# Evaluating Risk Management in the Microfinance Community

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USAID After Hours Seminar Series
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- USAID's Microenterprise Development office (MD) has been working to improve the ability of the microfinance (MF) industry to access commercial capital. As a natural extension of its transition to private capital agenda, USAID launched the **one year MicroRISK Alliance grant in March 2009,** an innovative public private partnership consisting of **three** organizations - **Cygma, MFX Solutions and TriLinc Global**- that aims to identify and promote effective and replicable risk management practices for the MF industry.

- Conan French was identified as an industry expert to coordinate the work of the microRISK Alliance. Conan is a Senior Director at the mobile banking firm OpenRevolution Holdings LLC. Prior to OpenRevolution, Conan was Director for the MD office at USAID and was involved in the MRA inception.

**Learning Network Members:**

- **<u>Cygma</u>** is a provider of comprehensive foreign exchange (FX) hedging solutions to the unique needs of the microfinance and small and medium enterprise industries. Cygma aims to maximize the impact of commercial capital on reducing poverty by facilitating markets for FX hedging in emerging market currencies.

- **<u>MFX Solutions</u> (MFX)** is a new start-up designed to provide education and hedging solutions to the microfinance industry to engender better currency risk management and reduce currency mis-match.

- **<u>TriLinc Global</u>** is a global Social Impact investment firm focused on mobilizing scalable capital and solutions to create maximum economic, social and environmental impact through Small and Medium-sized enterprises and allowing all investors to make a difference without sacrificing return.

- The purpose of a Learning Network is to generate learning that is targeted at key constraints faced by the industry in a given technical area. It also facilitates discussion and learning on different approaches and tools that are being used in the grant program. The aim is to develop innovative approaches to removing the key constraints that are both replicable and scalable.

- Learning networks include a combination of in-person and virtual learning collaboration. A function of the network is to generate opportunities for peer assists between network members, collaborative case studies, and various learning events. The goal of the network is to become an excellent technical resource and exchange between participants and USAID.

The MicroRISK Alliance (MRA) is an innovative partnership model facilitated by USAID. The MRA is designed to engage microfinance risk management practitioners in a collaborative learning process to document and share findings on the risks facing the microfinance industry and help identify effective and replicable risk management practices and innovations.

# The MRA Mission

The MicroRISK Alliance's mission is to identify and promote effective and replicable risk management practices for the microfinance industry by:

- Articulating challenges faced by the industry

- Identifying best practices and guidelines

- Raising awareness of risk management issues

- Partnering with other industry actors

- Informing policy decisions

- Promoting adoption of innovative tools and approaches

# The Work of the MRA

## Accomplishments To Date:

- In-person workshops
- Peer Review of Guiding Principles
- Guiding Principles for Risk Management in Microfinance
- Case Studies
- Innovative risk management tools

## Upcoming Activities:

- Facilitated Online Event (topic TBD)
- USAID Brownbag

**To learn more about the MRA group work, the work of the individual grantees and future activities, please visit**
**www.microlinks.org/mra**

# Introduction to General Principles of Effective Asset Liability Risk Management in Microfinance

Pamela Brown

MicroRisk Alliance

December 2009

# Cygma (www.cygmafinancial.com)

- Cygma developed out of the collaborative efforts of Chatham Financial Corp., a leading capital markets consulting firm specializing in interest rate and foreign exchange risk management, and other leading microfinance players.

- Since 1991, Chatham Financial has advised many of the world's largest real estate and private equity firms, financial institutions, and corporations on their hedging needs.

- The individuals who comprise the Cygma team have experience working in risk management consulting, capital markets, and microfinance.

- Cygma's pricing and analytics specialists have proven expertise in the fields of financial modeling and derivatives as applied to portfolio and transaction-specific risk management.

**Principle 1: Risk management is a shared responsibility among MFIs, investors, and donors.**

- Donors and Investors should understand their MFI clients ability to address balance sheet risk and provide appropriate loan products. Donors and investors should be transparent about the risks and costs of the products they are offering to their clients.

- Donors, Investors, and MFIs should not mitigate their risk by passing it on to their respective clients, who are often less equipped to address it. Failure to do so neglects client welfare while increasing regulatory and political risk for the industry.

- The microfinance industry should actively work to increase the alternatives and information available for measuring and hedging or otherwise mitigating risk.

