

HAL J. SINGER
NAVIGANT CONSULTING
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EDUCATION

THE JOHNS HOPKINS UNIVERSITY, Ph.D., 1999; M.A. (Economics), 1996.

TULANE UNIVERSITY, B.S. *magna cum laude* (Economics), 1994. Dean's Honor Scholar (full academic scholarship). Senior Scholar Prize in Economics, 1994.

CURRENT EMPLOYMENT

NAVIGANT CONSULTING, Washington, D.C.: Managing Director, 2010-present.

GEORGETOWN UNIVERSITY, McDONOUGH SCHOOL OF BUSINESS, Washington, D.C.: Adjunct Professor, 2010-present.

EMPLOYMENT HISTORY

EMPIRIS, L.L.C., Washington, D.C.: Managing Partner and President, 2008-2010.

CRITERION ECONOMICS, L.L.C., Washington, D.C.: President, 2004-2008. Senior Vice President, 1999-2004.

LECG, INC., WASHINGTON, D.C.: Senior Economist, 1998-99.

U.S. SECURITIES AND EXCHANGE COMMISSION, OFFICE OF ECONOMIC ANALYSIS, WASHINGTON, D.C.: Staff Economist, 1997-98.

THE JOHNS HOPKINS UNIVERSITY, ECONOMICS DEPARTMENT, BALTIMORE: Teaching Assistant, 1996-98.

AUTHORED BOOKS AND BOOK CHAPTERS

Valuing Life Settlements as a Real Option, co-authored with Joseph R. Mason, in *LONGEVITY TRADING AND LIFE SETTLEMENTS* (Vishaal Bhuyan ed., John Wiley & Sons 2009).

An Antitrust Analysis of the World Trade Organization's Decision in the U.S.-Mexico Arbitration on Telecommunications Services, co-authored with J. Gregory Sidak, in *HANDBOOK OF TRANS-ATLANTIC ANTITRUST* (Philip Marsden, ed. Edward Elgar 2006).

BROADBAND IN EUROPE: HOW BRUSSELS CAN WIRE THE INFORMATION SOCIETY, co-authored with Dan Maldoom, Richard Marsden, and J. Gregory Sidak (Kluwer/Springer Press 2005).

Are Vertically Integrated DSL Providers Squeezing Unaffiliated ISPs (and Should We Care)?, co-authored with Robert W. Crandall, in *ACCESS PRICING: THEORY, PRACTICE AND EMPIRICAL EVIDENCE* (Justus Haucap and Ralf Dewenter eds., Elsevier Press 2005).

JOURNAL ARTICLES

1. *The Economic Impact of Eliminating Preemption of State Consumer Protection Laws*, UNIVERSITY OF PENNSYLVANIA JOURNAL OF BUSINESS LAW (forthcoming 2010), co-authored with Joseph R. Mason and Robert B. Kulick.

