STANDARD & POOR'S RATINGS SERVICES
McGRAW HILL FINANCIAL

S&P's ERM Framework

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Agenda

Overview of S&P’s ERM Framework

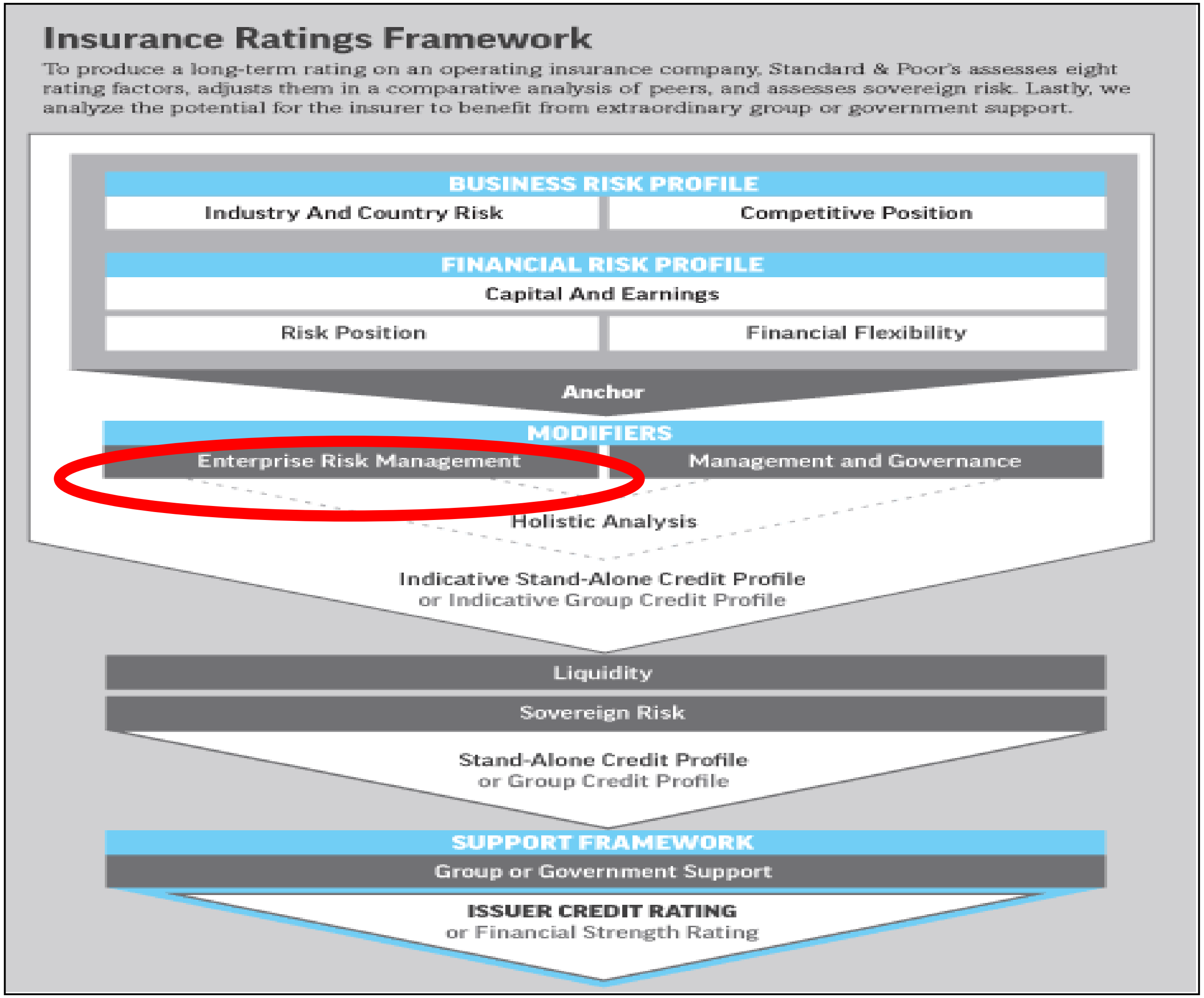
S&P’s ERM Scores For North American & Bermudian Insurers

