

# /01 Principles for Effective Data Aggregation and Risk Reporting



# Objective

Explain the potential benefits of having effective risk data aggregation and reporting.

Describe key governance principles related to risk data aggregation and risk reporting practices.

Identify the data architecture and IT infrastructure features that can contribute to effective risk data aggregation and risk reporting practices.

Describe characteristics of a strong risk data aggregation capability and demonstrate how these characteristics interact with one another.

Describe characteristics of effective risk reporting practices.

# Principles for Effective Data Aggregation and Risk Reporting

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## ➤ BENEFITS OF RISK DATA AGGREGATION:

According to the Basel Committee on Banking Supervision, risk data aggregation means “defining, gathering and processing risk data according to the bank’s risk reporting requirements to enable the bank to measure its performance against its risk tolerance/ appetite.”

The Principles are expected to support a bank’s efforts to:



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## ➤ I. Overarching governance and infrastructure :

A bank should have in place a strong governance framework, risk data architecture and IT infrastructure. A bank's board should oversee senior management's ownership of implementing all the risk data aggregation and risk reporting principles and the strategy to meet them within a timeframe agreed with their supervisors.

### Principle 1

**Governance – A bank's risk data aggregation capabilities and risk reporting practices should be subject to strong governance arrangements consistent with other principles and guidance established by the Basel Committee.**

- A bank's board and senior management should promote the identification, assessment and management of data quality risks as part of its overall risk management framework.
- The framework should include agreed service level standards for both outsourced and in-house risk data-related processes, and a firm's policies on data confidentiality, integrity and availability, as well as risk management policies.
- A bank's board and senior management should review and approve the bank's group risk data aggregation and risk reporting framework and ensure that adequate resources are deployed.

A bank's risk data aggregation capabilities and risk reporting practices should be:

- Fully documented and subject to high standards of validation.
- This validation should be independent and review the bank's compliance with the Principles.
- These validation and reporting practices should be conducted using staff with specific IT, data and reporting expertise.
- Considered as part of any new initiatives.
- Unaffected by the bank's group structure.
- A bank's senior management should be fully aware of and understand the limitations that prevent full risk data aggregation, in terms of coverage , technical & in legal terms.
- A bank's board should be responsible for determining its own risk reporting requirements.

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## ➤ I. Overarching governance and infrastructure :

### Principle 2

**Data architecture and IT infrastructure** – A bank should design, build and maintain data architecture and IT infrastructure which fully supports its risk data aggregation capabilities and risk reporting practices not only in normal times but also during times of stress or crisis, while still meeting the other Principles.

- Risk data aggregation capabilities and risk reporting practices should be given direct consideration as part of a bank's business continuity planning processes and be subject to a business impact analysis.
- A bank should establish integrated data taxonomies and architecture across the banking group, which includes information on the characteristics of the data (metadata), as well as use of single identifiers and/or unified naming conventions for data including legal entities, counterparties, customers and accounts.
- Roles and responsibilities should be established as they relate to the ownership and quality of risk data and information for both the business and IT functions. The owners (business and IT functions), in partnership with risk managers, should ensure there are adequate controls throughout the lifecycle of the data and for all aspects of the technology infrastructure. The role of the business owner includes ensuring data is correctly entered by the relevant front office unit, kept current and aligned with the data definitions, and also ensuring that risk data aggregation capabilities and risk reporting practices are consistent with firms' policies.

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## ➤ II. Risk data aggregation capabilities :

Banks should develop and maintain strong risk data aggregation capabilities to ensure that risk management reports reflect the risks in a reliable way. Compliance with these Principles should not be at the expense of each other.

### Principle 3

**Accuracy and Integrity** – A bank should be able to generate accurate and reliable risk data to meet normal and stress/crisis reporting accuracy requirements. Data should be aggregated on a largely automated basis so as to minimize the probability of errors.

