





East Africa Webinar Series: Risk Based Loan Pricing







East Africa Webinar Series

Episode 1 Thursday, 2 July

12:00 BST | 14:00 EAT

Navigating Credit Risk & Expected Losses: COVID-19

Episode 2 Thursday, 9 July

12:00 BST | 14:00 EAT

Classification and Stage Allocation of Financial Instruments Under IFRS 9 Episode 3 Thursday, 16 July

12:00 BST | 14:00 EAT

Risk Based Loan Pricing

Speakers

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Metin Epozdemir, CFA – Risk and Finance, **Moody's Analytics**

Agenda

- 1) The current pricing framework adopted by Financial Institutions in Kenya
- 2) Best practices in Risk Based Loan Pricing
- 3) IFRS 9 impact on the loan pricing methods
- 4) Example of a loan pricing model practical application
- 5) Q&A



COVID-19

Insights for the Banking Industry

WEBINAR

The Essence of Risk Based Pricing

- It is at the core of the broad market-based economic policy thrust in place from the early 1990s.
 - Markets determine prices based on demand and supply dynamics;
 - Regulatory framework ensures that price determination is underpinned by competition dynamics that do not disadvantage consumers:
- Prices reveal market conduct.
 - The setting up of agencies such as Competition Authority of Kenya (CAK) in 2010 is informed by the need to promote and protect "effective competition in markets and preventing misleading market conduct".
 - The subject of market power and competition generally, and market dominance and competition in particular is at the core of price setting behavior – this was the motivation of a two-phased study by CAK in 2014 on the Kenyan banking industry (see report: https://www.cak.go.ke/sites/default/files/Banking%20Sector%20Phase%20I%20Market%20Inquiry-min.pdf)
 - Findings:
 - (a) Kenyan banking industry is generally competitive
 - (b) The widely held concern that high lending rates and high interest spread are as a result of the market power of dominant banks has not been substantiated by this study and is probably misplaced.
 - (c) The regulation of lending rates, or interest rate spread is thus not justified by competitive concerns or the market structure.

Credit Pricing – The Popular Implicit Assumption

- The interest rate capping law of August 2016 that lasted until November 2019:
 - Implicitly assumed that cost is the more binding constraint than access; indeed
 assumed that the two aspects can be disentangled 'manage the cost and access
 will take care of itself',
 - Implicitly embeds as assumption of uniformity of the risks of borrowers,
 - Implicitly assumed away the linkages between the various financial markets:
 - The link between the money market (whose price is regulated through the capping) and the foreign exchange market (freely floating), and the two markets to the equities market.
 - Implicitly ignored the adverse implications on the CBK's monetary policy conduct, oblivious of the fact that the monetary policy framework is price-based (not quantity based).

The Banking Industry Charter

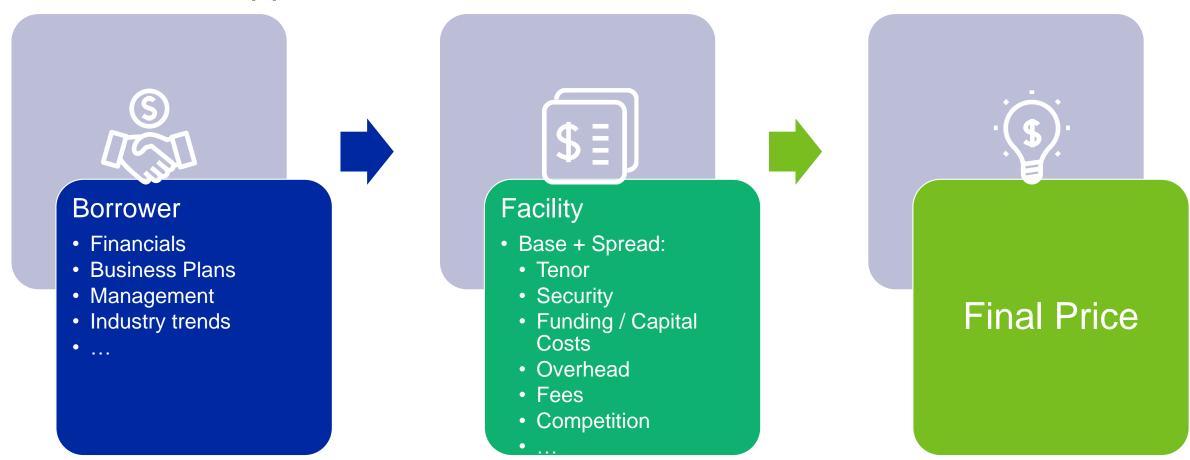
- Effective from 1st September 2018.
- Risk-based pricing is one of the pillars.
- The others are:
 - Adoption of customer-centric business models by banks;
 - Enhanced transparency and information disclosure; (e.g. the APR);
 - Entrenching an ethical culture in banks doing the right thing.
- The intention of the charter:
 - Promote fairness in lending;
 - Embed transparency in business practices;
 - Promote financial access (enhanced usage);
 - Promote financial literacy.

