

Diversity of thought in the boardroom: An antidote to groupthink?

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I. INTRODUCTION

Significant progress has been made in improving the diversity of corporate boards. Until now, however, the focus has been on the benefit of obtaining identity diversity, which is defined by Scott E. Page as someone's race, gender, age, ethnicity, religion or sexual orientation.¹ There has been plenty written about the benefits of having these diversity traits in the boardroom, but there has so far been a reluctance to critically examine the difference they make. This may be because of the assumption that having people from diverse backgrounds automatically equates to having diverse perspectives on a board.²

Board diversity, whether in terms of identity or thought, has been cited as the antidote to the phenomenon of groupthink which was first defined by the social psychologist Irving Janis in the early 1970s. He describes it as a faulty evaluative compass which can render a group incapable of forming quality decisions. Groupthink has been blamed for many corporate failures such as the collapse of Enron, the Volkswagen emissions scandal and the failures to forecast the global financial crisis. Out of these crises has come a more rigorous approach to corporate governance and the nearly universal endorsement of the proposition that a diverse board is better for business because it brings different perspectives – a critical requirement for effective governance.

Instead of focusing solely on obtaining identity diversity, boards should seek out diversity of thought or cognitive diversity³ (that is, the different ways in which a person thinks) in order to transform the board's performance and guard against groupthink. Page refers to the advantage that diversity of thought can give a board as a "diversity bonus". He explains that diversity bonuses result from having differences in what we know, how we perceive the world, the frameworks and models we use to organise our thoughts and the way we generate ideas.⁴

In order to harness the advantage that cognitive diversity can give a board, a business should appoint directors who not only appear to be diverse but who are also capable of thinking and communicating diverse thoughts and opinions. Unlike what many assume, these two traits are not intrinsically linked – identity diversity is not a proxy for diversity of thought, and hiring for diversity of backgrounds does not necessarily yield different perspectives.

This paper will examine the role of corporate boards and the increasing challenges they face as they navigate the emerging risks associated with 21st century connectivity. It will explore the phenomenon of groupthink and the role it played in the collapse of Enron. It will go on to examine research on the power of diversity of thought, before making some recommendations on what corporate boards need to do to adopt it.

II. EMERGING RISKS AND THE NEED FOR BOARD DIVERSITY

There is no doubt that corporate boards today are operating in an increasingly challenging environment. Globalisation, the rapid deployment of technology and an increasing need for risk management⁵ have left companies facing a wider range of risks than ever before. Airmic has stated that, increasingly, risk registers are dominated by external threats to an organisation that are often hard to detect, difficult to assess and easy to ignore, rather than the more obvious, immediate and easier to explain traditional risks, on which many business leaders prefer to concentrate.⁶ Evidence of this can be seen in **Figure 1** below which shows data security to be the current top concern in the boardroom. Boards fear that with an expanding digital infrastructure comes an increasing risk of severe data breaches and cyber attacks that could lead to regulatory action across multiple jurisdictions, heavy fines and scrutiny of boardroom responsibility.⁷

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¹ Scott E. Page (2018) *The Diversity Bonus. How Great Teams Pay Off in the Knowledge Economy* (Princeton: Princeton University Press), p. 133.

² Lissa L. Broome, John M. Conley and Kimberly D. Krawiec (2011) "Dangerous categories: narratives of corporate board diversity," 89 *North Carolina Law Review*, p. 805.

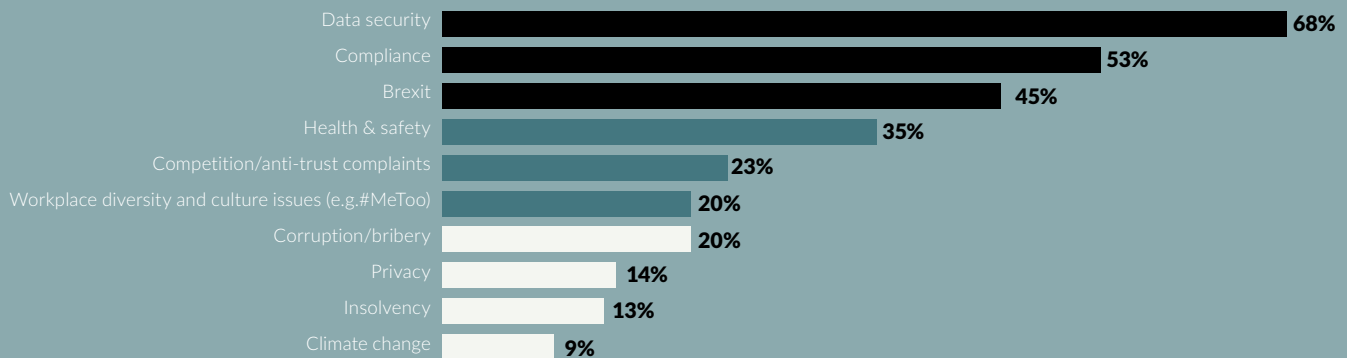
³ Page, p. 11.

⁴ Page, p. 133.

⁵ Russell Reynolds Associates, "Different is better: why diversity matters in the boardroom." Accessed online at: <https://www.russellreynolds.com/insights/thought-leadership/different-is-better-why-diversity-matters-in-the-boardroom>

⁶ Airmic (2019) "Emerging Risks. New World, New Solutions: A Guide for Airmic Members," p. 4. Accessed online at: <https://www.airmic.com/system/files/technical-documents/Airmic-guide-Emerging-risks.pdf>

⁷ The UK Corporate Governance Code, July 2018, p. 9. Accessed online at: <https://www.frc.org.uk/getattachment/88bd8c45-50ea-4841-95b0-d2f4f48069a2/2018-UK-Corporate-Governance-Code-FINAL.PDF>

Figure 1: Top concerns in the boardroom⁸

It is this challenging environment that reinforces the need for diversity of thought. These risks are complex, and no single person can master all the relevant knowledge.⁹ A cognitively diverse board will not only find it easier to see risk from many different angles, it will also be able to facilitate a wider debate of the consequences and implications of a variety of actions.

The Financial Reporting Council recognises that the environment in which boards are operating today is rapidly changing, and so on 1 January 2019, an updated UK Corporate Governance Code came into effect. The updated code sets out what is expected from a corporate board and places a greater emphasis on the alignment and monitoring of corporate culture, as well as the importance of diversity and inclusion.¹⁰ The code specifies that “both appointments and succession plans should be based on merit and objective criteria and, within this context, should promote diversity of gender, social and ethnic backgrounds, cognitive and personal strengths”.¹¹ Whilst it is positive that cognitive diversity is mentioned, not enough emphasis is placed on the transformative power that it can have on a board’s ability to fulfil its role in determining “the nature and extent of the principal risks the company is willing to take in order to achieve its long-term strategic objectives”.¹² The code advocates that half of the board should be made up of non-executive directors who can provide constructive challenge, offer specialist advice and hold management to account.¹³ Unless these non-executive directors bring different perspectives, their power will be diminished and the risk of unanimous decision-making and groupthink will still prevail.

III. THE PERILS OF GROUPTHINK

Several corporate collapses have been attributed to groupthink amongst board members. Perhaps the most famous case study is the collapse of Enron, which went from being a hugely prosperous company with a board widely regarded as one of the best in corporate America, to a bankrupt enterprise in less than three months.¹⁴ As a result of Enron’s collapse, thousands of employees lost their jobs and retirement savings, while shareholders lost billions of dollars.¹⁵

It is important to convey how little diversity there was on the Enron board. The board members all had the similar social, educational and career backgrounds of the power elite in corporate America.¹⁶ This was partly because Kenneth Lay, the CEO of Enron, had selected board members from those who had business relationships with Enron or whose organisations had been beneficiaries of Enron’s political or charitable donations.¹⁷ The group was unlikely to challenge the dominant long-standing chairman to whom it owed so much and, as a result, Lay had created an environment that became a breeding ground for groupthink.

The first symptom of groupthink is a group’s feeling of invincibility, which creates overconfidence and leads to excessive risk-taking. Specifically, group members may come to believe that they can do no wrong, particularly when the group is powerful and has achieved past success.¹⁸ This tendency is common because it relieves stress and fosters a “can do” atmosphere. In Enron’s case, there were several factors that contributed to a

⁸ Airmic-KPMG (2019) “Transforming Insurance for Tomorrow’s Risks”, p. 12. Accessed online at: <https://www.airmic.com/system/files/technical-documents/Airmic-Survey-Report-4-emerging-risks.pdf>

⁹ Page, The Diversity Bonus, p. 23.

¹⁰ Airmic-AIG (2019) “The Value of Boardroom Engagement,” p. 6.

¹¹ The UK Corporate Governance Code, p.8

¹² The UK Corporate Governance Code, p.10.

¹³ The UK Corporate Governance Code, p.6.

¹⁴ Marleen A. O’Connor (2003) “The Enron Board: The Perils of Group Think,” *University of Cincinnati Law Review*, Vol. 71, p. 1.

¹⁵ Marleen A. O’Connor, p. 2.

¹⁶ O’Connor, p. 31.

¹⁷ Airmic-Cass Business School (2011) *Roads to Ruin: A Study of Major Risk Events - Their Origins, Impact and Implications*, p. 6.

¹⁸ O’Connor, p. 38.

feeling of invincibility. Firstly, Enron had an extraordinary track record of success, with Jeffrey Skilling, then group chairman, once boasting that “Enron has reported 20 straight quarters of increasing income. There is not a trading company in the world with that kind of consistency.”¹⁹ Secondly, Enron frequently described itself as the world’s leading trading company. Thirdly, the culture promoted the idea that the company was untouchable and that it was the employees’ responsibility to improve the glowing record.

The second symptom is related to the first – a belief in the group’s inherent morality.²⁰ In Enron’s case, this was evident in the failure of the board to question the risks associated with Enron’s transition to become an energy trading company. Court hearings state that “it appears that the (Enron) board of directors continued to perform its duties as if Enron were still an old-line conservative energy company, at a time when it appears, they should have been far more probing.”²¹ The feeling of invincibility came from the fact that as a result of Enron’s financial success, the board believed that Enron executives were “some of the most creative and talented people in business”²² and that to question their decisions would be to withhold them from their continued success.

The third symptom is collective rationalisation, that is, the ability for a group to rationalise away warning signs that would otherwise lead members to revise their positions. This can happen when a board is homogenous in its belief that the business is doing the right thing. This symptom was rife on the Enron board. The US Senate report on the Enron debacle included 13 red flags over two years that the Enron Board should have seen.²³ The board was certainly under pressure from the executive, with Andrew Fastow, the former CFO of Enron, making it clear that without those deals that the US Senate Report subsequently flagged up, Enron could lose its superstar status.²⁴ No one on the board was willing to step out and question the warning signs. A prime example of this was when the auditing firm Arthur Anderson identified the risk that the authorities would challenge the accounting treatment used in the deals as “H” (for high risk). Instead of acting on the warning sign, the Enron board members did nothing. In later questioning, an Enron director said that he had viewed the “H” for “high risk” as really meaning “I” for “important”.²⁵

The fourth symptom is ‘outgroup stereotyping’ – the sentiment that “either you are with us or against us”.

Janis explains that this stereotyping process causes cohesive groups to view those opposing the decision as weak-minded for “not getting it”.²⁶ This is an easy symptom for board members to fall foul of, especially if they are not industry or financial experts. For Enron, this symptom was largely as a result of its culture. Externally Enron had a “we’re smarter than you attitude” toward analysts.²⁷ Internally, Enron’s culture of negative stereotyping and its adamantness that its financial statements were not complicated, affected the board’s willingness to inquire about complicated related party transactions for fear of either being seen as afraid of risk and of “not getting it”.²⁸

The fifth symptom is the illusion of uniformity – the appearance that there is group consensus amongst the board, which pressurises members to accept decisions. This can happen on a board that has a powerful chairman and an autocratic culture that leaves members in fear of rocking the boat. There was clear evidence of this on the Enron board. The Senate report noted, “Enron Board Members said that Board votes were generally unanimous and could recall only two instances over the course of many years involving dissenting votes”.

