

Dr. Rahul Surana

Ph.D., MBA, CFA, FRM, CAIA, ERP

Rahul Surana
Director

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Education

MBA
University of California, Berkeley

PhD in Chemical Engineering
Pennsylvania State University

BS in Chemical Engineering
University Department of Chemical
Technology, Mumbai, India

Employment History

- Director, Navigant Consulting
- Principal, AFE Consulting
- Senior Managing Consultant, LEGG
- Managing Consultant, LEGG
- Senior Process Engineer, Applied Materials
- Process Engineer, Lam Research

Professional Designation

- Energy Risk Professional (ERP)
- Certified Financial Analyst (CFA)
- Financial Risk Manager (FRM) GARP
- Chartered Alternative Investment Analyst (CAIA)
- Arbitrator, Financial Industry Regulator Authority (FINRA)

Dr. Rahul Surana is a Director with Navigant. He holds a PhD in chemical engineering from Penn State University, an MBA from the University of California at Berkeley and a BS in Chemical Engineering from the University Department of Chemical Technology, Mumbai, India. Dr. Surana is a CFA (Chartered Financial Analyst) charter holder, and also holds CAIA (Chartered Alternative Investment Analyst), FRM (Financial Risk Manager) and ERP (Energy Risk Professional) certifications.

Dr. Surana is an expert in valuation of intellectual property, technical know-how especially related to hi-tech companies. He recently submitted an expert report on the value of technical know-how of Wind Turbine Generators. He has also provided expert report on the valuation of private semiconductor company. He has consulted on valuation, lost profits, and economic damages related to technologies such as SoC, and DRAM. Dr. Surana has several patents in technology industry and has published articles in leading journals in finance, engineering and technology.

Dr. Surana's CFA and CAIA designation has provided him with tools and knowhow to value business, including intangibles such as intellectual property, equity interest, minority share, etc... Dr. Surana holds Energy Risk Professional Certification (ERP) and has consulted on investment in energy-related projects. He has implemented valuation techniques including discounted cash flow, market based approach using earnings multiples.

Dr. Surana is a FIRNA arbitrator and sits on a panel of judges to hear disputes between investors and securities firms. FINRA is the largest independent regulator of securities firms in the United States. As an arbitrator he hears all sides of the issues as presented by parties, studies evidence, and then provides his decision on how the matter should be resolved.

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Professional Experience

- **Trial Testimony**

- Addison Mraz V. Robert Nelson and Loeff, Cabraser, Heimann & Bernstein LLP. Provided expert testimony in Superior Court of the State of California, Central District, Los Angeles, December 16, 2015. The matter was related to the choice of security for investment of settlement proceeds.
- Enercon, GmbH. and Wobben Properties, GmbH. v. Wind World (India) Limited, Yogesh Mehra, Ajay Mehra. Provided expert testimony in the international arbitration court. London, December 8-9, 2015. The matter was related to royalty rate for intellectual property related to wind energy.

- **Deposition**

- Addison Mraz V. Robert Nelson and Loeff, Cabraser, Heimann & Bernstein LLP in Superior Court of the State of California, Central District, April 24, 2015.

- **Expert Report**

- Enercon, GmbH. and Wobben Properties, GmbH. v. Wind World (India) Limited, Yogesh Mehra, Ajay Mehra filed for arbitration tribunal in London on November 3, 2015.
- Robert Gerald Miller V. Margaret Josephine Antonier filed in Superior Court of Quebec on July 10, 2014.

- **FINRA Arbitration Panel Judge**

- FINRA Dispute Resolution Arbitration Number 08-03782; Andrew Balistreri and Sheila Balistreri, et. al. vs. Legent Clearing LLC, Legent Group, et. al. The matter was related to suitability of investment for retired investors.
- FINRA Dispute Resolution Arbitration Number 09-03572; Banc of America Investment Services, Inc. v. Arthur Y. Mitsutome. The matter was related to recovery of certain employment-related advance payments made to a financial advisor

- **Selected Project Descriptions**

- Provided expert report on the value of wind turbine technology knowhow that was provided by Enercon to Wind World India Ltd. for the period between 2006 and 2015. The analysis involved researching and measuring the value of intellectual property in

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the wind energy markets and providing a detailed report on the findings and assumptions of an appropriate royalty rate.

