South African Actuary

ACTUARIAL SOCIETY OF SOUTH AFRICA

Actuarial Society of South Africa's E-magazine

Volume 8 Number 3 | NOVEMBER 2024 www.actuarialsociety.org.za



New Editor Profile – Michelle Abrahams & Katlego Thaba • Let's talk about annuitisation • **The APD Negotiation Challenge** • HAF you met Pete? • **Human Wildlife Conflict (HWC)** • The Intersection of Actuarial Science and Fintech

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Design & Layout: Vegiah Design

South African Actuary • November 2024









Presidential Perspective

Costa Economou

Friends,

As we look ahead, it is ever so clear that the role of actuaries in navigating amidst uncertainty has never been more critical. This third edition of *The SA Actuary* coincides with a somewhat stunning outcome in the recent US Presidential election, where former President Donald Trump emerged victorious over Deputy President Kamala Harris. He was not just victorious. This was a landscape "Trumping"!!!! This election, predicted by so many "super" models to have a different outcome, or at the very least, a considerably closer outcome, is a powerful reminder of the limits of even our best predictive tools. In our field, which so deeply values the rigour of forecasting and modelling, this result is both a lesson and an opportunity.

The unexpected election result underscores the need for caution and humility in predictive work. The actuarial profession has long been seen as the compass of risk and uncertainty. But, as this event illustrates, predictive models are still susceptible to error, especially when human behaviour, sentiment, and unforeseen variables come into play. Social media engines and platforms, like Tic Toc, Instagram and Facebook, no doubt are major drivers of influence and disturbance, and can change results from what might be expected, to what is then, the very unexpected. Trump's win against Hillary Clinton in 2016 was similarly unexpected, as was the British public's decision to agree to Brexit! As actuaries, our duty is not only to create predictive models but to understand their boundaries and communicate uncertainty with clarity and integrity.

In this issue, you'll find articles that delve into the power and the limitations of our tools and strategies. From systemic risk in banking to the intricacies of defined benefit landscapes and the future of embedded value reporting, each piece reflects the adaptability and analytical rigor that actuaries bring to complex challenges. Notably, there are also topics covered at the upcoming ASSA Convention and the evolving annuitization landscape highlight our profession's role in influencing change in a fast-paced world.

The recent election reminds us that models are indispensable yet imperfect tools, requiring constant refinement and, often, a reality check. As we continue to innovate and deepen our understanding of predictive methodologies, let's remember the importance of balancing data-driven insights with an appreciation for the unpredictable nature of the real world. I am excited to see our profession take on these challenges, leading not only with technical expertise but also with wisdom and resilience.

Thank you for joining us on this journey of exploration, learning, and growth. I hope this edition inspires you to think differently and to approach every predictive challenge with fresh eyes and renewed purpose.

Wishing you all a wonderful end to yet another year! Here's to 2025 bringing you all continued good health, curiosity and happiness in all you do!

Costa



Editorial

Michael Tichareva



I consider this third edition of the 2024 *SA Actuary* to be special – it coincides with the US Presidential election between Deputy President Kamala Harris and former President Donald Trump held on 5 November, where provisional results on 6 November declared Donald Trump as President Elect. What's interesting is how most predictions by predictive analysts using various predictive models all got it wrong. For most, it was a surprise victory. Perhaps the actuarial profession can learn something from this historic election on the use of predictive models. It is not always as it seems – reality may indeed turn out to be completely different from results of your "super" models!

Enough about US presidential elections and predictive modelling. In this edition, we cover a range of topics that include IFRS 17 versus Embedded Value reporting, the newly introduced two pot pensions system as it relates to defined benefit pension funds, systemic risk in banking, a proposed human wildlife conflict insurance product, a proposed unified study policy for actuarial exams, leveraging technology in actuarial work, and some learnings from captains of industry. Thanks to our contributors who continue to support the *SA Actuary* through thought provoking articles that inspire our readers.

As usual, all articles in this edition are fascinating due to their high quality and thought-provoking content, but I was particularly fascinated by the article on a proposed standardised actuarial study policy that employers of actuaries should consider in supporting accelerated development of actuarial skills. The authors, **Shaun Burger**, **Mampou Makgalemane**, and **Nkululeko Mathela**, analysed past exam results and then simulated based on simplified assumptions on a new cohort of 50 actuarial students what the success in developing fellows would look like over a 10-year period. They concluded that it is time for employers of actuaries to reassess their study policies, especially considering the additional tuition support offerings now available from ASSA. They argue that a unified and comprehensive study support that is standardised across the industry would provide actuarial candidates with the best chance of success. Given the actuarial profession's transformation journey, their proposal certainly provides food for thought.

There are usually various assumptions driving the solution, **and actuaries are still needed to explain these in putting things into context, alongside explaining the results from AI models.**

As we talk about innovation and leveraging technology in actuarial work - the conversation with **Ian Norden** on the Intersection of Actuarial Science and Fintech illustrates how actuaries can venture into new fields and make a success using technology. Ian highlights that actuaries could, and I emphasise by saying should, seize the Artificial Intelligence (AI) space early on, and emphasise to the market our expertise in interpreting risk and uncertainty since actuaries' skills are not simply number crunching, but more problem solving in a broad range of areas. So even if AI should and has become one of the actuarial toolkits, when it comes to understanding and explaining answers that come out quickly from an AI model, Ian argues it does not mean that the problem was a simple one. There are usually various assumptions driving the solution, and actuaries are still needed to explain these in putting things into context, alongside explaining the results from AI models. After all, its garbage in garbage out – so AI cannot operate on its own.

As usual, we also have some softer issues where we look at profiles of people to understand who they are and what makes them tick. We introduce in this edition two new members of the Editorial Team, **Michelle Abrahams** and **Katlego Thaba**. Please get to know these new members of the editorial team. We also interviewed Peter Tripe, an industry leader with great experience that we can learn from given his great story as an actuary. Then I was also fascinated by the story of **Ruvimbo Tagwira** on how she transformed from a specialist





actuarial role to general management over the years. These profiles are not to miss for those navigating their careers.

Our President, **Costa Economou**, has given his inspiring Presidential Perspective as usual, so be sure to catch that too!

As I leave you to read the rest of the articles, please remember to contribute to the next issue of the *SA Actuary* in the first quarter of 2025 by sending your comments and contributions to **SAactuary@actuarialsociety.org.za**.

The Editorial Team will be sure to meet some of you at the ASSA 2024 Convention in Cape Town – and please remember to register for yet another memorable Convention that we always expect – it never disappoints!

Until next time, please keep well and enjoy the *SA Actuary*!

Michael Tichareva
Lead Editor on behalf of the Editorial team.



New Editor Profile – Michelle Abrahams

Hey there! I'm Michelle Abrahams - wife, and mom to a very opinionated 12-year-old who's recently informed me that I have zero "rizz." Personally, I think anyone who shortens the word charisma to rizz probably shouldn't be handing out life assessments, but here we are! When I'm not being schooled on Gen Z slang, you'll find me immersed in the lyrical depth of 90s hip hop and the gritty authenticity of country music — the more raw and fluently abrasive, the better. If you know, you know.

I've just wrapped up my Executive MBA at UCT's Graduate School of Business and, like many, I've discovered that post-study life means diving headfirst into all those projects I put off. Between trying to shed the "study weight," be a present parent again, and start my long-dreamed-of podcast, life's been busy. Oh, and did I mention all things ASSA? I've been with the Actuarial Society of South Africa (ASSA) for 10 years now, most recently as Member Engagement Executive. This role has given me a front-row seat to witness the importance of keeping our members informed, connected, and valued.

One of my key focuses as part of the editorial team is inclusivity, and I'm excited to bring my passion for purposeful work to the S.A. Actuary magazine. I aim to champion our transformation initiatives and highlight the essential skills ASSA fosters through the Personal Development (APD) space. In today's fast-paced world, staying sharp and continuously learning is crucial, and I envision the magazine as a resource that not only informs but equips our members with tools for navigating their own work-life balance.

On a personal note, I'm an avid reader with a soft spot for storytelling. I've devoured books across genres, written short stories, and even dabbled in blogging. For me, effective communication is at the heart of connection—whether it's sharing knowledge among humans or getting my Maltese poodle, who thinks she's a Doberman, to stop barking at the neighbours!

For those of you who've already met me through your member journey, I'm thrilled to reconnect in this new capacity. For everyone else, I'm looking forward to hearing your stories and ideas. Let's make this magazine a place where we can all learn, grow, and share. Your feedback and contributions are welcome!

Thank you for the warm welcome to the editorial team. I'm excited to roll up my sleeves and contribute to a magazine that truly embodies the spirit of our actuarial community.



New Editor Profile – Katlego Thaba

Education

- Bachelor of Business Science in Actuarial Science (UCT)
- Fellow of the Actuarial Society of South Africa

Employment

Insurance Consulting Actuary at Deloitte with delivery focus in Southern Africa, West Africa and East Africa

What do you enjoy about your job?

- Working with seasoned experts from actuarial and non-actuarial fields, across different jurisdictions
- Meeting clients, discussing their challenges and developing solutions, across different countries
- I love our people and organisation's focus on people and team culture. I work with a really fun bunch of wizards.

How do you de-stress?

- Sports. Sports and more sports (watching vs. doing)
- If I have a spare R1 then I go for massage treatment (emphasis on treatment, it's not an indulgence!)
- My wife and I enjoy doing safaris
- Generating non-actuarial public speaking content/videos mostly aimed at inspiration.

I am busy reading / watching…

Mostly podcasts and audible; currently listening to Atomic Habits on audible and two podcasts by John Maxwell and Craig Groeschel

What are you passionate about?

I'm passionate about helping people realize their potential, especially the youth. To this end, I do a fair bit of public speaking with the aim of inspiring people to pursue their potential.

I'm passionate about helping people realize their potential, **especially the youth.**

Why did you join the SA Actuary Magazine team?

The work of the magazine team aligns very closely with eminence related roles I hold at my organisation and so I'm hoping to leverage my experience and exposure in this regard to contribute positively to the ASSA Magazine.

Where should people go to find out more about you and your actuarial journey?

I'm on LinkedIn and other major social media platforms. Here is a link for those interested in hearing a short talk I gave about my journey to becoming an actuary: **https://m.youtube.com/watch?v=m1tPBjOAbOI**

Any parting shots?

I generally don't do partying nor parties, sorry.

Let's talk about annuitisation – Part I

by Joanna Combrink



The Two Pot System is the latest in a series of significant legislative changes which the retirement industry has seen in the last 10 years *(see information box for more details)*.



JOANNA COMBRINK

Most of the attention to date has been on the "Savings Pot" i.e. the amount that can be taken in cash by the member at any time. Funds, Trustees, administrators, consultants, Treasury, SARS and financial advisors have spent countless hours and significant resources to first debate the details of how the "Savings Pot" should work i.e. how much should be seeded on 1 September 2024, how often the withdrawals should be allowed, what the minimum amount should be, etc and thereafter ensuring that systems can deal with the influx of claims expected.

But what about the "Retirement Pot"? What about the other 2/3rds of all future retirement savings which is to be preserved until retirement? And not only does it have to be preserved until retirement, at retirement it will not be available as cash, but must be used to purchase an annuity to provide an income for the member. There is no opt out from annuitisation (except for amounts below the de minimis amount).

This means that in this new system, we will see individuals reaching retirement with larger savings and being required to use a larger proportion of those savings to purchase a pension.

At best, this creates potential for more South Africans to have income security in retirement. At worst, it creates an exploitable captive market for insurers, living annuity providers, and financial advisors.

I urge us all to apply our minds and pay attention. We need to get this right. How effectively individuals are able to convert their accumulated savings into a pension income will be a critical determinant of how well the retirement system meets (or fails to meet) the needs of its members.

Why do we need to pay attention now?

While all Funds do have an annuity strategy for their members, as required by the Default Regulations, Trustees should revisit their annuity strategies to ensure that they remain appropriate in this new world. I would go further and suggest that government should do the same to ensure that its policy objectives are met.

While the provision of appropriate, fit for purpose and appropriately priced products is always important, it becomes critical in a system where there is no opt out. In a voluntary system if you don't like the product or the pricing you can just exit the system or not purchase the product. In a compulsory system you are a hostage to the system. It is critical that the products available are fit for purpose and appropriately priced as there is no exit available. The stakes are higher. The onus is bigger. The repercussions of not getting it right are disastrous. There will be nothing more damaging than forcing people to preserve and annuitise what is arguably the biggest asset they will ever have, and not paying attention to the products used for that annuitisation.

We need to make sure that:

(1) The annuity product is appropriate
(2) The annuity product is appropriately priced

An appropriate product – setting the objective

In order to determine what an appropriate product might be, it is important to clarify what it is that we are trying to achieve. Once this is

defined, we are then able to see how best to meet that objective.

The primary objective of the retirement system is to provide income security to individuals during retirement. This is why we save and preserve and annuitise. This is the first thing we should agree on. If we don't have agreement here, then the rest is moot.

If the primary objective is to provide income security, then the annuity product should:

(1) Provide a regular income until death
(2) The income should increase over time to protect against inflation

This is like the bottom rung of Maslow's hierarchy of needs for retirement products. Only once you have this basic feature can you add inheritability and flexibility and the other bells and whistles. Those are the icing on the cake. Not the cake. No one wants only icing.



Available products

Given this primary objective, we then turn to available products and weigh them up against this objective. And yes, this means having the life vs living annuity debate. But this time let's have it in the context of compulsory preservation and annuitisation and trying to achieve the objective that we have set.

We all know the difference between the two.

Life annuities are guaranteed products provided by insurers. In return for the capital lump sum, the insurer will pay you the agreed pension amount, with agreed increases, until you die, regardless of when that is. The insurer typically carries all of the investment and longevity risk. And importantly, risk is pooled. Pooling is a poorly understood concept and crucially important. There is a misconception that if you die early that your overpayment goes to the "evil insurer". But this is not the case. It is simply the structure of pooling.

Pooling means that we are treated as a group and the misfortune of one benefits the other. To illustrate (with a superbly simplistic example which ignores mortality and investment returns for the purpose of the illustration of pooling): You retire and pay the insurer R120,000 and in return the insurer will pay you R1,000 per month until you die. This effectively means that the insurer is assuming that you will live for 10 years. If you die next month, you would have overpaid by around R119,000 relative to the benefit that you received. This may feel unfair. And it would be if the insurer just pocketed that money as profit. But this is not the case. You must remember that if I purchased that same pension and I live for 20 years that same insurer will need to use my R120,000 to pay me R1,000 per month for 20 years. I would have underpaid by R120,000. This is pooling in pensions - where overpayments of those who die early are used to subsidise the underpayments of those who live longer. This is classic cross subsidisation used in house insurance, car insurance and medical aid.

Living annuities, on the other hand, function more like a bank account where the member decides how much to draw and where to invest and takes all the risk. There is no cross subsidisation. You have what you have (or not) and if the money "runs out" too bad.

As such, based on their very nature, living annuities cannot meet the objective of providing income security in retirement. They can provide income, flexibility, and inheritability, but not security. Never mind that the need for ongoing management and therefore advice make them expensive and inappropriate as an annuitisation product for the general public.

This does not mean that there is no place for a living annuity. We must remember that living annuities were originally designed for high level executives of companies who had their pension already taken care of. Their income security was already guaranteed. With the excess portion available, they wanted more flexibility – a way to make more money if markets ran and a way to extract that excess money out of the pension system quicker than a traditional pension would allow. And so, the living annuity was born. A product designed to offer flexibility around where to invest and how much to draw. But it was certainly never intended to provide income security for the majority of the population – it is not structurally designed for this and, therefore, cannot deliver.

What if...

What if we stop looking at these two products as being in competition with each other and realise that they are actually complementary. It is not an either / or situation. We can actually have everything that we want if we use them together, where each provides what it is supposed to.