**Principle 2: Measuring risk is a central part of measuring performance.**

- MFIs should understand their interest rate, foreign exchange and liquidity risks in order to develop balance sheet risk objectives. MFIs should only seek out financing products that are most suitable to meeting those objectives.

- MFIs should actively monitor portfolio risk, including across loan officers, branch offices, demographic variables, loan products, credit yields etc. Such monitoring should also include forecasting and historical analysis.

- MFIs should be cognizant that concentration of credit and balance sheet risk can be masked by healthy portfolio growth during periods of favorable economic conditions, and should maintain capital buffers accordingly.

**Principle 2: Measuring risk is a central part of measuring performance.**

- MFIs should use technology to improve operational efficiency and adopt standard accounting practices to provide transparency to donors and investors on their exposure to these risks.

- MFIs comparing local vs. hard currency loan alternatives should consider the potential impact of additional FX risk in their decision making.

- MFIs and investors should understand the tradeoff between currency risk and credit risk, and consider that when pricing local vs. hard currency loans.

- Asset liability risk management education should be a priority and promoted throughout the industry.

- Balance sheet risk exposure data should be collected and aggregated to allow for industry level analysis on the level of risk the industry is exposed to.

**Principle 3: Adopt a comprehensive approach to managing balance sheet risk.**

- MFIs should establish clear performance objectives, and enact polices which will guide them in achieving these objectives.

- MFIs should set up formal Asset-Liability Committees (ALCOs) responsible for creating a funding plan and managing balance sheet risk.

- MFIs should ensure that they do not compromise underwriting standards to maintain market share or origination volume in the face of market pressures and competition.

- MFIs should understand the extent of material risks they are subject to in cases where loans originated by them are sold to third parties.

**Principle 3: Adopt a comprehensive approach to managing balance sheet risk.**

- MFIs should adopt a risk management framework that includes:
  - development and execution of appropriate risk management strategies;
  - regular assessment of performance against objectives;
  - based on those assessments, feed findings back into iterative framework updates and improved strategies.
- MIVs and MFIs should seek out the most cost-effective tools to measure and mitigate risk including currency and interest rate derivatives and loan portfolio analytical tools.
- MFIs should collect data, store it in a way they can use it, analyze it, and adjust based on what they find to achieve both social and financial objectives.

# MFX Solutions – MRA After Hours and Open House

**Brian Cox**

**December 9, 2009**

**Washington DC**

- Since 2005, a group of industry players (lenders, investors, raters, networks, and foundations) came together to address a critical need for microfinance: a lack of viable hedging solutions to mitigate currency risk and catalyze local currency lending to the most vulnerable.

- The result of this joint effort is MFX Solutions, the first dedicated currency hedging facility created by and for microfinance.

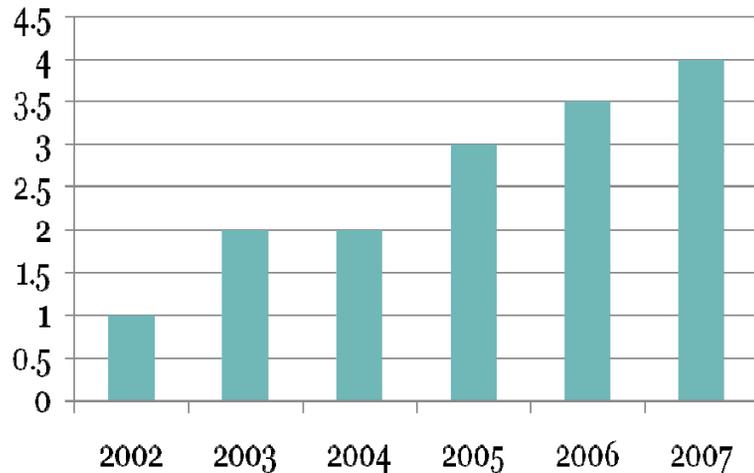### Investors: Major Microfinance Lenders and Foundations



### Grant Funders

- MIVs and IFIs make hard currency loans, while MFIs lend in local currency to micro-entrepreneur customers or pass on the currency risk in the form of dollar indexed loans.

- This pushes currency risk onto the most vulnerable links in the microfinance value chain.



