

KEITH SHARP PhD, FSA, CFA

BASIC INFORMATION

Birth: January 13, 1952, London U.K.
Citizenship: Canadian and British
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DEGREES

1988 Ph.D. (Management Science, field: Finance-Interest Rate Models) Univ. of Waterloo
1976 M.A. (Statistics) University of California, Berkeley (Ranked second or third in final exam for M.A.)
1974 M.A. (Astronomy) University of California, Berkeley: Earle C. Anthony Fellowship
1972 B.A. & M.A. (Mathematics) Cambridge University, U.K. (Ranked sixth out of 177 in final B.A. exam)

PROFESSIONAL QUALIFICATIONS

2007 Chartered Financial Analyst
1990- Fellow, Society of Actuaries (Chicago)
1983- Fellow, Canadian Institute of Actuaries
1982-2006 Fellow, Institute of Actuaries (London)

EXPERIENCE

2007-date Teaching actuarial & investment courses at University of Toronto, Mississauga
2006-date Teaching actuarial & investment courses at University of Toronto, Scarborough
2005-date Teaching actuarial & investment courses at University of Toronto, Main campus, Dept of Statistics
2000-2005 Run and teach ActSharp actuarial exam preparation seminars in New York, Hartford and Chicago
1989-2000 Tenured Associate Professor (& Associate Chair for five years) University of Waterloo, Ontario
1982-89 Assistant Professor, Dept. of Statistics and Actuarial Science, University of Waterloo, Ontario
1980-82 Associate actuary at TPF&C, consulting actuaries, Toronto
1977-80 Trainee actuary at PTOW/TPF&C, consulting actuaries, Melbourne, Australia
1977 Trainee actuary at Commercial Union Assurance, London, U.K.
1976 Research assistant to J. Neyman, University of California, Berkeley
1973-76 Head teaching assistant, University of California, Berkeley
1972 Supervisor, Christ's College, Cambridge University, U.K.

PAPERS IN REFEREED JOURNALS

1. "CARVM and Actuarial Guidelines 33 and 34", *Journal of Actuarial Practice*, Vol. 7, No. 1, pp 125-146 (K.P. Sharp) 1999
2. "The Commissioners Annuity Reserve Valuation Method", *Journal of Actuarial Practice*. Vol. 7. No. 1. pp 107-124 (K.P. Sharp) 1999
3. "Reserves for Policies with Non-Annual Premiums," *North American Actuarial Journal*, Vol. 2, No. 3. pp 118-127 (K.P. Sharp) 1998
4. "Lapses and Termination Assumptions in Reserve Calculations", *Journal of Insurance Regulation*, Vol. 15, No. 2, pp. 194-211 (K.P. Sharp) 1996
5. "Pension Funding by Normal Costs or Amortization of Unfunded Liabilities". *Journal of Actuarial Practice*, Vol. 4, No. 2, pp. 257-274 (K.P. Sharp) 1996
6. "Equivalence of Reserve Methodologies". *Transactions. Society of Actuaries*. Vol. XLVII. pp. 455-478 (K.P. Sharp) 1995
7. "A Mathematical Analysis of Financial Accounting Standard No. 88", *Transactions, Society of Actuaries*, Vol. XLV, pp. 485-497 (K.P. Sharp) 1993
8. "Funding Methods and Pension Plan Amendments", *Journal of Actuarial Practice*, Vol. 1. No. 2, pp. 111-126 (K.P. Sharp) 1993
9. "Modeling Canadian Price and Wage Inflation", *Proceedings of the Canadian Institute of Actuaries*, Vol. 24, No. 3. pp. 565-587 (K.P. Sharp) 1993
10. "Inflation and Investment Returns: An Overview ", *Proceedings of the Canadian Institute of Actuaries*, Vol. 24, No. 3, pp. 588-599 (K.P. Sharp) 1993
11. "Stochastic Differential Equations in Finance", *Applied Mathematics and Computation*, Vol. 37, No. 2. pp. 131-148 (K.P. Sharp) 1990
12. "Mortgage Rate Insurance Pricing Under an Interest Rate Diffusion with Drift", *Journal of Risk and Insurance* Vol. 56, No. 1, pp. 34-49 (K.P. Sharp) 1989
13. "Tests of U.S. Short and Long Interest Rate Seasonality", *Review of Economics and Statistics*. Vol. 70, No. 1, pp. 177-182 (K.P. Sharp) 1988
14. "Applications of Economic Statistics to the Indexation of Occupational Pensions", *Proceedings of the Canadian Institute of Actuaries* Vol. 16, No. 3, pp. 322-334 (K.P. Sharp) 1988
15. "The Valuation of Sick Leave Plans", *Proceedings of the Canadian Institute of Actuaries* Vol. 18, No. 1, pp. 363-377 (K.P. Sharp) 1987
16. "A Model for Determining Early Retirement Incentives", *Insurance: Mathematics and Economics* Vol. 6, No. 2, pp. 117-127 (K.P. Sharp) 1987
17. "Mortgage Rate Insurance in Canada", *Canadian Public Policy* Vol. 12, No. 2, pp. 432-437 (K.P. Sharp) 1986

