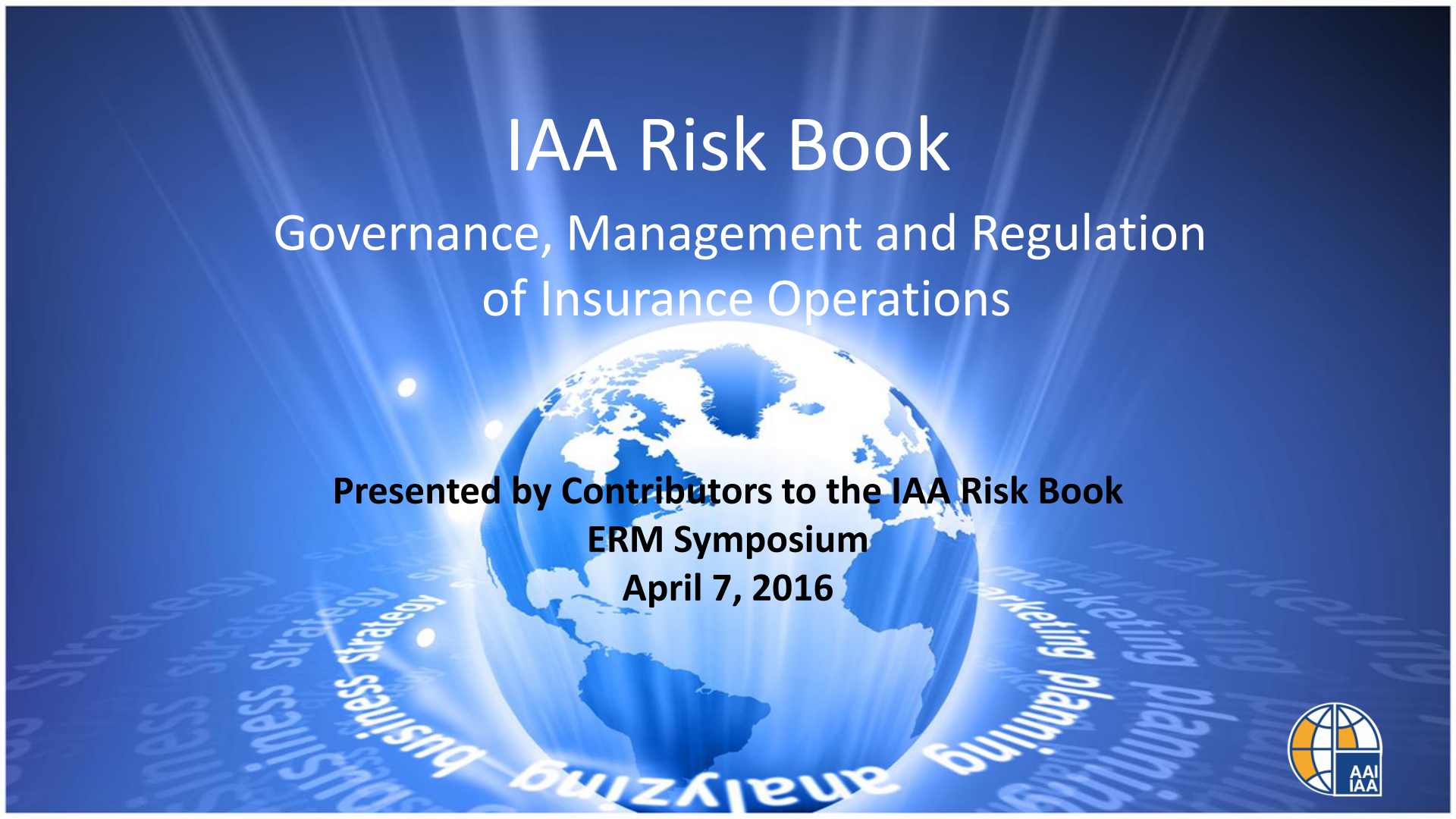
IAA Risk Book

Governance, Management and Regulation of Insurance Operations



Presented by Contributors to the IAA Risk Book
ERM Symposium
April 7, 2016

Foreword

- The goal of this presentation is two fold:
  - ✓ Provide concise overview of the IAA Risk Book rather than teach the concepts
  - ✓ Encourage audience engagement via further reading, feedback and critiques of this project
- Most chapters are summarized in 2 – 3 slides
- Speakers today:
  - ✓ Dave Sandberg
  - ✓ Stuart Wason

About the IAA

Who

- Worldwide organization of actuarial associations (about 70)
- Represents 63,000 actuaries in 110 countries

Mission

- To represent the actuarial profession and promote its role, reputation and recognition in the international domain; and
- To promote professionalism, develop education standards and encourage research, with the active involvement of its Member Associations and Sections, in order to address changing needs.