The sixth symptom is self-censorship, which can be present in hierarchical boards where directors are reluctant to be the lone objector and therefore remain silent even if they disagree. There was evidence of this on the Enron board when the board failed to ask how much money Fastow and other executives were making from the transactions. One Enron director did claim to have asked a senior compensation officer for data on all the officers, but having failed to receive it after asking twice, they dropped the matter. An Enron employee later stated, “you don’t object to anything, the whole culture at the vice-president level and above just became a yes-man culture”.³¹

The seventh symptom of groupthink is that of direct pressure on dissenters. This transpires when a board member questions a proposal and instead of accepting the line of questioning, the board makes light of the query and labels the questioning individual as not being a good team player. There is no concrete evidence that the Enron board caved in to managerial pressure, but it could be argued that there was never an opportunity when the directors felt able to express any objections in the first place.

¹⁹ Ibid.

²⁰ O’Connor, p.42.

²¹ O’Connor, p.43.

²² O’Connor, p.45.

²³ O’Connor, p.48.

²⁴ Ibid.

²⁵ O’Connor, p.49.

²⁶ O’Connor, p.52.

²⁷ O’Connor, p.53.

²⁸ O’Connor, p.54.

²⁹ O’Connor, p.55.

³⁰ O’Connor, p.57.

³¹ O’Connor, p.58.

The final symptom of groupthink is the presence of ‘self-appointed mind guards’ that is, members of the board who take it upon themselves to protect the group from adverse information. This could take the form of a board member reporting back to the chair if they sense dissent on a future board discussion item. There is no direct evidence of this at Enron, but again, this was largely because of the homogeneity of the board in supporting the executive. Fastow was apparently so confident in the support of this board that he completed much of the negotiations before even approaching the board for approval.³²

The case study of the Enron board shows that groupthink is a dangerous phenomenon that can diminish the abilities of some of the most intelligent people and that all boards can be susceptible to this phenomenon under certain conditions.³³ At Enron, it was the lack of diversity and the toxic corporate culture that proved fatal. Had the board included members from a variety of different industries and backgrounds, and operated within a more egalitarian culture, then perhaps the resulting cognitive diversity could have prevented the collective rationalisation, self-censorship and unanimous decision-making that led to the company’s collapse.

IV. THE POWER OF DIVERSITY OF THOUGHT

It is clear from the Enron case study that having the right board composition is key to effective governance. With the near universal acceptance of the benefits that diversity can bring to a board, companies have focused on the recruitment of traditional diversity traits. Whilst this is undoubtedly a positive development, recruiting solely for race or gender will not necessarily deliver the level of cognitive diversity that is required to protect against groupthink.

Juliet Bourke believes that diversity of thought is what makes a group shine. Whilst it cannot replace expertise, capability and experience, it can enable breakthrough thinking and strong risk identification.³⁴ This is because with diverse perspectives and opposing opinions, there will be a more robust and challenging discussion that will result in three advantages – a deeper understanding, a new or better solution to the problem and the possibility of new areas of inquiry.³⁵

In her research, Bourke evidences how easy it is for a board to be at risk of reviewing problems from only one or two angles. She believes that a complex problem typically requires input from six different mental frameworks or ‘approaches’:

- Evidence
- Options
- Outcomes
- People
- Process
- Risk.

Of the executives Bourke surveyed, 93% said that one of those frameworks was more important than the other, while 7% said two of the frameworks were most important to them.³⁶ Perhaps more crucially, when she surveyed senior business leaders, the majority of them said that outcomes and options were the most important things to focus on when solving a problem (**Figure 2**), meaning that the other equally important elements of finding a solution are given much less attention.

The results from these surveys have led Bourke to advocate the importance of diversity of thought. As she rightly points out, no single person is equally good at all six frameworks. Without diversity of thought, the team may look like a group, but it will behave like an individual.³⁷

Research by Alison Reynolds and David Lewis evidences that a high degree of cognitive diversity amongst a team generates accelerated learning and better performance in the face of new, uncertain and complex situations. In their experiment, they ran an exercise with executive groups which focused on managing new, uncertain and complex situations.³⁸ The exercise required the group to formulate and execute a strategy to achieve a specified outcome against the clock. Contrary to their belief that the most diverse teams in terms of age, ethnicity and gender would prove the best, they instead found that the teams with diversity of knowledge, processes and perspective (as indicated by the larger standard deviations in **Figure 3**) completed the task quickest.

Team F was a start-up biotechnology company. The team was mixed in terms of gender, age and ethnicity but was homogenous in terms of how it preferred to

³² O’Connor, p.60.

³³ O’Connor, p.61.

³⁴ Juliet Bourke (2016) *Which Two Heads Are Better Than One? How Diverse Teams Create Breakthrough Ideas and Make Smarter Decisions* (Sydney: Australian Institute of Company Directors), p. 124. Accessed online at: <http://aicd.companydirectors.com.au/-/media/cd2/resources/director-resources/book-store/pdf/which-two-heads.ashx>

³⁵ Page, *The Diversity Bonus*, p.203.

³⁶ Juliet Bourke, “How to be smart and make better choices,” 25 April 2016, Tedx Talks. Accessed online at: <https://www.youtube.com/watch?v=MZCyUANqYyw>

³⁷ Juliet Bourke, p.121.

³⁸ Alison Reynolds and David Lewis, “Teams Solve Problems Faster When They’re More Cognitively Diverse,” 20 March 2017, Harvard Business Review. Accessed online at: <https://hbr.org/2017/03/teams-solve-problems-faster-when-theyre-more-cognitively-diverse>

Figure 2: Six building blocks and senior leader profiles in three organisations

	Outcomes	Options	Evidence	Process	People	Risk	Other
A (finance)	42%	31%	15%	12%	0%	0%	n/a
B (commodities)	44%	35%	9%	3%	3%	7%	n/a
C (government)	47%	24%	2%	12%	8%	3%	4%
Average	44%	30%	9%	9%	4%	3%	

engage and think about change. The team members were all PhD scientists, and with little cognitive diversity, they had no versatility in how to approach the task. As a result, they didn't finished it in the allotted time.

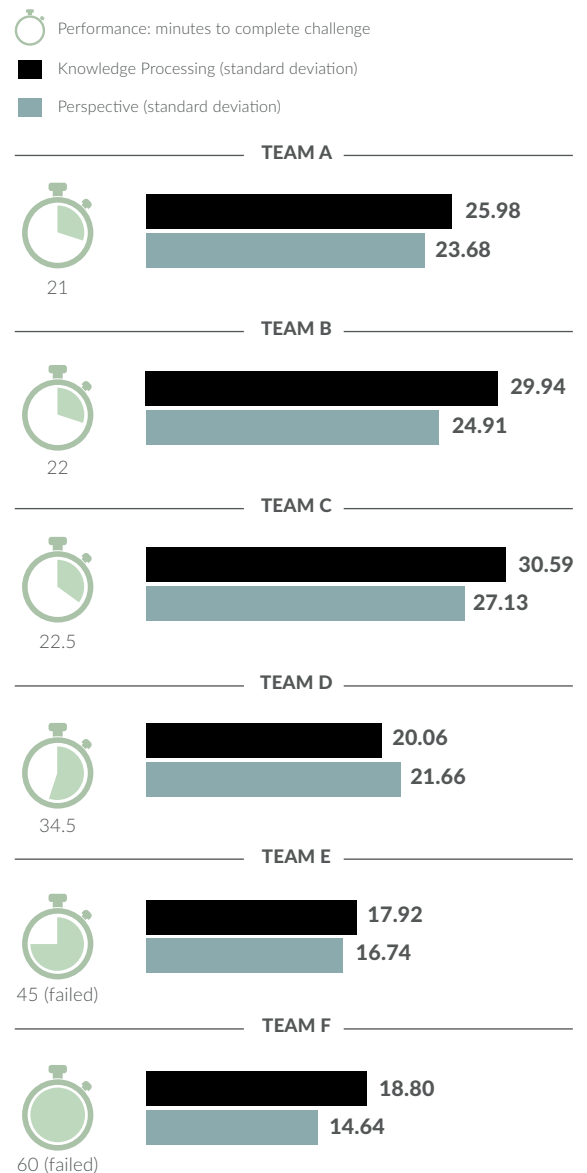
Katherine W. Phillips carried out a research project, the 'Out-Group Advantage', which looked at the effect that disrupting a homogenous group would have on the quality of decision-making.³⁹ In the experiment, participants from university fraternities and sororities were divided into 50 same-gender, four-person groups. Each group was asked to perform the same task: to read a set of interviews conducted by a detective investigating a murder. The participants were instructed to decide on the most likely suspect individually before entering their groups to discuss their decision. In each group, three individuals were always members of the same fraternity (old-timers) and the fourth member was a new-comer from either the same fraternity or a different one. The old-timers were given 20 minutes to come to a consensus on the most likely murder suspects, but five minutes into the discussion, a new-comer joined the discussion.

After the discussions were finished, each member rated their confidence in their group's decision as to who the murder suspect was.

The biggest discovery was the sheer advantage a newcomer gave a group. Although diverse groups with outgroup newcomers felt less confident about their progress, they guessed the correct murder suspect with far greater frequency than the homogenous groups. The homogenous groups exhibited the groupthink symptom of collective rationalisation. They were more confident in their decisions even though they were more often wrong in their conclusions.

Both these experiments demonstrate the positive effect that introducing cognitive diversity can have on a group's performance. When asked in an interview to confirm whether she had witnessed the positive effects of cognitive diversity on a corporate board, Clare Chalmers, CEO of Clare Chalmers Limited (a board effectiveness review company), recounted that on one occasion she had worked with a healthcare specialist board who had

Figure 3: Higher cognitive diversity correlates with better performance



Note: Cognitive diversity is calculated as standard deviations in thinking styles present on each team.

Source: Allison Raeynolds and David Lewis using the AEM Cube, a tool that assesses differences in the way that people approach novel situations

³⁹ Kellogg Insight, "Better Decisions through Diversity, Heterogeneity can boost group performance," 1 October 2010. Based on the research by Katherine W. Phillips, Katie A. Liljenquist and Margaret A. Neale. Accessed online at: https://insight.kellogg.northwestern.edu/article/better_decisions_through_diversity

deliberately hired for cognitive diversity. She said that it added enormous value to how the board worked. The most significant change was that instead of viewing all the discussion items through a finance lens, the presence of an HR director meant the group also viewed discussion items through a people management lens.⁴⁰

There is much compelling evidence that supports the argument that a board with diversity of thought will be better equipped to navigate the challenges of corporate governance today. However, as Chalmers confirmed, only a few companies are actively pursuing diversity of thought on their boards. In the next section, I will outline what companies can do to bring this diversity trait to their boards and highlight the important role that a collaborative culture plays in a board’s ability to realise ‘diversity bonuses’.

V. ACHIEVING DIVERSITY OF THOUGHT ON A CORPORATE BOARD

Driving the uniformity in board composition are antiquated recruitment practices. An overwhelming number of companies turn to their own directors for board member recommendations. Although this reliance on familiar individuals in existing networks assures a level of qualification and competence amongst board members, the practice ultimately limits the breadth of skills and experiences that guide a company’s governance. In the instances where companies are seeking to build diversity on their board, they are frequently let down by their reliance on traditional recruitment approaches that only focus on one or two diversity variables at a time.

To build a cognitively diverse board, the aim should be to recruit board members with a mix of skills, experience and different thinking styles. Instead of focusing recruitment on finding the best individual performers, boards should look for talent that is multi-dimensional. In his book *The Difference*, Page illustrates how achieving this requires recruiters to employ recruitment practices

that not only evaluate whether the candidate has the technical competency for the job but also pose questions that enable the identification of diversity of thought.