S&P’s ERM Benchmarking Review

S&P’s Economic Capital Analysis

Overview of S&P's ERM Framework & Scores

ERM As A Rating Factor



S&P’s ERM Evaluation Framework

- **S&P’s ERM reviews have 3 Levels:**
  - **ERM Level I and II reviews consist of 5 components below**
  - **ERM Level III review has an added Economic Capital Model (ECM) analysis**

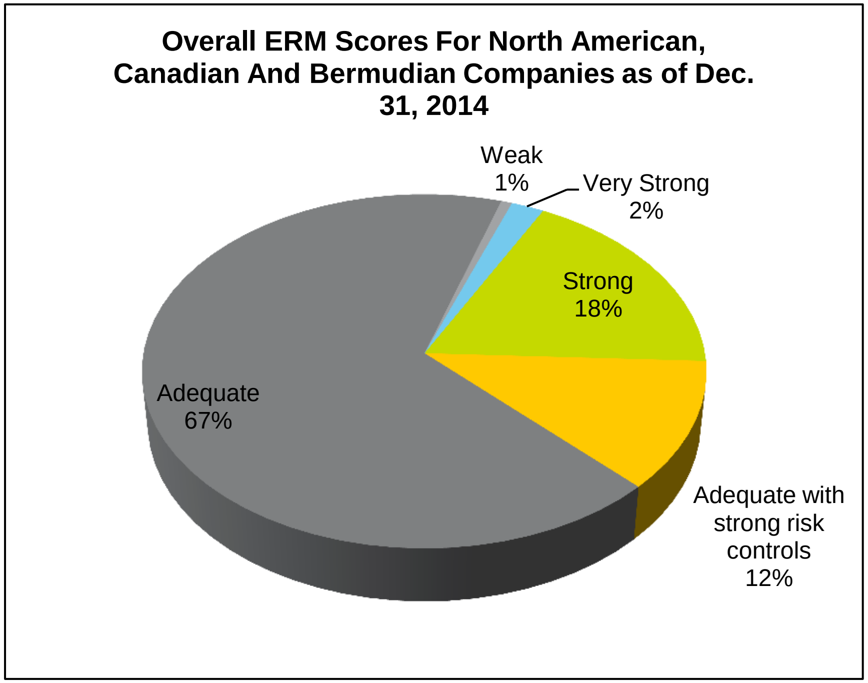
S&P's ERM Assessment Guidelines

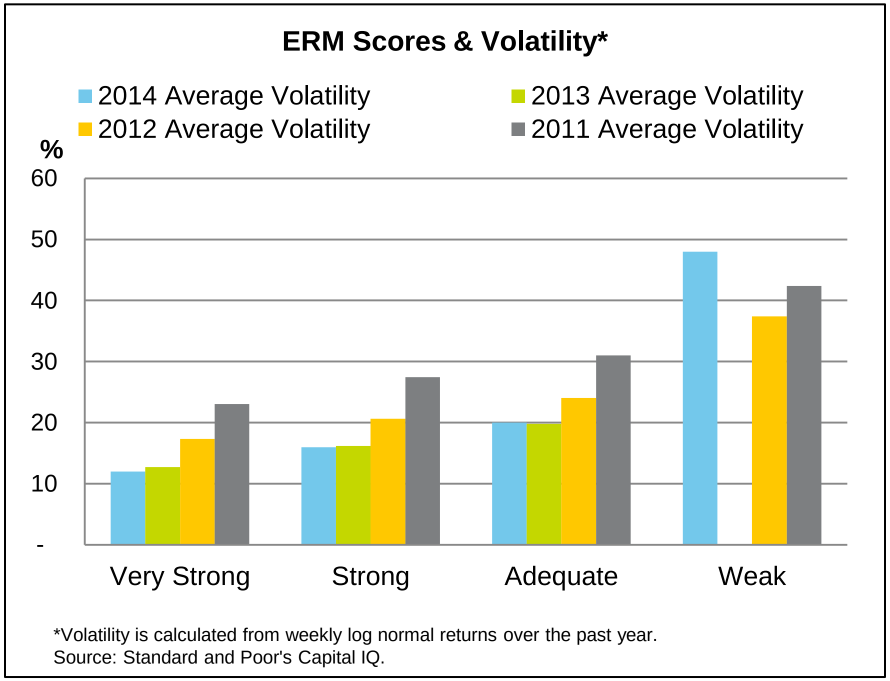
- **An insurer's ERM is scored as very strong (1), strong (2), adequate with strong risk controls (3), adequate (4) or weak (5) based on the assessments of the five sub-factors, which we classify as positive, neutral, or negative**
- **The analysis is evidence based- An insurer receives a neutral score for any of the five sub-factors where evidence is insufficient to assign either a positive or a negative score**

