SCIENTIFIC AND DIDACTIC CURRICULUM ACTIVITY OF PROF. RAIMONDO MANCA.

Naples 11.10.1948

- Degree with Laude in Economics Faculty of Economics and Business Università di Napoli. Thesis "Metodology of Operations Research in Accounting", Supervisor prof. Ernesto Volpe di Prignano.

-1.2.1977 – 30.11.1981 post-doc scholarship.

-1.12.1981 – 31.10,1987 Assistant professor Institute of Mathematics of Faculty of Economics and Business Università di Napoli.

-1.11.1987 – 31.10.1994 associate professor of Mathematics for Economics, Finance and Insurance Faculty of Economics and Business, Università di Roma "La Sapienza".

-1.11.1994 – 31.10.1995 full professor of Mathematics for Economics, Finance and Insurance Faculty of Economics Università di L'Aquila.

-1.11.1995 – 31.10.2000 full professor of Mathematics for Economics, Finance and Insurance Faculty of Economics dell'Università di Chieti .

1.11.2000 … full professor of Mathematics for Economics, Finance and Insurance Faculty of Economics Università di Roma ”La Sapienza.

-He gave courses of Linear Algebra, Computer Science, Analysis, Financial Mathematics, Operations Research, Informatics for Economics and Finance and Risk Theory

-He has been coordinator of research funds, at local and national levels.

-- **Memberships:**. He is member of International Actuarial Association IAA (ASTIN), Istituto Italiano degli Attuari (IIA), Associazione per la Matematica Applicata alle Scienze Economiche e Sociali AMASES and is in the steering committee of international scientific association “Applied Stochastic Models and Data Analysis” ASMDA.

Editorial activities: He is associate editor of Methodology and Computing in Applied Probability. He edited two issues of Methodology and Computing in Applied Probability and of an issue of Communications in Statistics: Theory and Methods. He was also co-editor of the book Raimondo Manca-Sally McClean-Christos H Skiadas”, titled: “*New Trends in Stochastic Modeling and Data Analysis*” ISAST (2015).

Visiting scholar: He was visiting researcher in universities in England, Belgium, France, Spain, Sweden and USA.

In May 2014 he was in the committee that judged the research quality of Malardalen University (Sweden).

Conferences committees: He was in the scientific committee of 22 international conferences. For four of them he was the co-chairman. Furthermore, in 2018 he is in the scientific committee of 3 other international conference and co-chairman.

Evaluation committees: He was in the committee for a professorship and a senior lecturer concourses in Sweden (many times in Italy), furthermore, he was in the international committee for the research evaluation of Malardalen university (Sweden) and he was 5 times in doctoral committees as opponent in Sweden, Belgium and France.
He was in the committees for Phd exams in Belgium, Sweden and France

He was in the committees for judging research proposal quality at local, national and international levels.

- **RESEARCH FIELDS**.

1) **Multidimensional matrix algebra**.
2) **Computational Probability**
3) **Data structures**
4) **Sparse Matrices**.
5) **Algorithms in Actuarial field**.
6) **Models for the construction of mean salary lines**
7) **Application of stochastic processes in actuarial field**
8) **Application of renewal, Markov and semi-Markov processes in Insurance and Financial settings**
9) Generalization of renewal and renewal-compound processes in a non-homogeneous environment
9) **Application of semi-Markov processes in reliability**.
10) **Application of Semi-Markov in credit risk migration models**
11) **Models for the generalisation of binomial processes** .
12) **Application of semi-Markov processes in medicine**.
13) **Generalization of semi-Markov processes.** In this ambit, the research was developed on three settings.
13.1) The introduction of semi-Markov processes with two and three time variables
13.2) the evolution equations of semi-Markov processes with initial and final Backward and Forward recurrence times;
13.3) construction evolution equations of multivariate semi-Markov processes
14) **Application of simulation models in Insurance and Finance**

Publication and Scientific Results:

Papers on blinded referred journals.

1) Un nuovo tipo di moltiplicazione tra matrici - La Ricerca, (1979).

2) Semimarkov processes in social security problems - (with R. De Dominicis & M. Carravetta) Cahiers du C.E.R.O., (1981).

3)Un algoritmo utile per lo studio di processi aleatori semimarcoviani, omogenei e non omogenei (with R. De Dominicis), G.I.I.A., (1984).

