Hong Kong Actuaries

Actuarial Society of Hong Kong's Newsletter

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Online Insurance

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- **Call for Articles or Views for the next issue of Newsletter!** – while all articles are welcome, we would especially like to receive articles for the Feature Articles and Knowledge Sharing sections. If you have written any inspiring articles or have read any interesting articles from other actuarial organisation(s), please feel free to let us know. We will try to reprint them in our newsletter. Welcome to email your articles or views at info@actuaries.org.hk.

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ACTUARIAL SOCIETY of HONG KONG
香港精算學會

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Editorial

Dear Readers,

Welcome to the 2019's third ASHK newsletter!

Digitization is set to change the insurance landscape as more insurers and consumers are embracing online insurance. Brace yourself and join our forward-looking contributors as they take you on a journey of digital transformation and growth through several insightful articles in this newsletter.

Further, we have also included a special article on Cryptocurrency Insurance. It provides an overview of what cryptocurrency insurance is about, how it operates and the associated risks. Thank you for the contribution from the Actuarial Innovation Committee.

Internally, ASHK continues to make progress on the statutory path project by liaising with the key local regulators; meanwhile, the second ASHK Examination is set to take place in November. Not to forget, the AGM and lunch is scheduled on 12 December at the Harbour Grand Hong Kong. Mark this date in your diary and come and meet the new Council for 2020. We are also looking forward to the inaugural 2-day Hong Kong Actuarial Summit scheduled on 19-20 May 2020 at the Kowloon Shangri-la. This is indeed an event you can't miss!

In September 2019, we held two evening talks on "Virtual Insurance" and "IFRS17 Discount Rate" respectively with overwhelming response. The Professionalism Seminar has just concluded successfully last month. Another professionalism seminar has been planned in December. Your support does matter to us so thank you. Hope you enjoy the upcoming events of ASHK and this issue of the newsletter.

As always, if you have any thoughts on any publication matters, or you would like to initiate discussion on any industry issues, we welcome you to contact us at info@actuaries.org.hk. Happy Reading!

Best Regards,
Alexander WONG
EDITOR

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COUNCIL – J. PETER DURAN

ASHK Meeting with Insurance Authority (“IA”) and the Financial Services and the Treasury Bureau (“FSTB”)

The society has established the working group with IA with an aim to formalizing the discussions at strategic and working levels and enhancing mutual cooperation and support for the profession and industry while respecting each other’s independence. The first meeting with IA was held in August.

The Council members (J. Peter Duran, Billy Wong, Simon Lam and Trinity Pong) met with representatives from FSTB and IA on 25 September to touch base on the Statutory body project and the ASHK Examination. Moving forward, the Council will continue to put effort in discussing the key steps with the IA as well as engaging the FSTB.

The Inaugural Hong Kong Actuarial Summit 2020

Themed “Embracing the New Future”, the exciting inaugural Actuarial Summit was originally to be held in Hong Kong on 21-22 November at Kowloon Shangri-la. The two full-day event is a combination of the ASHK Annual Dinner, Appointed Actuaries Symposium, GI, Pension and Health Seminars. The Summit is now rescheduled to 19-20 May 2020 due to the recent social situation.

Dr the Hon Moses Cheng Mo-chi, GBM, GBS, JP, Chairman of Insurance Authority, will deliver the welcome address.

Join more than 300 delegates including insurance C-suites, government bodies, Appointed Actuaries, media and experts in one place at the Kowloon Shangri-la that is set to be an important platform to exchange ideas, resources, connections and inspirations. We have arranged insightful plenary sessions and featured breakout sessions from 6 designated tracks covering Life Insurance, Risk Management, Health Insurance, General Insurance, Innovation and Pension. With tremendous support of the Hong Kong Science and Technology Park Corporations (HKSTP), we are delighted to invite a total of 7 innovation and technology companies to show case the most up-to-date gadgets and tech relevant to the insurance industry.

The event is graciously sponsored by more than 13 key insurers, reinsurers and consulting firms in the territory. We truly appreciate the generous support from the industry on the sponsorships. Make sure to check out their booths at the Summit!

J. Peter Duran, the President of the ASHK added: *"Please join us to hear local and international regulators and insurance executives discuss how innovation and insurtech are re-shaping the insurance landscape in Hong Kong and beyond."* We can't wait to see you at the Summit in May 2020!

ASHK Announcement of Change of President

The Council of The Actuarial Society of Hong Kong (the "ASHK") would like to announce that Mr. Kenneth Dai has tendered his resignation as President of the ASHK with effect from 1 October 2019. Kenneth will be taking up a new position in Canada.

Pursuant to the Articles of Association of the ASHK [Articles 16 (e) (i) & (iii)], the Council has resolved to appoint Mr. Peter Duran, the current Vice President and Professional Matters Committee Chairperson, as the President of ASHK with effect from 1 October. The term of office of the President will end on 31 December 2019. It is expected that Peter will stand for re-election in December.

The Council would like to take this opportunity to express its sincere gratitude and appreciation to Kenneth for his compassionate leadership and contributions to the Hong Kong actuarial profession during his tenure as Council member and President. We wish him much success and happiness in Canada!

CURRICULUM /EXAM TASKFORCE,

PROFESSIONAL DEVELOPMENT COMMITTEE

- NORA LI

ASHK Examination Supports

With our successful launch of the first local actuarial examination in May, the second examination will take place on 29 November 2019. The Committee and the Taskforce will continue to actively engage in examination enhancement so as to better serve our candidates' needs and to help them achieve higher goals.

We are offering to help set up Study Groups to suit the needs of candidates who prefer a different learning style. The study group may meet at an agreed-upon time in a location convenient to all of the candidates in the group.

ASHK also hosted a free INFO Session on 15 October aiming at providing a better understanding to our valued members, local university students as well as employers on the examination, study tips and how it benefits career and professional development. This provided a great opportunity for the audience to ask questions and meet with ASHK Examination Task Force member as well as our passing candidates.

