Hong Kong Actuaries

Actuarial Society of Hong Kong's Newsletter

- **Feature Articles**

Risk-Based Capital (RBC)

- **Council & Committee Updates**
  - *Joint Regional Seminar 2019*
  - *Hong Kong Actuarial Summit 2019*
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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.

AUGUST 2019 SUMMER VOLUME 02

ACTUARIAL SOCIETY of HONG KONG
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Editorial

Dear Readers,

Welcome to the second ASHK newsletter for 2019!

With the Insurance Authority in Hong Kong developing a capital framework for a new risk-based capital regime for Hong Kong, our theme in this issue will be on risk-based capital (RBC). We have a great collaborative piece of work to share with our readers - an article by KPMG and the ASHK RBC Taskforce.

Furthermore, we have also included a report analysis on a membership survey and are pleased to note more and more of our members are involved or interested in engaging more with the society. We would like to provide all with a whole picture of which benefits and programmes our members value and how well they believe ASHK is doing in delivering those experiences. Thank you for the survey contribution of the Membership and Communications Committee. In addition, the Actuarial Innovation Committee also contributed an insightful report on a survey recently conducted with members.

The Joint Regional Seminar in Asia 2019 has just been successfully completed in 7 cities with a total attendance of over 1,100 actuaries. Members can also look forward to an exciting inaugural 2-day Hong Kong Actuarial Summit scheduled on 21-22 November at the Kowloon Shangri-la. Last but not the least, don't forget to congratulate our first batch of ASHK Examination passers. We truly appreciate their efforts and dedication to the examination!

By the way, we will be happy to receive your viewpoints on any publication matters. You can also initiate discussion on any industry issues that you would like to focus on. Please do not hesitate to contact us at info@actuaries.org.hk.
Happy Reading!

Best Regards,
Alexander WONG
EDITOR

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COUNCIL – KENNETH DAI

Joint Regional Seminar in Asia 2019

The Joint Regional Seminar (JRS) is our highlighted annual event co-organised by the Institute & Faculty of Actuaries, Actuaries Institute Australia and Society of Actuaries with the support of the local actuarial societies in Asia. This year, the JRS covered seven cities, namely, Taipei, Hong Kong, Ho Chi Minh City (New), Kuala Lumpur, Jakarta, Sydney and Bangkok from 22 July through 5 August and reached a total audience of about 1,100 actuaries.

While insurers are relentlessly cracking the new regulatory changes, the business environment continues to be rapidly changing with the emerging trends and demographic shift, including longer life expectancy, ageing population, changing habits and behaviors. IFRS17 and RBC have become the hottest topics in the industry. Actuaries are playing an increasingly important role in dealing with these challenges and turning them into competitive advantage and hence the theme of JRS 2019 was "Çhanging Environment, Emerging Trends and Evolving Regulations - Deja Vu or Crystal Gazing?''.

As a recap of Hong Kong JRS which took place successfully on 24 July 2019 at Hyatt Regency in Tsim Sha Tsui, we received attendance from almost 200 participants. Key speakers from EY (Mr. Dustin Ball, Mr. James Lin and Mr. David Wong), PwC (Miss Miao Chen and Mr. Paul Ruckert), Deloitte (Mr. Simon Dai), Partner Re (Mr. Michael Zheng and Dr. Kamakhya Daz), SCOR Global Life (Miss Rebecca Zhang) and Milliman (Mr. Scott Chow) delivered a valuable sharing and explored a wide range of issues on topics such as ORSA, analysis of capital regimes and its implications, group insurance transformation, evolving landscape of genetics and insurance, and technology and actuaries, etc. We thank you for contributing to the success of JRS this year and look forward welcoming you back in 2020!

The Hong Kong Actuarial Summit 2019

The inaugural Actuarial Summit is confirmed to be held in Hong Kong on 21-22 November at Kowloon Shangri-la with the theme "Embracing the New Future". This will be a two full day event by combining the ASHK Annual Dinner, Appointed Actuaries Symposium, GI, Pension and Health Seminars. Mr. CHAN Mo Po, Paul, GBM, GBS, MH, JP, the Financial Secretary of the HKSAR Government, will be our Guest of Honour at this prodigious event. More than 300 delegates are expected to attend the Summit including government bodies, Appointed Actuaries and media and we have received generous support from the industry on the sponsorships.

The event will also feature plenary sessions and breakout sessions in six key tracks – Life, General Insurance, Health, Pension, Appointed Actuary related as well as Innovation. This is a breakthrough for the organisation to include a variety of topical areas bringing together participants from across the territory to advance a shared agenda, providing members the opportunity to meet with ASHK Council and the key industry stakeholders from among the actuarial profession for exchanging ideas, resources, connections and inspirations.

Mark your calendar and please stay tuned for more updates!

Establishment of a Working Group with Insurance Authority (IA)

In recent years, the IA and ASHK have held various meetings on an ad hoc basis to discuss matters of mutual interest. A Working Group has now been established between the IA and ASHK with the purpose of continuing the existing dialogue on a more regular and structured basis.

From our perspective, the ASHK Council hopes to achieve the following in our discussions with the IA through the Working Group:

a) explore the means for the ASHK's Fellow membership to be recognized as the actuarial professional qualification in Hong Kong, including the detailed steps and requirements for enacting a proposed change to Chapter 41A, Insurance Companies (Actuaries' Qualifications) Regulations as part of the RBC framework amendments in 2022.
b) provide a platform for IA to raise to the ASHK issues that affect the actuarial profession and insurance industry, discuss and recommend practical solutions to address the issues which could range from experience studies, RBC, sales illustrations, etc
c) discuss regulations, actuarial standards, code of conduct governing actuaries and their work.

The establishment of this Working Group is aimed at 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.

ASHK as a Supporting Organisation

HONG KONG UNDERGRADUATE FINANCIALPLANNERS OF THE YEAR AWARD 2018
香港傑出大學生財務策劃師比賽2018

ASHK is pleased to join as the supporting organisation of the following events:

- Hong Kong Undergraduate Financial Planners of The Year Award 2019 – hosted by Society of Registered Financial Planners (HKRFP)
- IFPHK Financial Education Leadership Awards 2020 – hosted by The Institute of Financial Planners of Hong Kong (IFPHK)
- FT Asia Insurance Summit - hosted by Financial Times

IFPHK FINANCIAL EDUCATION LEADERSHIP Awards 2020

FT FINANCIAL TIMES

Curriculum /Exam taskforce, Professional Development Committee

- Nora Li

ASHK Examination and Results Available

We are pleased to share our successful launch of the first local actuarial examination in May and the first batch of passing candidates have received their results earlier this month.

The names of the candidates who passed are as follows:

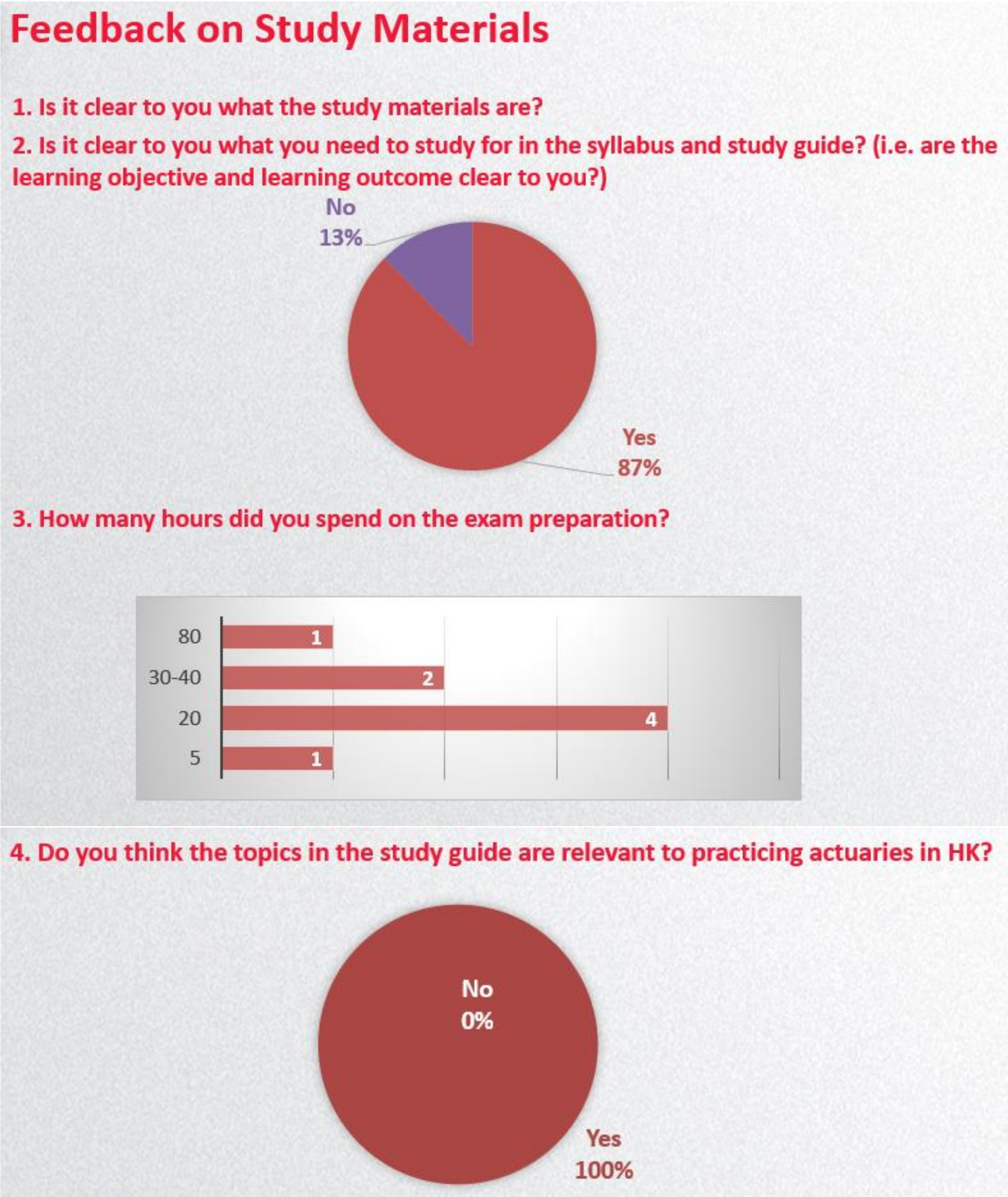
Core Paper	Life Paper
Beatrice Monique Marie Maisonneuve	Anthony Wing Kit Lam
George Ealham	George Ealham
Ho Fai Chan	Ho Fai Chan
Sebastian Leung	Sebastian Leung
Thomas Undreiner	Thomas Undreiner