(1) A life annuity to provide income security - an income which is guaranteed until death and provides for some increases to offset inflation

AND

(2) A living annuity to provide inheritability and flexibility - an income which can provide for those nice-to-haves

In terms of allocation, it makes sense to allocate first to the life annuity to solve the need for income security, and thereafter to allocate to the living annuity to provide for the want of flexibility. As to the level of such allocation, this we can debate. Indications are that replacement ratios of retiring members after the introduction of the Two Pot system are expected to increase from 20-30% to 60-70% over the long term. Could we consider a requirement to replace a fixed portion of pre-retirement salary (say 40% / 50%/60% of salary) with a guaranteed life annuity before the purchase of a living annuity is permitted?



A solution that restricts access to a living annuity until income security has been established **would truly be in the best interests of retirement fund members offering them both security of income and flexibility.**

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Further, legislating such a requirement would have added benefits of reducing the burden for income provision during retirement on the state. It would also change the way in which insurers price their annuity products as anti-selection would no longer be applicable in the setting of prices. This could have knock on effects as to the pricing of annuities for lower income members as well… but more about appropriate pricing in the next article.

Let's apply our minds. Let's find a way to make things better.

Ten years ago we, as the retirement fund industry, existed in a fragmented world of voluntary participation, voluntary preservation and largely voluntary annuitisation where different rules and tax regimes applied to different funds and consolidation of benefits between funds was difficult, if not impossible.

Since then, we have seen legislation which has equalised the tax regimes between funds and made transfers between funds much more accessible. In 2021 compulsory annuitisation was introduced, with the requirement that 2/3rds of future provident fund retirement savings must be used for the purchase of a pension. In 2024 Two Pots introduced the requirement that 2/3rds of future savings must be preserved until retirement. And government has mentioned the possibility of introducing auto enrolment i.e. a requirement to make contributions to a retirement fund.

In short, we have moved from a world of voluntary participation, voluntary preservation, and voluntary annuitisation to a world where preservation and annuitisation are compulsory and there is a possibility of compulsory participation.

This is great news! It will mean that individuals have more income security in retirement and government will have a proportionately lower social burden. Presumably this is the drive behind the policies that have driven legislation in this direction.

But the above benefits will only materialise if, at the point of retirement, the annuity purchased by the member is appropriate to provide them with income security for life.

Joanna Combrink is an independent consulting actuary; she writes in her capacity as deputy chair of the Actuarial Society's Retirement Matters Committee. She can be reached on **Joanna.combrink@abc-s.co.za** if needed.

THE APD NEGOTIATION CHALLENGE:

A preview of the upcoming session at the ASSA Convention

by Maseeha Rawat



MASEEHA RAWAT

LOOKING BACK AT THIS YEAR'S ALP PILOT SESSIONS

In April 2024, The *SA Actuary* published an article written by Derek Pead and Siham Boda about the Aesthetic Leadership Programme (ALP) which they recently designed, together with input from ASSA Leadership. The programme, which falls under a structure called the ASSA Personal Development (APD) programme, was subsequently piloted in both Cape Town and Johannesburg. There were mixed reactions to the concept of aesthetic leadership, however the sessions on conflict resolution and negotiation proved very popular.

Conflict resolution and negotiation hadn't been topics that were covered in prior leadership training courses that the participants had attended. Participants in both pilots, indicating clear agreement that to be a good leader you need to be able to resolve conflict and negotiate. They both imply intense face-to-face engagement with others, something which most people are uncomfortable with, but an effective leader cannot ignore. The consensus was that negotiation was a necessary skill and one which was identified as a potential gap in the participants' leadership arsenal. Billy Enderstein, who runs the APD and was present at the ALP pilots, commented that:

> "IT WAS OVERWHELMINGLY CLEAR AT THE END OF BOTH ALP PILOTS THAT **NEGOTIATION IS A SKILL SET FOR WHICH WE SHOULD BE OFFERING ASSA SENIOR LEADERSHIP TRAINING."**

ALP PILOTS LEAD TO CREATION OF THE APD NEGOTIATION CHALLENGE

The ALP pilots were always intended to have a demonstrable outcome. With one of the objectives of the ALP being to get leadership to be seen conversing with others in robust and respectful debate, an outcome that was considered was "rigorous debate". Negotiation, however, in the words of Derek Pead, is not "me against you" but more "us against the issue". This facilitates arriving at a solution which is palatable to all involved, where relationships are not only maintained but ideally strengthened as a result. Additionally, and not well known, a negotiation challenge can also be witnessed in the same way that we watch a debate.

At the ASSA Convention in November this year, a challenge, the APD Negotiation Challenge, will be held between four participants in the ALP pilot sessions. The challenge will be judged by the organisers of the ALP, using the *Smolinski and Xiong Negotiation Competency Model (2020)*.This is the adjudication model of the International Negotiation Challenge for Students and the unofficial world championship in negotiation for professionals. The model provides insight into how the scoring system works; for example, how each team felt during the process is considered during the rating and how each team's negotiation partners evaluated the relationship building aspect of the negotiation.

The judges will open the session and give an overview of how negotiation challenges are judged. They'll then give the audience the case study scenario and announce how much time the teams have to negotiate. There will be two teams: Nalen Naidoo and Paballo Makupu will be negotiating with Memory Zimba and Soshan Soobramoney, and they will take their positions on the stage seated opposite each other. There are no rules, but rather guidelines, and the primary objective is to ensure that an agreement is reached. Both parties would have been deemed to have failed if no agreement was reached. Teams are allowed to ask for a short pause if they need to consult with each other at any point. The challenge will be judged a success if both parties feel that they have come away with a result that they can work with and that the relationship between the two parties is maintained or even strengthened. Feedback from both parties is therefore important in the scoring.

I asked the judges what advice they'd give to the participants in the run up to the challenge, and their steer is:

"Prepare! Ideally with role-plays. Also, study the competency model and assess yourself against that. Video yourself making opening statements and responding to difficult questions (eg. "What's your best price?"). Watch your videos, have a good laugh, or cringe! Then try again. Confidence and assertiveness are critical, while remaining friendly and polite at the same time."

An interview with the participants

I spoke with both teams about entering the challenge, and how their preparation is going...

> **1. What were your key takeaways from the ALP pilot?**

Nalen and Paballo: The negotiation skills part of the course, together with the case study, really landed in terms of potential gaps in our leadership training. Following a structured process, and practising all the other skills we learnt (e.g. listening) are really important for successful leadership and negotiated outcomes.

Memory and Soshan: An important skill we learnt is how to negotiate. Key for us was how much can go into preparing for a negotiation. Things like what is your "Best Alternative To the Negotiation Agreement" (BATNA), understanding the Zone of Possible Agreement (ZOPA) and getting exposed to seminal work such as "Getting to Yes" by Roger Fisher and William Ury, were so valuable. What made the learning more effective and more memorable is that we got to practise negotiations in different formats during the Joburg pilot workshop. This learning through experience was extremely insightful. It gave us a lived experience as negotiators and this made the learning all the more real. Finally, the central idea that negotiations are successful only when they result in a win-win, so that the relationship can thrive and create opportunities for more negotiation in the future is such a powerful thing to learn and keep in mind for every-day relationship building.

> **2. Members of the editorial team of the *SA Actuary* have commented that the spirit of respectful debate has dwindled in the actuarial profession. What do you think is driving this, and/or how can negotiation skills benefit members of the profession?**

Nalen and Paballo: Most of the training actuaries undergo reinforces that there is a black and white, or a clear right and wrong - the reality is that life is much greyer, and actuaries need to better understand separating facts (which are also subjective depending on the topic!), opinions, and value judgements. Negotiation skills help to separate the people from the problem (play



the ball and not the person), distinguish between interests and positions, encourage looking for options for mutual gain, and agree objective criteria to measure success, even when the topic is not very easy to measure.

Memory and Soshan: We agree that the spirit of respectful debate has dwindled. We recall Conventions where hotly contested topics would be openly spoken about in the interest of moving the profession forward. We think a significant contributor to the problem is the willingness to listen and be changed by what you hear. This is a skill that needs to be taught and one that is not inherent in our actuarial training. In today's polarised world, it's easy to dismiss opinions that differ from our own. Nancy Kline, author of Time To Think, in her latest book "The Promise That Changes Everything: I Won't Interrupt You" argues that polarisation is a result of disconnection and not disagreement. We need to ask ourselves what we might be assuming that is making us disconnect from the people we disagree with. Negotiation skills encompass both listening skills and influencing skills so it can really help us "stay in the conversation" and be open to disagreeing but not disconnecting. Negotiation skills training also forces us not to be lazy but to clearly formulate arguments and justify why we are saying the things we are saying. It also teaches us how we can prepare for a negotiation by considering the other person's viewpoint, getting closer to understanding what they really care about rather than focussing on the sometimes superficial things we disagree on.

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3. Apart from work being done with the judges, how is your team preparing?

Nalen and Paballo: Derek and Siham have been brilliant and we are so grateful for their assistance and advice. We have also been reading as much as possible - two great books are "The Power of Charm" and "Getting to Yes".

Memory and Soshan: We're reading a lot about negotiation and watching informative videos on the topic as well. We do weekly negotiation practice with the other team that is entering the competition. We also take notes and discuss afterwards what we could've done better. Some of our reflections include:

- Ask more questions to understand how the other team is feeling about the negotiation, thereby getting closer to what they are finding frustrating and what is impacting the relationship.
- Take breaks when things are getting heated or when we appear to be stuck as this can help re-energise the process and support relationship-building.
- Regularly summarise our understanding of the places of agreement and places of disagreement to improve clarity around what concessions have been made by both parties.

4. Is this a competition, and how important is winning?

Nalen and Paballo: The goal is to reach an agreement and not necessarily to "win" in the traditional sense. As we understand from our judges, winning has as much to do with how you make your opposing negotiators feel in terms of fairness and relationship-building, as it has to do with the outcome you achieve for your side - so the intention is for everyone to reach a win-win agreement.

THERE WOULD BE AN OPPORTUNITY TO ENTER THE NEGOTIATION CHALLENGE AT THE ASSA CONVENTION LATER IN THE YEAR.

Memory and Soshan: Yes, it is a competition but we're treating it more as play and learning than a game that needs to be won. For us, the experience and the joy of learning how we can become better negotiators has been so delicious that we find ourselves hungry for more of this.

WHERE TO FROM HERE?

The desired outcome of the challenge is for attendees to witness how to build trust in the process of negotiation, and to observe the range of techniques used to arrive at an agreement. This will hopefully leave them inspired to sharpen their own negotiation skills. The judges, and clearly both teams based on the interview above, recommend reading the book "Getting to Yes", by William Ury and Roger Fisher, which is a classic - you may never need another book on negotiation!

The APD would also like to offer two seminar style sessions a year on negotiation skills. One would be in Cape Town and the other in Johannesburg, building a tradition of negotiation skills as valued and demonstrable. There would be an opportunity to enter the negotiation challenge at the ASSA Convention later in the year.



ANDREA BEZUIDENHOUT

Navigating the defined benefit landscape from 1 September 2024

by Andrea Bezuidenhout

Andrea Bezuidenhout *is a pension actuary and writes in her capacity as a member of the Retirement Matters Committee of the Actuarial Society of South Africa.*

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Introduction

We just passed 1 September 2024, and the Two Component system is upon us. It is one of the most significant reforms to the retirement fund industry in decades and undoubtedly, many working in, and for, this industry are feeling a bit overwhelmed and nervous. This is due to the volume of Two Component related matters they have already had to deal with, and considering what is yet to come. However, despite the onslaught of work, it is encouraging to witness the sheer amount of positive engagement, effort and resolve that has been demonstrated by industry stakeholders to prepare for its implementation - clearly demonstrating support of the system and its objectives, even if there have been disagreements on certain aspects thereof. There appears to be a common understanding of the importance to retirement fund members and that funds and providers, both in the public and private sectors, must get it right.

The road so far

The Two Component system has far-reaching implications for all those affected by it. Various entities, representing different industry stakeholders, have frequently engaged to facilitate consultation and consider inputs, and to ultimately establish the regulatory framework in its current format. Discussions are ongoing and future refinements are expected, but there is a framework for implementation.

Pension fund administrators and consulting firms have spent countless hours preparing - upskilling staff, bolstering resources, reconfiguring administration systems, updating processes and reports, introducing new procedures to allow individual fund members to interact directly with funds to request payment of their savings component withdrawals, providing guidance and advice to trustees, management committees and members. Retirement funds, like service providers, have been hard at work preparing, updating documents and reviewing rules. Similarly, the FSCA, PFA and SARS have been preparing. Overall communication efforts so far are commendable – there have been conferences, newsletters, articles, brochures, videos, webinars, road shows and tools to explain the new regime to members, consultants and advisors.

And what about the retirement fund actuaries? They have been spending a considerable amount of time figuring out how the Two Component system will apply to defined benefit (DB) funds, hybrid funds and funds with DB elements, such as self-insured death or disability benefits. There is often an assumption that DB funds are a thing of the past, but several private sector funds remain, not to mention the largest pension fund in Africa, the Government Employees Pension Fund, with more than 1.2 million active members according to its website.

So, what is different for defined benefit funds?

The overall objectives are the same. From 1 September 2024 onwards, DB fund members now have a saving component accruing, and must be given the option to access it once a year. Also, a retirement component that must be preserved till retirement will accrue and vested interests, as at 31 August 2024, will be ring-fenced. Access and tax rules, as they apply to defined contribution (DC) funds, will be the same for DB funds.

However, in DB funds it is not the retirement funding contributions that will be accruing in the new components, but rather the member's pensionable service. Pensionable service will be split 1/3rd and 2/3rds between the savings component and retirement component respectively, i.e. for every year of pensionable service accumulated after 1 September 2024, the member will have 4 months of pensionable service added to their savings component and 8 months to their retirement component.

The available benefit per component will be based on the accumulated pensionable service in that component and applying the fund's benefit formulas. Service will be added over time and, similarly, if there are withdrawals from the fund, the service equivalent of the amounts withdrawn will be deducted. The respective components will, therefore, build up in pensionable service terms from 1 September 2024 as follows:

Vested component	Savings component	Retirement component
Service as at 31 August 2024 **Less:** Service equivalent of seed capital amount (i.e. 10% of the actuarial value of the member's benefit as at 31 August 2024, capped at R30 000) **Less:** Proportionate service equivalent impact of future divorce orders and other Section 37D deductions	Service equivalent of seed capital amount (i.e. 10% of the member's benefit as at 31 August 2024, capped at R30 000) **Plus:** 1/3rd of service after 1 September 2024 **Less:** Savings component withdrawals, i.e. the service equivalent impact of rand-based withdrawals **Less:** Proportionate service equivalent impact of future divorce orders and other Section 37D deductions	**Plus:** 2/3rd of service after 1 September 2024 **Less:** Proportionate service equivalent impact of future divorces and other 37D deductions

Sounds simple, but it gets more complicated

The principle of splitting service after 1 September 2024 is reasonably straight forward, but translating that service into a benefit entitlement by applying a benefit formula is not. In DC funds a member's fund benefit on leaving the fund, for whatever reason, is typically equal to his/her accumulated fund credit. The benefit structures in DB funds differ depending on the reason why a member leaves the fund; they differ between funds; and they are generally more complicated.

Some funds, for example, offer members a pension at retirement. The member can commute up to a third of their annual pension benefit in cash, and the residual pension will be reduced to 2/3rds of the original pension. Other funds, like the GEPF, provide a pension benefit, that cannot be taken in cash, as well as a lump sum gratuity benefit which represents a member's cash entitlement from the fund on retirement. The gratuity benefits do not necessarily represent exactly a third of the total benefit and members are not strictly speaking entitled to 1/3rd of the retirement benefit in cash in the current regime.

