

NEIL DOHERTY

Dr. Neil Doherty is the Frederick Ecker Professor of Insurance and Risk Management at the Wharton School. He is associated with several of Wharton's research centers, including the Risk Management and Decision Processes Center and the Financial Institutions Center. A member of the Wharton faculty since 1986, Neil has also consulted with organizations such as Dow Chemical, Sears Roebuck, British Petroleum, Merck, GTE, CIGNA, Ace, Aon, Chubb and UPS.

Neil's principal area of interest is in corporate risk management – focusing on the financial strategies for managing risks that traditionally have been insurable. Such strategies include the use of existing derivatives, the design of new financial products, and the use of capital structure. Neil has written several books in this area including, *Corporate Risk Management: A Financial Exposition* (1985) and *The Financial Theory of Insurance Pricing* (1987, with S. D'Arcy) and *Integrated Risk Management* (2000). A more recent book “*The Known, the Unknown and the Unknowable*” (2010), (edited jointly with Richard Herring and Frank Diebold) explores the issue in managing the vague and often un-measurable risks such as those that have recently plagued the global economy. He also has written several papers. Many of the ideas developed in his books (e.g., composites of insurance and debt financing and the use of option models in insurance and reinsurance) are now emerging in the marketplace. Neil is also the co-author of the economic textbook, *Managerial Economics*, 2005.

Two additional areas of focus include:

- the economics of risk and information – he has written several papers on the adverse selection, the value of information, and the design of insurance contracts with imperfect information.
- the failure of insurance markets and how they might be redesigned – in this area, he has written on cyclicity of markets, market crises, and the effect of catastrophes.

Neil coauthored several recent reports dealing with topical insurance issues. One of these *The Economics of Insurance Intermediaries* (2005) examined the underlying economics of insurance brokers in order to understand the issues raised by Elliot Spitzer's investigations into this industry. Another *TRIA and Beyond*, (2005) looked at the market for terrorism insurance and examined the case for Federal Terrorism reinsurance. And a third “*At War with the Weather: Managing Large Scale Risks in a New Era of Catastrophes*” (with H. Kunreuther and others; 2009, MIT Press) - looks critically at the market for catastrophic risk.

Neil is a graduate of the University of York and Cranfield Institute of Technology, where he received his doctorate in Economics.

NEIL A. DOHERTY

Frederick H. Ecker Professor
Professor of Insurance and Risk Management,
The Wharton School
University of Pennsylvania

Fellowship of Chartered Insurance Institute, 1965
B.A. (Economics), University of York, 1968
B. Phil. (Economics), University of York, 1969
Ph.D., Cranfield Institute of Technology, 1979

PREVIOUS PROFESSIONAL EXPERIENCE

Insurance Underwriter, Royal and Yorkshire Insurance Companies

Insurance Broker, Griffiths and Armour

Research Fellow, University of Nottingham

University Lecturer and Associate Professor of Economics
University of York
University of Zambia
Cranfield Institute of Technology

Associate Professor and Professor of Finance
University of Alberta
University of Illinois

Government Economic Adviser
The U.K. Government, Department of Health and Social Security

CONSULTING AND SPONSORED RESEARCH

Assignments include: insurance rate regulation; captive insurance issues; risk management; harmonization of taxes and services for insurers within the European Economic Community; formulation of public policy with respect to social security and pensions; Federal policy with respect to earthquake insurance; etc. Clients include Allstate Insurance, British Petroleum, Dow Chemicals, Merck, U-Haul International, Fujisawa-Smith Kline, Harper International, U.S. Government, U.K. Government, British Insurance Association, Cigna Insurance Company, Aon, General Cologne Reinsurance, World Bank, etc. Currently I am special master to the New Jersey Superior Court in a case involving the allocation of insurance liabilities in long duration pollution accidents.

Examples. Expert witness for taxpayer in Federal tax court and claims court for captive insurance cases involving Harper Robinson, Sear Roebuck/Allstate, Oil Exploration and Drilling Co 1991 and U Haul International (each of these cases was won by taxpayer. Other expert testimony in insurance rate regulation cases and insurance coverage cases.