2. *Why the iPhone Won't Last Forever and What the Government Should Do to Promote its Successor*, 8 JOURNAL ON TELECOMMUNICATIONS AND HIGH TECHNOLOGY LAW (forthcoming 2010), co-authored with Robert W. Hahn.
3. *What Does an Economist Have to Say About the Calculation of Reasonable Royalties?*, 14 INTELLECTUAL PROPERTY LAW BULLETIN (forthcoming 2010), co-authored with Kyle Smith.
4. *Evaluating Market Power with Two-Sided Demand and Preemptive Offers to Dissipate Monopoly Rent: Lessons for High-Technology Industries from the Antitrust Division's Approval of the XM-Sirius Satellite Radio Merger*, 4 JOURNAL OF COMPETITION LAW & ECONOMICS (2008), co-authored with J. Gregory Sidak.
5. *Assessing Bias in Patent Infringement Cases: A Review of International Trade Commission Decisions*, 21 HARVARD JOURNAL OF LAW AND TECHNOLOGY (2008), co-authored with Robert W. Hahn.
6. *The Effect of Incumbent Bidding in Set-Aside Auctions: An Analysis of Prices in the Closed and Open Segments of FCC Auction* 35, 32 TELECOMMUNICATIONS POLICY JOURNAL (2008), co-authored with Peter Cramton and Allan Ingraham.
7. *A Real-Option Approach to Valuing Life Settlement Transactions*, 23 JOURNAL OF FINANCIAL TRANSFORMATION (2008), co-authored with Joseph R. Mason.
8. *The Economics of Wireless Net Neutrality*, 3 JOURNAL OF COMPETITION LAW AND ECONOMICS 399 (2007), co-authored with Robert W. Hahn and Robert E. Litan.
9. *Vertical Foreclosure in Video Programming Markets: Implication for Cable Operators*, 3 REVIEW OF NETWORK ECONOMICS 348 (2007), co-authored with J. Gregory Sidak.
10. *The Unintended Consequences of Net Neutrality*, 5 JOURNAL ON TELECOMMUNICATIONS AND HIGH TECH LAW 533 (2007), co-authored with Robert E. Litan.
11. *Does Video Delivered Over a Telephone Network Require a Cable Franchise?*, 59 FEDERAL COMMUNICATIONS LAW JOURNAL 251 (2007), co-authored with Robert W. Crandall and J. Gregory Sidak.
12. *The Competitive Effects of a Cable Television Operator's Refusal to Carry DSL Advertising*, 2 JOURNAL OF COMPETITION LAW AND ECONOMICS 301 (2006).
13. *Überregulation without Economics: The World Trade Organization's Decision in the U.S.-Mexico Arbitration on Telecommunications Services*, 57 FEDERAL COMMUNICATIONS LAW JOURNAL 1 (2004), co-authored with J. Gregory Sidak.
14. *The Secondary Market for Life Insurance Policies: Uncovering Life Insurance's "Hidden" Value*, 6 MARQUETTE ELDER'S ADVISOR 95 (2004), co-authored with Neil A. Doherty and Brian A. O'Dea.
15. *Do Unbundling Policies Discourage CLEC Facilities-Based Investment?*, 4 TOPICS IN ECONOMIC ANALYSIS AND POLICY (2004), co-authored with Robert W. Crandall and Allan T. Ingraham.
16. *Foreign Investment Restrictions as Industrial Policy*, 3 CANADIAN JOURNAL OF LAW AND TECHNOLOGY 19 (2004), co-authored with Robert W. Crandall.
17. *Regulating the Secondary Market for Life Insurance Policies*, 21 JOURNAL OF INSURANCE REGULATION 63 (2003), co-authored with Neil A. Doherty.
18. *Interim Pricing of Local Loop Unbundling in Ireland: Epilogue*, 4 JOURNAL OF NETWORK INDUSTRIES 119 (2003), co-authored with J. Gregory Sidak.
19. *The Benefits of a Secondary Market for Life Insurance*, 38 REAL PROPERTY, PROBATE AND TRUST JOURNAL 449 (2003), co-authored with Neil A. Doherty.

20. *The Empirical Case Against Asymmetric Regulation of Broadband Internet Access*, 17 BERKELEY TECHNOLOGY LAW JOURNAL 954 (2002), co-authored with Robert W. Crandall and J. Gregory Sidak.
21. *How Can Regulators Set Nonarbitrary Interim Rates? The Case of Local Loop Unbundling in Ireland*, 3 JOURNAL OF NETWORK INDUSTRIES 273 (2002), co-authored with J. Gregory Sidak.
22. *Vertical Foreclosure in Broadband Access*, 49 JOURNAL OF INDUSTRIAL ECONOMICS (2001) 299, co-authored with Daniel L. Rubinfeld.
23. *Open Access to Broadband Networks: A Case Study of the AOL/Time Warner Merger*, 16 BERKELEY TECHNOLOGY LAW JOURNAL 640 (2001), co-authored with Daniel L. Rubinfeld.
24. *Cable Modems and DSL: Broadband Internet Access for Residential Customers*, 91 AMERICAN ECONOMICS ASSOCIATION PAPERS AND PROCEEDINGS 302 (2001), co-authored with Jerry A. Hausman and J. Gregory Sidak.
25. *Residential Demand for Broadband Telecommunications and Consumer Access to Unaffiliated Internet Content Providers*, 18 YALE JOURNAL ON REGULATION 1 (2001), co-authored with Jerry A. Hausman and J. Gregory Sidak.
26. *Determining the Source of Inter-License Synergies in Two-Way Paging Networks*, 18 JOURNAL OF REGULATORY ECONOMICS 59 (2000).
27. *A General Framework for Competitive Analysis in the Wireless Industry*, 50 HASTINGS LAW REVIEW 1639 (2000), co-authored with J. Gregory Sidak and David Teece.
28. *Capital Raising in Offshore Markets*, 23 JOURNAL OF BUSINESS AND FINANCE 1181 (1999), co-authored with Ian Gray and Reena Aggarwal.

