

# Data Quality in Risk Management and Basel II

WHITE PAPER



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## Background

Poor data quality is endemic in every organization. Generally speaking, most organizations accept this as a day-to-day operational challenge and devise both simple and complex work-arounds to compensate for the data's shortcomings.

Organizations involved in financial risk exposures suffer from poor data quality, but nonetheless are able to function with apparent efficiency. For example, a recent Data Quality Assessment conducted by Informatica revealed that a particular bank had over €2 billion in corporate loan exposures without maturity dates.

This finding highlighted both poor data quality and poor business process. But while the results are shocking, such data quality did not seem to have affected the bank's business—up until the recent credit crunch. So in the past, the bank would not have prioritized this data deficiency. It would have deemed other issues more worthy of attention and budget. Now senior level executives recognize data quality as critical in supporting a range of banking reports.

Basel II is one of the major drivers of change within the banking world. Because it is used to assess risk, the underlying quality of the data is critical to being able to deliver a report with any level of confidence. Financial institutions are adopting Basel II not simply because it is a compliance directive but also because it is for many the embodiment of best practice.

## Regulations

Basel II (and particularly Pillar II of the Accord) puts responsibility on financial institutions in the area of data quality and data management. Banks must look at the accuracy of their risk exposure calculations throughout the entire business. For many, this encompasses the exposures from businesses in many different countries.

Regulators such as the Financial Services Authority/FSA (United Kingdom), the Federal Reserve (United States), and the Bundesbank (Germany) have made it a requirement that banks self-certify the accuracy, completeness, and appropriateness of Basel-critical data. Banks must now tailor their data management strategy to meet this requirement.

An example of the explicit requirements for data quality is highlighted in the FSA's application pack for internal ratings-based (IRB) approvals:

“Describe how the firm ensures that IRB (internal ratings based) data standards are met, and in particular how it ensures the accuracy, completeness, and appropriateness of the data underlying the firm's regulatory capital calculations.”

This criterion effectively moves data quality out of the “it-would-be-nice-to-fix” status into an issue that must be addressed to comply with banking regulations.

## Key Priorities

To become Basel II IRB compliant, banks need:

- Quantitative assessment of data quality
- Efficient business-specific strategies to cleanse data
- Key changes in business processes to maintain data integrity
- A framework to measure and manage data integrity on an ongoing basis

Banks need to establish quantified and documented targets and robust processes to test the accuracy of data in the following ways:

- Reconcile inputs and outputs of capital calculation with accounting systems
- Assign every exposure a probability of default (PD), loss given default (LGD) and, if applicable, a credit conversion factor
- Establish key risk indicators to monitor and ensure data accuracy
- Fully document processes for business and IT infrastructure
- Set clear and documented standards on ownership and timeliness of data
- Develop a comprehensive quantitative audit program

**Source:** FSA: CP 05/3 (January 2005) and BIPRU (section 4.2.5)

These new priorities require consolidated data collection across the institution, so that data from all business units is brought together into a single source, typically a data warehouse from which reports are generated for risk and Basel II related decisions.

## Data Quality and Basel II

Almost all leading banks have addressed these key priorities by investing in the data infrastructure: data warehouses, risk engines, business intelligence (BI) layers, and data integration software, such as Informatica® PowerCenter®.

But at no point in the data stream is data quality managed as an explicit function. Instead, it is dealt with by tools not designed specifically for the purpose. This is an important oversight because data quality is a vital intersection point of infrastructure and the business.

More importantly, data quality is an explicit requirement for Basel II compliance. This paper introduces Informatica's Basel II solution.

Scorecarding became a focal point for data quality in Basel II when the FSA's CP 189 proposed scorecarding as an external audit point.

Basel II qualification standards require a significant history of consistent, accurate and granular data within the credit management information systems.

### DELOITTES

#### **BASEL II DATA ACCURACY SCORECARDS**

##### **High standards of Data Accuracy**

We propose quantifiable targets to cover completeness and accuracy that will rise over time.

##### **Robust control and systems environment**

Firms are encouraged to develop automated data capture processes to safeguard the integrity of the calculation and reporting process with full and appropriate levels of documentation.

##### **Proposed standard**

A self-assessment data accuracy scorecard (DAS) that includes a mix of regulator and firm specified targets that can be assessed through quantifiable tests that we will agree with firms on an individual basis.

##### **Structure of Data Accuracy Scorecard**

We will set core targets that will apply to all firms. Firms will set supplementary targets and we will agree to these on an individual basis depending upon relevance to the firm. The tests that are applied will be firm specific and agreed with us.

##### **Scorecard will comprise prescribed areas, attainment targets and tests**

For example, 'completeness' is an area (all assets have to be captured), the target is 100%, and the test is reconciliation to the report and accounts.

##### **Financial Services Authority**

Informatica has successfully used this scorecarding approach to assist banks working within the jurisdictions of the following organizations:

- FSA
- Bundesbank
- Federal Reserve
- Securities and Exchange Commission
- IFRSA
- South African Reserve Bank
- Nederlandsche Bank
- Narodowy Bank Polski ...