What Makes for a Good ASHK Examination Candidate? Interview with Two Successful ASHK Examination Candidates – Mr. George Ealham and Mr. Sebastian Leung

George Ealham
Senior Risk Actuary
Insurance Asia Pacific
HSBC Global Services (HK) Limited

Sebastian Leung
Actuarial Manager
Munich Reinsurance Company
Hong Kong Branch

ASHK: Which field are you currently working in? How did the ASHK Examination benefit you?

GE: I work in the Risk Management Function for a Life Insurer. I moved to Hong Kong in early 2019, with a UK actuarial background. The ASHK examination was a really useful tool in helping me understand the Hong Kong insurance market, as well as the specific technical aspects and regulations unique to Hong Kong.

SL: I'm currently with Munich Re. My job title is Actuarial Manager with my main role engaging in life insurance pricing. I was recommended by my superior to take this examination and believe that this is a bonus qualification to demonstrate that I have reached the required standard in terms of knowledge of the local actuarial landscape. The examination is not only beneficial to my current job field, but helps me understand better other aspects, such as regulations in the reinsurance industry.

ASHK: How many hours did you devote to the exam preparation? Can you share with us how you can manage your time between study and work?

GE: It was all new material to me, so it took quite a lot of time to digest it all. In terms of study, I went for the 'little and often' approach, trying to study for at least 15 minutes each day, this approach helped my study time be flexible, so it could fit around work commitments.

SL: Yes, I'm fully engaged at work during weekdays so the balance is necessary between work and study. We can hardly squeeze extra time and energy on the study materials. Well, I spent approximately 2 months for the examination preparation by making good use of my weekends. 2-3 hours a day. I spent 2 months studying, but Ideally 3 months preparation time would be perfect.

ASHK: What resources are available to you?

GE: I predominantly used the syllabus and curriculum materials provided by the ASHK, as well as talking through selected concepts and ideas with experienced colleagues.

SL: Same here. Study guides and sample questions offered by ASHK are adequate for my preparation in general, but I also created some flash cards to refresh my memory and to retrieve information. Whenever I have questions in mind, online forums might be a good tool for solution. It solely depends on personal study style.

ASHK: Did the process of preparing and taking the exam help you in your practice? And if so, can you describe in what ways?

GE: It helped me gain an understanding of the Hong Kong insurance market, as well as the specific technical aspects and regulations unique to Hong Kong. This allowed me to make more meaningful and informed contributions to discussions, as well as being more aware of upcoming regulatory change (and preparing accordingly).

SL: I acquired general actuarial knowledge to supplement the professional examinations. The examination contents are very helpful for those practicing in Hong Kong.

ASHK: Any tips or strategies to prepare for your exam?

GE: In terms of study, the ‘little and often’ approach works well, 15 minutes each day doesn’t seem like much at the time, but it soon adds up. This allows your mind to stay fresh, which is important when trying to learn new ideas and concepts. Setting out high-level timelines and targets leading up to the exam is important, as it makes sure materials are sufficiently covered. Additionally, as the exam is open book, it is better to focus less on memorizing text and more on understanding the ideas and concepts presented.

SL: This is an open book examination. However, the test time is just 45 minutes for 30 questions. I suggest candidates do all possible to get familiar with the syllabus so as to search the right answer efficiently during the examination. Short test time might be a bit stressful, but I feel this is a motivation to myself for better planning. Comparing with the professional examinations, the ASHK Examination would not cause a huge stress during the preparation.

ASHK: Anything else you’d like to share with future candidates who will be taking part in the ASHK Examination?

GE: It is a great opportunity to learn (or refresh one’s learning) of specific technical aspects and regulations unique to Hong Kong.

SL: This is exactly a Hong Kong oriented examination. If individuals could have relevant work experience, they should be more familiar with the syllabus as they are already in the field. For those without work experience, given the standard study materials, it should also be manageable for them as long as they have devoted sufficient time on the preparation.

~ END ~

We are so grateful for the generosity of George and Sebastian in sharing their insights about the exam preparation tactics! In fact, the Insurance Authority (IA) expects that a candidate passing the local examination offered by the ASHK would be one of the acceptable means of satisfying the local knowledge requirement for the approval of Appointed Actuaries by IA. We expect there to be a wide adoption of the examination in the industry with IA’s support.

"Different from actuarial exams from foreign bodies, the ASHK exam is focused on the practical landscape that actuaries see in Hong Kong. The study materials gather useful information and insights that practicing actuaries in Hong Kong or working with Hong Kong jurisdictions should know, and passing of the exam is a great way to demonstrate this knowledge for the candidates. For employers, it is important to ensure the quality of their practicing actuaries in Hong Kong or working with Hong Kong markets to be well versed in these topics to continually improve the quality of actuarial professionals in their organizations."

- Ms. Nora Li, the Chairperson of ASHK Curriculum and Examination Taskforce/Professional Development Committee.

PROFESSIONAL MATTERS COMMITTEE
- J. PETER DURAN

Member Consultation on Revised Professional Conduct Code (PCC)

In 2017 the ASHK adopted a revised, principle-based Professional Conduct Code (PCC). The PCC was reviewed by the International Actuarial Association, which has asked that we make certain parts of it more specific. Aside from the effective date, which is proposed to be 1 January 2020, there are five additions proposed to the current PCC. They are:

1. A Member must act honestly, with integrity, in the interest of his/her client, and in accordance with the profession's responsibility to the public. (Added to section 4.1)
2. A Member shall co-operate with others serving his/her client. (New section 4.2.4)
3. A Member shall consider whether it is appropriate to consult any predecessor actuary to ensure there are no professional reasons to decline taking on a new assignment. (New section 4.2.5)
4. A Member shall disclose promptly to his/her client any other sources of material compensation or income related to any service provided for the client. (New section 6.2.6)
5. A Member shall consider whether input from other professionals or specialists is necessary to assure the relevance and quality of the work. (New section 4.2.6)

The Committee would like to thank the respondents for their thoughtful comments. It will then be submitted to the membership for approval at the Annual General Meeting in December 2019 once the Council has confirmed to adopt the revised PCC with an effective date of 1 January 2020.