EXPERT TESTIMONY SINCE 2005

1. Meijer, Inc. & Meijer Distribution, Inc., et al. v. Abbott Laboratories, Case No. C-04-1511 (CW) (N.D. Cal.).
2. Metlife Insurance Company of Connecticut and General American Life Insurance Company v. Thomas Petrcek, Minnesota Estate Service, Inc., Michael J. Antonello, and Michael J. Antonenllo & Associates, Ltd., No. 08-CV-06095 DSD-FLN (D. Minn).
3. Tennis Channel, Inc. v. Comcast Cable Communications, LLC, File No. CSR-____-P (Federal Communications Commission).
4. MEMdata, LLC, v. Intermountain Healthcare, Inc., and IHC Health Services, Inc., Civil No. 2:08-cv-190 (C.D. Utah).
5. Caroline Behrend, et al. v. Comcast Corporation, Civil Action No. 03-6604 (E.D. Pa.).
6. In the Matter of Distribution of the 2000-03 Copyright Royalty Funds, Dkt. No. 2008-2 CRB CD 2000-03 (Copyright Royalty Judges).
7. Cindy Johnson et al. v. Arizona Hospital and Health Care Association et al., Case No. 07-01292 (SRB) (D. Az.).
8. Southeast Missouri Hospital, et al. v. C.R. Bard, Inc., Case No. 1:07CV0031 TCM (E.D. Mo.).
9. TCR Sports Broadcasting Holding, L.L.P. v. Comcast Corporation, File No. CSR-8001-P (Federal Communications Commission).
10. Meijer, Inc. & Meijer Distribution, Inc., et al. v. Abbott Laboratories, Case No. C 07-5985 CW (N.D. Ca.).

11. NFL Enterprises LLC. v. Comcast Cable Communications, LLC, File No. CSR-7876-P (Federal Communications Commission).
12. Medical Mutual of Ohio Inc. v. GlaxoSmithKline PLC, and SmithKline Beecham Corporation, Civil Action No. 05-396 (E.D. Pa.).
13. TCR Sports Broadcasting Holding, L.L.P., D/B/A Mid-Atlantic Sports Network v. Time Warner Cable Inc., American Arbitration Association, Case No. 12 494 E 000326 07 (Federal Communications Commission).
14. Coors Brewing Company v. Hival Partners Ltd., Case No. 71 155 00358 07 (American Arbitration Association).
15. Natchitoches Parish Hosp. Serv. Dist., et al. v. Tyco Int'l, Ltd. et al., Civil Action No. 05-12024 (D. Mass.).
16. Ralph O. Stalsberg, et al. v. New York Life Insurance Company, New York Life Insurance and Annuity Corporation, Case No. 2:07-Cv-29-Bj (D. Utah).
17. *In Re* Tricor Indirect Purchaser Antitrust Litigation, C.A. No. 05-360 (KAJ) (D. Del.).