Resignation benefits, as another example, also differ. The GEPF offers a cash benefit based on salary and service, subject to a minimum of the members' actuarial interest as defined in the statutes governing the fund and determined by the actuary. The actuarial interest represents the member's benefits in the fund. DB funds that are governed by the Pension Funds Act must pay a prescribed minimum benefit to a member on withdrawal – referred to as the minimum individual reserve. Some funds, therefore, offer the minimum individual reserve on resignation, but others provide for a withdrawal benefit that is equal to the higher of the minimum individual reserve and actuarial reserve value. The actuarial reserve value, like the actuarial interest referred



to above, represents the amount that the fund holds to cover a possible future benefit payment on the member's behalf.

Actuarial factors are needed to perform the above-mentioned calculations. These factors are determined based on a range of best estimate economic and demographic assumptions, such as future investment returns, salary inflation rates, early withdrawal rates, mortality and morbidity assumptions. These assumptions are collectively referred to as the statutory valuation basis and the basis is determined by the actuary when performing the fund's statutory actuarial valuation. A basis can change, often driven by changes in the economic indicators as well as other observed changes in the demographic experience (for example mortality improvements over time), which will impact benefit calculations.

The definition of pensionable service that funds apply may also have to be reconsidered. For example, where a fund previously considered only completed months, it may have to consider service in days or smaller units – given that the seed capital allocation may be very small for members with large benefits.

Suffice to say, DB funds have many moving parts and benefit values under the Two Component system are not intuitive to derive. Actuaries must play an integral part in providing guidance to DB funds and their members, assisting with benefit calculations and keeping track of members' various benefit entitlements per component over time.

The game has changed and, if properly coached, **more individuals can participate and emerge victorious.**

Getting by with a little help

Members will need help to understand their benefit entitlements and make informed financial decisions going forward. This is true for both DB and DC members.

Although the benefit values are easier to understand in a DC fund, there are still more options and more rules that apply on how the benefits may be accessed and when. There are tax consequences to consider and, going forward, a member will at least have a retirement component that will have to be transferred or preserved in the fund. It is a tricky landscape to navigate, and members will need help.

We refer to it by different names - financial advice, retirement benefit counselling, financial coaching, member engagement - but it ultimately boils down to the same concept. Help. Those who are able, and accredited to do so, must offer help. The system was complicated before. It has just become next level complicated. But, ultimately, members should see improved outcomes and with some help, members could benefit more.

Hopefully in time, everyone will come to understand the opportunities that the new regime presents. There are now increased opportunities for advisors and members to connect frequently given the increased access to emergency savings, access to retirement savings, and a level playing field created across funds. The game has changed and, if properly coached, more individuals can participate and emerge victorious.

SYSTEMIC RISK IN SOUTH AFRICAN BANKING: cracks in the edifice?

by Rob Rusconi



ROB RUSCONI

Systemic risk is the potential for the failure of one financial market entity to cascade through the market, potentially damaging the wider economy. It is naturally of great concern to financial-sector regulators and central banks. This article summarises two studies of the South African banking market. Simulating a network based on contemporaneous banking data, it asks whether (1) large banks might disproportionally contribute to systemic risk, and (2) the tendency to systemic instability might be characterised by tipping points in relation to two of the modelling assumptions.

This article is based on two research papers, expected to be in the public domain in due course. A recording of the sessional meeting of the ASSA Banking Committee is available **here** *(passcode: FpyNL6$8).*

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Financial markets play a critical role in serving the participants in the economies in which they operate. There is little doubt, however, about the increasing complexity and inter-linked nature of these markets, and the implications of these attributes for their stability, "robust and fragile", as so eloquently described by Andrew Haldane in 2009. When they fail, however, they can fail spectacularly, often causing widespread harm.

Financial-sector regulation is typically premised on the rationale that the regulatory authority has a role to play in preventing such events or at least mitigating its effects. This is obviously not easy. At a minimum, it requires the authority to develop a sound understanding of the failures that it seeks to prevent, and to put in place the canaries in the coal mine that might warn of elevated risks of danger.

This article describes two studies that aim to assist the South African Reserve Bank (SARB) with insights regarding the nature of the banking markets in this country. A brief sketch of the simulation methodology is followed by a discussion of the findings. The paper closes with a fuller description of the approach and data.

Method outline

Imagine that the banks are dominoes. For month 1, the banks are set up and a bank is chosen. A shock is imposed on that bank that results in the loss of a proportion of its assets. If that proportion is sufficient to put the bank out of business, the domino tips.

Through three different channels of contagion, this might render other banks insolvent, in which case they also tip. The process is allowed to continue until equilibrium is reached. Then the proportion of fallen dominoes is measured. This is repeated 10 000 times.

Next, the banks are reset with month 2 data. The process is repeated, starting with each bank and running through 10 000 iterations. This continues to the final instance of available data, month 66.

Apart from the three channels of contagion, six different models of the structure of the banking network are considered. The key is that, for each month, bank-specific data is used. This helps with the detection of time-varying differences in the systemic default indicator.

Large banks

In the first case, the network simulation is further modified by incrementally removing the largest banks from the network and observing the impact of their removal. Under self-similarity attributes, the signature of systemic risk might be assumed to be broadly the same after their removal as it is before. Such self-similarity is observed in many natural and social instances and is typically referred to in its narrower form using terms like the power law or Pareto distribution.

Figure 1: Systemic default indicator over time, standard assumptions, all banks included

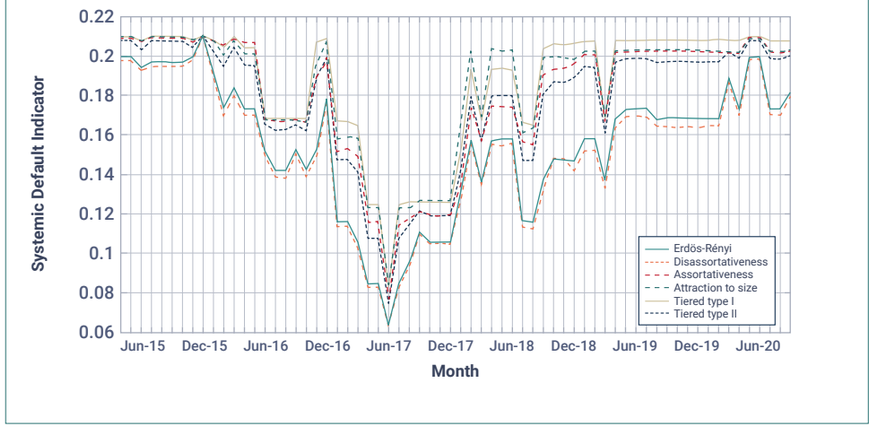


Figure 1 shows how the calculated indicator of systemic risk for the banking industry in South Africa varies over time. While results depend on the network model utilised, clearly there have been periods of elevated risk levels. Two clear examples are the late 2015 one-weekend Minister of Finance, colloquially referred to as Nenegate, and the COVID pandemic and its impacts in 2020.

Closer observation of the results shows that the largest four banks contribute fully to this indicator. No other bank under the simulations causes the collapse of a peer when it fails. Perhaps that shouldn't be a surprise. The line of reasoning is that the large banks are much more likely to cause the collapse of other banks than their smaller counterparts. That argument may well be correct, but what happens if they are removed from the market? Under an assumption of market self-similarity, the remaining banks would be expected to take the part of their erstwhile larger peers, in turn dominating the risk profile of the market.

Figure 2: Systemic default indicator over time, standard assumptions, largest two banks removed



Figure 3: Systemic default indicator over time, standard assumptions, largest five banks removed

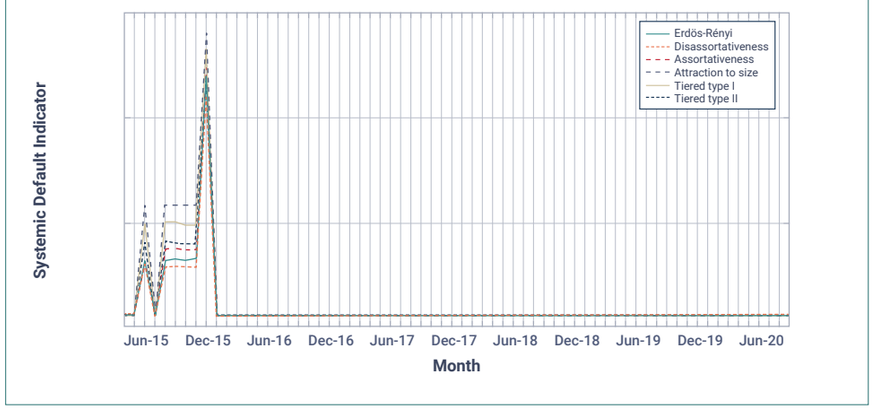


Figure 2 shows the same results with the largest two banks removed and **Figure 3** with the largest five banks taken out of the network model. The noise of varying systemic risk largely disappears in the first case and in the second, almost completely, with only one set of market conditions contributing to a significant systemic risk.

Now the bank-by-bank contributions reveal a curious result. With two banks removed, the failure of banks 3 and 4 always leads to disaster for every other bank. Bank 5 now triggers the collapse of roughly half of the other banks, depending on conditions. The other banks do not contribute to systemic risk at all. When five banks are removed, then only Bank 7, Bank 8 and Bank 9 contribute to the possibility of failure in other banks, but they do so only rarely, as corroborated by the limited periods of systemic risk shown in Figure 3. Under these conditions, Bank 6 never contributes to the failure of another bank.

These findings suggest that the characteristic systemic risk of the market is attributable not only to the size of the largest banks, but to several of their attributes that are uniquely theirs.

THESE FINDINGS SUGGEST THAT THE CHARACTERISTIC SYSTEMIC RISK OF THE MARKET IS ATTRIBUTABLE NOT ONLY TO THE SIZE OF THE LARGEST BANKS, BUT TO SEVERAL OF THEIR ATTRIBUTES THAT ARE UNIQUELY THEIRS.

Of course, this research has many limitations. The most significant of these is the limiting assumption that the newly promoted banks do not to adapt to their new status. Still, the significance of the changes to systemic risk indicators on removal of these banks provides food for thought.

Tipping points

In the second study, the possibility that the systemic risk indicator is particularly sensitive to small changes in modelling assumptions is investigated. For this purpose, each of the three channels of transmission is considered separately. The impacts of small changes to one assumption on the systemic risk indicator are examined. This study is limited to just one network model for simplicity and tractability. Under this model, the probability of a link between any pair of banks is randomly determined.

Figure 4: Systemic default indicator over time, credit shock impact only, varying by the level of the initial shock

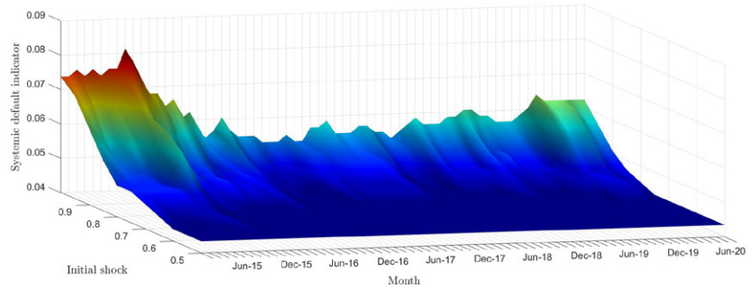


Figure 4 illustrates an instance in which such a tipping point is absent. It shows the systemic risk indicator, just for one channel of systemic risk, varying over time (left to right) and by the proportion of the assets of the bank subjected to the initial shock (front to back). In any month, the systemic default indicator grows gradually with increases to the size of that shock.

Figure 5: Systemic default indicator over time, liquidity shock only, varying by the level of the asset reduction factor

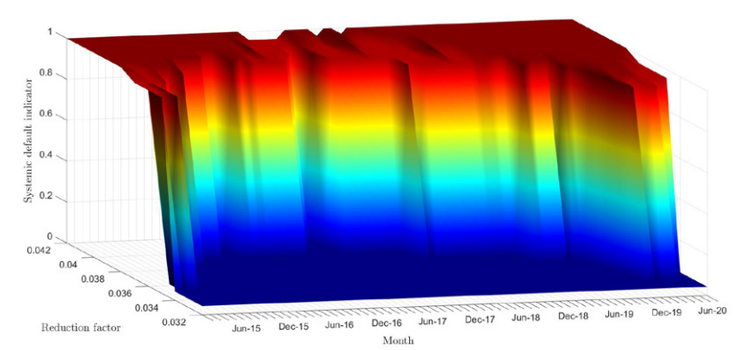
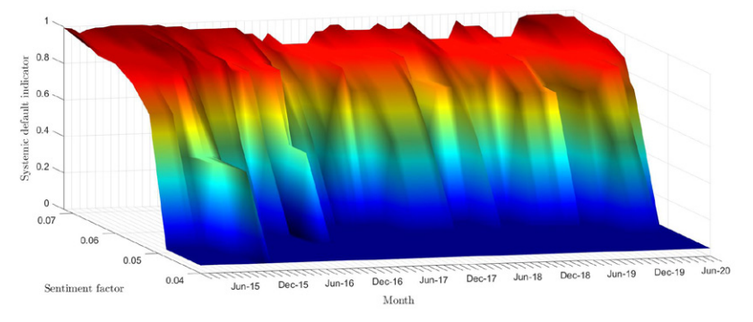


Figure 6: Systemic default indicator over time, credit shock only, varying by the level of the asset reduction factor



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HOW REALISTIC ARE THE ASSUMED CHANNELS OF CONTAGION? WHAT ARE APPROPRIATE VALUES AND RANGES FOR THE ASSUMPTIONS? **COULD IT BE BETTER TO MODEL THE MARKET IN A MULTI-VARIATE FRAMEWORK?**

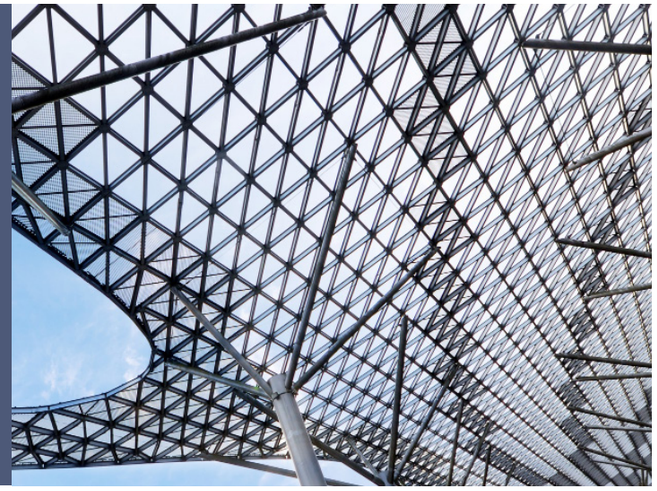


Figure 5, in contrast, shows evidence of a tipping point. Under the liquidity shock channel, when a bank is subject to a shock sufficient to render it insolvent, other banks suffer impacts attributable to elevated provisions or forced sale under duress. The impact on the asset value of these banks varies by the term of the assets. For the purposes of the sensitivity analysis, the same proportional impact on the assumptions respectively applying to each term is applied.

The result is that, at a certain level of this assumption, a dramatic increase in the systemic default indicator from near-zero to close to 100 percent is experienced. The tipping point in this assumption is higher in good periods, like 2017, than in bad, 2020 for example, but it is always present.

This is not the only observed instance of a tipping point. **Figure 6** shows a less dramatic example. This is like the previous instance in that a reduction in asset values of the affected bank is assumed. In this case, the reduction is damped by the proximity of the affected bank to its peer subject to the initial shock. Since that proximity is randomly determined, the impacts are somewhat smoothed out.