4) A computational procedure for the asymptotic analysis of a homogeneous semimarkov process - (with R. De Dominicis), Statistics & Probability letters vol. 2, pp. 249-253 (1984).

5) An algorithmic approach to non-homogeneous semimarkov processes - (with R. De Dominicis), Communications in Statistics Simulation and Computation (1984).

6) Some new results on the transient behaviour of semimarkov reward processes with R. De Dominicis), Methods of Operations Research, Munchen, (1985).

7) Using semimarkov models in studying transportation mass system with aging: an algorithmic approach - (with R. De Dominicis) System Science, (1989).

8) An algorithm for the computation of general mechanical system reliability and related software - (with R. De Dominicis & M. Carravetta), Pannonian Bulletin for Applied Mathematics, (1987).

9) The Dynamics of Pension Funds in a Stochastic Environment - Scandinavian Actuarial Journal. (with R. De Dominicis & M. Granata) (1992).

10) A realistic non-homogeneous stochastic pension funds model on scenario basis. (with J. Janssen).
Scandinavian.Actuarial Journal (1997)

11) Markov and semi-Markov option pricing models with arbitrage possibility, (with J. Janssen & G. Di
Biase). Applied Stochastic Models and Data Analysis (1997)

12) Salary cost evaluation by means of non-homogeneous semi-Markov processes. (with J. Janssen) Stochastic Models (2002), **18**, 7-23.

13) Numerical treatment of homogeneous semi-Markov processes in transient case. A straightforward approach. (with J. Janssen & G. Corradi) Methodology and Computing in Applied Probability, 6, 697-714 (2004)

14) Numerical solution of non-homogeneous semi-Markov processes in transient case. (with J. Janssen)
Methodology and Computing in Applied Probability. . 3, 271-293 (2001)

15) Future pricing through homogeneous semi-Markov processes. (with J. Janssen & G. Di Biase) Applied Stochastic Models in Business and Industry (2005): 21, 241-249.

16) Option pricing: a straightforward procedure. (with J. Janssen & G. Di Biase). Chaos and Complexity vol 2 85-94 (2005)

17) Generation and enumeration of atoms in the presence of logical constraints through binary trees (with G. Di Biase) Far East Journal of Mathematical Science (2001).

18) Numerical treatment of homogeneous and non-homogeneous semi-Markov reliability models. (with J. Janssen and S. Blasi). Communications in Statistics – Theory and Methods vol. 33 #3, 697-714, (2004).

19) Homogeneous semi-Markov reliability models for credit risk Management. (with G. D’Amico and J. Janssen) Decision in Economic and Finance, vol 28, 79-93 (2005).

20) A systematic derivation of finite probability distribution by graph theoretic consideration. (with A. Blasi and G. Di Biase) Far East Journal of Applied Mathematics. 13, 145-164, (2003)

21) Atoms, Binary Trees and dichotomic non Markovian Processes (with G. Di Biase). Far East Journal of Applied Mathematics. 22, 1-16 (2006).

22) Credit risk migration non-homogeneous semi-Markov models: a reliability approach. (with J. Janssen and G. D'Amico). Computational Economics, vol 29, 119-138, (2006).

23) Semi-Markov reward models for disability insurance. (with Stenberg F., Silvestrov D.). Theory Of Stochastic Processes. vol. 12 239-254 (2006).

24) A 13-state homogeneous semi-Markov model for predicting the HIV disease evolution: a case study. With G. Di Biase, G. D'Amico, A. Di Girolamo, J. Janssen, S. Iacobelli, N. Tinari) *Far East Journal of Mathematical Sciences* volume 27, Issue 1, pp. 89-109 (October 2007) Pushpa Publishing House.

25) A stochastic model for the HIV/AIDS dynamic evolution (with Di Biase G., Di Girolamo A., Iacobelli S., J. Janssen, Tinari N). Mathematical Problems in Egineering (2007).

26) An algorithmic approach to discrete time non-homogeneous backward semi-Markov reward processes with an application to disability insurance. (with Stenberg F., Silvestrov D.) Methodology and Computing in Applied Probability, **9**, 497-519 (2007).

27) D'Amico G., Janssen J.,· Manca R. (2007) Valuing credit default swap in a non-homogeneous semi-Markovian rating based model. Computational Economics, 29:119–138.