COMMISSIONED WHITE PAPERS

1. Why the iPhone Won't Last Forever and What the Government Should Do to Promote Its Successor (prepared for Mobile Future), co-authored with Robert Hahn (Sept. 21, 2009).
2. The Economic Impact of Eliminating Preemption of State Consumer Protection Laws (prepared for the American Bankers' Association), co-authored with Joseph R. Mason (Aug. 21, 2009).
3. Economic Effects of Tax Incentives for Broadband Infrastructure Deployment (prepared for the Fiber to the Home Council), co-authored with Jeffrey Eisenach and Jeffrey West (Dec. 23, 2008).
4. The Effect of Brokered Deposits and Asset Growth on the Likelihood of Failure (prepared for Morgan Stanley, Citigroup, and UBS), co-authored with Joseph Mason and Jeffrey West (Dec. 17, 2008).
5. Estimating the Benefits and Costs of M2Z's Proposal: Reply to Wilkie's *Spectrum Auctions Are Not A Panacea* (prepared for CTIA), co-authored with Robert W. Hahn, Allan T. Ingraham and J. Gregory Sidak (July 23, 2008).
6. Is Greater Price Transparency Needed in The Medical Device Industry? (prepared for Advanced Medical Technology Association), co-authored with Robert W. Hahn (Nov. 30, 2007).
7. Should the FCC Depart from More than a Decade of Market-Oriented Spectrum Policy? Reply to Skrzypacz and Wilson (prepared for CTIA), co-authored with Gerald Faulhaber and Robert W. Hahn (Jun. 18, 2007).
8. Improving Public Safety Communications: An Analysis of Alternative Approaches (prepared for the Consumer Electronics Association and the High Tech DTV Coalition), co-authored with Peter Cramton, Thomas S. Dombrowsky, Jr., Jeffrey A. Eisenach, and Allan Ingraham (Feb. 6, 2007).
9. The Budgetary Impact of Eliminating the GPOs' Safe Harbor Exemption from the Anti-Kickback Statute of the Social Security Act (prepared for the Medical Device Manufacturers Association) (Dec. 20, 2005).
10. Reply to "The Life Settlements Market: An Actuarial Perspective on Consumer Economic Value" (prepared for Coventry First), co-authored with Eric Stallard (Nov. 15, 2005).
11. The Competitive Effects of Telephone Entry into Video Markets (prepared for the Internet Innovation Alliance), co-authored with Robert W. Crandall and J. Gregory Sidak (Nov. 9, 2005).

12. How Do Consumers and the Auto Industry Respond to Changes in Exhaust Emission and Fuel Economy Standards? A Critique of Burke, Abeles, and Chen (prepared for General Motors Corp.), co-authored with Robert W. Crandall and Allan T. Ingraham (Sept. 21, 2004).
13. Inter-City Competition for Retail Trade in North Texas: Can a TIF Generate Incremental Tax Receipts for the City of Dallas? (prepared for Harvest Partners), co-authored with Thomas G. Thibodeau and Allan T. Ingraham (July 16, 2004).
14. An Accurate Scorecard of the Telecommunications Act of 1996: Rejoinder to the Phoenix Center Study No. 7 (prepared for BellSouth), co-authored with Robert Crandall (Jan. 6, 2004).
15. Competition in Broadband Provision and Implications for Regulatory Policy (prepared for the Alcatel, British Telecom, Deutsche Telekom, Ericsson, France Telecom, Siemens, Telefónica de España, and Telecom Italia), co-authored with Dan Maldoom, Richard Marsden, and Gregory Sidak (Oct. 15, 2003).
16. The Effect of Ubiquitous Broadband Adoption on Investment, Jobs, and the U.S. Economy (prepared for Verizon), co-authored with Robert W. Crandall (Sept. 17, 2003).
17. The Deleterious Effect of Extending the Unbundling Regime on Telecommunications Investment (prepared for BellSouth), co-authored with Robert W. Crandall (July 10, 2003).
18. Letter Concerning Spectrum Auction 35 to the Honorable Michael K. Powell, Chairman, Federal Communications Commission, from Peter C. Cramton, Robert W. Crandall, Robert W. Hahn, Robert G. Harris, Jerry A. Hausman, Thomas W. Hazlett, Douglas G. Lichtman, Paul W. MacAvoy, Paul R. Milgrom, Richard Schmalensee, J. Gregory Sidak, Hal J. Singer, Vernon L. Smith, William Taylor, and David J. Teece (Aug. 16, 2002).