Operations

- Staff of ten based in Ottawa, Canada
- Committees meet twice a year

About the IRC

Insurance Regulation Committee (IRC)

- One of many IAA committees; comprises 40 members from around the world
- Purpose:
  - To promote the role of actuaries in the regulation and supervision of insurers so that the public interest is served
  - To support the creation of international principles and frameworks for regulation and supervision of insurers in order to reflect actuarial principles where appropriate
  - To maintain and to strengthen the relationships with key international organisations dealing with the regulation and supervision of the insurance and reinsurance industry (e.g. IAIS)

About the IAA Risk Book

Background

- IRC published Blue Book on Insurer Solvency Assessment in 2004
- Blue Book explored the then current “best practice” elements needed for a risk based capital determination for insurers
- The Risk Book has been a two+ year project to update our prior work to reflect current perspectives on risk
- No single risk measure provides the full “video” picture of risk. The Risk Book reviews the multiple tools available to a company and to a supervisor to manage risk in a sustainable manner

About the IAA Risk Book

Contributors

- Risk Book steering committee includes regulators, current practitioners and retirees
- Individual authors – from around the world
- Many more contributing to review
- Objective = write each chapter in 20 pages or less
- Geared more to practice than theory

About the IAA Risk Book

How it works (on the website), how it gets updated and how to access

- Chapters being submitted as they are completed (10 out of 21 @ Mar 2016)
- Located at IAA website under PUBLICATIONS, pull down to RISK BOOK
- Or http://www.actuaries.org/index.cfm?lang=EN&DSP=PUBLICATIONS&ACT=RISKBOOK
- Will accept and respond to comments
- Intend to update chapters as needed

