Data Quality & Solvency II: Potential Implications for Every Actuary

How Solvency II evolves beyond SOX with respect to Data Quality and Data Management

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Sarbanes-Oxley: Controls and Attestation

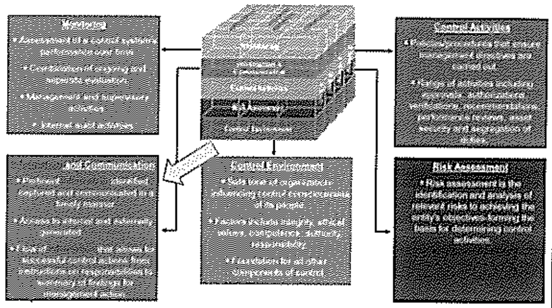
Sarbanes-Oxley Section 404 focused on key concepts such as "Controls" and "Attestations" most notably around financial reporting

Implications for the actuary likely included:
- Standardized controlled processes for reserving estimates
- More documented processes for the development of loss ratios in support of planning forecasts and "peg" loss ratios

Likely unbeknownst to that actuary there were SOX requirements for their IT department around:
- Data flow controls between key applications
- Rigorous documentation of the design and testing of these controls

The key reference was the "COSO Framework"

The Five Components under the COSO Framework



All five components must be in place for internal control to be effective.

Solvency II Advisories Pertaining to Data Quality

CEIOPS Advice for Level 2 Implementing Measures on Solvency II: Technical Provisions – Article 86 f Standards for Data Quality

- **Criteria to assess the quality of data** – accuracy, completeness and appropriateness
- **Data Deficiencies** – data, process and system remediation
- **Application of the principle of proportionality** – take into account the nature, scale and complexity to determine level of accuracy, completeness and appropriateness
- **Requirements on internal processes and procedures** – data quality management
- **Issues of data quality in the context of a provisioning analysis and review** – external data.

CEIOPS' Advice for Level 2 Implementing Measures on Solvency II: Articles 120 to 126 Tests and Standards for Internal Model Approval

- **Scope of Data Quality Standards** – can be restricted or comprehensive
- **Interpretation of Data Quality Criteria** – definition of accuracy, completeness and appropriateness
- **Data Quality Control and Monitoring** – regular data quality checks
- **Data Updates** – at least annually
- **Data and Expert Judgment** – justification and documentation
- **Data Policy** – concepts and implementation
- **Documentation** – to include data management

Note: CEIOPS is the Committee of European Insurance and Occupational Health Pensions Supervisors which has now been replaced by EIOPA which is the European Insurance and occupational Health Authority

"Information" vs "Data"

From an actuarial perspective, it may sound like semantics, from an IT perspective, the distinction may be material:

"Information" implies a set of facts that when assembled together is informative - could include assumptions that underlie a decision or analysis.

"Data" may be more narrowly defined, referencing specific data elements, how they are managed including their unique characteristics.

"Data" Revisited

An actuary
- in practice may blur the lines between data and assumptions
- "assumptions about the data" fill the gaps about recognized limitations of data and methodologies

Solvency II
- clearly delineates between the weakness of specific data sets and the assumptions underlying actuarial methodologies
- requires companies to measure the strength of data and comment on the impact of any perceived weaknesses

A requirement to measure data quality: good thing or regulatory distraction?

Different perspectives exist:

The "finally" perspective:
- actuaries have long been relied on (perhaps too much) as the singular voice of what is "good enough" data
- when "good" data is not available, the actuary relies on assumptions and disclosures, risking that their analysis will be consequently devalued
- finally, there will be a way to measure the quality of data that is recognized by the organization

The "you got to be kidding me" perspective:
- as if actuaries don't have enough to do, why are they now being asked to evaluate the quality of data too?
- actuaries didn't enter the data – shouldn't defining what is good be someone else's job?

SII Data Quality "Requirements"

Measuring the impact of imperfections is not a new thing to actuaries (isn't it just a variance?) but how can we apply these principles to data imperfections?

How would you define the SII Data Quality Requirements of:

Accuracy?

Completeness?

Appropriateness?

How would you measure these against a benchmark of adequacy?

Quality is in the Eye of the User

Quality requirements vary by the intentions of the user, as such so should the measurements of quality.

The statistical reporting area may focus of the validity of certain fields;

Is this a valid NCCI class code for that effective year?

The financial reporting area may focus on reconciliation:

Does this value balance to the ledger amount?

The filings area may focus on the granularity of data:

Do I have enough exposure rating detail to estimate the impact of a promulgated loss cost change?

The pricing or reserving actuary, although recognizing the importance of above is likely to focus on the ability to match losses and premiums or the consistency of loss development measures

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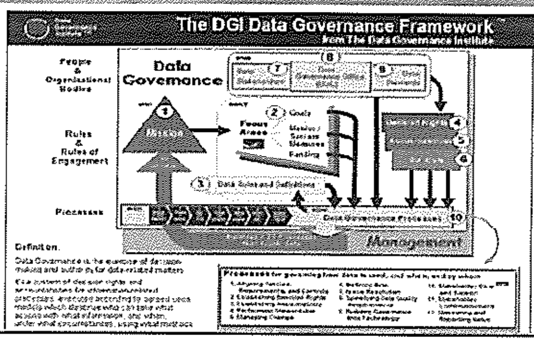
Formal Data Governance: A Discipline of its Own



Questions to Ponder

How would your actuarial processes improve if data quality was organizationally defined?

If formal Data Governance was enacted in your organization, what sort of "citizen" would you be?

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