Perspectives on Risks – Returns Pricing Mechanism in the Kenya

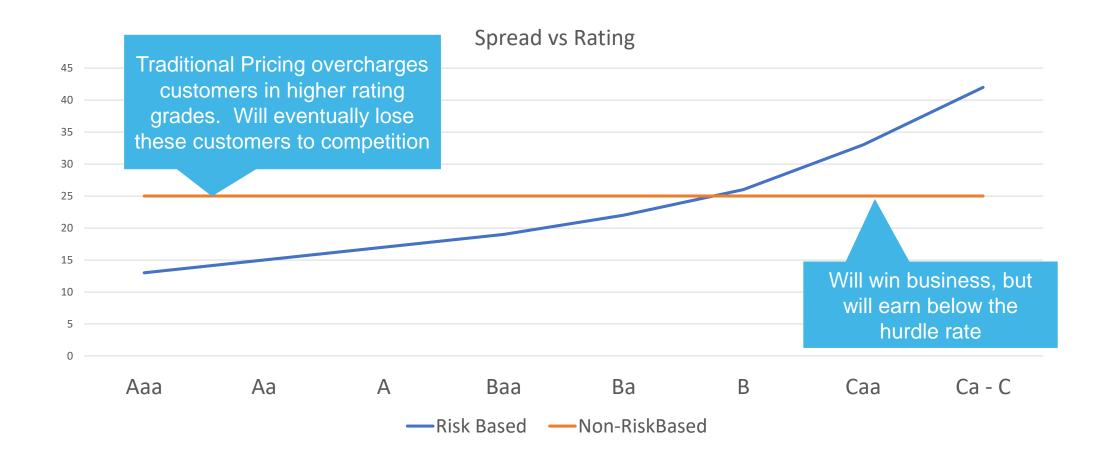
- Conventionally, a positive risk-return relationship is to be expected. However, in Kenya the relationship between bank returns and risk indicate mixed results (based on a KBA study published in 2017 (working Paper No 21):- https://www.kba.co.ke/downloads/Working%20Paper%2021.pdf).
 - When risk is measured as the volatility of returns, it has a positive and significant effect on commercial banks' returns.
 - When risk is measured as the moving average probability of default, risk has a negative though insignificant effect on bank returns.
- It would be expected that sectors that exhibit relatively higher risk profiles attract premiums on the respective lending rates but this doesn't seem to be the case.
- Past returns have a significant and positive effect on the returns that a bank will receive in the current period.
 - This suggests that banks may be relying on previous returns to determine the price of their loans.
- Sectoral credit expansion affected by returns and risk. But, while the pricing effect is not as sensitive to the risk profile of the respective sectors, credit allocation to the sectors is highly risk sensitive.
- If risk assessment leans more to credit allocation than to risk pricing, and credit information sharing (CIS) mechanism leans more to credit decision than credit pricing, then the market needs to start developing systems of transiting to where pricing meaningfully reveals business conduct.

Traditional Credit Pricing Methodology

Cost + Profit Approach



Traditional vs Risk Based Credit Pricing



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Risk Based Loan Pricing

Risk-Based Pricing Accounts for Volatility

Additional Margin: Represents the target return on equity, i.e. the new rate of return expected by shareholders. Guided by economic fundamentals and the long term sustainability of the institution.

Capital Cost: The product of hurdle rate and capital. Capital is the unexpected loss that an institution may suffer

12

Expected Loss: The expected loss that institution will suffer. The product of Probability of Default, Loss Given Default, and Exposure of Default

Operating Costs: Includes indirect cost/overheads and statutory costs such as deposit insurance premium, case reserve requirements, opportunity cost of holding liquid assets in excess of minimum requirements, and the cost of holding non-earning assets (Cost ratio * Income)

Funding Costs: Represents the interest expense related to the monthly average volume of deposits and other funds reported to the regulator on a monthly basis

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Metrics for Performance and Value

Accounting for Risk in Loan Pricing



ROA Return on Assets

Net Income (after LL provision) / Book Value of Asset Used historically to measure investment performance, does not account for risk.

ROE Return on Equity

Net Income (after LL provision) / Equity Capital Hard to determine it for each loan / business line, does not account for risk.