Total Hard Currency Exposure of MFIs Globally (USD Billions)
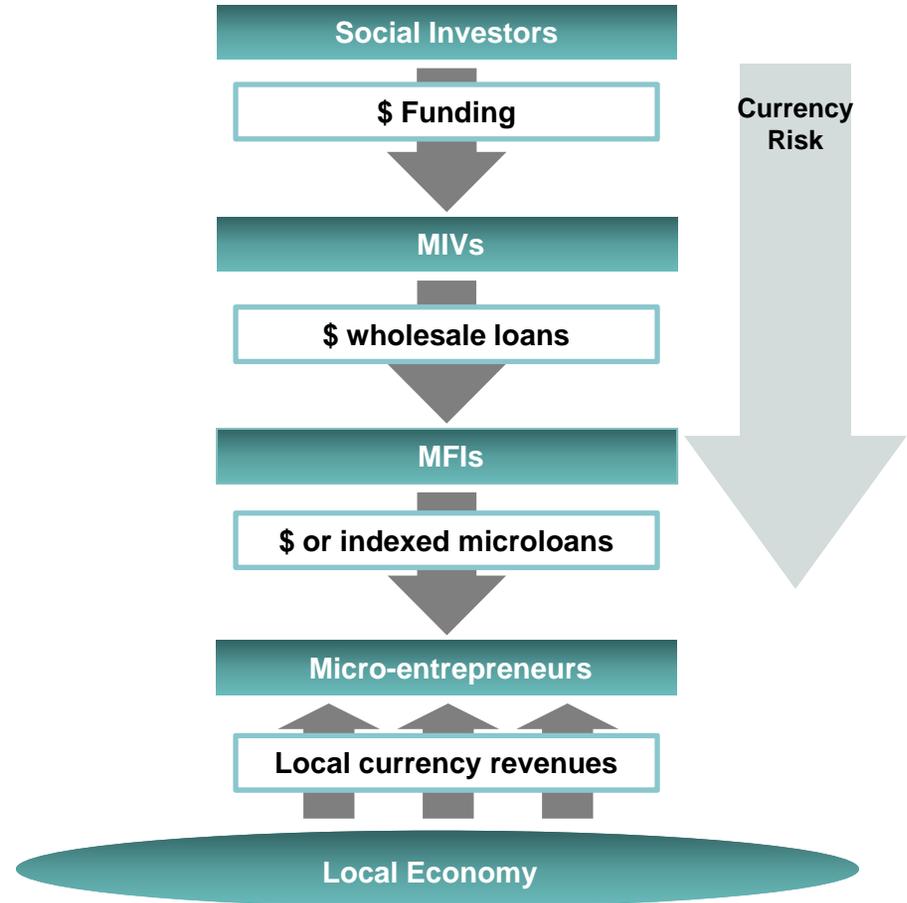


Diagram:

Social Investors
↓ $ Funding
MIVs
↓ $ wholesale loans
MFIs
↓ $ or indexed microloans
Micro-entrepreneurs
↑ Local currency revenues
Local Economy

Currency Risk

**Deutsche Bank EM Index vs. USD (8 yr)**



- Until last year, EM currencies were mostly stable and rising – few MFIs had been through a business cycle

- Last year's shock caught many MFIs by surprise, causing serious impact to balance sheets and credit worthiness

- Going forward, MFIs must be prepared to operate in an environment of increased volatility

- Cross currency swaps, interest rate swaps, and forward contracts geared towards the microfinance industry.

- Hedging services for both MIVs and MFIs:

  - Case 1: MFX provides local currency to the MIV in exchange for USD so it can make a local currency loan to an MFI

  - Case 2: MFX receives local currency from an MFI and provides it with the USD it needs to repay its hard currency loan.

Currency Swap with an MIV
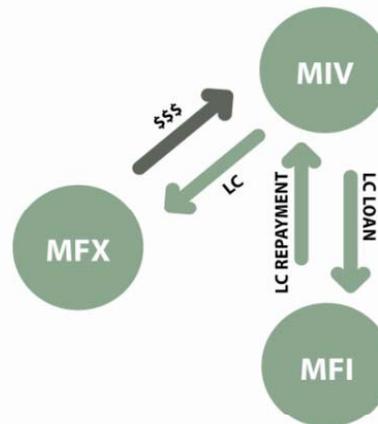
Currency swap with an MFI
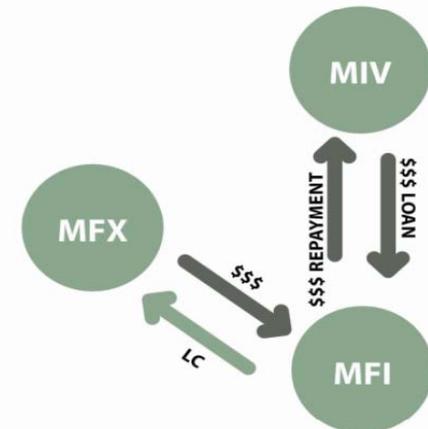
- MFX pairs its hedging products with innovative decision-support tools that help MFIs manage FX and interest rate risk

