

What can insurers learn from the black swan and the gray rhino?

Implementing enterprise risk management in the insurance industry

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All swans were believed to be white on the basis of historical records in Europe until black swans were sighted in Australia.

Nassim Nicholas Taleb

Author of *The Black Swan: The Impact of the Highly Improbable*

Overview

Implementing enterprise risk management in the insurance industry

The impact of the Coronavirus (COVID19) pandemic has caused unprecedented disruption to business and our way of living. We are hearing more about “black swan” or “gray rhino” events described by Nassim Nicholas Taleb and Michel Wucker respectively. Nassim Nicholas Taleb developed the black swan concept – in his book *The Black Swan: The Impact of the Highly Improbable* – to explain an unexpected event with disproportionate impact then becoming retrospectively predictable. Michele Wucker developed the gray rhino concept – in her book *The Gray Rhino: How to Recognize and Act on the Obvious Dangers We Ignore* – to explain an expected event with disproportionate impact crystallizing from neglected threats.

Black swan events are impossible to predict due to their extreme rarity. These events have catastrophic consequences but become predictable once they happen. While it is possible to predict gray rhino events due to their foreseeable threats, they also have catastrophic consequences once they happen.

Insurers' readiness to manage their businesses in different black swan or gray rhino events can be planned through an ongoing and dynamic risk control cycle as part of a structured enterprise risk management (ERM) framework, which incorporates a consistent enterprise-wide approach to risk governance, risk appetite, risk identification, quantification, monitoring and reporting, management review and actions, risk management policies, ERM framework review, own risk and solvency assessment.

Analogous to the premise formed by the the black swan and gray rhino concepts, the world started a new decade with the China-US trade dispute, the Russia-Saudi Arabia oil war and the COVID-19 pandemic. They are causing disproportionate impacts translating into the low-yield environment, volatile equity markets, and a uncertain mortality and morbidity experience. In Hong Kong, these have caused an economic downturn, leading many insurers to revisit their asset-liability management (ALM). The pandemic has also driven many insurers in the region to revisit their business contingency plan and operational resilience process. Insurers may start to retrospectively predict the economic situation by considering the warning signals of emerging events when implementing their ERM framework as part of the upcoming Hong Kong risk-based capital (HKRBC) regime.



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The ‘elephant in the room’
has gotten all the attention
but not its relative,
the ‘gray rhino’.

Michele Wucker

Author of *The Gray Rhino: How to Recognize
and Act on the Obvious Dangers We Ignore*

Our history shows no lack of black swan or gray rhino events – e.g., the 2008 global financial crisis. These events can be used to encapsulate the robustness of capital management, profit and liquidity management, together with risk management through the measured execution of business, product and investment strategy.

Framing the questions

In the midst of implementing HKRBC, an insurer’s readiness for unexpected events is currently being tested by the business environment. An insurer’s readiness can be reflected through its board and senior management’s ability in using the Own Risk and Solvency Assessment (ORSA) to:

- ▶ Draw on all the key elements of the ERM Guideline (GL21) issued by the Insurance Authority (IA) in conducting the business
- ▶ Resolve the challenges in implementing the key elements
- ▶ Examine the emerging market practices of ERM that commensurate with the nature, scale and complexity of the business operations

- ▶ Combine the key elements with the lesson learnt from the unpredictable events of the past to put in place the warning signals for future-emerging events

This paper examines the strategic, technical and practical considerations an insurer must tackle in implementing their ERM framework to comply with the HKRBC requirements by asking the following questions:

- ▶ What are the ERM requirements and how ready are Hong Kong insurers?
- ▶ What are the key challenges of ERM?
- ▶ What are the emerging market practices of ERM?
- ▶ What are the retrospectively predictable events and early warning signals for ERM?