28) Initial and Final Backward and Forward Discrete Time Non-Homogeneous Semi-Markov Credit Risk models. (with D'Amico G., Janssen J.). Methodology and Computing in Applied Probability, 12; p. 215-225 (2010)-

29) Monte Carlo semi-Markov methods for credit risk migration models and Basel II rules I. (with Biffi E., D'Amico G., Di Biase G., Janssen J., Silvestrov D.). Journal of Numerical and Applied Mathematics, 96, 2858, 2008.

30) Monte Carlo semi-Markov methods for credit risk migration models and Basel II rules II. (with Biffi E., D'Amico G., Di Biase G., Janssen J., Silvestrov D.). Journal of Numerical and Applied Mathematics, 96, 5986, 2008.

31) Stochastically ordered models for credit rating dynamics. (with Silvestrov D., Silvestrova E.). Journal of Numerical and Applied Mathematics, 96, 206-215, 2008.

32) Janssen J., Di Biase G., Manca R. A non-homogeneous continuous time semi-Markov model for the study of accumulated claim process.. Methodology and Computing in Applied Probability, 12; p. 227-235. (2010)-

33) D'Amico G, Janssen J, Manca R. (2009). European and American options: the semi-Markov case. PHYSICA. A, vol. 388; p. 3181-3194, ISSN: 0378-4371, doi: 10.1016/j.physa.2009.04.016

34) D'Amico G, Guillen M, Manca R. (2009). Full backward non-homogeneous semi-Markov processes for disability insurance models: A Catalunya real data application. *Insurance Mathematics & Economics*, 45, p. 173-179,

35) D'Amico G., Janssen J. and Manca R (2009) Semi-Markov Reliability Models with Recurrence Times and Credit Rating Applications, Journal Of Applied Mathematics & Decision Sciences Volume 2009, Article ID 625712, 17 pages-

36) G. D'Amico, G. Di Biase, J. Janssen, R. Manca (2009). Patient's age depending HIV/AIDS Evolution
Analysis by means of a Non Homogeneous Semi-Markov Model ADVANCES AND APPLICATIONS IN STATISTICS (ISSN:0972-3617), 199- 215, 11;

37) D'Amico G, Di Biase G, Janssen J, Manca R. (2010). Semi-Markov backward credit risk migration models: a case study. International Journal of Mathematical Models and Methods in Applied Sciences, vol. 4; p. 82-92-

38) D'Amico G, Janssen J, Manca R. (2010). Discrete Time Markov Reward Processes a Motor Car Insurance Example. *Technology And Investment*, vol. 1; p. 135-142, ISSN: 2150-4059,-.

39) D'Amico G, Janssen J, Manca R. (2011). Discrete Time Non-Homogeneous Semi-Markov Reliability
Transition Credit Risk Models and the Default Distribution Functions. *Computational Economics*, vol 38, 465-481 ISSN: 0927-7099-

40) Salary lines forecasting by means of generalized binomial processes. (with Gismondi F., Swishchuk A. V.) *International Journal of Management Science and Engineering Management*, vol 4, 309- 320, (2010).-

41) Modeling and Pricing of Variance and Volatility Swaps for Local Semi-Markov Volatilities in Financial Engineering (with Swishchuk A). *Mathematical Problems in Engineering*, (2010) Article ID 537571, 17 pages.-

42) D'Amico G., Janssen J. & Manca R. (2011). A non-homogeneous semi-Markov reward model for the credit spread computation *International Journal of Theoretical and Applied Finance,* vol 14, 221-238.

43) D'Amico G., G. Di Biase, Janssen J. & Manca R. (2011). HIV Evolution: a quantification of the effects due to age and to medical progresses, *Informatica*, **22**, 27-42

44) D'Amico G., Di Biase G. & Manca R. (2011). A Customer's utility measure based on the reliability of multi-state systems. *Decisions in Economics and Finance*, **34**, 1-20.

45) Gismondi F., Janssen J., Manca R.The construction of the claim reserve distribution by means of a semi-Markov simulation model. *Annals of Actuarial Science*, **6**, 23-64, (2012).

