



AFIR-ERM
Finance, Investment & ERM



Istituto Italiano degli Attuari
and Ordine degli Attuari (ISOA)
and the AFIR-ERM Section
of the International Actuarial Association

AFIR-ERM COLLOQUIUM 2019

INNOVATING
ACTUARIAL
RESEARCH ON
FINANCIAL RISK
AND ERM



Florence, Italy

21-24 May 2019



WELCOME TO AFIR-ERM COLLOQUIUM 2019

The scientific programme of the Colloquium, as you can see, is varied and rich and addresses several topics in the areas of financial risks and enterprise risk management. However, rather than proposing a list, I wish to emphasize a kind of theme or fil-rouge which, in my opinion, connects all the Colloquium days, from the Opening Ceremony up to the final Workshops. What I mean is, first of all, the focus on Environment Social Governance (ESG) and Responsible Investments, which are at the core of the first two keynote talks, by Card. Peter Turkson and Dr. Will Martindale. Here we really touch the great challenges of our time: the immense environmental and social problems and risks (from climate changes to poverty and migration), which require political, financial, actuarial responses both urgent and high profile. And, secondly, a good part of the Colloquium will be devoted to Big Data technologies, to Statistical Machine Learning and its applications in Actuarial Modelling. In fact, we can possess and manage an unprecedented and unexpected, up to few years ago, mass of data. And therefore, as actuaries, as applied mathematicians, as economical and political scientists, we are posed before the question: how to manage this enormous quantity of information, how to organize and model it, precisely in order to deal with the dramatic problems and risks enlightened in the Colloquium Opening. So, let me say that, in my opinion, actuaries, in particular young actuaries, may be the best equipped experts, because of their scientific and professional background and the amplitude of their interests and interactions, for accepting this challenge, for proposing innovative models of risk management which could be adequate to both the size of the problems and the power of the new technologies.

To all of you I wish a fruitful participation at the Colloquium and a joyful stay in Firenze.

Marcello Galeotti
Marcello Galeotti

AFIR-ERM Colloquium Programme

Tuesday, May 21, 2019

CONFERENCE CENTER

10:00-13:00 Registration

SALA PRINCIPE CARREGA

11:00-12:00 Scientific Committee Meeting

SALA PRINCIPE CARREGA

12:00-13:00 AFIR-ERM Board Meeting

B ROOF RESTAURANT

13:00 Business Lunch

14:30-19:00 Registration

SALA MICHELANGELO

15:00-18:00 **PLENARY 1**
Opening Address
Chair: *Marcello Galeotti*

Michael Sherris, AFIR-ERM President
Marcello Galeotti, Colloquium President
Marco Bindi, University of Florence - Prorettore
Ermanno Pitacco, Scientific Committee President
Giampaolo Crenca, Organizing Committee President/ISOA President

Investment within the framework of the Environment, Society and Governance, A Catholic Church Perspective

Cardinal Peter Turkson - Cardinal of the Roman Catholic Church. Prefect of the Dicastery for Promoting Integral Human Development

Why sustainable finance is inevitable

Will Martindale - Director of Policy and Research at PRI, the United Nations Principles for Responsible Investment

TERRAZZA PANORAMICA

18:00 Welcome Cocktail

Wednesday, May 22, 2019

CONFERENCE CENTER

08:00-18:00 Registration

08:30-10:00 **PARALLEL SESSIONS**
Papers Presentation
(See Parallel Sessions Programme)

Session 1A
Sala Michelangelo

Session 1B
Sala Giotto

Session 1C
Sala Dante

FOYER

10:00-10:30 Coffee Break

SALA MICHELANGELO

10:30 - 12:30 **PLENARY 2**
Chair: *Ermanno Pitacco*

The New Scenarios for Risk and Uncertainty and their Implications for Business Strategy and Policy making

Paolo Garonna - Secretary General of the Italian Banking, Insurance, and Finance Federation

Probability of Sufficiency of Solvency II Reserve Risk Margins

Yuriy Kravych - Winner of the AFIR-ERM Bob Alting von Geusau prize

The Actuarial Association of Europe and its Risk Management Committee

Malcolm Kemp - AAE (Actuarial Association of Europe)

Wednesday, May 22, 2019

B-ROOF RESTAURANT (FIFTH FLOOR)