Page illustrates this in an experiment in which three candidates were interviewed for two vacant positions on a research team. All candidates were asked the same 10 questions. Jeff correctly answered seven out of 10, Rose six out of 10 and Spencer five out of 10 (see **Figure 4** below). Many organisations would have hired Jeff and Rose for two reasons. First, these two candidates got the highest cumulative score. Secondly, they would have felt reassured by the fact that these two candidates thought the same way. What they may have missed is that Spencer, the lowest overall scorer, correctly answered every question that Jeff, the highest scorer, incorrectly answered, therefore indicating that Spencer would bring a different way of thinking.⁴¹

Unfortunately, many recruitment processes would stop there. They tend to solely evaluate candidates as individuals when their real value is in how they perform as part of a team. As Page states, on complex tasks, no single test can evaluate the best team.⁴² The reason for this is that the diversity a person contributes will be relative to the existing group and the given task. The same person may add diversity to one group on one task but not add diversity to a different group on a different task.⁴³

Whilst the development of psychometric tests and advances in neurological research have made it easier for boards to understand how a board candidate thinks, it is still quite rare to see these tools employed in the recruitment process. Clare Chalmers believes that this is because of the age profile of many of the proposed non-executive candidates. They have typically been in business for 30 years and feel that they have a good understanding of their strengths and weaknesses, and what they can bring to the board.⁴⁴ However, boards should be wary of relying on these self-evaluations, because whilst a lot of people are confident that they can bring diversity of thought, the reality is that they are often very similar to their peers. This is exemplified

FIGURE 4

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Spencer			●	●	●			●	●	
Jeff	●	●			●	●	●		●	●
Rose	●	●				●	●		●	●

⁴⁰ Author’s interview with Clare Chalmers, CEO of Clare Chalmers Limited, 7 August 2019.

⁴¹ Anesa “Nes” Diaz-Uda, Carmen Medina, Beth Schill, “Diversity’s new frontier Diversity of thought and the future of the workforce,” 24 March 2013. Deloitte Insights. Accessed online at: <https://www2.deloitte.com/insights/us/en/topics/talent/diversity-new-frontier.html>

⁴² Page, *The Diversity Bonus*, p.219

⁴³ Page, *The Diversity Bonus*, p.8.

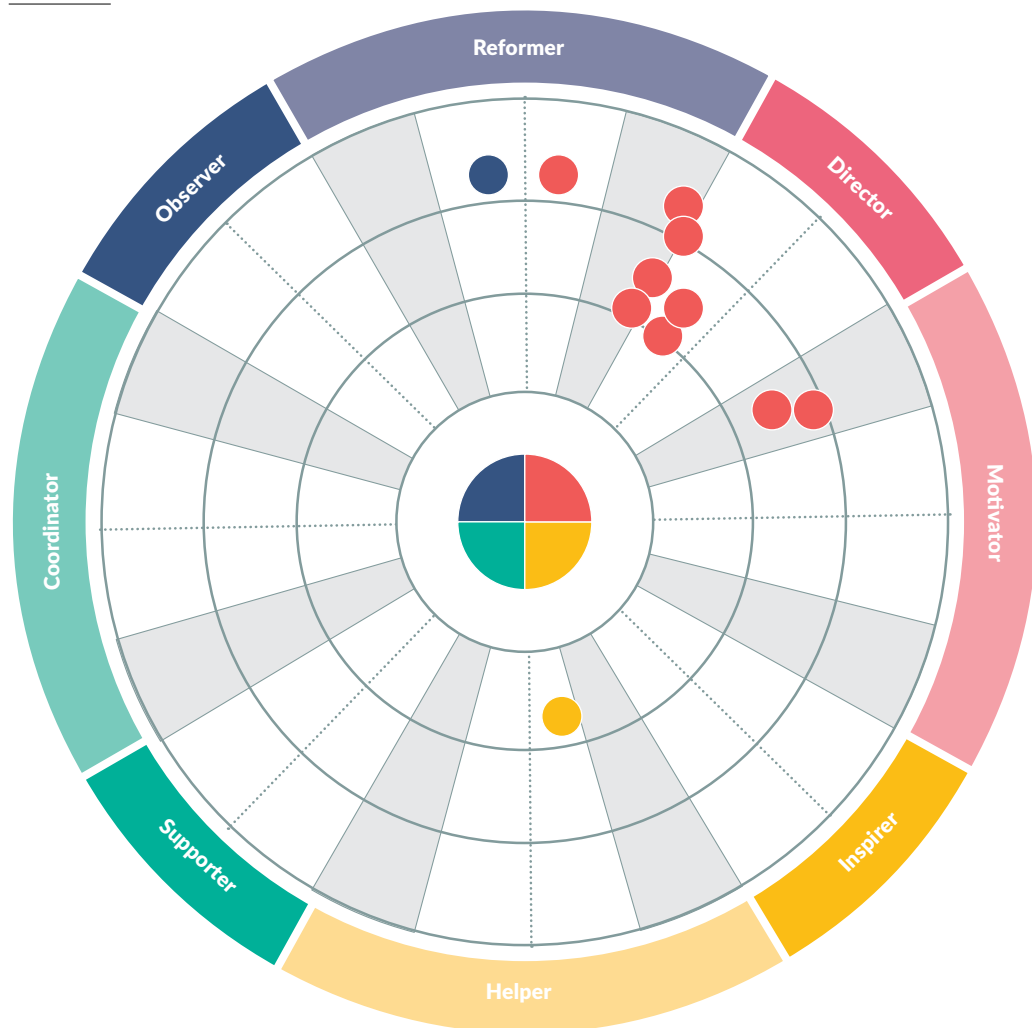
⁴⁴ Author’s interview with Clare Chalmers, CEO of Clare Chalmers Limited, 7 August 2019.

in **Figure 5**, which shows a breakdown of the personality types of one corporate board, a board unknowingly dominated by “directors”.⁴⁵

Bourke was surprised to discover this in an exercise she carried out when working on the Australian army’s personnel development plan. In the first part of the experiment, the participants were required to fill in a self-assessment survey that questioned their preference for three cognitive states – certainty versus ambiguity, thinking versus acting, caution versus risk-taking. The results showed that most of the participants had a moderate tolerance of ambiguity, a high preference for thinking and thought of themselves as open to risk-taking rather than being cautious. In addition to the self-

assessment survey, the participants took part in a second online assessment that was designed to measure: (i) a preference for certainty or ambiguity and (ii) a preference for caution or risk-taking. The assessment tool was designed to measure what they unconsciously preferred through a word association task that measured the speed at which the participants associated two words. The results from the second online assessment were confronting: far from being tolerant of ambiguity and open to risk-taking, the participants had a stronger preference for certainty and a cautious mindset. Bourke comments that it was almost as if the self-assessment results reflected who they wanted to be and the online assessment reflected who they really were.⁴⁶

FIGURE 5



⁴⁵ Graphic provided by Radius360, Identity of board withheld.

⁴⁶ Bourke, p. 121.

For boards to obtain diversity of thought, it is crucial that the use of psychometric testing is more widely adopted. These tests can provide companies with a true understanding of an individual's and a group's thinking styles. The failure to correctly self-identify and address diversity of thought can be the difference between an effective and challenging board, and a board that is unknowingly blinded by homogeneity.

The final recommendation for boards looking to take advantage of diversity of thought among their members is the need for a collaborative board culture. The Enron case study clearly links the problematic company and board culture to the prevalence of groupthink. The Enron board operated as a hierarchy – the CEO dominated discussions and the other board members feared challenging these discussions. Boards can undertake a lot of work to obtain diversity of thought, but unless there is an environment of fairness, non-discrimination, respect and trust, access to the benefits of cognitive diversity will be blocked. It is important for the board chair to recognise that a person who thinks differently from others controls the right to reveal that thinking or self-censor, and when board members do not fully contribute, the power of cognitive diversity is left unrealised and groupthink can emerge.⁴⁷

VI. CONCLUSION

There is no doubt that many companies today are having to transform the way they operate in order to maintain relevance in this increasingly connected and data-driven world. Corporate boards, in their role to promote the long-term sustainable success of their company, are faced with the challenge of identifying and providing solutions to an evolving list of intangible and unpredictable corporate risks. To excel in these complex environments, boards need to be able to harness diversity of thought. When a board can draw upon a broad assortment of competencies, priorities and insights, it sparks creative abrasion, a process in which potential solutions are generated, explored and altered through debate and discourse. So whilst a cognitively diverse board may produce less immediate representativeness than a homogenous board, it is more likely to succeed in guarding against the threat of groupthink, expert overconfidence and internally generated blindness, all of which continue to threaten boards today.

⁴⁷ Susan Woods (2008) "Thinking About Diversity of Thought", Henderson Woods, LLC. Accessed online at: https://www.utdallas.edu/diversity/documents/thinking_about_diversity_of_thought.pdf

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Parametric insurance Policies: Do they have to be weather-related?

Stuart Turner*



WHAT IS PARAMETRIC INSURANCE AND HOW DOES IT WORK?

The World Bank defines parametric insurance – or index insurance, as it is sometimes also known – as insurance that:

pays out benefits based upon a pre-determined index for the loss of assets and investments as a result of weather or other catastrophic events, in contrast traditional insurance relies upon assessments of the actual damage.¹

As technological advances along with the growth of the internet in the late 1990s, energy companies and traders started to use the increasing availability of high quality, reliable and granular weather data. This, combined with the greater computer modelling capacity, allowed insurance companies to analyse the relationships between costs and revenues and changes in temperatures.² An early provider of these derivatives was Enron, a now notorious company, selling a product that would pay \$10,000 for each degree it fell below the average temperature during winter.³ Insurers started to issue policies in the 2000s for food crises following natural disasters or extreme weather scenarios. It was not until the last half of this decade did insurers start to see both an interest from corporates and government bodies to allow them to set up their own underwriting structures.

Parametric insurance contracts typically have three main factors:

1. An index or metric that is intrinsically related to the costs or revenues of the insured but that is independently measured and recorded;
2. A deductible or threshold by which the index must exceed before the policy is triggered;
3. The amount to be paid.

In addition, parametric policies naturally have five main characteristics which similarly act as their main advantages. Firstly, they are objective, through the use of an independent source to define the mechanics of any payment, thus providing for a truly unbiased and fortuitous method of assessing the policy. Secondly, they are quick to pay out, as one underwriter said to me: “The loss adjusting is done at the same time as the underwriting.” These policies will pay out upon confirmation of the index threshold being breached. AXA Fizzy, of which I will explore more later, seeks to provide compensation for travel delays as soon as the plane is cancelled or lands in the event of a delayed flight above the predefined threshold. Thirdly, the policies are tailor-made, allowing the consumer, corporate body or government entity to select the metrics, thresholds and payments they want to be protected against and the reimbursement amounts they desire to receive. The policies are global in their nature of being able to respond to an event irrespective of its location. And finally, they have the ability to be cost-efficient, buying coverage only for what is required.

These policies maintain their status as insurance policies because they are fortuitous and outside of the control of the insured. They require underwriting and so allow for the modelling of past events and losses. The payment from parametric policies is calculated pre-event during the underwriting phase, in conjunction with the insurer and insured, but is designed so that the insured cannot be in a more profitable position post-loss than they were pre-event.

They differ, however, from traditional insurance policies in many ways. Most of the sales literature in the marketplace provides the comparison below between the two styles of coverage:

* This paper was one of the top dissertations from the 2019 Airmic Leadership Programme, delivered in partnership with the Business School at City, University of London (formerly known as Cass Business School).

