

CALL FOR PAPERS

for a two-day international academic meeting on emerging governance issues for actuarial models
in Paris, France

Performativity and governance of actuarial models

An international meeting hosted by the
Fondation Maison des sciences de l'homme (FMSH), Paris

Dates: 13-14 February 2018

Conveners: Donald MacKenzie (University of Edinburgh), Christian Walter (FMSH and ISJPS)

Scientific committee: Annie Cot (Univ. Paris 1, MSE), Pierre François (Sciences Po, CSO), Olivier Lopez (Univ. Paris 6, ISUP), Donald MacKenzie, Yuval Millo (Univ. of Warwick), Emmanuel Picavet (Univ. Paris 1, ISJPS), Christian Walter.

Submission deadline for paper proposals: 31 October

Please send a summary (in no more than 300 words) of your intended contribution to the meeting organisers, Arjen van Heide and Julius Kob (A.Vanderheide@ed.ac.uk or J.J.Kob@ed.ac.uk) by 31 October. Say which of the meeting's themes your paper will inform. The proposals must include a title and at least 5 keywords. Selection of papers will be made by the scientific committee.

Abstract

The governance of actuarial models is a field not yet investigated by the social studies of finance but of growing importance for the future, in particular because of the prescription of financial models through international prudential regulation. The meeting aims at documenting the new challenges of model governance given the fact that financialisation has now invaded actuaries' territory. We encourage submissions on any of the four issues below. We would like to encourage contributions on relevant financial, actuarial, model governance and model use topics, especially those that examine **the models in their situations**. Although we welcome papers from a variety of disciplines, the meeting will primarily be focused on 'social studies of finance'.

Introduction

The practice of modelling, largely used by actuaries, has been profoundly modified with the emergence of new mathematical techniques mainly derived from academic research in the mathematical finance. These new techniques have hugely contributed to the financialisation of actuarial methods. They have also altered the specific nature of actuarial models and the relationships between models and professional practices in the financial sector. The issue of the actuarial expertise must be rethought after this financial transformation of mathematical models. This is all the more so as actuaries are now called upon to exercise "expert judgment" in complex situations in which there is no history of the relevance of a model to a given situation. The professional expertise expected of actuaries, in particular their expert judgment, constitutes the basis of their trustworthiness.

Following similar approaches to financial ethics, trustworthiness can be seen as depending on two things: motivation and competence (De Bruin, 2015). In this vein, trustworthy actuaries should be capable of making an accurate diagnosis of risk models, knowing the side effects of the risk models they prescribe, capable of recognising the boundaries of their own capacities to master risk models, capable of seeing if their risk models are up to date. Hence two consequences: on one hand, the importance of understanding the relationship between a mathematical model and its environment; on the other hand, the need to identify possible dangers arising from the financialisation of actuarial mathematical models. More generally, structures for reasoning and calculation drawn from academic finance now invade the actuarial territory.

“Expert judgement” has been used since the actuarial profession was founded. This issue has recently become the subject of professional standards. Recent interventions by the International Actuarial Association (IAA) – the worldwide association of professional actuarial associations – aim to strengthen the actuary’s professional judgment.

As a result of financialisation, and perhaps in response to it, the professional environment of actuaries has also been modified in recent years by the emergence of rules of ethics and actuarial standards of practice, the *International Standards of Actuarial Practice* (ISAP) developed by the IAA and accompanied with national applications: North-American Actuarial Standard of Practice (ASOP), French Actuarial Practice Standards (NPA), Canadian Standards of Practice etc. Standards of Practice include recommendations on how actuaries should conduct their work in all areas of their business: risk modelling, pension plans, life insurance, expertise, etc. Overall, these standards are intended to strengthen actuarial proficiency and the confidence that can be gained by those who follow actuarial practice in modelling (see appendix for some examples).