    - *Tool#1: Liability Planning Tool – users develop funding strategies and stress test against a variety of economic assumptions and regulatory norms*
        - *Developed from USAID and FMO (Dutch Development Bank) grants*
        - *Available for free on MFX's website*

    - *Tool #2: Hedging Calculators allow MIV and MFI managers to better understand how the hedging process works*
        - *Available for free on MFX's website Spring 2010*

- MFX planning tools provide a framework for MFIs and MIVs to work together to manage risk, supporting a more sustainable financial future for microfinance

- MFI enters its own balance sheet data and (multiple) asset growth forecasts

- Models MFI's 5-year funding gap and capital adequacy against different economic scenarios
  - Allows user to test different funding plans and see resulting currency and interest rate risk ratios
  - Economic data (historical and forecast) preloaded and can be modified by user

- Shows compliance with central bank regulations
  - Ideal for MFIs who are considering transformation

- Calculates performance and risk ratios for each scenario
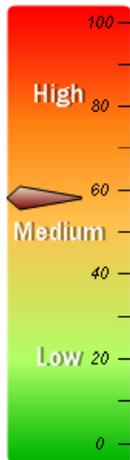  - MFIs can clearly see risk/return trade-offs in terms of ROE, ROA, liquidity, etc.

# Funding Gap Analysis – Scenario Testing

**Funding Gap**

Note : update loan information by using the 'add', 'edit' and 'delete' buttons beneath the loan details

**Fx Exposure**

Q1 2009

| Item | Current 12/31/2008 | 2009 Quarter 1 | 2009 Quarter 2 | 2009 Quarter 3 | 2009 Quarter 4 | 2010 Quarter 1 | 2010 Quarter 2 | 2010 Quarter 3 | 2010 Quarter 4 |
|---|---|---|---|---|---|---|---|---|---|
| Total Assets | 10,500,000 | 10,556,250 | 10,612,500 | 10,668,750 | 10,725,000 | 10,784,063 | 10,843,125 | 10,902,188 | 10,961,250 |
| Liabilities | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Capital | | | | | | | | | |
| Tier 1 | 840,000 | 844,500 | 849,000 | 853,500 | 858,000 | 862,725 | 867,450 | 872,175 | 876,900 |
| Tier 2 | 525,000 | 527,813 | 530,625 | 533,438 | 536,250 | 539,203 | 542,156 | 545,109 | 548,063 |
| FX Gain / (Loss) | | -267,102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net Income after Tax | | -450,216 | -183,114 | -183,114 | -183,114 | 75,000 | 75,000 | 75,000 | 75,000 |
| Loans | | | | | | | | | |
| KES | | | | | | | | | |
| Kenya Lender 1 | 4,683,300 | 4,683,300 | 4,683,300 | 4,683,300 | 0 | | | | |
| USD | | | | | | | | | |
| US Lender 1 | 4,451,700 | 4,718,802 | 4,718,802 | 4,718,802 | 0 | | | | |
| **Funding Gap** | **0** | **218,165** | **169,227** | **120,290** | **-9,330,750** | **-9,382,134** | **-9,433,519** | **-9,484,903** | **-9,536,288** |
| FX Exposure (%) | 95 | 58 | 58 | 58 | 0 | 0 | 0 | 0 | 0 |

Funding Gap Filled:  No

**Loan Details**

Detailed information on every loan. To change the information use the 'add', 'edit' and 'delete' buttons. A popup screen will appear where you can edit every parameter.