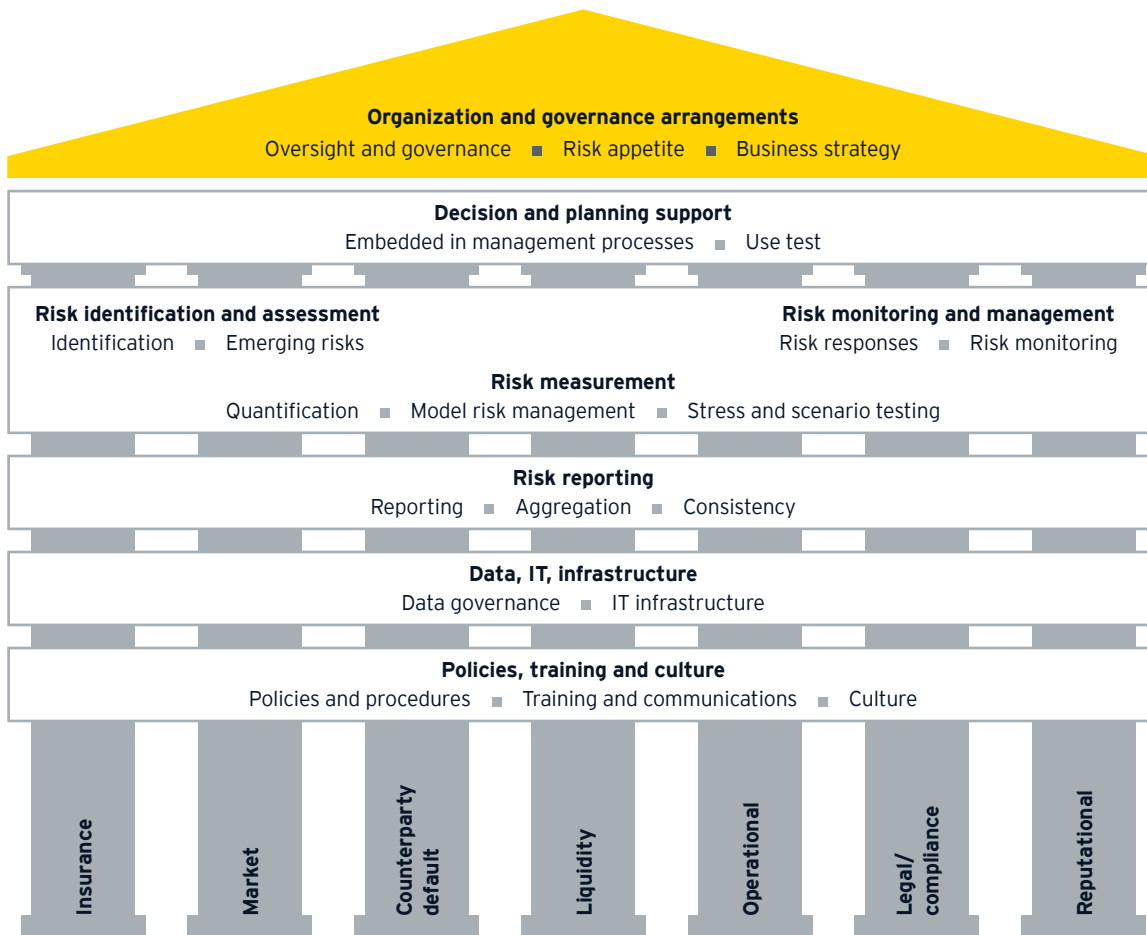
What are the ERM requirements and how ready are Hong Kong insurers?

The ERM requirements under GL21 are summarized in the following diagram:

Key requirements in Guideline 21 on ERM



EY ERM framework



While the GL21 requirements are principle-based, EY professionals have performed a benchmarking¹ of the ERM readiness of Hong Kong insurers at the end of 2019. The infographic intends to provide an overview of the GL21 with **selected insights** from EY ERM benchmarking to provide a flavor of the market developments. However, the underlying details are not covered in this thought leadership. Rather, this thought leadership aims to provide context for the key challenges and the emerging market practices of GL21, which are covered in the next sections.

