January, 2012

DAN GALAI

Curriculum Vitae

Home: 20A Harav Berlin Street
Jerusalem, Israel
(02) 561-7234
(050) 8210-955

Office: Jerusalem Business School
The Hebrew University
Jerusalem, Israel
Tel: (02) 588-3235

FAX: (02) 588–1576
E-mail: msgalai@mscc.huji.ac.il

Sigma P.C.M.
Tel Aviv, Israel
Tel: (03) 613-8218
FAX: (03) 6138-219
E-mail: dan@sigma-pcm.co.il

Personal Information: Date of Birth: September 27, 1945
Married: 4 children

Education: The Hebrew University of Jerusalem, Israel, B.A. (with honors) 1969, Economics and Statistics

The Hebrew University of Jerusalem, Israel, M.A. (with honors) 1971, Business Administration

University of Chicago, U.S.A., Ph.D. 1975, Business Administration

Honors: B.A. and M.A. with honors

Fulbright-Hays Travel Grant (1970-1974)

First Annual Pomerance Prize for Excellence in the area of Options Research (1977).

Current Position: Dean of The School of Business Administration, and the Abe Gray Chair: Professor in Business Administration, The Hebrew University, Jerusalem

Previous Positions: Visiting Scholar, IMF, Washington D.C., Summer 2008.

Visiting Professor of Finance, Stern School of Business, NYU, 2006, and Summer 2007.

Visiting Professor of Finance, HEC Lausanne, 2002-2004.
Visiting Professor, Luxembourg School of Finance, 2004-

Visiting Professor of Finance, INSEAD, 1990, 1991.

Visiting Associate Professor of Finance, UCLA (1978, 1979, 1980 and 1981), Visiting Professor of Finance, UCLA, 1983, 1984, 1986

Visiting Lecturer in Finance, School of Business Administration, University of California, Berkeley (1974)

Lecturer in Finance, Graduate School of Business, University of Chicago (1973-74).

Professional Associations: American Financial Association, (AFA), European Financial Association (EFA)

Member of the Nominating Committee (1982-83), European Finance Association

Member of the Nominating Committee (1983) American Finance Association

Member of the Executive Committee (1989-1992) European Finance Association

Associate Editor, *The International Review of Financial Analysis*.

Associate Editor, *Review of Derivatives Research*

Member of the Blue Ribbon Panel of PRMIA

Regional Director of PRMIA

Areas of Interest: Corporate finance, Investments in R&D, financial institutions and financial markets (especially the markets for options) financial theory, risk management.

Other Activities: Initiated and organized the Annual AMEX Options Colloquiums since 1981 to 1998.

Co-General Manager of Sigma P.C.M. Investments Ltd. (1992–   ).

Co-Founder of MutualArt Inc. (2003-).

Member, Board of Directors of Lapidoth (1977-78) and Naphta (1977-78).

Member, Board of Directors of the Finance and Trade Bank (1985 - 1990).

Member, Board of Directors of Yaad Ltd. (1990 - 1995).

Member, Board of Directors of Paz-Chen Ltd. (1992 - 1997).

Member, Board of Directors and Investment Committee, Hapoalim Mutual Funds Management (1987-92).

Member, Board of Directors of Oridion (1995 – 1999).

Member, Board of Directors and Founder of MutualArt Inc. (2003-).

Member, Board of Directors of Quigo Inc. (2001-2003).

Member, Board of Directors of BioPure Technology (2001-)

Member, Board of Directors of Outbrain Inc (2006- 7)

Chairman, Board of Directors of P-Kama (2008-)

Consultant to the Research Department, Controller of the Banks. Bank of Israel (1982 - 1987).

Consultant to the Chicago Board Options Exchange (1975).

Consultant to the American Stock Exchange (1989).

Consultant to the Israeli National Council for Research and Development (1975-76).

Grants: A Ford Foundation Grant to study the effect of inflation on the Israeli capital market (1977-79).

A grant from CIVITAS Research Program in Regulation on Financial Markets, University of California, Los Angeles (1979).

A grant from the Center for Study of Future Markets, Columbia University, to study "The Economic Effects of Minimum Price Policy" (1981-82).

A grant from Pickier Foundation to study the economics of direct insurance (1996 – 1997).