NON-LIFE (GENERAL INSURANCE) COMMITTEE - TRINITY PONG

The Committee conducted a member survey regarding the upcoming GI events this Summer. In order to express our gratitude, we had a lucky draw for all participants and Mr. Alva Yue from Peak Re has won the prize - a bottle of white wine!

We sincerely appreciate the valuable feedback from our members and your participation contributed greatly to the success of our events and services.

IFRS 17 TASKFORCE
- STEVE CHEUNG

Exposure Draft ED/2019/4 Amendments to IFRS 17 Insurance Contracts

The Taskforce was writing on behalf of ASHK recently to comment on the Exposure Draft ED/2019/4 Amendments to IFRS 17 issued by the International Accounting Standards Board ("IASB") on 26 June 2019 (the 'ED'). Whilst the Taskforce is supportive of the proposals in the ED in general, it also recommends the IASB to consider the following issues:

1. Annual cohort requirement:

ASHK acknowledges that the annual cohort requirement is a trade-off between tracking of individual contracts and providing timely recognition of profits, losses and trends in profitability. Nonetheless, ASHK considers that this requirement will not present the true economic nature and will lead to unnecessary cost in some circumstances, in particular for contracts with cash flows that affect or are affected by cash flows to policyholders of other contracts. ASHK recommends the IASB to reassess whether the annual cohorts requirement is justified for such contracts and develop an exception accordingly.

2. Coverage units (Service units) determination:

Identifying coverage units and determining the amount of the CSM to recognize in profit or loss in each period remains an implementation challenge. ASHK recommends the IASB to allow for expedient when the determination of coverage units is not practical or it cannot be determined without undue cost or effort.

3. Reinsurance contracts held–recovery of losses on underlying insurance contracts:
ASHK suggests the IASB to reconsider the paragraph 66A and the definition of "reinsurance contracts held that provide proportionate coverage". The current proposal will create internal inconsistencies within the Standard. The definition of the "reinsurance contracts held that provide proportionate coverage" is being viewed as too theoretical, without reflecting the practical complexity and economic nature of reinsurance contracts held.

4. Effective date:
While ASHK welcomes the proposed deferral to the effective date, ASHK would suggest the IASB to further assess the current situation, address the key market concerns to facilitate a uniform effective date across major jurisdictions. If that requires further deferral of IFRS 9 and IFRS 17, a new effective date with early adoption option would be welcomed.

5. An unsolicited edit on ED.B107(b)(i) - eligibility criteria for the VFA from being at a group of contracts level to a contract level:
ASHK believes the edits are not bringing additional benefits to the users of financial statements but rather increase the complexity and implementation efforts required from the preparers as well as on-going operational challenges. ASHK recommends the IASB to undo the change in ED and revert to the original wording as issued in 2017.

ASHK's detailed comment letter can be found in http://eifrs.ifrs.org/eifrs/comment_letters//544/544_25986_ChrisLamTheActuarialSocietyofHongKongASHK_0_ASHKcommentletter_ExposureDraftED2019_20190924_IASB.pdf

We would like to take this chance to express our appreciation for the tremendous effort made by all Taskforce members.

IFRS17 Taskforce consists of 14 members:
Steve Cheung (Chairperson), Abhishek Kumar, Brian Kelly, Douglas Mason, Eric Tsang, Fred Choi, Jeremy Menzies, Kim Yeoh, Mark Kai, Rachel Chu, Steven To, Wilson Wu, Simon Lam (Advisor) and Peter Duran (Advisor).

PENSION AND EMPLOYEE BENEFITS COMMITTEE
- GARY LEE

Report on the Review of Group Medical Insurance Pricing Practice in Hong Kong 2019

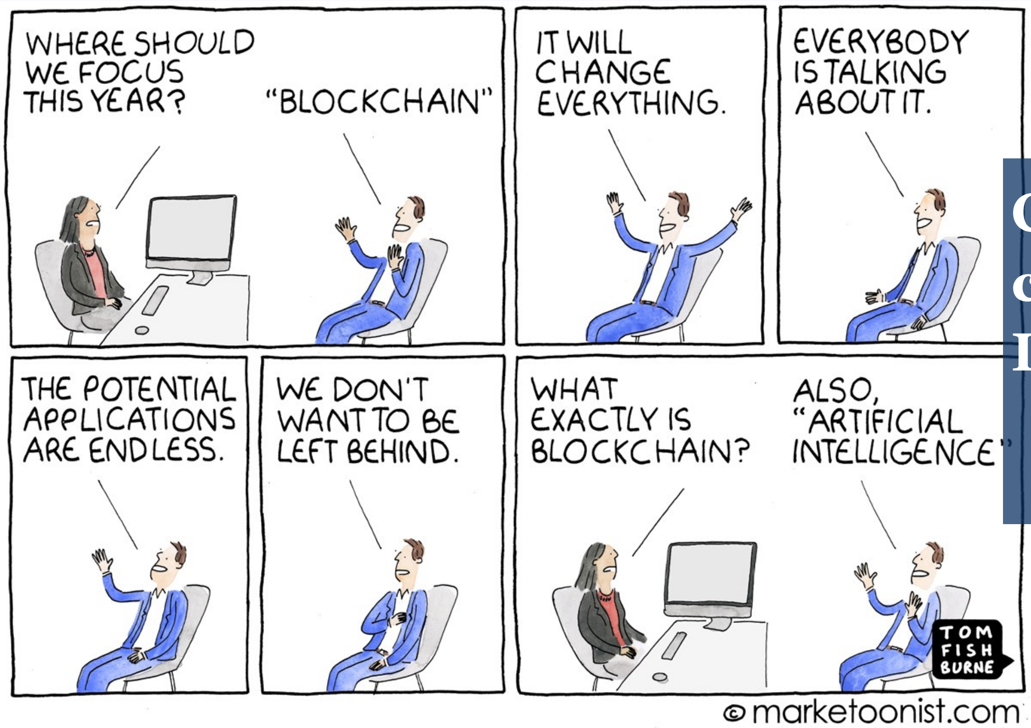
With ASHK's mission to represent, develop and inspire the actuarial profession in Hong Kong to serve public interest, ASHK Pension and Employee Benefits Committee ("the Committee") conducted a survey in Hong Kong to understand the practice of actuaries in performing pricing analysis for group medical insurance.

