

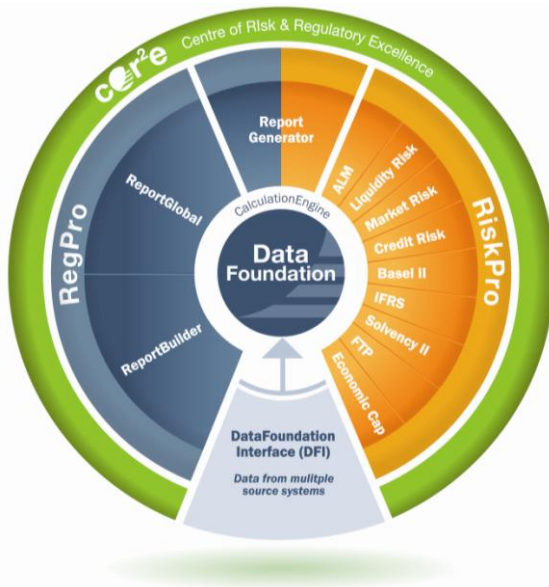
## Solution: Asset & Liability Management (ALM)

local knowledge global solutions

This datasheet describes the FRSGlobal RiskPro Asset & Liability Management solution

### Introduction

As a result of the credit crunch, the global financial services industry is faced with increased and more complex regulation and a call for better risk management so that the market may be renewed and become stable. Better data management will provide better **internal** management and detailed reporting for the Board as well as information that is critical to the growth and stability of the global market to the **external** Regulators.



The FRSGlobal solution range

FRSGlobal provides global risk and regulatory compliance solutions on a unified platform through a combination of modules from **RegPro** and **RiskPro** - all fully supported by the FRSGlobal Centre of Risk & Regulatory Excellence (CoR<sup>2</sup>E).

- The **RegPro** modules are designed to meet global regulatory reporting requirements
- The **RiskPro** modules are designed to meet risk management and profitability analysis and operational risk requirements
- FRSGlobal solutions share a unified platform with DataFoundation risk and regulatory data repository, and CalculationEngine for complex calculations.

### RiskPro

**RiskPro** provides unified risk and profitability analysis. It covers a broad scope and depth of financial analysis, ensuring consistency of results and reducing the cost of analysis.

**RiskPro** has extensive financial product coverage, from saving accounts, complex loans, insurance instruments to exotic options and structured products.

**RiskPro** covers value and exposure analysis for all types of methods (fair value, nominal, NPV, observed value, amortised cost, various discounting methods etc), duration, key rate duration, sensitivity measures, various types of gap analysis, price and volatility shift, and VaR (parametric, historical simulation, Monte Carlo).

**RiskPro** solutions provide the user with the power of dynamic simulation – which allows evaluating potential decisions in a “*what-if*” environment, and as a consequence enables highly quantified strategic decisions to be made with confidence.

Risk management solutions can no longer exist in silo form – risk management and regulatory reporting is interlinked – effective risk management will recreate the stability that the market needs to recover and to sustain its growth

For more information on the FRSGlobal risk solution – visit [www.frsglobal.com](http://www.frsglobal.com)

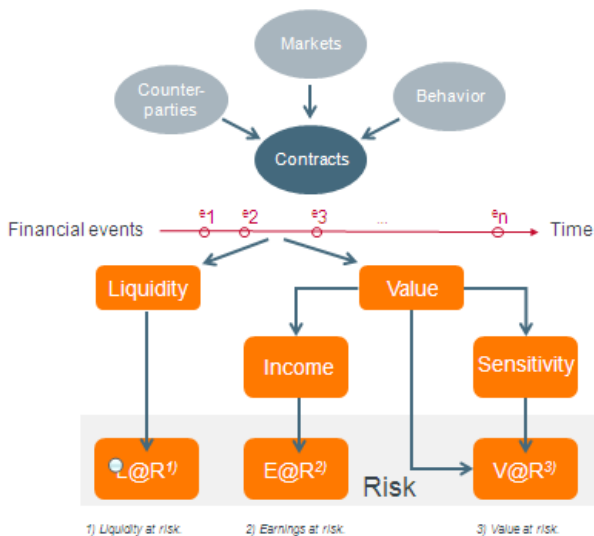
## Business issue

Volatile global markets, proliferation of new financial products and changing regulatory environments have made Asset Liability Management (ALM) a critical function for banks and financial institutions today.

It is therefore becoming increasingly important to asset and mitigate the adverse value and income impact of changes in the market risk factors, namely interest and foreign exchange rates, that arise from the maturity and risk transformation process, in order to earn an adequate return.