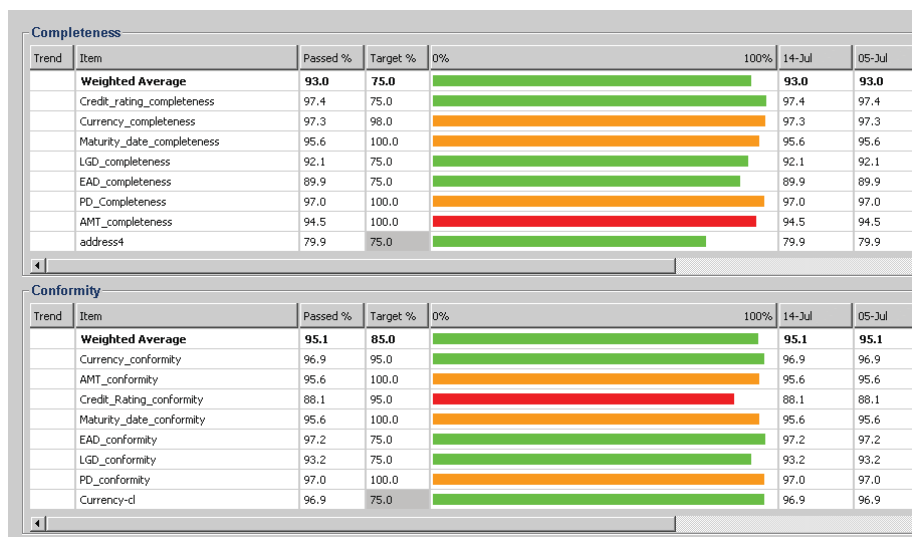


Figure 1: Sample Risk and Basel II Data Accuracy Scorecard.

## Data Quality Firewalls

Informatica has extended this compliance scorecarding approach to apply “data quality firewalls” in front of the risk engines, be they in-house ones or those from third parties.

The firewall’s main function is to identify poor data quality before it goes into the engine, which removes the requirement for manual data remediation on the risk engine’s log files and ensures that only high-quality data enters the risk engines.

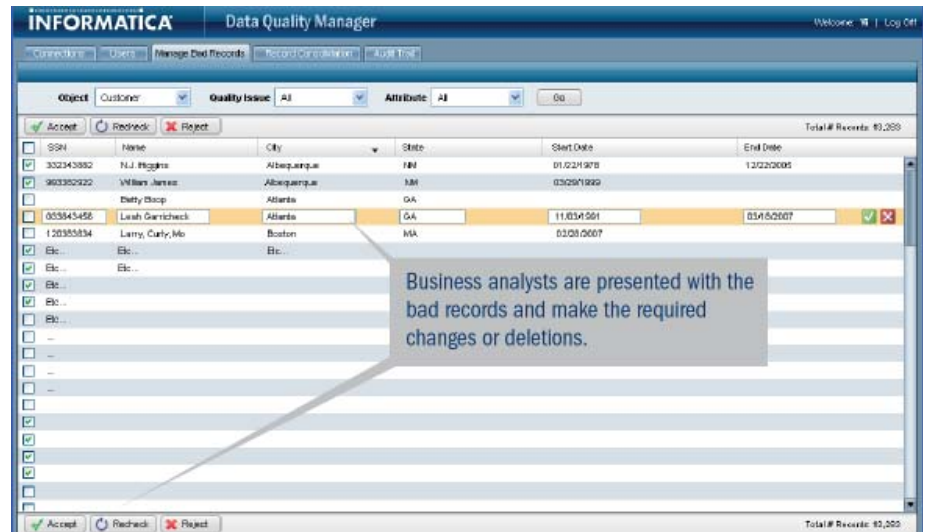


Figure 2: Bad Record Management

Firewalls perform both automated and manual tasks. For example, errors in nontransactional client reference data can be automatically standardized, cleansed, and/or enriched on the fly. Errors in transactional data are identified and presented to business analysts for rapid remediation (see Figure 2).

Informatica’s risk solution performs analysis on all types of master data:

- Customer and counterparty data
- Market and credit data
- Financial, reference, and transactional data

Therefore, this includes key data related to:

- Probability of default
- Loss given default
- Exposure at default

## Risk and Basel II DQ Management

Informatica solutions provide a data quality management framework that gives the business total assurance to:

- Manage data quality on an aligned and integrated basis, meeting best practice on legacy data management and new business development
- Measure and to monitor the data quality using:
  - existing and newly created internal reference data sources
  - third-party reference data sources
  - Informatica's own reference data
- Act on areas identified for improvement without threatening the quality of existing data
- Handle change requests and new developments without threatening the quality of existing data
- Empower the data owners and Risk/Basel II Analysts by letting them change the business rules themselves in a controlled and auditable manner
- Report in a consistent manner across business units and product lines
- Guarantee to senior management and the board the accuracy of the data being stored, being generated, and being used for decisions
- Match data against trusted reference sources for validation and enrichment
- Furnish consistency throughout new data management
- Monitor and cleanse, on an ongoing basis, gaps in data accuracy and identify incidences of nonconformance
- Deploy a data quality firewall ensuring that new data is consistent with the risk management and Basel II requirements
- Support data remediation, data stewardship, and data governance

## DQ Starter Pack: Risk & Basel II Management

Informatica's Starter Pack for Risk & Basel II Management allows users to benefit from our considerable experience.

It includes the following:

- Framework data quality rules in such areas as key attributes for:
  - Risk weighted asset calculation
  - Probability of default calculation
  - Exposures (dates, amounts, limits)
  - Obligors (dates, basic address)
  - Ratings (obligor and product)
  - Securitization

All of the rules are extendable for customer-specific requirements.

- A schema for BI vendor independent reporting that supports:
  - High-level aggregated data quality metrics for senior management
  - Drill-down by multiple dimensions
  - Detailed results, including indicators of potential loss on a per business rule basis

This pack has been designed to handle what is often the last part of a Risk and Basel II programme, namely data quality.

## Data Quality Basel II Regulator Submission Template

Informatica has worked closely with its clients when they make their Basel II submission to the regulator. Having done this a number of times, Informatica is pleased to be able to offer a submission template.

This framework document has been used successfully with regulators to help our clients achieve full advance IRB compliance.



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Figure 3: Basel II Submission Template Sample

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