About the IAA Risk Book

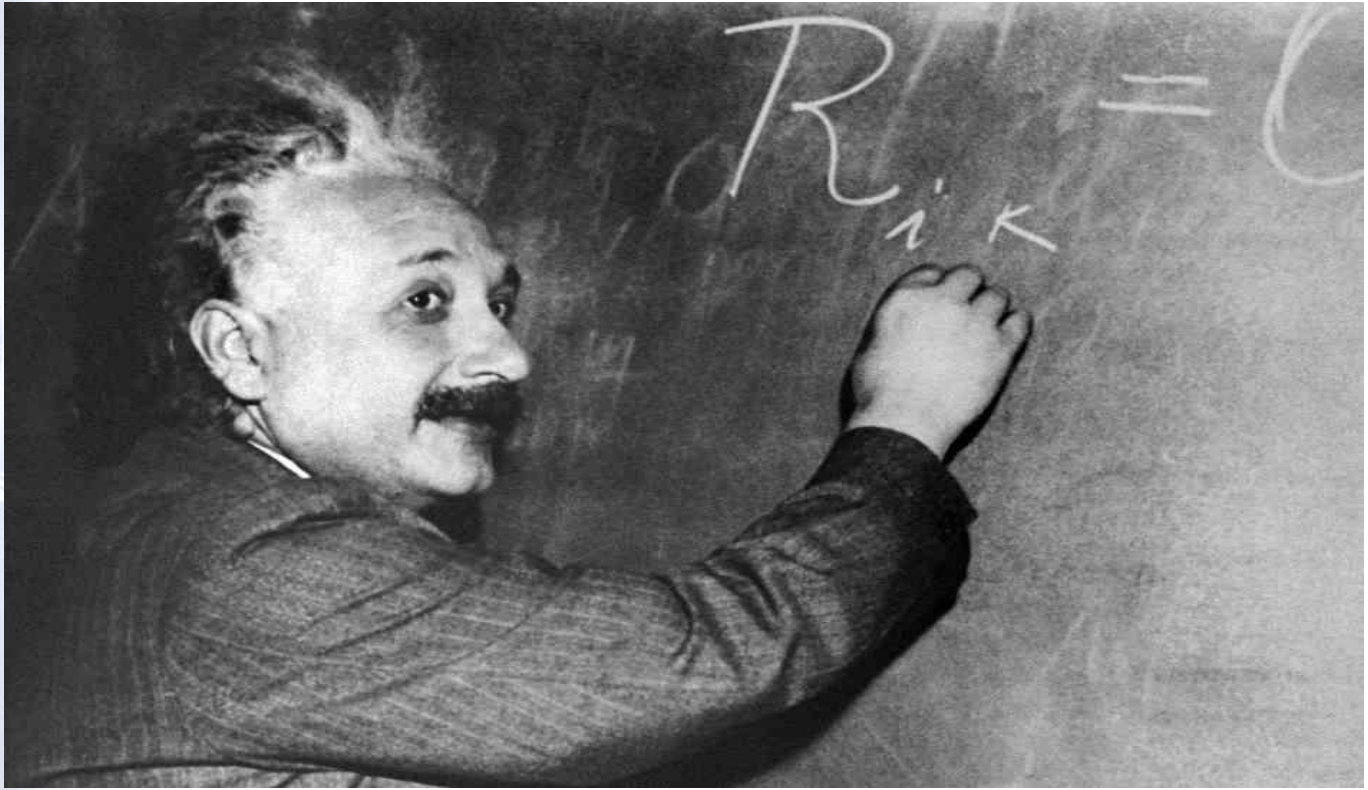
Table of contents

1. Introduction
2. Actuarial Function
3. Professional Standards
4. Operational Risk
5. Catastrophe Risk
6. Non-Proportional Reinsurance
7. Intra-Group Reinsurance
8. Addressing the Consequences of Insurance Groups
9. Distribution Risk
10. ORSA

About the IAA Risk Book

Chapters under construction

- Resolution of Insolvencies
- Role of Capital
- ALM
- Derivatives
- Financial Statements
- Governance of Models
- Communicating Uncertainty
- Materiality & Proportionality
- One year vs. Multi-year Valuation
- Policyholder Behaviour & Management Actions
- Stress Testing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Chapter 1 Introduction

Key messages include:

- Managing and Communicating Uncertainty – Our Professional Opportunity & Responsibility
- ERM Is the Core Franchise Value of Insurance

What is the Important Problem?

- What Pillar 2 (ERM) processes and tools can be used to sustain the Balance Sheet before Pillar 1 indicates the “ship has sunk”.
  - ➢ And, are they robust or smoke and mirrors?

Chapter 1 Introduction

What are the Important Solutions?

- To manage and communicate uncertainty, processes are essential
- Can the Actuarial Function step into and/or assist these roles more directly?
  - ORSA
  - Model governance
  - Stress testing
  - ERM
  - Recovery and resolution planning oversight
  - Micro (firm specific) vs macro (sector specific) implications

Chapter 2 Actuarial Function (AF)

Key messages:

- Insurance supervisors are focusing on oversight role of AF as part of second of the traditional “three lines of defence” in ERM.
- Lines of defence:
  1. Functions that own, manage, and report on risks (e.g., operational management);
  2. Functions (and processes) that oversee risks (e.g., AF, risk management, compliance, risk committees, and sign-off requirements); and
  3. Functions that provide independent assurance (e.g., internal and/or external audit).

Chapter 2 Actuarial Function

Key messages (continued):

- Actuaries are not restricted to providing the oversight of risk (i.e., second line of defence), but are active in some or all of the three lines of defence within an insurer.
- Independent risk oversight by AF is important to boards, senior management, and supervisors because of unique actuarial perspective on insurer's risks. Effective AF oversight can facilitate less intrusive supervision.

Chapter 2 Actuarial Function

Key messages (continued):

- AF frequently expected to make material contributions to ERM
- AF must be organized & operate within insurer/insurance group in clear, effective & transparent manner
- Insurance supervisors develop & maintain confidence in work of AF through:
  - Validation of important aspects of work of AF
  - Presence of strong professionalism
  - Presence of effective feedback loops between the supervisor, profession, standard setters, and the disciplinary process.

Chapter 4 Operational Risk

Key messages:

- Quality & maturity of risk management process are key indicators that can impact potential losses arising from operational risk (OR) events.
- OR is closely linked to the risk culture of an insurer; qualitative issues (such as strength of governance processes and oversight functions) play large role in management of OR.
- Reliability of any OR modelling exercise is strictly connected with actual quality of the overall data (internal or external data) - generally an unknown.

Chapter 4 Operational Risk

Key messages (continued):

- Appropriate model calibration in the data-poor environment of operational risk is one of the most significant and persistent challenges for insurers.
- Typically a capital charge or other mitigation method acts to reduce risk exposure, but adding an operational risk charge based on past losses (or the lack thereof) can be pro-cyclical.

Chapter 4 Operational Risk

Key messages (continued):

- Operational risk events for high-frequency/low-severity events can be captured & modelled; tail events that are low frequency/high severity are where a qualitative scaling assessment can be most effective.
- Credible approach for OR should include a blend of qualitative and quantitative assessments to evaluate the effectiveness of management processes to address OR exposures to both low and high-severity events.