- A bank should aggregate risk data in a way that is accurate and reliable.
  - Controls surrounding risk data should be as robust as those applicable to accounting data.
  - Where a bank relies on manual processes and desktop applications (e.g. spreadsheets, databases) and has specific risk units that use these applications for software development, it should have effective mitigates in place (e.g. end-user computing policies and procedures) and other effective controls that are consistently applied across the bank's processes.
  - Risk data should be reconciled with bank's sources, including accounting data where appropriate, to ensure that the risk data is accurate.
  - A bank should strive towards a single authoritative source for risk data per each type of risk.
  - A bank's risk personnel should have sufficient access to risk data to ensure they can appropriately aggregate, validate and reconcile the data to risk reports.
- A bank should have a "dictionary" of the concepts used.
- There should be an appropriate balance between automated and manual systems.
- Documentation should include an explanation of the appropriateness of any manual workarounds, a description of their criticality to the accuracy of risk data aggregation and proposed actions to reduce the impact.

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## ➤ II. Risk data aggregation capabilities :

### Principle 4

**Completeness** – A bank should be able to capture and aggregate all material risk data across the banking group. Data should be available by business line, legal entity, asset type, industry, region and other groupings, as relevant for the risk in question, that permit identifying and reporting risk exposures, concentrations and emerging risks.

- A bank's risk data aggregation capabilities should include all material risk exposures, including those that are off-balance sheet.
- A banking organization is not required to express all forms of risk in a common metric or basis, but risk data aggregation capabilities should be the same regardless of the choice of risk aggregation systems implemented. However, each system should make clear the specific approach used to aggregate exposures for any given risk measure, in order to allow the board and senior management to assess the results properly.

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## ➤ II. Risk data aggregation capabilities :

### Principle 5

**Timeliness** – A bank should be able to generate aggregate and up-to-date risk data in a timely manner while also meeting the principles relating to accuracy and integrity, completeness and adaptability. The precise timing will depend upon the nature and potential volatility of the risk being measured as well as its criticality to the overall risk profile of the bank. The precise timing will also depend on the bank-specific frequency requirements for risk management reporting, under both normal and stress/crisis situations, set based on the characteristics and overall risk profile of the bank.

- A bank's risk data aggregation capabilities should ensure that it is able to produce aggregate risk information on a timely basis to meet all risk management reporting requirements.
- The Basel Committee acknowledges that different types of data will be required at different speeds, depending on the type of risk, and that certain risk data may be needed faster in a stress/crisis situation. Banks need to build their risk systems to be capable of producing aggregated risk data rapidly during times of stress/crisis for all critical risks.
- Critical risks include but are not limited to:
  - The aggregated credit exposure to a large corporate borrower. By comparison, groups of retail exposures may not change as critically in a short period of time but may still include significant concentrations;
  - Counterparty credit risk exposures, including, for example, derivatives;
  - Trading exposures, positions, operating limits, and market concentrations by sector and region data;
  - Liquidity risk indicators such as cash flows/settlements and funding; and
  - Operational risk indicators that are time-critical (e.g. systems availability, unauthorized access).

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## ➤ II. Risk data aggregation capabilities :

### Principle 6

**Adaptability** – A bank should be able to generate aggregate risk data to meet a broad range of on-demand, ad hoc risk management reporting requests, including requests during stress/crisis situations, requests due to changing internal needs and requests to meet supervisory queries.

- A bank's risk data aggregation capabilities should be flexible and adaptable to meet ad hoc data requests, as needed, and to assess emerging risks. Adaptability will enable banks to conduct better risk management, including forecasting information, as well as to support stress testing and scenario analyses.
- Adaptability includes:
  - Data aggregation processes that are flexible and enable risk data to be aggregated for assessment and quick decision-making;
  - Capabilities for data customization to users' needs (e.g. dashboards, key takeaways, anomalies), to drill down as needed, and to produce quick summary reports;
  - Capabilities to incorporate new developments on the organization of the business and/or external factors that influence the bank's risk profile; and
  - Capabilities to incorporate changes in the regulatory framework.

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## ➤ III. Risk reporting practices :

Accurate, complete and timely data is a foundation for effective risk management. However, data alone does not guarantee that the board and senior management will receive appropriate information to make effective decisions about risk. To manage risk effectively, the right information needs to be presented to the right people at the right time.

### Principle 7

**Accuracy** - Risk management reports should accurately and precisely convey aggregated risk data and reflect risk in an exact manner. Reports should be reconciled and validated.