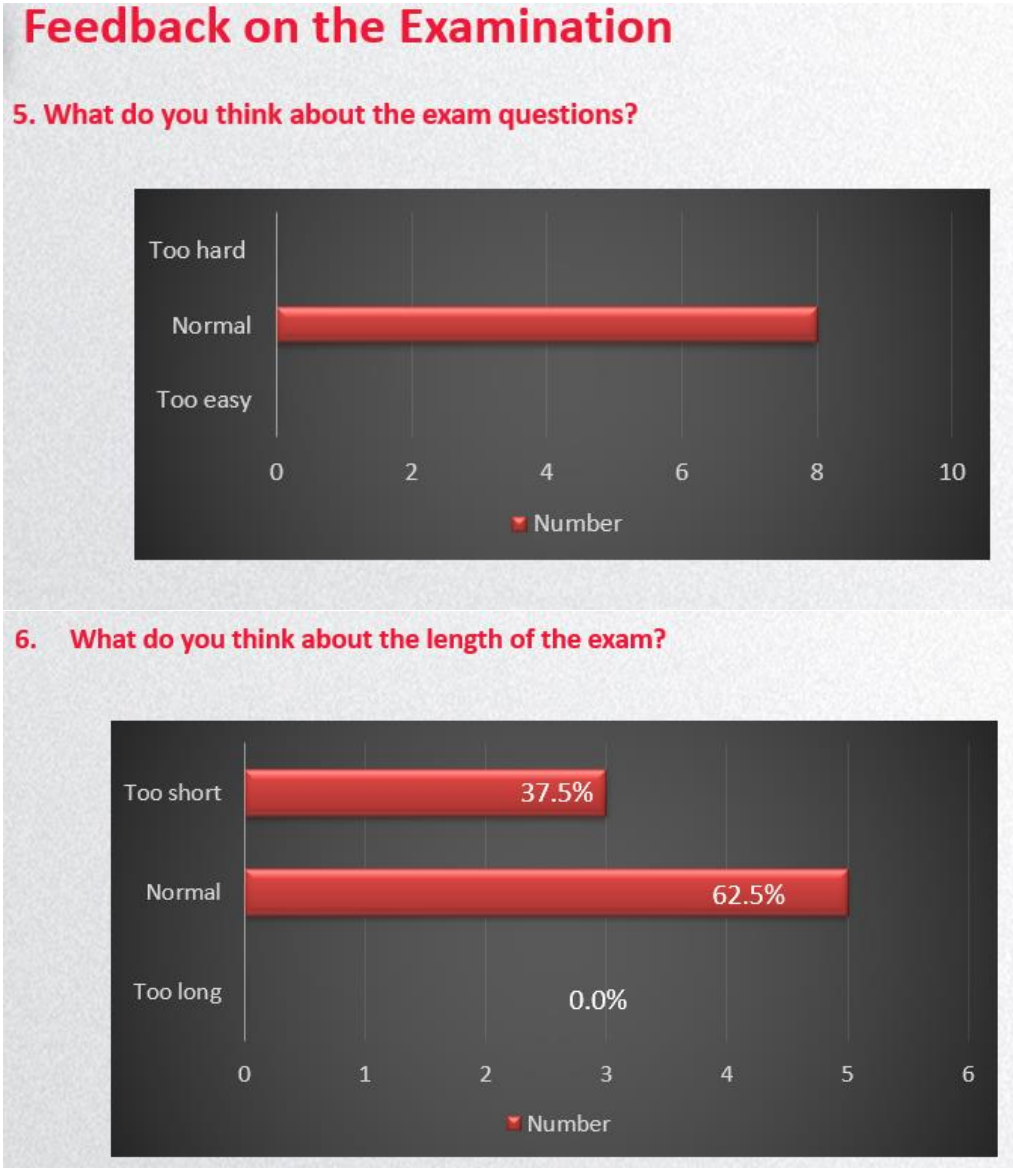
Our hearty congratulations to the successful candidates! They will be eligible for the fellow membership of ASHK provided they are also one of the fellows of the following accredited actuarial bodies: IAAust, CAS, IFoA, SOA, or possess appropriate professional actuarial qualification other than the above and practical experience as approved by the ASHK Council.

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.

Post-exam Candidate Survey

ASHK conducted an interactive survey with the candidates after the examination. Here are some of the survey results:





The Committee and the Taskforce would continue to examine and review the examination format and contents in order to better serve our candidates' needs and to help them achieve higher goals.

PROFESSIONAL MATTERS COMMITTEE
- J. PETER DURAN

CPD Compliance Report for the 2018 Calendar Year

CPD Declaration

The ASHK Professional Matters Committee (PMC) reviewed the annual 2018 CPD declarations of all non-retired ASHK Fellow and Associate members. Although there were delays in the submission of some declarations, we received a satisfactory overall response rate; 100% of eligible members had declared compliance with the ASHK's CPD requirements in respect of the 2018 calendar year. There were 9 exempted members due to retirement.

The PMC would like to clarify that if members no longer work in actuarial fields, they are still obliged to undertake CPD activities relevant to their current role in order to meet the CPD requirements.

CPD Random Audit

36 members (two with a statutory role in Hong Kong) were randomly selected for the 2018 CPD audit in January 2019. The CPD audit was successfully completed in May 2019.

We wish to thank members for their cooperation in the CPD audit!

ADDRESSING THE NEEDS OF LOCAL ACTUARIES FOR A BRIGHTER FUTURE

Actuarial Society of Hong Kong (ASHK) is pleased to announce the roll-out of its local actuarial examination applicable to new Fellows of the ASHK.

The examination is viewed by the ASHK Council as a necessary step on our path towards statutory recognition, ensuring actuaries practicing in Hong Kong have the relevant local knowledge and a career advantage.

Passing the ASHK Examination is a recognized commitment to knowledge and practical appreciation in Hong Kong's actuarial regulatory environment, business practice, professional conduct code, and actuarial guidance notes relevant in practice areas of life insurance, pension, and general insurance.

Exam Structure:
- **Core Paper**
- **Elective Papers**
  - ✓ **Life**
  - ✓ **Pension**
  - ✓ **General Insurance**

Exam Schedule:
May & November Every Year

Exam Duration:
45min for each paper
(30 multiple-choice questions)

Exam Language: English

100% Self-Study Basis
Study Tools Provided

Registration opens 1 August. Please scan QR code or visit our website for more information!

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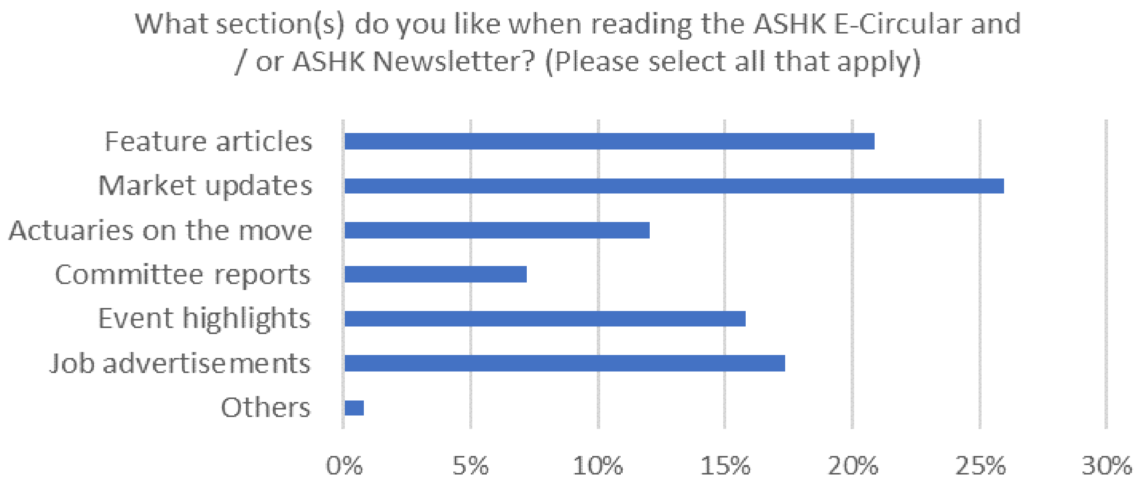
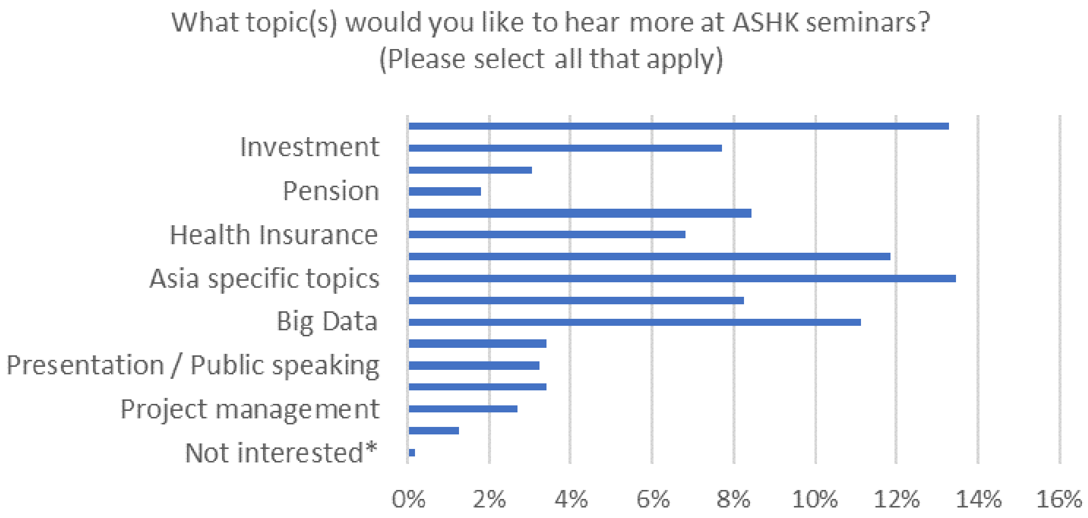
Membership Survey Results

by Donald Chan,
ASHK Membership & Communications Committee

In Dec 2018, ASHK Membership & Communications Committee distributed an online membership survey to all members, to understand the effectiveness of various ASHK communication channels (i.e. newsletter, e-circular) and the interests and suggestions for future seminars or technical programmes. We received 139 responses, with most of the respondents being fellow members working for direct insurers. We know being an actuary is a demanding job so we would like to extend our thanks to all members who took the time to fill out the survey. Your feedback is important to us and we are dedicated to using these results to make changes that benefit you in the future.