The survey was sent to 14 actuaries whom we believe are heavily involved in group medical pricing in Hong Kong and 9 of them responded to the survey. Although formal market share data on group medical is not readily available, we estimate through our own market intelligence that these 9 participants' employers represent around 70% of the group medical insurance market.

After collecting the survey results, a discussion session was held on 24 September 2019 for those survey participants. All survey participants indicated a guidance note from ASHK on group medical pricing practice will likely enhance the long-term sustainability of the market and encourage best practice in the industry. We believe the findings should also be beneficial to the insurance industry and the public.

The Committee is reviewing the feasibility of the issuance of a guidance note on the Group Medical Pricing Practice for Hong Kong actuaries. We estimate it will take around 6-9 months to complete the process.

The report is available on our **ASHK website**.



Crypto-currency Insurance

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So, this article is going to talk about how blockchain will revolutionize insurance again?

Emm...No. I am going to talk about an *emerging industry*, where there is significant uncovered risk, with a large demand but not much supply yet - *cryptocurrency exchanges*.

While traditional financial and insurance professionals are eyeing how blockchain may improve back-office operating efficiencies, the origin of blockchain, which many are still skeptical - cryptocurrency, are gradually getting its stance as a *new asset class* and is here to stay for the coming decade(s). It has brought up a huge ecosystem, with retail investors, startups, mining pools, and most importantly, *cryptocurrency exchanges*.

Binance, arguably the largest cryptocurrency exchange today, earns $78 millions profit in 2019 Q1[1]. By counting its bitcoin address only, it already possesses 238,033 BTC (USD $2.4 billions) asset under management (AuM). The amount will be much larger if we include altcoins (e.g. Ethereum, Binance Coin, etc) as well.

With such a large sum of AuM, it is natural for cryptocurrency exchange to seek for insurance protection against risks like cyberattack or financial thefts. Yet, most insurers are still reluctant to provide such insurance due to the lack of understanding and perceived high risk, resulting in an imbalance between the supply and demand. Most exchanges are currently self-insured, some even considered setup its own captive [2].

Address	Tag	Amount
34xp4vRoCGJym3xR7yCVPFHoCNxv4Twseo	binance-cold-wallet	151,992
3E35SFZkfLMGo4qX5aVs1bBDSnAuGgBH33	binance-cold-wallet	65,077
3M219KR5vEneNb47ewrPfWyb5jQ2DjxRP6	binance-cold-wallet	16,364
1NDyJtNTjmwk5xPNhjgAMu4HDHigtobu1s	binance-hot-wallet	4,600
Total		238,033

Table 1: Binance Bitcoin address AuM proxy [3]

I see the demand now. Are there any insurers providing such insurance now?

Yes. Lloyd's of London is providing such insurance to cryptocurrency exchange Coinbase [4] and crypto custody Bitgo [5]. Marsh and Munich Re [6], Hanwha insurance [7], Mitsui Sumitomo Insurance[8] are also under the radar. Yet, most of the insurance now are *excessively priced*, with many *exclusions* and lack of *clarity of risk covered*.

What makes cryptocurrency insurance difficult?

Lack of research study and misconception from the insurance profession, among others. Cryptocurrency insurance is just an *altered form* of cyber risk insurance. Cyber risk insurance is being more familiar to insurers nowadays, cryptocurrency insurance should be just a natural extension from there.

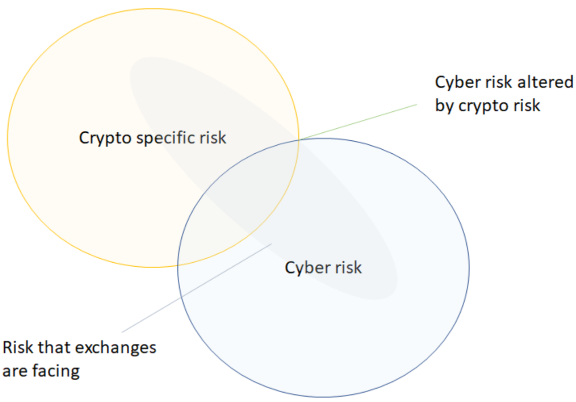

Figure 1: Venn diagram on cyber risk, crypto risk and exchange risk

So how cryptocurrency insurance is different to cyber risk insurance?

Largest difference is that cryptocurrency introduces *direct exposure of financial assets* to malicious hackers. The resulting asset damage is often much larger than other industries. It also attracts criminals to attack such system, increased the likelihood for incidents.

Besides, cryptocurrency also possess its unique risk like *blockchain system risk* and *smart contract risk* which didn't exist for traditional cyber risk.

What are the risks that cryptocurrency exchanges are facing exactly?

Without going into too much detail, the risks are summarized in the following table:

Attack Vector [9]	Affected Target	Resulting Damage
Forks	Blockchain System	• Financial Thefts • Business Interruption • Regulatory Fines • Extortion • Reputation Damage
Transaction malleability attack		
51% attack		
Double spending attack		
Selfish mining		
DNS attack		
BGP hijacks		
Eclipse attack		
DDoS attack		
Block withholding attack		
Double spending attack	Exchange Infrastructure	
Race attack		
Hot-wallet key compromises		
Data exfiltration		
DDoS attack		
Malware		
Failures of counterparties or suppliers		
Phishing	Users	
Password cracking		
Man in the middle attack		
Malware		

Table 2: Cryptocurrency Exchange Attack Vectors (illustration only, not exhaustive)

There are 3 major surfaces that an exchange is at risk, namely the *blockchain system*, *exchange's own infrastructure*, and *users*.