## What is Asset Liability Management?

Risk feeds into every contract and service of a financial institution. The risk drivers are markets, counterparties and behaviour.



ALM is the management of the combination of risks occurring because financial institutions are exposed from both the asset and liability sides. ALM uses risk management techniques that are designed to quantify the gaps between asset and liability allocations and the ability of the financial institution to earn an adequate return.

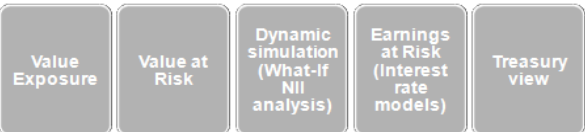
## FRSGlobal RiskPro ALM solution

The **FRSGlobal RiskPro ALM solution enables** firms to create a comprehensive assessment of value exposure and income sensitivity using a dynamically modelled balance sheet taking both the strategy elements of the organisation and the behaviour of its customers into account.

The value and income impact is captured in an integrated analytical framework, based on deterministic and or probabilistic market scenarios, as well as common pricing models.

**RiskPro ALM module provides the following functionality:**

### Asset Liability Management (ALM)



- Value exposure / market risk (static)**  
 for a consistent and comprehensive assessment of the adverse value impact of changes in market risk factors based on common pricing models using gap analysis and analytical/numerical stress testing analysis
- Value at risk / market risk (static)**  
 to calculate the loss potential of a specific portfolio or the total balance sheet over a given time horizon and confidence level
- Dynamic simulation ("what if" NII analysis)**  
 to assess and manage income, using a dynamically modeled balance sheet and market environment
- Earnings at risk (interest rate models)**  
 to calculate the potential to lose income, and to value it in a dynamically modeled balance sheet and market environment.
- Treasury view**  
 to assess the exposure and risk position of Treasury, using the risk management techniques applied by the firm

**Value exposure / market risk (static)**

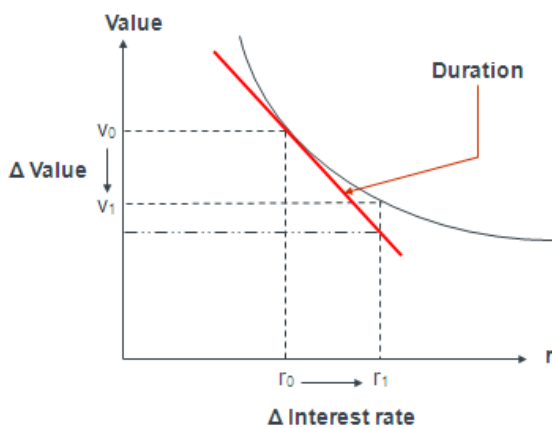
FRSGlobal RiskPro ALM provides advanced gap and exposure analysis including full flexibility for stressing market risk factors, namely prices and volatilities.

The following gap analysis is available:

- **Sensitivity gap** enables user defined bucketing of sensitivity cash flows and the representation of the bucketed sensitivities in a marginal, cumulative and residual view.
- **Tenor gap** splits the sensitivity cash flows on defined tenors in a way that the original sensitivity is preserved. The tenor gap is the instrument for treasury to quickly identify hedging requirements and possible hedges.

Exposure analysis allows pricing and sensitivity analysis of contracts. RiskPro has incorporated the Discounted Cash Flow model (DCSFM), the Capital Asset Pricing Model (CAPM) and a broad range of option pricing models including Black-Scholes, Schwartz and LMM.

Delta values can either be derived analytically from sensitivities or numerically from re-valuation of the contracts under any type of stress scenario.



**RiskPro is the ideal platform for stress testing market risk factors and volatilities.**

- **Price shift analysis** allows definition and analysis of the impact of stressed risk factor prices on value at any level. Stresses can be defined at the level of a risk category (FX, interest rates, equities or commodities) or at the level of a single risk factor (i.e. prices and

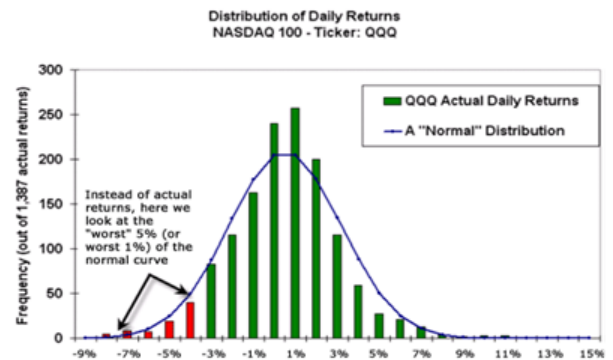
volatilities) as a deterministic additive to the current prices of risk factors.

