# Data Quality:
# The Achilles' Heel of
# Risk Management

Banks worldwide have long understood the need to address data quality issues at all levels of operations – especially those issues related to risk. And slowly, country regulators are coming to understand the need to share their perspective on how data issues should be addressed. For example, country initiatives are being supplemented by the Basel Committee on Banking Supervision proposal, as described by the *Principles for Effective Risk Data Aggregation and Risk Reporting* (BCBS 239). Issued in January 2013, BCBS 239 further clarifies requirements for data quality. And starting in 2009 (and recently revised in 2013), the German MaRisk, or Minimum Requirements for Risk Management, issued by the Federal Financial Supervisory Authority BaFin in Germany, states that institutions must ensure that their data is available in a quality-assured form. Specifically, paragraph 7.2.2 states that "IT systems (hardware and software) and the associated IT processes must ensure the integrity, authenticity and confidentiality of data."

So why the push for data quality? Without meaningful data quality management, big data only leads to faster analysis of "data debris" – regardless of whether you are crunching big data, using grid computing, or running in-memory analysis. And from a risk perspective, high-quality data is essential to implementing effective risk strategies and ensuring compliance. BCBS 239 is just one of many regulatory communications with requirements predicated upon banks having quality data. More regulations are expected in the coming years.

For these reasons, it's critical that you have the foresight to identify future data quality requirements and implement enabling technologies on a realistic time scale. Just as important, you need to invest in ways to link regulatory requirements with your risk and banking strategy.

## Proven Approaches to Improving Data Quality

Approaches to improving data quality vary widely. This paper focuses on five best practices that have been derived from successful projects within the financial services industry – and enable banks to gain a commercial advantage.

### 1. Align Data With Risk Management and Regulatory Requirements

Data quality is not a new requirement for banks – nor is execution driven solely by regulatory demands. Rather, it's in the best interest of every financial services provider. For example, high-performance data quality management and smarter (and more efficient) approaches to analyzing warehoused data make standardized risk reporting technically feasible. Viewed from this perspective, effective data quality management should be considered a basic requirement for modern-day bank management.

Given the interdependencies between data, risk analytics, and reporting, it's critical that your organization combine existing operational data and quality-assured data to move toward the goal of creating a single, trusted source of truth for reporting, controlling risk and treasury activities. (This may require investment in data cleansing prior to integrating operational data.) You can better meet regulatory capital requirements by including re-ratings, credit spread adjustments, granular cash flow data and high-quality market data in key processes for risk weighted assets (RWAs), credit valuation assessments (CVAs) and liquidity.

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## 2. Make the Quality of Data for Risk Management Transparent

Missing, incomplete and inconsistent data can cause massive problems for financial institutions, especially when it comes to risk controlling and decision making. How can people make decisions and move ahead with confidence if they aren't sure about the quality of the risk reporting being provided to them? People tend to use the following metrics to assess quality of data:

- Data reconciliation rates.
- Completeness of data (as assessed by a certain date).
- Accuracy of data used for approximations.
- Risk data item inventory levels and classifications.
- Speed of data on-boarding during stress situations.
- Management of reference data (because 40-70 percent of data used in financial transactions is reference data).

The reliability of any value at risk (VaR) is crucially dependent on having up-to-date, consistent data. This is precisely what Basel III requires of banks. But when you have many heterogeneous data

Within the financial services industry, improvements in the area of data quality are being driven by a variety of factors, including:

- Evolving regulatory framework conditions, such as Basel III or EMIR.
- The need to meet data quality standards for regulatory audits.
- The need to increase profits, reduce costs and generate new business, all of which require trusted data for planning and decision making.
- Growing management demand for faster, more accurate analysis.
- New developments in technology focused on improving data management.

silos – each with different connections to the core banking system – it's difficult to establish a complete, accurate and uniform overview of data for risk controlling and reporting. Addressing this issue is complicated. For example, it's difficult to link technical requirements with IT systems and warehoused data to gain a uniform data overview. It's also challenging to quantify the impact of improved data warehousing on the quality of analytical results.

What's needed is a way to adapt this data quickly and efficiently to meet quality standards. This can only be achieved using industrialized, standardized and predefined business rules. For the purposes of this paper, a business rule is a predetermined rule created for monitoring the accuracy of data consumed within business processes and analytical reports. Within the context of risk data management, these rules are based on regulatory frameworks such as BCBS 239 and the way regulators would like to look at the data in order to assess the exposure to credit, market, liquidity or operational risk within a bank.[1] For example, having the correct definition of economic sectors is critical in order to aggregate and understand the concentration of risk within a given economic sector for reporting purposes.