¹ World Bank [blog post], “Index insurance is having a development impact where it’s needed most,” 16 August 2017. <https://blogs.worldbank.org/voices/index-insurance-having-development-impact-where-it-s-needed-most>

² AXA XL [blog post], “Let’s Talk: AXA Global Parametrics,” 15 January 2019. <https://axaxl.com/fast-fast-forward/articles/lets-talk-axa-global-parametrics>

³ CNN, “How to get rich off the weather,” 14 September 2009. <http://edition.cnn.com/2009/LIVING/wayoflife/09/14/mf.get.rich.off.weather/>

Traditional Policies	Parametric Policies
Payment is triggered by an actual loss	Payment is triggered by an actual event
Reimbursement is made via an adjusted assessment of losses sustained	Payment is made in alignment with parameter value as agreed in the policy
Policy is subject to exclusions and self-insured retentions	Policy is subject to the index or parameter
Claims payments are made following assessments by adjustors and insurers review – often months if not	Payment can be made in 30 days without adjustors
The period is very often annual	Multi-year options are available up to 5 years
Policy wording is often company standard or modified form of company standard	Policy is highly customized to meet the client's requirements

Swiss Re⁴ has sought to counter the myths surrounding these policies. They have asserted that parametric insurance:

- Is not necessarily more expensive than traditional covers
- Is not complex or difficult to comprehend
- Is not a direct replacement for traditional policies
- Is an insurance contract
- Is not gambling
- Is appropriate for all organisations
- Is not limited to property exposures
- Cannot cover all uninsurable risks
- Applies to more than natural catastrophe (Nat Cat) events
- Does not need to have a level of retention that is significant.

Many industry participants have stressed to me the importance of managing expectations in obtaining parametric solutions. Whilst it is true that they are simplicity personified once executed and upon payment being received, that is not true of its creation. A take-up rate of less than 10% of enquiries was quoted to me by one underwriter, whilst another advised that many clients struggle to provide the necessary data in advance.

Underwriting requirements naturally necessitate that the client proves an unquestionable link between the index chosen and the limit of the payment that is being requested. It is not uncommon for insurers to seek loss data for a minimum of ten years or more. The pace of change within businesses – both in terms of technological changes and also of its corporate structure with the number of acquisitions

and disposals – may make this unsurmountable or some.

The arrangement of this policy linking, as does risk management with business strategy, does require high-level commitment from an organisation. It does however provide the risk manager with an excellent opportunity to review those risks which can affect the operational ability of a business. This focus on the severity style risks will enable the harnessing of C-suite attention that this approach demands.

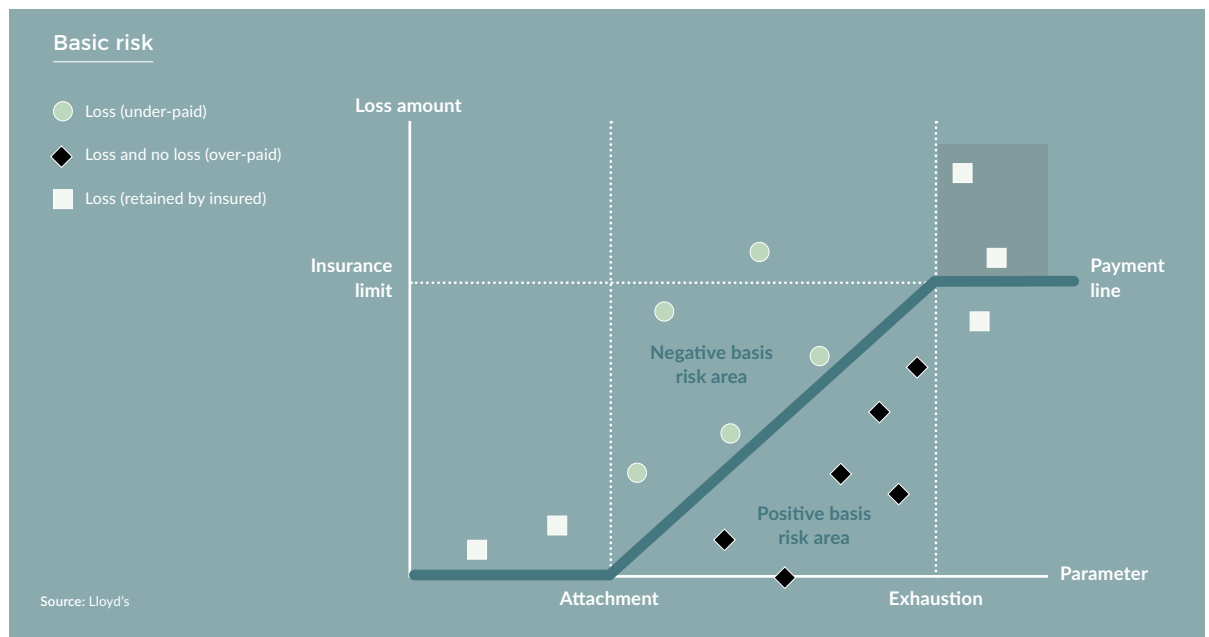
One area that parametric insureds need to be concerned with is that of basis risk. Whilst there are the advantages for the claim to be paid once the trigger is met, the reverse is also true. Understanding that a significant loss could be sustained by the client without the metric being hit is a critical part in the buying decision of this style of policy. For example, if the metric was to pay out in the event of a Category 5 hurricane – it is conceivable that a sizeable and significant loss (or one of equal magnitude) could be sustained from a less serious Category 4 storm. It is also possible that the elected pay-out is short of the ultimate loss borne by the client.

The basis risks exist for insurers too. A loss being paid out which exceeds the actual loss being suffered by the insured means that the insurer is experiencing premium inadequacy, as the insurer is making claims for payments that they did not factor into their pricing.

The following analysis from Lloyd's demonstrates the basis risk for both insured and insurer alike.⁵

⁴ Swiss Re [blog post], "10 Myths about Parametric insurance," 23 August 2018. https://corporatesolutions.swissre.com/insights/knowledge/10_myths_about_parametric_insurance.html

⁵ Lloyd's (2019) Triggering Innovation – Parametric Insurance.



Using a linear style pay-out mechanism, the black squares and red circles reflect the elected basis risk and the potential basis risk respectively, whilst the blue diamonds represent the risk for the insurer. With a binary pay-out based on hitting the trigger, these risks are then amplified for both parties.

Another criticism of parametric-style policies is that they provide coverage for risks that businesses are familiar with and, without traditional insurance, have adapted themselves to be able to either mitigate or hedge against them without the need for external capacity.

This may be true. However, many professional investors no longer accept lower than expected results for a risk that was well known. They mandate that earnings potential as well as assets are adequately protected. In addition, as we demonstrated above, the scope for these policies include entities of all sizes of, such as smaller organisations which cannot arrange suitable hedging procedures themselves. The parametric insurance company Stable uses this exposure for mid-size companies heavily.⁶

Furthermore, the application of dual-triggers in a parametric policy can be where the true value of the product lies. The application of not one but two independent events can be the black swan-type scenario that boards concern themselves with.

A final consideration to observe is that the simplicity of the structure allows new entrants into the marketplace, where they are not hindered by the significant barriers to entry and exit that exist for

those considering establishing traditional insurance companies.

WHAT IMPACT HAS TECHNOLOGICAL CHANGE HAD ON THE PROVISION OF PARAMETRIC INSURANCE PROGRAMMES?

Beyond the traditional world of insurance, there has been a seismic change in business models as new technology-based organisations have grown to dominate the corporate landscape. Companies like Facebook, Amazon and Google have grown exponentially, whilst older organisations such as Kodak, which either failed to spot the digital revolution or misread the speed or adaptability of any change, have slipped into obscurity.

Disruptive innovation is a term often incorrectly applied, but the insurance industry would seem ripe for disruption with its antiquated systems and processes. Disruption occurs when firms face choices that once defined drove its success, but which now destroy its future. With the features of parametric providers highlighted earlier – can these be utilised to be truly disruptive to the status quo?

Disruption is not an event but a process.⁷ A focus on low profitability and new technology that is not immediately valued by existing customers allows for later adoption by customers, and to supersede the unaware incumbents in the medium term.

Insurtech, a relatively new terminology, is now used to define a whole range of market entrants seeking to exploit technological change and customer's digital preferences. Following on from banking, there are

⁶ Stable [website]. <https://stableprice.com/>

⁷ Harvard Business Review, "What Is Disruptive Innovation?" December 2015. <https://hbr.org/2015/12/what-is-disruptive-innovation>

peer-to-peer insurance companies such as Lemonade⁸ and Friendsure,⁹ as well as insurers exploiting the usage-based model and shared economy¹⁰.

I am also aware of an insurance company trialling software with one of its clients to actively monitor the deliveries and shipments from one of its key distribution centres. Keeping a digital record of actual contents, and therefore the replacement value of the warehouse, allows for a more accurate premium calculation, whilst providing the insurer with an up-to-date maximum foreseeable loss during the fluctuations in business activity.

Lloyd's, that bastion of tradition has itself recognised the technological advances, stated ¹¹

The world is changing. Technology and data analytics are disrupting traditional business models. The industry needs to react to react to these rapidly evolving business and risk environments so we can continue to provide customers the support and protection they need to grow and prosper. This means accelerating the development of products and services to meet customers' needs and creating new business models to support their delivery.

It is to the credit of the traditional insurance companies that some of them, either by acquisition or internal development, have started such disruptive entrants. AXA and Chubb have launched flight delay products that take a nimbler and faster approach to providing quotations and, more importantly, the payments of claims. An example of the effortlessness of the product is that it allows for a delay of any cause whatsoever outside of the control of the insured – no small print, no terms and conditions, no exclusions and no warranties to trawl through. It truly emphasises the simplicity of the product, being hassle-free for the consumer. Because of the streamlined coverage, the running costs are much lower than that of traditional travel insurance policies.

Swiss Re is a dominant player in this market and have an offering¹² providing earthquake vouchers, small cash payments to cover incidental expenses depending on your location to an actual earthquake. Swiss Re has the capability to allow for a primary carrier to promote and host parametric placements, utilising their infrastructure.

Jumpstart¹³ is a benefit corporation with a legal obligation to help society increase financial resilience

against disasters. Jumpstart's innovative model is designed to allow more recovery money to get to affected people when they actually need it, mirroring the nimble and fast quake voucher scheme of Swiss Re.

Another area of technological change is that of Smart Contracts and the use of blockchain technology. Smart contracts, a computer protocol intended to digitally facilitate, verify, or enforce the negotiation or performance of a contract, are inherent in the agile and simple approach promoted by parametric policies. The quake vouchers and flight compensation services referenced earlier will make use of blockchain and its infrastructural advantages.

The challenge for insurers is how they can embrace this technology for larger and more complex coverages. It is highly unlikely that this style of settlement of insurance contracts will be suitable for those that require the review of a highly skilled and trained adjusters. This relates to questions such as whether there was a breach of conditions. Smart contracts cannot respond if one party does not perform as expected or required.

Does this challenge for traditional policies provide parametric providers another cost advantage? How can they exploit this?

HOW PREVALENT ARE WEATHER RISKS WITHIN THE PARAMETRIC SOLUTIONS MARKETPLACE?

It is hard not to overstate how dominant weather (and, for the purposes of this discussion, I include natural events such as earthquakes, floods and tsunamis within the definition of weather events) related triggers dominate this sector of the insurance industry.

A recent decision was made by AXA to rebrand from AXA Parametrics to AXA Climate.¹⁴ The motivations, behind such a move away from an abstract term to one defining the coverage application, are clear. It has the added advantage of tapping into the growing climate change movement, which has strong concerns over the potential impact of the current global activity on climate trends.

Similarly, from a pure marketing perspective, images of hurricane clouds, wildfires or floods make for a dramatic backdrop, drawing on the emotional and inquisitive elements of a potential customer's mind and drawing their attention to the text of the document or website.

⁸ Lemonade [website]. www.lemonade.com/de/en

⁹ Friendsurance [website]. www.friendsurance.com.au/

¹⁰ Cuvva [website]. www.cuvva.com/

¹¹ Lloyd's (2019) *Triggering Innovation - Parametric Insurance*.

¹² Swiss Re [website]. "Earthquake 'shake vouchers'". <https://www.swissre.com/reinsurance/property-and-casualty/solutions/parametric-solutions/parametric-earthquake-insurance-solutions.html>

¹³ Jumpstart [website]. www.jumpstartrecovery.com

¹⁴ Reinsurance News, "AXA unveils rebranding of parametric insurance unit to AXA Climate", 16 May

Nor is it wise to ignore the benefit to society as a whole, and countries in particular, that the arrangement of specific country protection programmes can have in helping cover the protection gap that exists in developing countries, where insurance is not readily purchased.