CONFERENCE PROCEEDINGS, REPORTS TO INDUSTRY, STUDY MANUALS ETC.

18. *Actex Study Manual for the Course 5 Examination of the Society of Actuaries*, 2004 edition (R.L. Brown and K.P. Sharp) 2004
19. *Actex Study Manual for the Course 8 - Individual Examination of the Society of Actuaries*, 2002 edition (N.J. Desmarais and K.P. Sharp) 2002
20. *Canadian Standard Ordinary Life Experience 1997 and 1998*, (58 pages, V. Borchert, R.L. Brown and K.P. Sharp). 2000
21. *Report on Canadian Economic Statistics 1924-1999*, Canadian Institute of Actuaries (39 pages, Committee on Economic Statistics/H.H. Panjer and K.P. Sharp, annual 1992-2000). 1992-2000
22. *Actex Study Manual for the Course 5 Examination of the Society of Actuaries*, 2000 edition (R.L. Brown and K.P. Sharp, my contribution 107 new pages) 2000
23. *Actex Study Manual for the Course 8 - Individual Examination of the Society of Actuaries*, 2000 edition (N.J. Desmarais and K.P. Sharp, my contribution 56 new pages) 2000
24. *Annuities in Canada: A Report Prepared for the World Bank*, Institute of Insurance and Pension Research (Waterloo) Working Paper (73 pages) (Hyun Tae Kim and K. P. Sharp) 1999
25. *Canadian Standard Ordinary Life Experience 1996 and 1997*; Canadian Institute of Actuaries Monograph (56 pages, V. Borchert, R.L. Brown and K.P. Sharp). 1999
26. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*, (K.P. Sharp) 1998
27. *Canadian Standard Ordinary Life Experience 1995 and 1996*, Canadian Institute of Actuaries Monograph (V. Borchert, H.H. Panjer and K.P. Sharp) (41 pages). 1998
28. *Actex Study Manual for the Course 1-443U Examination of the Society of Actuaries*, 1998 Edition (R. De Caro and K.P. Sharp; my contribution 6 new and 10 revised pages for 1998). 1998
29. *Canadian Standard Ordinary Life Experience 1994 and 1995*, Canadian Institute of Actuaries Monograph (V. Borchert, H.H. Panjer and K.P. Sharp) (38 pages). 1997
30. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*, 1997 Edition (74 new or revised pages for 1997). (K.P. Sharp) 1997
31. *Actex Study Manual for the Course 1-443U Examination of the Society of Actuaries* 1997 Edition (R. De Caro and K.P. Sharp; my contribution 10 new and 31 revised pages 1997). 1997
32. *Actex Study Manual for the Course 1-340 Examination of the Society of Actuaries* (joint authorship; my contribution 10 new pages for 1997). 1997
33. *The Savings Rate to Provide an Adequate Pension*, Institute of insurance and Pension Research, Research Report 96-22 (44 pages, 1996). (K.P. Sharp) 1996
34. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*, (105 new and 25 revised pages for 1996). (K.P. Sharp) 1996
35. *Actex Study Manual for the Course 1-443U Examination of the Society of Actuaries*, (D. Kidwell and K.P. Sharp; my contribution 34 new pages for 1996). 1996
36. *Actex Study Manual for the Course 1-340 Examination of the Society of Actuaries*, (joint authorship; my contribution 14 new pages for 1996). 1996
37. *Equity Conversion Plans for the Elderly*, Institute of Insurance and Pension Research, Research Report 95-16, (John Di Meo, R. L. Brown and K.P. Sharp) (96 pages). 1995
38. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*, 1995 Edition. (196 revised pages for 1995). (K.P. Sharp) 1995