## 3. Create Business Rules for Sustainable Data Quality Improvement

It's well known that continuous monitoring leads to a steady improvement in data quality. But banks can achieve even greater improvements by moving to a real-time approach that leverages a predefined set of business rules. These rules can be created, shared, and adapted to suit the needs of different departments and data sources.

Quality risk data is best stored in a risk data mart – a quality-assured, standardized data warehouse that controlling, reporting and risk-controlling departments can easily access. It provides a uniform basis for master data management, reporting and risk controlling. Prior to building one, you first need to create a glossary that contains predefined, relevant terms, data sources and responsibilities for the respective data sources. This basic glossary serves as an initial inventory of all data sources available across the enterprise and makes it easy to identify ones relevant to risk management. The goal is to generate a complete image of all warehoused data existing in the bank, and to present it in a network of concepts and linked source data systems.

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[1] There should be an inventory of business rules applied to risk data in order to ensure the data accuracy. Business data definitions and ontologies can help standardize risk data elements and needs to be subsequently monitored for accuracy purposes.

You can then use partially automated profiling to define the necessary data relevant to a specific department. Automation prevents data redundancies from the outset. The result is a common picture of the required data for controlling, risk controlling and reporting purposes. Filtered views enable each department to look at data relevant to its own operation.

The most complex part of building a risk data mart is the actual definition of the business rules. Global and department-level administrators can either leverage a standardized catalog of rules or determine rules specific to the institution in collaboration with Basel III experts (for example, from the consulting firm Accenture). Alternatively, firms can take a hybrid approach.

The finalized rules can also be made available as a web service. These rules help establish a systematic approach and ensure continuous improvement in data quality, as the data must always be evaluated and thus corrected according to the same rules.

## 4. Establish Continuous Monitoring to Measure Success

What economic benefits can your financial institution realize (or significant losses can it avoid) by improving data quality? And how can you measure these benefits? Measurement capabilities, which must be integrated into the implementation data validation rules across each layer of data management and analytics processes, help you measure the success and business value of your data quality efforts.

And the business value can be significant. For example, within most banks, improvements in data quality can reduce costs (for example, in the areas of reconciliation and operational error remediation) and increase the quality of risk controlling and regulatory reporting. Secondarily, targeted data quality measures can support better decision making, resulting in significant improvements in risk-based control of RWA, capital and liquidity management.

But to realize these benefits, risk analysis – both at the system or department level – should never focus on data of questionable quality. For this reason, data quality assessments should be continuous, and results of these assessments should be presented to stakeholders on a regular basis via dashboards. These dashboards should make it easy for stakeholders to understand if data quality levels are falling, drill down to pinpoint root causes, run

retroactive analyses and forecast future results. At the same time, you can see if current business rules for data quality need to be corrected or improved.

## 5. Implement End-to-End Analysis of Risk Processes

By performing an end-to-end analysis of your risk processes, you can understand the entire value chain for your data quality process and its impact on risk management. Using the insights gained, you can identify problems early – when they are less costly to fix. (In most cases, when errors are first detected by end users, addressing their underlying cause requires costly investigations across multiple systems and processes. In some cases, the sources of errors can't be understood – at least not without taking key staff members out of their principal business and technical roles, which affects business operations.)

In many cases, analysis reveals that while a bank may have data entry rules in place for front-office systems, these systems vary greatly by vendor and age, creating a patchwork of data feed formats and content. So in order to improve data quality, you need to apply business rules to the initial data entry process for each system – not just as data moves into the risk data mart. This best practice approach, which is based on the experience of multiple banks, eliminates the need to completely redevelop an in-house approach to data quality management for risk management. This, in turn, significantly reduces costs and the time required for risk controlling.

## The Bottom Line

Given the increasing regulatory pressures facing banks today, data quality is the top priority. The BCBS 239 principles make this clear. But it requires an established, standardized data quality process that is monitored, measured and continuously improved. This approach is not only essential to meeting regulatory requirements, but also for effectively running your entire bank. Because when you have quality data, you can generate reliable reports for better visibility, control and decision making.

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