An example of such a country scheme is the one that was recently renewed for the Philippines.¹⁵ Arranged in conjunction with the World Bank, this policy provides up to US\$350 million of coverage for natural events such as earthquakes and windstorms for the country's exposed territory.

The recording of weather statistics and their ability to model them for specific locations has allowed insurers to respond to these enquiries. Furthermore, the linkage between weather events is relatively straightforward for potential insureds to be able to demonstrate to insurers.

WHAT OTHER TRIGGERS ARE THERE?

We have seen above that there are some niche applications for a trigger that is related to flight delays, which could be caused by weather events but, more importantly, do not have to be. It could be an employee strike, or technical problems with planes, or even drones interrupting the airspace of the airport.

Other examples include:

- **Till receipts.** A high street retailer was not able to accurately correlate a drop in sales with changes in weather. The retailer worked actively with their insurer to identify the number and profit of till receipts to determine the potential for a loss. The till receipts were independently verified by a big four accounting firm, providing the objectivity required.
- **Cyber.** A cyber loss could be identified and assessed with regard to the number of connected devices that an organisation has which are impacted by a cyber-attack. The number of affected terminals would have to be determined and reviewed.
- **Hotel revenue.** Aon has launched a product¹⁶ designed to provide a pay-out if a hotel operator's revenue per available room goes below a certain threshold. The causes for the drop in revenue could be weather-related among others.
- **Footfall.** The product by Aon is also used by retailers for drops in footfall. The product would

provide a reimbursement to the customer if there is a drop in the expected footfall following a bogus terrorism alert.

- **Terrorism.** There are also other examples¹⁷ of responding to the changing nature of terrorism. Following terrorist events such as the 2013 Boston Marathon or the recent terrorist events in London, businesses did not suffer damage to property from a bomb, but more so from a loss of people visiting through fear or closed roads.
- **Pandemic,** or rather the fear of pandemic. Munich Re, Marsh and Metabiota have created¹⁸ a risk modelling platform and preparedness index for epidemic risks which they state:

For the first time, travel and tourism businesses, which is the initial commercial target for this offering, will be able to access a public fear trigger-based business interruption policy, which is designed to provide coverage against a substantial financial loss as a result of an epidemic.

- **Gestational diabetes.** In Singapore, 20% of pregnant women are diagnosed with diabetes. LumenLab in Singapore, working alongside Swiss Re, has developed a product called Vitana, which triggers an automatic payment upon diagnosis of the disease, through access to the insured's medical records.
- **Reputation risk.** Steel City Re, in conjunction with Tokio Marine Kiln,¹⁹ has developed a product providing clients with sigma-styled tools for managing enterprise reputation risk, including monitoring the company's reputation using Steel City Re's proprietary reputation risk metric. The product provides indemnification by paying out when the insured's reputational value metric falls below a certain threshold.²⁰ This product is usefully built on the basis of D&O coverage, but in using a parametric trigger, it eliminates the need for the granular wording reviews that are often required for executive and corporate protection.
- **Life insurance.** It seems self-evident that this is a risk that should have a parametric application. As in the Singapore situation above, records could be accessed for the notification of a death, allowing for an automatic payment. It is estimated that in the US alone, there is an amount of \$7.4 billion from unclaimed life insurance policies.²¹ A blockchain-style solution would eliminate the need for a grieving family to have to find paperwork, to remember or to even know that the policy even existed before a payment would be made.

¹⁵ Artemis, "Philippines parametric insurance doubles, cat bond on the way: World Bank", 14 January 2019. <https://www.artemis.bm/news/philippines-parametric-insurance-doubles-cat-bond-on-the-way-world-bank/>

¹⁶ Global Finance, "New Applications For Parametric Insurance," 10 April 2019. <https://www.gfmag.com/magazine/april-2019/new-applications-parametric-insurance>

¹⁷ Risk Management, "The Evolution of Parametric Insurance", 1 April 2019. <http://www.rmmagazine.com/2019/04/01/the-evolution-of-parametric-insurance/>

¹⁸ Reinsurance News, "Metabiota unveils Pathogen Sentiment Index & agreement with Munich Re, Marsh", 20 April 2018. <https://www.reinsurancene.ws/metabiota-unveils-pathogen-sentiment-index-agreement-with-munich-re-marsh/>

¹⁹ Steel City Re [website], "Financial". <https://steelcityre.com/services/financial/>

²⁰ Insurance Institute of Canada, "Reputation Risk Insurance", May 2017. <https://www.insuranceinstitute.ca/en/cipsociety/information-services/advantage-monthly/0517-reputation-risk>

²¹ Srishti Sawla, "Parametric Insurance & Blockchain: A new dimension to the ever young Insurance Industry", 4 September 2018. <https://medium.com/@srishtisawla/parametric-insurance-blockchain-a-new-dimension-to-the-ever-young-insurance-industry-53a26c0d4c79>

SHOULD PARAMETRIC INSURANCE REPLACE OR COMPLEMENT TRADITIONAL POLICIES OF INSURANCE?

The rise of parametric insurance could only have happened because of inadequacies in the existing marketplace. The development of this niche sector was borne of a need that customers were prepared to pay premiums for.

Is it a panacea for all of the market failings of the traditional insurance marketplace though? Let us look in turn at some of the more common complaints levelled at the insurance industry, and whether parametric insurance can alleviate or eradicate these for consumers:

- **12-month policies.** As a risk manager, the annual insurance cycle boggles me – the amount of time taken to prepare underwriting submissions, to review with brokers and underwriters, and to negotiate policy wordings and premiums. Then there is the process for allocating premiums, taxes and issuing invoices, certificates and policy documentation. It is not an exaggeration to say that this takes many months, and it is repeated year after year. So much time is invested in this behemoth of an administrative exercise that it leaves the risk manager little time to actually manage the risks within the business.

Insurers are very reluctant to offer meaningful long-term agreements hiding behind punitive loss ratio escape clauses, which invariably are never triggered as insurers are reluctant to lose premium income. Brokers are market players who are also perversely incentivised to facilitate this annual cycle.

Parametric policies can simplify this process, aside from the length of time that is required to incept a programme in the first instance. The policies that have been underwritten and identified above can all be for a multi-year period, allowing the insured the comfort of long-term stability in coverage.

- **Claims handling.** Probably the largest area for complaints against insurance companies is in the area of handling and settling claims. A promise to pay that is not fulfilled through a misunderstanding of the terms, conditions, exclusions and warranties of a policy can lead to a significant distress for insureds who have already suffered a loss.

Similarly, the amount of documentation requested by insurers, and the length of time to finalise and pay the claim settlement, can hinder the recovery of a business that is short of cash.

Parametric coverages, as outlined previously, can simplify the disputes over coverage intentions and settle payments within hours. For some clients, it can be a decision to complement the capacity of

coverage with cash-boosting resources.

- **Uninsurable risks and deductible infill options.** It is understandable that the major reinsurers seek to protect themselves from the potential of large-scale catastrophic weather claims from the myriad of reinsureds. This manifests itself in restrictive terms and conditions within the reinsurance treaties it negotiates with these primary insurers, which in turn leaves clients with exposures to such natural events subject to significant self-insured retentions or prohibitive pricing for such risks.

For some corporate buyers, the price and availability of natural event coverage can disproportionately affect the entire property insurance buying process. The fluctuation of reinsurance capacity from year to year is another contributing factor to the inability of insurance organisations to provide sustainable, long-term agreements.

Parametric policy providers have been fairly successful in addressing this market failing. The quake parametric companies have been applying their swift and nimble approach to provide a resource to complement the coverages that the individual or corporate buyer may have in place – perhaps allowing for a more efficient allocation of premium capital.

- **Flexibility of coverage.** A constant source of frustration and dissent from insurance market observers is the lack of innovation or flexibility. Whilst the insurance industry is rightly proud of the sustainability of its business models over centuries, it has allowed its pride to restrict their development. Complaints remain about premium and coverage being allocated for aspects of coverage that are not required and ignored for areas that of interest to the buyer.

It is not for this paper to discuss the merits of whether an insured is sufficiently able to identify all the coverage options they want or require. The provision of parametric policies does allow those who know what they want and do not want from their policy to arrange coverage more flexibly.

- **Asymmetric information – adverse selection and moral hazard.** We discussed earlier this asymmetric information risk for the buyer over complex insurance contracts, but there remains also the lack of visibility, from the insurer's perspective, over the true risk potential of the insured, and whether their behaviours will change with an insurance policy in place. This risk of adverse selection and moral hazard is a fundamental one for insurers to include within their actuarial assessment and pricing tools.

Parametric coverages for independently assessed triggers help to alleviate the issue of moral hazard by choosing the determination of a claim pay-out

on the trigger, and not on an action which could be impacted by the policyholder. It is also noticeable from the advice from market players that efforts in underwriting these styles of programmes are more data-driven and detailed than those of traditional coverages. This emphasis on pre-coverage, pre-claim underwriting can only contribute to reduced adverse selection hazard for the providers of these coverages, once more reducing the asymmetrical gaps between the two participants.

CONCLUDING REMARKS

We have seen that the emergence and subsequent growth of parametric insurance has been as a result of a number of contributory factors, including new and existing players utilising disruptive behaviours gained from technological advances such as blockchain, innovative business models with rapid and agile approaches to strategic decision making. These players have sought to use the advantages of parametric-style policies to give consumers a quicker and more efficient claims process, which in turn allows for a more flexible and straight-forward attitude to policy terms and conditions. Additionally, with the comfort of reduced moral hazard and adverse selection risk, parametric providers have been able to work confidently with clients to find the trigger that generates the risk that is to be protected against. It has been demonstrably proven that these policies can have a national or even supranational role in protecting against significant natural events – none more so than in those parts of the world where a substantial insurance protection gap exists at a local level.

And yet these all seem to be weather-related – with the rebranding of AXA Climate, we saw the recognition of weather and climate being the prime, and ultimately successful, selling points for this type of coverage. It is inevitable that as long as growth opportunities remain for this application of parametric insurance, then the providers will pursue it wholeheartedly.

The recent attempts and approaches by brokers such as Aon and Marsh, along with the number of partners Swiss Re has engaged with, have shown in very specific examples that there is a pathway of development for parametric policies to follow where the advantages of the simplicity and speed can be harnessed for the benefit of the consumer.

The flight delay and retail examples both provide insureds with an instantly understandable coverage that can be applied whatever the cause. It will be interesting to watch their fortunes closely and to see whether there is an increase in public demand for such solutions as it becomes more widely known.

Perhaps the most interesting example is that of the gestational diabetes solution in Singapore. It is here that I

consider non-weather parametric as having the best chance of future success. Life insurance is a significant investment for individuals and families alike, and transferring the responsibilities of making a claim away from the grieving has pointed benefits for society as a whole. Challenges remain with regard to the balancing of the asymmetrical information risk along with the privacy of individual's health records, but it is not insurmountable.

The explosion of data, and the ever-increasing speed of modern life lived online and via an individual's smartphone, naturally leads to the conclusion that the application of parametric insurance will be more prevalent and will inevitably be so for a greater array of triggers than those related to weather and natural events.

It is of vital importance that traditional market players, such as Lloyd's, continue to invest in the research and development in this technological space. Irrespective of their strategic decisions, it is certain that other participants already have a hunger for the market share of premium that will become available in the future.

With the fixation on weather related and natural catastrophe triggers, the disruptors have the opportunity and the means to develop these non-weather policies, which may initially have a low margin. But in the medium to long-term, they will be able to utilise and exploit their technological and cost base advantages to dominate the future marketplace, providing both weather and non-weather trigger parametric policies.

Postscript

Since this paper was written 12 months ago, we have seen the closure of Fizzy by Axa, citing the lack of commercial appetite,²² and a global pandemic prompting an article with the headline "This Insurance would have helped but nobody bought it," referring to the parametric possibilities of covering a pandemic or even the fear of pandemic that I explored in 2019.²³

We have also seen a further hardening of the insurance marketplace, including property risks. As brokers and risk managers look for alternative structures, there has been an increase in enquiries for parametric solutions, even though actual placements have proved to be more elusive.