Wrote global risk management strategy report for British Petroleum. This report recommended radical changes in their insurance and risk management strategy. The strategy was adopted by the Board.

BOOKS

“Handbook of Risk Management”. Edited with R.L. Carter. London: Kluwer Harrap, 1975.

“Insurance Pricing and Loss Prevention”. Farnborough: D.C. Heath, 1976.

“Corporate Risk Management: A Financial Exposition”. McGraw Hill, 1985.

“The Financial Theory of Pricing Insurance Contracts” (with S. D'Arcy), S.S. Huebner Foundation Monograph Series, R. D. Irwin, Homewood, Illinois, 1987.

“Integrated Risk Management”, McGraw Hill. 2000.

“TRIA and Beyond”, (with H. Kunreuther and others), 2005, Wharton School.

“Managerial Economics” (7th Edition), (with B. Allen, E. Mansfield and K. Weigelt). W. W. Norton, 2009. 7th Edition

“At War with the Weather: Managing Large Scale Risks in a New Era of Catastrophes (with H. Kunreuther and others), 2009, MIT press..

The Known, the Unknown and the Unknowable (ed. with Frank Diebold and Richard Herring) forthcoming, 2009, Princeton University Press

ARTICLES IN JOURNALS

Lessons from the Financial Crisis on Risk and Capital Management: the Case of Insurance Companies; *Journal of Applied Corporate Finance*, Fall 2009, (with Joan Lamm Tennant), pp, 52-60

The Insurance Brokerage Industry Post October 2004; *Risk Management and Insurance Review*, 9, Fall 2006, (with J. D. Cummins and others), pp 89 - 109

The Economics of Insurance Intermediaries, (with J. D. Cummins), *Journal of Risk and Insurance*, 73, Sept 2006, pp 359-396,

Moral Hazard in Reinsurance Markets, (with Kent Smetters), *Journal of Risk and Insurance*, September 2005

Risk Management, Risk Capital and the Cost of Capital, *Journal of Applied Corporate Finance*, 17, #3, 2005

The Economics of Insurance Intermediaries, with David Cummins, published by American Insurance Association, 2005

“Insuring September 11th: Market Recovery and Transparency”(with Joan Lamm-Tennant and Laura Starks), *Journal of Risk and Uncertainty*, March 2003, vol. 26, no. 2-3, pp. 179-199(21)

“Regulating the secondary market for life insurance policies”(with Hal Singer) *Journal of Insurance Regulation*, Summer 2003, vol 21 p63.

“The Benefits of a Secondary Market For Life Insurance Policies”, (with Hal Singer) *ABA Real Property Probate and Trust Journal*. forthcoming

“Insurance Contracts and Securitization”, (with H. Schlesinger), *Journal of Risk and Insurance*. 2002, 69, 45-62.

“Moral Hazard, Basis Risk and Gap Insurance” with (Andreas Richter), *Journal of Risk and Insurance*. 2002, 69, 9-24

“Capitalisation of the Property-Liability Insurance Industry, (with J. D. Cummins), *Journal of Financial Services Research*, 2002, 21 5-14

“Rating Standards and Capital Buildup for Property Liability Insurers” (with R. Phillips), *Journal of Financial Services Research*, 2002, 21 55-78

“Can Insurers Pay for the “Big One”: Measuring the Capacity of the Insurance Industry to Respond to Catastrophic Losses” (with J. D. Cummins and A. Lo), *Journal of Banking and Finance*, 2002, 26, 557-584.

“Why People Buy Liability Insurance under the Rule of Simple Negligence” (with Keith Crocker), in *Industrial Organization*, ed M. Baye, 2000

“On the Value of a Checkup: Adverse Selection, Moral Hazard and the Value of Information”, (with L.L.Posey), *Journal of Risk and Insurance*, 1998, 65, 189-212

“Innovation in Managing Catastrophe Risk” *Journal of Risk and Insurance*” 1997, 64, 713-718

“Financial Innovation in the Management of Catastrophe Risk” *Journal of Applied Corporate Finance*, December, 1997.