WORKING PAPERS

1. *Addressing the Next Wave of Internet Regulation: The Case For Equal Opportunity*, Georgetown Center for Business and Policy, co authored with Robert Litan and Robert Hahn (Jan. 2010).
2. *Irrational Expectations: Can a Regulator Credibly Commit to Removing an Unbundling Obligation?*, AEI-Brookings Joint Center Related Publication No. 07-28, co-authored with Jeffrey A. Eisenach (Dec. 2007).
3. *An Antitrust Analysis of Google's Proposed Acquisition of DoubleClick*, AEI-Brookings Joint Center Related Publication No. 07-24, co-authored with Robert W. Hahn (Sept. 2007).
4. *Inter-City Competition for Retail Trade in North Texas: Can a TIF Generate Incremental Tax Receipts for the City of Dallas?*, co-authored with Thomas G. Thibodeau and Allan T. Ingraham (revise and resubmit to JOURNAL OF REAL ESTATE RESEARCH) (July 16, 2004).
5. *An Economic Assessment of the Weight-Based CAFE Standard Proposed by the National Highway Traffic Safety Administration*, co-authored with Robert W. Crandall and Allan T. Ingraham (Apr. 2004).
6. *How Common Are "Conflicts of Interests" in the Investment Banking Industry?*, co-authored with Charles W. Calomiris (Dec. 2003).
7. *Does Clustering by Incumbent MSOs Deter Entry by Overbuilders?* (July 2002).

SPEAKING ENGAGEMENTS

1. *Broadband Infrastructure and Net Neutrality*, ADVISORY COMMITTEE TO THE CONGRESSIONAL INTERNET CAUCUS' STATE OF THE NET, Washington, D.C., Jan. 22, 2010.

2. *The Consequences of Net Neutrality Regulations*, AMERICAN CONSUMER INSTITUTE CENTER FOR CITIZEN RESEARCH, Washington, D.C., Nov. 19, 2009.
3. *Wireless Innovation Luncheon*, MOBILE FUTURE, Washington, D.C., Nov. 3, 2009.
4. *Second Life Settlements & Longevity Summit*, INSURANCE-LINKED SECURITIES & LIFE SETTLEMENTS, New York, N.Y., Sept. 30, 2009.
5. *Perspectives on Investment and a National Broadband Plan*, AMERICAN CONSUMER INSTITUTE, Washington, D.C., Sept. 4, 2009.
6. *Markets and Regulation: How Do We Best Serve Customers?*, Wireless U. Communications Policy Seminar, UNIVERSITY OF FLORIDA PUBLIC UTILITY RESEARCH CENTER, Tampa, FL., Nov. 13, 2008.
7. *The Price Of Medical Technology: Are We Getting What We Pay For?* HEALTH AFFAIRS BRIEFING, Washington, D.C., Nov. 10, 2008.
8. *Standard Setting and Patent Pools*, LAW SEMINARS INTERNATIONAL, Arlington, VA., Oct. 3, 2008.
9. *The Changing Structure of the Telecommunications Industry and the New Role of Regulation*, INTERNATIONAL TELECOMMUNICATIONS SOCIETY BIENNIAL CONFERENCE, Montreal, Canada, June 26, 2008.
10. *The Debate Over Network Management: An Economic Perspective*, AMERICAN ENTERPRISE INSTITUTE CENTER FOR REGULATORY AND MARKET STUDIES, Washington, D.C., Apr. 2, 2008.
11. *Merger Policy in High-Tech Industries*, GEORGE MASON UNIVERSITY SCHOOL OF LAW, Washington, D.C., Feb. 1, 2008.
12. *Telecommunications Symposium*, U.S. DEPARTMENT OF JUSTICE ANTITRUST DIVISION, Washington, D.C., Nov. 29, 2007.
13. *Wireless Practice Luncheon*, FEDERAL COMMUNICATIONS BAR ASSOCIATION, Washington, D.C., Nov. 29, 2007.
14. *Association for Computing Machinery's Net Neutrality Symposium*, GEORGE WASHINGTON UNIVERSITY, Washington, D.C., Nov. 12, 2007.
15. *Regulators' AdvanceComm Summit*, NEW YORK LAW SCHOOL, New York, N.Y., Oct. 14, 2007.
16. *Annual Conference*, CAPACITY USA 2007, New York, N.Y., Jun. 26, 2007.
17. *William Pitt Debating Union*, UNIVERSITY OF PITTSBURGH, SCHOOL OF ARTS & SCIENCES, Pittsburgh, PA., Feb. 23, 2007.
18. *Annual Conference*, WIRELESS COMMUNICATIONS ASSOCIATION INTERNATIONAL, Washington, D.C., June 27, 2006.
19. *Annual Conference*, MEDICAL DEVICE MANUFACTURERS ASSOCIATION, Washington, D.C., June 14, 2006.
20. *Annual Conference*, ASSOCIATION FOR ADVANCED LIFE UNDERWRITING, Washington, D.C., May 1, 2006.
21. *Entrepreneur Lecture Series*, LAFAYETTE COLLEGE, Easton, PA., Nov. 14, 2005.