1. There were 12 life insurers who participated in EY ERM benchmarking.

Market insights from EY benchmarking

1 Risk appetite

It is commonly observed to include:

5 quantitative elements

- ▶ Regulatory
- ▶ Solvency ratio
- ▶ Liquidity
- ▶ Value/return metric
- ▶ Market risk

4 qualitative elements

- ▶ Regulatory compliance
- ▶ Reputation
- ▶ Business sustainability
- ▶ Operational risk

2 Business process and procedure embedding ERM into the individual teams

11 areas of policy explicitly mentioned in GL21 are:

Underwriting | Asset liability management | Investment | Reinsurance and risk transfer | Liquidity | Actuarial | Conduct risk | Cyber risk | Claims management | Internal controls | Data quality

6 other areas typically observed are:

ERM policy | ORSA policy | ORSA process & procedure | Model risk policy | Dividend & crediting rate policy | Capital management policy

3 Risk identification and assessment

The frequency used to measure the occurrence of risk events observed are:

Expected (once per year)

Likely (once per 1-2 years)

Possible (once per 2-10 years)

Unlikely (once per 10-50 years)

Rare (once over 50 years)

4 Risk tolerance and risk limits

Observed number of key risk indicators used for risk monitoring:

10-225

5 Risk mitigation

Less than 30%

of the participants have approved mitigation plans for each of the market risk, the insurance risk, the counterparty default risk, the operational risk, the strategic risk, the reputational risk and the other risks.

6 Target capital

1. Pillar 1 regulatory capital
2. Recalibrating Pillar 1 material risks
3. Internal economic capital

7 Stress and scenario testing

73% of the participants intend to use company-specific scenarios

50% of the participants intend to use multi-risk factor scenarios

8 Forward-looking capital projection

Insurers would need to assess their current and forward-looking capital and solvency position.

More than 50% of the participants intend to use the driver approach in performing the capital projection, considering their business plan and stresses and scenarios which reflect their material risks.

What are the key challenges of ERM?

With the ever-increasing demand of an insurer to implement the HKRBC and the International Financial Reporting Standards (IFRS) relevant for insurers (such as IFRS 9 and 17), the board and the senior management have to repurpose their existing process and procedure, upskill their workforce and modify or build their critical systems.

As at 31 March 2020, there are 52 life insurers, 90 non-life insurers and 21 composite insurers who are authorized by the IA to transact insurance business in Hong Kong. On the basis of our observed nature of the issues faced by different insurers, they can be broken down into different categories of insurers with varying degree of capabilities partly due to different ERM requirements they are subject to. Examples of the ERM elements insurers can leverage from their existing capabilities are the Commercial Insurer's Solvency Self-Assessment (CISSA) under the Bermuda capital regime and Solvency Aligned Risk Management Requirements and Assessment (SARMRA) under the China Risk Oriented Solvency System (C-ROSS). While there are areas that can be leveraged, GL21 allows companies to use a proportionate approach, considering their own nature, scale and complexity, so insurers should assess the appropriateness of the existing capabilities to meet the ERM requirements under GL21.

In leveraging the existing ERM capabilities, the challenges faced by each insurer in Hong Kong vary across insurers, given the GL21 requirements may not be exactly met from their existing capabilities. The key challenges on the basis of our market observations are:


Risk culture

One of the key challenges faced by the insurers in Hong Kong is the lack of risk culture, which reflects the norms, attitudes and behaviors related to risk awareness, risk-taking and risk management. A sound risk culture should emphasize throughout the organization the importance of appropriate risk-reward balance being consistent with the risk appetite, effective system of controls, quality of risk quantification tools and thorough follow-up of risk limit breaches and risk incidents.²

Even though ownership of the ORSA lies with the board and they have the ability to delegate it, tone from the top is important when delegating any authority to the risk committee and the risk management team in order to efficiently and effectively implement and execute the requirements in GL21. Embedding ERM into business decisions and highlighting its importance through regular communications from the board and senior management to the whole organization can also help solidify the importance of risk management. This will also enable more coordinated cooperation among different functions in the company.

