

Are actuaries independent guardians of financial security or just telling a convenient tale? (Discussion paper)

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Abstract

We look at the actuarial role from a behavioural point of view, borrowing from psychology and sociology. Actuaries should give independent advice, but they belong to and depend on various social groups. Large social groups are tied together by social trust, which builds up slowly, but can erode quickly. Preventing distrust requires hard work – and possibly some window dressing.

What does this mean for the insurance industry? Insurance is a risky and complex business, hard to manage, and it is even harder to make the public trust in it. This throws actuaries into a big dilemma when they create transparency about risks and uncertainties: the more transparency they create, the more risks come to light. Thus, transparency improves real security (making risks visible), but may undermine perceived security, as too much bad news erodes social trust. So, how much transparency is optimal? 100%, as envisaged by financial regulation, or somewhat less?

Keywords:

Actuarial role, uncertainty, social trust, rare events, insurance regulation

1 Prologue

1.1 Quotes from London

Actuaries have a very interesting job, high salary and reputation. Nevertheless at times they question, or even dislike, what they are doing. To illustrate, we collect some quotes coming mainly from the London Market (*italics added*).

Is there evidence for *market-wide group think*?

Tredger et al. (2016)

The power of the *social context* is particularly strong when people's actions are *public*, when decision makers are under *time pressure*, and when there is *uncertainty* or ambiguity surrounding the decisions. *Underwriting* risks meet all these criteria.

The *spatial concentration* ... in the London Market ... can lead to biases arising from *social* interactions.

Financial markets are also *social* structures.

Weick et al. (2012)

The review noted that frequent industry use of the phrase "*this is common in the industry*" ... was striking.

Haddrill et al. (2016)

When technically valid estimates are hard to come by, we are happy ... with *estimates* that are *socially valid*.

"*confidence in the model*" rather than "learning from modelling"

sensitivity of capital requirements to *unverifiable* statistical assumptions

Tsanakas (2012)

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Are we, in trying to set a *1 in 200* estimate, actually asking ... something that can be *meaningfully* modelled?

It is inevitable that some modelling practices are *social constructs*.

Management *may not want to be told* how uncertain the estimates are.

“People *believe* in this model. If we [the actuaries] say it is wrong, it *undermines* us and the model.”

Frankland et al. (2014) and accompanying discussion (Jakhria, 2014)

Your regulator tells you to make an exact replica of the Mona Lisa. You receive no illustrations of the painting, but *several 300-page documents*.

The project [Solvency II] moved *away from* the *principle-based* system that was originally intended.

Manuel the Scandinavian Actuary (2015)

And in the naked light I saw
Ten thousand people, maybe more.
People making without sleeping
Regulations without listening,
People filing forms, devoid of meaning bare.
But no one dared
Disturb the hounds of solvency.

Walther Neuhaus: The Sound of Solvency

Neuhaus (2015)

1.2 Quick comments

Two questions come into mind immediately when reading the quotes:

- Does insurance modelling reflect reality quite well, or rather draw a *socially agreed* picture?
- Are actuaries truly *independent* or do they (have to) go with the crowd?

We add a personal observation from the (re)insurance practice, which is anecdotal, but shared by many colleagues:

- In case of *high uncertainty*, everyone prefers to work with an *optimistic* actuary.

2 Introduction

2.1 Motivation

Actuaries assess and manage risks in the insurance industry, risks often associated with high levels of *uncertainty*. This is especially true when the risks relate to *rare events*, as is the case with solvency issues and in the reinsurance industry. It makes their work demanding, both *technically* (mathematics, statistics, data) and on the *human* side. We want to cast light on the latter, employing findings from fields such as psychology and sociology.

In this context it must be emphasised that actuaries, who should give *independent* advice, belong to and depend on various *social groups*, e.g.: their company, their actuarial association, etc., which all have specific (and partly unspoken) interests, expectations and norms.