A grant from the Ne’eman Institute, the Technion to study government subsidies to private investments (2001-2002).

A grant from the Meir Center, Bar-Ilan University, to study the subject of earnings management and risk management (2004-5).

A grant from the Caeserea Center, the IDC, to study international auction systems for Government bonds (2005-6).

Books and Monographs:

"The Process of Decision Making in Investment in Research and Development: Case Study: The Pharmaceutical Industry in Israel," Council for Research and Development (Israel), 1971 (in Hebrew).

"Report on Government Supported Industrial Research Institutes," (with J. Goldman and N. Toren) January 1977.

The Business Plan Process, (with L. Hillel) Technological Options Publishing, September 1989, (in Hebrew) 160 pages. Second edition, Sept.1992, Third Edition 2003 (Matar Publishing).

Options and Futures in the Israeli Financial Market (ed.) The Floersheimer Institute for Policy Studies, 1991 (in Hebrew).

Business Plan (with J.Bessis, L. Hillel and Ph. Kienast), Edition Nathan (in French), 1993.

"Aspects of Short Selling," (with R. Aviran) The Kassirer Institute (in Hebrew) 1996.

Risk Management and Regulation in Banking (edited with M. Sarnat, D. Ruthenberg and B. Schreiber), Kluwer, 1999.

Risk Management (with M. Crouhy and R. Mark), McGraw-Hill, May, 2000.

The Essentials of Risk Management (with M. Crouhy and R. Mark), McGraw-Hill, December, 2005.

Articles:

"Transaction Costs and the Relationship Between Put and Call Prices," (with J. Gould), *Journal of Financial Economics*, Vol. 1, No. 2 (June 1974), pp. 105-129.

"A Note on Cord's Method of Allocating Funds to Investment Projects," *Management Science/Application*, (August 1975), pp. 1466-70.

"The Option Pricing Model and the Risk Factor of Stock," (with R. Masulis), *Journal of Financial Economics*, Vol. 3, Nos. 1-2 (January-March 1976), pp. 53-81.

Reprinted in Lee, C.F. (ed.) *Financial Analysis and Planning*, Addison Wesley, 1983.

"Policy Implications of Full-Loss-Offset Capital Gains Tax on Forward Contracts," *Journal of Political Economy*, Vol. 84, No. 6 (December 1976), pp. 1313-1318.

"Test of Market Efficiency of the Chicago Board Options Exchange," *Journal of Business,* Vol. 50, No. 2 (April 1977), pp. 167-197.

"On the Boness and Black-Scholes Models for Valuation of Call Options," *Journal of Financial and Quantitative Analysis*, (March 1978), pp. 15-27.

"The Empirical Relationship Between Inflation and Financial Assets' Returns in an Inflation Intensive Capital Market," (with M. Brenner), in Sarnat, M. (ed.) *Inflation and Capital Markets*, Ballinger, Cambridge, Ma., (1978), pp. 3-35.

"Characterization of Options," *Journal of Banking and Finance*, Vol. 1, No. 4 (December 1977), pp. 373-85.

"Empirical Tests of Boundary Conditions for CBOE Options," *Journal of Financial Economics*, Vol 6 (1978), pp. 187-211.
"The Risk-Return Relationship and Stock Prices," (with Benjamin Bachrach), *Journal of Financial and Quantitative Analysis*, Vol. 14, No. 2 (June 1979), pp. 421-441.

"The Determinants of the Return on Index Bonds," (with M. Brenner), *Journal of Banking and Finance*, Vol. 2 (June 1978), pp. 47-64.
"The Determinants of the Potential Effectiveness of Government Supported Industrial Research Institutes," (with N. Toren), *Research Policy*, Vol. 7 (1978), pp. 362-382.

"Pricing of Warrants and the Value of the Firm," (with M. Schneller), *Journal of Finance*, Vol. 33, No. 5 (December 1978), pp. 1333-1342.

"The Effect of Inflation on the Rate on Common Stocks in Israel: 1965-1974," (with M. Brenner), *Bank of Israel Economic Review*, Vol. 48-49 (January 1979) (Hebrew and English).

"The Value of Future Contingent Obligation: The Case of the Obligation of `The First International Bank of Israel' to Merav's Stockholders," *Economic Quarterly* (Hebrew), (April 1978), pp. 140-146.