From the survey results, we are very pleased to learn that 97% of our members do read the ASHK e-circular and/or newsletter, and 42% of those always read the ASHK e-circular and newsletter. The majority of responses find the latest market or regulatory updates are most valuable to them. We could explore in greater details by approaching regulatory bodies or industry focus groups, to share more relevant materials to the members. The responses of the two relevant questions in the survey are summarized as below:

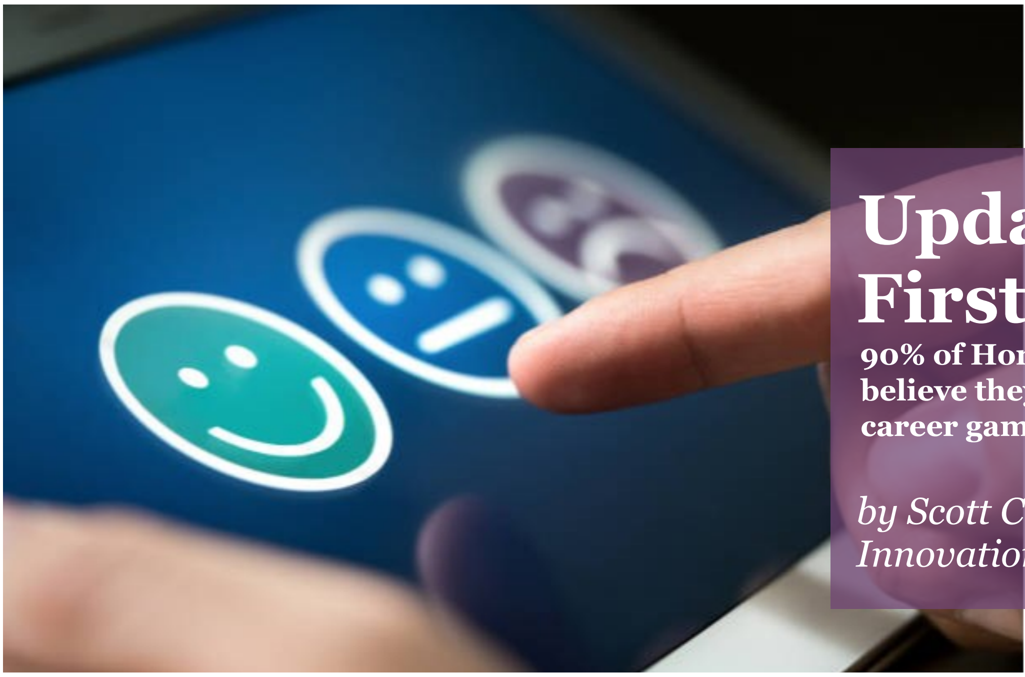




In terms of communication channels, it is not surprising that more than 90% of respondents prefer email communication over other social medias or discussion forum, and the most common reason of not participating in the ASHK activities is the lack of time or time clash instead of the nature of the activities. We understand that being an actuary has high work demands so ASHK will be more proactive to reach out and bring you the latest news of the industry.

Similarly, we are also aware that most of our members do not have time to volunteer to be an ASHK ambassador or host evening seminars. However, it is encouraging to see 41% of the respondents would like us to conduct more research projects which are related to the latest regulatory changes, risk management, data analytics, etc. These echo back to the topics the members would like to see in the "Feature Articles" section of the ASHK newsletter.

We have taken note of the feedback offered in the survey and will try our best to achieve a higher satisfaction rate. We want to ensure our members feel that ASHK is relevant to them and working on their behalf, beyond supporting the profession and industry as a whole.



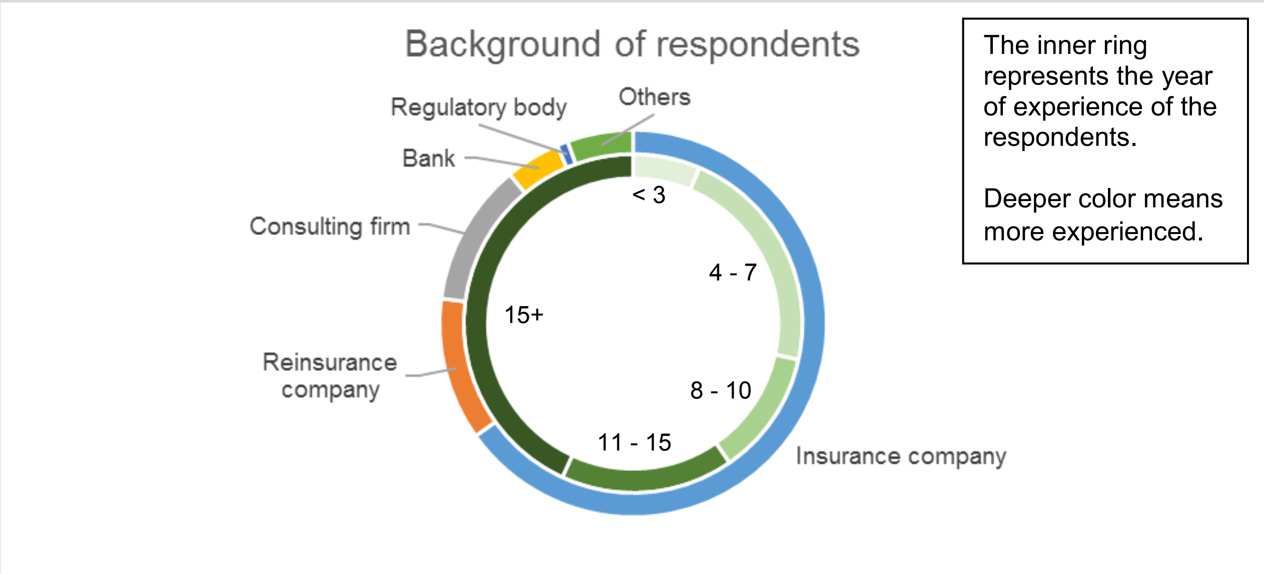
Update on the First Survey:

90% of Hong Kong actuaries believe they need to reassess their career game plan today

by Scott Chow, ASHK Actuarial Innovation Committee

In May 2019, not long after the establishment of the ASHK Actuarial Innovation Committee ("AIC"), we conducted a survey to understand ASHK members' interests and thoughts towards actuarial innovation, as well as expectations on the AIC. We are delighted to share with you the results and conclusions from the survey in this article.

Under the first part of the survey, we asked some questions aiming at understanding the background of ASHK members. Results reveal that the respondents consist of a good mix of seniority ranging from very experienced members (15+ years of experience) to younger members (0 to 7 years of experience). In terms of background, it is not surprising that the majority of respondents are working in insurance companies (> 70%), but we also observe that some respondents have relatively non-traditional roles in technology firms and software companies. We believe the mix of respondents is diverse enough to represent voices from different types of actuaries / ASHK members.



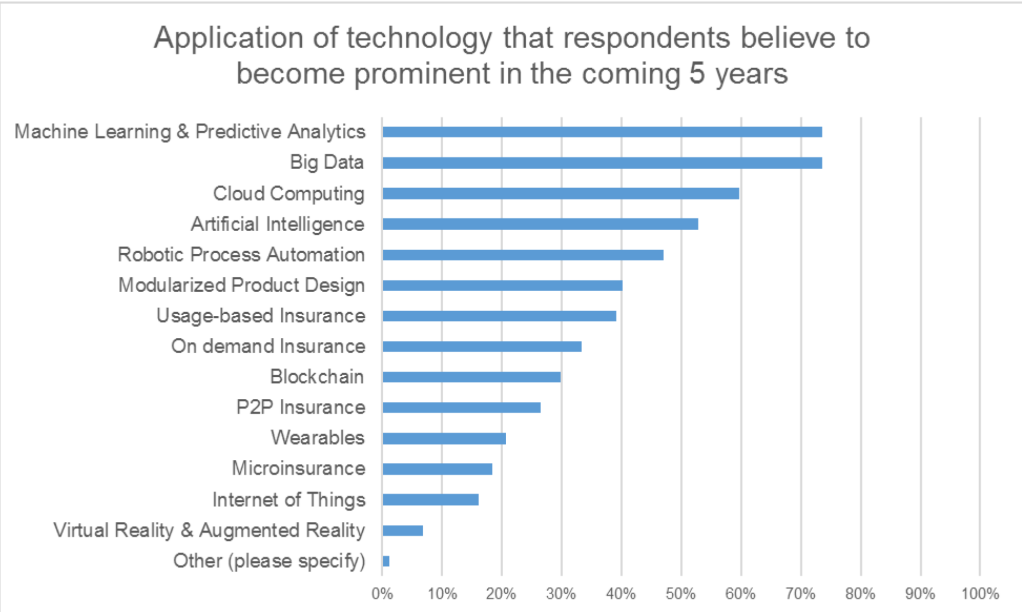
However, an interesting point to note is that when asked to name a previously attended and insightful event relevant to technology and innovation, two-third of respondents skipped the question, which may imply that attending this type of conferences may not yet be popular among ASHK members for the time being.

The second part of the survey was designed to understand, from the perspective of our members, the effect of technological advancement on actuarial roles and the insurance industry as a whole.

Among traditional actuarial functions, modelling appears to be the area more likely to be severely impacted, as far as the respondents are concerned. The respondents believe other functions including financial reporting, product pricing and development, valuation, risk management and ALM will also be impacted, but to a lesser extent compared to modelling.