Things can get uncomfortable for actuaries, especially when they consider a risk to be more critical than all others (would like to) believe it is. High levels of uncertainty when assessing risks often lead people to underestimate them – and, because optimism is the more convenient option in such cases, it is defended tooth and nail against the opinions of “overly pessimistic” actuaries. We will see that three phenomena drive this conflict, all of which involve an evolutionary trait: *self-deception* (Alexander, 1975).

2.2 Objective and Outline

This paper explains

- why *collective illusions* arise and often persist,
- when they are useful or even necessary,
- what that means for actuaries and other experts who are supposed to create *transparency* and manage risks in insurance.

Section 3 introduces relevant behavioural phenomena, applying concepts from the social sciences. Section 4 gives instructive examples. Section 5 applies the developed framework to insurance.

3 Layers of self-deception

3.1 Confirmation bias

It is harder to crack prejudice than an atom. *Albert Einstein*

Confirmation bias emerges at the level of the *individual* person, the realm of psychology; see in the following Nickerson (1998), Sherman and Cohen (2006), Lewandowsky et al. (2012).

People cling to their convictions. To avoid constant doubt, they are selective in their perception and evaluation of reality, preferring information that confirms what they believe. It is an unconscious psychological mechanism in the interests of their own well-being.

Self-confidence (as many experts have it) protects against confirmation bias to some extent, but one cannot expect immunity. The phenomenon is even observed in the worlds of science and politics, so experts and managers in insurance, too, are likely subject to it.

3.2 Peer pressure

In order to be an immaculate member of a flock of sheep, you must, above all, be a sheep.

Albert Einstein

Give the man who is telling the truth a horse, so that he can escape afterwards.

Old Persian proverb

Like most group behaviour, peer pressure stems from the remote past when humans lived in rather *small* groups of some 25 individuals, the realm of anthropology; see in the following Haddrill et al. (2016), Lorenz et al. (2011), Sherman and Cohen (2006).

Evolution has made human beings specialists in cooperating in such groups. Being excluded from one's community once meant certain death. As people today are still keen to avoid that fate, they tend to give in to peer pressure when faced with strong differences of opinion. We even adapt our personal convictions to suit the social group.

Groups exert pressure on members having "deviating" opinions, but, as mathematical sociology tells, minorities have a chance to prevail, provided they are large enough (c. 10%), determined, and persistent, see Dyer et al. (2009), Xie et al. (2011).

Collective action is often beneficial, producing swarm intelligence, but very bad decisions occur; one speaks of *groupthink*.

3.3 Social trust

Trust is the foundation of society. *Frederick Douglass, abolitionist and statesman*

Even the best must now and then lie,

Sometimes he does it with pleasure.

Wilhelm Busch, humorist and poet

In the past ten thousand years new phenomena emerged, along with cities and states; see in the following Gambetta (1988), Slovic (1993), Bergh and Bjørnskov (2013), Hirschi (2018a).

Nowadays, most of us live and work in *large*, highly complex social groups and have to collaborate with many strangers whose behaviour cannot be predicted from own experience. That calls for social

trust: the belief that, in principle, the community (or system) functions properly, as for its structure, typical behaviour of members, and competence of leaders. Social trust is basically a leap of faith and relies on convictions and narratives shared by the group, which do not necessarily have to reflect reality, as the examples below will illustrate.

Sociology teaches us that social trust is much easier to destroy than create, so preserving it is a constant battle. The decisive factor is that the community is *perceived* to be functioning properly. Making *real* improvements is an arduous way of doing this, but sometimes clever communication (call it propaganda or window dressing) is enough to achieve *perceived* improvements. Both approaches are pursued, e.g. in the political sphere.

Generally, plausible messages, when packaged as a compelling story, are attractive to humans and easily believed, no matter whether or not they are correct (Lewandowsky et al., 2012). According to their content, such messages can enhance social trust or erode it.