It will be interesting to see if the market conditions continue to harden, and whether this will see an increase in demand for parametric programmes for weather-related and non-weather risks too.

Stuart Turner
September 2020

²² Coin Rivet, "AXA drops Ethereum-based flight insurance platform," 10 November 2019. <https://coinrivet.com/axa-drops-ethereum-based-flight-insurance-platform/>

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Dealing with the Global Resilience Challenge Resulting from Climate Change

The Critical Role of the Risk Professional

Nataliya Todorova¹

PREFACE



On a sunny autumn day in 2017, a few weeks after yet another flood in Bulgaria, I visited the town of Mizia. It is located in the poorest region in northwest Bulgaria (and in the whole of the European Union (EU)), not far from my hometown.

I wanted to understand the consequences of the devastating floods that had occurred three years earlier in the summer of 2014.

To my pleasant surprise, there was significant evidence of regeneration in the central part of the small town and multiple signs designating the EU funding that had been allocated to the projects.

I headed to a nearby café where a few locals were having lunch, and asked them whether they had been affected by the floods in 2014 and if they would be willing to tell me more about what had happened since then.

Fairly reluctantly at first, a couple of them admitted that their houses had been severely flooded by more than a metre of water and all their white goods – refrigerators and washing machines – had been damaged beyond repair. They had restored their houses and bought new fridges and cookers, but the mould, which was reappearing on their walls, constantly reminded them of the horror they had been through.

While there were two fatalities directly linked to the floods, the locals recalled that there were many more deaths a few months later, primarily of elderly people who were emotionally devastated by the incident and saw no hope for the future.

They spoke keenly about the Bulgarian Red Cross and other volunteers who arrived from across the country and assisted with food and shelter in the early days. Some received donations of white goods. While they could not insure them immediately due to the lack of available insurance cover, they proudly confirmed that they had finally arranged property insurance three years later.

This is only one example of many similar stories from around the world, some with better endings than others.

¹ This paper was one of the top dissertations from the 2019 Airmic Leadership Programme, delivered in partnership with the Business School at City, University of London (formerly known as Cass Business School). The views conveyed in this paper are solely those of the author, and do not necessarily represent that of the organizations she has been affiliated with either currently or in the past.

1. INTRODUCTION

This paper examines the need for a holistic approach to risk management, risk reduction and risk financing of natural disasters, and the critical role of the risk professional in analysing these risks and putting together mitigation and financing strategies for sustainable long-term results.

In recent years, there have been numerous initiatives, international agreements and hundreds of pages of published research on climate change and its effects on populations and economies, as well as alternative risk financing. But the efforts feel somewhat isolated and the results sporadic at best.

2. INTERNATIONAL CHALLENGES

Two years after my conversation with the residents of Mizia, the risk of natural disasters has not improved, but has in fact deepened.

Climate change is a risk that scientists, environmentalists and even society at large have been aware of for a while. It is increasingly impossible to disregard the record-breaking temperatures, and numerous floods and wildfires occurring on a weekly and sometimes daily basis around the world. Due to constantly rising temperatures, the frequency and consequences of natural disasters will increase in the coming years.

The World Economic Forum's (WEF) annual reports on Global Risks of the past few years have paid particular attention to the subject, with extreme weather being of the greatest concern.

"Is the world sleepwalking into a crisis? Global risks are intensifying but the collective will to tackle them appears to be lacking. Instead, divisions are hardening,"² the 2019 WEF report states. It further explains that there is a growing tension between the globalisation of the world economy and growing nationalism. Co-operation is increasingly difficult in a divided world.

Additionally, a lack of empathy and an increase in the number of mental disorders, including depression and anxiety, were identified in the report. People suffering

from depression and anxiety are more vulnerable, but lack of empathy means that help might not be readily available.

Economic development and the search for financial independence drive people to financial clusters such that "two-thirds of the global population is expected to live in cities by 2050".³

This significant accumulation of human and financial capital in certain areas, coupled with the questionable quality of buildings in some cases, brings another very serious potential risk for societies, and local and central governments.

According to the World Bank, natural disasters force 26 million people into poverty and cost US\$520 billion in losses every year.⁴ In 2017, the losses from natural and man-made disasters recorded by Swiss Re amounted to US\$350 billion. In 2018, this figure was US\$155 billion.⁵ The good news is that the insured losses for 2018 were higher than the average in any of the previous 10 years, which may indicate that people and businesses have become more aware of the risks. Unfortunately, 49% of losses are still uninsured.

3. AN OVERVIEW OF BULGARIA

Besides it being my home country, I chose Bulgaria as a case study and the subject of further research due to its unique position of being a part of the EU with all the privileges and responsibilities that EU membership brings, while also being the poorest country in the EU. This brings Bulgaria's challenges closer to those of developing countries.

3.1. Economy

In terms of the size of its economy, Bulgaria is ranked 73rd out of 205 countries,⁶ with a GDP of US\$67.9 billion in 2019. GDP per capita in 2018 was US\$9,080, which classes it as a middle-income country. Compared with a GDP per capita of US\$12,189 for Romania, Bulgaria is the EU member state with the lowest GDP per capita. For comparison, the GDP per capita for the UK is US\$42,261, while Luxembourg's (the highest figure in the EU) is US\$113,954.⁷

² World Economic Forum (2019) The Global Risks Report 2019, 14th Edition, Insight Report.

³ Ibid.

⁴ The World Bank, "Natural Disasters Force 26 Million People into Poverty and Cost \$520bn in Losses Every Year, New World Bank Analysis Finds," 14 November 2016. <https://www.worldbank.org/en/news/press-release/2016/11/14/natural-disasters-force-26-million-people-into-poverty-and-cost-520bn-in-losses-every-year-new-world-bank-analysis-finds>

⁵ Insurance Journal, "Global Insured Losses From Disasters at \$79 Billion in 2018: Swiss Re Sigma Estimate," 18 December 2018. <https://www.insurancejournal.com/news/national/2018/12/18/512384.htm>

⁶ The World Bank, "Gross domestic product 2019 [by country]." <https://databank.worldbank.org/data/download/GDP.pdf>

⁷ International Monetary Fund (website), "Report for Selected Countries and Subjects." <https://www.imf.org/external/pubs/ft/weo/2018/02/weodata/weorept.aspx?pr.x=68&pr.y=7&sy=2017&ey=2018&ssd=1&sort=country&ds=.&br=1&c=914%2C946%2C137%2C962%2C911%2C122%2C912%2C181%2C913%2C124%2C921%2C943%2C963%2C918%2C138%2C142%2C964%2C182%2C960%2C423%2C968%2C935%2C922%2C128%2C135%2C942%2C939%2C936%2C961%2C172%2C967%2C132%2C184%2C915%2C134%2C174%2C144%2C146%2C944%2C176%2C178%2C186%2C136%2C926%2C112%2C941&s=NGDPDPC%2CPPPPC&grp=0&a=>

The National Statistics Institute of Bulgaria announced that the threshold for poverty for the whole country was 351.11 lev in 2018, or about US\$200 per month per individual. At or below this threshold were 1.55 million people, or 22% of the country's population.⁸

"Over 40% of the population is at risk of poverty or social exclusion, particularly Roma families and other ethnic minorities."⁹

The poorest people are often the ones hardest hit by natural disasters, because they lack the resources to build resilient houses, buy insurance or recover from the devastation by rebuilding their property or getting through to the new growing season.

3.2. Natural disasters in Bulgaria, their impact and EU funding

Bulgaria is prone to most kinds of natural disasters. While floods and extreme weather temperatures are the most common ones, a significant earthquake could have the most devastating effect financially and in terms of loss of life.

According to data recorded by the Emergency Events Database,¹⁰ 47 disasters in Bulgaria were recorded between 1928 and 2017. These comprised 19 floods, two droughts, nine extreme temperatures, one landslide, six storms, four wildfires and six earthquakes (see Table in Annex 1 for details).

The most significant events – by the number of people affected – were three floods that took place between 2005 and 2014. They affected more than 57,000 people and caused 11 deaths. While these events were riverine floods, all three of them were accompanied by secondary disasters such as broken dams or land/mud slides.

Bulgaria has drawn on the EU Solidarity Fund on a few occasions in recent years. Only €10.5 million of the €300 million requested from the European Union Solidarity Fund (EUSF) was approved for withdrawal in relation to the flood damage suffered in 2014. As of November 2014, provision of the funding was imminent, but it had still not been received.

Considering the events from the perspective of the death toll, earthquakes and extreme temperatures (cold wave) have taken the lead, with a total of 157 deaths between 1928 and 2017. The most recent

event which took 30 lives was extreme cold weather (when temperatures plummeted to -30 Celsius in 2012).

Earthquakes are a serious concern because an estimated 98% of Bulgarian territory is prone to earthquakes that measure 7.0 or more on the Richter scale.¹² A single earthquake in 1928 accounted for 107 deaths alone.

With more than 75% of apartments in the country being over 30 years old and made of prefabricated panel blocks that have been poorly maintained, this is a significant concern.¹³

Additionally, 15% of the population live in houses shared by more than one family, sometimes with three generations or six to eight family members in one house.

3.3. Property damage and insured losses

Only 12 of the 47 noted natural disaster events have a record of any property damage. This suggests the recorded total losses of US\$1.42 billion for these events – a figure which I had seen in one database – is a gross underrepresentation of reality. The first record of property damage dates from 2000. Even since then, almost two-thirds of the noted events have no record of any property damage.

Of the largest 10 events with recorded property damage, all but three were floods, while two were wildfires and one was a storm.

Disturbingly, the only record of any insured losses was against a storm that took place in Sofia in 2014 and caused US\$545 million in damage. The insured losses were US\$73,000, or 0.00013% of the total loss.

3.4. The state of the insurance market

As of the beginning of 2019, the insurance market was split by class as shown in the chart below, with compulsory motor liability insurance dominating almost 70% of all general insurance. Fire and other perils under property insurance represented a mere 15%.

In 2017, insurance penetration for Bulgaria was 2.23%, which is significantly lower than the average for Europe of 7.2%.¹⁴

⁸ Republic of Bulgaria, National Statistical Institute (website).

⁹ The World Bank, "Housing Sector Assessment: Final Report – Prepared for the [Bulgaria's] Ministry of Regional Development and Public Works," June 2017. <http://documents.worldbank.org/curated/en/776551508491315626/pdf/116518-REVISED-PUBLIC-BulgariaHousingAssessmentFinalReportEN.pdf>

¹⁰ Universite catholique de Louvain (UCL) - Centre for Research on the Epidemiology of Disasters (CRED) – D. Guha-Sapir, Brussels, Belgium. www.emdat.be. The author wishes to thank a leading insurance company for pointing her to this database.