“Availability Crises in Insurance Markets: Optimal Contracts with Asymmetric Information and Capacity Constraints” (with L.L. Posey), *Journal of Risk and Uncertainty*, 1997,15, 55-80

“Insurance Markets and Climate Change” *Geneva Papers in Risk and Insurance*, 1997, 83, 223-237

“Costly Risk Bearing and the Supply of Catastrophe Insurance”, (with Anne E. Kleffner), *Journal of Risk and Insurance*, 1996, 63, 657-671.

“Allocating Continuous Occurrence Liability Losses Across Multiple Insurance Policies”, (with J. D. Cummins), *Environmental Claims Journal*, 1996, 8, #3, 5-42

“Adverse Selection with Endogenous Information in Insurance Markets” (with P. Thistle), *Journal of Public Economics*, 1996, 63, 83-102.

"Severity Risk and the Adverse Selection of Frequency Risk" (with H. Schlesinger), *Journal of Risk and Insurance*, 1995, 62, 649-665.

"Insurance Cycles: Interest Rates and the Capacity Constraint Model" (with J. Garven), *Journal of Business*, 68, July 1995

"Optimal Insurance Without Expected Utility", (with L. Eeckhoudt) *Journal of Risk and Uncertainty*, 10, 1995, 157-179

"Adverse Selection, Commitment and Renegotiation: Extension to, and Evidence from Insurance Markets" (with Georges Dionne), *Journal of Political Economy*, 102, 1994, 209-235

"Adverse Selection when Loss Severities Differ: First Best and Costly Equilibria", (with Hong-Joo Jung), *Geneva Papers on Risk and Insurance Theory*, 18, 1993, 173-182.

"Corporate Insurance Strategy: the Case of British Petroleum", *Journal of Applied Corporate Finance*, (with C. W. Smith Jnr.) 6, 1993, 4-15.

"Insurance with Undiversifiable Risk: Contract Structure and Organizational Form of Insurance Firms", (with Georges Dionne), *Journal of Risk and Uncertainty*, 6, 1993, 187-203.

"Should Society Deal with the Earthquake Problem?", (with H. Kunreuther and A. Kleffner), *Regulation*, Spring 1992.

"Torts and Orbits: Liability Rules for Commercial Space Ventures", (with A. M. Butler), *American Economic Review*, May 1991.

"The Design of Insurance Contracts when Liability Rules are Unstable", *Journal of Risk and Insurance*, LVIII, 1991, 227-246.

"Rational Insurance Purchasing: Considerations of Contract Non Performance" (with H. Schlesinger), *Quarterly Journal of Economics*, Feb. 1990, 243-253.

"Adverse Selection, Private Information and Lowballing in Insurance Markets" (with S. D'Arcy), *Journal of Business*, Vol.63, 1990, pp 145-164.

"Insurance Perspectives on an Integrated Hazardous Waste Management Strategy" (with P. Kleindorfer and H. Kunreuther), *Geneva Papers on Risk and Insurance*, #57, 1990, 407-427.

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"Risk Bearing Contracts for Space Enterprises," *Journal of Risk and Insurance*, Vol. LVI, 1989, pp.397-414.

"Optimal Term Life Insurance: A Practical Solution" (with J.L. Simon and H. Levy), *Insurance: Mathematics and Economics*, Vol. 7, 1988, pp. 81-94.

"Interest Rates and Insurance Price Cycles" (with H.B. Kang), *Journal of Banking and Finance*, Vol. 12, 1988, pp. 199-214.

"The Optimal Capital Structure of Depository Financial Intermediaries: A Contingent Claims Approach" (with H. Park and A. Chen), in *Advances in Finance*, 1988.

"Additive and Multiplicative Risk Premiums" (with H. Louberge and H. Schlesinger), *Scandinavian Actuarial Journal*, 1987, pp. 41-49.

"Retroactive Price Regulation and the Fair Rate of Return," *Insurance: Mathematics and Economics*, Vol. 6, 1987, pp. 135-144.

