

ENTERPRISE RISK MANAGEMENT

ERM

Symposium

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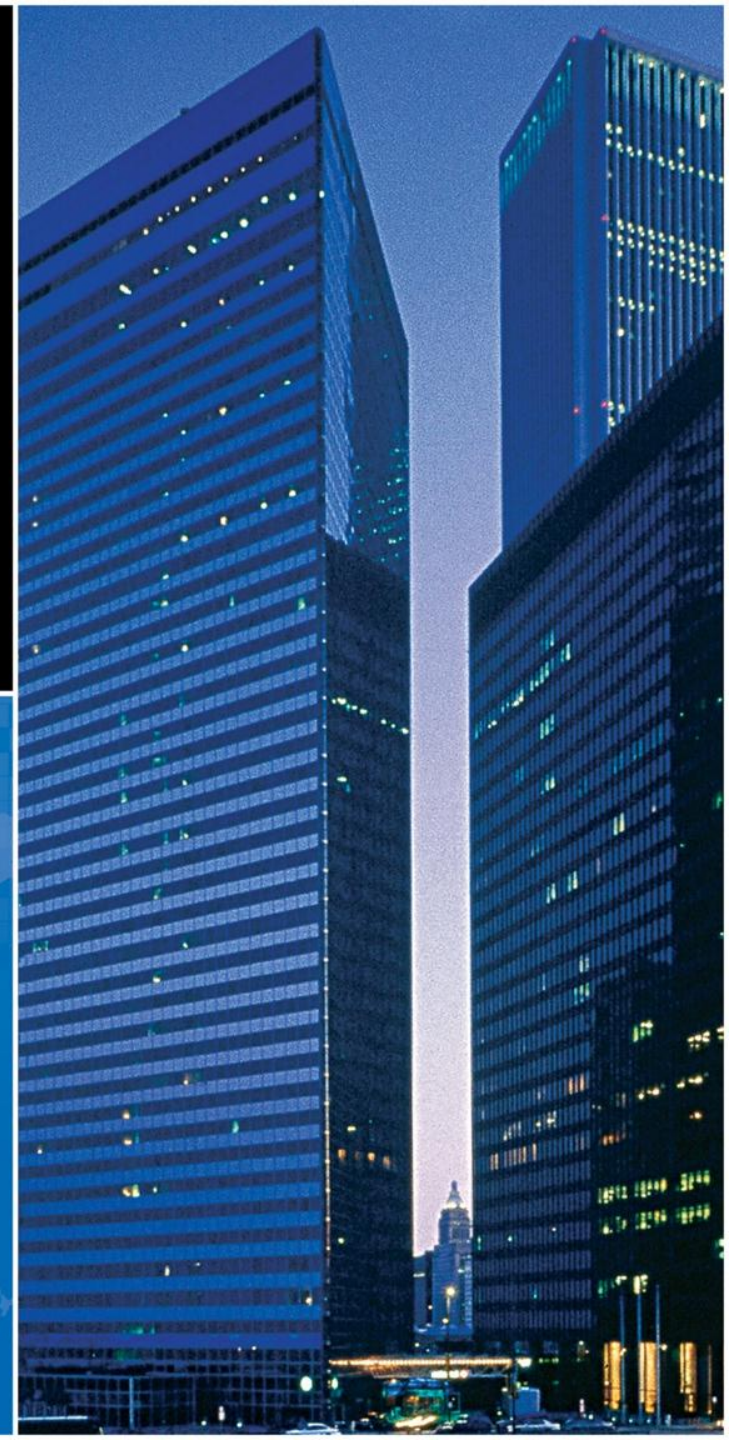
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End-to-end Validation of ICAAP Performance

Julia Ross

**Senior Manager, ICAAP Validation
Bank of Montreal, Canada**

Julia.Ross@bmo.com





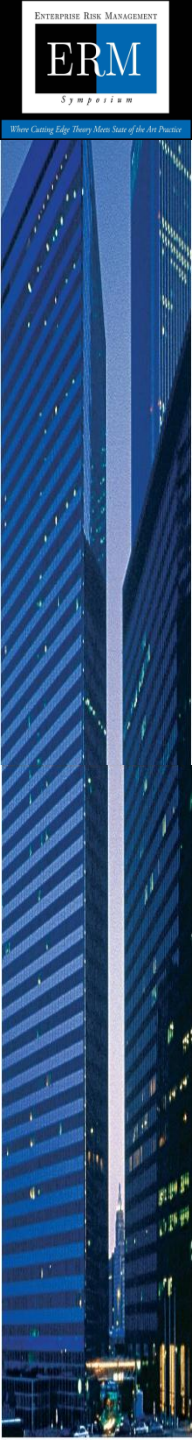
Executive Summary

ICAAP Validation is an independent control activity undertaken to ensure that ICAAP performs as intended.

