Note

RC-Loan Portfolio Analytics System

Risk Control's RC-Loan Portfolio Analytics System implements core risk methodologies for evaluating the risk in fixed income portfolios comprising loans, bonds and hedging instruments such as interest rate swaps. The methods provided include

1. Asset-Liability Management (ALM) including interest sensitivity computations, duration measures and cash flow gap analysis. Based on these, users can devise suitable Treasury limits for portfolios or sub-portfolios.
2. Expected Credit Loss (ECL) computations as a basis for rigorous provisioning

The calculations may be performed within a stable and secure, server-based application in which groups of users work together on common datasets or may be accessed by users working with Excel employing Risk Control's proprietary Function Server functionality.

RC-Loan Portfolio Analytics System Features

-   Industry-standard valuation pricing and interest sensitivity routines applied to each loan and IR derivative in the portfolio
-   Flexible stress tests for shifts in term structures and other parameters
-   Aggregate and sub-portfolio DV01 statistics
-   Provisioning calculations at loan, portfolio and sub-portfolio levels
-   Analytics also accessible to analysts working in Excel via function server
-   Cash flow gap analysis over different horizons
-   User groups with access to different underlying data and calculation histories
-   All past calculations retained in the database and subsequently accessible
-   Reports containing multiple analyses can be distributed on an automated basis via email
-   Convenient multilingual interface

RC-Loan Portfolio Analytics facilitates the activities of quant teams working on the Interest Rate Risk (IRR) management of large loan portfolios using interest rate derivatives. Key IRR risk statistics are generated that may serve as the basis for Treasury limit setting. Cash flow gap analysis may be employed to assess the liquidity implications of the portfolio including funding instruments. Finally, ECL calculations are performed that may serve as the basis for provisioning decisions.

These quant analytics are delivered in a user-friendly manner through the Graphical User Interface (GUI) and may be exported to CSV or Excel files. The system is designed for cooperative working by teams with support for 'public analyses' for which inputs, assumptions and outputs are visible to other group members. 'Private analyses' only visible to the user in question are also supported.

The software offers the large majority of the functionalities supported by the application as REST web services. These services may, then, be accessed by other systems on the same network. It is easy to create Excel clients that access these web services and, hence, offer the powerful, server-based calculations through commands in Excel.

The application is well-suited for environments in which audit and storage of results is key since the results of individual analyses are retained in the application database and may be accessed subsequently. This is both convenient for the analyst in question but also advantageous from a process and internal audit perspective.
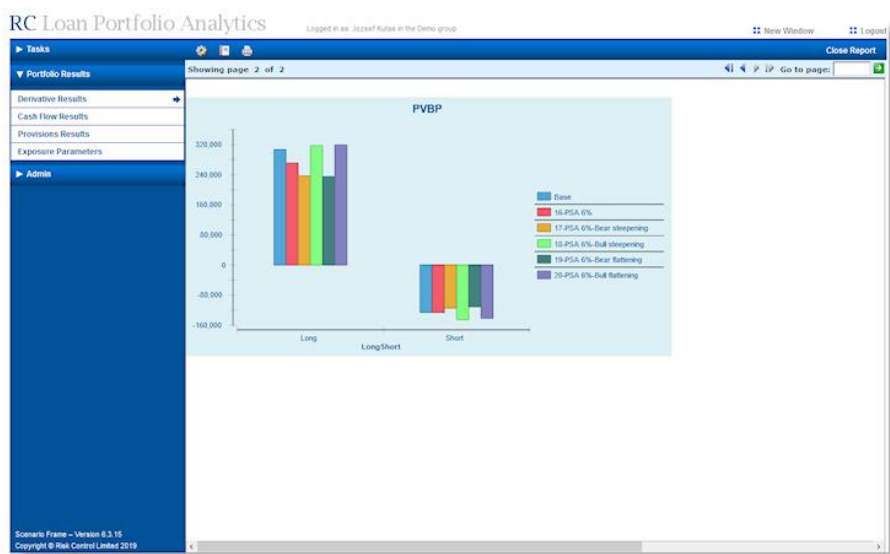
Technical Information

RC-Loan Portfolio Analytics System is a Java-based JEE application. It is compatible with a wide variety of execution environments, including:

- Operating systems: Linux, Windows
- Application servers: Tomcat, Weblogic, WebSphere, JBoss
- Databases: Oracle, Sybase, SQLServer, MySQL

The web-based interface is built upon a lightweight JEE framework promoting systems consisting of loosely coupled components. The application can be deployed on a variety of JEE application servers, including Tomcat, Weblogic, WebSphere and JBoss.

While the application can run in a JEE container and uses aspects of the JEE specification (in particular JSP), it does not use Enterprise Java Beans (EJB). Business logic is implemented with plain java classes (POJO's), with a Spring Bean abstraction, for easy customization and adaptation. The database is accessed through the JDBC interface.

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