"Price Regulation in Property Liability Insurance: A Contingent Claims Approach" (with J. Garven), *Journal of Finance*, Vol. 41, 1986, pp. 1031-1050.

"Risk Premiums with Multiple Sources of Risk" (with H. Schlesinger), *Insurance: Mathematics and Economics*, Vol. 5, 1986.

"Rückwärtende Preisregulierung: Vorgeschiedene Oberschu Bausschutzung und angemessene Eigenkapitalrendite," *Zeitschrift für die gesamte Versicherungswissenschaft*, 1985.

"Incomplete Markets for Insurance: An Overview." *Journal of Risk and Insurance* (with H. Schlesinger), Vol. 52, 1985.

"Portfolio Efficient Insurance Buying Strategies." *Journal of Risk and Insurance*, Vol. 51, 1984, pp. 205-244.

"Optimal Insurance in Incomplete Markets" (with H. Schlesinger), *Journal of Political Economy*, Vol. 91, 1983, pp. 1045-1054.

"The Optimal Deductible for an Insurance Policy when Initial Wealth is Random," *Journal of Business* (with H. Schlesinger), Vol. 50, 1983, pp. 555-565.

"The Measurement of Firm and Market Capacity," *Journal of Risk and Insurance*, Vol. 50, 1983, pp. 224-234.

"Stochastic Choice in Insurance and Risk Sharing--A Reply," *Journal of Finance*, Vol. 38, 1983.

"Measurement of Output and Economies of Scale in Property Liability Insurance," *Journal of Risk and Insurance*, Vol. 48, 1981, pp. 391-402.

"A Note on Reinsurance under Conditions of Capital Market Equilibrium" (with S.M. Tinic), *Journal of Finance*, Vol. 36, 1981, pp. 949-953.

"Income Capitalization and the Return on Investment" (with C. Janssen), *Appraisers Institute Magazine* (May 1981). Reprinted in *Education Quarterly*, Summer 1981.

"Is Rate Classification Profitable?" *Journal of Risk and Insurance*, Vol. 48, 1981, pp. 286-295.

"A Portfolio Theory of Insurance Capacity," *Journal of Risk and Insurance*, Vol. 47, 1980, pp. 405-420.

- "Disincentives to Work Under U.K. Industrial Injuries Scheme," *International Journal of Social Economics*, Vol. 7, 1980, pp. 341-352.
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- "Portfolio Adjustment in a Reinsurance Market" (with B. Korkie), *Geneva Paper in Risk & Insurance*, No. 17 (June 1980), pp. 63-74.
- "Moral Hazard and Pricing in the U.K. Fire Insurance Market," *Journal of Risk and Insurance*, Vol. 47, 1980, pp. 240-257.
- "Strike Insurance for Employer" (with B. Chiplin), *Lloyds Bank Review*, No. 136 (April 1980), pp. 1-14.
- Insurer and Provider as the Same Firm: HMO's and Moral Hazard--Comment," *Journal of Risk and Insurance*, Vol. 46, 1979, pp. 550-553.
- "National Insurance and Absence from Work," *Economic Journal*, Vol. 89, 1979, pp. 50-63.
- Contingency Loans for Financing Corporate Loss," *Journal of Risk and Insurance*, Vol. 45, 1978, pp. 491-506.
- "The Allocation of Transaction Costs in Insured Property Losses" (with R.L. Carter), *Applied Economics*, Vol. 10, 1978, pp. 359-368.
- "Social Security, Economic Research Needs" (with J.L. Nicholson), *Social Security Research*, 1977, pp. 29-42.
- "Stochastic Choice in Insurance and Risk Sharing," *Journal of Finance*, Vol. 32, 1977, pp. 921-926.
- "Statistics for Insurance Management" (with R.L. Carter), *Policyholder*, Vol. 94, 1976. (Republished as a booklet by PH Press, Cheshire, 1976).
- "Compensation to the Dependents of Accident Victims--A Comment" (with J. Bates and D. Lees), *Economic Journal*, Vol. 86, 1976, pp. 98-103.
- "Some Fundamental Theorems of Risk Management," *Journal of Risk and Insurance*, Vol. 42, 1975, pp. 447-460.
- "Tariff Control and the Public Interest: Report on British Fire Insurance," (with R.L. Carter), *Journal of Risk and Insurance*, Vol. 41, 1974, pp. 483-495.
- "Paying for Injury" (with D. Lees), *Mercurio* (1973).
- "Compensation for Personal Injury" (with D. Lees), *Lloyds Bank Review*, No. 108 (April 1973), pp. 18-32. (Reprinted in Handbook on Law of Torts.)
- "Import Substitution and Economic Development," *East African Economic Review*, Vol. 2, 1970, pp. 39-52.