46) D'Amico G.. Manca R. (2011). Duration dependent semi-Markov Models. (with D'Amico G., Janssen J.). *Applied Mathematical Sciences*, **5**, 2011, no. 42, 2097-2108

47) A system maintenance approach to analyzing the Italian judicial system reform proposal of 2010 *Socio-Economic Planning Sciences*. **46** 205-215 Doi:10.1016/j.seps.2012.01.004

48) D'Amico G., Di Biase G. & Manca R. (2011). Immigration Effects on Economic System through Dynamic Inequality Indices. *Global Journal of Business Research*, **5**, 11-25,.

49) G. D'Amico, G. Di Biase, R. Manca (2012). Income inequality dynamic measurement of Markov models: Application to some European Countries. *Economic Modelling*, vol. 29, p. 1598-1602,

50) G. D'Amico, J. Janssen, R. Manca (2012). Mono-unireducible non-homogeneous semi-Markov processes applied to rating migration models. *Advances in Decision Sciences*, vol. 2012, p. 1-12,

51) V. T. Stefanov, R. Manca. (2013) Distributions associated with (k_1,k_2) events on semi-Markov binary trials. *Journal of Statistical Planning and Inference* **143** 1233–1243

52) Silvestrov, D., Manca, R., Silvestrova, E. (2014). Computational algorithms for moments of accumulated Markov and semi-Markov rewards. *Comm. Statist. Theory Methods* **43**:7, 1453-1469,.

53) Guglielmo D'Amico , Montserrat Guillen & Raimondo Manca (2013): Semi-Markov Disability Insurance Models, *Communications in Statistics - Theory and Methods*, **42**:16, 2172-2188

54) Guglielmo D'Amico , Giuseppe Di Biase , Fulvio Gismondi & Raimondo Manca (2013): The Evaluation of Generalized Bernoulli Processes for Salary Lines Construction by Means of Continuous Time Generalized Non-Homogeneous Semi-Markov Processes, *Communications in Statistics - Theory and Methods*, **42**:16, 2889-2901

55) D'Amico, G., Manca, R., Salvi, G. (2013) A semi-Markov modulated interest rate model. *Statistics and Probability Letters* **83** (9) PP. 2094 – 2102.

56) D'Amico G. , Di Biase G. and Manca R. (2013), "Effects on Taxation on the Forecasting of Income Inequality: Evidence from Germany, Greece, and Italy" *Panoeconomicus* **6**, 707-723

57) Koroliuk V.S., Manca R., D'Amico G. (2014),Storage impulsive processes in the merging phase space, *Journal of Mathematical Sciences*, **196**, 644-651

58) D'Amico, G., Manca, R., Salvi, G. (2014) Bivariate Semi-Markov Process for Counterparty Credit Risk *Communications in Statistics – Theory and Methods*, **43**:7, 1503-1522

59) Gronchi, S.,Manca, R. (2014) Cos'altro dopo la Fornero? [What after Fornero's reform]. *Politica Economica*, **29**:3, 241-268 Il Mulino.

60) D'Amico G., Gismondi F. ,Janssen J.& Manca R. (2015) Discrete Time Homogeneous Markov Processes for the Study of the Basic Risk Processes. *Methodology and Computing in Applied Probability*, Volume 17, pp 983-998, DOI 10.1007/s11009-014-9416-5.

61) D’Amico G., Di Biase G., Janssen J.& Manca R. (2014) A duration dependent rating migration model: Real data application and cost of capital estimation. *Finance a Uver - Czech Journal of Economics and Finance*. 64:3 233-245.

62) Gismondi F. ,Janssen J.& Manca R. (2015) Non-homogeneous time convolutions, renewal processes and age-dependent mean number of motorcar accidents. *Annals of Actuarial Sciences*. 9, 36 – 57. DOI: 10.1017/S1748499514000220

63) Gismondi F. ,Janssen J. Manca R. & Volpe di Prignano E. (2014). Stochastic cash flows modelled by homogeneous and non-homogeneous discrete time backward semi-Markov reward processes. *Statistics and Operations Research Transactions,* **38**, 107-138. ISSN: 1696-2281

64) D’Amico G., Manca R., Salvi G. (2015) Bivariate semi-Markov reward chain and credit spreads. *IMA Journal of Management Mathematics*. doi:10.1093/imaman/dpv009. ISSN on-Line 1 471-6798

65) D’Amico G., Di Biase G., Manca R. (2014) decomposition of the population dynamic Theil's entropy and its application to four european countries. *Hitotsubashi Journal of Economics*. 55 229-239

66) V. S. Koroliuk, R. Manca and G. D’Amico “Storage Impulsive Processes on increasing time intervals” *Theory of Probability and Mathematical Statistics* (Teoriya imovirnostey ta matematychna statystyka) 89, (2014), 71-81.