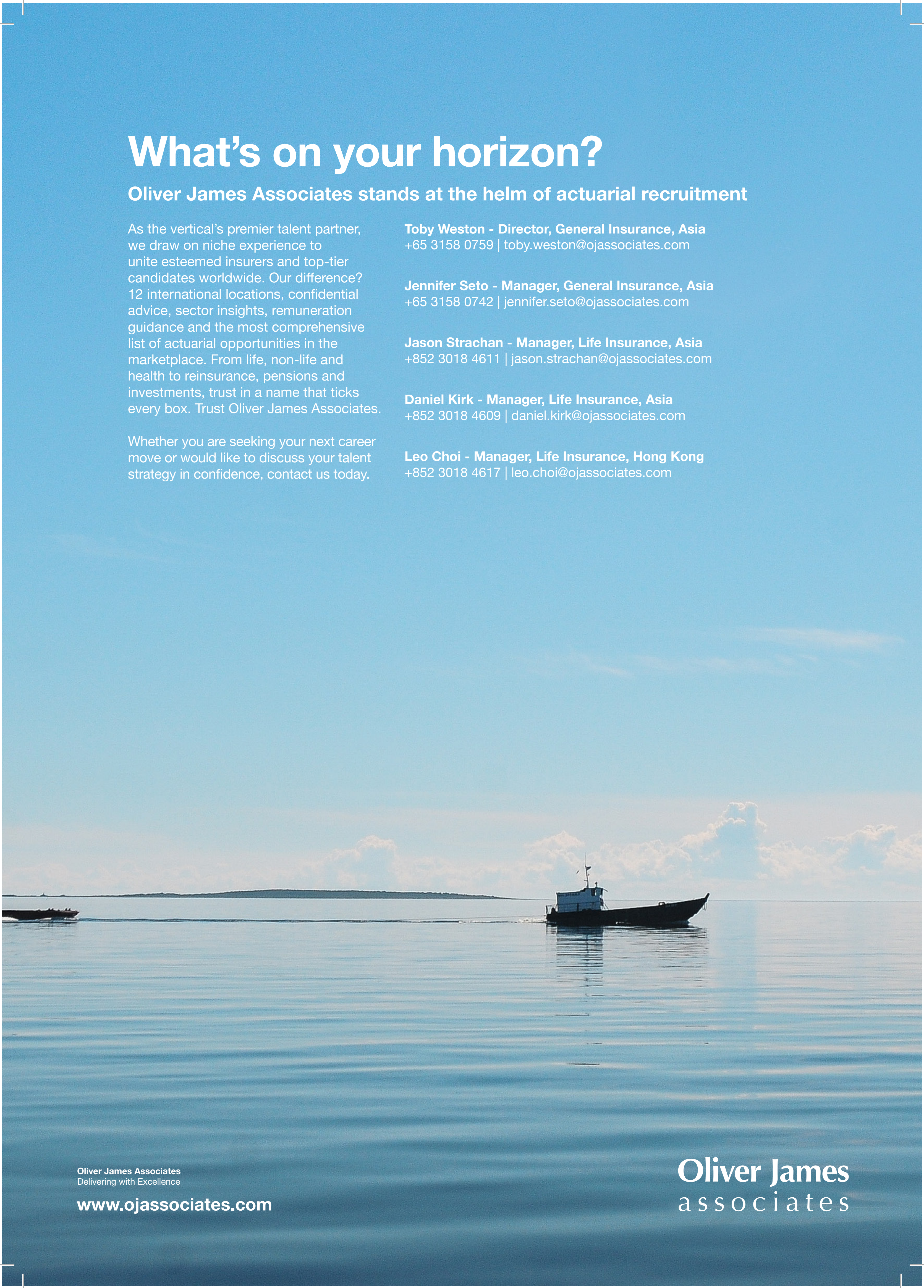
“Actuaries will be replaced by data scientists or artificial intelligence in the future” is a cliché that can often be heard in actuarial conferences and industry events recently. However, only close to 10% of the respondents agree with that. At the same time, respondents believe innovations will bring risks and opportunities to the actuarial profession. Perhaps that is why the majority of the respondents also believe actuaries need to rethink the traditional actuarial roles and assess the impact to their jobs or even careers.

What could be done to improve ourselves as an actuary under the digitisation trend, you may ask. According to the respondents, soft skills like being able to learn and adapt, and communicate with people with different background are viewed as higher priorities than technical skills like coding and data science. This may be explained by the fact that there are many applications of innovative technology one could easily think of. From a given list under the survey, the respondents have identified machine learning and predictive analytics, big data, cloud computing and artificial intelligence as the top four applications that are believed to become prominent in the insurance field in the next five years. Meanwhile, they have also expressed their interest in learning more about these via future events organised by the ASHK.



The final objective of conducting this survey is for the AIC to understand the preferred format of future activities arranged by us in order to promote actuarial innovation. Based on feedback received, organising evening talks and conferences are preferred over publishing articles and research papers.

Thank you very much for participating in the survey, your views and comments have been well received by the AIC. We hope you find the above conclusions insightful, and we are working hard to bring you more about actuarial innovations.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Hong Kong RBC – Time to Get Ready

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(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.)

[Editorial Note: As of the date of newsletter publication, Insurance Authority has released the Technical Specification and Templates for QIS 3 on Aug 9, 2019.]

Background to RBC

This article summarizes the history to date, current status and expected future development of the Hong Kong Insurance Authority's (IA's) project to modernise the existing solvency supervision regime in Hong Kong. The project, known as the "RBC Framework" project, represents a fundamental change for Hong Kong. It covers regulation of solo entities, i.e. Hong Kong licensed insurers and Hong Kong branches of foreign insurers, as well as insurance groups headquartered in Hong Kong. As with most modern regimes there are three "Pillars". Pillar 1 comprises publicly disclosed quantitative requirements. Pillar 2 covers enterprise risk management, including an Own Risk and Solvency Assessment (ORSA), while Pillar 3 covers public disclosure and private disclosure to the regulator.

The IA is seeking to develop a framework that is consistent with international best practice and provides policyholders with a high level of security while at the same time maintaining the competitiveness of Hong Kong as an international financial centre.

Much of the motivation for the RBC Framework project was the result of the findings of the International Monetary Fund (IMF) under the Financial Sector Assessment Program (FSAP). The report, dated July 16, 2014, recommended a number of changes, including strengthening risk management requirements, establishing group-wide supervision (GWS) and establishing risk-based capital (RBC) requirements.

The project officially commenced in September 2014 with the publication of a Consultation Paper (CP) which set out the broad principles. A second consultation process was undertaken in late 2016 and early 2017 covering the design of the Pillar 2 requirements, Group Supervision and the design of Pillar 1 for the first field test (QIS1). More recent developments are covered below.

Outline of the Pillar 1 requirements

At a high level, the Pillar 1 capital requirements for solo entities will follow what has come to be a standard approach for most new solvency regimes. The starting point is an economic balance sheet (EBS). In the EBS invested assets are valued at fair value, intangible assets are not recognized and policy liabilities, sometimes called "technical provisions" or "reserves", are carried at a "current value', and include an explicit "margin over current estimates" (MOCE). The current estimate is the discounted value of future best estimate cash flows at rates that reference current market conditions and explicit allowance is required for the time value of options and guarantees (TVOG). The EBS equity (net assets) is referred to as available capital.

Risk charges are set by the regulator for various quantifiable risks. Internal Models are not (currently) an option. The risk charges cover market risks (interest rate risk, equity risk, property risk, credit spread and currency risk), credit risk, insurance risks covering life and general insurance risks (mortality risk, longevity, morbidity risk, lapse risk, expense risk, catastrophe risk, premium risk and reserve risk) and operational risk. These risk charges are combined to form a total company capital requirement through a correlation matrix to recognise a diversification benefit, i.e. different risks are unlikely to emerge simultaneously and therefore the total capital requirement should be less than the sum of the individual risk charges.

Risk charges are calculated by either "shocking" the EBS or applying specified factors to certain "exposures". Under the shock approach the risk charge is the decrease in available capital if the shock were to occur. Depending on the risk, both assets and liabilities may be revalued, for example, under the interest rate shock. Two examples of the factor approach are reserve risk for GI business where factors are applied to the claim reserves for various types of coverage and operational risk where the factors are applied to a range of exposure measures (for example premiums and policyholder liabilities).

QIS1 was conducted during the second half of 2017. It was essentially a data collection exercise that set a baseline for future QIS's. Risk charges were specified but neither MOCE nor the correlation matrix were specified. QIS2 occurred in the second half of 2018. This was a 'full-blown' QIS in that all items necessary to calculate the company's capital position were specified. The results of QIS2 were generally felt to be overly conservative. After reviewing the QIS2 results, the IA committed that QIS3 would incorporate "moderation", i.e., less onerous valuation and risk requirements. To this end a "pilot test", also known as QIS2.5, was conducted in the first half of 2019 for a select number of life insurers and QIS3 will be run in the latter half of 2019. At the time of writing, the QIS3 technical specification has not yet been released.

The IA plans to analyse the QIS3 results in the first quarter of 2020 and make proposals for the final Pillar 1 rules for solo entities sometime in the first half of 2020. The effective date for the new requirements is targeted to be January 1, 2022.

As has been the case in other jurisdictions that have adopted new requirements, it is likely that there will be transitional arrangements for companies to adopt the new requirements, although the IA has not yet put forward any proposals in this regard. For example, a multi-year grade-in could be permitted to allow firms to re-position their asset, liability and capital positions where needed.

Recent Pillar 1 developments

As mentioned above, the calibration within the second quantitative impact study (QIS2) resulted in a position that was generally considered by the industry as too conservative. The QIS2.5 pilot test was designed to sample test certain key proposals impacting the discount rate and the credit spread risk charge. The construction of the QIS2.5 proposals was designed to encourage and promote improved company specific asset and liability management. The results were far more favourable and the industry reaction has been more positive. While QIS2 applied a 'volatility adjustment' approach, QIS2.5 tested a 'matching adjustment' to the risk-free discount rate. These terms benefit from further explanation as they are not used consistently in various jurisdictions:

- Volatility adjustment (VA) – tested in QIS2 (32 basis points at year-end 2017). The VA was derived using the EIOPA methodology underpinning Solvency II, though calibrated to the assets held in the Hong Kong insurance market. The reference portfolio underpinning the adjustment under the VA approach is therefore based on the industry asset position and applied to all firms in the market. Within the credit spread shock no allowance was made for any change in the VA under credit spread (though a sensitivity to test this was included in QIS2).
- Matching adjustment (MA) – tested in QIS2.5. The MA draws on the concepts used in other markets where the adjustment applied to the risk-free rate is derived using each company's own asset position, for each relevant portfolio where a MA is used. Unlike certain matching adjustment approaches in other regimes (e.g. Solvency II), the Hong Kong MA can be applied to all liability portfolios without restrictions on the underlying liabilities that could qualify. The MA is scaled up (or down) to reflect better (or poorer) predictability of the liabilities and matching of asset and liability durations and cashflows. The MA is also 'dynamic' in that under a credit spread shock it is assumed to increase (though the increase is dampened with reduction factors applied such that not all the increase in credit spread would translate to a change in the MA).

The portfolio specific MA and the dynamic nature of the MA under credit spread shocks were the primary drivers of the more favourable position under QIS2.5.

The other interesting aspect introduced by the IA in QIS2.5 is the concept of a Long-term Adjustment (LTA). The LTA essentially allows insurers to recognise a (100 basis point) spread on equity or property assets within the MA calculation for long term liabilities (greater than 30 years). The views on this adjustment in the market are somewhat mixed. Those who believe in risk neutral techniques find it difficult to agree that a risk adjusted spread on equity or property assets should be recognised. Supporters of the LTA argue that insurers, as investors with a long-term time horizon, should not be dis-incentivised from long term investments in assets that have performed well over these longer time horizons and would ultimately benefit policyholders. The IA proposal seems to strike a reasonable compromise of these differing views by including some allowance, though with limits in place.