Chapter 5 Catastrophe Risk

Key messages:

- Catastrophes result in a sudden and mass destruction of property, lives, environment, and/or the economy.
- Catastrophes can be natural or man-made (e.g., terrorism).
- The frequency and severity of catastrophe losses have been increasing over past several decades primarily due to increasing concentrations of population and property in geographical areas prone to disasters.

Chapter 5 Catastrophe Risk

Key messages (continued):

- Catastrophes impact society first, and insurers only to the extent that the damages are insured.
- Due to their infrequent nature, analysis of past losses can't sufficiently measure catastrophe risk, so many insurers use catastrophe models to estimate potential losses.
- Catastrophe models are based on four primary components – event catalogs, intensity formulas, damage functions and a financial module.

Chapter 5 Catastrophe Risk

Key messages (continued):

- Model uncertainty is unavoidable and is impacted by both data issues (related to quality and availability) and political issues (influencing how events will unfold in times of stress). This is in addition to the uncertainty related to random events.
- Model development and usage is evolving, including a trend towards open models (as opposed to closed proprietary models) and their use for scenario analysis.
- Catastrophe models are part of the risk management process both in terms of pricing/underwriting and in terms of solvency/capital management.

Chapter 8 Addressing the Consequences of Insurance Groups

Key messages:

- There is a need for a group level ERM function supported by local risk functions.
- Identification of all the material linkages between members of the insurance group and their associated risks, including concentration or accumulation of risk exposures (both direct and indirect) is very important for the risk and capital management of the group as well as its prudential supervision.
- Members of the insurance group and its head need to understand the roles, expectations and requirements of their respective involved supervisors.

Chapter 8 Addressing the Consequences of Insurance Groups

Key messages (continued):

- Head of the insurance group has ultimate responsibility within the group for meeting expectations and requirements of group-wide supervisor.
- Group-wide supervisor, in cooperation and coordination with involved supervisors, plays a lead role in effective group-wide supervision, including addressing any resolvability issues.
- The cooperation and co-ordination of all involved supervisors in carrying out their roles as local supervisors and as members of the supervisory college is important to the effective supervision of the group.

Chapter 8 Addressing the Consequences of Insurance Groups

Key messages (continued):

- Actuaries involved in risk management generally, and control functions specifically have appropriate regard not only to their entity specific responsibilities/risks but also for the wider group context/risks within which their work is conducted.
- Head of insurance group should have adequate access to actuarial expertise; internationally active insurance groups (IAIG's) may be required to establish an actuarial function at the group level.

Chapter 11 Resolution of Insolvencies

Recover vs Resolution:

- Recover – actions trying to prevent failure
- Resolution – mitigates the impact of an actual failure

Insurers vs. Banks: Insurer features

- Longer time horizon for business decisions & Resolution needs
- Illiquidity
- Uncertain liabilities
- Asset values readily available
- Run unlikely
- Lower risk of contagion

Chapter 11 Resolution of Insolvencies

Insurers vs. Banks: Bank features

- Value of assets (loans) uncertain & difficult to quantify
- Liabilities easy to quantify
- Liabilities are extremely liquid – business model assumes depositors will not all ask for their money at the same time
  Susceptible to “run” – could pay first depositors requesting, but not later
- Nothing fundamental needs to be wrong with bank for a run to occur
- Resolutions typically happen over a weekend

Chapter 11 Resolution of Insolvencies

Resolution of Insolvencies – key elements

a. The identification of two to four principal scenarios, including idiosyncratic and sector-wide or market-wide stress situations which create significant capital or liquidity shortfalls
b. Detailed quantitative & qualitative description of the scenarios
c. A description of principal recovery options that are likely to have a material impact on the firm in at least one scenario considered, including an assessment of each option in detail
d. Valuation and impact analysis (capital, liquidity, franchise)
e. Speed and timing of actions
f. Suitability & feasibility in each recovery scenario

Chapter 11 Resolution of Insolvencies

Resolution of Insolvencies – key elements (continued)

g. Operational aspects and responsibilities, including dependencies on outside suppliers

h. Impediments and constraints

i. Internal and external risks and issues

j. Credibility and necessary preparations

k. Maintenance of the recovery plan, including the process by which the recovery plan is refreshed and aligned to the changing shape of the business

Chapter 11 Resolution of Insolvencies

Resolution of Insolvencies – key insurer/regulator options

- Capital raising (equity and/or debt)
- De-risking the investment portfolio
- Enhanced use of reinsurance
- Reduce the volume of new business written/transition into run-off
- Proactive run-off by actively commuting policies
- Disposal of subsidiaries or blocks of business
- Scheme of arrangement – use existing statute or regulation to agree to a compromise that binds all parties