39. *Actex Study Manual for the Course I-443U*, Examination of the Society of Actuaries (D. Kidwell and K.P. Sharp), (My contribution 65 new pages for 1995). 1995
40. *Actex Study Manual for the Course I-340*, Examination of the Society of Actuaries (Joint authorship; my contribution 8 new pages for 1995). 1995
41. "Costing of Pension Plan Amendments", ARCH 1994.1, pp. 15-24 (K.P. Sharp) 1994
42. "An Academic View of Economic Forecasting", *Proceedings of the Investment Seminar*. Canadian Institute of Actuaries/AFIR, Vol. 4, pp. 41-52 (K.P. Sharp) 1994
43. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*. 1994 Edition, (25 new pages for 1994). (K.P. Sharp) 1994
44. *Actex Study Manual for the Course I-443U*, Examination of the Society of Actuaries (D. Kidwell and K.P. Sharp), (77 new pages for 1994). 1994
45. *Pension Mathematics for Actuaries - Commentary and Solutions* (180 pages) Actex Publications (K.P. Sharp) 1993
46. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*, 1993 Edition, (222 new or revised pages for 1993). (K.P. Sharp) 1993
47. *Actex Study Manual for the Course F-483U Examination of the Society of Actuaries*, 1993 Edition, (joint authorship, my 1993 contribution 57 pages). 1993
48. *Actex Study Manual for the Course I-443U Examination of the Society of Actuaries*, 1993 Edition (D. Kidwell and K.P. Sharp; my 1993 contribution 30 pages). 1993
49. "Aspects of Interest. Rate Models", *Transactions of the 24th International Congress of Actuaries*, Vol. 1, pp. 187-205 (K.P. Sharp) 1992
50. *Actex Study Manual for the Course I-443U Examination of the Society of Actuaries*, 1992 Edition (D. Kidwell and K.P. Sharp; my 1992 contribution 36 pages). 1992
51. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*, 1991 Edition (W.H. Aitken and K.P. Sharp; my 1991 contribution 57 pages). 1991
52. *Report on Canadian Economic Statistics*, Canadian Institute of Actuaries (36 pages, Committee on Economic Statistics/P.P. Boyle, H.H. Panjer, K.P. Sharp, annual 1983-91). 1983-1991
53. *Actex Study Manual for the Course I-442C and I-443U Examinations of the Society of Actuaries*, 1991 Edition (D. London, F.G. Reynolds and K.P. Sharp; my 1991 contribution 92 pages). 1991
54. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*, 1990 Edition (W.H. Aitken and K.P. Sharp; my 1990 contribution 59 pages). 1990
55. *Actex Study Manual for the Course P-461U Examination of the Society of Actuaries*, 1990 Edition (24 pages written in 1990). (K.P. Sharp) 1990
56. *Actex Study Manual for the Course I-442C and I-443U Examination of the Society of Actuaries*, 1990 Edition (D. London, F.G. Reynolds and K.P. Sharp; my 1990 contribution 21 pages). 1990
57. "An Application of an Interest Rate Diffusion Model to the Valuation of Mortgage Rate Insurance", ARCH 1988.2, pp. 47-66 (K.P. Sharp) 1989
58. *Actex Study Manual for the Course 210 Examination of the Society of Actuaries*, 1989 Edition (W.H. Aitken and K.P. Sharp; my 1989 contribution 105 pages). 1989
59. *Actex Study Manual for the Course P-461U Examination of the Society of Actuaries*. 1989 Edition (123 pages written in 1989). (K.P. Sharp) 1989