In summary, the systemic risk indicator changes in response to shifts in the assumptions underlying the model. In some instances, these changes are gradual, but in others they appear to shift the entire system from stability to chaos as all banks are suddenly subject to the risk of collapse.

The possibility that the system is subject to significant instability in response to small changes in the assumptions governing the model should be cause for concern. It also suggests avenues for further research. How realistic are the assumed channels of contagion? What are appropriate values and ranges for the assumptions? Could it be better to model the market in a multi-variate framework?

It would also be helpful to investigate more closely the attributes of each bank. One of the dangers of parametric regulation in the financial sector is that entities follow the same set of rules. A consequence of this is that tighter efforts to manage entity-specific risk unwittingly add to the incidence of systemic risk.



Figure 7: Description of network models applied to the large banks study

Network	Explanation
Erdös-Rényl	The probability of linkages between nodes in the network is constant across the market.
Attraction to size	The probability that a large bank triggers difficulty at a smaller bank is high, but the corresponding probability in the event of the initial failure of a small bank is low, also called 'flight to quality'.
Assortativeness	Banks of similar size have a higher probability of connection. Large banks are more likely to be connected to other large banks and small banks to small banks.
Disassortativeness	Banks are assumed more likely to be connected to other banks that are of different size. Small banks are more likely to be connected to large banks and the other way around.
Tiered Type I	Large banks are connected to one another with high probability. Small banks have a low probability of being connected to each other. The probabilty of small and largre banks being connected to one another lies between these extremes.
Tiered Type II	The probabilty of a small bank being connected to another small bank is low and the probabilty of a small bank being connected to a large bank is higher, but also relatively low. In contrast, large banks are connected to one another with high probabilty and the probabilty of a large bankconnecting to a smaller bank is relatively high as well.

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Method and data

This article closes with a summary of the method and supporting data underpinning the study. The network model considers three different sources of contagion:

- under a **credit shock**, other banks are required to assist with capitalisation of the shocked entity, so a proportion of the loss suffered by the shocked bank in excess of its liquid assets is borne by other banks in relation to the size of their assets at the time;
- when a **liquidity shock** occurs, the other banks suffer asset losses due to elevated provisions or forced sale, which may vary by the terms of the assets; and
- under conditions of a **proximity shock**, the assets of other banks suffer an impairment based on the proximity of these banks to the shocked bank and the scale of the assumed impact.

For the proximity shock, the probability that a pair of banks are connected to one another defines their proximity. That probability is randomly determined but is subject to a mean value over all possible pairs and a network model that shapes the likelihood of linkages between banks based on their sizes. The network models utilised in the large banks study are defined in **Figure 7** and the variation in the results from these network configurations is evident in **Figure 1**. On grounds of simplicity, the first model is used in all cases in the tipping points study, except to study sensitivity of results to changes in the structure of the network.

The starting values of all parameters are chosen to match the corresponding study by Nadine Walters (SAAJ, 2018), spanning two years, to test the consistency of results. In contrast to Nadine's research, modelling for this study extended from April 2015 to September 2020 inclusive, as shown by all output charts in this article.

With one exception, all banking data is based on the BA900 returns available at the web site of the SARB, a high-quality detailed source of monthly data on all South African banks. The exception is the Common Equity Tier 1 (CET1), assumed to represent the level of ready cash. This is used to determine whether a bank survives a shock to the value of its assets or not. CET1 values are obtained from bank publications. These are typically available quarterly. Monthly CET1 values are interpolated between the corresponding available rates. CET1 data could not be found for all banks, but the 23 entities forming part of the study represent between 98.0% and 98.7% of total market assets over the period of the study.

Systemic risk is a serious concern to financial-sector regulators. Banks are particularly susceptible to systemic risk because of the intrinsically interlinked nature of their operations and risk management. The channels through which banks share risks are dampeners that absorb and re-distribute potentially very significant shocks. These channels have limited capacity, however. When they fail, the whole system can come down. This study aims to assist South Africa's bank regulators by assessing the absorption capacity of South Africa's banks arranged in a stylised network. It is hoped that its findings prove helpful to the ongoing obligation of the SARB to understand the nature of these risks.

By Rob Rusconi – Researcher and Consultant

AI was used to suggest a framework for this article, but the flawed writing is mine. Data and code are available through the University of Pretoria.

INVESTING IN ACTUARIAL TALENT:

The Case for a Comprehensive Study Policy in South Africa

by Shaun Burger (FASSA), Mampou Makgalemane & Nkululeko Mathela



SHAUN BURGER (FASSA)



MAMPOU MAKGALEMANE



NKULULEKO MATHELA

The path to becoming a qualified actuary has become increasingly challenging, with pass rates for the ASSA exams at record lows. One exam in particular, A212 (Risk Modelling and Survival Analysis), has recorded an average pass rate of just 17% since its inception in 2019, making it a key obstacle in the qualification journey.

In 2019, the A212 Subject was introduced to replace Subjects A202 and A204 (or CT4 and CT6, respectively, using the former classifications of the IFoA). Those subjects had recorded pass rates of 42% and 47% in South Africa over the period 2010 to 2018, as visualised in the following figure.

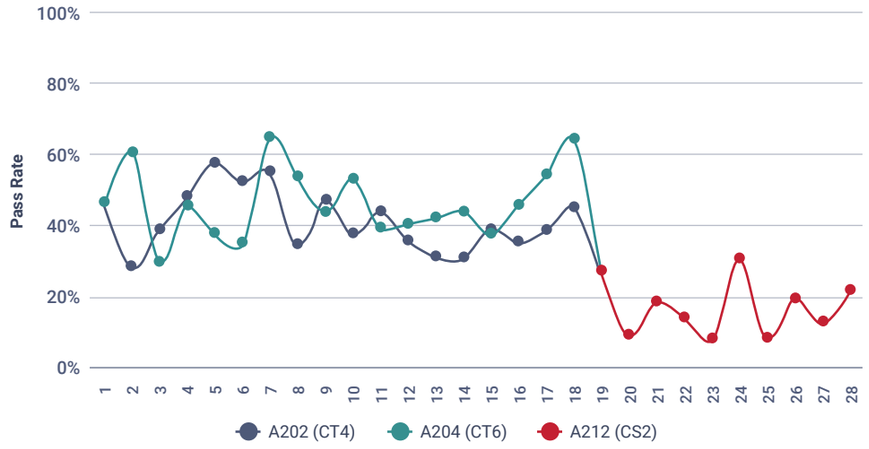


Figure 1: Historic Pass Rates of A212 (CS2) Risk Modelling and Survival Analysis

Figure 1 illustrates that the pass rate for A212 (CS2) has more than halved since the consolidation of Subjects A202 (CT4) and A204 (CT6) in 2019. This signals that actuarial candidates today are facing even greater hurdles than previous generations in their qualification journey.

The following figure contextualises the latest pass rate of the A212 Subject relative to that of all the other subjects offered by ASSA.

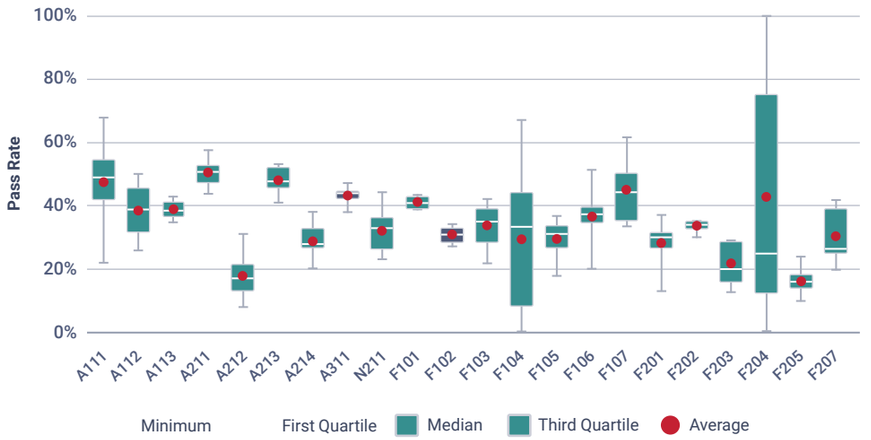


Figure 2: Pass Rates Ranges of ASSA Subjects from 2021 to 2024



Considering the pass rates in Figure 2 on a crude basis, one could conclude that the **A212 examination in its current form is as difficult to pass as the more advanced F200 examinations, if not more so.**

Many Actuarial Training Offices (ATOs) and employers in South Africa offer study policies that support candidates in pursuing their qualification. In addition, ASSA has been rolling out new educational offerings over the years, such as tuition and psycho-social support programs like Advancing Actuaries (AA), some of which come at a cost.

This opinion piece explores the current challenges faced by students in their journey to qualification, including the emotional strain of repeated failures in key exams like A212; and **how employers can better support actuarial candidates without compromising productivity.**

Understanding Time and Costs: A Simulation Analysis

To better understand the time taken to qualify, and the associated cost of a study policy, we ran a stochastic simulation. The underlying model was based on several simplifying assumptions, including the following:

- The scenario depicts a newly established actuarial department as of 1 January 2025, with 50 actuarial graduates who have no exemptions toward ASSA examinations.
- Each graduate is assumed to attempt only one exam per examination session.
- Exams are written sequentially, starting with the A100 series and progressing through to the F200 series.
- Graduates must pass each exam before proceeding to the next one in the sequence.
- Tuition support for each exam is provided only once, regardless of the number of attempts.
- Course notes may be purchased only once per exam.
- Exam fees will be covered for up to three attempts per exam. If a candidate fails an exam, fees for subsequent attempts will be paid in full for grades FA or FB, and 50% for grades FC or FD.
- Exam counseling is available once per failed exam.
- This cohort of 50 actuarial graduates was treated like a closed population, with no assumptions for resignations or new entrants.
- A total of 10,000 simulations were generated for this model.

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The results produced are illustrated in the figures below.

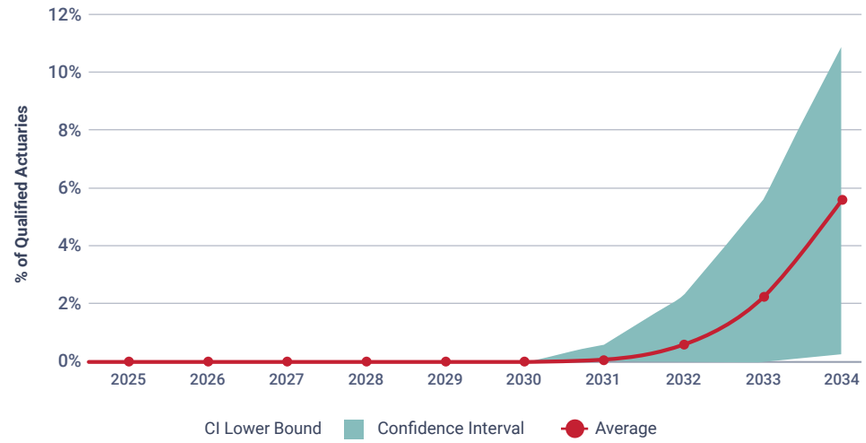


Figure 3: Projected Percentage of Qualified Fellow Actuaries over a 10-year period

Figure 3 above shows that almost 6%, on average, of new actuarial graduates can qualify as actuaries after following a 10-year journey with the Actuarial Study Policy on which the model was based. This is particularly low given that the corresponding proportion is 46% if the pass rates prior to the subject consolidation were still valid for Subject A212.

The following figure shows the projected number of examinations outstanding over a 10-year period using the stochastic simulation exercise.



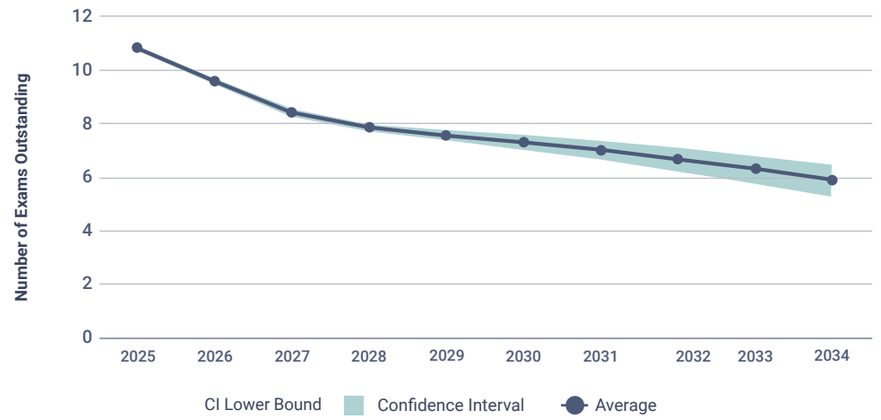


Figure 4: Projected Number of Exams Outstanding over a 10-year period

Figure 4 above shows the mean number of exams outstanding for a fictitious department of 50 actuarial graduates, which starts at 11, and slowly reduces to 6 over a 10-year period. This is mostly driven by the low pass rate of A212, where candidates can "get stuck". The number of 6 exams outstanding is particularly high given that the corresponding number is 2 if the pass rates prior to the subject consolidation were still valid for Subject A212.

This emphasises the need for supplementary educational supporting tools to beat the odds of passing A212.

What does it cost employers to support actuarial students, and what is the ROI of a comprehensive study policy?

An important part of the stochastic simulation was to understand the cost of supporting actuarial students under multiple scenarios from the perspective of an employer.

The following figure shows the breakdown of the average cost per actuarial graduate per annum.

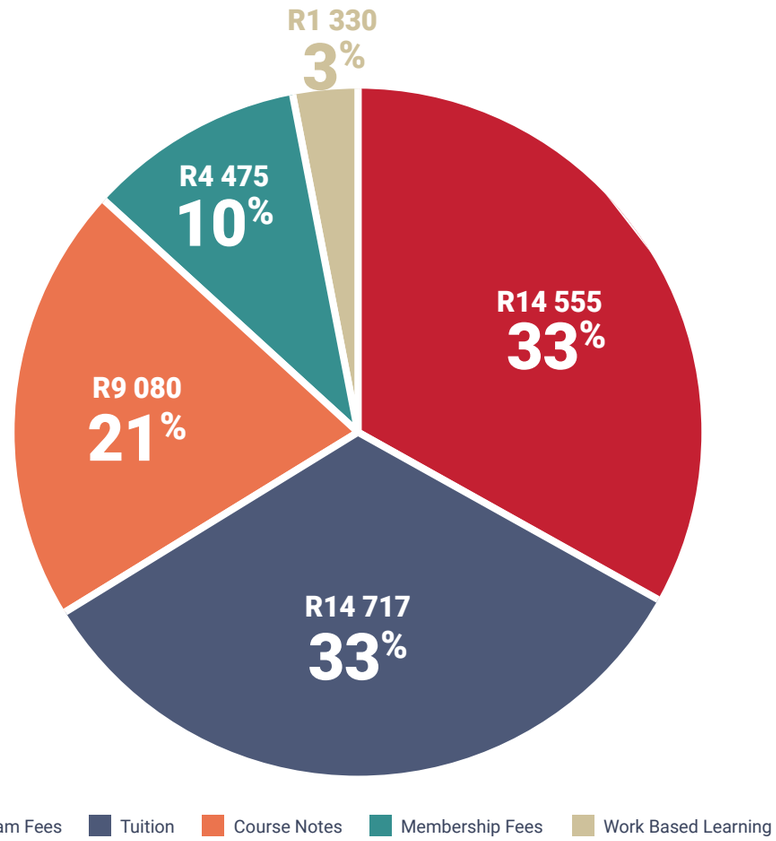


Figure 5: The average cost per actuarial graduate by exam expense type per annum, also expressed as a percentage of total annual cost.