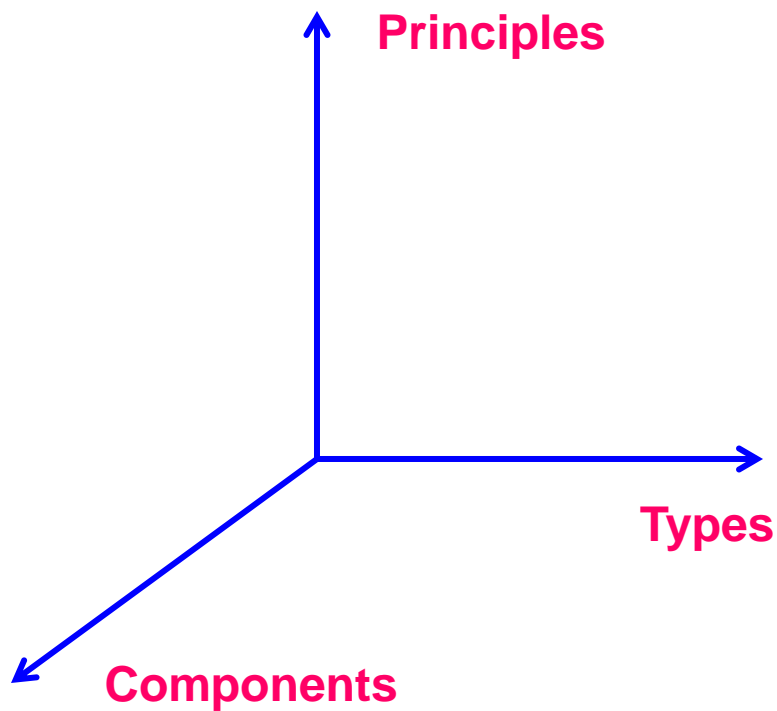
It is comprised of all activities including:

- Assessing the robustness and comprehensiveness of the ICAAP framework
- Appropriateness of the components used therein
- Expert vetting of models and assumptions
- Back-testing, benchmarking, peer comparison, regulatory reviews and
- The integration of ICAAP into the enterprise's decision making process.

ICAAP Validation is to be in line with the principles of independence, effectiveness, transparency, robustness, comprehensiveness and completeness.



Three Dimensions of ICAAP Validation Framework





Six Main Principles of ICAAP Validation

1. **Integrity** – the validation process should deliver an effective challenge to the design and implementation of ICAAP risk methods and therefore it has to be performed by suitably qualified and competent individuals that are both independent of the business line and the model development process.
2. **Documentation** – sufficient documentation should be produced to ensure that parties reviewing (validating) the ICAAP risk methods can understand the objectives of the approach, the scope and the methodology.
3. **Timing** – the validation process should establish regular processes (“validation cycles”) to validate methodologies used in ICAAP, and be responsive to special events or circumstances (“validation triggers”) so that the review of ICAAP methodologies remains current and relevant.



Six Main Principles of ICAAP Validation (cont'd)

4. **Scope** – the validation process should consider all models and assumptions that may be material and relevant to the review of ICAAP methodologies and therefore includes areas such as a review of judgmental assumptions, and an assessment of model appropriateness for use in ICAAP (for example, appropriateness of economic capital models).

5. **Monitoring** – the validation process should review the performance outcomes of ICAAP methodologies against expectations (for example, realized economic capital versus predicted economic capital), applying techniques such as back-testing.

6. **Completeness** - the validation process should provide an integrated view on business and risk coverage to ensure that the risk identification process is complete, all portfolios are covered, and that all the material risks are appropriately reflected in the ICAAP.