To edit or delete a loan : select the row in the grid, and click on the 'edit' or 'delete' button.

| | Amount | Interest Rate | Payments | Starting Date | Maturity Date | Source |
|---|---|---|---|---|---|---|
| KES | | | | | | |
| Kenya Lender 1 | 4,683,300 | Fixed : 16.00% | Bullet - 3 m. | 31/12/2008 | 31/12/2009 | Kenya Lender 1 |
| USD | | | | | | |
| US Lender 1 | 57,000 | Fixed : 6.00% | Bullet - 3 m. | 31/12/2008 | 31/12/2009 | US Lender 1 |

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| | X52 | ▼ | | $f_x$ | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Name of Institution — MFX MFI Bank
Scenario Name — Scenario 1- USD Loan (stable economy)

**Funding Gap**

| | Total Assets | Liabilities | Capital Tier 1 | Tier 2 | FX Gain/(Loss) | Net Income after Tax | Funding Loans Local | USD | EUR | Funding Gap | FX Exposur |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | 10,762,500 | 0 | 861,000 | 538,125 | 2,536,825 | 2,878,080 | 0 | 1,854,875 | 0 | 174,800 | 22.5% |
| 2010 | 11,031,563 | 0 | 882,525 | 551,578 | 0 | 834,142 | 0 | 3,762,500 | 0 | 165,041 | 100.0% |
| 2011 | 11,307,352 | 0 | 904,588 | 565,368 | 0 | 1,205,732 | 0 | 3,762,500 | 0 | -74,836 | 100.0% |
| 2012 | 11,590,035 | 0 | 927,203 | 579,502 | 0 | 1,243,079 | 0 | 3,762,500 | 0 | -320,831 | 100.0% |

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**Financial Highlights**

| | ROAE | ROAA | Portfolio Yield | OS | FS | Cost Funds | Currency Mismatch | Interest Rate Risk |
|---|---|---|---|---|---|---|---|---|
| 2009 | 8.27 | 0.66 | 5.02 | 86.67 | 86.67 | 3.40 | 215.43 | -50.53 |
| 2010 | 23.92 | 1.91 | 5.02 | 129.75 | 129.75 | 2.02 | 1,106.20 | 38.10 |
| 2011 | 33.73 | 2.70 | 5.02 | 189.55 | 189.55 | 1.18 | 1,073.22 | 38.10 |
| 2012 | 33.93 | 2.71 | 5.02 | 194.28 | 194.28 | 1.18 | 1,052.90 | 38.10 |

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**Formulas**

| | |
|---|---|
| ROAE | Income after Tax / ( ( Equity at begin of period + Equity at end of period ) / 2 ) |
| ROAA (Return on Average Assets) | Income after Tax / ( ( Total Assets at begin of period + Total Assets at end of period ) / 2 ) |
| Portfolio Yield (on Average Assets) | Interest Income on Loans / ( ( Total Loans at begin of period + Total Loans at end of period ) / 2 ) |
| OS (Operational Sustainability) | Interest Income / ( Interest Expenses + Operating Expenses) |
| FS (Financial Sustainability) | Interest Income / ( Interest Expenses + Operating Expenses) |
| Cost of Funds Ratio | Total Financing Cost / Average Funding Liabilities |
| Currency Mismatch as % of Equity | (Foreign Assets – Foreign Liabilities) / Equity |
| Interest Rate Risk | (RSA – RSL ) / Total Assets |

- In Q3 2008 widespread devaluations in EM currencies caught many MFIs by surprise.
- Those with currency mismatch faced lower earnings and higher debt servicing costs.

**EXAMPLE: INDONESIA JUL-DEC 2008**

**July 31, 2008**
**Indonesian Rupiah/USD Rate: 9090**

| % of Total Liabilities | |
|---|---|
| 35.8% | USD Debt |
| 46.5% | Local Rupiah Funding |
| 17.7% | Equity |

USD debt/equity: 2.0
Status: Creditworthy

**IDR Depreciation 22.3%**

**December 31, 2008**
**Indonesian Rupiah/USD Rate: 11,123**

| % of Total Liabilities | |
|---|---|
| 43.8% | USD Debt |
| 46.5% | Local Rupiah Funding |
| 9.7% | Equity |

USD debt/equity: 4.5
Status: Not creditworthy

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# TriLinc Analytics Systems (TAS)

*Formerly Portfolio Analytics Expert Systems (PAES)*

Robert Mora

# Introduction

- PAES, Inc.'s flagship product, the Portfolio Analytics Expert Systems (PAES) was developed to offer a suite of analytics that gives institutions in emerging markets the deep insight into portfolio behavior and decision making ability that their peers in advanced markets enjoy.

- PAES joined a public-private alliance with USAID, together with Cygma and MFX, to promote innovation and learning for risk management in the microfinance sector under purview of USAID's microRISK Alliance.