Attack on Blockchain System

This is a trending topic for cybersecurity and blockchain researcher recently. Researchers have studied the blockchain structure thoroughly and identify potential vulnerabilities and attack vectors. However, some of the attacks are very difficult and costly to be performed in reality (e.g. Eclipse attack [10]). While some are difficult, they happened (e.g. 51% attack [11]).

This risk category is often excluded by insurers because they are less studied. On the other hand, exchanges also care less about them because they are unlikely to happen and the damage is relatively small.

Question: Should cryptocurrency insurance cover blockchain risk in general?

Attack on Exchange Infrastructure

This is the area that exchanges worry the most. There are numerous historical hacks and security breach happened, like Poloniex 2014 race attack [12], Bitfinex 2016 security breach [13] and most recently the Binance 2017 hot-wallet thefts [14]. These attacks often resulted in significant asset losses from exchanges, as well as reputation damage and consequent loss of business.

However, this risk category resemble traditional cyber risk the most, as the target object is similar - a company with a server that is vulnerable to cyber attacks.

Date	Name	Amount (USD)
2014 Feb 7	Mt. Gox	~3 billions
2014 Apr 3	Poloniex	~1 thousand
2015 Apr 1	Bitstamp	~5 millions
2016 May 23	Gatecoin	~2.5 millions
2016 Aug 2	Bitfinex	~72 millions
2017 Jun 29	Bitthumb	~31 millions
2018 Sep 20	Zaif	~60 millions
2019 May 7	Binance	~40 millions

Table 3: List of historical exchange hacks (excerpt) [15]

Attack on Users

“Be your own bank” is a famous slang in crypto community, meaning that once a user owned cryptocurrency, he is the only one that is responsible for anything that happened. Attacking the blockchain system and exchanges require advanced skills, but using *social engineering* (like phishing, scam email, etc) is much easier for targeting amateur crypto owners and stole their money.

If a user leaked his credentials so that a hacker is able to login to his account and steal his money, is the exchange liable for such attacks? Seems not, because it is the users’ own fault. However, exchange also has the responsibility to provide additional security measure (like 2FA) to ensure users have enough protection even if some credentials are exfiltrated.

Question: There exists a grey area on whether exchange are liable for attacks on users. Should cryptocurrency insurance provide liability coverage for risk under this category?

Combination of above

Some attacks can combine multiple factors to be successfully launched. One famous example is the Mt. Gox 2014 transaction malleability attack [16], which is a combination of *bitcoin’s blockchain bugs*, *exchange’s negligence* and *collusion of internal thefts*. The exchange subsequently bankrupted due to insolvency.

Question: If the insurer stated that “infrastructure hacks” are included while “Blockchain risk” are excluded, should this case be eligible for claims or not?

I see why cryptocurrency insurance is different now. What should we study before we can consummate such insurance?

Here is an incomprehensive list in author's mind:

- Risk identification and classification
  - Detail study of blockchain and smart contract risk, vulnerability and exploits through both inductive and deductive approaches
- Insurability study
  - Which risks are insurable? Which are not? Which should add deductible / co-insurance / cap? Any anti-selection and moral hazard?
- Experience Studies
  - Quantifying both likelihood and severity. While incidences are obvious (as they are covered in news), how do you measure the *exposure*?
- Market Research
  - What are the demand from insured (i.e. exchanges)? What risk do they seek to retain / transfer? How big is the market? Are insurers happy to insure them?
- Catastrophic Events
  - What are the catastrophic events that can happen in the system? How to model them? Should we have reinsurance?

Some may argue that the lack of data is hindering the development of this product. But Bitcoin's (and some other cryptocurrencies') blockchain is public and transparent hence many information are readily available and verifiable online. This can also help the whole industry to share the same database which makes the study more objective and validatable.

Conclusion

Cryptocurrency insurance is a blue ocean market with large demand and little supply. The area still has many open research questions that are not answered by researchers yet.

Cryptocurrency insurance is an extension of cyber risk insurance, with the added blockchain component introduced some new risks and altered some existing risks.

This article summarized what cryptocurrency insurance is about, what it is trying to protect, and lastly the research and offering gaps both in academia and in the industry.

Endnotes

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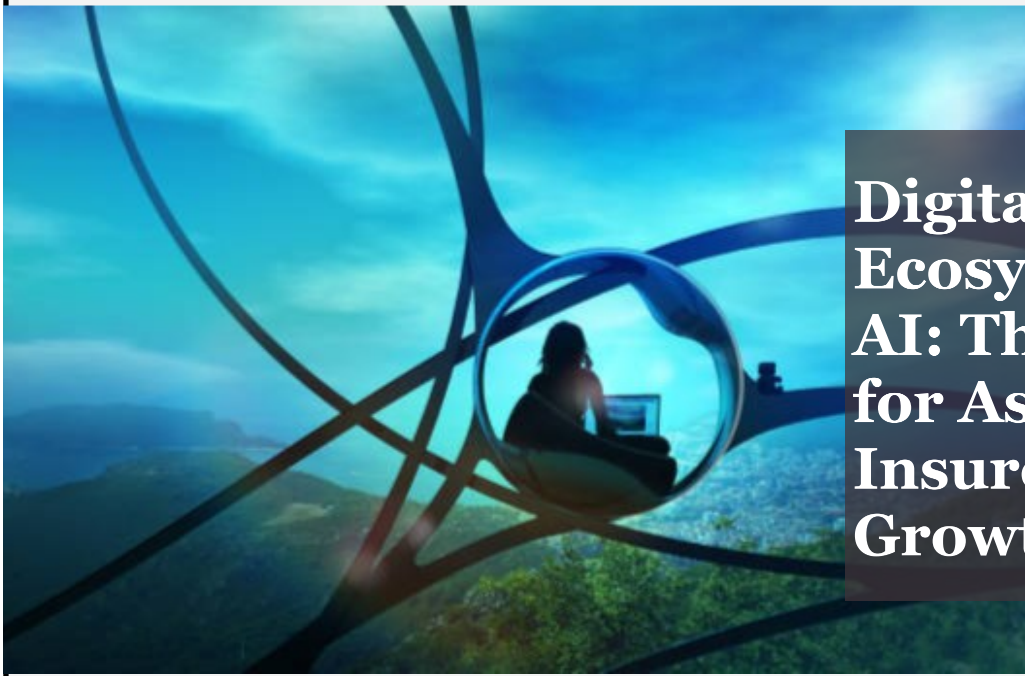