Insurers can also consider additional measures to establish the desired risk culture through regular training, employee performance-related objectives and frequent communications to increase employee awareness and engagement.

2 "Guidance on Supervisory Interaction with Financial Institutions on Risk Culture," *Financial Stability Board*, www.fsb.org/wp-content/uploads/140407.pdf?page_moved=1.



Organisational capability

While some insurers may leverage on the existing ERM capabilities, we observed that many insurers – particularly non-Solvency II companies – do not have the necessary ERM capabilities. The most obvious gaps are capital projection with the capability of forward-looking risk and solvency assessments, stress and scenario testing (SST), continuity analysis, recovery plan, and management mitigation actions.

We noted a general expectation in some instances that it would be possible to leverage existing capabilities to determine the mathematical reserves, solvency requirement and Dynamic Solvency Testing (DST) (for life insurers) under the current regulatory requirements. However, the

current capital requirements – legislated back in 1995 – are factorbased, essentially volume-based measures. The upcoming HKRBC requirements – forming the foundation of GL21 – are risk-based, thus would be much more demanding than the current factor-based approach. Without the relevant knowledge, insurers often decide whether to write a certain line of business purely based on historical experience.

Finally, whilst we see an uptick in interest for the application of risk management technology solutions, insurers should give due regard to whether the necessary ERM framework and related risk management mechanisms are designed and in place to realise the benefits from such implementations.

Capacity constraints

The finite resources available to insurers have been diverted to implement the upcoming HKRBC, IFRS 9 and 17. More recently, monthly, weekly or even daily monitoring of the solvency positions has become necessary for life insurers under the low-yield environment and volatile equity market. An insurer can consider building the capabilities within their business projection to frequently monitor solvency (whether using an actuarial software model or a spreadsheet-based model). More frequent monitoring will inevitably lead to certain simplification within the models. This is due to the time required to produce the results and the limitations of the current technology.

In addition, we observed there is a resource gap within the market to hire risk talent. The skill set required includes, among other things, risk transformation and solvency management. Whilst some insurers are considering outsourcing production of the ORSA report, they must ensure that ownership and accountability for risk management is retained within the organization and embedded within internal processes and procedures, in particular ensuring that the board and senior management use the ORSA when making business decisions. If the insurer can demonstrate its use of the ORSA, outsourcing can be beneficial in lowering the cost of production.

What are the emerging market practices of ERM?

With the emerging market practices of containing the COVID-19 pandemic evolving by the minute, we will not be able to comprehensively cover all the emerging market ERM practices. To further give structure for the market practices, we have shown an example for each of the key topics covered within the GL21:

Selected examples of emerging market practices

GL21 requirement	Selected observation	Emerging market practices
a. Risk appetite statement	Emerging risks	<ul style="list-style-type: none"> ▶ Most insurers are familiar with the quantifiable risks, and arguably the non-quantifiable risks, in their risk identification process. A third area recently attracting more attention is emerging risks. Emerging risks could be identified using the political, economic, social, technological, legal and environmental (PESTLE) analysis. ▶ The PESTLE analysis requires a group of senior individuals in an organization to discuss the risks that have potentially emerged from political, economic, societal, technological, legal or regulatory and environmental factors. The discussion will require an identification of the potential time frame and the impacts when the emerging risks materialize.
b. Risk assessment and control process	Target capital	<ul style="list-style-type: none"> ▶ Three steps in determining the target capital: <ul style="list-style-type: none"> ▶ Step 1: Assess whether to adopt the same risk charges as HKRBC Pillar 1's third quantitative impact study or adjust them based on own calibrations reflecting insurer's risk profile. ▶ Step 2: Identify additional risks that the insurer is exposed to but not captured in Pillar 1, e.g., concentration risk and liquidity risk. ▶ Step 3: Consider the capital buffer on the basis of the risk appetite statement, business plan, product strategy, investment strategy, SST, continuity analysis, business failure analysis, recovery plan and management mitigation actions.