ARTICLES IN BOOKS

“On the Role of Brokers in Resolving the Known, the Unknown and the Unknowable” with A. Muermann, in *The Known, the Unknown and the Unknowable*, (ed Diebold, Doherty and Herring, Princeton University Press, 2009.

“Insurance and Climate Change: Insuring Risk and Changes in Risk” in *The Irrational Economist: Making Decisions in a Dangerous World* (ed Michel-Kerjan), MIT press, 2009

“Darwin’s Little Hiccups: The Platypus, the Coelacanth and the Irrational Economist” ” in *The Irrational Economist: Making Decisions in a Dangerous World* (ed Michel-Kerjan), MIT press, 2009

“Introductory Essay on The Known, The Unknown and the Unknowable in Financial Management” *The Known, the Unknown and the Unknowable*, (ed Diebold, Doherty and Herring, Princeton University Press, 2009.

“ Brokers and the Insurance of Non Verifiable Losses” with A. Muermann in *Brookings-Wharton Papers on Financial Services*, forthcoming.

"Development Enhancing Risk Management" (with Caroline Clarke), in *Catastrophe Risk and Reinsurance: A Country Risk Management Perspective*. Eugene N. Gurenko (ed.), Risk Books, London 2004

“The Cost of Risk and the Cost of Capital in Capital Budgeting and Risk Transfer Decisions” in *Alternative Risk Strategies*, ed Morton Lane, Risk Books, London, 2002

“Adverse Selection in Insurance Markets” (with G. Dionne and N. Fombaron), in *Handbook of Insurance*, ed G. Dionne, Kluwer, 2000

“Innovations in Corporate Risk Management: The Case of Catastrophe Risk” in *Handbook of Insurance*, ed G. Dionne, Kluwer, 2000

“Moral Hazard, Adverse Selection and Community Monitored Insurance Programs”, with S. Tennyson, in Alternative Approaches to Insurance Regulation (ed. R. Klein), 1999

“Corporate Insurance: Competition from Capital Markets and Financial Institutions” in Universal Banking, (eds A. Saunders and I. Walter), Salomon Center, New York University, 1996

"Adverse Selection in Insurance Markets: A Selective Survey", (with G. Dionne) in Contributions to Insurance Economics, ed G. Dionne, Kluwer Academic Publishing, Boston, Mass.

"The Effects of Organization Form on Capital Structure: The Case of Stock and Mutual Property Liability Insurance Firms" (with P. Datta), in Risk, Information and Insurance: Essays in the Memory of Karl H. Borch, ed. H. Lourberge, Kluwer Academic Publishing, Norwell, Mass. 1990

"On the Pricing of Reinsurance Contracts," in Worker's Compensation Insurance Pricing, eds. D. Appel and P. Borba, Kluwer Academic Publishers, Boston, 1988.

"Insurance, Risk Sharing and Incentives for the Commercial Use of Space," in Economics and Technology in U.S. Space Policy, ed. M.K. Macauley, Resources for the Future and the National Academy of Engineering, 1987.

"The Capital Structure of Insurance Firms," in Financial Models of Insurance Solvency, ed J. D. Cummins and R. A. Derrig, Kluwer Academic Press, Boston, 1989.

"Risk, Insurance and the Growing Firm" (with M.H. Atkins and R.L. Carter), in Handbook of Risk Management. Edited by R.L. Carter and N.A. Doherty. London: Kluwer Harrap, 1975.