Digital Ecosystems and AI: The Enablers for Asian Insurers' Future Growth

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APAC, Swiss Re

(Disclaimer: The views and opinions expressed in this article are those of the author(s) and do not necessarily reflect the position of the actuarial profession or any actuarial communities.)

Mobile interaction data can unlock untapped markets in Asia

Today more than two thirds of the world's 7.6 billion population have a mobile device, and well over half of the world's population is online and connected to internet.[1]

As technology becomes more deeply embedded in people's lives, we are also observing a vast amount of new data sources being gathered. The amount of data generated automatically, inexpensively and non-intrusively is growing exponentially, so too are new tools to analyse and extract insights from these data. This creates new opportunities for insurers and their digital partners to engage more effectively with customers.

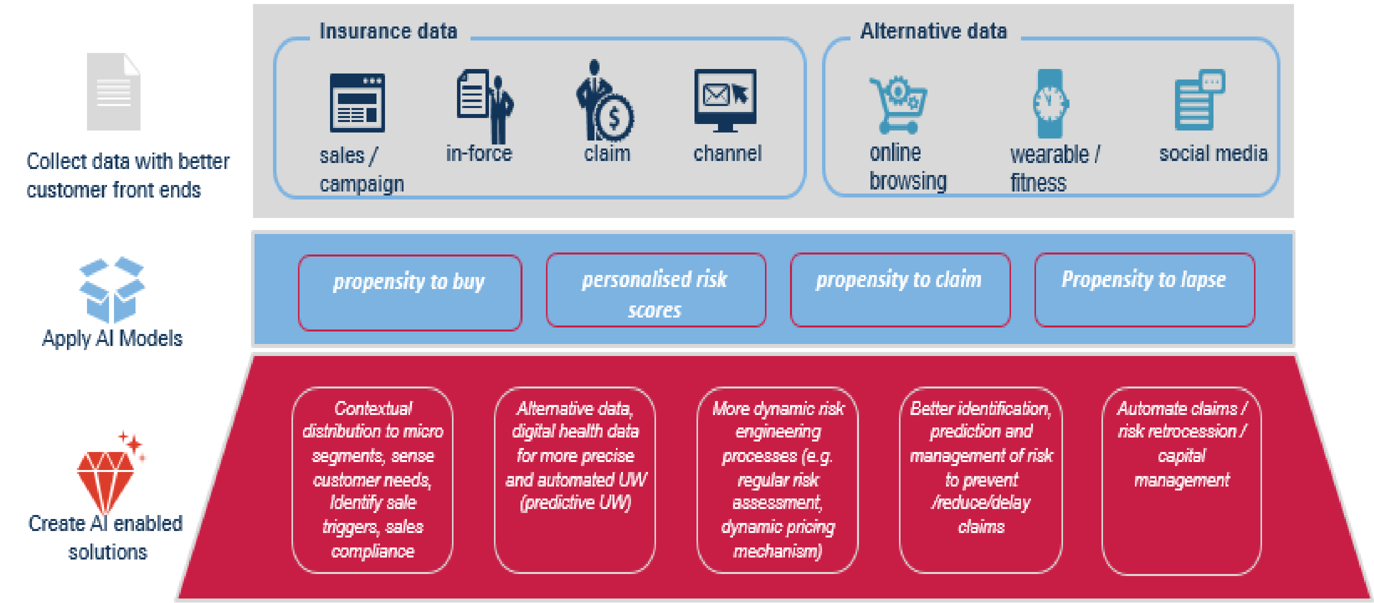
Swiss Re's recent Asia Health Protection Gap research findings also shows that 83% of the respondents are willing to share their data generated from wearables and fitness apps with insurers. Further, 88% of the next billion middle class will emerge from Asia, and most of these Asian unbanked/uninsured population will already be using their mobile devices to transact.[2] Therefore, companies that are able to transform their mobile/digital ecosystems data into risk insights quickly, while tailoring products and services for quick launch in the market will be the ones driving the future growth of insurance.

AI predictive models maximise the value of data

It is fascinating to see how fast financial services leverage the initial personalised scores built by big tech giants in China to onboard their new customers and enhance their more traditional risk models. Some insurers in China are also using technology to offer services outside the boundaries of traditional insurance through digital ecosystem partnerships. This process has enabled them to leverage new customer interactions and gain deeper risk insights to further personalise their product and services proposition to improve the insurance customer journey. Often times the personalisation of products also requires dynamic risk management features where a strong reinsurance partner is proven to be valuable. For more about digital ecosystems and Chinese insurance services click here.

Building stronger partnerships with digital partners, accessing more customer data and digital interaction while leveraging developments on artificial intelligence and cognitive systems will enable insurers to activate dynamic risk management. Artificial intelligence, machine learning in particular, is already being used by insurers across the value chain to optimise processes and customer services. There are already many examples globally of how AI is bringing value to insurers across the value chain, from targeted sales with micro-segmentation (proposing particular products to the hyper-targeted audience), lapse prediction, claims triage/automation, to fraud prediction. However, with new technology comes also new challenges and risks that need to be well managed for adoption at scale, such as algorithmic malpractice, data bias, cyber risk, decision process transparency and auditability, just to name a few.