12:30-14:30 Lunch

14:30-15:00 **AFIR-ERM General Assembly**
Michael Sherris

CONFERENCE CENTER

15:00-16:00 **PARALLEL SESSIONS**
Papers Presentation
(See Parallel Sessions Programme)

Session 2A
Sala Michelangelo

Session 2B
Sala Giotto

Session 2C
Sala Dante

FOYER

16:00-16:30 Coffee Break

CONFERENCE CENTER

16:30-18:00 **PARALLEL SESSIONS**
Papers Presentation
(See Parallel Sessions Programme)

Session 3A
Sala Michelangelo

Session 3B
Sala Giotto

Session 3C
Sala Dante

B-ROOF RESTAURANT (FIFTH FLOOR)

20:00-23:00 Colloquium 2019 Gala Dinner – Hotel Baglioni

Thursday, May 23, 2019

09:30-17:30 **Full day Tour**
(See Tours Programme)

Friday, May 24, 2019

CONFERENCE CENTER

08:00-13:00 Registration

SALA MICHELANGELO

08:45 - 10:30 **PLENARY 3**
Chair: Michael Sherris

Enterprise Risk Management: a crucial evolution path also for "non-financial companies"
Fabio Cerchiai - President ATLANTIA

Yes we CANN!: Machine Learning in Actuarial | Modeling
Mario V. Wüthrich - Professor of the Department of Mathematics at ETH Zurich

FOYER

10:30-11:00 Coffee Break

CONFERENCE CENTER

11:00-12:45 **PARALLEL SESSIONS**
Papers Presentation
(See Parallel Sessions Programme)

Session 4A
Sala Michelangelo

Session 4B
Sala Giotto

Session 4C
Sala Dante

Friday, May 24, 2019

SALA MICHELANGELO

12:45-13:15 PLENARY 4

Chair: Marcello Galeotti

Formal Close of AFIR- ERM Colloquium 2019

Closing Address

Giampaolo Crenca

Ermanno Pitacco

Marcello Galeotti

Michael Sherris

B-ROOF RESTAURANT (FIFTH FLOOR)

13:15-15:00 Lunch

15:00-16:30 WORKSHOPS 1ST PART

Workshop 1

Sala Giotto ERM and QRM in life insurance: an actuarial primer

Ermanno Pitacco

Workshop 2

Sala Dante Statistical Machine Learning Fundamentals: A Crash Course

Andres Villegas Ramirez

FOYER

16:30-17:00 Coffee Break

17:00-18:30 WORKSHOPS 2ND PART

Workshop 1

Sala Giotto ERM and QRM in life insurance: an actuarial primer

Ermanno Pitacco

Workshop 2

Sala Dante Statistical Machine Learning Fundamentals: A Crash Course

Andres Villegas Ramirez

Scientific Committee

Ermanno Pitacco (Chairman)

Marcello Galeotti (Vice-Chairman)

Augusto Bellieri dei Belliera

Giampaolo Crenca

Paolo De Angelis

Paul Embrechts

Paolo Garonna

Fabio Grasso

Roberto Muscogiuri

Nino Savelli

Michael Sherris

Luigi Vannucci

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Fausto Belliscioni (Vice-Chairman)

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Marcello Galeotti

Rosa Maria Lacquaniti

Mara Pastore

Marco Pirra

Valter Puggioni

Mario Ziantoni

Emanuele Vannucci

Cristina Alfieri (Secretary)

Speakers

Marcello Galeotti

Colloquium President

Michael Sherris

AFIR-ERM President UNSW Sydney Professor

Marco Bindi

University of Florence - Prorettore

Ermanno Pitacco

Scientific Committee President

Giampaolo Crenca

Organizing Committee President/ISOA
President/Presidente Ordine degli Attuari

Card. Peter Turkson

Cardinal of the Roman Catholic Church.
Prefect of the Dicastery for Promoting
Integral Human Development

Will Martindale

Director of Policy and Research at PRI, the
United Nations Principles for Responsible
Investment

Nino Savelli

Full professor Cattolica University - Milan -
Italy

Maria Fernanda Salas

Vice Chairwoman, AFIR-ERM. CoS and
member of the investments committee,
VITALIS

Frank Ashe

Quantitative Strategies - Owner

Héctor Islas Terán

VITALIS Asesor Independiente - Actuary
Head of Financial Risk Management and
Research Development