The graph above shows that in a typical year for an Actuarial Department with 50 actuarial graduates, the average cost per actuarial graduate amounts to approximately R44 000 per annum. This amount mostly consists of fees towards the examinations (33%), the cost of tuition (33%), the cost of course notes (21%), the ASSA student membership fees (10%), and the fees towards Work Based Learning (3%).

The following figure shows the average cost per actuarial graduate should decrease over time as the actuarial graduates exhaust their study benefits per subject, or complete the journey towards actuarial qualification.

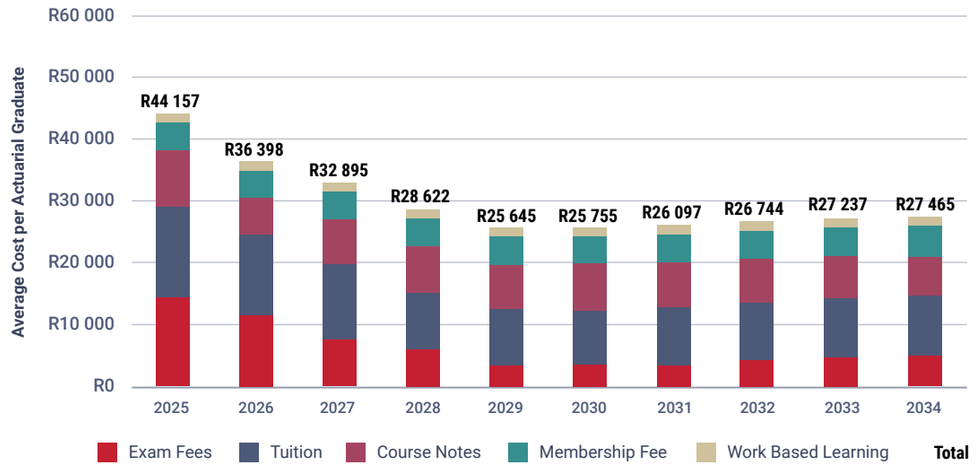


Figure 6: The average cost per actuarial graduate over time

Figure 6 above shows that the average cost per Actuarial Graduate starts out at R44 000 on average per annum, and reduces and stabilises at around R27 000 on average per annum as the Actuarial Graduates start to deplete their study benefits.

For employers, the primary question may be: **Is it worth it to offer extensive study benefits?** The answer, when evaluated from a long-term perspective, is a resounding yes. The stochastic simulation of the exam process outlined above has shown that A212 alone can delay an actuary's qualification journey by an average of three years. Delayed qualifications mean delayed return on investment (ROI) for employers.

However, a comprehensive study policy, which includes covering tuition costs for exams like A212, can significantly shorten the qualification period. By supporting the candidate's success, companies can reduce the time to qualification and reap the benefits of having a fully qualified actuary sooner.

The readers of this publication need no convincing that **actuarial professionals provide significant value through their skills in enterprise risk management, long-term financial forecasting, and strategic planning.**



The true ROI of a study policy can be seen not just in pass rates but also in the creation of fully qualified actuaries. The readers of this publication need no convincing that actuarial professionals provide significant value through their skills in enterprise risk management, long-term financial forecasting, and strategic planning. For organisations, particularly those in the financial and insurance sectors, a robust actuarial team contributes directly to competitive advantage and operational efficiency.

What Should a Market-Leading Study Policy Look Like?

As South Africa's actuarial profession matures, it is time for employers to consider **standardisation of study policies** that provide candidates with the comprehensive support they need. A market-leading study policy could include:

- **Sufficient Study Leave:**
  Actuarial students need adequate time to prepare for these rigorous exams - not just for the first attempt, but also for inevitable subsequent attempts. Employers must balance study leave with work responsibilities to support candidates' preparation while maintaining productivity.
- **Financial Incentives:**
  Employers should provide financial support for membership fees, exam fees, study materials, work-based learning, and tuition. Offering bonuses or salary increases for passing exams - especially on the first or second attempt - can significantly boost morale and motivation.
- **Psychological Support:**
  Employers must recognise the emotional toll that repeated exam failures can have on candidates. Providing access to exam counseling and other support mechanisms can help candidates maintain progress and manage the psychological strain that accompanies their studies.

The overarching principle for employers to consider is to offer an actuarial study policy that is aligned with the approach of ASSA, e.g. with respect to recommended study hours, prerequisites, and the need for interventions if you score below a certain grade.

It is recommended that ASSA offers guidance or (levels of) accreditation to Actuarial Training Offices in this regard.

A Unified Industry Approach

An interesting question for actuarial employers to consider is: **Why do we have varying study policies across different firms?** Shouldn't there be a standardised policy that ensures a level playing field for actuarial candidates, regardless of their employer?

A comparative investigation revealed significant discrepancies between the study policies offered by different employers. Some firms provide minimal support, while others offer comprehensive benefits, leading candidates to shift between employers in search of better study opportunities.

Another complicating factor is that many companies treat their Actuarial Study Policies as confidential, making comparisons possible only through word of mouth or during interviews when candidates explore new job opportunities. This lack of transparency makes it more difficult for candidates to make informed decisions, and creates unnecessary barriers within the profession.

A standardised actuarial study policy would not only ensure fairness but also enhance employee retention and simplify the hiring process. With uniform support across the industry, candidates could focus on their studies rather than negotiating for better study benefits with each career move.

A standardised actuarial study policy would not only ensure fairness **but also enhance employee retention and simplify the hiring process.**

The Employer's Responsibility

Supporting actuarial candidates through comprehensive study policies is not just a matter of fairness - it is a strategic investment. Companies that offer rich study benefits can attract top actuarial talent and build a more qualified, skilled workforce. In the long run, such investments pay dividends, with improved retention rates, higher levels of expertise, and greater operational efficiency.

The time has come for employers to reassess their study policies, especially considering the additional educational support offerings now available from ASSA. Comprehensive support - from study leave to financial incentives - will provide actuarial candidates with the best chance of success, despite the inherent challenges of the qualification process.

Disclaimers:

- *This opinion piece is not intended as a critique of the current ASSA syllabus;*
- *This opinion piece does not serve as a critique of employers' actuarial study policies;*
- *This opinion piece attempts to find solutions by means of an actuarial study policy design that could give actuarial graduates the best chance at success in the current ASSA syllabus.*



NABEELAH KOLIA

HAF you met Pete?

A Profile by Nabeelah Kolia

I recently sat down with Peter Tripe, a seasoned actuary with over 25 years of experience. His titles include Head of Actuarial Function (HAF) for multiple insurers, Chair of the Life Assurance Committee (LAC) of the Actuarial Society, Business Unit Lead for the Actuarial and Insurance Solutions team at Deloitte as well as loving husband and dad. In sharing his successful actuarial journey, Pete gave us insights into some of the challenges he faced, some of the skills he acquired, and highlighted some of the key attributes required to excel in this field.

***Nabeelah Kolia** is an Actuary, PC holder & Aspiring HAF*

Aspiring Physicist turned Actuary

It might come as a surprise that Pete didn't always want to be an actuary. Given his experience, it's easy to think that this is what he was born to do (so much so that his two sons are currently planning to follow in his footsteps!). However, Pete started his career with a passion for physics and astronomy, eager to unravel the mysteries of the universe. However, he eventually realised that pure research was not his cup of tea. He enjoyed problem-solving and tackling real-world challenges that came his way rather than creating problems for research purposes. This realisation, and knowing some friends who had already walked this path, led him to transition to actuarial science and complete a conversion course that, ultimately, marked the start of his Actuarial Journey.

The Journey of a Seasoned Actuary

With more than two decades of experience, Pete's journey as an actuary began by working in financial reporting and valuation teams at various life insurance companies. Joining Deloitte 22 years ago, Pete focused on providing outsourced Statutory Actuary services to a wide range of clients. Over time, he gained extensive experience in this role and gradually took on more responsibilities, including managing teams and expanding his client base. Some opportunities arose as more senior members of the team took on other roles and thus sent the ladder down for Pete to take over.

Pete's role as an actuary at Deloitte encompasses various responsibilities and hats, from being a technical expert to an auditor to a business unit leader. While switching between different roles can be challenging, it also provides stimulation and the opportunity to

Stepping out of one's comfort zone and embracing new experiences is crucial for personal and professional growth.

learn and grow. Pete values the experience of working with diverse teams and finds fulfilment in seeing others succeed. In addition to his roles at Deloitte, Pete also serves as the Chair of the Life Assurance Committee (LAC) of the Actuarial Society and was previously on the Capital Adequacy and Insurance Accounting subcommittees. Through the LAC, he plays a role in helping the profession maintain consistency, provide guidance, and stay abreast of developments in the life insurance space.

Practising Certificate

One of the key milestones in Pete's career was getting a Life Practising Certificate. Whilst, when he started out in his career, he had not planned to acquire one, and it seemed that it was something far out of reach, he realised after some years of working in financial reporting that it was something that he might be interested in. As part of his development discussions with his boss at one life insurer he actively targeted getting exposure to a wider range of the processes in the valuation cycle, and when he subsequently moved roles, he was intentional in seeking a position that would continue to give him exposure in this area. Volunteering on ASSA subcommittees was also a valuable step in widening his exposure beyond his employer's business and expanding his skills. Whilst it does take a number of years to get the relevant experience, he encourages anyone who thinks they may have an interest in getting a Practising Certificate to work closely with a mentor to plan their career and experience.

Embracing the unpredictability

Pete enjoys the unpredictability of his role as an actuary, owing to the consulting environment and the diverse portfolio of clients he serves. He finds it difficult to define a typical day, as each day brings new and unique challenges. Pete tries to stay disciplined by creating a to-do list, but the reality is that unexpected tasks often arise, making it necessary to be adaptable and flexible. Despite the lack of routine, Pete finds joy in the ever-changing nature of his job, as there are always new problems to solve and new skills to develop. Whilst his career started with a focus on more technical, actuarial problems, and despite being a self-declared introvert, he enjoys the focus in his current roles on people, managing his team and working with clients.



PETER TRIPE

Attributes for Aspiring Actuaries

Reflecting on his journey, Pete believes that stepping out of one's comfort zone and embracing new experiences is crucial for personal and professional growth. Whilst he was very content in previous technical roles, he is grateful he was pushed into more managerial and leadership focused experiences. He encourages aspiring actuaries to pursue what they enjoy, work hard, and strive to understand the intricacies of their field, but be open-minded to new experiences that they might not have anticipated. He emphasizes the importance of understanding not just the technical aspects of the job but also the dynamics of people and organizations, which requires analytical skills and the ability to understand and relate to others.

If Pete had to point to one skill that has helped him during his career, he says that it would be a ***highly attuned ability to spot errors*** (much to his wife's dismay) and emphasizes that this is a valuable attribute for any actuary, and grateful to his previous bosses who helped him sharpen this skill.

Lastly, Pete acknowledges the importance of driving transformation in the actuarial profession towards greater diversity and sustainability. It resonates with his deep-seated desire for fairness and he emphasizes the need for progress in areas such as diversity and inclusion, accessibility, and awareness while maintaining a balanced approach to ensure long-term success. Contributing to the growth and transformation of the teams and structures he's been part of has given him immense satisfaction.

By embodying these principles and continuously upskilling, aspiring actuaries can navigate the dynamic world of actuarial science and make significant contributions to their organizations and the profession as a whole.

Is there a need for Embedded Value reporting in an IFRS 17 world?



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Introduction

Many insurance practitioners have started questioning the relevance of Embedded Value (EV) reporting now that IFRS 17 has created a standardised measurement model for insurance contracts in IFRS reporting. It is argued that IFRS 17 liabilities are viewed as being market consistent, and the measurement model and additional disclosures required under IFRS 17 replicate a lot of what EV reporting was providing. Debates have been raging, with many practitioners predicting that EV reporting will at least stay in place for the next 3 to 5 years, and only then might be phased out once the IFRS 17 measurement model and disclosures are better understood by users of financial statements.

In this paper, we:

- Explore EV vs IFRS 17 measurement model and reporting;
- Discuss the factors that insurers need to consider when evaluating whether to replace EV reporting with IFRS 17 disclosure metrics;
- Look at whether EV reporting will still be relevant in the IFRS 17 environment; and
- Propose EV measurement approach(es) using the IFRS 17 results.

It is important to note that this paper does not compare the disclosures for insurance contracts required under IFRS 17 with those of EV. Although EV serves as the measurement model, similar to IFRS 17, both the measurement model and the related disclosures are crucial in providing information to users of financial statements.

Similarities: EV vs IFRS 17 reporting

EV and IFRS 17 measurement models share a number of similarities. The table below outlines some of the key similarities.

Category	EV	IFRS 17
Measure of service profits	The component of EV, Value of In-force ("VIF") which represents the present value of future shareholder cashflows from in-force covered business is used as a measure of future profits.	The component of IFRS 17 liabilities, the Contractual Service Margin ("CSM"), which represents the unearned shareholder's profits that will be earned and distributable to shareholders as the entity provides services is used as a measure of future profits.
Allowance for non-financial risks	The inherent risk is allowed for in the EV using the Risk Discount Rate ("RDR") or Cost of Residual Non-Hedgeable Risks ("CRNHR") under Traditional Embedded Value ("TEV") and Market Consistent Embedded Value ("MCEV"), respectively.	The inherent risk is allowed for in the IFRS 17 liabilities using the Risk Adjustment ("RA") for non-financial risks, which represents the compensation that the entity would require for bearing the inherent risk in the portfolio of contracts written.
Allowance for financial risks	EV allows for financial risks through the Risk Discount Rate and the Time Value of Options and Guarantees (TVOG).	IFRS 17 Standard specifies the use of risk-free rates which reflect characteristics of the liabilities and prices of similar contracts in the capital markets. IFRS 17 also allows for the financial risk by using the market consistent approach (including allowance of TVOG). Therefore, no further adjustment for financial risk is required.
Demographic assumptions	The demographic assumptions are set to reflect past, current and expected future experience using relevant data (e.g., the insurers' internal claims investigations or inputs to pricing assumptions).	The demographic assumptions are unbiased and incorporate all reasonable and supportable information without undue costs or effort about the amount, timing and uncertainty of the cashflows.
Allowance for cost of required capital or the Frictional Costs of Required Capital	The allowance of the Cost of Required Capital ("CoRC") or the Frictional Costs of Required Capital ("FCRC") for TEV and MCEV, is allowed for explicitly as separate component of EV.	Capital requirements are not explicitly allowed for in the IFRS 17 model. However, the CSM liability represents a delayed distribution of profits similar to the requirement to hold capital. To the extent that the CSM exceeds the capital requirement, no further adjustment may be needed on the IFRS basis for cost of capital. In addition, in the event of adverse scenario, as a general rule the CSM will absorb the impact, acting as an asset for solvency purposes.

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Many insurance practitioners are used to the concepts of the EV and Value of New Business (VNB) as measures used to determine value and new business value creation respectively of insurers. EV/VNB has been compared and linked to contractual service margin (CSM) and change in CSM from new business by many practitioners. EV currently has a number of advantages over the CSM, including:

- widely used and understood by analysts;
- allows for expected renewals for short-term contracts, and business not covered by IFRS 17 (such as investment business); and
- includes both attributable and non-attributable expense cashflows.

IFRS 17 also brings a number of advantages, including:

- IFRS financial statements are audited, and therefore may be more reliable than EV metrics which may not be audited; and
- IFRS 17 financial statements may be consistent between different insurers compared to EV metrics. For example, IFRS 17 includes a strict definition of the scope of contracts (including the definition of coverage period and contract boundary) that fall under the standard, while EV is more flexible on the definition of covered business (subject to disclosure requirements) and economic boundary of the contracts. This discretion on the EV calculations may impact the extent to which EV results may be comparable between different insurers.

