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# Using Big Data Analytics for Financial Services Regulatory Compliance

## Industry Overview

In today's financial services industry, the pendulum continues to swing further in the direction of lower risk and higher regulation. Ever expanding and shifting regulations are constantly increasing the time and cost of regulatory compliance and reporting.  Dodd-Frank, BCBS 239/RDARR, and CCAR are just a few of the latest regulations causing additional stress to financial services institutions.

## Business Challenges

Each new industry regulation and associated deadline creates a wave on the corporate data lake. Consequently, banks must continuously improve their big data analytics to meet new reporting, data aggregation, and data governance requirements. For these reasons, compliance efforts and related analytical demands are consuming a larger percentage of financial services operational budgets.

Today's higher-performing banks are already using next-generation big data analytics based on Hadoop to deliver faster, deeper regulatory compliance analytics.  But big data analytics can also be a primary source of technology and business innovation. For example, best-of-breed big data analytics for compliance can help banks drive new insights and business improvement in areas such as customer and fraud analytics. By harnessing big data analytics for both compliance and improvements in core operations, banks can create leverage and spend efficiency across their business lines.

## The Analytic Challenges

The size, complexity, and continuous change that characterizes financial services data make regulatory compliance analytics a painful endeavor. Consider the many different major classifications of data, such as reference data, transactional data, operational data and security data. Each are managed by different teams and vary widely in terms of size, shape, and frequency of change. And with every new compliance requirement, banks may need to perform new analytics and reporting on specific subsets or super-sets of this data.

BCBS 239 requires that bank risk reports "include, but not be limited to, the following information: capital adequacy, regulatory capital, capital and liquidity ratio projections, credit risk, market risk, operational risk, liquidity risk, stress testing results, inter- and intra-risk concentrations, and funding positions and plans."  For most banks, achieving compliance when working with vastly different data sets is an incredibly painful and manual process. Traditional analytic approaches require lengthy cycles to process and analyze the large data volume – and supporting systems would likely crumble under the weight of it.  In addition, traditional approaches would not be able to handle the diversity of the data required for the analysis. And finally, fragmented analytic cycles would lead to long, expensive data pipelines that take months to implement.

## The Solution

This is where big data analytics can save the day. Modern, big data analytic platforms can manage and analyze extreme data volumes far more effectively and at a fraction of the cost of traditional approaches. They can easily integrate multiple, diverse data sources and analyze large volumes of data in minutes rather than months, dramatically reducing compliance analytic cycle times. And, big data analytics can also perform types of analysis that were previously impossible due to the sheer volume and diversity of the data and the complexity of the analysis involved.

Armed with a big data analytic platform, banks can:

- Reduce analytic cycles with an end-to-end self-service platform that allows analysts to iteratively run the complete analytic process

- Lower the cost of compliance reporting with a platform that fully leverages the power of Hadoop to speed processing time

- Find new ways to manage risk with new insights that are discovered in the data

- Have a flexible platform and analytic approach that can rapidly adjust to meet ever-changing requirements

# Datameer: Built to Handle the Complexities of Big Data

Datameer delivers a state-of-the-art big data analytic platform that can handle the analytic and architecture challenges of banking regulatory compliance.  It leverages the full power of Hadoop to analyze the large-scale data sets required, cutting processing times from days down to minutes.

The end-to-end, self-service platform allows analysts to perform the entire analytic process – from integration to visualization – thereby reducing analytic cycles from months to days.  It does all this while providing the enterprise-level governance needed to maintain the security, privacy and access control that banks require.

## Integration

The data required for financial services regulatory compliance is complex and stored in many different systems.  These include customer, transactional, operational, and reference data stored in relational databases, Excel spreadsheets, semi-structured XML message formats, legacy data warehouse systems and mainframes.

Datameer lets banks access and use all of their data for regulatory compliance analytics by providing more than 70 native data connectors. These connectors work with a multitude of data sources and formats for structured to unstructured data. Using Datameer's data management services, banks can apply specific date/time partitioning, scheduling, and retention policies. For example, if the analysis only requires options transactions from the last 6 months and needs to be run weekly, Datameer's policies can set up to support that scenario.

## Preparation and Analysis

The analysis of data across these varied data sources requires analysts to prepare the data to ensure data quality, consistency, accuracy and completeness.  For example, source trading systems data will vary by data schema, file format, geography, currency and other characteristics.  With Datameer's instant visual profiling, it's easy to identify and correct these issues to enable proper analysis.

Datameer's analysis interface uses a familiar, Excel-like spreadsheet interface with over 270 prebuilt formulas and support for multi-source, multi-view and multi-step data pipelines. Analyses can easily be completed by one group and then passed on to other groups that rely on the data as a component of downstream analysis – all while maintaining a single, trusted source of the data.

With Datameer, credit risk metrics related to a specific set of products and analyzed by one team can be completed in one workbook and then used downstream by a team responsible for consolidated credit risk metrics across the entire set of bank products. Once defined, this entire data analysis pipeline can be automated via job scheduling and workload management that can be tailored to each specific data set. Complete data lineage can also be viewed within the tool or extracted via the REST API for easy reporting and auditing of the full pipeline of data ingestions, transformations and calculations.

## Visualization

Once data is analyzed, compliance officers, business analysts, and technology analysts can visualize the results using infographics. Datameer offers 30 visualization widgets for creating multi-page infographics that can be viewed within Datameer or embedded in any application or web page. For example, it's easy to visualize CCAR-related analytics showing the graphical and tabular results of bank-wide stress tests and share them with regulators around the world.

# Datameer in Action: Enhancing Regulatory Compliance

As the following customer use cases illustrate, leading financial services institutions are using Datameer's end-to-end self-service big data analytics platform to achieve regulatory compliance and enhance their broader analytics efforts.

## Basel III Compliance

Using Datameer, the data quality initiative team at a leading retail bank analyzes trillions of records, resulting in approximately one terabyte of reports per month. Team members used Datameer to create a data quality dashboard and posted the results of the analysis to ensure accuracy of regulatory compliance reporting.

In the past, the bank used Teradata and Netezza to build data-marts and analyzed data quality using a SAS application. The process was time consuming and complex. Moreover, the data-marts couldn't provide the data completeness required for determining overall data quality.

In contrast, with Datameer, they were able to reduce the time it takes to determine the impact of the data on risk metric calculations and accelerate time to market for their risk analyses. The bank has dramatically reduced the time it takes to analyze hundreds of data attributes and terabytes of data.

## BCBS 239 Compliance

A leading investment bank uses Datameer to satisfy the data quality and accuracy principle of the Risk Data Aggregation and Risk Reporting (RDARR) requirement.  Data from upstream systems are used to calculate metrics, and indicators related to all forms of risk are consolidated into Datameer and analyzed against reference data sources.

With Datameer, I am more confident in our ability to answer, 'Where did that number come from?' I can sleep easier at night — and my whole team can sleep easier — now that we are better prepared for the RDARR audit come January (2016)."

Data accuracy metrics on each field are then calculated and passed to an external dashboard owned by the risk chief data officer.  When accuracy is questionable, risk business analysts can easily investigate the details using Datameer and perform root cause analysis. In this way, Datameer helps this bank meet the data accuracy levels needed to stay compliant with BCBS 239.

Datameer's big data analytic platform provides the right combination of power, speed and flexibility required to successfully navigate the unpredictable waves of financial services compliance requirements. Learn more about our work in financial services or sign up to attend a live demo today.

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