4 Examples

4.1 Nation

Each nation has the naive view to be God’s best idea. *Theodor Heuss, journalist and statesman*

We have made Italy. Now we must make Italians. *Massimo D’Azeoglio, writer and statesman*

When nations were created, the shared narrative was often a founding myth, suggesting a common origin or superiority over neighbours (Hobsbawm, 2012). The latter is in most cases impossible, while the former is usually, to the very least, an oversimplification, given the heterogeneity within nations and the complexity of the migrations of people, customs, and languages, see Diamond (2013), Ostler (2005).

It must be acknowledged that such founding myths, albeit largely fictitious, can have a positive impact on society, enhancing cooperation and solidarity within the nation.

4.2 World view

Convictions are more dangerous enemies of truth than lies. *Friedrich Nietzsche, philologist and philosopher*

World views are of diverse nature, regarding e.g. religion, nation, politics, scientific paradigm, company identity. The common feature is: fundamental messages that are never questioned. The stronger one believes (or thinks to know) something, the more one is affected by selective perception and other biases (Lewandowsky et al., 2012). Interestingly, more education does not necessarily prevent biased views – instead, it occurs that people knowing less are more open-minded (Kahan et al., 2011).

4.3 Risk perception

We are full of fear, but of the wrong issues. *Hoimar von Ditfurth, physician and scientific journalist*

Examples for potentially dangerous hazards are (in alphabetical order, to avoid any ranking): BSE, climate change, financial system, genetic engineering, hygiene, natural hazards, nuclear energy, smoking, toxic waste disposal, traffic. How such hazards are perceived (which matters not least for insurance) is very heterogeneous, inconsistent and wavering – both between nations and within; see in the following Kahan et al. (2011), Siegrist et al. (2012). Anything between indifference and panic can be observed, including shifts from decade to decade, and huge differences between social groups according to their world view.

If people are strongly involved, even a lot of explanations and fair, transparent, decision processes don’t make them accept potentially hazardous sites or activities. Conversely, expensive or restrictive preventive measures are likewise hard to enforce, as the recent Covid-19 pandemic illustrates. In such a context, even discussions about facts can get controversial, however, this is not illogical when facts drive important decisions.

A big problem in many areas is that an illusion of security (supported by over-optimistic people) is often much cheaper to get than real security. Uncertainty can make it really hard to find the middle course between overly prudent and negligent.

4.4 Fiat money

Such paper's convenient, for rather than a lot
Of gold and silver, you know what you've got.

Mephistopheles, demon, in Goethe's Faust, Part II

This example shows that *perceived* quality is not always just about (self-)deception, but can generate *genuine* quality.

The paper/scriptural money we use today is not backed by gold; it is basically “only” a promise that the current economic system will function in future; see in the following Lietaer (2013). For decades, our economic system has been based on belief in this promise.

In terms of social trust, we could say this *subjective* belief is the *objective* foundation of our economy. Fiat money is probably the most important *mass illusion* of the modern age; when crises occur, political leaders employ well-chosen words in its defence, as the financial crises of the early 21st century show (“whatever it takes”). The worst case scenario is a bank run, so it is clear that banks, which essentially generate the money, have a special role in the economic system – they must help maintain the overall trust in the money.

Apparently, this money system works – at least for some decades in a row. Yet, it must be said that, in the history of the world's currencies, the short-lived ones dominate (Reinhart and Rogoff, 2009).

5 Dilemmas

The insurance industry, too, hinges crucially on the collective trust of industry insiders and of the outside world, because it is a *money-based, complex, long-term* enterprise. What is more, even when properly managed, insurance is undeniably a business marked by high levels of *volatility* and *uncertainty*. But, if your aim is to engender and maintain trust in it, you face a dilemma at the centre of which stands the actuary. We call it the *transparency dilemma*.

5.1 The transparency dilemma of risky environments

The actuary's role, especially (but not solely) in the regulatory context, is to ensure transparency as regards risks and uncertainty. But the more transparency you achieve, the more problems you may uncover. While that is good for *real* security (visible risks can be managed), it can undermine *perceived* security: too much bad news erodes social trust and cooperation. This could affect single insurers or the entire industry. No one wants such distrust to arise, and it is this pressure that the actuaries ultimately feel.