The 'cost' of applying an MA appears to be the operational overhead introduced. Portfolio specific MAs require:

- Actual assets, split by portfolio, at the valuation date;
- Portfolio specific economic scenario generator calibrations (for valuing the time value of options and guarantees);
- Iteration to solve the circularity built into the proposals where an estimated MA is needed to calculate the 'scaling' of the MA for predictability and duration ratios.

The full impact of this operational overhead has not yet been tested, though the IA has introduced certain simplifications in the proposals for QIS3 which will be tested.

QIS3 is expected to therefore result in a more favourable position than QIS2, primarily due to the adjustments described to include a (dynamic) MA as well as an LTA. However, a number of further refinements will be included in QIS3 which, broadly speaking, align the QIS3 parameters and approaches to the Insurance Capital Standards (ICS) 2019 field test specifications. These, on balance, will likely result in improvements in solvency position of life insurers.

For general insurers, initial proposals covered within the IFG's are expected to result in an improvement in solvency positions arising from lower reserve risk and catastrophe risk charges.

For reserve risk, there has been a slight moderation in charges. For the time being, MOCE is separated from the exposure base when determining the reserve risk charge. Actuaries need to be mindful of what elements of their claim liabilities should sit within the best estimate and what belong under MOCE – currently, a number of insurers may have a conservative basis when setting their best estimate claim reserves.

For catastrophe risk, the key differences expected under QIS3 are a fewer number of catastrophe scenarios. For some of the offshore risks, insurers may have the option to use their own internal catastrophe models or the prescribed charge factors from the IA, with the former likely to result in lower charges. In its preliminary form, this provides a good incentive for insurers to invest in furthering their understanding of what risks they are exposed to, and presents an obvious area for actuaries to play a more significant role.

Pillar 2

Following two rounds of consultation in April 2018 and January 2019, the Pillar 2 requirements have recently been finalised with the July, 5 2019 publication of the final version of the Enterprise Risk Management (ERM) Guideline – GL21. The requirements themselves are similar to Pillar 2 requirements in other regimes such as Solvency II and require many standard building blocks for good risk management including: risk strategy and appetite; risk governance and policies; risk measurement, management and reporting processes (including an ORSA); capital and solvency assessments; stress and scenario testing and a review and feedback loop. Perhaps the more notable areas to highlight are:

- A requirement to have a conduct risk policy, the results of which will be reported on within the ORSA;
- A Recovery Plan for all companies. The Recovery Plan must analyse the company’s response to plausible adverse scenarios (stress testing) and also include “reverse stress testing”, i.e. identification of scenarios that would cause the insurer to fail;
- Model and data governance requirements which will apply to all models and data used in the risk management process; and
- Target capital requirements. Each authorised insurer must identify a “Target Capital” amount based on its risk appetite and which considers the full range of risks to which it is subject, including any risks that it judges may not be adequately captured in the Pillar 1 requirements. Such Target Capital must not be less than the Pillar 1 requirement.
- For general insurers, a draft Stress and Scenario Test guideline has been shared for industry consultation

The final version of the consultation had relatively minor changes and the substance of the final requirements remain broadly the same as the January 2019 proposals. The area that has provoked the most discussion has been around capital requirements. Firms are asked to submit capital forecasts where they should assume the regulatory capital position underpinning projections is the last QIS basis. As a result, this creates an ‘early launch’ of the Pillar 1 requirements within Pillar 2. With QIS3 not yet completed many firms are concerned about the uncertainty this creates within capital management and forecasting and the potential to confuse senior management and Boards with multiple required regulatory capital bases running in parallel.

Pillar 3

While we expect a Pillar 3 set of requirements, they have not yet been developed or consulted on. We understand the IA are currently working on the design of Pillar 3 requirements with industry consultation expected in 2020. Experience from other regimes has been that the Pillar 3 requirements can require a substantial amount of development for data, systems and processes, however this is highly dependent on the depth and detail required to be disclosed (in particular where ‘look through’ of the asset positions is required) as well as the frequency and timescales within which disclosures need to be made. The industry will need to keep a careful eye on the Pillar 3 disclosure requirements and ideally build the requirements into existing IFRS17 disclosure systems and processes to minimise any additional work.

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Group supervision

The IA will be granted regulatory powers to supervise insurance groups. Currently their authority only extends to authorised insurers (i.e. at a solo level). This represents a material change in the regulatory landscape for Hong Kong and the IA is currently privately consulting the major groups on the main aspects expected under Group Wide Supervision (GWS). The public consultation of the GWS framework is expected to start in the latter half of 2019 and be in force by the middle of 2020.

The consultation process

The IA has followed a highly consultative process in developing the RBC framework. Virtually all proposals have been discussed in "Industry Focus Groups" (IFG's) before being finalized. Participants in the IFG's include industry representatives appointed by the Hong Kong Federation of Insurers (HKFI) and representatives of the Actuarial Society of Hong Kong (ASHK). This collaborative approach has contributed to a mutual understanding among all parties concerned, if not always agreement.

After each IFG the ASHK has provided a formal written response to the proposals presented. The responses have been developed by the ASHK RBC Task Force and are written from a professional actuarial point of view. Broadly speaking, the objective is a regime that is risk-sensitive, provides incentives to manage and mitigate risk, while not requiring excessive, non-economic levels of capital. The HKFI has also responded to the proposals from an industry point of view. For example, the HKFI is able to comment on such things as the practical implications of the proposals, including resources and timelines required for implementation.

Market perceptions and readiness

The market has focused on Pillar 1 and 2 to date with QIS exercises being a key focus to understand the capital implications. While some firms have analysed the asset implications, product suite, ALM implications and capital management options, this has been 'light touch' so far. The conservative picture presented by QIS2 has, to some extent, undermined the willingness of firms to make substantive changes in the underlying risk profiles or in some cases even to brief their boards. QIS3 will be different and the focus should be on getting more robust results that can be used as a basis for decision making. Examples of where we expect a great deal of focus to come are as follows:

- Assets held by firms - Examples include: longer duration assets that better match the liabilities will be in higher demand; derivatives being introduced for risk management purposes (duration extensions, interest rate exposure management); higher credit quality corporate bonds reduce the capital requirements and give more favourable benefit under the dynamic MA; and a re-examining of equity positions where developed vs emerging market capital charges can call into question whether sufficient return is expected to justify the difference in capital charges.

- Asset and Liability management (ALM) - Greater detail and rigour in the allocation of assets to liability portfolios will be required in the future in order to best optimise the matching adjustment and capital charges. Strategic asset allocations will likely be updated to more directly consider the RBC capital requirements and the greater granularity, with direct implications on the ALM methodology, systems and processes.
- Products – all else equal, RBC regimes encourage products that are less capital intensive for the insurer and pass more risks to policyholders. Products such as ILAS (unit linked business) and pure protection business become more attractive, whereas participating and universal life products with high guarantees on bonuses or crediting rates become more capital intensive. Shorter duration policies that can be more easily backed by assets are also likely to be easier to manage under the RBC basis. With distribution channels and buying habits still heavily favouring long term savings products with guarantees, we expect changes to new business product portfolios to take time, so this area will develop more slowly in the next 12 months. Similarly, the in-force portfolio features are difficult to change in the shorter term, and we'd expect a greater focus on in-force financial and capital management approaches to develop over time, possibly including reinsurance structures.

Under Pillar 2, the IA will be conducting a 'Preparation Status Survey' which insurance firms have until 16 August 2019 to respond to. The survey focuses on readiness against governance, risk appetite, ORSA, risk assessment and control as well as the 'feedback loop' of the risk management cycle. In KPMG's own analysis in January 2019, 21% of the Life market (43% for GI) had not yet started preparing for the ERM requirements. 25% of the Life market (7% for GI) were in the process of implementation while the balance was in the process of conducting gap analyses. There is therefore, a great deal more work expected to be required to be fully ready for GL21. With the first submission of the ORSA being within 6 months of year-end 2020, we believe many companies will use next year to iterate and refine components of the ERM aspects that are currently being designed and built.

The opportunity for actuaries

Actuaries have a critical role to play in the successful implementation of the RBC regime. In other markets, there has been a notable shift of actuarial skills being brought into other areas of the business. The investment area is a good example, where actuaries who understand the products, ALM and capital implications can add significant value given the new investment considerations needed under RBC. Similarly, risk management's focus will increasingly cover financial risks, capital and solvency as well as optimisation questions where actuaries can play a strong role. While the traditional role of the actuary will continue, the opportunities are important not to miss. Now is a great time for actuaries to play a role in 'wider fields'.

Life Insurance Capital Regimes in Asia – Comparative Analysis and Implications of Change

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[Editorial Note: As of the date of newsletter publication, the Insurance Authority released the Technical Specification and Templates for QIS 3 associated with the developing Hong Kong RBC framework on Aug 9, 2019.]

Introduction

Capital regulations for life insurance companies in Asia are complex and varied. They are also subject to change, which often impacts how insurers manage their ongoing business. In many markets in the region, regulators are introducing new risk-based capital (RBC) regimes or "upgrading" existing RBC frameworks. This includes increased consideration to consistency with the new International Financial Reporting Standard 17 (IFRS 17), the International Capital Standard (ICS), and other capital regimes across the region/worldwide.

In view of rapid change and increasing focus on regulatory capital across the region, Milliman has carried out a a research covering the capital regimes in 10 Asian markets plus the 2018 ICS field test (which may be a reasonable proxy for the future RBC regimes in some markets, including Japan, South Korea and Taiwan). The research also references Solvency II, Bermuda Solvency Capital Requirements, Canada's Life Insurance Capital Adequacy Test and the United States' RBC regime.

Our research aims to:

i) compare and contrast life insurance RBC regimes across selected Asian markets;
ii) highlight some of the potential implications for businesses arising from the future development of capital regulations; and
iii) contribute to the wider discussion on the potential impact of changes in regulation on the life insurance industry in Asia.

This article summarises our research covering the comparison of key quantitative and qualitative aspects of life insurance capital regimes in Asia, and the analysis of key capital results (e.g. capital ratio, risk charges, factors impacting capital) based on information publicly available and other market sources. It does not attempt to provide all of the applicable detail behind the capital regulations governing life insurance companies in the various markets analysed. It is important to recognise that the regulatory environment in Asia is changing fast and, therefore, the information contained in this report is time sensitive. The various capital regimes covered in this article and the full report are based on the applicable regulatory environment as at 15 June 2019. Some of these regulations may have changed since this date.

Our consultants have recently presented this topic in the Joint Regional Seminar 2019.

Overview of the comparison of technical specifications of capital regimes

Most of the markets in Asia follow some form of RBC regime, although some of them, including Hong Kong and India, are still following a EU Solvency I type of approach. In many of the markets, insurance regulators are reviewing the existing capital regulations. Hong Kong is in the process of developing a new RBC regime, while China, Malaysia, Singapore and Thailand are currently in the process of "upgrading" their existing RBC requirements via quantitative impact study (QIS) exercises and consultative discussions with the industry. Table 1 provides an overview of the current status of capital regimes for the markets covered in this report.