EVA Economic Value Added

Expected Return – Cost of Capital Only excess return over cost of capital is considered; risk is not considered

RORAC Return on Risk Adjusted Capital

Total Return / Allocated Capital Compares Gross Return to Risk Capital. Can be used to choose between investments with similar return / cost allocation, but different risk profile.

RAROC Risk Adjusted Return on Capital

Total Return – EL – FTP – Op. Cost / Allocated Capital Most widely used measure, supports risk-return trade-off and bank-level portfolio optimization. Used to choose between alternative investments as it considers both risk and return

Impact of IFRS 9 on Loan Pricing

Risk-Reward Trade off



- Expected Losses/Returns only tell half the story
- » Risk in terms of variance or volatility of returns is a key parameter in asset allocation and pricing decisions
- Introduction of IFRS9 brings returns volatility in center stage
- Stage allocation criteria, the state of the credit cycle and the macroeconomic outlook are all expected to impact on the losses volatility

14

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Risk Based Loan Pricing

Best Practice Requires Consistent Measurements

Essential to Manage Strategy, Performance and Risk



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15

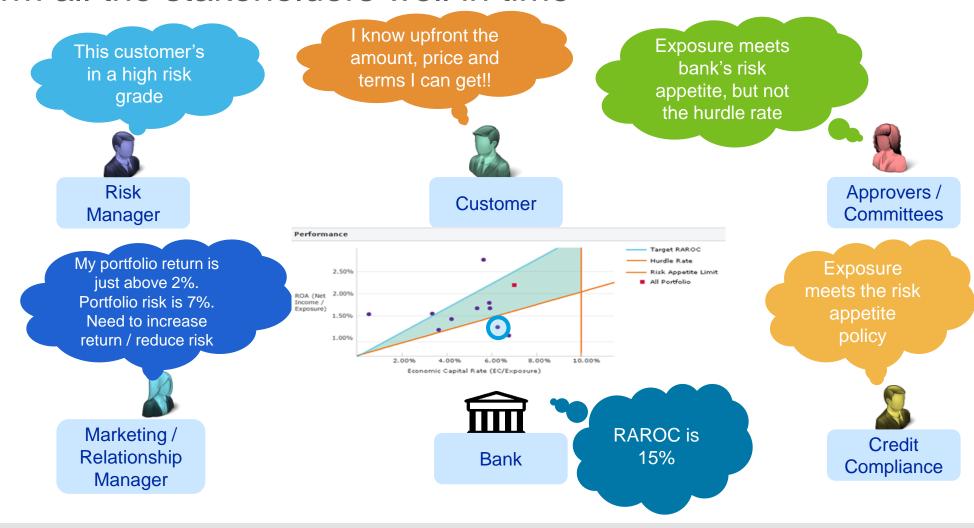
Pieces of the Puzzle

Different requirements of the customer and bank stakeholders

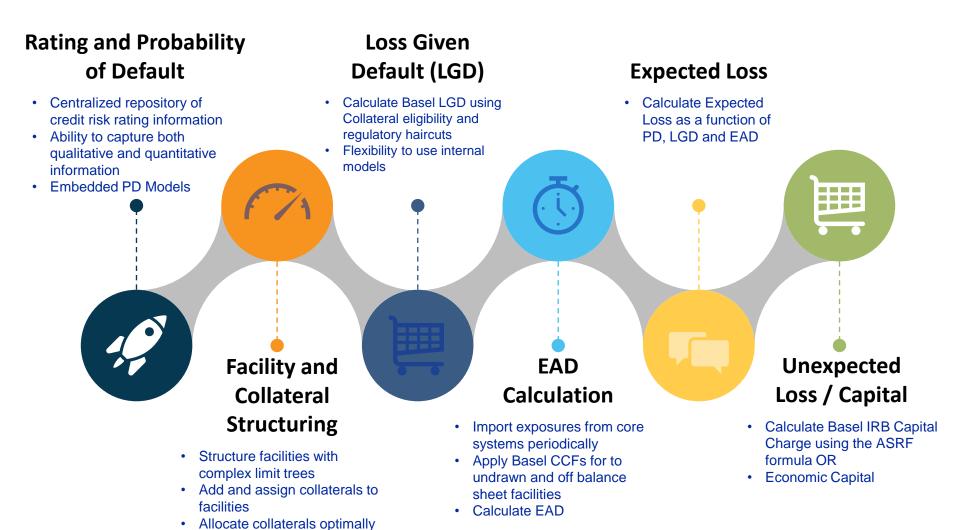


