of Providence Health System Southern California, Office of Medicare Hearings and Appeals, OMHA Appeal Number 1-1823418684, Hearing Testimony on October 16, 2017.
37. New Beacon Healthcare Group, LLC, Medicare Appeal Number 1-1269788965, Hearing Testimony on December 1, 2017.
38. Arriva Medical LLC, Office of Medicare Hearing and Appeals, ALJ appeal No. 1-1874414073, Post Pre-Hearing Conference Testimony on March 23, 2018.
39. Christopher Corbin, et al. v. Indus Investment, Inc., Superior Court of the State of California for the County of Los Angeles, Case No. BC565881, Trial testimony on April 6, 2018.
40. Toll Collect GmbH v. Federal Republic of Germany, Hearing Testimony on April 16, 2018.
41. Arriva Medical, LLC, ALJ Appeal No: 1-1945149644 (Sub-Universe August 2013), Appellant’s Hearing Testimony on April 18, 2018.
42. Arriva Medical, LLC, ALJ Appeal No: 1-2049326076 (Sub-Universe September 2013), Telephonic Hearing Testimony on September 11, 2018.
43. Arriva Medical, LLC, ALJ Appeal No: 1-1572478459 (Sub-Universe January to June 2013), Telephonic Hearing Testimony on September 20, 2018.

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44. Brendan C. Haney v. Costa Del Mar Inc., In The Circuit Court, Fourth Judicial Circuit, in and for Duval County, Florida, Case No. 16-2017-CA-004797-XXXX-MA, Hearing Testimony on December 5, 2018.
45. Arriva Medical, LLC, ALJ Appeal Number: 1-2159094909, Telephonic Hearing Testimony on January 23, 2019.

Speaking Engagements

1. Washington Health Care Conference, May 2016.
2. 4th Advanced Forum on False Claims & Qui Tam Enforcement Conference, January 2017.
3. False Claims Act/Qui Tam Whistleblowers Litigation: Hot Buttons in 2017 Live Webcast, March 2017.
4. Fraud & Abuse: Part II – Understanding Statistical Sampling, Live Webcast, September 2017.
5. American Hospital Association Chief Compliance Officers Roundtable: Defending against audits using statistical sampling and extrapolation, April 2018.
6. How to Effectively Use Statistical Sampling in Class Action Litigation: Tips and Strategies in 2019 Live Webcast, December 2018.
7. Statistical Sampling in Healthcare Audits and Investigations, HCCA’s 23rd Annual Compliance Institute, April 9, 2019.

Publications

Boedeker, Stefan and Goetz Trenkler (2001) - "A Comparison of the Ridge and Iteration Estimator" - in: Econometric Studies: A Festschrift in Honour of Joachim Frohn (ed. by Ralph Friedmann, Lothar Knueppel, and Helmut Luetkepohl), New Brunswick

Professional and Business History

- » Berkeley Research Group, 2010 - Present, Managing Director
- » Resolution Economics, 2008 - 2010, Partner
- » Alvarez & Marsal, 2007 - 2008, Managing Director
- » LECG LLC, 2005 - 2007, Director

Exhibit A



- » Navigant Consulting Inc., 2004 -2005, Managing Director in Litigation and Investigation Practice
- » Deloitte & Touche LLP, 2003 - 2004, Leader of the Economic and Statistical Consulting Practice in the West Region
- » PricewaterhouseCoopers LLP, 2002 - 2003, Leader of the Litigation Consulting Group in Los Angeles, Leader of the Economic and Statistical Consulting Practice in the West Region
- » Andersen LLP, 1992 - 2002, Partner (since 2000), last position held: Director of Economic and Statistical Consulting practice in the Pacific Region
- » University of California, San Diego, 1989 - 1991, Teaching Assistant, Department of Economics
- » German Government, 1986 - 1989, Economic Research Assistant