ERM Assessment

Score	Assessment	Guideline
1	Very Strong	Positive score for all subfactors and economic capital model (ECM) is assessed either "good" or "superior" under our criteria.
2	Strong	The risk management culture, risk controls, and strategic risk management subfactors are scored positive, one or both of the other two subfactors is scored neutral. and no subfactor is scored negative.
3	Adequate with strong risk control	The risk controls subfactor is scored positive, the strategic risk management subfactor is scored neutral, and no subfactor is scored negative.
4	Adequate	The risk controls and risk management culture subfactors are scored at least neutral; overall doesn't satisfy the requirement for adequate with strong risk control.
5	Weak	One or both of the risk controls and risk management culture subfactors are scored negative.

S&P's ERM Scores For North American & Bermudian Insurers (2014)





- 67% of insurers had an ERM score of Adequate. The distribution of ERM scores has remained relatively stable over the past 7 years with the average score being Adequate.
- As we have observed over previous years, average level of stock-price volatility was inversely related to the ERM score.
- Strong ERM practices stabilize earnings and appropriately set volatility expectations to reduce surprises to investors. Hence the inverse relationship.

Source: Standard & Poor's Ratings Services

S&P's ERM Benchmarking

Review

Highlights of 2014 ERM Survey

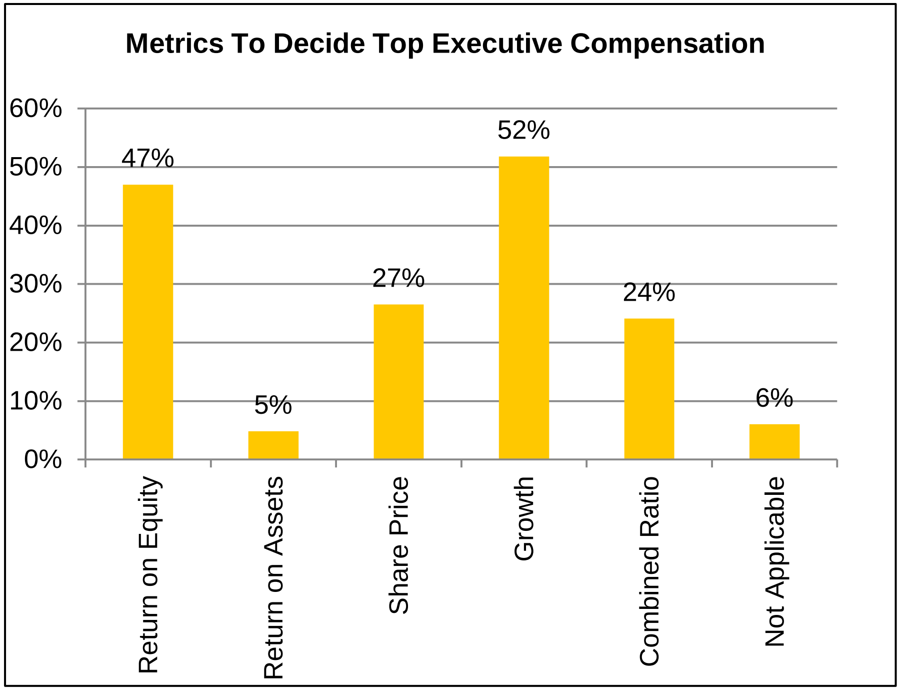
- Insurers with higher ERM scores are closest to meeting the deadline for submitting their self-assessments to NAIC regulators.