67) D’Amico G. Di Biase G., and Manca R. “Measuring Income Inequality: an Application of the Population Dynamic Theil's Entropy” *Accounting and Taxation* 7(1) 103-114 2015

68) G. D’Amico, Fulvio Gismondi, Jacques Janssen and Raimondo Manca. “Homogeneous Discrete Time Alternating Compound Renewal Process: a Disability Insurance application” *Mathematical Problems in Engineering* (2015), Article ID 874101 13 pages

69) D’Amico G., J. Janssen and R. Manca (2015) "Non-Homogeneous backward semi-Markov reliability approach to Downward migration credit risk problem". *The Journal of the Operational Research Society,* Published on line 10 June 2015; doi:10.1057/jors.2015.35

70) VS Koroliuk, R Manca, G D’Amico. (2015) Stochastic impulsive processes on a superposition of two renewal processes. *Journal of Mathematical Science*s 206, 58-68.

71) D’Amico G., R. Manca, C. Corini, F. Petroni & F. Prattico (2016) Tornadoes and related damage costs: statistical modelling with a semi-Markov approach, *Geomatics, Natural Hazards and Risk,* **7**:5, 1600-1609,

72) Silvestrov D. Manca R. (2017). Reward Algorithms for Semi-Markov Processes. DOI:10.1007/s11009-017-9559-2. pp.1191-1209. Methodology and Computing in Applied Probability - ISSN:1573-7713 vol. 19

73) G. D’Amico, Fulvio Gismondi, Jacques Janssen, Raimondo Manca, F. Petroni and E. Volpe di Prignano (2017), The Study of Basic Risk Processes by Discrete-Time non-Homogeneous Markov Processes. Theory of Probability and Mathematical Statistics (Teoriya imovirnostey ta matematychna statystyka)vol. 96 pp 33-48.

74) G. D’Amico, M. Guillen, R. Manca, F. Petroni (2017). Multi-state models for evaluating conversion options in life insurance. Modern Stochastics-Theory and Applications, 4, 127-139

Scientific books.

1) *Applied semi-Markov Processes* (with J. Janssen) Springer Verlag, New York 2006.

2) *Semi-Markov risk models for Finance, Insurance and Reliability*. (with Janssen J.) Springer (2007).

3) *Mathematical Finance. Deterministic and stochastic models*. (with Janssen J., Volpe di Prignano E.) ISTE-WILEY, (2009).

4) Janssen J., Manca R. (2009). *Outils de construction de modèles internes pour les assurances et les banques.* Hermes – Lavoisier, Paris.

5) Devolder P., Janssen J., Manca R. *Stochastic Methods for Pension Funds*. ISTE-WILEY (2012)

6) *Modélisation stochastique du risque de pandémie* (with Corosquet-Habart M., Janssen J.) Hermes – Lavoisier (2012), Paris.

7) *VaR Methodology for Non-Gaussian Finance* (FOCUS Series) (with Habart-Corlosquet M., Janssen J) ISTE WILEY (2013), London

8) Janssen J., Manca O., Manca R. (2013) *Applied Diffusion Processes from Engineering to Finance* ISTE
WILEY, London

9) M Corlosquet-Habart, W Gehin, J Janssen, R Manca (2015). *Asset and Liabilities Management for Banks and Insurance Companies* John Wiley & Sons

10) Devolder P., Janssen J. & Manca R. (2015). *Basic Stochastic Processes*. ISTE WILEY London.

11) G. D’Amico, G. Di Biase, J. Janssen, Manca R. Semi-Markov (2017) Migration Models for Credit Risk

Papers on referred books.

1) Input-Output linear models. A more general approach - In Input-Output techniques. Ed. W. Leontief, Budapest, (1982).