60. *Actex Study Manual for the Course I-442C and I-443U Examinations of the Society of Actuaries. 1989 Edition* (D. London, F.G. Reynolds and K.P. Sharp; my 1989 contribution 201 pages). 1989
61. Ph.D. Thesis: Jan. 1988 *Applications of Stochastic Models of Interest Rates* (272 pages). (K.P. Sharp) 1988
62. "Seasonality of Canadian Mortgage Rates" ARCH 1988.1, pp. 175-189 (K.P. Sharp) 1988
63. "Stochastic Models of Interest Rates", Proceedings of the International Congress of Actuaries, Helsinki, 1988, book 5, *The Applications of Modern Techniques to the Investment of Insurance and Pension Funds*, pp. 247-261 (K.P. Sharp) 1988
64. "Pension Funding Assumptions and Pension Indexation" *Report of the Task Force on Inflation Protection; Research Studies, Vol. 1, pp. 301-325*, Government of Ontario, 1988, (K.P. Sharp). 1988
65. "Early Retirement Incentives Under High Termination Rates" *Pension Forum*, Vol. 3, No. 3, pp. 7-10 (K.P. Sharp) 1987
66. "Time Series Analysis of Mortgage Rate Insurance", *Advances in the Statistical Sciences*, edited by I.B. MacNeill and G.J. Umphrey, Reidel Publishing, Vol. 6, pp. 201-219 (K.P. Sharp) 1987

UNIVERSITY OF TORONTO

Fall 2007 ACTB40 (at UT Scarborough) ACT244 (statistics, at UT Mississauga), ACT349 (main campus)
 Summer 2007 ACT240, ACT245, ACT247 (all at main campus)
 Winter 2007 ACT245 (at main campus), ACTB47 (at UT Scarborough)
 Fall 2006 ACTB40 (at UT Scarborough) ACT240, ACT349 (at main campus)
 Summer 2006 ACT240, ACT245, ACT247, ACT349 (all at main campus)
 Fall 2005 ACT240, ACT349 (both at main campus)

Texts used:

ACT240, B40 *Mathematics of Investment and Credit, 3rd Ed*, S.A. Broverman
 ACT245 *Derivatives Markets, 2nd. Ed.*, R.L. McDonald
 ACT349 *Principles of Corporate Finance, 8th. Ed.*, Brealey, Myers, Allen

UNIVERSITY OF WATERLOO

1982-01

Taught numeros

2000 Undergraduate Officer, Actuarial Science
 1997-98 Faculty Committee on Student Appeals
 1996-98 Appointments Committee, Department of Statistics and Actuarial Science
 1996-98 Programs Committee, Department of Statistics and Actuarial Science
 1996-99 Undergraduate Officer, Actuarial Science
 1996-99 Associate Director, Institute of Insurance and Pension Research
 1994-95 Undergraduate Officer, Actuarial Science
 1999-00 Board, Institute of Insurance and Pension Research
 1982-00 Actuarial Science Advisory Board, University of Waterloo
 1992-94 Graduate Affairs Committee, Department of Statistics and Actuarial Science
 1991-95 Associate Chair, Actuarial Science
 1989-91 Library Committee, Faculty of Mathematics
 1989-91 Undergraduate Officer, Actuarial Science
 1989-91 Standings and Promotions Committee, Faculty of Mathematics
 1986-95 Toronto Actuarial Courses coordinator
 1985-91 Undergraduate Affairs Committee, Department of Statistics and Actuarial Science

1983-84

Alumni Advisory Committee, Faculty of Mathematics

PROFESSIONAL ACTIVITIES

1997-00 Associate Editor, North American Actuarial Journal
1997-99 Committee on Economic Statistics, Canadian Institute of Actuaries
1996-98 Supervisor, Society of Actuaries Fall examinations
1996-98 Examination Committee, Society of Actuaries, Course 165
1982-95 Committee on Economic Statistics, Canadian Institute of Actuaries (Chair 1983-1988)
1990-92 Committee on Investment Practice, Canadian Institute of Actuaries