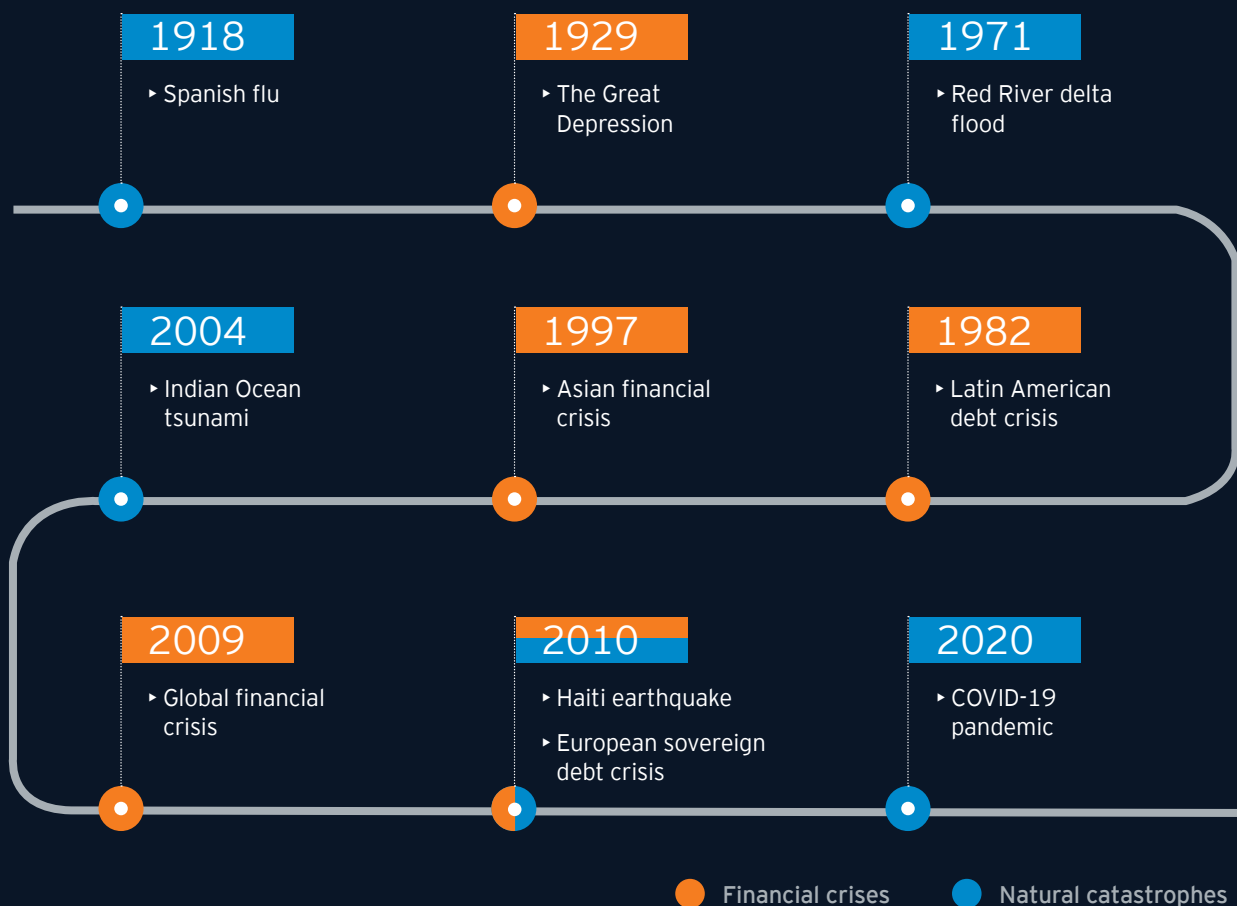
GL21 requirement	Selected observation	Emerging market practices
c. Risk management policies	Segregation of duties and capability	<ul style="list-style-type: none"> ▶ Individual teams may logically expect the risk management team to own the risk policies. This may be true generally where the risk management team is the overall lead of the ERM, but they will need the individual teams to own the different components of the ERM. For example, the risk management team will own the overall ERM policy and the information technology (IT) team will own the cyber risk policy. ▶ In particular, the key importance is to have clear segregation of duties where the first line of defense is responsible for implementing the risk management policies and the second line is responsible for designing the policies. The segregation of duties does not require the policies to be assigned to the individual teams or the risk management team. Rather, it is more important to have resources with relevant and appropriate level of knowledge, skills and experience.
d. ERM framework review	Internal vs. external	<ul style="list-style-type: none"> ▶ An insurer needs to regularly perform an independent review of the ERM framework and ORSA by a party not responsible for and not actively involved in the part of the ERM framework that it reviews. A key question often asked by insurers is whether this has to be performed independently by an external party. ▶ Such a review can be performed by the internal audit team, another team or another subsidiary within the same insurance group who are not involved in the ERM framework. However, the challenge is finding the right resource with the appropriate level of knowledge, skills and experience. As a result, many insurers are considering an external party for the review of the effectiveness of their ERM framework. ▶ Insurers are considering a validation programme³ which takes either a holistic view of ERM or breaks it down into individual review areas, with the key objective being that ERM and ORSA related processes and controls are designed and operating effectively.
e. ORSA report	SST	<ul style="list-style-type: none"> ▶ For life insurers, the current DST requires the surplus to exceed the solvency margin requirements under the base scenario, but it only needs to exceed zero under stressed scenarios. And for non-life insurers, there is no DST requirement currently. ▶ However, in assessing the solvency position under stressed scenarios in SST under GL21, insurers are calculating the solvency requirements under both the base and stressed scenarios. This is because the proposed HKRBC capital requirements are risk-based and can vary significantly under stresses. In order to understand the potential volatility to the insurers' solvency position, they also assess their capital requirements under stressed scenarios to more holistically understand their balance sheet.