2) L'uso di modelli semi-Markov nello studio dei sistemi di trasporto di massa con invecchiamento: un approccio algoritmico. In Strumenti quantitativi per l'analisi dei sistemi di trasporto. Lucio Bianco , Agostino La Bella eds (with Maria Carravetta, Rodolfo De Dominicis)

3) Mean salary lines construction, a stochastic approach (with J. Janssen). Scritti in onore di Giuseppe Ottaviani, Roma .(1997)

4) Option pricing with semi-Markov volatility. (with J. Janssen & E. Volpe di Prignano) In Semi-Markov Models and Applications. eds J.Janssen & N. Limnios Kluwer A.P. (1999)

5) Gestion quantitative des risques pour les banques et les assurances (with J. Janssen) in Advances in Multi-
Criteria Decision Aid eds J.P. Barthélemy and Philippe Lenca ENST Brest, (2004)

6) G. D'Amico , J. Janssen & Manca R. (2009). The dynamic behavior of single unireducible non-homogeneous Markov and semi-Markov chains. In *Networks: Topology and Dynamic*. Lectures Notes in Economic and Mathematical Systems (A. Naimzada, S. Stefani – A. Torriero eds.). Springer, 195-211.

7) Janssen J., Lenca P., Manca R. (2005) Credit risk migration semi-Markov models: a reliability approach. In Proceedings of the XI Applied Stochastic Models and Data Analysis Symposium, Eds Janssen J., Lenca P., pp 950-957, ISBN 2908849151

8) G. D'Amico, J. Janssen, R. Manca (2005). Credit risk migration semi-Markov models: a reliability approach. In: J. Janssen, P. Lenca. Proceedings of the XI Applied Stochastic Models and Data Analysis Symposium. p. 950-957, Brest:ENST Bretagne,

9) G. D'Amico, Di Biase G., Janssen J., Manca R. (2009) "Homogeneous and Non-Homogeneous SemiMarkov Backward Credit Risk Migration Models" Ed. Patrick N. Catlere, Financial Hedging Nova Science Publishers ISBN: 978-1-60876-670-3.

10) G. D'Amico, G. Di Biase, J. Janssen, R. Manca (2009). HIV Evolution through Two Different Temporal Scales According to Non-Homogeneous Semi-Markov Models. In: L. Sakalauskas, C. Skiadas, E.K. Zavadskas. XIII International Conference "Applied Stochastic Models and Data Analysis. p. 473-476, Vilnius:

11) Di Biase G, Manca R, G. Ventura (2009). Real data semi-Markov reliability model with default as absorbing state. In: C. Angela; S. Carrillo Menndez; M. Micocci; E. Navarro Arribas; R. Ottaviani; F. Pressacco. New frontiers in insurance and bank risk management. p. 159-174, New York:Mac Graw Hill

12) G. D'Amico, G. Di Biase, J. Janssen, R. Manca (2009). Semi-Markov Backward Credit Risk Migration
Models Compared with Markov Models. In: P. Pardalos, N. Mastorakis, V. Mladenov, Z. Bojkovic. 3RD International Conference on Applied Mathematics, Simulation. p. 112-116, Wseas Press,

13) Cardona E., De Angelis P., Manca R. & Volpe di Prignano E. (2011) On managing a health fund in conditions of uncertainty. In Modelli per la valutazione del rischio in ambito assicurativo. Ed De Angelis P. p 21-32 ISBN 10:88-7957-337-3

14) Di Biase G., Janssen J., Manca R. and Ventura G. (2013) A Non-Homogeneous Semi-Markov Approach to Financial Choises. In -Stock Markets Emergence: Macroeconomic Factors and Recent Developments- Editors Petroni F., Prattico F. and D'Amico G. Nova Science

15) Corradi G., De Medici G., Janssen J., Manca R. and Ventura G. (2013) Mean Annual Number of Motor Car Accidents a Renewal Approach. In -Stock Markets Emergence: Macroeconomic

Factors and Recent Developments- Editors Petroni F., Prattico F. and D’Amico G. Nova Science

16) G. D’Amico, G. Di Biase, R. Manca (2014). On a Stochastic extension of the Herfindahl-Hirshman Index. In New Perspectives on Stochastic Modeling and Data Analysis. Eds Bozeman J.R. Girardin V. and Skiadas C.H. p. 49-62. ISAST Athens.

17) D’Amico G., Gismondi F., Janssen J., Manca R. (2014). Disability Insurance Claims Study by a Homogeneous Discrete Time Alternating Renewal Process. In Modern Problems in Insurance Mathematics Eds D. Silvestrov and A. Martin-Löf p.187-196. Springer.