- PAES, Inc. was acquired by TriLinc Global, LLC, a global social impact investment firm focused on high-impact entrepreneurs generating a triple bottom line return. PAES became TriLinc Analytics Systems (TAS).

- As a member of the microRisk Alliance, we are currently working on:
    - Guiding principles and relevant case studies for the microenterprise industry.
    - An online collaborative information sharing internet portal.
    - A full-fledged demo of TAS for MFIs what will share features and capabilities of the tool as part of a practical exercise in risk management.
    - A comprehensive database of articles, white papers, presentations and other material that is representative of the current state of knowledge regarding risk for microenterprises.

- Microfinance Institutions (MFIs) require timely and meaningful metrics to gauge institutional performance, and deploy a range of data analytical capabilities to that end.

In our experience, MFIs typically have the ability to collate raw data to generate:

- Periodic accounting (P&L and balance sheet) summaries
- Delinquency and prepayment summaries
- Performance ratios
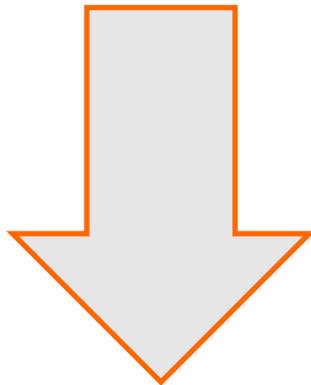
Virtually all MFIs, however, often have very limited or no capability to discern:

- Portfolio risk concentrations,
- Relative profitability and performance of product lines and branch offices
- Change in portfolio characteristics over time

The difficulty in generating such information increases exponentially with size.

- Features of TAS:
  - **Clear Identification of Risk:** TAS clearly identifies granular loan-level risk and encourages a comprehensive view of risk management activities.
  - **Performance Analysis:** TAS monitors portfolio metrics and risk factors across branches, loan officers, loan products, demographics, etc.
  - **Strong Visual Component:** TAS utilizes graphs, charts, and color coded visuals to quickly communicate important information.
  - **Early Warning Capability:** Users alerted immediately to portfolio changes exceeding preset parameters.

- TAS is easy to use:
  - **No Hardware or Software Needed:** In order to make TAS as easy to use and implement as possible, data is loaded periodically to the TAS system, processed, and reports/analytics are generated to be accessible to secured users over the web.
  - **Internet Connection is All You Need:** As long as data can be transmitted e.g. via FTP in a standard format, users can log in via the internet to see their reports and indicators.
  - **Very Intuitive:** TAS utilizes point and click interface with clear visuals and descriptions and requires very little training.

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Customer Data
Unclean data
Clean Verify and correct
Clean data
TAS Database
Categorization    Correlation    Prediction
Assessment Reports, Evaluation, Base lining, Metrics, etc
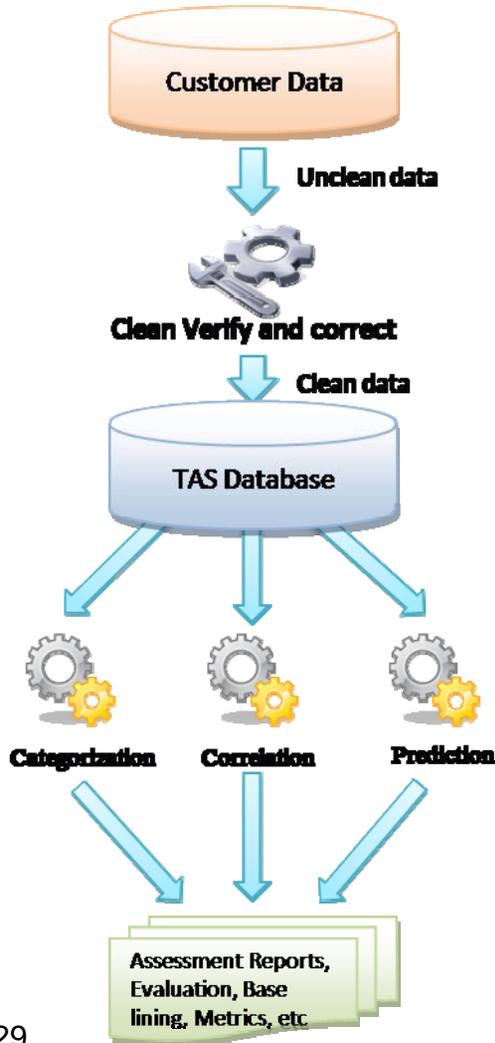
1. The TAS team works with the MIS team to gather loan portfolio data such as loan, client, and transaction histories. The information is collected in raw format.