"A Convexity Test for Traded Options," *Quarterly Review of Business and Economics*, Vol. 19, No. 2 (Summer 1979), pp. 83-90.

"A Proposal for Indexes for Traded Call Options," *Journal of Finance*, Vol. 34, No. 5 (December 1979), pp. 1157-1172.

"The Perceived Bottlenecks in Developing Science-Based Industries in Israel," *R&D Management*, (June 1980), pp. 119-123.

"The Effect of Inflation on the Rate of Return on Common Stocks in an Inflation Intensive

Capital Market: The Israeli Case 1965-1979," (with Menachem Brenner) in *Inflation Through the Ages: Economic, Social, Psychological and Historical Aspects*, E. Marcus (ed.), Brooklyn College Press, 1984.

"The Effect of Inflation on Stock Yields, 1965-1979 (Update)," *Bank of Israel Economic Review*, No. 53 (May 1982).

"The Components of the Return From Hedging Options Against Stocks," *The Journal of Business*, Vol. 56, No. 1 (January 1983), pp. 45-54.

"Survey of Empirical Testing of Option Pricing Models," in *Option Pricing: Theory and Applications*, Brenner, M. (ed.), Lexington-Heath, (Mass.), 1983, pp. 45-80.

"Pricing of Optional Bonds," *Journal of Banking and Finance*, Vol. 7 (1983), pp. 323–337.

"Information Effects on the Bid-Ask Spread," (with T. Copeland), *Journal of Finance*, Dec. 1983, pp. 1453-69.

"Option Performance Measurement," (with R. Geske), *Journal of Portfolio Management* (1984) pp. 42-46.

"The Valuation of Optional Bonds and Estimation of the Long-Term Nominal Interest Rate in Israel from 1966 to 1971," *Bank of Israel Review of Banking*, (May 1983), pp. 25-41.

"Macro Economic Aspects of the Bank Shares' Crises," (with M. Brenner), *The Economic Quarterly*, (Hebrew) (February 1984), pp. 909-914.

"A Note on Measuring the Risk of Common Stocks Implied by Options Prices," (with M. Brenner), *Journal of Financial and Quantitative Analysis* (December 1984), pp. 403–412.

"The Capital Market and the Stock Exchange in Israel," (with M. Brenner), *The Economic Quarterly* (Hebrew) (Dec. 1985), pp. 354–360.

"Implied Interest Rates," (with M. Brenner) *Journal of Business*, (July, 1986), pp. 493-507.

"An Economic Assessment of Capital Requirements in the Banking Industry," (with M. Crouhy) *Journal of Banking and Finance* (June, 1986), pp. 231–241.

"A Proposal for the Frozen Bank Shares," *Quarterly Banking Review*, Vol. 24, No. 94 (Hebrew) (November, 1985), pp. 54-60.

"On the Prediction of the Implied Standard Deviation," (with M. Brenner), *Advances in Futures and Options Research*, Vol. 2, (1987) pp. 167-177.

"A Renewed Proposal for the Bank Shares Arrangement," *Quarterly Banking Review*, Vol. 26, No. 101 (Hebrew) September 1987, pp. 90-92 and 130-133.

"Corporate Income Taxes and the Valuation of Claims on the Corporation," *Research in*

Finance, Vol. 7 (1988) pp. 75-90.

"Testing the Arbitrage Conditions for Option Pricing - A Survey," *Financial Markets and Portfolio Management*, (1989), pp. 16-27.

"New Financial Instruments for Hedging Changes in Volatility," (with M. Brenner), *Financial Analysts Journal*, (July/August 1989) pp. 61-65.

"A Note on `Equilibrium Warrant Pricing Models and Accounting for Executives Stock Options'," *Journal of Accounting Research*, Vol. 27, No. 2, (Autumn, 1989), pp. 263-265.

"Financial Innovations: A Survey of New Financial Instruments in Foreign Currency Market," *The Economic Quarterly*, pp. 243-251, Oct. 1989 (Hebrew).

"Comments on `Optimal Replication of Contingent Claims under Transaction Costs'", *The Review of Futures Markets*, Vol. 8, No.2 (1990).