"Damages for Personal Injury--Some Economic Issues" (with D. Lees), in Impairment, Disability and Handicap: A Multi-Disciplinary View, ed. D. Lees and S. Shaw, London: Heinemann Educational Books, 1974, Chapter 3, pp. 56-78.

COMMISSIONED REPORTS

Development of Small-Scale Industry in Zambia. Report for the Government of Zambia. Lusaka, Zambia.

The Effect of Harmonisation of Taxes within the E.E.C. on the U.K. Insurance Industry (with J. Wiseman and R.L. Carter), Report for the British Insurance Association. London, England.

Report on Earthquake Loss Mitigation, written for Federal Emergency Management Agency. 1990

"The Impact of a Catastrophic Earthquake on Insurance Markets" Prepared for F.E.M.A. (with A. E. Kleffner and H. Kunreuther). Discussed by Subcommittee on Space, Science and Technology, August 1992.

"Insurance Surplus: Its Function, Its Accumulation and Its Depletion". Prepared for The Earthquake Project. August 1992 (with L. Posey and A. Kleffner)

"The Calculation of Compensation for Personal Injury." Evidence requested by the Royal Commission on Civil Liability for Personal Injury, 1975, London, 15 pp

THESES

"Resource Allocation in Insurance Systems." Unpublished Ph.D. dissertation, Cranfield Institute of Technology, 225 pp.

HONOURS

Many Teaching Awards at Wharton including Miller-Sherrard MBA Core Teaching Award, 1995, 1998 and 2001; and MBA Core Cluster teaching awards in 5 separate years

Clifford D. Spangler Award (1995) for article appearing in the Journal of Risk and Insurance that has "withstood the test of time"

Clifford D. Spangler Award (1994) for article appearing in the Journal of Risk and Insurance that has "withstood the test of time"

Clifford D. Spangler Award (1990) for article appearing in the Journal of Risk and Insurance that has "withstood the test of time"

Ranked first in Survey of Insurance Research Scholars (by quantity and quality of research) 1989 (Survey by Professors Cox and Gustavson, in Journal of Risk and Insurance).

Prize awarded by the American Risk and Insurance Association for best paper appearing in the Journal of Risk and Insurance, 1991.

Prize awarded by the American Risk and Insurance Association for best paper appearing in the Journal of Risk and Insurance, 1986.

Prize awarded by the American Risk and Insurance Association for best paper appearing in the Journal of Risk and Insurance, 1984.

Prizes by Chartered Insurance Institute for distinguished results in the Fellowship Examination of the Chartered Insurance Institute.

Prize by Chartered Insurance Institute for highest grade in United Kingdom for Associateship Qualifying Examination of Chartered Insurance Institute.

Neil Doherty is the Frederick H. Ecker professor of insurance and risk management and chair of the Department of Insurance and Risk Management at the Wharton School. A principal area of interest is in *corporate risk management* focusing on the financial strategies for managing risks that traditionally have been insurable. Such strategies include the use of existing derivatives, the design of new financial products and the use of capital structure. He has written three books in this area ("*Corporate Risk Management: A Financial Exposition*" 1985 "*The Financial Theory of Insurance Pricing*" 1987 (with S. D'Arcy)) and *Integrated Risk Management*, 2000 as well as several recent papers. The other area of interest is the *economics of risk and information* and has written papers on the adverse selection, the value of information, and the design of insurance contracts with imperfect information and related issues. These papers have appeared in the *Journal of Risk and Insurance*, *Journal of Political Economy*, *Quarterly Journal of Economics*, *Journal of Public Economics*, *Journal of Finance*, *Journal of Risk and Uncertainty*, etc.. He is also the co-author of *Managerial Economics* (2003 - with B. Allen and K. Weigelt). In 2005 Doherty coauthored two reports on the insurance industry. The first, *The Economics of Insurance Intermediaries* provided an economic analysis of some of the issues raised by Elliot Spitzer's investigation into broker compensation and bidding for insurance. The second, *TRIA and beyond* provided an economic analysis of terrorism insurance and the public policy option facing the government with the expiration of TRIA.