Current AI-enabled predictive models solutions across the value chain – Transforming customer touchpoints/data into (risk) insights

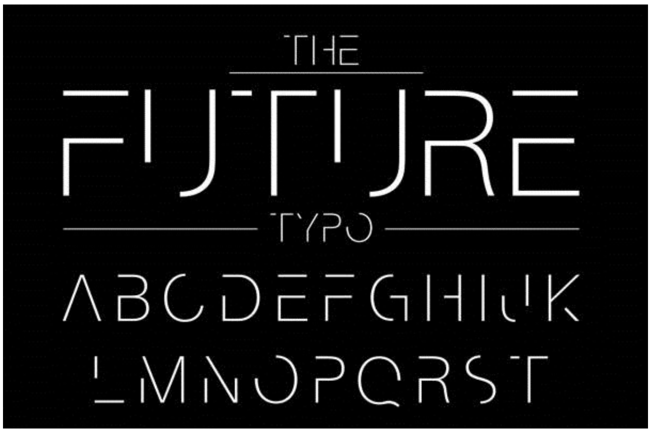


While the industry is only starting to leverage AI to enhance the existing risk models to build more personalised products and services across Asia, Swiss Re have already implemented some pioneering predictive models to help insurers leverage data from their digital partners and improve risk management.

Case study – Parametric products, predictive underwriting and claims analytics

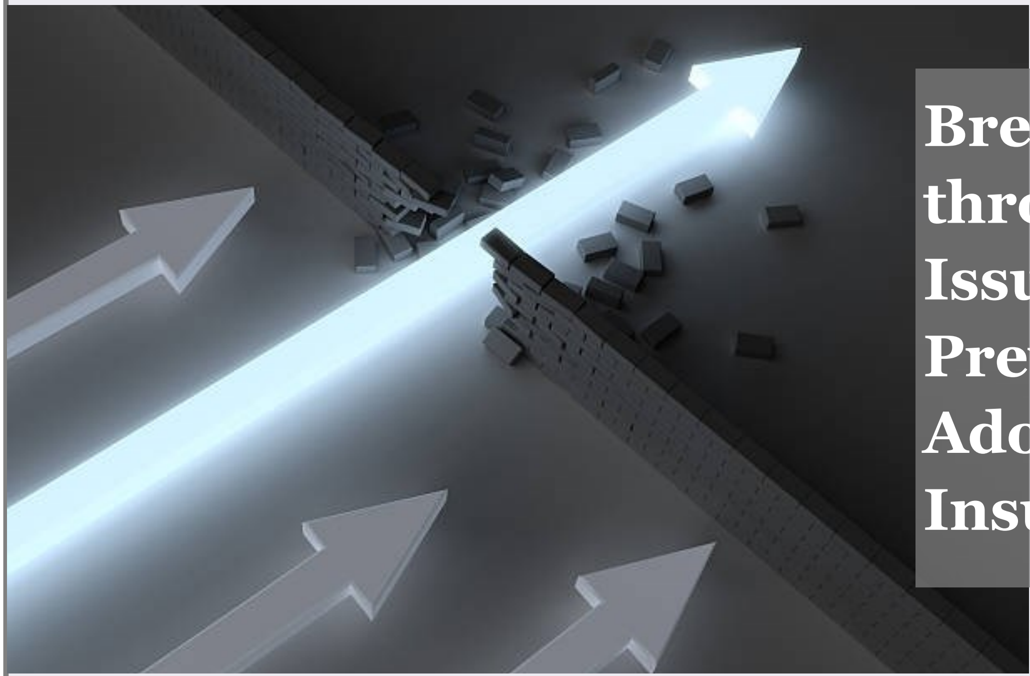
Last year, Swiss Re together with our clients and digital partners across the region launched many tech-enabled innovative solutions. Just to name a few: the first wellness product in India, the first dynamic pricing product for diabetes in Thailand, the first 'parametric health' product in Singapore for gestational diabetes, and parametric products for flight delay and typhoon.

Amongst these solutions many were AI-driven projects, with our business experts and data scientist teams working closely with insurers. For example, we have implemented the predictive underwriting models to help improve customer segmentation based on their current and future risk to simplify the onboarding journey for 30 per cent of their end-customers, while not increasing the price of their premium. We also helped create more accurate prediction of claims costs to 95 per cent to ease the impact of raising medical expenses. We have also created AI prediction models on multiple risks such as flights delay, typhoon/ hurricanes, earthquakes, etc. that forms the basis of our parametric platform offers and enriches our risk knowledge day by day.

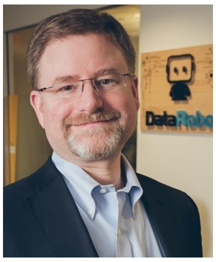


These are just some examples, where our data science and smart analytics capabilities, alongside our risk understanding have provided our clients with new perspectives when analysing data, and ultimately improving their risk management. We are also doing research and pilots in new technology, such as distributed ledgers and federated learning that will accelerate opportunities for collaboration by providing secure platforms to build models, while not having to directly own or access the data. Find out more about our collaboration with We Bank on federated learning click here.

As insurers gain more access to new data from their customers through their digital partners and offer better tailored products and services to the Asian customers, we are expecting more insurers onboarded to fine-tune these AI-enabled risk models. This is enabling the industry to gain more risk insights and provide more personalised product and service to the new generation of Asian customers. Hence, we look forward to working more closely with insurers and our partners to close the protection gap.



Breaking through the Issues Preventing AI Adoption in Insurance



Neal Silbert
Insurance GM
DataRobot

(Disclaimer: The views and opinions expressed in this article are those of the author(s) and do not necessarily reflect the position of the actuarial profession or any actuarial communities.)