Two very difficult questions arise in this situation:

1. What is the optimum amount of transparency?

Given the concept of social trust, the answer could in certain cases be:

Quite a bit less than 100 percent.

If that is so:

2. Who decides what is rendered transparent and what isn't?

Sometimes actuaries are the ones who (are urged to) make decisions like this. Presumably, they are not too bad at that – and some of them don't even mind the task. But actuaries should be aware that, in making such decisions, they are essentially *managing social trust*. That belongs to the domain of management/politics and is not part of the conventional “expert” role, see in the following Hirschi (2018b).

Such *mixed* roles for experts emerge in various situations, often welcomed by both the political and the expert side. Yet, that can end badly. The most prominent example is the case of Italian earthquake experts who were sued after the 2009 earthquake in L'Aquila – simply put, for failing to predict its exact occurrence. Very recently, some virologists likewise had mixed experiences in their mixed roles during the Covid-19 pandemic.

5.2 Company’s dilemma

Insurers face a further dilemma. Economic results fluctuating heavily from year to year are unwelcome to shareholders and the wider public may perceive them as bad management. On the other hand, smoothing of results over the years (say by certain opaque IBNR reserve calculations) is not allowed. But, maybe one cannot eliminate both at the same time:

If insurance is much more volatile and/or uncertain than people (want to) believe, then *modern transparent regulation* makes this visible – and the actuaries are the *messengers of the bad news*.

5.3 Regulation’s dilemma

Insurance regulation caters for the overall need for security. However, if insurance is highly volatile or uncertain, no matter how much transparency you create by insurance modelling, it cannot yield 100% real security – despite of all the paperwork done.

5.4 Individual’s dilemmas

Some in the industry might dream of an actuary who carefully analyses everything (as he/she has learnt, and is required, to do), but never finds anything really bad. In volatile or uncertain environments, such dreams can hardly come true. So, in many situations actuaries can’t fulfil the expectations of all stakeholders at the same time, despite of their high skills and their hard work. This can indeed be unpleasant, the more so as they (like competent and committed people in general) would like to have things under control.

A really annoying variant is the following: an actuary makes the uncertainty in his calculation transparent (which an expert should do), but this is either ignored or, to the worse, used in a kind of power game against him – typically with the intent of bargaining him down to a more optimistic estimate, say a lower premium, reserve, or regulatory capital.

Yet, knowledge about the behavioural background, as provided in this paper, might help actuaries to be more relaxed in the face of the various and partly incompatible expectations around them. If insurance is highly volatile, their work at times inevitably feels like steering a small vessel through heavy seas: a bumpy ride – but nevertheless a well-done job.

6 Conclusion

The greatest illusion: to think you don’t have any.

The worst illusion: to think you don’t need any.

Walter Ludin, monk and journalist

Generalising beyond insurance, we can say that the dealing with complex risks in large communities involves striking a balance between *self-critical transparency* and *cultivating an image that builds trust*. Independent experts like actuaries have a key role to play in this, but it is one that – whether they like it or not – can merge with a political role. If that occurs, experts may indeed be telling a tale that is convenient for their environment, with their independence being limited by social norms.

References

- Alexander, R. D. (1975). The search for a general theory of behavior. *Behavioral Science*, 20(2):77–100.
- Bergh, A. and Bjørnskov, C. (2013). Trust, welfare states and income equality: What causes what? *IFN Working Paper No. 994, Research Institute of Industrial Economics, Stockholm*.
- Diamond, J. (2013). *Guns, germs and steel: A short history of everybody for the last 13,000 years*. Random House.
- Dyer, J. R., Johansson, A., Helbing, D., Couzin, I. D., and Krause, J. (2009). Leadership, consensus decision making and collective behaviour in humans. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 364(1518):781–789.

