

ORACLE RISK MANAGER

GREATER BUSINESS INSIGHT

AN ENTERPRISE SOLUTION

- Integrated with the Oracle's financial services applications
- Scalable for any size organization
- Multidimensional modeling
- Open to data from any source
- OLAP reporting capabilities

Oracle Risk Manager is an asset/liability management application that employs account-level data to support structured interest rate risk analysis, balance sheet forecasting, and market valuation. It measures and models every loan, deposit, investment, and portfolio individually, using both deterministic and stochastic methods. As an integrated component of the Oracle financial services applications, Oracle Risk Manager works with Oracle Transfer Pricing and Oracle Budgeting and Planning to deliver a comprehensive decision management solution that dramatically enhances risk management, customer relationship management, budgeting and planning, and performance measurement functions.

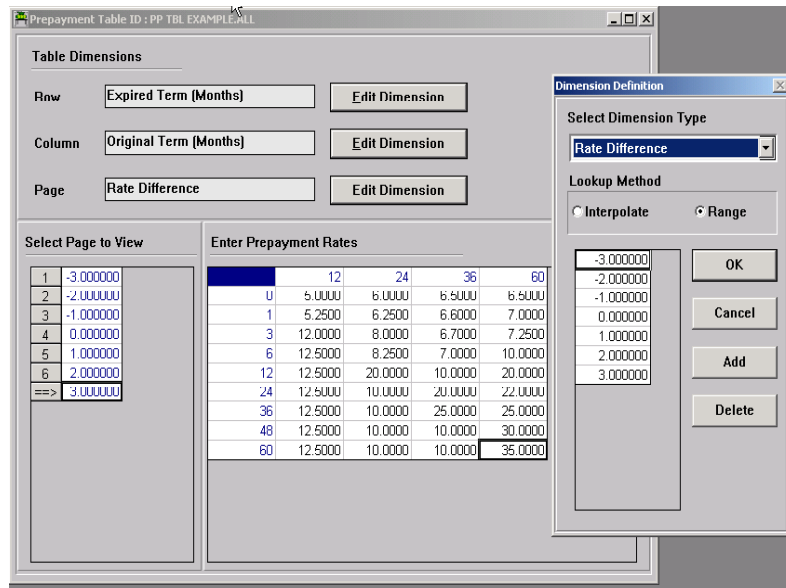


Figure 1 Specifying assumptions about prepayment rates for individual financial instruments

Controlling the Complexities

Enterprise risk management is the goal of most treasury departments today. To consolidate the management of risks, the department must have a consistent framework for gathering data, measuring risks, monitoring changes, and acting on decisions.

Oracle Risk Manager meets these challenges. The Oracle data model provides a repository for account-level data, capturing true instrument characteristics. These

characteristics drive the modeling of individual accounts. Assumptions about ongoing business activities are stored independently to separate today's risks from tomorrow's actions. In the process of simulating future activity, over 70 financial measures (financial elements) are produced for every item on your balance sheet.

Oracle Risk Manager provides tools to meet all your risk management goals, including value-at-risk (VaR), earnings-at-risk (EaR), market value, income simulation, and gap. You control the levels at which results are aggregated, both in terms of the time frequency (modeling buckets) and the product categorization.

Multicurrency

Oracle Risk Manager provides features that address both the operational and analytical complexities of multicurrency. You can define unique structural product characteristics, pricing methods, valuation, and new volume activity for every product and currency combination. To measure balance sheet sensitivity to currency fluctuation, you can attach exchange rate scenarios to interest rate forecasts in all scenario-based processes. Oracle Risk Manager also provides a series of conversion calculations to adjust to an internally consistent value, irrespective of the initial quote basis. These rate conversions adjust for yield or coupon format, as well as different compound bases and accrual bases.

Wealth of Output Information

Oracle Risk Manager calculates and stores a variety of financial risk indicators:

- VaR, EaR, and probability distributions
- Static and dynamic market value
- Static and dynamic gap
- Income simulation

The system captures a wide range of information, from the VaR of your entire organization to the detailed daily cash flows on a single account. Income cash flows are available on an actual as well as a transfer pricing basis for up to nine predefined rate paths. Gap results include principal runoff, repricing runoff, interest cash flows, and interest accruals.