TABLE 1: STATUS OF THE CAPITAL REGIMES

MARKET	INSURANCE REGULATORY/ GOVERNING BODY	EXISTING CAPITAL REGIME / APPROACH	DEVELOPMENTS
CHINA	China Banking and Insurance Regulatory Commission (CBIRC)	C-ROSS Risk-based	CBIRC is currently reviewing the existing China Risk Oriented Solvency System (C-ROSS) formulae and parameters. The exact timing of C-ROSS Phase II remains uncertain but most of the updated quantitative requirements are expected to be released later this year.
HONG KONG	Insurance Authority (IA)	EU Solvency I Non-risk based	Hong Kong is introducing a RBC framework, targeted to be introduced by 2021. Hong Kong RBC QIS 3 is scheduled to be launched by Q3 2019.
JAPAN	Financial Services Agency (FSA)	Risk-based (US risk-based)	The FSA is contemplating the introduction of an economic value-based solvency regime. A recent field test was based on the ICS field test, although the FSA reminded the industry that this should not be interpreted as a final direction. The exact timing of the introduction of this new regime remains uncertain.
INDIA	Insurance Regulatory and Development Authority of India (IRDAI)	EU Solvency I Non-risk based	The IRDAI is contemplating the introduction of a RBC regime. However, the exact framework to be adopted has yet to be defined, and the exact timing remains uncertain.
INDONESIA	Otoritas Jasa Keuangan (OJK)	Risk-based	There are no known planned developments to the existing framework.
MALAYSIA	Bank Negara Malaysia (BNM)	Risk-based	BNM has initiated a review of its current RBC framework, which has been conducted in phases since 2018. The first phase will focus on reviewing the prudential limits on assets and counterparty exposures, followed by a review of the standards for the valuation of liabilities and capital adequacy components. The exact timing remains uncertain.
SINGAPORE	Monetary Authority of Singapore (MAS)	Risk-based	RBC2 will come into effect from 1 January 2020.
SOUTH KOREA	Financial Supervisory Service (FSS)	Risk-based (US risk-based)	The FSS has announced its plan to adopt K-ICS, a principle-based RBC framework, which is similar to ICS. The target effective date is 2022, which is the same as the effective date of IFRS 17.
TAIWAN	Financial Supervisory Commission (FSC)	Risk-based (US risk-based)	The current RBC approach is based on prescribed risk factors multiplied by risk exposures. Going forward, Taiwan is expected to move to an ICS regime, but the exact timing remains uncertain.
THAILAND	Office of Insurance Commission (OIC)	Risk-based	RBC 2, using a 95% confidence interval, is due to be introduced in 2H 2019. The OIC plans to spend 2020 and 2021 working with the industry on the impact study of IFRS9 and IFRS 17 on RBC2. The 99.5% confidence interval RBC 2 draft will take into consideration these results and industry feedback. It is understood that the OIC plans to commence the 99.5% RBC 2 implementation two years after IFRS 17 applies.

A move towards an economic balance sheet framework across the region, but key differences exist

The assessment of required and available capital using an economic balance sheet approach has underpinned most of the recent changes in Asian capital regulations. A fundamental premise of the economic balance sheet framework is the endorsement of the concept that assets and liabilities should be valued on a consistent economic basis, leading to a reduction or elimination, where possible, of accounting mismatches. This economic balance sheet approach is also consistent with Solvency II, ICS and IFRS 17 principles. In particular, for solvency purpose, an increasing number of Asian capital regimes require companies to:

- assess their assets on a market value basis (e.g. Hong Kong (new RBC), Indonesia, Singapore, Thailand, Malaysia), although some are still measuring their assets using different accounting bases (e.g. China C-ROSS, Japan regulatory capital);
- value their liabilities using a gross premium valuation (GPV) approach allowing for an additional risk margin and, potentially, a time value of options and guarantees (TVOG), using a "relatively market consistent" yield curve to determine discount factors.

Although there is a trend towards the use of an economic balance sheet framework, many regulators in Asia seem to have taken a more practical approach that reflects market specifics, while ensuring a reasonable degree of conservatism (e.g. the flooring of reserves in some markets). This leads to inconsistencies between RBC regimes across the region. Table 2 gives an overview of some of these differences when assessing liabilities.

TABLE 2: APPROACH OF EVALUATING DETERMINISTIC INSURANCE LIABILITIES

CAPITAL REGIME	GENERAL		RISK MARGIN		TVOG	
	APPROACH	LIABILITY FLOOR	ALLOWED?	APPROACH	ALLOWED?	APPROACH
CHINA C-ROSS	GPV	CSV less capital requirement	√	PAD	√	Deterministic only
HONG KONG RBC (QIS 2)	GPV	None	√	PAD	√	Stochastic / Deterministic
JAPAN (REGULATORY)	NPV	Reserves floored to zero at policy level	X	Considered implicitly	√	Stochastic / Deterministic
ICS FT 2018	GPV	None	√	PAD/CoC	√	Stochastic / Deterministic
INDIA SOLVENCY I	GPV	CSV (if there is a surrender value) or reserves floored to zero at policy level	X	Considered implicitly	√	Not explicitly specified
INDONESIA RBC	GPV	Reserves floored to zero at policy level	√	PAD	X	N/A
MALAYSIA RBC	GPV	Reserves floored to zero at fund level	√	PAD	√	Stochastic / Deterministic
SINGAPORE RBC 2	GPV	Reserves floored to zero at policy level*	√	PAD	X	N/A
SOUTH KOREA RBC	NPV	Reserves floored to zero at policy level	X	Considered implicitly	√	Stochastic
TAIWAN RBC	NPV	Reserves floored to zero at product level	X	Considered implicitly	X	N/A
THAILAND RBC 2 (95TH PERCENTILE)	GPV	Reserves floored to zero at product level	√	PAD	X	N/A
SOLVENCY II	GPV	None	√	CoC	√	Stochastic
BERMUDA BSCR	GPV	None	√	CoC	√	Stochastic
CANADA LICAT	GPV	Cap on credit taken for negative reserves and if CSV greater than reserves	√	PAD	X	N/A
US RBC	NPV	Reserves floored to zero at policy level	X	Considered implicitly	X	N/A

Notes: GPV = Gross Premium Valuation, NPV = Net Premium Valuation, CSV = Cash Surrender Value, PAD = Provision for Adverse Deviation, CoC = Cost of Capital
*Singapore RBC 2 regime continues to floor policy reserves to zero but recognises negative reserves as a reduction to financial resources

TVOG is a good example of such discrepancies. Universal life products offering guarantees are prevalent in many markets in Asia including China, Hong Kong and Singapore, but TVOG is only included in the newly proposed Hong Kong RBC (QIS 2) and China C-ROSS regimes. Moreover, under C-ROSS, TVOG is assessed using a prescribed deterministic formula that applies to the whole industry, whilst the Hong Kong regulator is encouraging companies to assess TVOG using stochastic ALM models to better reflect their own cost of financial options and guarantees. The same discrepancies in TVOG methodology apply to participating business, which is material in many markets in Asia (e.g. Hong Kong, Singapore, Malaysia, China).

The risk margin is another example of discrepancies across RBC regimes in Asia. Whilst PADs are adopted in most of the capital regimes in the region, the approach to derive the PADs – and in particular the underlying risk charges used to calculate the PADs - differs from one market to another. In addition, the PAD approach (which is determined by recalculating liabilities by including an additional prudent margin on top of the best estimate assumptions) is not consistent with the cost of capital (CoC) approach used by Solvency II and Bermuda BSCR. It may also not be in line with the approach adopted by some Asian life insurance companies under IFRS 17 (although some companies may also decide to use a PAD approach).

Discount rate: market consistency and smoothing

Under RBC regimes, the yield curves used to assess the best estimate of liabilities are typically defined using a "bottom up" approach, whereby the discount rate reflects a market consistent risk free rate plus an adjustment for illiquidity/smoothing prescribed by regulators. However, the valuation of liabilities requires the use of a yield curve that extends to very long durations, reflecting both market conditions and long term economic views. This poses a challenge in Asia where available market data is often covering a much shorter duration than the projected cash flows. The reference yield curve is typically extrapolated from the last liquid market point (LLP) to some long-term equilibrium rate (ultimate forward rate or UFR). Table 3 compares the various parameters used by the various regimes.

TABLE 3: DETERMINATION OF THE DISCOUNT CURVE

CAPITAL REGIME	BASE FOR INITIAL YIELD	ILLIQUIDITY PREMIUM / SMOOTHING	LLP	UFR	INTERPOLATION/ EXTRAPOLATION
CHINA C-ROSS	Government bond yield	30 / 45 / 70 bps depending on product and issue date	20 years	4.5%	Quadratic
HONG KONG RBC (QIS 2)	Swap yield	Volatility adjustment or matching adjustment or own assets with guardrails	HKD: 30 years USD: 30 years	HKD: 3.65% USD: 3.65%	Smith-Wilson method
JAPAN (REGULATORY)	Stipulated interest rate for policies issued after March 1996 with some exceptions. Otherwise, the (guaranteed) interest rates filed with FSA upon product launch.				
ICS FT 2018	Swap rate or government bond yield	Prescribed illiquidity premium	JPY: 30 years USD: 30 years	JPY: 3.8% USD: 3.8%	Smith-Wilson method
INDIA SOLVENCY I	BE investment return	N/A, although risk-adjusted corporate-bond spreads may be included in the BE investment return	N/A	N/A	N/A
INDONESIA RBC	Government bond yield	Averaging of government bond yield plus a discretionary adjustment of up to 50bps	N/A	N/A	N/A
MALAYSIA RBC	Government bond yield	N/A	15 years	Same level as at LLP	Based on forward rate
SINGAPORE RBC 2	Government bond yield	Allowance for illiquidity premium or matching adjustment	SGD : 20 years USD: 30 years	SGD : 3.8% USD: 3.8%	Smith-Wilson method
SOUTH KOREA RBC	Assumed (guaranteed) interest rates filed with FSS at a product launch.	N/A	N/A	N/A	N/A
TAIWAN RBC	US government bond yield	N/A	N/A	N/A	N/A
THAILAND RBC 2 (95^{TH} PERCENTILE)	Government bond yield	Averaging of government bond yield	50 years	Same level as at LLP	N/A
SOLVENCY II	Swap rate or government bond yield	Volatility adjustment or matching adjustment	Euro: 20 years USD: 50 years	Varies by currency	Smith-Wilson method
BERMUDA BSCR	Swap rate	Discretionary	30	Varies by currency	Potentially several methods
CANADA LICAT	Canadian statutory rate	N/A	N/A	N/A	URR (unexpired risk reserve)
US RBC	Net asset earned rates with prescribed asset spreads	N/A	N/A	N/A	N/A

N/A: not appropriate

Using the spot yield curve to set discount rates introduces an asset liability gap in the economic balance sheet of insurance companies, where the market price of assets captures the illiquid nature of the assets but this is not recognised within the liability calculations. Illiquidity premium adjustments and smoothing adjustments (e.g. volatility adjustment, UFR, averaging of spot yield curve) are, therefore, applied to narrow this gap, stabilise the net asset value (i.e. difference between assets and liabilities) and better reflect the long term nature of insurance businesses, and in particular the illiquid nature of liabilities. RBC capital adequacy ratios and the different blocks of the economic balance sheet are usually sensitive to this parameter, which is often a key component in different phases of quantitative impact studies/testing from regulators.