"A Contingent Claim Analysis of a Regulated Depository Institution," (with M. Crouhy), *Journal of Banking and Finance*, Vol. 15, (1991), pp. 73-90.

"Common Errors in the Valuation of Warrants and Options on Firms with Warrants" (with M. Crouhy), *Financial Analysts Journal* (1991), pp. 89–90.

"Warrant Valuation and Equity Volatility," (with M. Crouhy), *Advances in Futures and Options Research*, Vol. 5 (1991), pp. 203–215.
"Inferring Volatility from Option Prices" *Finance*, Vol. 12, No.1 (June, 1991) pp. 45-64.

"The Settlement Day Effect in the French Bourse," (with M. Crouhy) *Journal of Financial Services Research*, (1992), pp. 417–439.

"The Case for Capital Reform in Israel," (with M. Sarnat), *The Economic Review*, (Hebrew), Vol. 154 (Dec., 1992), pp. 288–304.

"Predicting the Value of Foreign Currency Call Option with Constant Elasticity of Variance Diffusion Process," (with S. Hauser and C. Bagley), *The International Review of Financial Analysis*, Vol. 2 (1993).

"The Social Welfare Aspects and Market Inpact of Options Trading: The Lessons for Israel," *Bank of Israel Review of Banking*, Vol. 11, (Feb. 1993), pp. 55–64.

"The Interaction Between the Financial and Investment Decisions of the Firm: The Case of Issuing Warrants in a Levered Firm," (with M. Crouhy) *Journal of Banking and Finance*, Vol. 18 (1994), pp. 861-880.

"Hedging Volatility in Foreign Currencies," (with M. Brenner) *The Journal of Derivatives*. Vol. 1, No. 1 (Fall, 1993) pp. 53–59.

"Behavior of Stock Prices on the Tel-Aviv Stock Exchange: Comparison of the Distribution of

Daily Rates of Return Among Different Days 1986-7," (with H.K. Levy) *Bank of Israel Economic Review*, (Hebrew), Vol. 69 (May, 1995), pp. 75–91, English translation appeared in *Bank of Israel Economic Review*, 69 (1996), pp. 71–87.

"Stochastic Volatility Related to the Leverage Effect I: Equity Volatility Behavior," (with A. Bensoussan and M. Crouhy), *Applied Mathematical Finance*, Vol 1, No. 1 (1994) pp. 63-85.

"Stochastic Equity Volatility and the Capital Structure of the Firm," (with A. Bensoussan and M. Crouhy), *Philosophical Transactions of the Royal Society of London*, Series A. Vol. 347, pp. 531–541, (1994).

"Black-Scholes Approximation of Warrant Prices," (with A. Bensoussan and M. Crouhy) *Advances in Futures and Options Research* (1995), pp. 1–14.

"Hedging with a Volatility Term Structure," (with M. Crouhy) *The Journal of Derivatives* (Spring, 1995), pp. 45–52.

"Stochastic Equity Volatility Related to the Leverage Effect II: Valuation of European Equity Options and Warrants," (with A. Bensoussan and M. Crouhy) *Applied Mathematical Finance*, Vol. 2, (1995) pp. 43-59.

"Economic Evaluation of Remuneration from Patents and Technology Transfers," (with Y. Ilan) *International Review of Financial Analysis*, Vol. 4, No. 2, (1995) pp.85–99.

"Options on Volatility," (with M. Brenner), in *Option Embedded Bonds*, I. Nelken (ed.) Irwin Professional Publishing, 1997, pp. 273–286.

"Black-Scholes Appproximation of Complex Option Values: The Cases of European Compound Call Options and Equity Warrants," (with A. Bensoussan and M. Crouhy), in *Option Embedded Bonds*, I. Nelken (ed.) Irwin Professional Publishing, 1997, pp. 127–154.

"Accounting Aspects of Short Selling," (with R. Aviram), *Roeh Ha'Heshbon* (in Hebrew) 1996, pp. 636–645.

"Taxes, M-M Propositions and Government's Implicit Cost of Capital in Investment Projects in the Private Sector," *European Financial Management*, Vol. 4, No. 2 (July 1998).

"Economic Aspects of Short Selling," (with R. Aviram) forthcoming in Bank of Israel Review of Banking (in Hebrew) (1998).