Oracle Risk Manager uses the strength of the Oracle 10g database and Oracle's state-of-the-art OLAP technology to manage the information. The system supports ad hoc reporting and analysis as well as standard monthly management and regulatory reports. Oracle Risk Manager controls the detail of the output information by showing you the big picture as well as drilling down to reveal the impact of individual products on your risk profile.

Rigorous Calculations

Oracle Risk Manager is designed to operate on transaction-level data, using Oracle's highly accessible and flexible financial data model. For faster processing, you can implement a customized aggregation of individual products. Each account, as well as all forecasted new-business activity, is modeled independently on a daily cash flow basis.

Oracle Risk Manager generates market valuations of instruments with embedded options, VaR projections, and EaR projections with a highly tuned Monte Carlo simulation process. Within a Monte Carlo process, you can choose one of four term structure models, including Vasicek, Extended Vasicek (Hull and White), Merton, and Ho and Lee. State-of-the-art modeling techniques have been integrated into this process. The Monte Carlo engine prepares the risk-free curve, using a complex cubic spline-smoothing technique. For no-arbitrage models, the Monte Carlo engine constructs a Hull and White trinomial lattice for yield-curve calibration.

To optimize performance, random number generation methodologies are enhanced with low-discrepancy sequence techniques. This advancement from crude Monte Carlo enables you to improve time to convergence by a factor of 10 to 1 on average, while still maintaining the proper distribution of results necessary for at-risk analysis.

Rather than requiring you to specify a single confidence level, the VaR and EaR calculators provide a complete value probability distribution over the specified “at risk” period for individual portfolios as well as for the entire balance sheet. If desired, system-generated rate paths are created and analyzed to better explicate the riskier scenarios.

Unique payment and repricing characteristics, captured directly from the data, can be modeled exactly, including

- Unlimited repricing frequencies
- Caps and floors, both absolute and incremental
- Rate lags and minimum rate change requirements
- Teased loans
- Arrears and advance payments
- Compounding and interest credited

The model supports a wide range of amortization and repricing methods, including

- Derivatives, including caps, floors, swaps, and FRAs
- Negative amortization mortgages
- Irregular payment and repricing schedules on, for example, agricultural or construction loans
- Deferred principal and other irregular payment frequencies
- Conventional loans
- Step-up loans
- Balloons
- Bullet instruments

Oracle Risk Manager models servicing rights, both for retained servicing rights and sold servicing rights. Accurate treatment of premiums and discounts are modeled at the account level as well.

Flexibility in Process Management

One of the most important aspects of a cash flow model is the data integrity. Many models “assume away” data issues, severely restricting the level of accuracy available from the model. In Oracle financial services applications, you control data massaging directly, so correction of inconsistent data can be tailored to your specific product characteristics.

Calculations on today’s balance sheet are processed and stored independently of new origination modeling. The separation of current position results from forecast assumptions enables analysis of the new-business impact on the balance sheet, comparison of various business strategies, and quick turnaround when assumptions change.

Cash flow and gap modeling results are accumulated in daily, monthly, or yearly buckets to meet a variety of modeling needs, including liquidity and cash management tasks. Oracle Risk Manager processes data at any level required, from the entire balance sheet to targeted portfolios defined by filtering on specific instrument characteristics.

Flexibility in Assumption Management

Built-in models are designed to meet the needs of a variety of products and markets, which provides a truly international solution.

All Oracle Risk Manager assumptions are completely separate from the detailed data. Each assumption is saved as a separate, distinct dataset called an “ID.” You can create an unlimited number of assumption IDs to provide a comprehensive review and thorough understanding of all likely rate risk situations.

A multifactor prepayment model can be specifically tailored to vary with up to nine modeling and instrument characteristics, including seasonality, age, rate, and repricing information. You have complete control of complex calculations, including choice of term structure model, term structure parameters, use of quasi-random number generators, and smoothing techniques. New-business assumptions are defined and processed independently of current holdings, and their results stored separately.

Reliable Verifiable Results

Calculation engines are common among all components of Oracle Risk Manager and are integrated with other modules within Oracle’s financial services applications. The cash flow engine that is used to produce income simulation and gap results is also used during Monte Carlo simulation, cash flow transfer pricing for Oracle Transfer Pricing, and budgeted cash flows for Oracle Budgeting and Planning. Using the same cash flow engine provides consistent and verifiable results that are difficult to capture in any other model on the market today.