Components of ICAAP Validation

ICAAP Validation includes Validation of the following components:

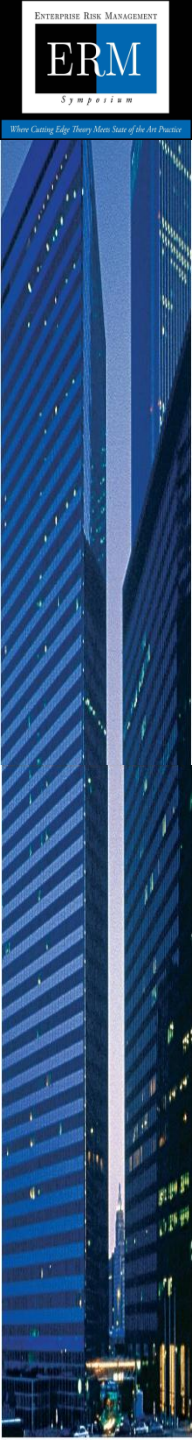
I. Inputs to ICAAP

- i. Available Capital
- ii. Economic Capital
- iii. Pillar I Capital
- iv. Pillar II Add-ons
- v. Stress-testing
- vi. Liquidity

II. ICAAP Framework Design

III. Use Test

IV. Operations



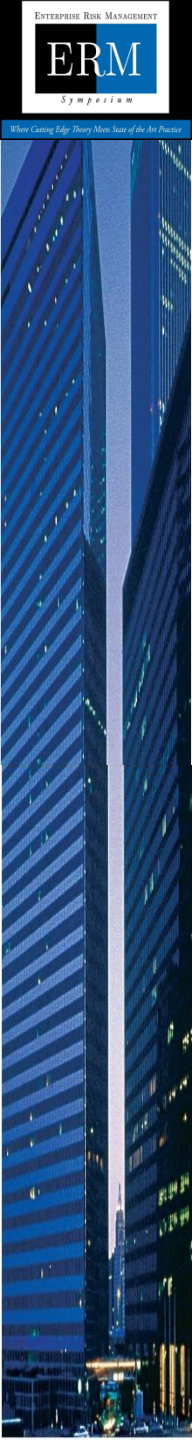
Components of ICAAP Validation (cont'd)

I.i Validation of Available Capital includes:

- Appropriateness of Definition (rationale for components' inclusion or exclusion)
- Measurement of Actual Available Capital
- Forecasting of Available Capital

I.ii Validation of Economic Capital (EC) includes:

- Appropriateness as an ICAAP input (EC advantages over Regulatory Capital)
- Risk Philosophy (Point-in-Time versus Through-the-Cycle)
- *Methodology*: Expert judgment based assumptions used in EC models
- Methodological Consistency (whether the methodologies used by different groups in the bank are consistent to each other)
- ICAAP adjustments (a downturn LGD adjustment vs. PD & LGD correlations)
- Aggregation methodologies (Inter-risk Diversification benefits estimation)
- Usage (portfolio growth assumptions, forecasting methodology)



Components of ICAAP Validation (cont'd)

I.iii Validation of Pillar I Capital includes:

- Appropriateness as an ICAAP input
- Methodology
- Usage

I.iv Validation of Pillar II Add-ons includes :

- Appropriateness as an ICAAP input
- Methodology

Examples of Add-ons:

- ✓ Insurance risk,
- ✓ Business risk
- ✓ Structural Market risk
- ✓ Equity risk
- ✓ Inter-risk Diversification benefits, etc.



Components of ICAAP Validation (cont'd)

I.v Validation of Stress-testing includes:

- Scenario Generation
- Conversion of Macro-economic scenarios to Macro-economic variables
- Methodology (Quantitative)
- Comprehensiveness of Stress-testing
- Stress of Available Capital

I.vi Validation of Liquidity includes:

- Adequacy of Liquidity
- Quantitative Models
- Linkages between loss estimation and liquidity



Components of ICAAP Validation (cont'd)

II. Validation of ICAAP Framework Design includes:

- ICAAP Coverage & Bank's Risk Register (all material risks are identified)
- ICAAP Framework Design
- Bank's Risk Appetite

III. Validation of Use Test includes:

- Usage
- Internal buy-in
- Transparency
- Risk reporting

IV. Validation of Operations includes:

- Integrity of Data & Systems
- Effectiveness of Systems
- Key Performance Indicators of ICAAP
- Replicability.



Types of ICAAP Validation

Main Types of ICAAP Validation are the following:

- ✓ Ongoing Validation of Conceptual Soundness
- ✓ Benchmarking and Peers Comparison
- ✓ Back-testing
- ✓ Up-front Justification of Conceptual Soundness

Annual Health Check (or Master Validation Report)

- ✓ Annual Health Check is the documentary output of a wide-ranging review to verify that ICAAP is operating as intended.
- ✓ This review is an amalgamation of the findings from quantitative and qualitative validation activities conducted throughout the year into a holistic view of ICAAP performance and a diagnosis highlighting areas for improvement.