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Advanced analytics has always been the cornerstone that the insurance industry was built upon. Maths and statistics have long driven the industry's ability to calculate and effectively transfer risk. The industry has always looked for, or developed, more effective analytic techniques. However, with the sudden and comprehensive development of so many different advanced analytic methods, new techniques and methods are actually creating a higher barrier to entry.

Traditionally insurance professionals have found machine learning unfamiliar, difficult to explain and complicated to implement. Data science requires specialist knowledge that cannot easily be self-taught, and insurance companies have struggled to build in-house data science organisations as a result. The process requires actuaries and quantitative analysts to go 'back to school' to learn new methods in automated statistical analysis, programming techniques to capture and re-organise large volumes of data and new technologies.

With scarce resources and a very slowly evolving technical infrastructure, insurance companies find it hard to hire enough trained data scientists to harness the full potential that machine learning offers. The end result is that for every success a data science team achieved, there were as many as 10 unmet requests. Fortunately, the desire to become an AI-driven enterprise with a clear understanding of how machine learning can support a data-driven business, has won through in many cases.

AI, without doubt, has the potential to help underwriters better understand their customers, improve risk differentiation (low from high risk and the many levels in between) and establish substantially more accurate pricing. In fact, those who cannot differentiate risk levels, will unfortunately find themselves subject to adverse selection - where they win clients who are likely to be unprofitable, and at the same time lose the profitable ones.

The development of Automated Machine Learning (Auto ML) has emerged as a much-needed solution here. Replacing the first generation of machine learning, Auto ML uses artificial intelligence to automate each step; incorporating guidelines and best practices to ensure results are consistent and accurate. This new level of automation brings a further unexpected benefit - actuaries, business analysts and IT staff can use automated machine learning with only a few days of training. The lowered technical barriers enable business domain specialists to participate and significantly increases the organisation's capacity to solve problems. It is this democratisation of machine learning that will ultimately make the most significant contribution to improved decision making in the insurance industry.

Implementation becomes the next challenge but adopting a straight through deployment process can eliminate months of IT effort to rebuild models, create additional programs to organise and prepare data. It can simplify the integration of machine learning models into existing business applications, such as underwriting systems, policy administration systems and claims management systems.

Maintain a clear and determined will to drive change, and the benefits of machine learning will not only increase operational effectiveness, it will enhance the overall customer experience and ultimately improve the bottom line.

Market Update

MPFA

Revised Mandatory Provident Fund (MPF) Guidelines

The Mandatory Provident Fund Schemes Authority (the Authority) has recently approved the following two sets of revised MPF Guidelines:

1. Guidelines on MPF Intermediary Registration and Notification of Changes (Guidelines VI.1); and

2. Guidelines on Annual Returns to be Delivered by Registered Intermediaries (Guidelines VI.3).

The two sets of MPF Guidelines have been amended to mainly reflect the changes of definitions of MPF intermediaries and the regulatory functions of the three Self-regulatory Organizations in relation to the insurance industry as a result of certain legislative amendments contained in the Insurance Companies (Amendment) Ordinance 2015 (the Amendment Ordinance). Moreover, we have simplified the notification process for a responsible officer ceasing to be attached to a principal intermediary to enhance operational efficiency.

The revised MPF Guidelines become effective on the commencement date of the relevant provisions of the Amendment Ordinance, i.e. 23 September 2019 (today).

Copies of the revised Guidelines can be downloaded from the Authority's website at www.mpfa.org.hk.

Events Highlights

ASHK Evening Talk, 2 September 2019

The Journey of the 1st Virtual Insurer in Hong Kong

Ms. Orchis Li
MC

Mr. Dicky Lam
Speaker

ASHK Evening Talk, 17 September 2019

IFRS17 Discount Rates

Mr. Vincent Choo
KPMG
Speaker

Mr. Abhishek Kumar
KPMG
Speaker

Middle: Mr. Thomas Tang, MC

Events Highlights

ASHK Professionalism Seminar - Session 1

Mr. Roddy Anderson, ASHK Professional Matters Committee

Ms. Nora Li, ASHK Professional Matters Committee

Mr. Thomas Tang, ASHK Professional Matters Committee

ASHK Professionalism Seminar - Session 2

Mr. Roddy Anderson
ASHK Professional Matters Committee

Mr. Thomas Tang
ASHK Professional Matters Committee

Ms. Nora Li
ASHK Professional Matters Committee

Events Highlights

ASHK Examination Info Session

Mr. Sebastian Leung
ASHK Examination Passer

Left: Mr. Thomas Undreiner
ASHK Examination Passer
Right: Ms. Nora Li
Chairperson of ASHK Professional Development Committee

Mr. Steve Hui
Member of ASHK Professional Development Committee

Upcoming Events

Date	Event
5 Dec 2019	ASHK Professionalism Seminar
12 Dec 2019	ASHK Annual General Meeting
19 - 20 May 2020	ASHK Inaugural Hong Kong Actuarial Summit

Membership Update

New Members

Associate

Yi Lam Chan	FWD	Associate [ASA (2019)]
Shun Kwan Chau	AIA	Associate [FSA (2019)]
Meng Shiun Hsu	Prudential	Associate [AIA (2018)]
Alan Ching Yiu Lam	Bowtie	Associate [FSA (2012), CERA (2012)]
Cheuk Wang Kee	AIA	Associate [FSA (2019)]

Student

Wai To Lee	Willis Towers Watson	Ordinary Student [SOA Student]
Shi Ting Ou	Zurich	Ordinary Student [SOA Student]
Kin Wang Lam	Zurich	Ordinary Student [SOA Student]
Chun Lok Wong	Zurich	Ordinary Student [SOA Student]
Chun Kit Hui	Zurich	Ordinary Student [SOA Student]
Lok Yan Yeung	Zurich	Ordinary Student [SOA Student]
Jennifer Marvella	-	University Student [The University of Hong Kong]

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The ASHK will accept corporate advertisements in the ASHK Newsletter provided that the advertisements do not detract from the actuarial profession. Acceptance and positioning of advertisement will be at the editor's discretion.

File Formats

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