"Tax Aspect of Short Selling," (with R. Aviram) *Tax Quarterly* (in Hebrew), 1997.

"What's in the Name," (with M. Crouhy and R. Mark) *Risk* (Nov. 1997).

"The New 1998 Regulatory Framework for Capital Adequacy: `Standardized Approach' vs. `Internal Models'," (with M. Crouhy and R. Mark), *Net Exposure* (*The Electronic Journal of Financial Risk*), Issue 4 (Jan. 1998), also reprinted in *Risk Management and Analysis-Measuring and Modelling Financial Risk* (ed. by C. Alexander), John Wiley & Sons (1998), pp. 1–37.

"Credit Risk Revisted," (with M. Crouhy and R. Mark), *Risk* (Credit Risk Supplement), (March, 1998), pp. 40–44, also reprinted in *Credit Risk: Models and Management* (ed. By I. Shimko), Risk Book (1999).

"Model Risk," (with M. Crouhy and R. Mark), *Journal of Financial Engineering* (1998), Vol. 7 (3/4), pp.267–288, reprinted in *Model Risk: Concepts, Calibration and Pricing*, (ed. R. Gibson), Risk Book, 2000, pp. 17–31.

"Key Steps in Building Consistent Operational Risk Measurement and Management," (with M. Crouhy and R. Mark), Ch. 3 in *Operational Risk and Financial Institutions*, Risk Books (1998), pp. 45–62.

"Exclusive vs. Independent Agents: A Separating Equilibrium Approach," (with Z. Shapira and I. Venezia), *Journal of Economics Behavior and Organization,* 2000.

"Evaluating Credit Risk: An Option Pricing Approach," (with M. Crouhy and R. Mark), *Risk Management and Regulation in Banking,* Ch. 5 (ed., Galai, Ruthenberg, Sarnat and Schrieber), Kluwer Publishers (1999), pp. 99–114.

"A Comparison between the BIS 'Standardized Approach' and the 'Internal Models Approach'," (with M. Crouhy and R. Mark), in *Risk Management and Regulation in Banking*, chapter 4, 65–98, (Editors: Galai, Ruthenberg, Sarnat and Schreiber), Kluwer Publishers, 1999.

"A Comparative Analysis of Current Credit Risk Models," (with M. Crouhy and R. Mark), *Journal of Banking and Finance*, Vol. 24, No. 1-2, (Jan. 2000), pp. 59–117.

"Operational Risk," (with M. Crouhy and R. Mark), in *Professional's Handbook of Financial Risk Management*, chapter 12, pp. 342–376. Editors: Marc Lore and Lev Borodovsky, 2000, Butterworth-Heinemann.

"The New Capital Adequacy Framework and the Need for Consistent Risk Measures for Financial Institutions," (with M. Crouhy and R. Mark), *Journal of Banking and Finance,* 2000; in L. Jacque (ed.) *Financial Innovations and the Welfare of Nations*,.

"The Y2K Enigma," (with M. Brenner and M. Crouhy), in S. Figlewski and Levich, R.M. (eds.), *Risk Management*, *The State of the Art*, Kluwer, 2001, pp. 111–119.

"One firm, One View" (with M. Crouhy and R. Mark) *Risk*, (Enterprise-wide Risk Management Special Report), (Dec., 2000).

"Model Selection for Operational Risk", (with M. Crouhy and R. Mark), in *Advances in Operational Risk*, Risk Books, 2001, pp. 163–197.

“Government Support of Investment Projects in the Private Sector: A Micro-Economic Approach”, (with Zvi Wiener), *Financial Management* (2003).

“Internal Risk Rating Systems” (with M. Crouhy and R. Mark), Chapter 17, in M.K. Ong (ed.), *Credit Ratings, Methodologies, Rationale and Default Risk,* RISK Books 2002 (pp. 369-390).

"The Use of Internal Models: Comparison of the New Basel Credit Proposal with Available Internal Models for Credit Risk" (with M. Crouhy and R. Mark), in Oxford University Press 2004.

"Risk Capital Attribution and Risk-Adjusted Performance Measurement" (with M. Crouhy and R. Mark), in M. K. Ong (ed.) Academic Press 2005.

"Day-of-the-Week Effect in High Moments" (with H. Kedar-Levy), *Financial Markets, Institutions & Instruments*, 2005.