- Frankland, R., Eshun, S., Hewitt, L., Jakhria, P., Jarvis, S., Rowe, A., Smith, A., Sharp, A., Sharpe, J., and Wilkins, T. (2014). Difficult risks and capital models. A report from the Extreme Events Working Party. *British Actuarial Journal*, 19(3):556–616.
- Gambetta, D., editor (1988). *Trust: Making and breaking cooperative relations*. University of Oxford.
- Haddrill, S., McLaren, M., Hudson, D., Ruddell, A., Patel, C., and Cornelius, M. (2016). JFAR Review: Group Think. IFoA Regulation Board on behalf of the Joint Forum on Actuarial Regulation. *Institute and Faculty of Actuaries*.
- Hirschi, C. (2018a). Regulation and transparency as rituals of distrust: Reading Niklas Luhmann against the grain. In *Alloa, Thomä (Eds.), Transparency, Society and Subjectivity. Critical Perspectives. Basingstoke*, pages 225–241.
- Hirschi, C. (2018b). *Skandalexperten, Expertenskandale: Zur Geschichte eines Gegenwartsproblems*. Matthes & Seitz Berlin Verlag.
- Hobsbawm, E. J. (2012). *Nations and nationalism since 1780: Programme, myth, reality*. Cambridge University Press.
- Jakhria, P. (2014). Difficult Risks and Capital Models. A report from the Extreme Events Working Party. Abstract of the London Discussion. *British Actuarial Journal*, 19(3):617–635.
- Kahan, D. M., Wittlin, M., Peters, E., Slovic, P., Ouellette, L. L., Braman, D., and Mandel, G. N. (2011). The tragedy of the risk-perception commons: Culture conflict, rationality conflict, and climate change. *Temple University legal studies research paper*, 2011-26.
- Lewandowsky, S., Ecker, U. K., Seifert, C. M., Schwarz, N., and Cook, J. (2012). Misinformation and its correction: Continued influence and successful debiasing. *Psychological science in the public interest*, 13(3):106–131.
- Lietaer, B. (2013). *The future of money*. Random House.
- Lorenz, J., Rauhut, H., Schweitzer, F., and Helbing, D. (2011). How social influence can undermine the wisdom of crowd effect. *Proceedings of the national academy of sciences*, 108(22):9020–9025.
- Manuel the Scandinavian Actuary (2015). The faulty towers of Solvency II. *Intelligent Insurer*, 06.07.2015.
- Neuhaus, W. (2015). The sound of solvency. <https://waltherneuhaus.wordpress.com>.
- Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of General Psychology*, 2(2):175–220.
- Ostler, N. (2005). *Empires of the word: A language history of the world*. HarperCollins.
- Reinhart, C. M. and Rogoff, K. S. (2009). *This time is different*. Princeton University Press.
- Sherman, D. K. and Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. *Advances in experimental social psychology*, 38:183–242.
- Siegrist, M., Connor, M., and Keller, C. (2012). Trust, confidence, procedural fairness, outcome fairness, moral conviction, and the acceptance of GM field experiments. *Risk Analysis*, 32(8):1394–1403.
- Slovic, P. (1993). Perceived risk, trust, and democracy. *Risk analysis*, 13(6):675–682.
- Tredger, E. R., Lo, J., Haria, S., Lau, H., Bonello, N., Hlavka, B., and Scullion, C. (2016). Bias, guess and expert judgement in actuarial work. *British Actuarial Journal*, 21(3):545–578.
- Tsanakas, A. (2012). Modelling: The elephant in the room. *The Actuary*, 01.09.2012.
- Weick, M., Hopthrow, T., Abrams, D., and Taylor-Gooby, P. (2012). Cognition: Minding risks. *Lloyd’s Emerging Risk Reports*.
- Xie, J., Sreenivasan, S., Korniss, G., Zhang, W., Lim, C., and Szymanski, B. K. (2011). Social consensus through the influence of committed minorities. *Physical Review E*, 84(1):011130.