Description

The international meeting will focus on a set of important, related issues:

1. Financialisation and the changes in actuarial practices

The background of this meeting is the huge transformation of the financial services industry, characterised by the elimination of the statutory barriers between insurance companies and banking and investment firms. This elimination can be considered as a part of the process of “financialisation” of the economy in the sense introduced for this word by Epstein (2005). This process is redefining whole sectors of the economy and transforming business operation logics, for instance the valuation techniques (Chiapello, 2015). Market devices play an important role in this financialisation (Callon, Millo, Muniesa, 2007). After a period of relative quiet, actuaries are hugely impacted by the financialisation process, in the sense that we are witnessing a financialisation of actuarial practices. The meeting aims at documenting this financialisation and its consequences. We are interested in the general dynamics: how does this financialisation takes place and what does it produce in the actuarial territory?

2. Conventions of quantification and the use of actuarial models

The financialisation process of the economy carries new methods of problem analysis, calculation techniques and decision-making principles, well analysed in the actuarial literature (e.g. Day, 2003; IAA, 2008; Whelan, Bowie, Hibbert, 2002). Our objective here is to complete the technical actuarial literature with a social science approach. The notion of “conventions of quantification” (Chiapello and Walter, 2016; Desrosières, 2008) makes clear a possible danger with financial models. Financialised conventions are replacing the old reasonings and forms of calculation previously used in actuarial practices. For example, market-consistent valuation based on the risk-neutral pricing method is a financialised valuation. We aim to analyse how quantification conventions influence professional practices. In particular, we wish to question the notion of the risk-neutral approach and its consequences for insurance and society. How are actors reacting to the deployment of this risk-neutral quantification?

3. The performativity issues as a challenge for the foundations of actuarial concepts

Most of the concepts of actuarial science are based on the positivistic philosophy of science, i.e. a philosophy of science which radically separates “facts” and “values”, “data” and “models” (Picavet, 2009; Putnam, 2004). The fact/value dichotomy seems to constitute the epistemological foundation of the notion of model risk in the actuarial profession (American Academy of Actuaries, 2006; Society of Actuaries, 1992; Pemberton, 1999). If this dichotomy appears valid in most situations, it seems that this validity is attacked in situations involving financial risk. In these situations, many studies in the social sciences have shown the importance of the performative power of financial models (MacKenzie, 2006; MacKenzie and Millo, 2003; Svetlova, 2012), according to equivalent evidence in the case of the economy (Callon, 2007; Muniesa, 2014). For example, the output of a statistical risk measure has a real economic impact adding model risk to financial risk (Danielson *et al.*, 2016). Using a social science analysis of the role of models, we wish to explore the following issue: could performativity lead to changes in the methodological basis of traditional actuarial approaches?

4. Actuarial expertise and the governance of insurance

The role of actuaries within life insurance companies and pension funds is changing. Only a few decades ago, actuaries used to be among the most important professional groups at the executive board level of life insurance companies. At present, however, there are nearly no actuaries that seep through to board-level positions. Moreover, positions dedicated to actuarial functions within insurance companies have changed too. British actuaries for example tended to have an important statutory role within life insurance companies where the ‘appointed actuary’ was tasked with mediating between the interests of shareholders, managers and policyholders (Collins, Dewing, Russel 2009). Currently, however, the final responsibility for the financial well-being of a firm rests with the board. This raises interesting questions about the role of actuarial knowledge in the governance of life insurance. How can we describe and explain the changing role of the actuary in insurance firms? And how does the changing role impact on actuarial expertise?