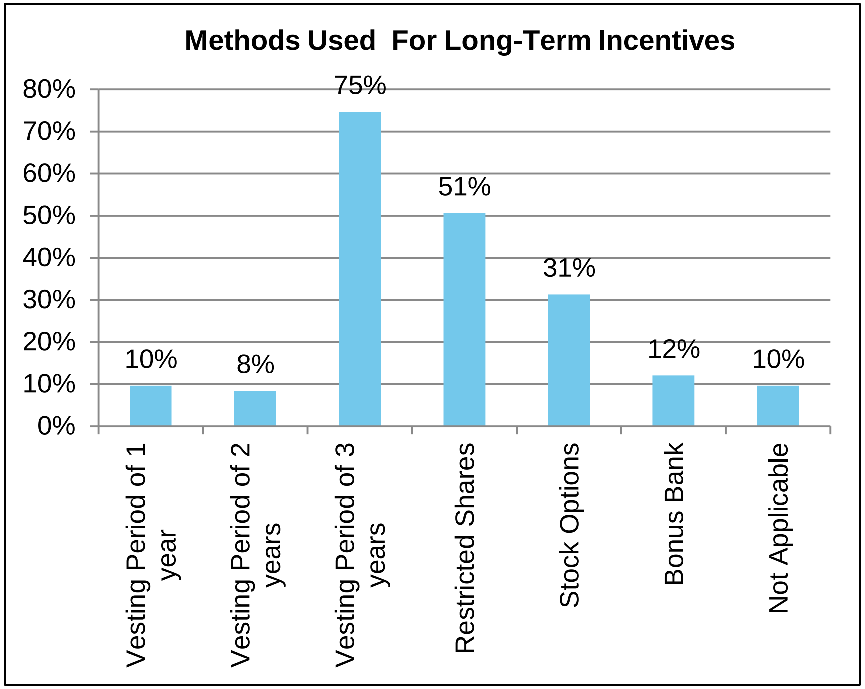
- Many insurers consider regulatory and legal changes some of the biggest risks they face, while threats to the integrity of their IT systems remain a concern.

- Although most insurers will benchmark business risks against capital, the definition of what constitutes that capital can vary widely.

- Comparing risk tolerances among insurers in some categories--such as for catastrophe coverage—is complicated by the use of disparate models that can yield different results.