Gennaro Olivieri

Emeritus Professor Luiss University - Rome
- Italy

Krzysztof Ostaszewski

Professor Illinois State University Actuarial
Program Director

Olivier Le Courtois

Emlyon Business School - Professor

Antonino Zanette

Università di Udine, Dipartimento di Scienze
Economiche e Statistiche

Fausto Belliscioni

Presidente del Consiglio dell'Ordine degli
Attuari

Giovanni Rabitti

Bocconi University Milan - PHD Student

Pauline Ngugnie Diffouo

Université Catholique de Louvain -
Researcher

Roberta Melis

University of Sassari - Contract Professor

Paolo Garonna

Secretary General of the Italian Banking,
Insurance, and Finance Federation

Yuriy Kravych

Winner of the AFIR-ERM Bob Alting von
Geusau prize

Malcom Kemp

AAE Actuarial Association of Europe
Managing Director (Nematrian) / Adjunct
Professor (Imperial) / Associate (Barnett
Waddingham)

Iain Allan

Honorary Visiting Professor in the Faculty
of Actuarial Science and Insurance, Cass
Business School

Marco Pirra

Researcher in Actuarial Studies, Università
della Calabria

Michael Fackler

Independent actuary - Munich, Germany
(Self - employed)

Xiaoshan SU

Emlyon Business School PHD Candidate

Fabio Baione

Sapienza University of Rome - Researcher
in Actuarial Studies

Nora Gavira Durón

Universidad de las Américas Puebla (DLAP),
Departamento de Banca e Inversiones -
Profesor Investigador de Tiempo Completo

Alpha Mamodou Balde

Senior consultant - Chief actuary of
ACTIVA Guinea/Qualified actuary within
the moroccan Association of Actuaries and
the Guinean club of actuaries- Member of
IAALS life section

Carla Angela

Full Professor Sapienza University, Rome -
Italy

Miriam Pedol

Alternative Risk Transfer and Insurance
Linked Securities Specialist, Group Insurance
Capital Solutions in Assicurazioni Generali
S.p.A., Trieste, Italy

Rosemary Macedo

Hightree Group Director of Research

Francesca Berti

Master Degree (Statistics, Actuarial, and
Finance Sciences)

Annie Tay

FIA CERA - Director Cubic Risk Solutions

Naoki Matsuyama

Meiji University Professor - School of
interdisciplinary Mathematical sciences,
Department Chair of Mathematical Sciences
Based on Modeling and Analysis

Daniela Yordanova Tabakova

University of Udine Dept. Of Economics and
Statistics - PHD Student Managerial and
Actuarial Sciences

Fabio Cerchiai

ATLANTIA President

Mario V. Wüthrich

Professor of the Department of Mathematics
at ETH Zurich Professor of Actuarial Science

Paolo De Angelis

Full Professor Sapienza Rome University -
Italy

Marco Aleandri

Qualified Actuary, PhD Candidate - Univ. La
Sapienza, Rome - Ageas Group (Brussels)
Senior Risk Modelling

Alessia Eletti

BSc Candidate - Dept. of Statistical Sciences
- Univ. La Sapienza, Rome

Emanuele Vannucci

Researcher University of Pisa

Gabriella Piscopo

Department of Economic and Statistical
Science, University of Naples Federico II,
Italy - Associated Professor

Luigi Vannucci

Full professor Florence University - Italy

Taiga Yokoyama

Mizuho Trust & Banking Co., Ltd -
Consultant

Şule Şahin

Associate Professor at Hacettepe University
- Lecturer at University of Liverpool

David Wilkie

Chairman at InQA Limited

Héloïse Labit Hardy

Research Fellow, CEPAR, UNSW Business
School

Jonathan Ziveyi

UNSW Sydney - Senior Lecturer

Łukasz Delong

Collegium of Economic Analysis, Institute of
Econometrics Warsaw Poland

Andres Villegas Ramirez

Lecturer, CEPAR, UNSW Business School

We thank very much the sponsors
who have allowed us
with their support and their participation
to better organize the Colloquium

Ania

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fra le Imprese Assicuratrici

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ZAPPARI

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