Appendix

Examples of standards

- ISAP1#1.1: “This ISAP provides guidance to actuaries when performing actuarial services to give intended users confidence that (...) the assumptions and methodology (including, but not limited to, models and modelling techniques) used are disclosed appropriately”.
- ISAP1#1.5: “Reasonable Judgment – The actuary should exercise reasonable judgment in applying this ISAP. (...) A judgment is reasonable if it takes into account: a. The spirit and intent of the ISAPs; b. The type of assignment; and c. Appropriate constraints on time and resources”
- ISAP1#2.7.2: “The actuary should consider the appropriateness of the assumptions underlying each component of the methodology used. Assumptions generally involve significant professional judgment as to the appropriateness of the methodology used and the parameters underlying the application of such methodology. Assumptions may (...) be implicit or explicit and may involve interpreting past data or projecting future trends”.
- ASOP1#3.1.4: “ASOPs provide the actuary with an analytical framework for exercising professional judgment, and identify factors that the actuary typically should consider when rendering a particular type of actuarial service”.
- ASOP38#3.3.4: “The actuary should evaluate whether the model is appropriate for the particular actuarial analysis, and consider limitations of the model, modifications to the model, and the assumptions needed in order to apply the model output”.

References

- American Academy of Actuaries (2006), "The roles of the actuary in the selection and application of Actuarial models", Professionalism series, 7.
- Chiapello, Eve (2015), "Financialisation of Valuation", *Human Studies*, **38**(1), 13-35.
- Chiapello, Eve and Christian Walter (2016), "The three ages of financial quantification: a conventionalist approach to the financier's metrology", *Historical Social Research*, **41** (2), 155-177.
- Callon, Michel (2007), "What does it mean to say that economics is performative?" In: Donald MacKenzie, Fabian Muniesa and Lucia Siu (eds.), *Do economists make markets? On the performativity of economics*. Princeton, Princeton University Press, 311-357.
- Callon, Michel, Yuval Millo and Fabian Muniesa (2007), *Market Devices*. Wiley.
- Society of Actuaries committee on actuarial principles (1992), "Principles underlying actuarial science", *Transactions of Society of actuaries*, **44**, 565-628.
- Collins, David, Ian Dewing and Peter Russell (2009), "The actuary as fallen hero: on the reform of a profession", *Work, Employment & Society*, **23** (2), 249-266.
- Danielsson, Jon, Kevin James, Marcela Valenzuela & Ilknur Zer (2016), "Model risk of risk models", *Journal of Financial Stability*, **23** (April), 79-91.
- Day T. (2003), "Financial Economics and Actuarial Practice", The Institute of Actuaries of Australia.
- De Bruin, Boudewijn (2015), *Ethics and the Global Financial Crisis: Why Incompetence is worse than Greed (Business, Value Creation, and Society)*. Cambridge University Press.
- Desrosières, Alain (2008), *Pour une sociologie historique de la quantification. L'argument statistique I*. Paris, Presses de l'Ecole des Mines.
- Epstein G. (ed.) (2005), *Financialization and the World Economy*, Northampton, MA, Edward Elgar Publishing.
- International Actuarial Association (2008), "A note on Financial Economics", 11 August 2008
- International Actuarial Association (2015), "International Standards of Actuarial Practice (ISAPs)", ISAP 1A — Governance of Models
- MacKenzie, Donald (2006), *An Engine, Not a Camera: How Financial Models Shape Markets*. MIT Press.
- MacKenzie, Donald and Yuval Millo (2003), "Constructing a Market, Performing Theory: The Historical Sociology of a Financial Derivatives Exchange", *American Journal of Sociology*, **109** (1), 107-145.
- Muniesa, Fabian (2014), *The Provoked Economy. Economic reality and the performative turn*. Londres, Routledge.
- Pemberton J.-M. (1999), "The Methodology of Actuarial Science", *British Actuarial Journal*, **5**(1), 115-195.
- Picavet, Emmanuel (2009), "Politics, Economics and the Putnam-Sen dialogue on facts and values". In Cherkaoui, M., P. Hamilton (dir.), *Essays in Honor of Raymond Boudon*. Oxford: The Bardwell Press.
- Putnam, Hillary (2004), *The Collapse of the Fact/Value Dichotomy*. Harvard University Press, 2004.
- Svetlova, Ekaterina (2012), "On the Performative Power of Financial Models", *Economy and Society*, **41**(3), 418-434.
- Whelan, Shane, David Bowie and A. Hibbert (2002), "A primer in financial economics", *British Actuarial Journal*, **8**(1), 27-74.