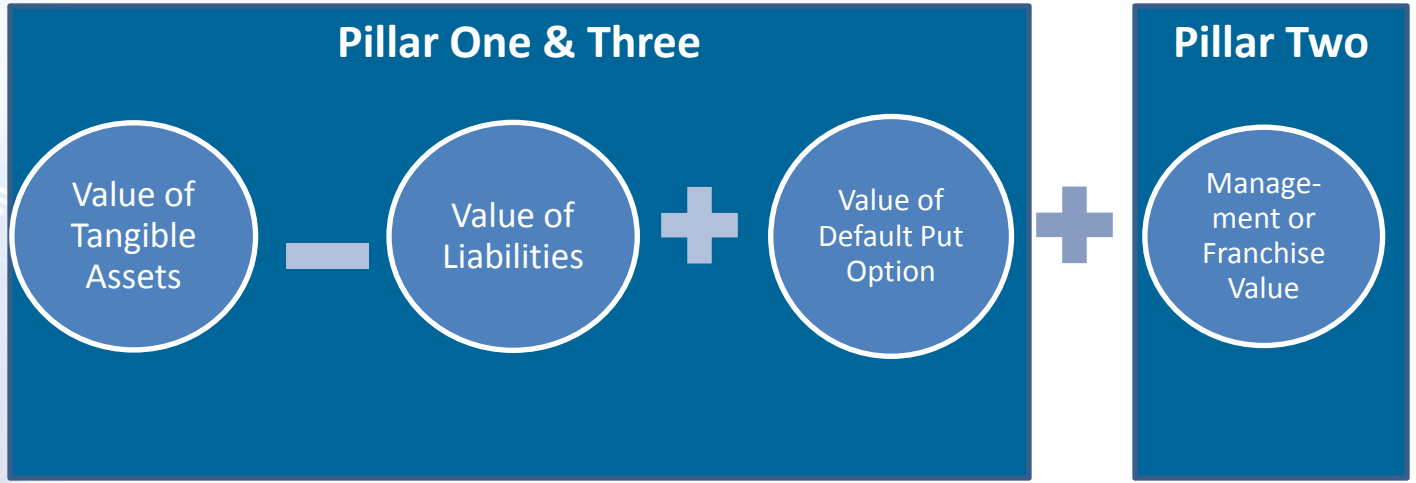
Chapter 12 Role of Capital

Reading the Tea Leaves of Capital

1. What is its purpose? (Will vary by stakeholder - investor, policyholder, supervisor, rating agency, shareholder, etc.)
2. What level is needed for each Stakeholder?
3. What method(s) should be used to calculate capital?
4. What actions will follow if capital is “not sufficient”?
5. Role & Meaning of capital will vary based on the set of mitigation tools and processes used to ensure the sustainability of the business model (such as reserves and the quality of processes used to monitor risk (ORSA)).

Governing the Drivers of Insurance Value

Value of Put Option



Source: Babbel/Merrill, *Journal of Risk & Insurance* 2005

Chapter 12 Purpose of Capital

Various Stakeholder Interests

1. Financial strength indicator (Assets less Liabilities)
2. Solvency buffer (Required Capital)
3. Earnings/liquidity buffer (Margin Over Current Estimate)
4. Source of funds for future growth, acquisition or investment
5. Source of future shareholder & policyholder dividends
6. Legal trigger to constrain management or to transfer authority to supervisor

Chapter 12 Capital Fine Tuning

WILL NEED TO CONSIDER:

1. Solvency measurement should reflect real economic risks.
2. Required capital insolvency is not cash insolvency.
3. Addressing the Uncertainty of Any Capital Estimate.
4. Risk based Capital Charges should lead to better risk management practices.
5. Group vs. Legal Entity Capital
    a. Fungible?
    b. Diversification vs. Too Big to Fail

Chapter 12 Capital Fine Tuning

6. Business Model
   - First line of defense for liquid risk banking business model
   - Last line of defense for the uncertainty of liabilities and/or the ability to raise new capital via premiums or asset sales
   - Relation of debt to interconnectedness
7. Pro-cyclicality of market based capital requirements
8. Role of Insurer Liabilities
   - Value of liabilities is driven by assets due to risk sharing
     - Can value cost to fully hedge guarantees at today's market costs OR
     - Assets needed to fund "expected" range of payouts over "expected" range of asset returns
   - Value of liabilities which are not liquid
9. Impact of Insurer Franchise Value due to ERM/ORSA process

Stay Tuned for the Stress Testing Sequel☺
(Bringing it All Together)

- Layering in Supervisory and Management Tools & Authorities
- Leverage off of the ORSA
- ALM & Model Governance/Reliability

Thank you

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