"Overview: Model Risk" (with Crouhy, and Mark), in Gibson R., *Model Risk, Concepts, Calibration and Pricing*, Risk Books, 2005.

"The "Ostrich Effect" and the Relationship Between the Liquidity and the Yields of Financial Assets" (with O. Sade), *Journal of Business* (September, 2006).

"Liquidation Triggers and the Valuation of Equity and Debt " (with A. Raviv and Z. Wiener), *Journal of Banking and Finance,* 2007.

"Seasonality in Outliers of Daily Stock Returns: A Tail that Wags the Dog?" (with H. Kedar-Levy and B. Z. Schreiber), *International Review of Financial Analysis*, 17 (2008), 784-792.

"Stakeholders and the Composition of the Voting Rights of the Board of Directors" (with Z. Wiener), the *Journal of Corporate Finance*, 14 (2008), 107-117.

"Sovereign debt auctions: Uniform or discriminatory?", (with M. Brenner and O. Sade), *Journal of Monetary Economics*, 2009. A shorter version will appear in Robert W. Kolb (ed.) *Sovereign Debt: From Safety to Default*, 2010.

"Investment in Hidden Assets in Multi-Period Earning Management Model," (with S. Sulganik and Z. Wiener), in Venetzia I. and Wiener Z. (edts.), Bridging the GAAP, Recent Advances in Finance and Accounting , World Publishing,2010.

"A Balance Sheet Approach for Sovereign Debt" (with Landskroner Y., Raviv A.,and Wiener Z.), in Venetzia I. and Wiener Z. (edts.) , Bridging the GAAP, Recent Advances in Finance and Accounting , World Publishing,2010

" Vision of Risk :A Stress Testing Perspective" (with Crouhy, M. and Mark, R.), 2011

"Credit Risk Spreads in Local and Foreign Currencies ", (with Wiener, Z.), forthcoming in the Journal of Money Credit and Banking, 2012

Proceedings:

"Calls and Puts: A New Factual Survey," Proceedings, Seminar on the Analysis of Security Prices, Center for Research in Security Prices, Graduate School of Business, University of Chicago, (November 1974).

"Measuring Options Performance," Proceedings of the First AMEX Options Colloquium (March 1981).

"Options Performance Measurement," (with R. Geske), The Chicago Board Options Exchange, (March 1983).

"Financial Intermediation, Interest Rate and Insolvency Risks, and Regulation" (with M. Crouhy) in *Geld, Banken und Versicherungen*, Goppl H., and Henn, R. (eds. vvw Karlsruhe (1984/Band I) pp. 613-627.

"Israel as an International Financial Center," Institute for Advanced Strategic and Political Studies, (Nov. 1989).

"Warrant Valuation: A Bionomial Approach" (with M. Crouhy) in *Actuarial Approach for Financial Risk*, Vol. 3, *New Financial Markets*, pp. 305-319, 1990 1st AFIR International Colloquium, Paris, April 1990.

"The Case for Capital Market Reform in Israel," (with M. Sarnat) in *Capital Market Reform in Israel*, M. Sarnat, ed., Jerusalem, 1991.

"The Need for Risk Management," (with M. Crouhy and R. Mark), *Moderna Financa*, Vol. 15, (1999), pp. 11–41.

Working Papers:

1. "Project Selection: Effects of Judgemental Errors, Managerial Compensation and Incentives," (with Z. Shapira) (2005).

2. "The Economic Rationale for Options Markets and the Effects of Introducing Options Trading," (March, 1996).

3. "The Effects of Possible Litigation and Potential Bonuses on the Behavior of Corporate Directors" A Conceptual Analysis" (with Z. Shapira), (May, 2006).

4. "Investment in Hidden Assets in Multi-Period Earning Management Model," (with S. Sulganik and Z. Wiener), 2008.

5. "Ex Ante and Ex Posts Aspects of RAROC," (with M.Crouhy and R. Mark).

6. . "Outlier Seasonality by Month of the Year (MOY) and Day of the Week (DOW) – A Note." (with H. Levy and B. Schreiber).

7. "Auctioning Financial Assets: Discriminatory vs Uniform: Which Mechanism is Preferred by Bidders?" (with M. Brenner and O. Sade), June 2006.