- Risk management reports should be accurate and precise to ensure a bank's board and senior management can rely with confidence on the aggregated information to make critical decisions about risk.
- To ensure the accuracy of the reports, a bank should maintain, at a minimum, the following:
  - Defined requirements and processes to reconcile reports to risk data;
  - Automated and manual edit and reasonableness checks, including an inventory of the validation rules that are applied to quantitative information. The inventory should include explanations of the conventions used to describe any mathematical or logical relationships that should be verified through these validations or checks; and
  - Integrated procedures for identifying, reporting and explaining data errors or weaknesses in data integrity via exceptions reports.
- Approximations are an integral part of risk reporting and risk management. Banks should follow the reporting principles and establish expectations for the reliability of approximations (accuracy, timeliness, etc) to ensure that management can rely with confidence on the information to make critical decisions about risk.

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## ➤ III. Risk reporting practices :

### Principle 8

**Comprehensiveness** - Risk management reports should cover all material risk areas within the organisation. The depth and scope of these reports should be consistent with the size and complexity of the bank's operations and risk profile, as well as the requirements of the recipients.

- Risk management reports should include exposure and position information for all significant risk areas (e.g. credit risk, market risk, liquidity risk, operational risk) and all significant components of those risk areas (e.g. single name, country and industry sector for credit risk). Risk management reports should also cover risk-related measures (e.g. regulatory and economic capital).
- Reports should identify emerging risk concentrations, provide information in the context of limits and risk appetite/tolerance and propose recommendations for action where appropriate. Risk reports should include the current status of measures agreed by the board or senior management to reduce risk or deal with specific risk situations. This includes providing the ability to monitor emerging trends through forward-looking forecasts and stress tests.

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## ➤ III. Risk reporting practices :

### Principle 9

**Clarity and usefulness** - Risk management reports should communicate information in a clear and concise manner. Reports should be easy to understand yet comprehensive enough to facilitate informed decision-making. Reports should include meaningful information tailored to the needs of the recipients.

- Risk reports should ensure that information is meaningful and tailored to the needs of the recipients.
- Reports should include an appropriate balance between risk data, analysis and interpretation, and qualitative explanations.
- Reporting policies and procedures should recognize the differing information needs of the board, senior management, and the other levels of the organization (for example risk committees).
- As one of the key recipients of risk management reports, the bank's board is responsible for determining its own risk reporting requirements and complying with its obligations to shareholders and other relevant stakeholders. The board should ensure that it is asking for and receiving relevant information that will allow it to fulfill its governance mandate relating to the bank and the risks to which it is exposed. This will allow the board to ensure it is operating within its risk tolerance/appetite.
- The board should alert senior management when risk reports do not meet its requirements and do not provide the right level and type of information to set and monitor adherence to the bank's risk tolerance/appetite. The board should indicate whether it is receiving the right balance of detail and quantitative versus qualitative information.
- Senior management is also a key recipient of risk reports and it is responsible for determining its own risk reporting requirements. Senior management should ensure that it is receiving relevant information that will allow it to fulfill its management mandate relative to the bank and the risks to which it is exposed.
- A bank should develop an inventory and classification of risk data items which includes a reference to the concepts used to elaborate the reports.

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## ➤ III. Risk reporting practices :

### Principle 10

**Frequency** – The board and senior management (or other recipients as appropriate) should set the frequency of risk management report production and distribution. Frequency requirements should reflect the needs of the recipients, the nature of the risk reported, and the speed, at which the risk can change, as well as the importance of reports in contributing to sound risk management and effective and efficient decision-making across the bank. The frequency of reports should be increased during times of stress/crisis.

➤The frequency of risk reports will vary according to the type of risk, purpose and recipients. A bank should assess periodically the purpose of each report and set requirements for how quickly the reports need to be produced in both normal and stress/crisis situations. A bank should routinely test its ability to produce accurate reports within established timeframes, particularly in stress/crisis situations.

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## ➤ III. Risk reporting practices :

### Principle 11

**Distribution** - Risk management reports should be distributed to the relevant parties while ensuring confidentiality is maintained.

➤ Procedures should be in place to allow for rapid collection and analysis of risk data and timely dissemination of reports to all appropriate recipients. This should be balanced with the need to ensure confidentiality as appropriate.

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