Executive Compensation

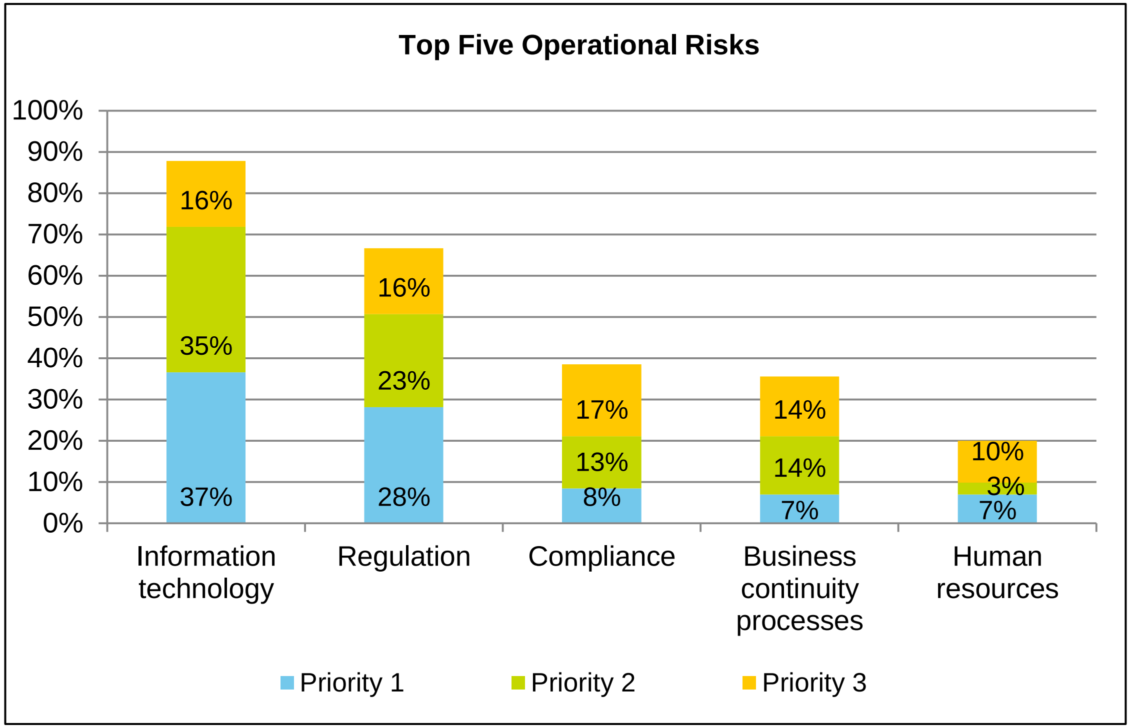




- In our survey, organizationally we found that 10% of CROs reported to the board while 47% to the CEO
- Growth as an incentive metric appears to be common
- Compensation as a risk governor is witnessed through mechanisms that include vesting periods, bonus banks, restricted shares, and stock options that discourage management from excessive risk taking in one year

Source: Standard & Poor's Ratings Services.