- Provided expert report on the valuation of a private semiconductor company for a divorce matter. The analysis involved formulating assumptions for the growth and cyclicity of revenues in semiconductor industry. The report was submitted to a Superior Court in Quebec, Canada.
- Researched on valuation of intangibles that were donated by a large multinational corporation to a university in lieu of tax deductions. Valued each technology and patent right that was donated using real options method.
- Provided valuation model and research report for investment in a Brazilian wind farm project for a large pension fund. The model enable to understand risk and return for an investment in the wind farm project that the pension fund was contemplating. Provided additional information on risk-return analysis for investments in alternative assets.
- Risk return analysis of investment in structured settlement annuities vs. investment in stocks, bonds, and other alternative assets. The analysis included the impact of taxes on the investment gains and considered non-monetary impact of investment flexibility and ability to protect against adverse economic conditions.
- Consulted on a solvency analysis on a multi-billion dollar M&A transaction in the chemical industry that fell apart. Provided review of the cash flow models used for valuation and solvency tests that were conducted in this regard. The matter eventually went to litigation and the judgment was in client's favor.
- Valued Total Shareholder Returns (TSR) grants issued by a large hi-tech company. The grant payoff would depend on the company's percentile rank of total return among a selected group of peer companies. The analysis involved performing Monte Carlo simulations to predict the TSR value as of the grant date. Performed a sensitivity analysis of the value of the stock option grant to the underlying option valuation parameters.
- Addressed tax, discount, and price impact related issues with respect to large, minority interest in restricted stocks, options for investors in public and private companies.
- Consulted on transfer pricing and royalty rate analyses for technologies in semiconductor industry including DRAM.
- Researched the trading data for a major investment bank that was affected in the 2007-2008 subprime related events. Developed sophisticated models to estimate potential damages for bond holders.
- Analyzed the relative performance of alternative 401(K) plans when a slow growth legacy company merged into a hi-tech company. The work involved identify trading pattern and risk appetite for employees.
- Valuation of restated stock option grants by a major public company to identify the

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material impact of the grants received by certain company executives. Provided research on comparable vesting, overhang and related employee option grant issues. Provided academic research on the effect of in-the-moneyness, option re-pricing and optimal exercise price for employee stock options.

- Analyzed very large and complex databases involving trading at NYSE to examine the questions of inter-positioning and trading-ahead violations.

Publications and Working Papers

- Tax Loss Harvesting of Actively Managed Strategies, working paper with Curt Overway, Peter Klos, and Jim Marquis.
- Executive Compensation Clawback Policy: Making Sense of Recovery Measurement with Alok Khare and Rick Ostiller, Risk and Compliance Magazine, Oct-Dec 2015.
- Economic Consequences: The Real Costs of U.S. Securities Class Action Litigation; with Mukesh Bajaj, Nikolai Caswell, Anand Goel, and Sumon C. Mazumdar; Released by U.S. Chamber Institute for Legal Reform, February 28, 2014.
- China's Corporate Bond Market Development: Information Asymmetry and Security Design Implications, with Andrew H. Chen, and Sumon Mazumdar, Chinese Economy (2011), Volume 44 (5), 6-33.
- Using Auctions to Price Employee Stock Options: The Case of Zions Bancorporation ESOARS, with Vikram Nanda and Sumon Mazumdar, Financial Analysts Journal, November/December 2009, Vol. 65, No. 6, pp: 79-99.
- The NUA Benefit and Optimal Investment In Company Stock In 401(K) Accounts, with Mukesh Bajaj, Vikram Nanda and Sumon Mazumdar, Research in Finance (2009), Volume 25, 203-227.
- A Matrix-Based Lattice Model To Value Employee Stock Options, with Mukesh Bajaj, Sumon Mazumdar and Sanjay Unni, Journal of Derivatives, Fall 2006, Volume 14 (1), 9-26.
- Defectivity Reduction in Copper CMP Process, with Ajoy Zutshi, J. Tang, Gary Lam, C. Garretson, Rajeev Bajaj and Fritz Redekar, Seventeenth International, VLSI Multilevel Interconnection Conference, June 27 -29, 2000.
- Advances in Chemical-Mechanical Planarization, MRS Bulletin Volume 27, No. 10, October 2002.: Integration Challenges for CMP of Copper, with Rajeev Bajaj, Ajoy Zutshi, Mehul Naik, and Tony Pan MRS Bulletin Volume 27, No. 10, October 2002.
- Evaluation of Inverse Gas Chromatography (IGC) for Prediction and Measurement of Diffusion Coefficients Near the Glass Transition Temperature of the Polymer, with Danner, R. P., and Duda, J. L., J. Polym. Sci., Part B: Polym. Phys., 35, 1233-1240 (1997).

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- New Technique to Measure High-Pressure and High-Temperature Polymer-Solvent Vapor-Liquid Equilibrium, with R. P. Danner, A. B. de Haan, N. Beckers, Fluid Phase Equilibria, 139, 361-370 (1997).
- Finite Concentration Inverse Gas Chromatography: Diffusion and Partition Measurements, with Tilminlioglu, F., Danner, R.P., and Duda, J.L., J. Polym. Sci., Part B: Polym. Phys., 35, 1279-1290 (1997).
- Diffusion and Equilibrium Measurements in Ternary Polymer-Solvent-Solvent Systems Using Inverse Gas Chromatography, with R. P. Danner and J.L. Duda, Ind. Eng. Chem. Res., 37, 3203-3207 (1998).
- Inverse Gas Chromatography Applications in Polymer-Solvent Systems, with Danner, R.P., F. Tihminlioglu, and J.L. Duda, Fluid Phase Equilibria, 148, 171-188 (1998).

Patents

- **US6254459, US6068539, EP0941806.** Wafer polishing device with movable window.
- **US6790768.** Methods and apparatus for polishing substrates comprising conductive and dielectric materials with reduced topographical defects.
- **US20050032459.** Technique for process-qualifying a semiconductor-manufacturing tool using metrology data.
- **WO0037217.** Method for cleaning an abrasive surface.
- **US20020090819, EP1214174, WO0115863.** Windowless belt and method for improved in-situ wafer monitoring.