Risk Based Pricing Framework

Inform all the stakeholders well in time



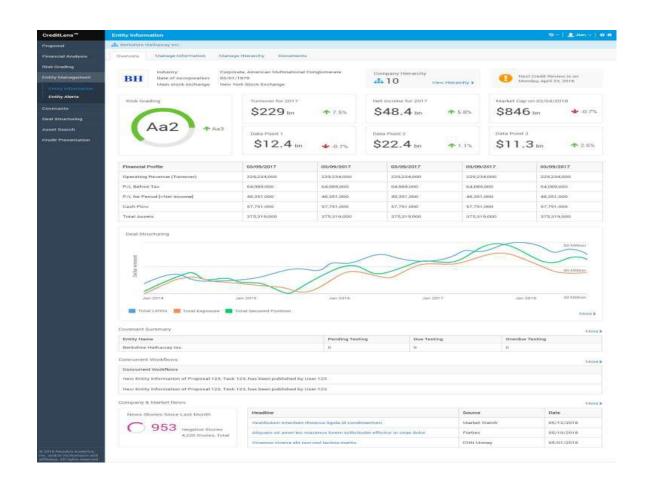
Key metrics Needed for Pricing



Risk Grading

In-depth Assessment of Borrower Health

- » Hierarchical grade distribution
- » Configurable automated model selection
- » Support for multiple scenario's including what-if for stress assessment
- » Extended override classifications
- » Optional business process management control
- » Platform for rapid deployment
- » Pre-built Scorecards or Bank-Specific Internal Rating Models
- » RiskCalc based Scorecard
- » Expert Judgement Scorecards
- » Bank designed or 3rd Party scorecards



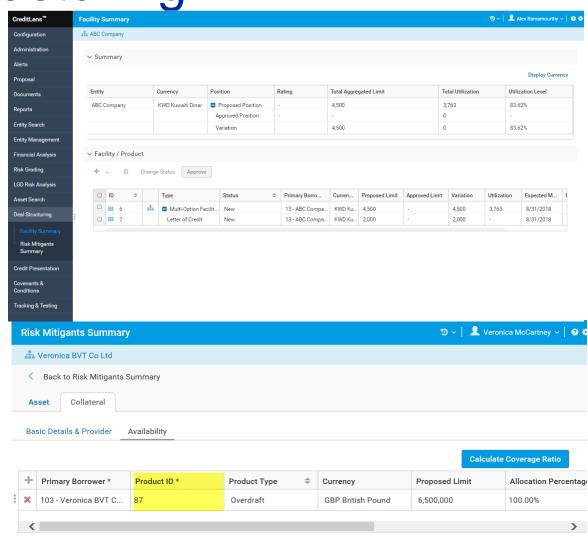
Facility and Collateral Structuring

» Facility Structuring

- Create Facilities and Facility Trees
- Import Facilities from Core Banking or other systems
- Import exposures from core banking and booking systems

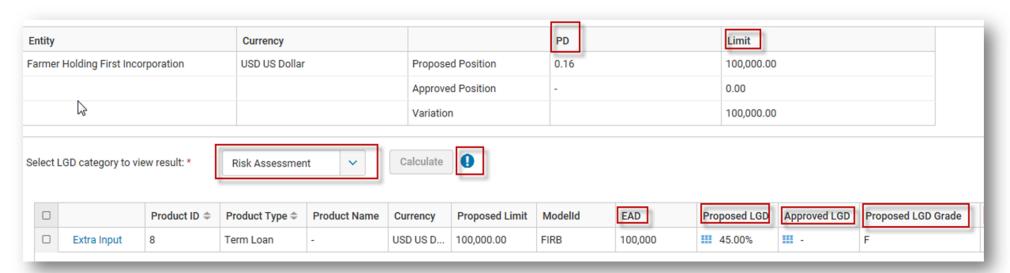
» Collateral Management

- Create or import collaterals
- N to N Allocation of collaterals using prorata allocation or an optimized algorithm



Loss Given Default Analysis

- » LGD analysis natively integrated with deal structuring functionality
- » Provides a configurable framework to create products, collateral and guarantees
- » Leverages Model Authoring Platform to enable easier configuration of client LGD models
- » Incorporates calculation logic for system run calculations
- » Builds business rules for field validations