Capital requirement modules and sub-modules are broadly consistent across RBC regimes in Asia, but underlying parameters differ

The exhaustive list of risks considered in determining capital requirements varies across different capital regimes. However, key material risks considered are typically similar, and include insurance risk, market risk, counterparty default risk and operational risk.

- Life insurance risks include mortality/longevity risk, morbidity risk, lapse risk (long term and mass lapse), and expense risk. Mortality catastrophe risk is also sometimes explicitly considered.
- Market risks typically consist of equity risk, interest rate risk/ asset liability management (ALM) risk, credit spread risk, property risk and foreign exchange risk.
- Operational risk is typically quantified by applying risk factors to risk drivers, with premium being one of the most common risk drivers.

As there are natural hedges between different risks, correlation matrices are usually considered to reflect diversification benefits across various risk modules and sub-modules. In particular, most of the RBC regimes in Asia (and in particular all the RBC regimes revised recently) consider diversification benefits when aggregating the sub-modules under the insurance and market risk modules. Some RBC regimes consider the diversification between all risk components other than operational risk, while some others only consider the diversification between asset risk and insurance risk.

There is generally a trend towards making risk charge parameters/stress factors more consistent from one regime to another, to the extent possible. However, material discrepancies remain, as illustrated by the comparison of interest rate stress factors for selected markets in Asia in Table 4.

TABLE 4: KEY PARAMETERS COMPARISON FOR INTEREST RATE FOR SELECTED TTM – SHOCK DOWN

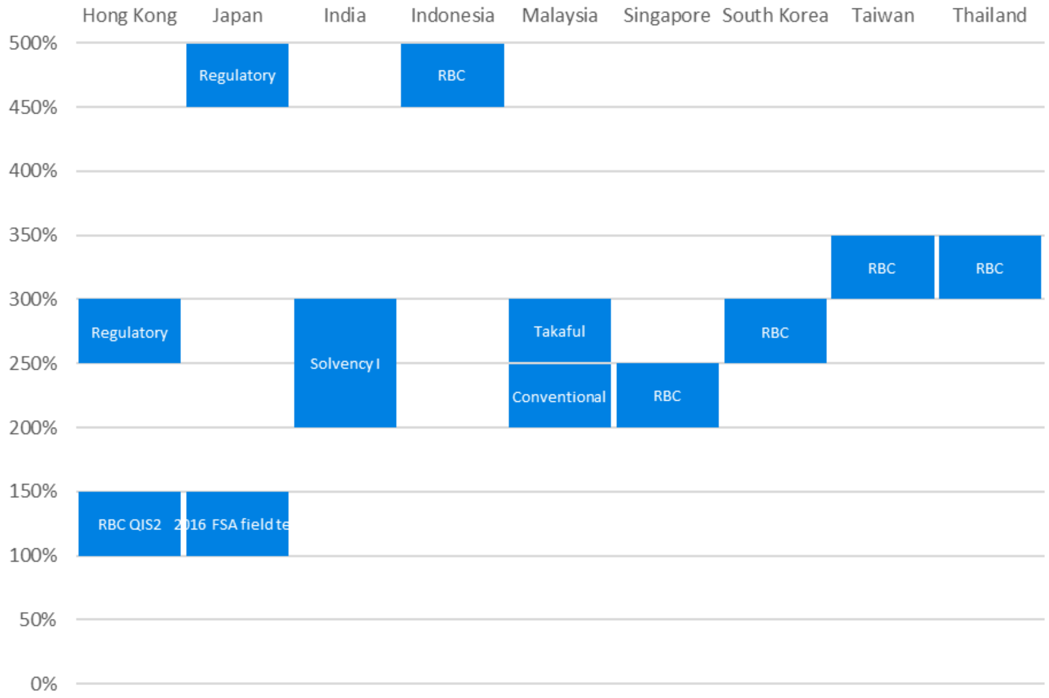
CAPITAL REGIME	INTEREST RATE / ALM – STRESS BASED (APPLIES TO INTEREST RATE OR OTHERWISE STATED)						
TERM TO MATURITY (TTM)	1	3	5	7	10	15	20
CHINA C-ROSS*	-73%	-68%	-58%	-50%	-37%	-28%	-24%
HONG KONG RBC (QIS 2)	-75%	-64%	-61%	-57%	-53%	-49%	-43%
MALAYSIA RBC**	-15%	-15%	-15%	-15%	-15%	-15%	-15%
SINGAPORE RBC 2	-70%	-65%	-60%	-50%	-40%	-30%	-25%
THAILAND RBC 2 (95TH PERCENTILE)	-40%	-38%	-36%	-34%	-31%	-26%	-21%
SOLVENCY II	-75%	-56%	-46%	-39%	-31%	-27%	-29%

* China has different shocks for assets and liabilities. The asset shocks are shown above. The liability shocks are generally lower.
** For Malaysia, the stress is formula-based and depends on the Malaysian Government Securities (MGS) yield. The stress shown above for comparison purposes is applicable as at end of 2017.

Comparative analysis of capital adequacy ratios across Asia

The figure below shows the industry average capital adequacy ratios for each market covered in this report, except for China, where there are data limitations. Most of the markets have an average regulatory solvency ratio within the range of 200% to 350%, except Japan and Indonesia, which have a relatively higher average solvency ratio (above 450%).

FIGURE 1: INDUSTRY AVERAGE SOLVENCY RATIO LEVEL



Source: Estimates based on public information and Milliman market intelligence. Some companies may experience higher or lower solvency ratios than the industry average shown above.

Note 1: The solvency ratios shown above are as at 31 December 2017 except: a) Japan regulatory solvency ratio and India Solvency I solvency ratio are as at 31st March 2018; and b) Japan 2016 FSA field test result is as at 31 March 2016.

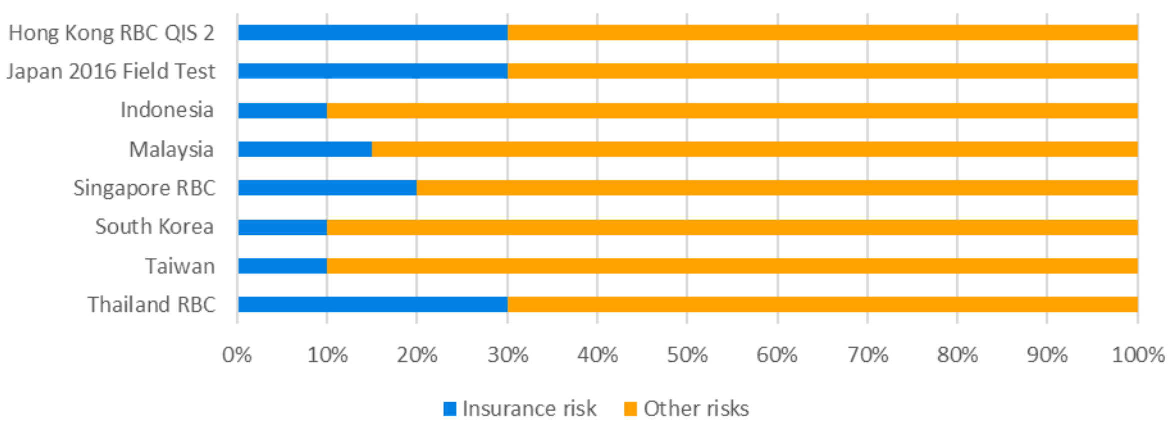
Note 2: The Hong Kong IA carried out QIS 2 for the new RBC regime in 2017, and the resulting average industry solvency ratios were just above 100% based on a set of relatively conservative parameters, according to many industry observers. Similarly, Japan's FSA carried out an economic balance sheet RBC field test in 2016, and the resulting average solvency ratios were also just above 100%. However, both quantitative impact studies were conducted using parameters/approaches that are currently going through review and further consultation. The average industry solvency ratios under the final implemented RBC requirements are likely to differ (potentially significantly) from those shown.

Note 3: For Malaysia, the conventional business only includes life conventional business, and takaful business includes only family takaful business.

In general, industry level capital ratios in Asia have been relatively stable over the past few years, with small changes driven primarily by changes in the interest rate environment (government bond yields being typically used to set up the discount rate as discussed above).

For markets subject to RBC regimes, as shown in Figure 2, the total capital requirement tends to be mainly driven by market risks (i.e. interest rate, equity and credit spread), although lapse risk and morbidity risks are also key contributors. In some markets such as Japan, currency risk can also be material.

FIGURE 2: RISK CHARGE BREAKDOWN – INSURANCE RISK VERSUS OTHER RISKS



Source: Estimates based on public information and Milliman market intelligence.

Note: For Thailand and Singapore, the above breakdown is based on Thailand RBC 1 and Singapore RBC 1 parameters respectively given new RBC 2 regimes have not been used in practice yet.

Industry average capital adequacy ratios and the breakdown of risk charges can be explained by the nature of assets, the nature of liabilities and the matching (or lack of matching) of assets and liabilities.

More than half of the life insurance assets across these markets are invested in bonds, with insurers in some markets investing a high proportion in government bonds (e.g. Thailand), whilst investing a higher proportion in corporate bonds in others (e.g. Hong Kong). The proportion of equities varies, with markets having a material proportion of participating business (e.g. Singapore, Malaysia, Hong Kong) typically investing more in equities.

Liabilities differ significantly from one market to another. The proportion of unit-linked business is significant in some markets (e.g. Indonesia, India and Malaysia), whilst universal life business has been relatively popular in Hong Kong, Singapore and South Korea. Non-participating traditional business (e.g. endowments, whole life, credit life, term) remains a material product category for all the markets. Participating business (e.g. endowments, whole life) is also a popular line of business for some markets across the region, including Japan, South Korea, Hong Kong, Singapore and India. Unit-linked business and insurance products with lower guarantees and protection products will typically look more attractive under an economic balance sheet framework, whilst savings products with guarantees (implicit or explicit) will generally be less attractive (the degree of attractiveness being typically measured in terms of new business margin). Table 5 provides a high level overview of the materiality of TVOG should this be assessed as part of the RBC framework (which is currently not the case in all markets).