18) Corlosquet-Habart M., Janssen J., Lenca P., Manca R. (2014). The Impact of a Pandemic Influenza on Mortality, Temporary Disability In and Hospitalization Risks for the Protection Insurance and Hedging Strategies. In New Perspectives on Stochastic Modeling and Data Analysis. Eds Bozeman J.R. Girardin V. and Skiadas C.H. p. 201-207 ASAST .

Papers presented at conferences

1) K-Dimensional structured vectors and leaf trees - Proc. Of the V meeting "Computer at University", Dubrovnik, (1983).

2) Numerical treatment of homogeneous semimarkov processes - (with R. De Dominicis), Proc. Of the VI meeting "Computer at University", Dubrovnik, (1984).

3) Simulation models for dynamic management of pension funds - (with E. Volpe di Prignano), Trans. of the XXIII I.C.A. Helsinki, (1988).

4) Semi-Markov Modelization for the Financial Management of Pension Funds. (with J. Janssen) Atti IV AFIR Colloquim (1994).

5) Financial operation evaluation: a semi-Markov approach, (with G. De Medici and J. Janssen) Proc. V

AFIR Symposium Brussels (1995)

6) Non-homogeneous stochastic pension fund model: an algorithmic approach. (with J. Janssen), Trans. of the 26th ICA. Birmingham (1998)

7) Automated generation of atoms from conditional events. (with G. Di Biase) Proceedings of the II International Mathematica Symposium, Rovaniemi (1997)

8) Semi-Markov modelization for salary line evolution. (with J. Janssen & E. Volpe di Prignano) Proc. of .the VIII AMSDA Anacapri (1997)

9) Non homogeneous Markov and semi-Markov models for pricing derivative securities.(with J. Janssen & G. Di Biase) Proc. Astin Colloquium - Glasgow (1998)

10) Non-homogeneous semi-Markov reward process for the management of health insurance models (with J. Janssen) Proceedings ASTIN Washington (2001).

11) General actuarial models in a semi-Markov environment (with J. Janssen), Proceedings of ICA Cancun
2002.
http://www.actuaries.org/EVENTS/Congresses/Cancun/astin_subject/astin_78_janssen_manca.pdf

12) Non homogeneous interest rate structure in a semi-Markov framework (with J. Janssen and E. Volpe di Prignano) Proceedings of ICA Cancun 2002,
http://www.actuaries.org/EVENTS/Congresses/Cancun/afir_subject/afir_47_janssen_manca_volpe.pdf

13) Discrete time homogeneous and non-homogeneous semi-Markov reliability models. (with J. Janssen & S. Blasi) Proceedings of MMR2002, Trondheim Norway (2002).

14) Continuous Time Non Homogeneous Semi-Markov Reward Processes And Multi-State Insurance Application (with J. Janssen and E. Volpe di Prignano). Proceedings of IME 2004.

15) Generalized Discrete Time Homogeneous Stochastic Annuities and Multi-State Insurance Model (with A. Blasi and J. Janssen). Proceedings of IME 2004

16) Downward credit risk problem and non-homogeneous semi-Markov reliability transition models (with G. D’Amico and J. Janssen). Proceedings of IME 2004.

17) Non Homogeneous Discrete Time Markov Reward Processes, Stochastic Annuities and Bonus Malus Age Dependent Motor Car Insurance Application (with J. Janssen). Proceedings of IME 2004.

18) European and American options: the semi-Markov case (with G. D’Amico and J. Janssen). Proceedings of IME 2004.

19) Credit default SWAP: a semi-Markov approach (with G. D’Amico and J. Janssen). Proceedings of IME 2004.

20) The interest rate evolution under the rating process: a non-homogeneous semi-Markov approach. (with A. Blasi and J. Janssen) Proceedings of Quantitative Methods in Finance Sidney (2004)

21) Discrete Time Reward Processes, Stochastic Annuities and Insurance Models, (with J. Janssen and G. Ventura) proceedings of the ASMDA 2005 Brest.

22) Homogeneous Backward Semi-Markov Reward Models for Insurance Contracts (with D. Silvestrov and F. Stenberg) proceedings of the ASMDA 2005 Brest.

23) Non-homogeneous backward semi-Markov reliability approach to downward migration credit risk problem (with G. D’Amico and J. Janssen) 8th Italian_Spanish meeting on Financial Mathematics, 2005 Verbania.

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