Auditing capabilities within all modeling engines enable you to drill down to truly understand the model’s behavior. The cash flow engine allows detailed cash flows to be output for any individual account. You can output forecast exchange and interest rates. Similarly, the Monte Carlo rate generator allows each individual rate path to be output and saved to the database. You avoid the “black box” feel of many models

because you can explore and verify the details whenever necessary.

Ultimately, results analysis in asset/liability management is best presented at the highest practical level. To get behind that high-level analysis, you need very detailed reports. That is why Oracle Risk Manager enables you to customize hierarchical roll-ups of your chart of accounts.

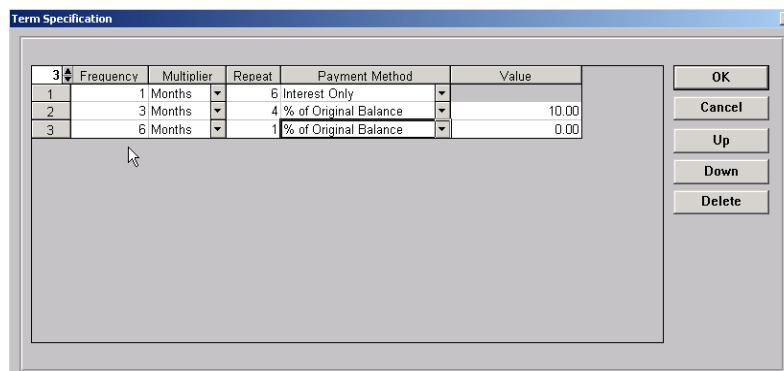


Figure 2. Defining payment characteristics for products with nonstandard amortization profiles

Architecting the Right Solution

Oracle's financial services applications are integrated solutions based on "industry best practices" components. Solutions can be assembled with confidence because you know that all the pieces fit together: data, analytics, business rules, hierarchies, and reporting. Although it was designed to be delivered on an integrated basis, each of these product components can

- Stand on its own as a best-of-breed solution
- Undergo implementation in any order and on either a simple or sophisticated basis
- Support ongoing evolution of analytical methodology

Oracle's financial services three-tiered architecture is also designed to take advantage of emerging network technology. While using Oracle's financial services applications, you can choose where and when to process results, based on your combination of business processes, data volumes, and technology infrastructure.

The core strengths of Oracle Risk Manager—its scalability, ability to accept data from any source, trustworthy results, multidimensional reporting, and sophisticated analysis capabilities—enable you and your organization to understand and then act upon the knowledge to deliver real results.

Product Modeling

- Standard and customizable repricing types
- Standard and customizable amortization types
- Account-level deferred income recognition
- Complex interest calculations

KEY FEATURES**ORACLE RISK MANAGER**

Oracle Risk Manager is designed to take you beyond traditional asset/liability management. It is a proven solution that can be deployed in any size organization and in any geography.

RELATED PRODUCTS

Oracle's financial services applications include

- Oracle Performance Analyzer
- Oracle Transfer Pricing
- Oracle Budgeting and Planning
- Oracle Financial Data Manager

RELATED SERVICES

The following services are available from Oracle Consulting:

- Implementation engagements
- Modeling analysis and solution prototyping
- Migration assistance

- Modeling of off-balance sheet instruments
- Modeling of securitized loans

Prepayment Modeling

- Instrument level prepayment assumptions
- Modular, reusable prepayment tables
- Optional seasonality adjustment factors

Multicurrency

- Currency dimension in current balance sheet and assumptions
- Exchange rate forecasting
- Currency gain/loss calculations
- Detailed and consolidated results

Earnings at Risk

- Provides a more comprehensive view of income sensitivity
- Maintains a balanced balance sheet in all future time periods
- Aggregates results with different levels of detail
- Includes sophisticated yield curve smoothing techniques
- Provides a choice of term structure models
- Includes automatic calibration of no-arbitrage models
- Includes formula-based rate indices
- Includes optimized random number generation

Market Value

- Deterministic and stochastic valuation techniques

Dynamic Market Value

- Define unlimited forward valuation dates for deterministic valuation of balance sheet

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