TABLE 5: MILLIMAN'S OBSERVATIONS OF TVOG IN SELECTED MARKETS

MARKET	CAPITAL REGIME	TVOG CONSIDERED?	MATERIALITY OF TVOG
HONG KONG	Solvency I (moving to RBC)	√ (under RBC QIS)	TVOG could be relatively material for par products and universal life products which are two main product categories sold in Hong Kong.
INDIA	Solvency I	√	Generally not material as we observe: • The level of guarantees for par products are typically low and interest rates are still relatively high. Hence, participating product guarantees are typically out of the money. • Capital guarantees are not widespread for unit-linked business However, for non-linked group funds management business, guarantee costs may be significant depending on the level of asset-liability duration mismatch.
INDONESIA	RBC	X	Generally not material as we observe most products are unit linked without guarantee.
MALAYSIA	RBC	√	Generally not material as we observe: • TVOG for participating products is currently out of the money. • Other products typically do not have material TVOG.
SINGAPORE	RBC	X	TVOG is not assessed as part of the RBC framework, hence no formal quantification of TVOG is publicly available. Whilst TVOG is not expected to be material for most products (as guarantees are generally low and out of money), it is expected to be material for some products such as universal life and single premium participating products where guarantees can be high.
TAIWAN	RBC	X	TVOG is not assessed as part of the RBC framework, and hence no formal quantification of TVOG is publicly available. However, TVOG is expected to be material given the nature of products sold in the market.
THAILAND	RBC	X	Generally not material as we observe: • Most of the products are non-participating by nature. • The participating component is typically not significant and does not lead to any material TVOG. • Unit-linked (without guarantee) are also becoming more and more material.

Source: Estimates based on public information and Milliman market intelligence.
The comments regarding the materiality of TVOG in the table above are general comments related to the relevant market in question, based on our observations. The situation for individual companies within the market may vary.
(*) TVOG is not assessed as part of the RBC framework, and hence no formal quantification of TVOG is publicly available. However, TVOG is expected to be material given the nature of products sold in the market.

Potential impact of changes in capital regimes for life insurance business in Asia

Similar to what has been observed in Europe with Solvency II, a move to introduce more "economic" RBC regimes tends to incentivise life insurers to shift more risks to policyholders and third-party asset managers. It also forces life insurers to optimise their balance sheet by reducing the level and cost of guarantees, to improve ALM (e.g. refining management actions to better capture impact of stress scenarios, embedding ALM as part of the product launch process), and to optimise investment strategies (e.g. risk-adjusted investment strategy, hedging).

Under a more economic RBC regime, various elements of the value chain of a life insurance company may need to be revisited.

- When developing products, life insurers need to systematically capture the RBC impact covering both assets and liabilities. Reinsurance, hedging and diversification benefits across products/risks also need to be considered more explicitly.
- Adjustments in sales and distribution models may also be critical to supporting more fundamental changes in product development, asset management and risk management. Some insurers will need to re-evaluate the suitability of their current distribution processes in the context of new, more economic, RBC regimes. Customers may not be keen to purchase insurance products with lower/no guarantees. Well-trained intermediaries with the right tools will be required to educate customers on the benefits of more "RBC-friendly" products.

Overall, these new capital regimes will require insurers to use more advanced techniques to set and validate strategic decisions and manage their business.

- **Strategic planning**. In line with shareholder expectations, many insurers currently conduct their strategic planning with a key focus on traditional top line and bottom line growth metrics, e.g. annualised premium equivalent (APE) growth, (traditional) embedded value (EV) growth, value of one year's new business (VONB) margin / growth using one deterministic base case investment return assumption. Under the new RBC regimes (and IFRS 17), these measures would need to be accompanied by additional risk-based metrics that clearly identify the trade-off between shareholder value (e.g. measured in terms of EV or VONB) and risk (e.g. measured in terms of RBC requirements and return on capital). Strategic planning will not only be a matter of finding the appropriate business strategy to grow revenue and profitability but also a matter of optimising the allocation of capital and controlling/reducing risk, via potentially the definition of a "return on capital" type of metric. For new business in particular, life insurers will need to find the right balance between maximising top line (by selling products with potentially expensive financial options and guarantees) and optimising capital (by selling products which may not have been so attractive historically to customers). Ultimately, more emphasis is likely to be placed on recognising diversification benefits (both product and risk) for a given line of business.
- **Capital management, reinsurance and hedging strategy**. Changes in capital regulations will likely prompt insurers to revisit their existing capital management, reinsurance and hedging programs. Two main factors will drive this change:
    - Optimising capital requirement will become an increasingly key priority. Management actions will need to be tailored to better reflect factors, impacting risks faced by insurance companies and ultimately making allowance for it in the assessment of RBC capital.
    - The financing strategy of insurance companies may also be impacted as a result of the introduction of new definitions of eligible capital, typically grouped into tiers.

Market Update

MPFA

The Mandatory Provident Fund Schemes Authority (the Authority) has recently approved the revised Mandatory Provident Fund (MPF) Guidelines
Guidelines on Election for Transfer of Accrued Benefits (Guidelines IV.3).

The Appendix to Annex C to Guidelines IV.3 contains a list of approved trustees and MPF schemes (the List) for scheme members to elect for the purpose of consolidation of MPF personal accounts. As a result of certain scheme merger arrangements, the List and paragraph 7 of Guidelines IV.3 have been amended to reflect the relevant changes and the effective date of the revised Guidelines (i.e. 1 July 2019). Details of the changes are set out below:

HSBC Mandatory Provident Fund – ValueChoice merged into HSBC Mandatory Provident Fund – SuperTrust Plus

Hang Seng Mandatory Provident Fund – ValueChoice merged into Hang Seng Mandatory Provident Fund – Super-Trust Plus

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

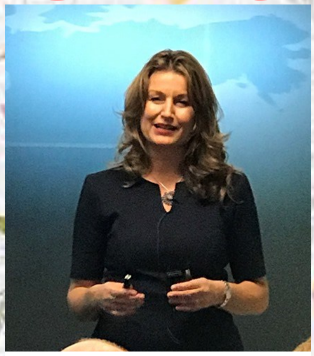
HKFI

Mr. Peter Tam, HKFI's Chief Executive has tendered his resignation and will be on a leave of absence from 27 July through to 8 October 2019. The HKFI Governing Committee has as a result established an Executive Committee (ExCom) to not only identify a suitable candidate to lead the HKFI going forward, but to also oversee operations in the interim. Business at the HKFI remains as usual.

Events Highlights

The Actuaries Institute Australia CPD Tour (co-hosted with ASHK), 25 June 2019
"Professionalism in the New World"

Ms. Elayne Grace
CEO of the Actuaries Institute Australia

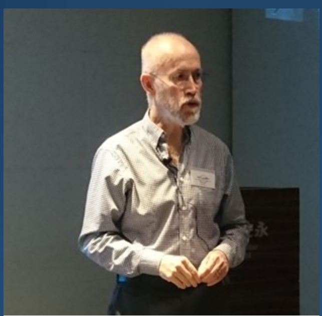


Ms. Nicolette Rubinsztein
President of the Actuaries Institute Australia

Mr. Ian Laughlin
The Actuaries Institute Australia

Left: Mr. Thomas Tang, Professional Matters Committee
Right: Mr. Roddy Anderson, Professional Matters Committee

The Actuaries Institute Australia - FORUM (co-hosted with ASHK), 27 June 2019
A Special Presentation on IFRS by Actuary of the Year 2018



Mr. Ian Laughlin
The Actuaries Institute Australia
Actuary of the Year 2018

Left: Mr. Steve Cheung, Leader of ASHK IFRS 17 Taskforce

Events Highlights

Joint Regional Seminar 2019 (Taipei), 22 - 23 July

Joint Regional Seminar 2019 (Hong Kong), 24 July

Mr. Roddy Anderson
MC

Mr. Kenneth Dai
ASHK President

Mr. Dustin Ball
EY

Mr. James Lin
EY

Mr. Paul Ruckert
PwC

Ms. Miao Chen
PwC

Mr. Michael Zheng
Partner Re

Mr. Kamakhya Das
Partner Re

Ms. Rebecca Zhang
Scor

Mr. Scott Chow
Milliman

Mr. David Wong
EY

Mr. Simon Dai
Deloitte

Upcoming Events

Date	Event
28 Aug 2019	Evening Talk - Postponed till further notice Speaker: Dr. Ben Zehnwirth, Insureware Topic: “Mitigating Model Specification Risk in Reserving, Metrics for IFRS 17, Correlations and Drivers, Capital Allocation and SII One-Year Risk Horizon“
28 Aug 2019	SOA Predictive Analytic Seminar
2 Sept 2019	Evening Talk Speaker: Dicky Lam, Bowtie Topic: “The Journey of the 1st Virtual Insurer in Hong Kong”
17 Sept 2019	Evening Talk Speaker: Vincent Choo & Abhishek Kumar Topic: “ IFRS 17 Discount Rate”
8 Oct 2019	ASHK Professionalism Seminar
21-24 Oct 2019	SAS 22nd Asian Actuarial Conference (AAC): “Crazy Responsive Actuaries – Taking Action to Secure the Future”
21 - 22 Nov 2019	ASHK inaugural Hong Kong Actuarial Summit
12 Dec 2019	ASHK Annual General Meeting

Make time for these!

Membership Update

New Members

Associate

Jokoll Emma Mendy	AIA	Associate [FIA (2015)]
Nicholas Jacobus Van Der Nest	Munich Re	Associate [FFA (2007)]

Student

Yuki Pin Yu Lin	Swiss Re	Student [SOA Student]
Yuki Chufong Wu	-	University Student (The University of Hong Kong)

Membership Advancement

Fellow

George Ealham	HSBC	Fellow [FIA (2014), FASHK 2019)]

Hong Kong Actuaries
ACTUARIAL SOCIETY OF HONG KONG'S
Newsletter
SUMMER VOLUME 02/2019

CONTRIBUTIONS TO

Hong Kong Actuaries
ACTUARIAL SOCIETY OF HONG KONG'S
Newsletter

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We welcome members' contribution to the "Hong Kong Actuaries" Newsletter, especially, 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 the article(s) in our newsletter to share with our members.

For the above issues, please e-mail your articles or views to Alexander Wong by email at alexanderkpwong@hsbc.com.hk or ASHK Office by email at info@actuaries.org.hk. Publication of contributions will be at editor's discretion.