- **Volatility shift analysis** allows definition and analysis of the impact of stressed volatilities on value. Stresses can be defined at the a level of a risk category or at the level of a single risk factor as a deterministic additive to the moneyness adjusted or unadjusted volatility of risk factors.

**Value at risk / market risk (static)**

FRSGlobal RiskPro ALM provides extensive Value at Risk analytics covering all kinds of methodologies with a full decomposition of the measures in respect to risk categories and single risk factors. The VaR and shortfall risk are expressed against the current portfolio value and/or the mean value of the distribution.

Full flexibility exists for defining the holding period and confidence level of calculations with a full drill down to the scenarios of the configured quantile of the distribution.

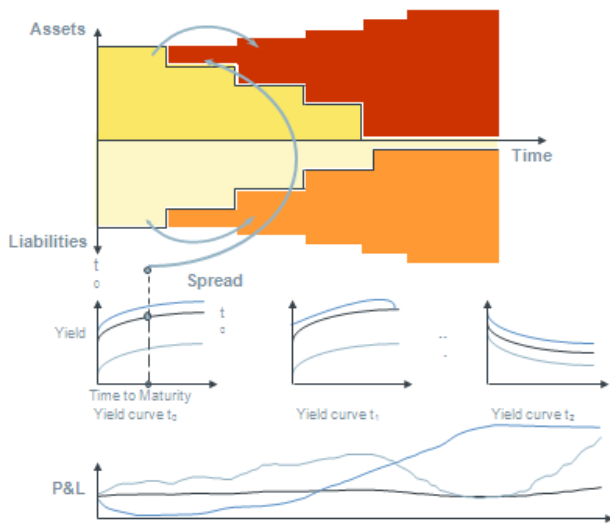


The following VaR methodologies are available:

- **VaR parametric** based on the RiskMetrics™ matrix structure
- **VaR Monte Carlo:** based on Monte Carlo simulated market price distributions
- **VaR historical simulation:** based on historical market price and volatility observations
- Backtesting of VaR is based on hypothetical and/or observed price changes of contracts.

**Dynamic simulation (“what if” NII analysis)**

FRSGlobal RiskPro provides extensive ALM functionality that allows easy to use modelling of the future balance sheet in respect to business strategies and customer behaviour, and the impact on value and income.



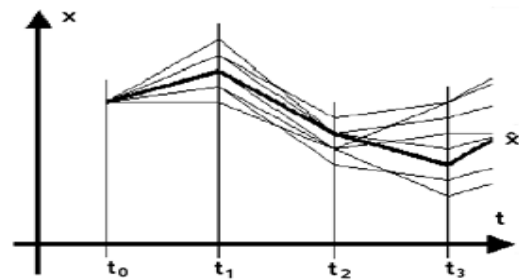
- **Market price / risk factor evolutions** are explicitly defined paths of market price and volatility changes. The evolution of these elements can be based on deterministic delta value evolution using a generic trend in the base elements or can be configured as a deterministic scenario.
- **Business strategies** are defined per entity, business line or product and include growth strategy, instrument-mix and spreads/ pricing. Deterministic and contingent business strategies can easily be defined based upon pre-configured elements or using a highly flexible expression framework
- **Behavioural simulations** are defined per entity, business line or product and include the prepayment and drawing behaviour of customers/counterparties. Deterministic and contingent behaviour can be defined based upon pre-configured elements or using a highly flexible expression framework.

- **Roll-overs / Reinvestments** define how existing business which matures during any step of the simulation is rolled-over. The roll-over's can be configured as a contingent or a deterministic element in dynamic simulation.

Cost elements can be incorporated in the dynamic modelling of the balance sheet.

**Dynamic simulation (“what if” NII analysis)**

FRSGlobal RiskPro ALM provides full flexibility in modelling stochastically the evolution of market prices or risk factors over time based upon pre-configured models, for example Ornstein-Uhlenbeck, and other models using a highly flexible expression framework.



**Treasury view**

FRSGlobal RiskPro provides full flexibility in assessing treasury portfolios using all of the above mentioned analysis methods including the assignment of opportunity rates. The rate assignment incorporates advanced methodologies such as the par rate method taking into account for example amortisations and capitalisation.

This component is the ideal element to support the assessment of treasury performance.

For more information visit [www.frsglobal.com](http://www.frsglobal.com)