EDITORIALS AND MAGAZINE ARTICLES

1. *Why the iPhone Won't Last Forever and What the Government Should (or Shouldn't) Do to Promote Its Successor*, MILKEN INSTITUTE REVIEW (2010), co-authored with Robert W. Hahn.
2. *Streamlining Consumer Financial Protection*, THE HILL, Oct. 13, 2009, co-authored with Joseph R. Mason.

3. *Is Greater Price Transparency Needed in the Medical Device Industry?*, HEALTH AFFAIRS (2008), co-authored with Robert W. Hahn and Keith Klovers.
4. *Foxes in the Henhouse: FCC Regulation through Merger Review*, MILKEN INSTITUTE REVIEW (First Quarter 2008), co-authored with J. Gregory Sidak.
5. *Don't Drink the CAFE Kool-Aid*, WALL STREET JOURNAL, Sept. 6, 2007, at A17, co-authored with Robert W. Crandall.
6. *The Knee-Jerk Reaction: Misunderstanding the XM/Sirius Merger*, WASHINGTON TIMES, Aug. 24, 2007, at A19, co-authored with J. Gregory Sidak.
7. *Net Neutrality: A Radical Form of Non-Discrimination*, REGULATION, Summer 2007.
8. *Telecom Time Warp*, WALL STREET JOURNAL, July 11, 2007, at A15, co-authored with Robert W. Crandall.
9. *Earmarked Airwaves*, WASHINGTON POST, June 27, 2007, at A19, co-authored with Robert W. Hahn.
10. *Not Neutrality*, NATIONAL POST, Mar. 29, 2007, at FP19.
11. *Should ATM Fees Be Regulated?*, NATIONAL POST, Mar. 8, 2007, at FP17, co-authored with Robert W. Crandall.
12. *Life Support for ISPs*, REGULATION, Fall 2005, co-authored with Robert W. Crandall.
13. *No Two-Tier Telecommunications*, NATIONAL POST, Mar. 7, 2003, at FP15, co-authored with Robert W. Crandall.

MEMBERSHIPS

American Economics Association

REVIEWER

JOURNAL OF COMPETITION LAW AND ECONOMICS

JOURNAL OF RISK MANAGEMENT AND INSURANCE REVIEW

JOURNAL OF REGULATORY ECONOMICS

MANAGERIAL AND DECISION ECONOMICS

TELECOMMUNICATIONS POLICY

PERSONAL INFORMATION

American citizen, born March 31, 1972. Married to Ingrid Arraut Singer. Two daughters: Alexis and Kayla. Resident of Oakton, Virginia.

February 2, 2010