3. This is conceptually similar to an internal audit program; Solvency II internal model companies are required to regularly perform validation of their internal models.

What are the retrospectively predictable events and the early warning signals for ERM?

The words “retrospectively predictable events” may be misleading that an insurer is able to convincingly predict the future using historical events. Less confusing than the sound of the name itself, an insurer may use historical events to test the robustness of its ERM mechanism. With an effective ERM framework, an insurer will be prepared with the people, process and systems to navigate through an unexpected event with disproportionate impact. Also, insurers have been testing the effectiveness of ERM to manage their businesses using the retrospectively predictable events to put in place the early warning signals of the emerging events.

Financial crises and natural catastrophes in the past century⁴



4. “List of economic crises,” *Wikipedia*, en.wikipedia.org/wiki/List_of_economic_crises and “List of natural disasters by death toll,” *Wikipedia*, en.wikipedia.org/wiki/List_of_natural_disasters_by_death_toll.

Listed below are two examples of the events that an insurer can use to test its ERM effectiveness:

2008 Global financial crisis

In the 2000s, the Federal Reserve decreased the rate of federal funds in the face of an economic recession. With the lower cost of funding and the increasing housing prices, investors were encouraged to borrow and invest in housing. The relaxation of mortgage underwriting standards even increased the number of subprime mortgages. When the property prices collapsed, more subprime mortgages were defaulted, leading to severe losses to financial institutions.

Implications for ERM: One of the main causes of the crisis was the aggressive underwriting of subprime mortgage. Before insurers made any business decisions, they could examine whether the risks were within their risk appetite statement, and then control them through risk tolerance and risk limit.

In addition, financial institutions were not aware of the risks until they suffered from losses. When investing in financial products, besides examining the credit ratings, an insurer needs to thoroughly understand the underlying mechanisms beforehand so that they can identify and assess the potential risks.