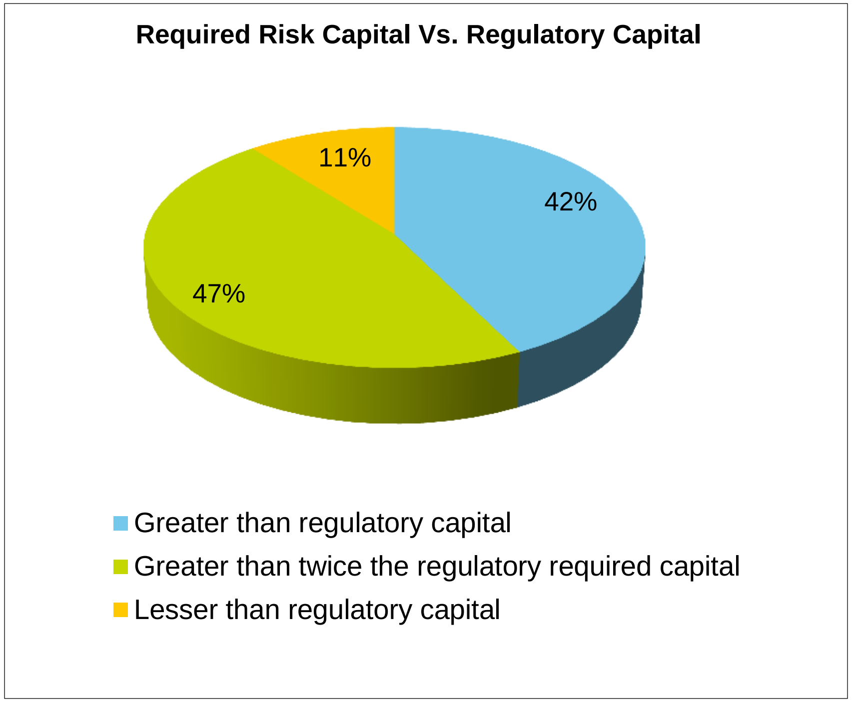
Operational Risk

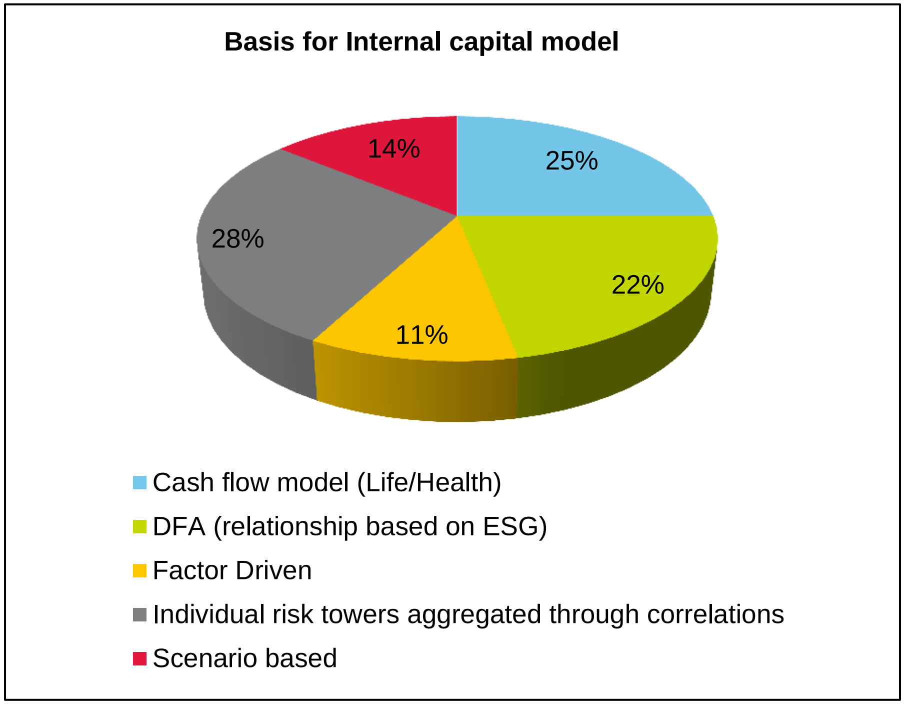


- Almost all of the insurers had a disaster recovery plan and business continuity process in place.
- The insurers we surveyed said IT is their major operational risk, followed by regulation and compliance.
- Insurers need IT systems that run seamlessly all the time to satisfy policyholders, suppliers, and investors. At the same time, those systems must be secure against an increasing tide of cybercrime.
- Regulation is also a major concern, with insurers increasingly uncertain about the impact of more mandates from both within and outside of their home nations

Source: Standard & Poor's Ratings Services.

Internal Models Will Be A Key Focus In The Future





- Almost 73% of the respondents had some form of internal economic or risk capital model
- Given that regulatory capital acts as a minimum, it is not surprising that 89% of companies have internal targets greater than the regulatory capital.
- Internal models in our surveyed group are likely to range from a customized rating agency or regulatory model to a sophisticated dynamic financial analysis (DFA) model

Source: Standard & Poor's Ratings Services.