Below are some of the factors that insurers will need to consider when evaluating whether to replace EV reporting with IFRS 17 disclosure metrices:

Category	EV	IFRS 17	Comment
Objectives	The primary objective of EV is to measure the consolidated value of shareholders' interest in the existing covered business.	IFRS 17 Standard aims to ensure that an entity provides relevant information that faithfully represents insurance contracts. This information gives a basis for users of financial statements to assess the effects that insurance contracts have on the entity's financial position, financial performance and cash flows.	IFRS 17 Standard focuses on the effects of insurance contracts on financial statements; specifically, the effects of these contracts on the statement of financial performance, while EV emphasizes the value of the existing covered business to the shareholders (i.e., shareholder value creation). These differences affect the extent to which supplementary EV information will add value to the organization. For some insurers, simply adjusting IFRS 17 metrices would suffice, while for other insurers, a complete EV calculation may be required to accurately capture the consolidated value of shareholder interest in the existing covered business (more of this covered below).
Scope	EV applies to covered business which represents, at a minimum, any contracts that are regarded by the local insurance supervisors as long-term life insurance business (in most cases, the insurer decides what constitute covered business, subject to disclosure)	IFRS 17 Standard applies to the following contracts: • Insurance contracts issued or acquired, including reinsurance contracts issued or acquired (i.e., inward reinsurance) • Reinsurance contracts held (i.e., outward reinsurance); and • Investment contracts with discretionary participation features issued or acquired, provided that the organization also issues insurance contracts.	The breadth of contracts that are covered by EV is more extensive compared to that covered by IFRS 17. For example, EV methodologies allow for wider contract definitions, such as asset management operations or covered business issued by non-insurance groups (e.g., banking or pension funds) while IFRS 17 exclude these contracts. The extent to which EV would add valuable information will depend on the types of business the organization writes. For example, an organization that predominately writes investment (IFRS 9) contracts may continue to disclose EV as part of its financials in addition to the IFRS 17 results compared to an organization that only sells pure risk insurance contracts.
Contract boundary or Coverage period	EV principles do not explicitly mention the concept of contract boundary or coverage period; however, the principles define new business contracts, and by extension, existing in-force contracts that need to be included in the EV calculation. New business is defined as that arising from the sale of a new contract, and in some cases, the increases to existing contract during the reporting period. Measurement of new business at initial recognition includes the value of expected renewals on those new contracts, and future contractual alterations to those new contracts.	IFRS 17 requires that all the cashflows that are within the contract boundary to be included in the measurement of the contracts. Any cashflows that are outside the contract boundary are excluded in the calculations of the CSM since these cashflows relate to future new contracts. A contract boundary is defined as that arising from substantive rights and obligation that exist during the reporting period in which the entity can compel the policyholder to pay the premiums or which the entity has a substantive obligation to provide the policyholder with insurance contract services.	The definition of new contracts and existing in-force contracts plays a vital role for both EV and IFRS 17. This definition impacts the projection term at initial and subsequent measurement since it determines which cashflows should be included in the valuations. The differences in the definitions could result in significant impact in the modelled shareholder value between the EV and IFRS 17.

Category	EV	IFRS 17	Comment
Contract boundary or Coverage period (continued)	The key principle is that any variation in the premiums on renewals of in-force business from expected contracts (including deviations in non-contractual increases, deviations in recurrent single premiums and re-pricing of premiums for in-force business), should be treated as an experience variance on in-force business and not as new business.	A coverage period is the period during which the entity provides insurance contract services. This period includes the insurance contract services that relate to all premiums within the boundary of the insurance contract. Therefore, the insured events and corresponding cashflows after the repricing point (end of the coverage period) relate to a new contract and will not be included in the measurement of the existing insurance contract.	For example, the value of expected profits from the existing book of short-contract portfolios (e.g., Group Life Assurance or Motor Insurance) could be significantly higher than that implied by the CSM on the same portfolio due to the inconsistent treatment of expected renewals or alterations.
Calibration of risk	Different approaches to calibrating risk can be adopted. For example, MCEV emphasis that risk should be calibrated in-line with the capital market's view on similar prices. In contrast, the calibration of risks in a TEV setting will reflect the actuary's view on the price for risk which may not necessarily match the capital market's price for similar risk.	Allowance for non-financial risks is allowed for using the RA mechanism; however, the calibration of RA reflects the perspective of the entity, and not of the whole market. Additionally, the RA is calibrated to include risks from cashflows that are directly attributable to the portfolio of insurance contracts (e.g., directly attributable expenses) only.	The extent to which an organization would or can rely on IFRS 17 results will depend on whether the entity aims to calibrate the risk in line with the market (i.e., MCEV) or not. If the insurers aim to report on MCEV calibrations, care should be taken to ensure that the RA calibration is consistent with the market's view for similar risks.
Non-attributable cashflows or asset types	EV allows for all the cashflows that impact the consolidated value of shareholder interest in the existing covered business. For example, all taxes and expenses are included as they represent a loss of profits to the shareholders. Additionally, shareholder value that is created from existing non-covered business or future new covered business is excluded.	IFRS 17 liabilities allows for only cashflows that are directly attributable to the portfolios of insurance contracts. For example, corporate tax and non-attributable expenses are excluded in the CSM.	Certain cashflows or asset types may be included in the IFRS 17 equity but excluded in the EV results (or vice versa). This could create inconsistencies and misleading results when measuring the shareholder value created by the in-force covered business for an organization aiming to replace EV reporting with IFRS 17 equity. Examples of such mismatches include non-attributable expenses and corporate taxes which are excluded in the IFRS 17 results but included in EV, or goodwill which may be included in the IFRS 17 NAV but excluded in EV.
Reinsurance treatment	The measurement of VIF is done net of reinsurance ceded.	The measurement of the underlying insurance contracts and corresponding reinsurance contracts held is done separately.	The different reinsurance treatment can create significant differences between IFRS 17 and EV. In particular, the level of contract boundaries and/or IFRS 17 measurements model used may be different between the underlying insurance contracts and reinsurance contracts held. There may subsequently be different values modelled between IFRS 17 and EV if the implied contract boundary and measurement model is different between IFRS 17 and EV.

Estimating EV under IFRS 17

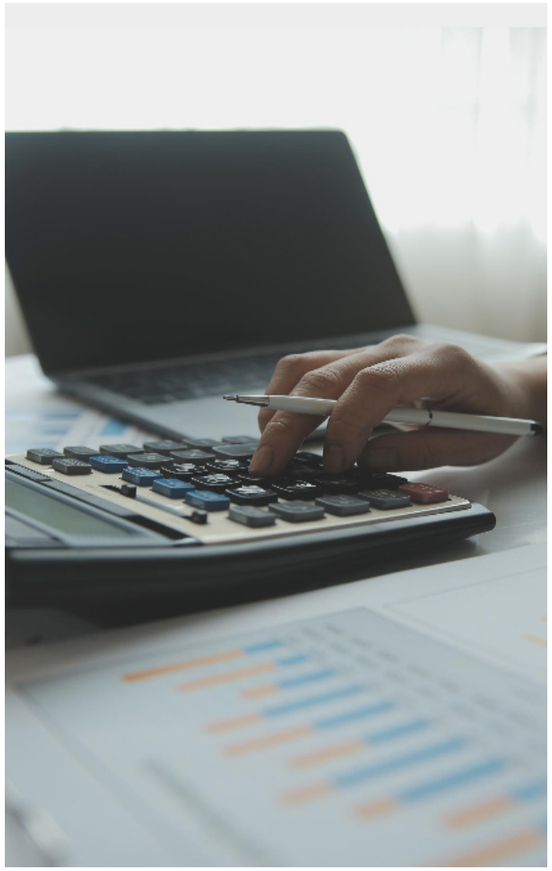
The main principles for calculating EV will remain the same for insurers that choose to continue reporting EV as part of their supplementary information, and most South African insurers will continue to use existing actuarial guidance, such as the APN 107 of the Actuarial Society of South Africa. EV will comprise of the NAV, VIF and CoRC allocated to existing covered business (as per the insurers' definition of covered business).

The NAV is determined as the market value of the excess of all assets attributed to the in-force business but not backing liabilities to support the covered business.

The CoRC is determined as the difference between the amount of required capital and the present value of future releases of this capital, allowing for future net of tax investment returns expected to be earned on this capital.

The VIF represents the present value of future shareholder cashflows projected to emerge from the assets backing liabilities of the in-force covered business. In practice, the VIF estimation will vary depending on the selected measurement model of the underlying IFRS 17 contracts. For contracts measured using the Premium Allocation Approach ("PAA"), the VIF will be based on expected after tax profits allowing for the expected scheme renewal rate, premium growth rate, expense ratios, expected loss ratios, etc.

For contracts measured using the General Measurement Model ("GMM") or Variable Fee Approach ("VFA"), the 'margins' included in the IFRS 17 liabilities are RA and CSM. It is expected that these 'margins' will be released as profits in the future. Therefore, the VIF represents the release of the CSM and RA.



For contracts measured using GMM, insurers should also consider the expected impact (unwinding mismatch) on revenue due to the Insurance Finance Income and Expense ("IFIE") resulting from the difference between the locked-in rates and current rates (i.e., assets are expected to earn interest rates that reflect current rates while the CSM accretes at locked-in rates). This is not the case for VFA contracts as there is no explicit CSM accretion for these contracts. The example below illustrates the above locked-in return mismatch impact (and the VIF estimation for GMM contract):

Example: Unwinding mismatch impact (VIF estimation for GMM contract)

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Fact patterns

Suppose insurer writes a 3-year risk product measured using GMM. For simplicity, assume that the opening CSM is 100 CU, opening RA is 20 CU and total assets of the insurer is 120 CU to back the CSM and RA. There are no other assets or liabilities i.e., the net asset value is nil at the opening date. Furthermore, assume that all the profits earned in a period are immediately declared as dividends (i.e., there are no retained earnings) and all the expenses are directly attributable to the insurance contracts. The following parameter values are assumed in this example.

Parameter	Year 1	Year 2	Year 3
Current rate*	10%	10%	10%
Locked-in rate	7%	7%	7%
CSM and RA release rate	33%	50%	100%

* We have assumed that asset backing liabilities will earn the current risk-free returns. In practice, this could be higher for TEV if the entity is investing in riskier assets.

The tables below show the projected assets, liabilities and profits.

CSM projection

Amounts in CU	Year 1	Year 2	Year 3
Opening	100	72	38
Interest accretion at locked-in rates	7	5	3
CSM release	(35)	(38)	(41)
Closing	72	38*	0

* Differences due to rounding effects

RA projection

Amounts in CU	Year 1	Year 2	Year 3
Opening	20	15	8
Interest accretion at current rates	2	1	1
RA release	(7)	(8)	(9)
Closing	15	8	0

* Differences due to rounding effects

Backing asset projection

Amounts in CU	Year 1	Year 2	Year 3
Opening	120	86	46
Investment return on assets at current rates	12	9	5
Dividend payments	(46)	(49)	(51)
Closing	86	46	0

* Differences due to rounding effects

Profits projection

Expected profits (Amounts in CU)	Year 1	Year 2	Year 3
Insurance service revenue - CSM release	35	38	41
Insurance service revenue - RA release	7	8	9
Impact of unwinding mismatch: (A) + (B)	3	2	1
Investment return on assets at current rates: (A)	12	9	5
Insurance Finance Income and Expenses - CSM and RA interest rate unwind: (B)	(9)	(6)	(3)
Profits for the year	46	49	51

* Differences due to rounding effects

As illustrated above, the projected profits for each year comprise the impact of unwinding mismatch (i.e., driven by the differences between the locked-in and current rates) and the release of CSM and RA. The impact of the unwinding mismatch is expected to be extensive for policies with long contract boundary and in economies with volatile interest rates.

As the 'margins' included in the IFRS 17 liabilities are the RA and CSM for contracts measured using the GMM and VFA, then the VIF for these contracts is the present value of the future release of the CSM and RA (allowing for the impact of unwinding mismatch). The releases are discounted using the risk discount rate (RDR) for TEV.

For market consistent valuation approach, the risk adjustment can be viewed as a proxy for allowance of non-hedgeable risk, since it represents the compensation that the entity requires for bearing the uncertainty about the amount and timing of the cash flows that arises from non-financial risks. The total profits (before adjusting for risk) are then expected to be CSM and risk adjustment releases. However, the risk-adjusted profits will be the future CSM releases only (the RA releases should not be included as part of the risk-adjusted profits). Therefore, the VIF can be calculated by discounting the future CSM releases at current risk-free rates (allowing for the impact of unwinding mismatch).

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Insurers should also adjust the VIF for non-attributable shareholder cashflows that are not included in the projected CSM (e.g., non-attributable expenses and corporate taxes) and discount the projected cashflows at an appropriate rate.

Conclusions

- It is conceivable that IFRS 17 Standard will take away some of the roles that EV has played in the past given their similarities; however, the extent to which IFRS 17 will fully replace EV reporting will depend on several factors which are unique to each insurer and users of financial statements (as discussed above).
- Insurers will need to decide whether to calculate EV or leverage IFRS 17 results.
- Insurers who opt to continue to calculate EV, the fundamental EV principles will remain the same. The EV will comprise the NAV, VIF and Cost of Capital, and VIF will mainly reflect the release of the contingency margins for contract measured using GMM or VFA (i.e., CSM and RA under IFRS 17).
- Insurers who opt to leverage IFRS 17 results will need to decide on the supplementary information, including the impact of non-attributable cashflows, short coverage period portfolios and non-IFRS 17 covered contracts.
- Depending on the approach adopted, the IFRS 17 VIF (for GMM and VFA contracts), will reflect the either the CSM and RA release (allowing for the impact of unwinding mismatch) discounted at the RDR or CSM release (allowing for the impact of unwinding mismatch), discounted at the current rates.
- Time will tell if the IFRS 17 Standard will replace EV reporting.

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HUMAN WILDLIFE CONFLICT (HWC) INSURANCE IN TIMES OF DROUGHT.

Call to protecting Wildlife and livelihoods Part 1

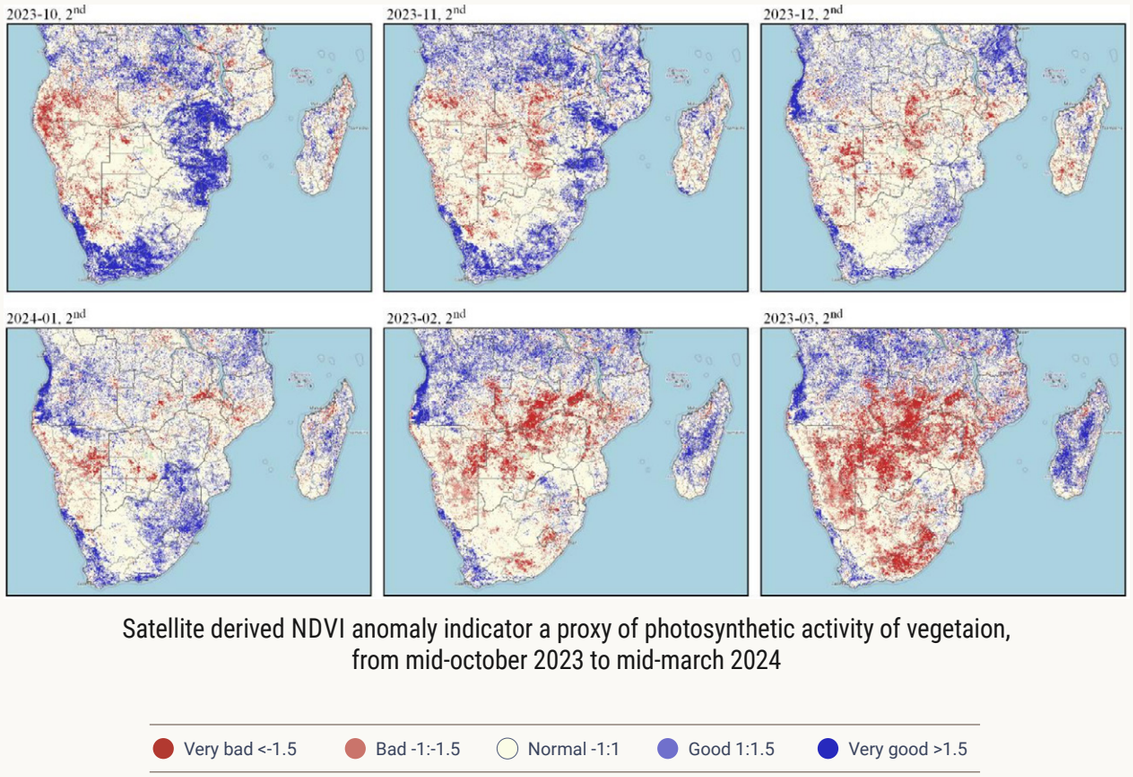
by Syed Danish Ali

We cover how Human Wildlife Conflict (HWC) insurance can help in setting a foundation for reducing challenges brought about by climate change to increase risk resilience of vulnerable communities. This is part 1 of the article, where we cover key product development considerations and how technology can encourage mass adoption for HWC Insurance. In Part 2 we will cover key operational and actuarial considerations and how insurers can help nudge communities towards implementing preventative risk mitigation measures to reduce HWC conflict in the first place.