2020 onwards

The current trade war, oil war and pandemic and the secondary impact on economy have brought huge challenges to insurers with hindered business operations and sales processes and uncertain investment return. Many insurers are revisiting their asset-liability management and their business contingency plan. In particular, their current business contingency plan is relatively high-level, with main focus on the qualitative considerations of the operational resilience.

Implications for ERM: Hong Kong insurers can further develop the quantitative considerations using a reverse stress testing (RST). The possible drivers of these events are used to perform the SST to quantitatively understand the behaviors of the insurer's balance sheet. Early warning signals can be built into the operational resilience once the nature of the balance sheet is understood.



Conclusion

While GL21 is intended to foster a sound risk culture in the Hong Kong insurance industry which will influence the market practices and decisions, an insurer's readiness to manage their business through ERM is currently being tested during the implementation period, specifically the ability of the Board and senior management to tackle the strategic, technical and practical challenges in Black Swan or Gray Rhino events.

With this in mind, insurers need to keep in focus the need to ensure their ERM frameworks and supporting risk management mechanisms are adequately documented, implemented and validated independently on an ongoing basis as well as being resilient to both internal and external factors and resulting changes.

In addition to the above, insurers should also maintain the necessary discipline in responding to changes or disruptions to their operating environment and adequate consideration of emerging and evolving risks triggered by these factors. An example can be seen through the temporary relaxation of restrictions with regards to face-to-face sales of some insurance products during COVID-19.⁵ Insurers should carefully consider whether any actual or potential issues relating to key risks arising (including distribution, conduct, third-party and cyber-security related risks) have been identified, risk acceptance status has been tracked, and sufficient information/documentation is available to verify and validate that the appropriate decision-making process and governance forums have been executed and involved respectively.

Looking ahead, we anticipate an increase in the adoption of technology, particularly where solutions designed to systematize ERM, such as Enterprise Governance, Risk Management and Compliance platforms, are implemented across appropriately mature risk frameworks.

5. Temporary facilitative measures, Insurance Authority, https://www.ia.org.hk/en/infocenter/press_releases/20200221.html





How can EY teams help

Hong Kong actuarial and risk team is one of the largest in the market. Apart from working with insurers in Hong Kong, our actuaries and risk managers also have experience and connections in Australia, ASEAN, China Mainland, Europe, Japan, Korea, Singapore, Taiwan and the US, giving you access to EY professionals across the globe and insight into these regimes.

You also have access to the EY Global Insurance Network, which includes more than 14,000 professionals around the world, strategically located in areas that allow us to serve the industry's needs. With around 1,670 actuaries, the EY organization has the world's largest professional services actuarial practices.

Outsourcing ORSA production

Helping you prepare the annual ORSA report for submission to the regulator.

Capital projection model

Helping you build model to perform capital projection with SST capability to assess forward-looking capital requirement and resources.

Management information tool

Helping you build management information tool to monitor and report interim solvency on quarterly, monthly, weekly or even daily basis.

Risk management policies

Helping you draft and implement the compulsory, and essential, risk policies to define the process and procedure.

ERM effectiveness review

Helping you independently review the effectiveness of the ERM framework.

ORSA report review

Helping you independently review the content of the ORSA report.



Solvency II

- We advise insurers to perform an independent review of their ERM effectiveness

CISSA

- We advise insurers to produce their annual reporting in Bermuda Solvency Capital Requirement (BSCR) and CISSA

Singapore Risk Based Capital (SGRBC2)

- We advise insurers to review their ERM readiness by performing a gap analysis

C-ROSS

- We advise insurers to build their capital projection model either using actuarial software or spreadsheet-based model

HKRBC

- We advise the IA to design and calibrate the rules for HKRBC
- We advise insurers on both regulatory capital and ERM gap analysis and implementation, including capital projection, SST, ORSA production and review

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