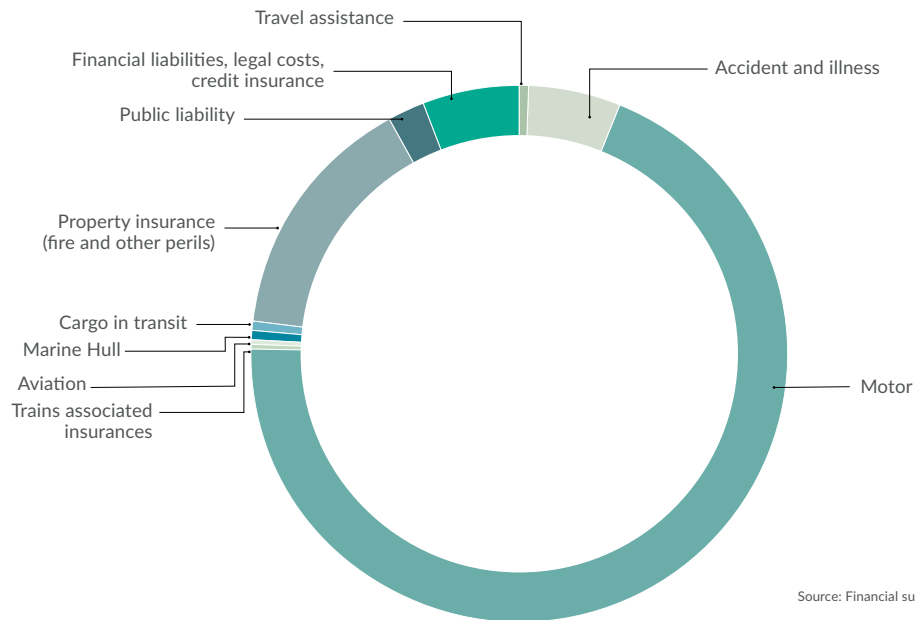
¹¹ Novinite, "Bulgaria to Get 6% of Requested EUR 300 M under EU Solidarity Fund," 27 November 2014. <https://www.novinite.com/articles/165056/Bulgaria+to+Get+6+of+Requested+EUR+300+M+under+EU+Solidarity+Fund>

¹² World Bank Group, "Insurance against climate change: Financial disaster risk management and insurance options for climate change adaptation in Bulgaria." <http://documents.worldbank.org/curated/en/517531468224991168/pdf/891010WPOP14590tOClimat0Change0ENG.pdf>

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¹⁴ Insmarket, "Insurance in Bulgaria," 1 October 2018 [article in Bulgarian]. http://insmarket.bg/%D0%90%D0%BD%D0%B0%D0%B8%D0%B7%D0%B8%D0%97%D0%B0%D1%81%D1%82%D1%80%D0%B0%D1%85%D0%BE%D0%B2%D0%B0%D0%BD%D0%B5%D1%82%D0%BE-%D0%B2-%D0%91%D1%8A%D0%BB%D0%B3%D0%B0%D1%80%D0%B8%D1%8F_i.a_at.2_i.462206.html

Structure of insurance premiums by insurance class



Source: Financial supervision commission

4. LEARNING FROM CORPORATE INSTITUTIONS

Due to the complexity of multi-stakeholder involvement in natural disaster risks, there needs to be a holistic approach, good co-ordination and co-operation, as well as persistence and continuity, in order to successfully tackle the multidimensional problems associated with natural disasters and building resilience.

Governments and international organisations need to consider being more proactive, but this is very difficult to achieve, especially with the added uncertainty posed by elections every four years.

In this regard, governments can learn from corporate organisations. The corporate sector has long established the need for professional risk and insurance managers as an aide to their business strategy. The Chief Risk Officer (CRO) is an integral part of the C-suite of every major corporation, whose role is to scan the horizon for emerging risks, and research and assess these, as well as manage current risks. Through facilitation and co-ordination, the CRO brings the right experts to the discussion in order to agree on a mitigation strategy and a business continuity plan. Even if individual risk owners leave the organisation and are replaced with new hires, the

role of the Chief Risk Officer or Risk Manager remains the same.

One might argue that businesses are more vulnerable to risks compared to a country, and this is the reason for their more active management of risks. However, consider that Walmart, the largest corporate institution in the world, had a revenue of US\$500.3 billion in 2018¹⁵ – more than seven times the size of Bulgaria’s GDP for the same period. Moreover, there were only 25 countries in 2018 with a GDP greater than Walmart’s annual revenue.

The person holding the role of Vice President, Global Risk Management at Walmart leads a team of more than 550 risk and insurance management professionals, who have collective responsibility for Walmart’s Global Risk Management Division¹⁶ and for the specifically identified operational risks of natural disasters and climate change.

Why are governments not following suit? Is it an oversight on their part, or a failure of our profession to identify the similarities in risks that states and corporations face, and thereby produce the right calibre of risk professionals who can be an integral part of a government’s strategy towards mitigating long-term challenges?

¹⁵Walmart, "Annual report 2018: Accelerating innovation." https://s2.q4cdn.com/056532643/files/doc_financials/2018/annual/WMT-2018_Annual-Report.pdf

¹⁶ Insurance Market, "Walmart's Stills Named to RIMS 2019 Risk Management Honor Roll," 7 March 2019. <https://www.insurancejournal.com/news/southcentral/2019/03/07/519965.htm>

5 THE 'NATIONAL CHIEF RISK OFFICER'

One way to resolve many current challenges would be to have the equivalent of a Chief Risk Officer at the state level (whom I will call a 'National Chief Risk Officer'), placed in the middle of the risk spider-web, allowing a holistic 360-degree view, facilitating conversations, and ensuring continuity and adaptation to keep policy actions relevant.

To allow for the continuity of goals delivery, the National Chief Risk Officer should be in a senior administrative position that is not linked to a political party, but still have enough authority and access to Ministers to move policy along. In an ideal world, political interests and personal ego should be left behind in the face of the significant, real and potentially devastating risk of climate change and associated natural disasters.

At present, while governments and societies are to varying degrees trying to slowly combat and even reverse climate change, the reality is that the focus should really be on preparedness and mitigation for our generation and possibly those to follow.

6. PREPAREDNESS AND MITIGATION

In order to propose mitigation measures, we need to first consider the processes that take place whenever a natural disaster strikes and the associated risks for the various stakeholders. The following chain of events usually takes place:

Both the public and the government (local and/or central) suffer a loss. The emergency services assist the public while co-ordinating with local government and NGOs. The NGOs start fundraising campaigns targeting institutional and corporate donors, as well as the general public, in order to continue the response beyond the initial alleviation of suffering.

The local government requests funding from the central government, which then requests funding from the EU. Supranational institutions get involved not only with funding, but also in regulation, advice and research.

The central government funds local government and the population. Money is often spent on compensation for people's personal property.

While many studies provide clear evidence and recommendations for co-operation with the insurance and reinsurance industry, it becomes clear from the above scenario that both the insurance industry and

universities or scientists are almost completely excluded. It is also clear that there is a lack of co-ordination and coherence, which makes recovery much slower and more difficult.

7. DISASTER RISK MANAGEMENT IN THE EU

The EU quickly realised that with the European continent warming faster than most other parts of the world, urgent action was needed. The first EU Strategy on Adaptation to Climate Change was issued in April 2013. The climate change adaptation budget for 2014-2020 was increased threefold.¹⁷

Unfortunately, an evaluation of the strategy issued in December 2017 assessed national adaptation strategies to be "in general ineffective". Among the identified drivers and barriers were "institutional barriers within the [European] Commission, lack of political will in some Member States, insufficient interactions between scientists and policymakers and practitioners, difficulties with accessing data, insufficient cooperation between policymakers across Member States, and insufficient funding and research".

One of the recommended actions was the "continuing need for the European Commission (EC) to promote action by Member States to develop a more climate-resilient Europe".¹⁸

In the amended EU strategy issued at the end of 2017, it was specified that EU member states should reinforce their ability to respond to disasters, as well as focus on prevention and coherence.

Furthermore, a single co-financing rate of 75% for pre-committed response capacities (including adaptation, repair, operational costs) was proposed. EU member states were directed to prepare prevention and preparedness plans for submission by early 2019.

Most importantly, national and regional risk assessments needed to be in place in order for EU member states to have access to the European Structural and Investment Funds related to climate change adaptation and management.

It is evident that the EC was quickly learning from earlier shortfalls in its strategy. It was not only bringing risk management to the fore when it came to access to funding, but it also clarified that national plans needed to be supported by scientific and extensive evidence. This meant bringing the other two identified stakeholders – universities and the insurance industry – closer to policymaking, because of their expertise and data collected in the field.¹⁹

¹⁷ European Commission, "The EU strategy on adaptation to climate change," https://ec.europa.eu/clima/sites/clima/files/docs/eu_strategy_en.pdf

¹⁸ European Commission, "Study to support the evaluation of the EU Adaptation Strategy" (Summary, December 2017). https://ec.europa.eu/clima/sites/clima/files/consultations/docs/0035/summary_interim_findings_en.pdf

¹⁹ European Commission, "Communication from the Commission to the European Parliament, the Council and the Committee of the Regions (Strengthening EU Disaster Management: rescEU Solidarity with Responsibility)." COM(2017) 773 final. <https://ec.europa.eu/transparency/regdoc/rep/1/2017/EN/COM-2017-773-F1-EN-MAIN-PART-1.PDF>

Regrettably, it took the EC four years to become aware of the risks and the mitigation measures needed, which could arguably have been identified through a project risk assessment well before the initial EU strategy was issued.

It is evident that the EU member states will need professional risk management support if they are to meet their obligations and gain access to funding in the future.

8. BULGARIA AS A MEMBER STATE OF THE EUROPEAN UNION

With the assistance of the World Bank, Bulgaria has now developed a National Climate Change Adaptation Strategy and Action Plan.

The completeness and efficacy of this plan are of huge importance to Bulgaria. According to Inform Global Risk Index, the risk of a humanitarian or natural disaster crisis in Bulgaria was rated in third-highest place in the EU in 2018, while the lack of capacity to deal with such crisis was rated second-highest in the EU, after Romania.²⁰

The document clarifies that the Ministry of Environment and Water (MoEW) will “lead and coordinate action at the national level to reduce the vulnerability of natural, social and economic systems in Bulgaria, and to maintain and improve their capacity to adapt to the inevitable impacts of global climate change”,²¹ which is a very positive step.

The action plan recognises that a large number of ministries and other institutions, and municipalities currently have responsibilities in relation to climate change adaptation and its associated complexities. Consequently, it proposed that the ministry be supported by the National Expert Council on Climate Change and the Coordination Council on Climate Change, covering the period until 2030.

During this time, there will be two to three national elections, and potentially two to three different governments. The EU has set deadlines for various actions, but it has planned for five-yearly assessments to be made.

The election cycle does not correspond to the EU's timelines, of course. It is problematic if one government has developed a plan and another is expected to deliver it. Similarly, if no risk assessment has been carried out, the country could easily waste five or more years taking ineffective or no action. In five years, much new research and evidence will become available. Without a professional risk manager's support in assessing these, any action plan could quickly become irrelevant and useless.

9. IDENTIFIED RISKS AND RECOMMENDED MITIGATIONS

9.1. Supranational organisations and associated international initiatives

The United Nations, the World Bank and the EU often provide guidance, regulation and financial assistance.

The Sendai Framework specifically considers disaster risk reduction (2015-2030), shifting the focus from disaster management to disaster risk management. It has been accepted by all UN member states and is being developed with major assistance from the EU. In the Action Plan Implementation Priorities of the framework, the following key areas have been laid down:

1. Building risk knowledge in all EU policies
2. An all-of-society approach in disaster risk management
3. Promoting EU risk-informed investments
4. Supporting the development of a holistic risk management approach.²²

It is evident that UN member states cannot deliver on these requirements without the professional risk manager's involvement, and many of the recommendations below support the key areas of the Sendai Framework.

They also need to act fast and become more resilient individually, as funding from the supranational organisations is limited, late and subsequently inefficient in many cases. It would be significantly more beneficial in financial and preservation of life terms if assistance is provided for preparedness and mitigation instead of recovery. For every \$1 spent on mitigation or preparedness, \$6 is saved in recovery.²³ Where the financial assistance for recovery is provided as a loan, the arrangement can be expensive too.

9.1.1. Risks to supranational organisations

Due to the increased number and severity of natural disasters, there is an increased demand on finite financial resources. Additionally, there is lack of evidence of long-term efficiency.

9.1.2. Identified mitigations:

- Sharing of **best practice** and lessons learnt
- **Sharing of information** on such initiatives freely, in simple language and with wide audience so that good examples are better known and understood.

²⁰ European Commission (website), “DRMKC – INFORM.” <http://www.inform-index.org/Portals/0/InfoRM/2018/INFORM%20Annual%20Report%202018%20Web%20Spreads%20v2.pdf?ver=2017-12-20-141446-540>

²¹ Ibid.

²² European Commission, “Commission Staff Working Document: Action Plan on the Sendai Framework for Disaster Risk Reduction 2015-2030: A Disaster risk-informed approach for all EU policies.” SWD (2016) 205 final/2.