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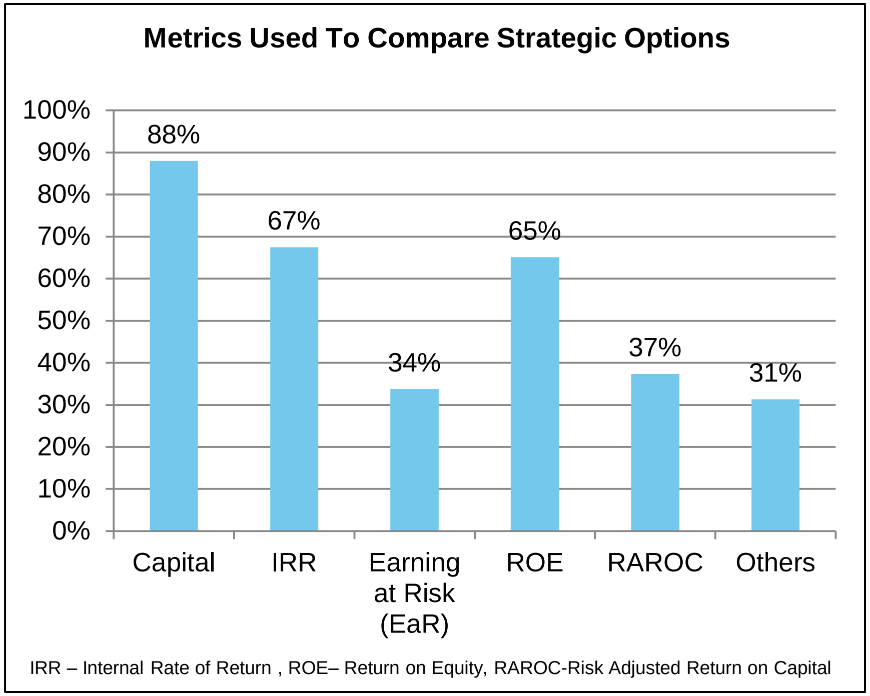
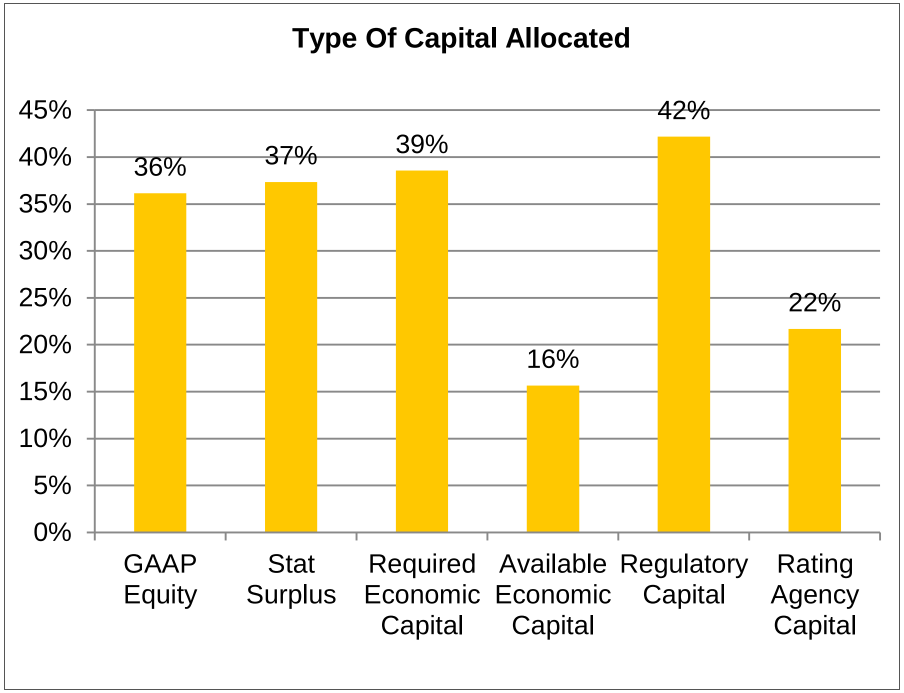
Capital Allocation and Strategic Risk Management





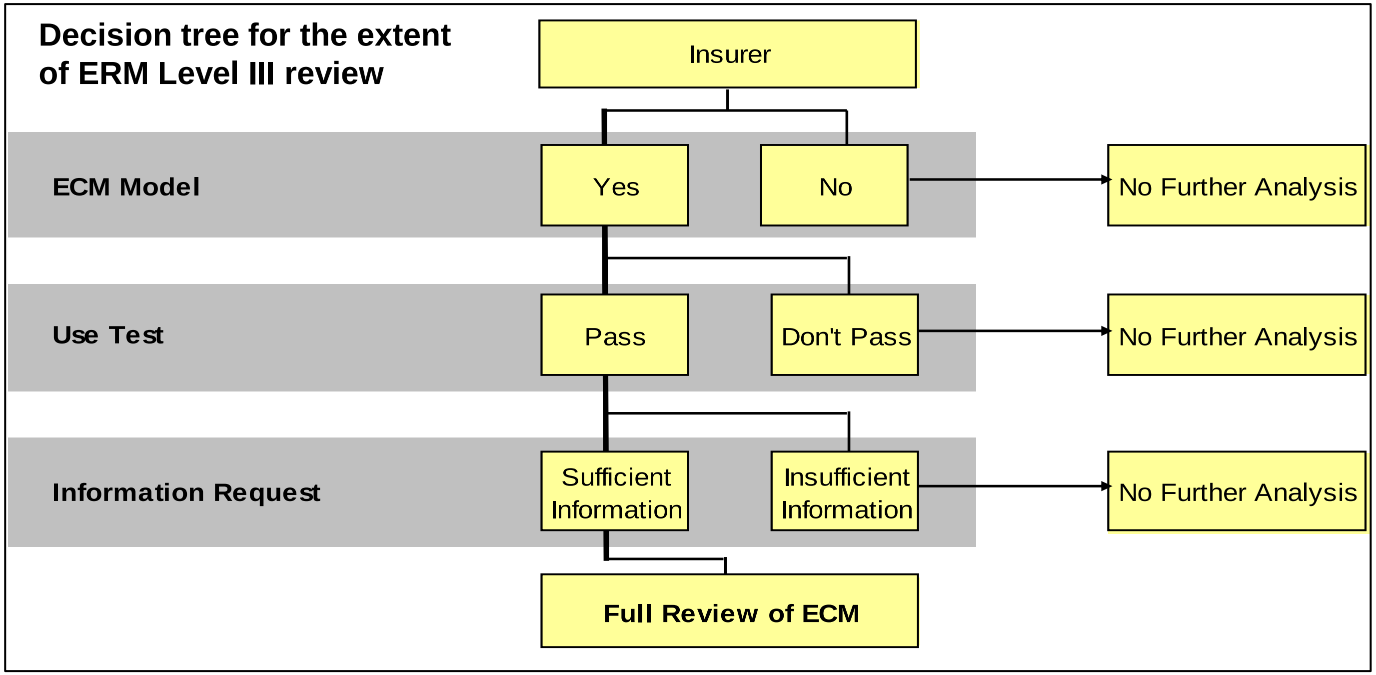
- Metrics such as capital (89%) and ROE (72%) are popular among P/C insurers whereas life and health companies used capital (90%) and IRR (75%) to compare strategic risk options
- Companies used various types of capital to allocate to various risk but regulatory capital, Stat surplus, GAAP equity and required economic capital were more common
- Life and health companies tend to use regulatory capital in their strategic management decisions more than P/C companies.