2. Data undergoes extensive cleaning and verification. It is checked for inconsistencies, missing fields, truncations, and other anomalies. Such errors are corrected, if possible, by taking underwriting standards and portfolio management practices into account.

3. The data is harmonized to a common TAS data structure, through which all metrics and parameters are standardized according to predetermined definitions (driven by the standards used by Rating Agencies).

4. A battery of statistical techniques is applied to the harmonized data. System's proprietary algorithms can be classified as:

   a) *Categorization techniques* -> understanding portfolio characteristics and risk factors at the aggregate level and providing initial indications of portfolio trends, distribution, and risk concentrations.

   b) *Correlation techniques* -> identifying and understanding correlation between portfolio factors. Determining statistically relevant risk drivers (delinquencies, write-off, prepayments).

   c) *Predictive Techniques* -> application of statistics, data mining, pattern recognition, and machine learning techniques to analyze current and historical data.

5. Provide consistent and explicit metrics that allow better risk management by linking risk evaluations with portfolio characteristics.

   a) Evaluate and compare loan office and loan officer performance.

6. Monitoring: Provide baseline analytics.

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# TAS Dashboard



- Panoramic Overview of Portfolio
- Graphical Indicators of Performance
- Hundreds of Summary Reports available in PDF or XLS

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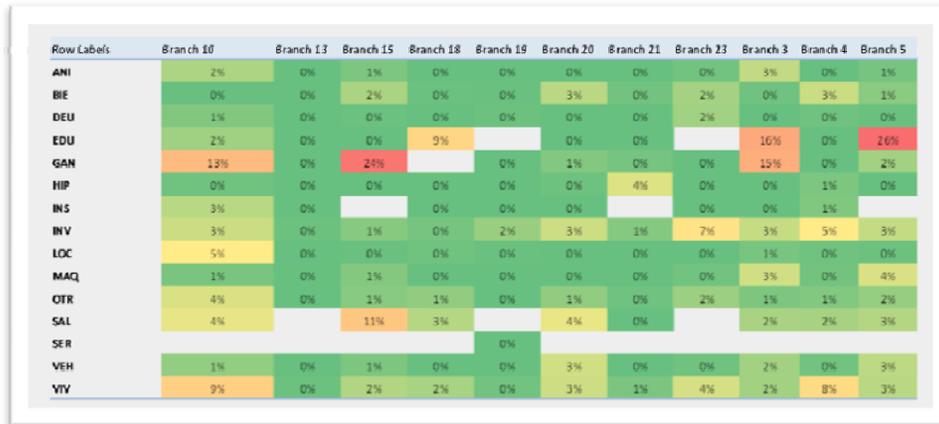
- Color coded Heatmaps highlight areas of the portfolio that are normal (green), somewhat abnormal (yellow), and significantly outside of parameters (red alert).

- Tables and graphs rank categories and graph data over time

- Hundreds of possible reports, tables, and charts prepared real-time, saving countless labor hours and reducing human error.

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# Benefits of TAS

- TAS Dual Mission Reporting:
  - **Provides Detailed Financial as well as Demographic Reports:** Microfinance and other social investments have financial as well as social missions.
  - **Financial Reports:** Detailed financial metrics including portfolio growth, composition, PAR30 delinquency, economic sectors, branches, loan officers, current as well as over time, using graphs, box plots, etc.
  - **Social Reports:** Instant reporting on demographic composition of the MFI's portfolio including gender, education, geography, profession, etc

- Benefits to Key User Segments:
  - **Microfinance Institutions (MFIs):**
    - Powerful Reports – For risk management, operations management, as well as for raising capital from and complying with investors, donors, and regulators.
    - Cost Effective – No additional hardware/software needed, reports and data processing automated, save resources on extra personnel and facilitates faster scalable growth.
  - **Donors/Investors/Regulators:**
    - Portfolio monitoring, transparency, and detailed standardized reporting to better evaluate risk, performance, and mission objectives

# Contact Information

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- Robert Mora, Program Manager
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- Have you seen changes in donors/investors approach to managing risk?

- When risk management is identified, how have you or your organization addressed it?

- What tools have you used, and seen others use, that identify risk?

# THANK YOU!

Please visit www.microLINKS.org/afterhours
for a seminar screen cast and event summary.