²³ Pew, “Every \$1 Invested in Disaster Mitigation Saves \$6.” 11 January 2018. [https://www.pewtrusts.org/en/research-and-analysis/articles/2018/01/11/every-\\$1-invested-in-disaster-mitigation-saves-\\$6](https://www.pewtrusts.org/en/research-and-analysis/articles/2018/01/11/every-$1-invested-in-disaster-mitigation-saves-$6)

9.2. Central government

9.2.1. Risks to central budgets

Natural disasters inevitably have an adverse effect on central government budgets. The government needs to redirect funds or use reserves, borrow money and apply for international funding in order to fund local government recovery works, rebuild infrastructure and make compensations for society, directly or through NGOs. If recovery is not handled efficiently, this could influence future election results.

9.2.2. Recommended mitigation measures:

- Similar to the way companies insure their assets, governments should have **insurance protection** as part of their fiscal policy. Insurance provides budgetary predictability and can alleviate significant fiscal pressures at times of unexpected losses. A professional risk and insurance manager can provide a risk transfer strategy based on the state's needs and requirements, taking into account different self-insurance and risk transfer strategies, as well as a combination of various instruments.
- For quick and accessible funding, parametric products could also be explored. These have proven efficient for the 19 countries which participate in the Caribbean Catastrophe Risk Insurance Facility (CCRIF). From 2007 to 2018, payouts totalling US\$138.8 million were made, spurring a bold ambition to make the Caribbean region the first climate-resilient zone in the world.²⁴
- Considering the three main floods that wreaked the most damage in Bulgaria recently and the aggravated effect of the broken dam walls, it is imperative that compulsory insurance for the liability of owners and lessees of dams and reservoirs be introduced. The appropriate levels of cover should be based on a risk assessment of the damage that could be incurred on private or state assets.

These could be calculated with the assistance of the insurance industry, based on the region and the type of disasters it is prone to, as well as the local concentration of risk.

This would allow the state to focus on rebuilding the critical infrastructure, ensuring minimum disruption to the region, instead of just providing financial assistance to citizens.

It should also be ensured that the insurance market offers products under which compensation will not be unduly delayed.

A risk professional experienced in risk transfer should be involved in the policymaking process and the ensuing assessments.

- Ensuring that there is **suitable private insurance** coverage for people to protect their property, livestock, life and health, including the availability of microinsurance which would be accessible to the 22% of the population living below the poverty line and the 40% who are at risk of poverty.

Options for providing this cover as part of a government facility or subsidised pool should be explored under the guidance of an experienced risk financing professional.

- At the current rate of losses, insurance will only be available for 'good risks' in due course, and this is where increased and targeted action is required from the government in relation to **improving risk protection** for both public and private assets.
- Due to the old stock of property with poor maintenance records, a complete review of the housing situation in Bulgaria is required, with **new building policies and regulations** issued. The project and any of the proposed policies should be risk assessed.
- Due to the high risk of earthquakes, the government could consider active policies in **developing regions other than Sofia and Varna**. In the 10 years to 2011, these were the only regions that did not suffer depopulation – half of all the people who migrated within Bulgaria moved to either of these two regions²⁵.

There is an ample stock of dwellings in the rural regions, which people have left in search of better opportunities. Creating jobs elsewhere, and investing in schools and hospitals could help more people remain in smaller towns and villages.

- With ownership comes responsibilities. As such, people should be required to maintain their properties in a good state of repair. To assist with repairs following a natural disaster, home insurance purchases should be heavily incentivised, if not made compulsory.
- People do not always understand the risks they face. Awareness should be raised through a targeted information campaign, developed and delivered with the insurance market, scientists and meteorologists. Information on risks in each region could be provided as part of the weather forecast announcement for greater audience outreach.
- Early warning systems and up-to-date, rehearsed evacuation plans for the highest risk regions.

The National Chief Risk Officer should be the one co-ordinating and facilitating these activities, to ensure that all risks are being actively managed.

²⁴ CCRIF SPC (website), "Company overview." <https://www.ccrif.org/content/about-us>

²⁵ The World Bank, "Housing Sector Assessment: Final Report – Prepared for the [Bulgaria's] Ministry of Regional Development and Public Works," June 2017.

9.3. Local government

9.3.1. Risks to local governments

The risks to local government mainly pertain to damage to critical local infrastructure, the possibility of a local economic slowdown and temporary unemployment.

9.3.2. Recommended mitigations:

- Detailed risk maps and corresponding disaster recovery plans should be prepared at the regional level. Budgets should be set appropriately, including for risk transfer (for better predictability), and more funds should be allocated to mitigation and preparedness measures at the start of the year.

If risk recovery plans are up to date, and budgets and/or insurance products are arranged so that a quick draw on funds can be made, the effects of any economic slowdown would be reduced to a minimum.

- Assistance should also be provided to local businesses in terms of risk awareness and the sharing of risk transfer information, in order to minimise local business disruption to a minimum.
- Parametric insurance could also be considered for the private sector, for the tourism industry or farming sector, for instance.

Such actions could easily be undertaken with the assistance of a risk professional who understands the local risks and needs, and who reports to the National Chief Risk Officer.

9.4. Population

9.4.1. Risks identified:

The risks that have been identified for the population are the loss of life, damage to property, the loss of jobs, deteriorating infrastructure and the difficulty of obtaining insurance cover in the future.

9.4.2. Recommended mitigations:

- People often underestimate the impact a natural disaster can have on their communities and their lives. After a disaster, they often rely on their friends' help and on government relief.

Most of the risks above would be significantly improved by the recommendations made for central and local governments. However, individuals play a role too. They need to gain an understanding of the risks they face and the simple mitigation practices that can be adopted.

It is indeed the government's responsibility to clean the riverbanks, but it is up to people not to

cut trees, to keep communal areas clean and to buy private insurance when they have the means.

9.5. Insurance market

Insurance is recognised as a significant potential mitigant in disaster risk management at both the public and private levels, contributing to sustainable public finances and promoting risk awareness and mitigation.²⁶

9.5.1. Risks identified

The low penetration of insurance, the lower capacity, the lack of funds and the lack of interest in new product development are risks – although these are also an opportunity for developing the market.

9.5.2. Recommended actions (as an opportunity for the insurance industry and a mitigation tool for the state):

- Building public-private partnerships, offering insurers financial capacity, expertise and risk assessment tools and models in return for higher penetration. Uninsured losses could deepen poverty, consequently undermining economic growth. If planned and developed well, public-private partnerships could be a win-win for both the industry and the state. Additionally, insurers and reinsurers have a treasure trove of data which could prove very useful in verifying high-risk areas, and preparing evacuation and recovery plans, minimising the adverse impacts both for the government but also for individuals.
- Increase risk prevention through market-based incentives. Simple, inexpensive improvements can not only reduce the vulnerability of individuals and their homes, but can also influence where people live, contributing towards resolving the challenges of risk accumulation by adopting an insurance rating system based on risk and impact zones. Possible mitigation factors should be shared and rewards provided for having them in place. This will incentivise people to spend money on preventive action rather than on premiums.
- Assist with state-mandated catastrophe insurance pools.
- Develop accessible, easy-to-understand and fair products. Develop new and cheaper distribution channels and pass the savings on to the customer to avoid exclusion. Create a simplified claiming procedure to ensure speedy claim payouts.
- Many people need insurance policies that will just pay for a broken window. It does not cost much, but could present a serious problem if not fixed before the winter.

²⁶ European Commission, "A Green Paper on the insurance of natural and man-made disasters." COM (2013). <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0213:FIN:EN:PDF>

In 2012, the majority of people who lost their lives in the winter were homeless.

There are multiple examples of how microinsurance can help people through different products being developed. Life and health insurance appear to be the most popular ones, but agricultural and property insurance are also available.

The insurance industry may find it useful to co-operate with NGOs, as they are experts on the needs faced by people living in poverty or who are at risk.

- Based on the identified needs of the government, develop and offer suitable parametric insurance products. These could be related to public or private assets, food security or property damage, among other things.
- Provide training and awareness building for the government and policymakers as well as for the general public, and build insurance into the curriculum of high school and university business courses as well as for emergency services training.

Insurance seminars should be arranged across the country in co-operation with NGOs, in which the public have higher trust.

All these activities should be in collaboration with the government, and be subjected to efficient co-operation and co-ordination based on a common understanding of the problems and objectives. The expertise of a risk professional with good knowledge of risk transfer and the insurance industry is critical.

9.6. Non-Governmental Organisations (NGOs)

9.6.1. Risks identified

NGOs play a major role in the disaster recovery stage and now recognise that the current funding and operation model is inefficient due to fundraising taking place post-event, which delays vital remedial works and slows down recovery and raises the costs. A number of NGOs could rush to assist in the early days after disaster, which could lead to duplication of efforts and waste of resources if not well co-ordinated.

9.6.2. Recommended mitigations

NGOs now recognise the need for immediate access to funding and good co-ordination of efforts to increase efficiency.

- Following the example of the Start Network (a network of more than 40 aid agencies across five continents), NGOs should explore ways of alternative humanitarian funding. Due to

insurance providing predictability, which is what is currently lacking in humanitarian funding, risk transfer to insurance providers is an option.

The Start Network is piloting “new funding instruments that enable humanitarians to mobilise collaboratively, predictably, to manage risks rather than react to crises. These mechanisms are based on:

1. The use of science and data to model and quantify risks in advance in the areas in which we operate;
2. Working together to pre-plan and pre-cost different crisis response activities needed to support communities;
3. Pre-positioning funds according to pre-agreed protocols for release, so that when the conditions are met, funding is rapidly released.”²⁷

Once again, this highlights the importance of multi-stakeholder involvement in any solution.

- In order to ensure the efficiency of responses, there needs to be pre-developed response plans (developed with local government), which take into account the immediate needs of people, the actions required and how these would be co-ordinated with the emergency services.

9.7. Emergency services

9.7.1. Risks identified

The risks are the lack of capacity at the local level, non-functioning early warning systems, or the lack of them, thereby delaying response times to emergencies, and the lack of detailed data that would otherwise facilitate the earmarking of resources.

9.7.2. Recommended mitigation measures

- Training of local citizens (even at the basic level) could benefit from much-needed assistance, where capacity is lacking.
- The co-ordination of training for all emergency service brigades across the country, so that the same operating procedures are applied. If emergency services from other regions join the response effort in another region, the process can then be seamless.
- Operational, regularly tested early warning systems should be made available and linked to emergency services, to allow for early preparation, planning and response.
- Make data from scientists and the insurance industry available, to allow for strategic preparation of resources for timely and efficient responses.

²⁷ Start Network (website), “Anticipation and risk financing.” <https://startnetwork.org/start-labs/risk-financing>

The involvement of a risk professional experienced in business continuity planning would be beneficial in ensuring the co-ordination of the above recommendations.

9.8. Universities and scientists

9.8.1. Risks identified

While there is detailed and helpful research and data, the lack of co-operation with universities and scientists means that their body of knowledge is not being fully utilised.

9.8.2. Recommended mitigation measures

- Reinforce collaboration with policymakers, ensuring that the latest research is factored into future initiatives.
- Increase the publicity of research output through engagement with industry, presenting at conferences, promotion by PR agencies and public information campaigns.
- Current students are the leaders and policymakers of the future. Reinforcing the need for research and development by engaging students in the process and teaching them about the risks and possible mitigations, as well as how to identify and assess emerging risks, will ensure that future initiatives will be much more efficiently planned.

10. CONCLUSION

Climate change and natural disasters are complex and potentially unique risks, which require a multi-faceted solution. Changes to any of the risks identified in this paper for the stakeholders will influence the efficiency of the mitigation measures envisaged for a number of the others. Regardless of the substantial efforts by many parties, there are still millions of people around the world suffering from the consequences of natural disasters, demonstrating the need for urgent and more efficient actions.

Risk professionals come from various educational and career paths, bringing with them different expertise, but we are all facilitators with strong common sense. Risk professionals have been the missing link in all these efforts for a long time. While some organisations are rectifying this missing link, states need to follow suit.

Risk professionals have a critical role to play in the proactive mitigation and management of all risks, and natural disasters are no exception. Here is an obvious solution which institutions, states, society have overlooked for some time. Now is the time for change.