Source: Standard & Poor's Ratings Services

S&P’s Economic Capital Analysis

ERM Level III Review

- **Importance of ERM Level III Review**
  - Enhances understanding of insurer’s ERM capabilities
  - Informs other aspects of the rating process like Capital and Management & Governance
- **S&P only considers the ECM as a positive factor if the insurer has an ERM score of “strong” or higher**



ERM Level III Review – The Review Framework

Two Sets of Modules

- **1st Module: Modeling considerations, such as insurer's approaches to**
  - Model Total Targeted Resources (TTR)
  - Value assets and liabilities
  - Model potential exposure to indirect risks, such as pension fund risks
  - Model the effect of management decisions, diversification and capital fungibility

- **2nd Module: Modeling of exposure to "distinct" financial and non-financial risk groups**
  - Market risks
  - Credit risks
  - Insurance risks
    - Life: mortality, longevity, lapse and expense risks
    - P&C: reserving, catastrophe, underwriting and expense risks
    - Health: morbidity, lapse, inflation and expense risks
  - Operational risks

ERM Level III Review – The Review Framework

- **For each risk, S&P reviews the following five categories**
  - Methodology
  - Data Quality
  - Assumptions and Parameterization
  - Process and Execution
  - Testing and Validation
- **S&P assigns a score of "basic", "good" or "superior" to each category**
- **Overall ECM assessment combines scores of the risk modules**
- **The use of ERM Level III results in S&P's capital adequacy assessment**
  - "M-Factor" reflects S&P's view of the robustness of the insurer's ECM
  - S&P's capital model results may be adjusted, based on the insurer's ECM model results, using the M-Factor
  - We expect to see relatively low M-Factors in the beginning
  - Impact of "M-factor" on our view of capital is limited to one full rating category up or down

ERM Level III Review – Economic Capital Model

- **Review of Economic Capital Models for Insurance**
  - Insurers generally have "Good" assessments in
    - Modeling framework
    - Model governance
    - Modeling of main risks
  - Areas of improvement:
    - Modeling of diversification
    - Fungibility of capital
    - Long term options and guarantees
  - Solvency II
    - May lead to model convergence
    - Has put pressure on insurers to improve validation and governance
- **The balance between a model's complexity and expediency**

Common Challenges in ECM Reviews

- **Correlation / Diversification**
- **Documentation**
- **Parameterization**
- **Validation**

Thank You

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