SYED DANISH ALI

Desperate Times

Record breaking drought, due to El-Nino, is ongoing in Southern and Eastern Africa in 2024. This satellite image shows the extreme vegetation stress and depicts anomalies in the Normalized Difference Vegetation Index (NDVI), which is a measure of how plants absorb visible light and reflect infrared light. Drought-stressed vegetation reflects more visible light and less infrared than healthy vegetation, and this can be detected by satellites.



Satellite derived NDVI anomaly indicator a proxy of photosynthetic activity of vegetaion, from mid-october 2023 to mid-march 2024

Beneath this soulless map is an extremely dire, lived reality for millions of Africans facing the worst drought in a century, devastating Southern and Eastern Africa in 2023 and 2024. The drought has wiped out 84% of Namibia's food reserves, leading to nearly half of the 2.5 million population at risk of severe food shortages. This has forced the government to take the controversial step of killing more than 700 wild animals, including hippos and elephants, to provide meat to its people, which has angered some environmental groups. Millions of people are living on one meal per day and dry riverbeds are being dug for some chance of getting water. It is a depressing situation because the damage is so acute that extreme measures are being taken, and because there is not much being done by insurers to help. Even where insurance is available to 3% of total African farmers, the payouts are just a drop in the dry well of the actual losses and the funds needed to recover.

We do not intend to criticize the culling of wild animals, or intend to imply that by following our steps you can solve these issues. What we intend to do is to set up an infrastructure that has long term measures that can help in such extreme situations in the future. We need to see the glimmer of hope that things can, over time, improve through better risk adaptation and mitigation by putting in continuous efforts and involving everybody proactively, including the insurance and reinsurance sectors.

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Our role as actuaries and insurance professionals is to ensure that human-wildlife interactions evolve into a sustainable balance, where communities are empowered, ecosystems are protected, and every life, human or animal, has the space to flourish.







We need to optimise our efforts and tilt over what is working and avoid what is not working so as to move the needle in what is one of the greatest challenges of our times. The challenges are multi-faceted and chronic and there is no one solution that fits all.

Extreme climate challenges like drought ruin crops, brings about pest infestations, ruin financial health and increase malnutrition in vulnerable communities, as well as push desperate wildlife to come in conflict with humans more. In this article we discuss human wildlife conflict (HWC) insurance and how it can help reduce this conflict. We are already living in the Age of Anthropocene (Anthropocene = humans) which is arguably termed as the start of the 6th mass extinction on earth. So, adding to that biodiversity loss by culling should be seen as only the very last resort (image source). In a recent landmark study, WWF also shows that wildlife populations have plunged by 73% since 1970, mainly due to human pressures. It's not just about wildlife, but essential ecosystems that sustain human life.

"TODAY, WILD ANIMALS HAVE BECOME REFUGEES ON OUR PLANET, THEY WILL SOON HAVE NOWHERE LEFT TO GO."



From the documentary "Terra" by Yann Arthus-Bertrand and Michael Pitiot. A Rhinoceros being relocated to a safe area as being seen in the documentary.



Our role as actuaries and insurance professionals is to ensure that human-wildlife interactions evolve into a sustainable balance, where communities are empowered, ecosystems are protected, and every life, human or animal, has the space to flourish. By harnessing data-driven insights and innovative risk solutions, we can help turn the tide from conflict to coexistence, nurturing a world where prosperity and biodiversity walk hand in hand.

The decision to cull 700 animals in Namibia due to ongoing droughts highlights a deep-rooted aspect of HWC. During severe droughts, both wildlife and humans compete for limited resources such as water and grazing land. This competition can lead to wildlife straying into human settlements, causing damage to crops, property, or even posing a threat to human safety.

The main point that we have to realise is that animals actively avoid humans as part of their survival instinct. Any straying is an act of desperation rather than something that is actively sought out by the animals. Studies show that animals, in fact, find the human voice terrifying because of the extent to which humans have killed them over history. So, it is in their evolution to avoid the human super-predator. The only two predators known to actively hunt humans in present times are the saltwater crocodile and polar bear because they have not had enough encounters with humans, historically, to be wary of them. It's not like wildlife today has evolved to actively hunt humans or primates like the Dinofelis large cat had in prehistoric times. From the human perspective, smallholder farmers and pastoralists derive most of their income from agriculture and livestock, and with little to no safety nets, the economic damage of losing even a small portion of a crop or a few head of livestock is a heavy burden. So, when this desperation meets from both animal and human sides, it is bound to become an explosive recipe for disaster.

To address this situation with HWC insurance, a proactive insurance scheme could help reduce the need for drastic actions like culling. By implementing insurance policies that compensate farmers or communities for wildlife-related damage, people would be less pressured to resort to extreme measures such as killing animals for survival. Technology such as GPS tracking for wildlife, drones to monitor animal movements, and early warning systems can also be integrated into this insurance model. Farmers and communities would receive real-time updates on potential wildlife threats, enabling preventative action. Insurance could be structured to cover losses incurred by drought-induced conflicts, such as damage to grazing land or water sources. This approach would not only help protect wildlife populations by reducing the need for culling but also provide financial stability to affected communities.

Product development considerations for HWC insurance

The main driver of human-wildlife conflict is the decline in habitat available for wildlife to exist away from human interference. Indeed, the WWF estimates that only 26% of the Earth's surface is largely devoid of humans, with 18% dominated by humans, and 56% shared by wildlife and people. This decline is primarily driven by changing land use patterns, as more land is used for urban expansion, industrial purposes and agriculture. As our worlds continue to overlap, encounters between people and wildlife become more and more common, giving rise to higher levels of conflict.

Solutions to human-wildlife conflict can be complicated, since they typically are specific to the species and area concerned. An important aspect, however, is the idea that solutions should be beneficial to both the animals and the local human communities affected by conflict so that they can coexist. To prevent the loss of lives, property and extinction of wildlife, seeking the 'wildness' that separates wildlife and people is not necessarily a realistic solution. This is because, for example in Kenya, over 60% of wildlife live outside Protected Areas, in community and privately-owned lands, where human-wildlife conflict cases are the highest.

In order to launch and broaden the social security net to encompass HWC insurance, these key points are relevant from an actuarial and operational perspective:

- Conduct a situational analysis to understand the nature and extent of losses nationally and sub-nationally in HWC hotspots. This should include a detailed assessment in all affected areas (or at least in priority areas) and a review of its causes, socioeconomic and biodiversity consequences, and the potential contribution and viability of insurance as a mitigation measure.
- Though the causes and effects of human carnivore interactions are similar, the nature and intensity of conflict varies depending on the biology of the carnivore species involved, its distribution relative to dangerous resources and human occupied spaces, and the economic and social characteristics of human communities experiencing conflict. It is important to recognise that each case is different and will require a tailored solution. For example:
    - Boars in Muslim villages in Africa might be becoming a nuisance due to exponential population growth because their meat consumption and trophy hunting is forbidden in Islam.





- Trophy hunting might fetch large amounts of money per license, like for the elusive Himalayan Markhor goat, and help communities financially but trophy hunting might not work for other animals having lower trophy value, and so on.
- We need to take on board the local wisdom from communities and farmers and codify and document it. Nature also has predictive markers to act as early warning signals over upcoming catastrophes. For example, communities in Kenya get to hear the croaking of a particular type of frog before a major flood.
- Some communities are more war-like and tribal and more ready to kill wildlife attacking them whereas other communities might be more conducive to non-lethal prevention measures as they consider that all life is sacred.

- Data collection should cover the frequency and severity of HWC incidents, including crop raiding, livestock injury and death, property damage, and human injury and death, over a representative time period. Quantitative data should ideally cover the previous ten years and can be gathered from different sources, including government wildlife authorities and NGOs working locally. Schemes should also consider using local information from farmers and pastoralists. It is important to bear in mind that any data collected could be misrepresentative of real occurrences. Movement data for wildlife of concern can be useful for an in-depth investigation of temporal and spatial patterns of pathway use and risk profile for elephants and other species.
- We have to agree upon the coverage types. We have to think of HWC as an extension of agricultural insurance as both are deeply complementary. Agricultural insurance forms the base and HWC takes it further and there cannot be any HWC without first providing coverage to crop damages. No wonder then that Pula, one of the largest agricultural insuretechs in Africa, covering 15 million African small farmers, has plans to expand into human-wildlife cover by leveraging existing capabilities in fieldwork and insurance. We have to agree upon coverage types like:
- What kind of loss and damage will be insured against, for example:
  - Human deaths and injuries sustained directly from wildlife and indirectly, such as when fleeing threatening animals
  - Crop losses (all, perennial, annual and so on)
  - Livestock injury or loss, including coverage types, depending on age of animals, and
  - Damage to property, such as fences, granaries and water installations.
- Agree what wildlife damages will be insured against. For example, schemes may cover damages from one species (such as elephants) or from several different species (for example, rodents, birds, elephants and large carnivores).
- Clearly define the conditions of cover, including those to ensure HWC mitigation efforts are being implemented to reduce moral hazard (for example, wildfire can be covered but some villagers might set deliberate fires to claim compensation).

How Technology can encourage mass adoption and other operational suggestions

It seems absurd and impractical at first thought to suggest cool futuristic things covering technology for HWC insurance when even its precursor agricultural insurance is not being availed to 97% of farmers in Africa right now. It's like trying to reach Mars when we haven't first reached the Moon. However, technology is exactly what we need to leapfrog to have mass adoption of HWC and agricultural insurance in Africa because the traditional conventional legacy insurance business model does not appear to work in micro-insurance, and will continue being feasible only for the top 10%



of the population living in top 3-5 urban cities. Without tech to rapidly and sustainably scale HWC and agricultural insurance, we will continue saying that such a product has too complex risks, data is too scarce, expenses too high and overall challenges do not make it worthwhile for insurers to offer HWC insurance to vulnerable communities.

A key example to showcase the point of how technology can be used to unlock mass micro insurance adoption in the first place is the case of crop cutting. Traditional crop cutting for area yield index insurance is too labour intensive, time-consuming and limited in data capturing capacity. Technology can be used to scale it rapidly and sustainably. In 2016, India launched a nationwide crop insurance program, the Pradhan Mantri Fasal Bima Yojana (PMFBY), which significantly increased the number of Crop Cutting Experiments (CCEs) required to be carried out. The program required at least four CCEs for a major crop in a village or village panchayat. This immediately increased the number of CCEs to around 7-8 million per year, compared with the about million earlier.

Since the harvest period is very short, carrying out so many CCEs, with limited manpower, became extremely difficult. Using technology to optimise the number of CCEs and making them more representative of the overall crop situation of the insurance unit (village, village panchayat, block, revenue circle, Mandal or taluk) offered a potential solution. During Kharif (monsoon) 2018 and rabi (winter) 2018-19, India's agriculture ministry commissioned pilot studies to develop satellite and other advanced technologies for CCE optimization. The studies showed that using satellite data, modeling approaches and other related parameters, it is possible to reduce the number of CCEs by 30-70% while maintaining accuracy.

Satellite data is available freely from a lot of opensource data that can lead to objective data for measuring multiple catastrophe risks.



Satellite data is available freely from a lot of opensource data that can lead to objective data for measuring multiple catastrophe risks. For example, for wildfires (common during droughts and usually covered under HWC or crop insurance policies), NASA provides VIIRS S-NPP and VIIRS NOAA-20 and the EU provides access to EUMETSAT which, together, make available MODIS and Sentinel 2 data at up to 20sq m spatial resolution. The satellite monitoring can also provide early indicators of fire via burn scars instead of fires engulfing large areas and governments relying on local people to tell them about the wildfires. Globally, the data shows that effective management makes a huge difference to the losses suffered as a result of fires. Forested lands, which are often unmanaged or provided with minimal management by the state, have distinctly different results to insured clients in terms of land lost each year to fire. The ratio of losses can sometimes be as great as 20:1; in other words, an unmanaged forest burns 20 times more than a managed one. Algorithms can be designed to spot disturbances in the air created by fires, via the smoke generated, and be able to differentiate between an actual wildfire or other causes of smoke.

Other than water scarcity, crop failure, pest infestations, wild life growing desperate and higher chances of fire, we also need to evaluate the impact of heatwaves as they can both be the cause and the effect of droughts. Extreme heat forms a nexus with drought and floods as well. Extreme heat increases water evaporation so that droughts start prevailing. Once seasonal rain comes in, the soil absorption of water has been reduced due to preceding heatwaves and this increases the chances of floods as well. Index insurance needs to consider not just extreme heat but also weather extremities that form a nexus and correlation with extreme heat. Heatwave based index products so far are daily wage loss coverage for heatwave for daily wage earners, heatwave compensating for loss of milk production in cows and egg production in hens by IBISA. Recent actuarial research also shows that excess high temperatures are a good predictor of excess mortality in old-age pensioners, while extreme low temperature were found to have a weakly significant effect on excess mortality for the lives covered by funeral insurance.

The use of geospatial technology like GPS and Geographic Information Systems (GIS) to track wildlife movements can be very useful. By using satellite imagery and GPS collars on animals, insurance companies and wildlife managers can predict potential conflict zones in real time. This data helps create early warning systems, allowing farmers to take preventative measures before animals enter crop areas or human settlements, which in turn reduces the likelihood of conflict and the need for compensation claims.

Additionally, drones and remote sensing technology can be used to assess the extent of damage more quickly and accurately after a wildlife-related incident. This can streamline the insurance claim process by providing precise data on the scale of losses. Machine learning models could also be employed to analyse historical data on wildlife patterns and environmental factors, offering more accurate predictions of conflict risk. These advancements allow insurance providers to offer dynamic premium structures, where those in high-risk areas pay adjusted rates, while those using preventive measures, like fencing or technology, may receive lower premiums

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Actuaries can complement existing incomplete datasets with simulated data generated after distribution fitting and apply risk metrics to arrive at premiums and reserves. Satellite, drone, mobile based data can be used to enhance the modeling process as well as catastrophe and climate change modeling.

Regulatory Sandbox should be there and be utilised by insurers as a tailored regulatory environment for conducting limited-scale, live tests of innovative HWC insurance products in a controlled environment for a limited period to assess their viability before launching on a full scale.

Conclusion

Together, let's increase investments to scale up working solutions to prevent human-wildlife conflict. No one solution fits all. They are layered, multifaceted, and interconnected just like a web. We are all part of the solution, because we are all connected. Mitigation should evolve away from short-term symptom fixes like culling towards long-term sustainable solutions to prevent conflict. It's during dire times that we wake up from the existing status quo and move together to create a better future. Necessity is the mother of invention.