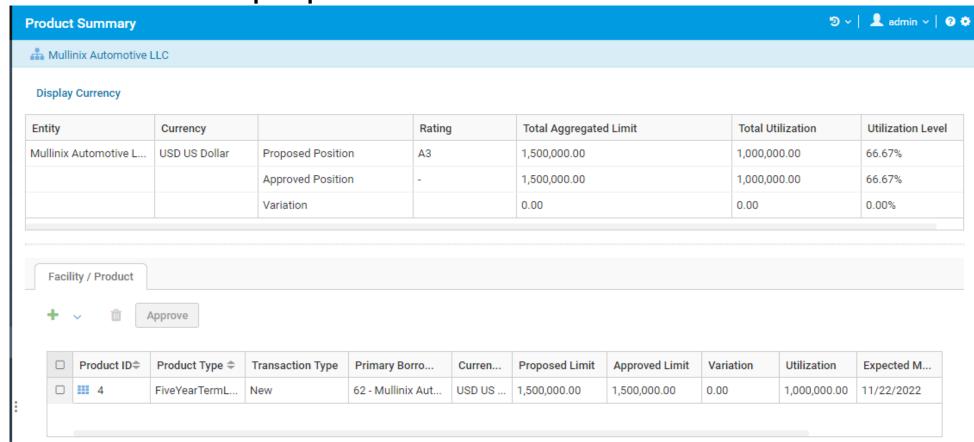
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21

EAD Calculation

Based on the imported utilization of existing limits and the expected utilization level of proposed facilities



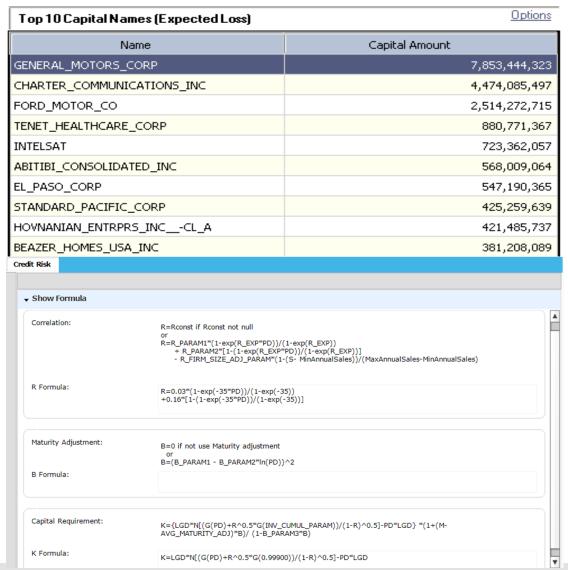
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22

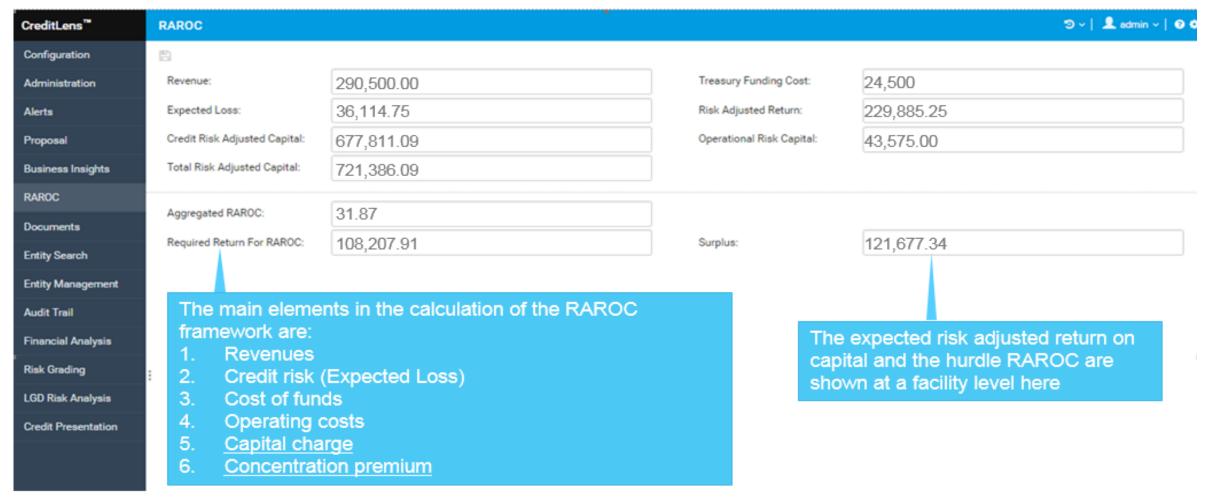
Expected Loss and Capital Calculation

- Expected Loss is a function of PD, LGD and EAD
- For capital computation, the Basel Capital Formula can be applied



Risk Adjusted Performance Management

Achievable at Origination



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24





Questions and Answers

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Thank You

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