The good news is that we are not yet past the point of no return. It is high time that we make climate action relevant to us both professionally and personally instead of dismissing it as irrelevant to us actuaries. We are near to the edge of chaos of major tipping points approaching certain ecosystems which can make irreversible changes with devastating consequences for humanity.

To sum it all up, we have interpreted climate change risk resilience in different ways, but the point is to act and change this situation for the better via climate action even if it's a drop in the sea because drop by drop becomes a sea eventually.

PIVOT OR PUSH THROUGH MOMENTS

In a world often defined by rigid career paths and predetermined progressions, breaking free can feel like an insurmountable challenge. This article delves into the lived experience of a general manager who defied conventional expectations, pushing through traditional career barriers to ascend to the highest levels of leadership. Building upon our previous exploration of career pivots, this piece will uncover the strategies, mindset, and unwavering determination that fuelled this remarkable journey.

Nyasha P. Mapolisa, *MBA, Strategy and Business Coach*

I DO HARD THINGS



RUVIMBO TAGWIRA

by Ruvimbo Tagwira

One Actuary's journey to becoming a general manager

Ruvimbo Tagwira *is an Actuary, CFO and General Manager. Most recently she served as CFO at Catholic Church Insurance (CCI) in Australia, where she managed strategic finance and led operational improvements and capital remediation. Before this, she was the Head of Life Insurance Southern Africa at Sanlam, overseeing six life offices in the region. Her career also includes roles as an Actuarial Specialist at Alexander Forbes and an Actuarial Consultant at NMG Employee Benefits. Ruvimbo holds a Sloan Fellow MSx degree from Stanford University Graduate School of Business, a Master's in Business Science, specializing in Actuarial Science, from the University of Cape Town and is a Fellow with the Institute and Faculty of Actuaries (UK).*

In November 2020, I received a call from my manager, who was the CFO of the insurer I had started working for 2 weeks prior. An expected capital injection had just been vetoed by the majority shareholders, and what was meant to be a short-lived capital strain was showing signs of becoming a threat to solvency in the near future. After a quick wellness check, the CFO made his pitch to me. He said, "I know this looks bleak and is certainly not what you signed up for, but I would encourage you to stay through it. The best-case scenario is we come up with a heroic plan and you will be part of a significant insurer recovery. The worst case is we end up in a process to wind down this entity, and I bet you have not seen that before."

I do hard things. If I needed a tagline to sum up my career progression to date, this would be it. Doing hard things is both a learnt behaviour, and a character trait for me. I chose the actuarial career path both to rebel against my parents who wanted another doctor in the family, and because all I had ever heard of the field was how hard it was. Our local university only took 10 applicants, and the pass rate to qualification was low. It was only in my second year of study that I began to understand what the field was all about. I had chosen the path for its difficulty, and because I loved a challenge.

Fast forward the clock to four-years post-graduation, I was newly qualified and exhausted. My love of hard things had collided with the truly hard experience of actuarial exams. I was done! I was coming out of the third attempt of the same exam, and in the fourth year of what should have been a two-year master's program. Both were now complete, and I was ready to receive my dues. All I wanted was to be a pension valuator to a few clients with a team of 'doers' and 'checkers' reporting to me. I had done the hard part, and I was now ready for an easier life!

An easier life is never owed to you, and the same can be said for career progression. I have since learnt that I am the only person with any real responsibility for that. It is helpful to have mentors and supportive managers, they smooth the way, if you are willing to do the climb. I found myself bored within months of qualification and sought the next stage of progress. I needed to manage a team, be in front of clients and yes, earn more. Except the opportunities to do this were few and far between. Everyone wanted the same exciting assignments, and I was just not getting them. What happened next changed the trajectory of my career.

My "push through" moment came in the form of an invitation. My then employer had acquired a new client. A large client with seemingly infinite work that no one really wanted to do. It sounded tedious, stressful and not at all equivalent to the more lucrative opportunities available. Calculating damages compensation and standing in as an expert witness in court. All I knew was this was a far-cry from the cushy life of a valuator, so I declined it. Thank you, but no thanks. Lucky for me, I had a mentor. Coral Van Zyl had recruited me, and knew I was looking for more opportunities. She counselled me to reconsider and re-framed this unpalatable task as the significant opportunity that it was. No one else is fighting to do this work, and if you do this right, you will get to pick your own opportunity going forward. She was right!



WHAT IS A GENERAL MANAGER

In the epigraph of his book "Range – How Generalists Triumph in a Specialised World" David Epstein has the following quotes:

And he refused to specialise in anything, preferring to keep an eye on the overall estate rather than any of its parts…. And Nikolay's management produced the most brilliant results. – Leo Tolstoy, War and Peace.

No tool is omnicompetent. There is no such thing as a master-key that will unlock all doors. – Arnold Toynbee

He makes a case for both the superior management of generalists, and their inherent limitations right off the bat. In the world of business, a good general manager has a broad view of the organisation, and a deep understanding of all its component parts. I stumbled upon the general management pathway, before I even had a name for it, by opening myself to learning and working opportunities across a broad range of areas. The invitation to manage the client required my active engagement with, and oversight of operational processes and people. I had to meet with the client, manage invoicing and payments, and negotiate timelines and ways of work. Then there was the training for our team, developing templates and setting standards for the quality we would need to meet and maintain. What was a clear pathway to becoming a valuator became a training ground for developing new skills - negotiation and conflict management anyone - in a very short period. Coral was right, once I showed aptitude for this line of work, I was the front runner to do other interesting projects.

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THE ACTUARIAL PROFESSION PRIDES ITSELF ON PRODUCING COMPETENT AND WELL-TRAINED SPECIALISTS. IN FACT, **THE FINAL STAGES OF QUALIFICATION IN MY TIME WERE TO PROVE YOUR ABILITY ALONG A SPECIALIST PATHWAY.**

The actuarial profession prides itself on producing competent and well-trained specialists. In fact, the final stages of qualification in my time were to prove your ability along a specialist pathway. We were not producing generalist actuaries. You had to specialise. The first few years on the generalist pathway, I put in effort to go back to being a specialist. I mistakenly assumed that the pinnacle of career achievement was at the top of the specialist ladder. I had been instrumental in business development activities, consulted to a major bank and was engaged in product development. However, none of these opportunities were in areas restricted to actuaries so I assumed my career was stagnant. It took the next opportunity to help me to frame my experience. It helped that the position title was also 'general manager'.

Businesses are always looking for individuals with a broad range of skills to rise through their ranks. These skills do not make up a significant portion of any specialist training but become the most valuable for a generalist. Communication, our profession's Achilles heel is just one of them. The ability to hire an A-team, and manage non-performers is not the job of the HR business partner. Being able to negotiate with external parties, formulate and implement a global strategy and manage projects within budget and time constraints are essential skills. A lot of these are learnt on the job, by broadening your skillset, and in many cases doing tasks that fall outside the remit of our specialist ability.

THE GENERAL MANAGER'S PATHWAY

Most organisations have a set pathway for specialist training. Few organisations will have specific pathways for general managers. These tend to emerge from the pool of candidates (mainly those on a specialist pathway) who showcase their broad abilities in various settings. If you are considering a general management pathway, I would recommend the following actions to help you stand out:

1. **Do the hard tasks** – offer yourself to take on the hard tasks. This may be a project that others have tried and failed at, or just a neglected part of the business. These tend to become high impact, high visibility opportunities.
2. **Broaden your network of collaborators** – Actuaries tend to work with other actuaries. This is great for specialist training but limits our understanding of how the rest of the business works. Find inter-disciplinary projects to work on and actively learn about other departments. If you can, get seconded to these areas for periods of time. For an actuary in an insurance company, this means not just working with finance and underwriters, who make natural collaborators, but also the marketing, HR and even corporate services functions.

3. **Be an understudy to a general manager** – this requires expressing your intention to become a generalist and asking for opportunities to broaden your knowledge or skillset. Offer to write the first draft of a paper that is headed to the executive committee or board and use the experience to learn about the expectations of the directors and senior management. Offer to present your paper, or be in the room when it is presented, and when offered a seat at the table, make yourself heard.
4. **Be self-aware** – there is no substitute for this in the generalist world. You must have a good understanding of your limitations and work to improve on these. In my career, this meant taking a break to do a 1-year MBA. The learnings were transformational and made me a better general manager.
5. **Beware the trap of specialisation** – The limitation of broadening your experience is that you will not be the top specialist in any field. Some of my best decisions as a manager have been engaging the services of a specialist to assist me. This, of course, should not be an excuse to be inadequately trained in any area, but rather a fine balance of understanding when additional training comes at a cost to essential broader experience.

CONCLUSION

My career pathway has taken me from being a Pension Fund Valuator to a General Manager overseeing a multi-jurisdictional portfolio of companies and eventually a CFO for an insurer. My earlier career experience taught me that the greatest learning and opportunity often exists in the hardest challenges in any organisation. Those truly hard challenges are always available for the willing, I am yet to encounter a queue of colleagues eager to take them on.



MY EARLIER CAREER EXPERIENCE TAUGHT ME THAT **THE GREATEST LEARNING AND OPPORTUNITY OFTEN EXISTS IN THE HARDEST CHALLENGES IN ANY ORGANISATION.**

If a general management career path is what you aspire to, I invite you to do the work to broaden your understanding of the inner workings of all areas in your organisation. Tackle some hard challenges, do them well and see what the result will be. As for me, it is now four years since my then CFO invited me to stay on for the challenging capital situation. I chose to stay, the situation was my kind of hard. He promised me one of two compelling outcomes. In the end we got to do both very well.

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The Intersection of Actuarial Science and Fintech: A Conversation with Ian Norden by Samantha Aspeling

A Warm Welcome to the New Class of Actuaries

Congratulations to all Fellows, Associates and Chartered Enterprise Risk Actuaries who qualified in 2024! Your journey has surely tested your resilience, and the result is well deserved. With the honour of being an Actuary, your studies have equipped you with a competitive advantage over your industry colleagues and other professionals in the way you have been trained to think. My advice is to embrace your skills but be humble about the fact that others you work with as colleagues or clients have not walked the same road or used the same approach. By remaining curious about their skills and perspectives and complementing them with your own, you will go further in both work and life.



New Fellows Dinner Cape Town: Semester 1 2024 Qualifiers



CERA Qualifiers of 2024 at the CERA Networking Cocktail



IAN NORDEN

What motivated you to pursue a career in actuarial science?

My interest began in junior school during an Old Mutual Maths Olympiad. I noticed an advert on the back page suggesting a career in actuarial science for anyone who enjoyed solving challenging problems. (This was before adverts had to have warning labels – like the lack of a social life that might lie ahead during your studies.) My passion for problem-solving and love for numbers remained throughout my school career, leading me to pursue an undergraduate degree in actuarial science at UCT.

Given your extensive experience in the financial services industry, particularly in fintech, how do you see the role of actuaries evolving in the digital age?

At their core, actuaries are required to interpret the complexity and present it in a simplified format. The digital age is bringing large volumes of data

If there is an evolution of the role of an actuary in the future, however, there is an even bigger focus on professional and simplified communication of complex concepts.

and a need for analytical insights into areas that previously did not have access to these levels of data. Almost anything can now be tracked and stored in a database with the digitisation in the world. The financial services industry, specifically, is looking to big data and analytics tools to understand clients and the world around them and will need more and more expertise in processing these large data sets. Large language models are useful in this space, but what we see in our own business (and similar companies) is that many AI models are not perfect and still need care and expertise around their inputs (and sense checking of outputs) to get the most value out of their functionality. From my vantage point, actuarial skills will continue to be essential in financial services, fintech, and other fields. If there is an evolution of the role of an actuary in the future, however, there is an even bigger focus on professional and simplified communication of complex concepts.

As a leader in the fintech industry, what are some of the biggest challenges and opportunities you see for actuaries in the South African market?

Actuaries in South Africa could seize the AI space early on. Despite the belief that AI might replace quantitative skills, as I mentioned earlier, actuaries must emphasise to the market their expertise in interpreting risk and uncertainty. Actuaries have to constantly remind the market that their skills are not simply number-crunching but that they are experts at providing insights into problems across a scope of areas. For example, when it comes to understanding and explaining that just because an answer came out quickly from an AI model, it doesn't mean that the problem was a simple one. There could be (and almost certainly are) various assumptions driving the solution.

I have previously asked ChatGPT to work out the payment on a potential home loan and received an answer that did not look quite right. I asked it two more times and ended up with three different responses. Each time that the AI model used a different rounding method in certain steps, the answer was materially different. Actuaries bring an intuitive understanding of the problem and an inquisitive and interrogative approach to the solution that make them very well equipped not to accept things at face value and become indispensable in this space.

One potential challenge for future actuaries might be the overlapping of certain skills with some newer degrees and job functions like "data scientists/engineers" and even "AI prompt engineers." These roles might cross into some functions that actuaries perform well in wider fields. The traditional actuarial fields will be more sheltered from this. With the advance of technology in financial services, even the skills required in the conventional fields may look different 5 or 10 years from now.

How has your actuarial background contributed to your success in the fintech industry?

My actuarial skills have been pivotal! The resilience required to introduce a new concept in an established market was developed during my actuarial training. At Intengo

Market, our fintech business focuses on bringing advanced analytics to clients in an easy-to-digest format, as well as enhancing financial market processes and efficiencies by changing the way certain tasks are performed. Success demands innovative problem-solving, resilience (when dealing with change-resistant clients) and conforming with a complex regulatory landscape. My actuarial training has honed my problem-solving and lateral thinking skills, enabling me to deliver effective and innovative solutions whilst being able to present these solutions in an easy-to-understand manner.

Fintech companies always need to improve and evolve. Our business model, phrased in a very familiar way for an actuary, can be summarised as monitoring the experience, specifying the problem and developing/enhancing the solution. (It is safe to say that my team has seen the actuarial control cycle drawn on a whiteboard almost as often as an actuarial student by now!).

Going back a bit further in my career, before I moved into fintech, my skills opened the opportunity to transition from the healthcare field to one in big data relatively early in my career and have influenced every subsequent role since. I would not be where I am, leading my business the way I am, if I were not an actuary.

What advice would you give to aspiring actuaries?

If you want it, stick with it because it will be worth it. Everyone's journey is also unique, and your race is your own. Stay focused on the prize, not what the person next to you is doing.

Key Takeaways

- **Embrace your skills and remain curious:** Learn from your colleagues and clients, and leverage your actuarial expertise to contribute to the industry.
- **The Power of Resilience:** Overcoming challenges is a hallmark of a successful actuary.
- **The importance of communication:** Effective communication is essential for building relationships and conveying complex ideas.
- **The future of actuaries:** The digital age presents new opportunities for actuaries to innovate and contribute to the industry.

Ian Norden Profile

Ian Norden is the CEO and Executive Director of Intengo Market. He has over 17 years of financial-market experience in South Africa and the United Kingdom across a wide range of areas. After a decade in investment banking, he shifted gears in 2017 to start a fintech platform for corporate lending and bond trading aimed at South African debt issuers, asset managers, and banks. He joined Intengo in mid-2022 to continue this journey of modernising the South African fixed-income market with technology. Ian is passionate about efficiency and task optimisation, whether this means finding the quickest commute to work or reducing the number of steps to trade a bond. He is also a proud father and husband, and an avid golfer, whenever an opportunity may arise. Ian holds a BSc (Hons) in Actuarial Science and Statistics from the University of Cape Town (UCT). He is a qualified actuary with the Institute and Faculty of Actuaries (UK) and the Actuarial Society of South Africa. In addition, he has a Master's degree in Finance from INSEAD.

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Actuarial Society of South Africa's E-magazine

Volume 8 Number 2 | NOVEMBER 2024

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